POSER 5 Reference Manual for Windows®

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A MESSAGE FROM LARRY WEINBERG

In the 1980's, my secret ambition was to become an illustrator, to draw like the great old masters. But something was lacking in my brain that kept me from being able to visualize my characters' complex poses. I knew what I wanted to draw, and I knew what was great when I saw it, but starting from a blank page just never worked. I dropped into my local art supply shop and bought one of those little wooden mannequins that I thought would be my friend. He wasn't very nice to me and never did what I asked of him. I quickly became determined to put him out of a job and thus set out to build the world a better mannequin. At the time, I was programming and animating in Hollywood, mostly for Rhythm and Hues Studios. I had built up a wealth of 3D math and computer graphics knowledge. Why not make a digital mannequin? So, while giving life to flaming match characters, Mr. Peanut, and billowing sheets of fabric softener during my day job, I began creating Poser at night.

All I wanted was a simple visualization tool, one that would be easy to pose with and quick to use for any artist. I wasn't yet thinking about high quality rendering, shadows, animation, textures, or anything else. But Poser, like old John Henry, had a mind of its own. Poser 1 was released in 1995, and grew quickly. I knew Poser could be a useful tool but the response was overwhelming and the art it helped create was mind blowing.

Poser 2 followed in 1996. The community kept growing and diversifying, with people beginning to incorporate Poser into scientific, medical, architectural, CAD, theatrical, and dance-based projects and presentations. Ideas kept pouring in as more and more people joined the Poser community. Poser 3 was released in 1998 and included a new friendlier interface, more rendering powers, new content, and many new features. Poser 4 followed in 1999.

The following that Poser attracted continues to amaze us all, as does the community's ongoing diversity, creativity, talent, and passion. The Poser artists and modelers of the world have pushed far beyond anything I thought possible. Poser has been used in award winning character animations, as design for huge sculptures, for comic books, for medical illustration and instruction, for legal reconstruction, and for unleashing the kind of astounding images that, well, move us all.

So here we are, three years onward. Curious Labs has taken Poser's reigns. Our team began looking at where Poser and human simulation could (and should) continue growing. We knew we needed to remain committed to making products that would be easy enough for every artist to use. We also knew we needed to integrate our capabilities with the world of professional 3D graphics productions and with the new emerging Web-deployable technologies. Poser 4 Pro Pack was born of these needs, allowing Poser scenes and characters to be hosted inside high end professional packages such as 3D Studio MAX, Lightwave, and Cinema 4D. We also added Macromedia Flash and Viewpoint Experience Technology capabilities for real time display via the Web.

Today, Poser 5 represents a huge level of growth for Poser and a courageous effort by many extremely talented and motivated professionals. Believe me, Poser is no longer written by me coding alone into the night. It's a major new release that is the culmination of the work of a very talented group that spans the globe.

While streamlining some of our interface, we've integrated a large database of scanned human heads into a phenomenal face-designing environment. We added realistic rendering capabilities far beyond Poser 4's, with the

ability to create networks of complex shading nodes for unlimited textures and materials. We also added physical simulation of cloth and hair. By combining these new powers with a new suite of human models and poses, and a new portal to allow people to find content on the internet, Poser 5 should, well, change the world—again.

Each of us at Curious Labs sees what we do as a labor of love. Poser could never have gotten this far without each and every one of our dedicated staff. And, Poser could certainly never have evolved this far without the involvement of the Poser community, who has supported our efforts with enthusiasm, forum inundations, email blasts, contributions to the product, and a stream of unbelievable images.

Thanks to everyone who has touched or been touched by Poser.

Larry Weinberg

CEO & original Poser creator, Curious Labs, Inc.

A MESSAGE FROM STEVE COOPER

Telling stories is a rich human tradition, likely as old as our species, and nearly as critical to our culture as food. Stories convey humankind's spirit, beliefs, mysteries, myths, legends, processes and cumulative experiences. There's a magic behind story telling, a spark that, when it shines bright, catches us and delivers us from our worries and troubles. A good story moves us. Its characters can both entertain and show us the way; it makes us laugh, and can even inspire us to create stories of our own.

Some of us already are storytellers. Writers, artists, filmmakers, musicians, and performers all enter into a relationship with their stories, and they present them to the world, bringing them to life. Some of us desire to become storytellers. Our lives have a duality, day to day rituals balanced against the dream of stories that grow in our souls, aching to be brought to life.

I see Poser as a tool for telling one's story, whether it be the by-product of a desire or the requirements of a profession. It has evolved into a tool that tears down the perceived barriers to many aspects of storytelling by providing access to a mysterious realm, pulling back the curtain to reveal the digital puppeteer, and clearly mapping the levers and strings of a virtual marionette. Poser provides a spade, seeds, and earth. Our users are the gardeners, and their stories are the flowers that spring forth.

Poser's marionettes are 3D virtual actors that you direct on a virtual 3D soundstage that is complete with lighting, cameras, props, and access to a community of craftsmen that can supply nearly every element of nearly any era, whether modern, historic, or fantasy. The virtual actors are costumed to match those periods, composed into scenes on stages dressed with appropriate details, then rendered into the images and animations that form the visual reference points for any story.

Poser's success has grown from its humble beginnings as a digital manikin to its transformation into a complex virtual human used by researchers and scientists, illustrators, filmmakers, set designers, criminologists, animators, comic book artists, industrial designers, architects, and hobbyists. An important lesson we've learned is that the users of Poser defy easy categorization: The only common generalization that fits is that of storyteller.

I hope you find creative success, that inspiration for your story comes quickly, and that Poser is as magical for you as it is for us.

Steve Cooper

President, Curious Labs, Inc.

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PART 1

Introduction

Chapter 1: Welcome to Poser 5!

hank you for purchasing Poser[®] 5 by Curious Labs. If you've never used Poser before, welcome! Are you upgrading from an earlier version of Poser? Welcome back! Poser 5 is the premiere 3D-character design and animation tool. Artists and animators can create 3D scenes from a diverse collection of ready-to-use 3D human and animal models quickly and easily using its intuitive interface. Poser 5 builds on its predecessors by allowing you to map facial photos to create realistic 3D portraits, grow and style real spline-based hair, and create dynamic cloth objects to add extraordinary realism to your scenes. You can create stills and animations and can quickly output movies and images for use in Web, print, and video projects. You can also export posed figures as 3D objects to add life to scenes created in other 3D applications. 3D novices, digital artists, and hobbyists alike can use Poser 5 to quickly create breathtaking results!



NOTE

YOUR POSER 5 CD CONTAINS POSER VERSION 5.0.2. THIS REFERENCE MANUAL HAS BEEN UPDATED TO REFLECT THIS NEWER VERSION.

WHAT'S NEW IN POSER 5

Poser 5 is loaded with new features, including:

MATERIAL ROOM

Poser 5's new **Material** room lets you create materials using shaders. Shaders are comprised of one or more *nodes*, each of which controls an aspect of the final material. Combine procedural shaders with Poser's new FireFly rendering engine and create truly stunning results! Also, Poser 5's **Library** palette has been updated to include a **Materials** category, allowing you to save your shaders. Please refer to Part 8: "Materials" on page 305 for more information about the **Material** room and to "Library Palette" on page 53for more information about the **Library** palette.

FACE ROOM

Want to create a virtual you? Friend? Poser 5 allows you to realistically map any face onto a 3D head using the **Face** room. Poser 5 does this by using two photographs (front and side) of the face you wish to map and a pre-existing head object that can be modified to fit the photographs. You can also create/modify faces using the **Face Shaping** tool and/or **Face Shaping** parameters. You can even create custom textures. Please refer to "Face Room" on page 56 for more information about the **Face** room.

HAIR ROOM

Grow actual 3D hair for figures and props in your Poser 5 scene using the new **Hair** room! You specify the target vertices for the hair and control how it grows (length, etc.). Once you've grown hair, you can style it and apply dynamics such as gravity and wind force fields to create realistic effects during animations. Please refer to "Hair Room" on page 57 for more information about the **Hair** room.

CLOTH ROOM

The **Cloth** room allows you to convert an object into realistic, fully dynamic cloth. You can control how the cloth behaves and interacts with figures and other objects in your scene. You can even use wind force fields to create realistic wind effects! Please refer to "Cloth Room" on page 58 for more information about the **Cloth** room.

SETUP ROOM

The **Setup** room is where you define a *bone* structure for the figure and attach these bones to specific parts of the figure's geometry (such as a leg bone to a thigh). The bone structure and its grouping with portions of the geometry is what enables a Poser figure to bend. The **Setup** room allows you to interactively create custom Poser figures from imported props (geometries) or modify existing figures. Experienced and novice figure builders alike will find that the **Setup** room dramatically decreases the time it takes to create or modify figures. Please refer to "Setup Room" on page 59 for more information about the **Setup** room.

CONTENT ROOM

Want to get additional Poser 5 content? Poser 5's **Content** room hosts **Content Paradise**, which is your gateway to leading online marketplaces where you can purchase, download, and install new figures, props, textures, and more for use in your scenes. You can search for, purchase, and download content from multiple marketplaces using a simple friendly interface. Best of all, Poser 5 can detect and install many types of content automatically! Please refer to "Content Room" on page 60 for more information about the **Content** room.

NEW RENDER ENGINE

In addition to the Poser 4 render engine, Poser 5 includes the completely new FireFlyTM micropolygon-based rendering engine for incredible realism. FireFly gives you control over the rendering process and supports both raytracing and shader trees created in the new **Material** room (see above). You can select **Draft** or **Production** render modes, allowing you to save time when creating test renders while allowing you to create fully realistic final renders. Poser 5's new consolidated render controls allow you to access both

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the Poser 4 and FireFly render engines from a single dialog. Please refer to Chapter 47: "Using The FireFly Render Engine" on page 345 for more information about the new FireFly render engine and to Chapter 46: "The Render Options Window" on page 341 for information on the **Render Options** window.

MORPH PUTTY TOOL

Poser 5 introduces the **Morph Putty**TM tool, which allows you to sculpt morph targets visually and see the results in real time as you work. You can select which of the available morph targets to include or exclude from the sculpting process and can "pin" object vertices once you've got them where you want them to avoid making accidental changes later. Please refer to "Morph Putty" on page 175 for more information about the **Morph Putty** tool.

PYTHON SCRIPT SUPPORT

Python is an object-oriented scripting/programming language that is rapidly gaining in popularity because of its power, flexibility, and extensibility (such as the PoserPython extensions included with Poser 5). PoserPython scripts allow you to directly communicate with Poser's internals through a Python API, allowing you to manipulate scene objects via programming and export data for your own use. Please refer to Part 7: "PoserPython" on page 295 for more information about PoserPython.

COLLISION DETECTION

In 3D posing and animation terms, a collision occurs when one object in a scene touches and/or penetrates another. Poser 5 offers three levels of collision detection for each scene: **Collision Detection** prevents objects from colliding, **Show Collisions** visually displays collisions without fixing them, and **Allow Collisions** disables collision detection. You can also turn collision detection on/off for each object in a scene using that object's Properties palette. Please refer to "Collision Detection" on page 142 for more information about collision detection

NEW CONTENT

Poser 5 includes all new high-quality figures and hundreds of pieces of new content for you to work with, allowing you to create a wide array of scenes. Open the **Library** palette and check out the new people, animals, props, and shaders included with Poser 5!

NEW EXPORT FORMATS

Poser 5 supports the following additional export formats:

- Viewpoint Experience Technology: Viewpoint Experience Technology is a powerful 3D Web format that delivers interactive photo-realistic 3D content via a Web browser equipped with the free Viewpoint Media Player plug-in available from http://www.viewpoint.com. This plug-in and format features scalable performance, allowing it to be viewed by users with a wide variety of computers and Internet access. Viewpoint Experience Technology also supports the use of animation sets, which allow end viewers to trigger various individual pieces of the animation.
- Macromedia Flash: Macromedia Flash is a popular 2D format most commonly used for animating Web content. You can export your Poser scene file to the Flash format (.SWF) and then use the Macromedia Flash application to modify the file. Flash presentations are normally viewed directly within Web browsers using the Macromedia Flash plug-in.

OTHER NEW FEATURES

- Hierarchical Libraries: Previous versions of Poser stored Poser content under the
 Poser\Runtime folder. Poser 5 now includes the **Download** folder, which can be used
 to add content obtained using the **Content** room. You can also add external content
 folders to your **Library** palette. Please refer to Chapter 24: "The Poser Library" on
 page 126 for more information.
- Updated Hierarchical Parameters Palette: Poser 5 incorporates a new hierarchical Parameters palette, which allows you to arrange morph and transformation dials into groups and subgroups and expand/collapse groups as needed. No more scrolling through long morph lists! Having morph dials where you want them will speed up your scene creation time. Object parameters and properties appear in the same palette but are treated as separate entities throughout this manual for clarity. Please refer to "Parameters Palette" on page 52 for more information about the Parameters palette.
- Updated Properties Palette: Having each object's properties available in a central location makes it easier for you to work with them in your scenes. Object properties and parameters appear in the same palette but are treated as separate entities throughout this manual for clarity. Please refer to "Properties Palette" on page 53 for more information about the **Properties** palette.
- Real World Units: Poser 5 supports real world units (inches, feet, millimeters, centimeters, and meters) along with Poser grid units. You can now precisely control your scene using actual distances, making posing and animation far more accurate.

- Motion Blur: As you probably know, fast-moving objects appear blurry. The blur is
 caused by the fact that our eyes cannot "refresh" quickly enough to see that the object
 is no longer in its previous location. The new Motion Blur feature allows you to give
 your animations the illusion of motion, adding a whole new dynamic and level of
 realism to your renderings.
- Animation Sets: Animation sets are named groups of animations covering selected
 figure/prop elements and parameters over a given range of animation frames. They are
 used when exporting Viewpoint Experience Technology animations. Viewers
 accessing Viewpoint files can toggle each animation set on and off. Animation sets are
 also useful for saving animations for use on other figures. This can save time when
 animating figures, especially if you have saved a complex set of motions.
- Compressed File Support: Poser 5 allows you to compress saved figures/props/scenes to save hard drive room using Zlib compression.
- *Direct Manipulation*: The new **Direct Manipulation** tool allows you to visually adjust an object's position, orientation, and scale.
- *View Magnifier*: The new **View Magnifier** tool allows you to zoom in and out of your scene without having to move your currently selected camera.
- Redesigned Group Editor palette: The Group Editor palette has been redesigned to accommodate Poser 5's Hair and Cloth rooms.
- Added In-room Help: Poser 5 includes HTML Help in the various rooms to assist you in learning and working with Poser 5.
- *Content CD*: Poser 5 includes a second CD loaded with additional content for use in your Poser scenes.

INCLUDED DOCUMENTATION

Poser 5 includes the following documentation:

Poser 5 Reference Manual: This Reference Manual has been rewritten and Poser 5 features added. It is included in both hard copy and in electronic PDF format on your Poser 5 CD. Selecting Help>Poser 5 Help within Poser 5 will also launch this manual.



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- Quick Reference Card (QRC): The QRC is a fold-out reference that briefly describes key Poser features and includes a comprehensive list of Poser5 keyboard shortcuts.
- Poser 5 PoserPython Methods Manual: This manual contains an organized listing of each PoserPython method available in Poser 5. It is included in PDF format on your Poser 5 CD and is also accessible from within Poser 5 by selecting Help>PoserPython Methods.
- Poser 3 Advanced Tips & Tricks: This manual describes the text-based (pre-Setup room) method of creating custom Poser figures from geometry objects. While this old method is still supported, Curious Labs strongly recommends that figure creators use the Setup room when creating custom figures as this can save over 90% of the time required using previous methods. This manual is available on your Poser 5 CD in the Documentation folder.

SYSTEM REQUIREMENTS

- Windows 98, 2000, ME or XP
- 500MHz Pentium class or compatible (700Mhz or greater recommended)
- 128 MB system RAM (256MB or greater recommended)
- 24-bit color display, 1024 x 768 resolution
- 500 MB free hard disk space
- Internet connection required for Content Paradise

OTHER CURIOUS LABS PRODUCTS

Check out these products from Curious Labs:

• Avatar Lab: Create custom avatars, bring them to life, and use them to explore and communicate with others in these online worlds. Your Web avatar can even have your own face! Create a custom 3D head simply using a front and side photograph of anyone you choose. Avatar Lab's intelligent face-mapping technology does the rest. Piece together pre-made body parts. Scale each part, and apply custom colors and materials to them. Avatar Lab's pre-made content allows thousands of avatar combinations. Add personalized faces, and the possibilities are endless!

WHEN YOU HAVE QUESTIONS

As you begin using Poser 5 for your 3D projects, you'll undoubtedly have questions or want to network with other Poser artists. You're not alone! There are many resources available for Poser artists. Here are just a few:

NEED HELP?

Poser 5 includes the **Help** menu, which serves to answer most of your questions while using the application:

- *About*: Selecting **Help>About** displays the Poser 5 version and copyright information. This option will be useful if you need to obtain technical support, since the Technical Support representative will need to know this information.
- Poser 5 Help: Selecting Help>Poser 5 Help opens the electronic version of this Reference Manual.
- Tutorials: Selecting Help>Tutorials opens the Curious Labs Tutorials page in your
 Web browser. Check back often as we will be updating this site regularly! You will
 need an Internet connection and a Web browser in order to access the tutorials.

CURIOUS LABS RESOURCES

- Online Support: For technical support, customer service, downloads, and to visit the Curious Labs Poser community and gallery, visit us at http://www.curiouslabs.com.
- *To Learn More*: If you'd like to learn more about Curious Labs, visit us at http://www.curiouslabs.com/aboutUs/aboutus.html.
- Contacting Technical Support: If our Web Knowledge Base does not resolve your situation, please email us at tech@curiouslabs.com. Please refer to Appendix A: "Technical Support" on page 366 to view our technical support policy.
- *Sales*: You may reach our sales department by emailing sales@curiouslabs.com.
- Other Links: Selecting Help>Curious Lab Web Links or Help>Other Web Links within Poser lists other valuable online resources.

THIRD-PARTY FORUMS

You may also visit third-party Poser forums such as:

- Renderosity: http://www.renderosity.com
- 3D Commune: http://www.3dcommune.com
- RuntimeDNA: http://www.runtimedna.com
- *Poser Forum*: http://www.poserforum.net
- *Bbay*: http://www.bbay.com
- Animotions: http://www.animotions.com
- Poser Pros: http://www.poserpros.com
- Morph World: http://www.morphworld30.com
- Poser Arcana: http://www.poserarcana.com



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OTHER IMPORTANT RESOURCES

Visit the following sites to learn about some of the applications and technology supported by Poser 5:

- http://www.viewpoint.com: Home of Viewpoint Experience Technology and the Viewpoint Media Player 3D Web format.
- Python resources: The following is a small sample of the ever-growing body of online and hardcopy information concerning the Python scripting language:
 - The basic Python interpreter (which allows you to write your own Python scripts for any desired purpose) as well as many in-depth documents and links to other online resources is available for free download at http://www.python.org.
 - For beginning Python programmers, particularly those with little or no former programming knowledge, try *Teach Yourself Python in 24 hours* by Ivan Van Laningham. This book is published by SAMS, a division of Macmillan USA, 201 West 103rd Street, Indianapolis, IN 46290 USA; ISBN # 0-672-31735-4; Library of Congress Catalog Card Number 99-65588.
 - Learning Python (Help for Programmers) by Mark Lutz, David Ascher, and Frank Willison (editor); O'Reilly & Associates; ISBN # 1-565-92464-9
 - Python: Pocket Reference by Mark Lutz, Gigi Estabrook (editor); O'Reilly & Associates; ISBN # 1-565-92500-9

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• *Python Reference Manual Release 1.5.2* by Guido Van Rossum (Python's original creator) and Fred L. Drake, Jr. (editor); ISBN: 1583483748

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This manual covers the Windows version of Poser 5. For clarity, it uses several notational conventions to present information of special importance.

Lists of items, points to consider, or procedures that do not need to be performed in a specific order appear in bullet format:

- Item 1
- Item 2

Procedures that must be followed in a specific order appear in numbered steps:

- 1 Perform this step first
- 2 Perform this step second

Specific keyboard keys are depicted in square brackets and are capitalized. For example: [ESC]. If more than one key should be pressed simultaneously, the notation appears as [KEY1]+[KEY2], for example [ALT]+[F4].

Screen prompts, menu and window names, fields, buttons, boxes, etc. appear in **bold** type. Where you need to access a palette, command, or submenu, the syntax is

Menu>Submenu, For example File>Save As means you should open the File pull-down

Menu>Submenu. For example File>Save As means you should open the File pull-down menu and then select Save As to open the Save As dialog box.

Program and script code appears in standard Courier font, for example: cd\letters\business\legal [ENTER]



NOTES DETAIL TIPS, TRICKS, AND OTHER IMPORTANT INFORMATION.



WARNINGS ALERT YOU TO POTENTIALLY HARMFUL CONSEQUENCES SUCH AS DATA LOSS.

Chapter 2: Installing Poser 5

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INSTALLING POSER 5

Installing Poser 5 is a straightforward process. Before inserting your CD, be sure to save any work in progress and close all running applications, including virus-checking utilities and other "background" software. Having this "clean" environment will help the installation process proceed smoothly and will prevent any loss of data in the highly unlikely event of a problem. To install Poser 5:

- 1 Read, understand, and agree to the Poser 5 EULA (above).
- 2 Open your Poser 5 CD holder and insert the **Application** CD into your CD drive. The Poser 5 installer will start automatically. If it does not, select **My Computer**, right-click your CD drive and select **Explore**, then double-click the **Setup.exe** icon in the window that appears.
- **3** The **Welcome** screen appears with additional information about the installation process. Be sure to read this information, then click **Next** to continue.
- 4 The Poser 5 Readme.txt file displays in the following window. This file contains information that was too recent to be included in this manual. Please take a moment to read this file, as the changes outlined therein may affect how you install and/or use Poser 5. Click **Next** to continue.
- **5** The Poser 5 EULA appears. This is identical to the text contained above. Click **Yes** to continue.
- 6 Select the path where you wish to install Poser 5. You can either accept the default selection, type a new path in the **Destination Directory** field, or use the **Browse** button to visually locate your desired installation folder. Once you have made your selection, click **Next** to continue.
- 7 Select your desired installation option. Most users should choose the Full installation option. Selecting Minimal only installs critical Poser 5 files and is useful if hard drive space is limited. Selecting Content Installation allows you to select portions of the included Poser 5 content to install. Click Next to continue.
- **8** If you selected **Content Installation** in the previous step, you will see a dialog allowing you specify which content to install. Follow the on-screen instructions.
- **9** A summary of your selected installation options appears. Review this information to ensure it matches your desired settings, then click **Next** to continue or **Back** to return.
- 10 You will be asked if you wish to include an uninstaller. We recommend selecting Yes. This uninstaller will delete your entire **Runtime** folder, removing all stock and added content stored in the default Poser 5 libraries. Your **Downloads** folder, however, will be preserved, meaning you won't lose purchased content. At this point, the Poser 5 files will be copied to your hard drive.

11 Restart your computer.

REGISTERING POSER 5

After installation, you will need to securely register/authorize your copy of Poser 5. You must contact Curious Labs either by phone, email, or via secure Web connection in order to complete this process. You will be prompted to register your copy of Poser 5 when you launch it. Click **Next** to continue.

- 1 Enter your user information in the dialog box that appears. Fields marked in red are required for you to register/authorize your copy of Poser 5. Enter your information, then click **Next** to proceed.
- 2 Check the appropriate radio button to specify how you wish to contact Curious Labs, then click Next to continue.
- 3 If you select **Web Authorization**, the wizard will attempt to connect to the secure Curious Labs registration/authorization server. In the unlikely event you receive an error, please wait a while then try again. If you get repeated errors or if you do not have an Internet connection (or prefer to authorize via email), go back and check the **Manual authorization** radio button then skip to Step 5.
- 4 To register/authorize Poser 5, you must transmit your unique **Challenge code** to Curious Labs and receive a unique **Response**. If you selected **Web authorization**, the following secure Web page will appear with your information pre-filled. Double-check the information and click **Register** to obtain your response code. If you receive an error message such as **Invalid challenge**, go back and try again, being sure to correctly transcribe or paste your challenge code.
- 5 Selecting Manual authorization in Step 3 opens a dialog box. If you call or email Curious Labs, you will be asked to provide all of the information requested in Step 4 of this procedure. You will also be asked to supply your unique Challenge code.
- 6 You will receive your unique Response from Curious Labs using the same medium used to contact us (Web, phone, email). If using manual authorization, transcribe or paste the Response into the Response field. Click Next when finished. If you need to copy your Challenge code to paste it into an email, click the Copy Challenge button. You can also save the challenge to a plan text file by clicking the Save Challenge button and using the standard operating system process for selecting a filename and location. To paste your Response, copy it to your clipboard and click the Read Response button.
- 7 If your challenge and response codes are correct, a summary screen will appear. Click **Finish** to conclude the process. Thank you for using Poser 5 by Curious Labs!

Chapter 3: Updating Poser

urious Labs is committed to supporting all of our products by releasing Service Releases and other updaters that both address issues present in earlier versions and/or enhance the product's usability or functionality. Please visit http://www.curiouslabs.com regularly to check for product updates.

You Poser 5 CD contains Poser version 5.0.2. Some previously sold copies of Poser 5 contained version 5.0.0. At the time this manual was printed, Curious Labs had released Service Release 2 for Poser 5, which updates Poser versions 5.0.0. and 5.0.1 to Poser 5.0.2.

Do NOT install Service Release 1 or Service Release 2 as doing so could cause unexpected results that might require you to uninstall and reinstall Poser 5. You should begin updating this version of Poser with the next Service Release, which will be Service Release 3 if and when it is released by Curious Labs.

PART 2

3D Basics

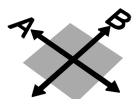
Chapter 4: 3D Basics

his part describes basic 3D concepts. The following discussion centers on Poser 5, however most of these concepts apply to all 3D applications. Novice 3D artists should read the entire chapter to gain valuable "behind the scenes" insight that will help in learning and using Poser 5. Veteran 3D users can use this chapter as a handy reference or refresher.

ABOUT 3D SPACE

Let's begin by defining the three dimensions:

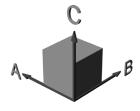
- Zero dimension: A point is an example of a zero-dimensional object. It defines a point in space but has no length, height, or width.
- *First dimension*: A one-dimensional object is a single line. It has length but no height or depth.
- Second dimension: A two-dimensional object has any two of the following three dimensions:
 - Length
 - Height
 - Depth



Pick any one of the three dimensions and call it A. Now pick either of the remaining two dimensions and call it B. In the graphic, the arrows represent the two dimensions and the rectangle represents a two-dimensional object. You will immediately notice that all two-dimensional objects are perfectly flat, like the surface of a sheet of paper. Two-dimensional objects are called *planes*.

• *Third dimension*: Three-dimensional objects use all three of the dimensions (length, height, and depth).

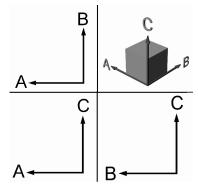
As you can see from the graphic, the cube is a three-dimensional object. It has length, height, and depth. That's pretty simple, right? Here's the hard part: You create 3D data using two-dimensional tools. Your computer screen is a two-dimensional object and your mouse can move in two dimensions; it can report left-right and front-back motion but cannot report how far above or below the desk it is.



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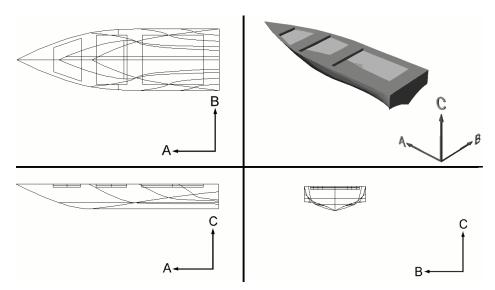
Furthermore, your output will always be two-dimensional. Look at the above graphic: It does not have depth. It does, however, represent three dimensions using a simple optical illusion called *perspective*, which is defined as the tendency of objects to appear progressively smaller the farther away they are until they disappear on the horizon at a location called the *vanishing point*. You can see this by standing at the corner of a long building and noticing how the roofline appears to get closer to the ground the farther away you look. Given these limitations, you ask, how can one create 3D information?

The short answer is that all 3D applications, Poser 5 included, create a "virtual" 3D space. Look at the above graphic again. We can view and manipulate the cube in three dimensions by separating them into separate workspaces called *views*. One view will display the A and B dimensions, the second will display the A and C dimensions, and the third will display the B and C dimensions. You will also have a fourth view that displays all three dimensions. This graphic shows how the four views might look in a 3D application such as Poser 5.



Let's look at the same graphic again, only this time let's substitute a simple boat for the cube to better illustrate the concept. One of the benefits of this system is that it becomes possible to precisely control your 3D model. For example, you can determine the length of the boat using the AB or AC view, the width using the AB or BC view, and the height using the AC or BC view. Which view you use depends on what you are trying to accomplish. For example, to create the stern, you would probably use the BC view, and would probably use the AB view to create the overall shape.

POSER 5 REFERENCE MANUAL



In these examples, the A, B, and C dimensions are collectively called *axes*. Taken individually, each dimension is called an *axis*. So far, we have used each axis to describe one of the three dimensions without caring about which axis describes which dimension. The A dimension could describe any of the three dimensions with B describing either one of the remaining two dimensions and so forth. We did this to illustrate the most basic theory behind 3D applications such as Poser 5. Let's expand on that.

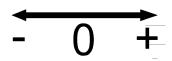
It should be obvious that the AB, AC, and BC views lack perspective. Two-dimensional views without perspective are called *orthogonal* views. Each three-dimensional object has six orthogonal views: Top, Bottom, Left, Right, Front, and Rear. Pick up any object you like and look at it from all angles; you will see that this always holds true. So, while the boat example above shows the Top (AB), Left (AC), and Rear (BC) views, it could just as easily show any three of the six possible views. This is important because, like the boat, not all three-dimensional objects are symmetrical.

Now that you understand this fundamental concept, let's learn how it's used in the real world. To recap, the three dimensions are width, length, and height or depth, each dimension is represented by an axis, and we can view each pair of axes in two ways to generate a total of six possible views. So far so good, except for one small problem: If everyone used an arbitrary system of axes to define the three dimensions, then it would be difficult to pass data back and forth. In the above example, we are using the AB as the Left view. Someone else could just as easily define AB as any of the six available views. You can see the chaos that could ensue. To prevent this, both 2D and 3D objects conform to a standard system of axes called the *Cartesian coordinate system*. The term *Cartesian* is

used in honor of the French mathematician and philosopher Rene Descartes (1596–1650), who was one of the first to employ such coordinate systems.

CARTESIAN COORDINATES

Before getting too far into Cartesian coordinates, let's pause for a quick math review: If you arranged all of the numbers from negative infinity to positive infinity along a line, the number 0 would be in the center of that line.



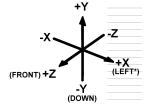
Negative numbers would be on the left side of 0 with -1 being the closest to 0, and positive numbers would be on the right side of 0 with +1 being the closest to 0.

Negative numbers being on the left (or front) works for horizontal lines or axes. For vertical lines, negative numbers are beneath 0 with positive numbers above 0. This stands to reason, since negative numbers are literally less than 0. When dealing with coordinate systems, we assume that each dimension is infinite, with zero representing the dimension's center or *origin*.

The Cartesian coordinate system goes one step further by defining three axes, called X, Y, and Z. In our previous examples, we deliberately used the arbitrary letters A, B, and C to illustrate the concept of axes and avoided using the actual letters because we wanted to familiarize you with the general idea of axes and dimensions before focusing on how they are actually used. In the Cartesian coordinate system, the axes correspond to dimensions as follows:

- X: Width
- Y: Height
- Z: Depth

Let's combine the origin with the Cartesian axes as follows. As you can see, the Cartesian coordinate system uses three axes to represent each of the three dimensions: X, Y and Z. The positive X axis points to the right, the positive Y axis points up, and the positive Z axis points towards the front of the scene. The center of the 3D space is a single point, which is the midpoint (*origin*) of the three axes. Thus, the 3D space extends to infinity in both negative and positive directions



along all three dimensions. You can see the origin in any of the Poser 5 views.

Now that we have a standard system for defining 3D space and objects within that space, we can use coordinates to define the object's shape. Remember that coordinates are always listed in XYZ order. Coordinates themselves are defined as the distance from the origin along each of the three axes. For example, the coordinate {1,1,1} signifies a point

POSER 5 REFERENCE MANUAL

that is 1 unit to the right of the X origin, 1 unit above the Y origin, and 1 unit behind the Z origin.



NOTE

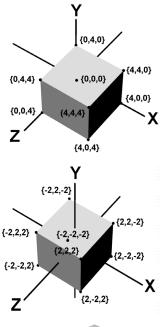
THE FORMAT OF LISTING THE X, Y, AND Z COORDINATES WITHIN BRACES AND SEPARATED BY COMMAS IS THE STANDARD SHORTHAND USED WITH THE CARTESIAN COORDINATE SYSTEM.

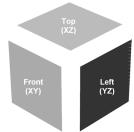
Remember the box we used in the previous 3D example? We can use Cartesian coordinates to define its corners. What if we move the box over somewhat? The graphics on the right show how that might affect the coordinates. As you can see, Cartesian coordinates serve to define an object's shape, size, and location in 3D space.

PLANES

As we discussed earlier, 3D applications must depict and manipulate 3D data using a series of 2D views and tools. You already know that 2D objects are planar because they exist on a mathematically defined plane. A plane is a formula defining the relationship between two dimensions, such as XZ. Combining these two facts with what we just learned about the Cartesian coordinate system and a quick glance at our monitor, we find that 3D applications like Poser 5 use three views aligned with coordinate planes to help you locate points in 3D space.

You can change the Poser 5 **Document** window to show several cameras, including the orthogonal views (Left, Right, Front, Back, Top, Bottom) and perspective views (Main, Auxiliary, Face, Hand, Posing). Please refer to "Document Window" on page 51 for a description of the Poser 5 **Document** window. The graphic shows a quick rendition of three orthogonal views:





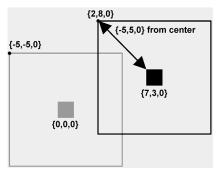
GLOBAL VS. LOCAL COORDINATES

There is one last wrinkle to the Cartesian coordinate system. To explain this wrinkle, let's use the example of a motorcycle rider leaning into a turn. What just happened? For the sake of argument, let's assume that the headlight is 30 inches above the ground when the motorcycle is upright. If the rider leans the motorcycle 45 degrees to the left, then headlight will now be 21.2 inches to the left of center and 21.2 inches off the ground.

FOR ANYONE INTO TRIGONOMETRY, WE FIND THE NEW LOCATION BY MULTIPLYING THE ORIGINAL LOCATION BY THE SIN AND COSINE OF THE ANGLE. IN THIS CASE, SIN(45) = COS(45) = .707, AND.707*30= APPROX. 21.2.

Thus, the headlight's coordinates will have changed from {0, 30,0} to {21.2, 0, 21.2}. However, nothing has changed about the motorcycle itself. The headlight is still in the exact same position *relative* to the rest of the machine. To demonstrate this, let's create a second 3D space using the motorcycle's center of gravity (balance point) as the origin. Let's further say that the headlight is 12 inches above and 30 inches in front of the center of gravity. This means that the headlight's relative coordinates are {0, 12, -30}, and these relative coordinates do not change because the headlight does not move relative to the center of gravity. But what do we mean by *relative*?

Has the motorcycle leaned 45 degrees to the left, or has the world leaned 45 degrees to the right? To an observer standing on the ground, the motorcycle has leaned over 45 degrees. To the rider, s/he is still on top of the motorcycle and it is the world that has leaned over 45 degrees. Further, the rider maintains her or his relationship to the motorcycle, meaning (for example) that her or his head is still 30 inches behind and 32 inches above the headlight. Thus, while the motorcycle's *world coordinates* have changed, its *object* (or *local*) *coordinates* have remained the same.



If this seems a bit complex, bear with us as we use a far simpler example. Each object in Poser 5 has its own object coordinate system. When an object is first created, its center and orientation are the same as the world's. As described above, this changes when the object moves. The world's center and orientation are still the same, but the object's center and orientation may have changed. Look at the square in the graphic. Say the upper-left corner is located at {-5,5,0}. When the object is first created, that point is the same in

local and global coordinates because the object's center is at {0,0,0}. If we move the object +7 along the X axis and +3 along the Y axis, the upper-left corner would now be at {2,8,0} in global coordinates but would remain at {-5,5,0} in local coordinates, that is, relative to the object's center. In other words, any point can be specified relative to its object's local coordinate system (*object space*) or relative to the global coordinate system (*world space* or *global coordinates*) shared by all objects.

TRANSFORMATION

So far, you have learned about 3D objects, the Cartesian coordinate system, and the difference between object space and world space. Let's move on and learn how we can use XYZ values to define an object's *transformation* in addition to its size, shape, and position.

An object's *transformation* describes an object's position (*translation*), orientation (*rotation*), and size (*scale*) in 3D space. When an object is first created, its transformation is set to align with the global coordinates. Its position is set to $\{0,0,0\}$, its orientation is set to $\{0,0,0\}$, and its size is set to $\{1,1,1\}$. An object's transformation values are almost certain to change as you work with the object.

Translation

An object's *translation* describes its position in 3D space relative to its center and is measured in defined grid units. Let's take another look at the box we used in an earlier example:

As you can see, the box's center is the same as the origin $\{0,0,0\}$. What happens if you want to move the box? You can move each one of the points, delete the existing box and draw a new one in its new location, or simply translate the box. For example, setting a Translate value of $\{2,2,2\}$ would move box's lower left corner to $\{0,0,0\}$ since (-2)+2=0. Again, the Translate value refers to the location of the center of the object relative to world space.

Rotation

An object's *rotation* value refers to its orientation in 3D space measured in degrees. As you probably know, any actual object will revolve around its center of gravity (balance point). Objects in Poser 5 have no mass and no center of gravity, so you can set the object's center wherever you like and the object will rotate around that point.

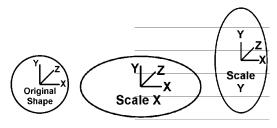


Let's think back to the motorcycle example. If you model a motorcycle and decide you wish to lean it 45 degrees, nothing is stopping you from performing trigonometric calculations to determine the new location of each part. Remember that each part of the motorcycle will move in at least two dimensions as the whole machine rotates. In this case, since the motorcycle is rotating about the Z axis, you could simply enter a rotation value of {0,0,45}. The trigonometric calculations will still need to be performed, however Poser 5 will get stuck with the job instead of you.

Scale

An object's *scale* value refers to its size in relation to itself and is measured in percent. In this case, a value of 1 corresponds to 100%. Take the example of a circle. As with all other Poser 5 objects, it is initially created with a scale value of {1,1,1}, meaning that it is 100% of its original size in all three dimensions.

Now that your perfect circle is in place, you realize you need to double its height on the Y axis. Simply enter a scale value of {1,2,1} and the circle will turn into an ellipse that is twice as long on the Y axis as it is wide. To stretch it on the X axis, you would enter {2,1,1}.



To compute every point on a model, multiply the original coordinates by the X, Y, and Z components. With this in mind, it becomes easy to see how different values can change the size of your object. For example, entering a scale value of {2,2,2} would double the circle's size. Poser 5 allows you to set each scaling factor independently in order to obtain squashing and stretching effects. This is called *differential scaling*.

Chapter 5: Basic 3D Elements



ow that you've learned about 3D objects, Cartesian coordinates, object space vs. world space, and object transformations, let's go ahead and learn more about 3D objects themselves.

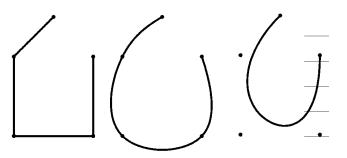
VERTICES

A point is a zero-dimensional (0D) object in 3D space. It has a set of coordinates to define its location but has no length, width, or height. It is nothing more than a location in Cartesian space. However, we can connect points to create edges or polylines. An edge is part of a polygon between two vertices, and a polyline connects two vertices together that are not part of a polygon. At its root, 3D modeling consists of nothing more than connecting a series of vertices together to create 3D objects.

A group of vertices used to define a 3D object is called a point cloud. Each point in a cloud is usually called a vertex and is used to define one of the corners of a polygon. Points used to define a spline (see below) are called control points. We'll define these terms a little later.

SPLINES

Splines are lines that are defined by multiple control points. The following graphic shows three basic types of splines. The simplest type of spline consists of a set of control points connected by straight lines, called a linear spline (shown on the



near right). The other two splines are curved. You can curve a spline by adjusting its *basis*, or method used to compute the spline. Splines can be divided into *interpolating* and *approximating*.

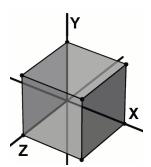
An interpolating spline will always touch the points that define it. In the above graphic, the two splines on the left are interpolating. This gives them a more drastic skin-like bend than approximating splines. Approximating splines, such as the rightmost example in the above graphic, have a softer curve because they don't necessarily touch the points that define them. Either type of spline requires three or more control points in order to show

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any curvature. Poser 5 uses interpolating splines for such things as the **Walk Designer** and the **Animation** palette.

POLYGONS

Polygons are multiple-sided surfaces that use vertices to define their corners and edges to define their limits. Most 3D applications use *triangles* (3-sided polygons) and/or *rectangles* (4-sided polygons). Groups of polygons form a *polygonal mesh*, which alone or with other meshes defines a *mesh object*. Let's reexamine the box example we used above: In this example, the point cloud consists of eight vertices. These eight vertices are connected by 12 edges, which define six rectangular polygons. Had we used triangles, the eight vertices would be connected by 18 edges, which would define 12 polygons.



CHAPTER 6: MORE 3D ELEMENTS



e have just a few more basics to cover before diving into Poser 5 itself.

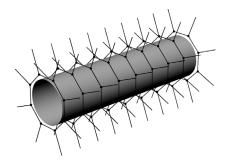
THE POSER STUDIO

The Poser *Studio* (you'll see this referred to throughout this manual) is the virtual 3D world in which you build your scenes. This world contains an origin and the three axes. Don't confuse the Studio with the *workspace*, which is the term we use to describe the Poser interface as a whole (you affect objects in the Studio using the workspace).

The **Document** window acts as the viewfinder for the currently selected camera. By looking through this viewfinder, you can see the Studio. Please refer to "Document Window" on page 51 for more information about the **Document** window.

NORMALS

A surface *normal* is a line (*vector*) that points perpendicular to (away from) the surface it originates from. Since models have more than one surface, knowing which way the normals are facing can help you understand how a particular function will affect a model. This is important when rendering a model or for calculating other operations such as a *collision* (determining if two objects are residing in the same 3D space). If a model's normals are



inverted, certain routines may behave erratically or your model may render incorrectly. Poser 5 allows you to control the direction of the normals and automatically performs these calculations for you.

CAMERA

The *Camera* is a default object. This means that it always exists and cannot be deleted. However, the camera is an object like any other and can be moved and animated. Additionally, you can apply many different settings to the camera including its *position*, *angle*, *perspective*, and *focal length*. These are standard photography terms. Object animation rules apply to the camera.

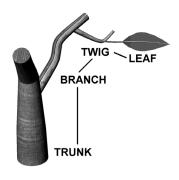
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LIGHTS

A light source is a special kind of primitive. When Poser 5 launches, it places three default lights in your scene. You can add, edit and remove lights in your scene and can also control and animate many settings such as color, intensity, position, shaders (gels), etc.

HIERARCHY

You may group objects in a *hierarchy* in order to facilitate manipulation. The original object is known as a *parent*, and each object linked to it is known as a *child*. The graphic shows an example of a simple hierarchy. In this example, the trunk is the parent. The branch is a child of the trunk, the twig is a child of the branch, and the leaf is a child of the twig. Selecting and moving the trunk will also move the branch, twig, and leaf. Moving the branch does not affect the trunk but moves the twig and leaf, and moving the twig moves the leaf without affecting the branch or trunk. Selecting the leaf only moves the leaf.



Let's try another example: Bend your arm at the shoulder. Notice that your shoulder rotation moves your upper arm, lower arm, wrist, hand, and fingers. In this case, your upper arm is a child of your shoulder and so forth. Now try bending a finger. Your hand, wrist, arm, and shoulder do not move.

ANIMATION

Poser 5 lets you animate virtually everything in your scene including objects, lights, materials (which can have a shader tree containing one or more nodes), and the camera. Each scene item has different settings (*parameters*) that can also be animated. For example, you can animate an object's scale, rotation, translation, and shape, or a light's color, position, and intensity (Poser calculates shadows). You can animate any component of an object's material. Plus, you can animate the camera's position and rotation. Creating animations involves making changes to these parameters over time and assigning these changes to *keyframes*.

KEYFRAMING

Animations are made up of individual images known as *frames*. An animation is created when a series of frames that vary slightly from one frame to the next are displayed one after another over time.

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Keyframing is the core of computer animation and involves the following general process: First, a starting frame is created on a timeline and all parameters for each object in a scene are assigned to that frame. Next, an ending frame is created later on the timeline and all changes to any parameters are assigned to this frame. Poser 5 then compares the parameters assigned to the starting and ending frames and calculates all of the intermediate frames that occur between the starting and ending frames. This calculation is called *interpolation*.

For example, if you tell Poser 5 that an object is large and red at Frame #1 then small and blue at Frame #10, then Frames 1 and 10 become the *keyframes*. Poser 5 then calculates the intermediate values for all of the frames in between the keyframes. Thus, as the animation moves from Frame 1 to Frame 10, the large red ball will gradually shrink and turn blue with each passing frame until it reaches the values you set for it at Frame 10. Keyframing and interpolation allow you to create complex animations with a minimum amount of work.

Chapter 7: Groups

his section describes how Poser differentiates between body part groups, material groups, and other group types on a figure or prop. This explanation is specific to Poser, however it will provide you with the background information you need in order to understand groups in general.

The following examples use the Poser 4 Casual Woman figure (available in the **Library** palette's **Figures** category. Add this figure to your scene by clicking the **Change Figure** or **Add Figure** button at the bottom of the **Library** palette, as described in "Using Objects from the Library Palette" on page 135). Please remember that each figure/prop is different, having different body parts, materials, hair, and cloth groups. Further, the groups themselves may be arranged in different orders. However, the concepts explained here are the same for each figure/prop.

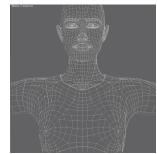


Poser figures consist of named body parts that can be selected and articulated (or *posed*). Props normally consist of a single part that cannot be articulated, although poseable props do exist. The following graphic depicts an example of Poser body parts:

The example displays several body parts: head, left eyeball, right eyeball, neck, chest, left collar, and right collar. Each of these body parts can be articulated (posed).

Each body part consists of one or more polygons.

As hinted above, there are several different types of polygon groups, and one polygon can belong to more than one type of group. For example, each polygon "belongs" to either a body part or a prop and may also "belong" to material, hair, and/or cloth groups. A polygon can only be in one group of each type at a time. Thus, the following group combinations are possible:



- One body part may have one material assigned to it. For example, the neck will probably have the "skin" material.
- Two or more body parts may use the same material. For example, the fingers may all use the "skin" material.
- One body part may use more than one material. For example, each eyeball may have separate materials for the eyeball, iris, and pupil.
- In addition to the above, a polygon may be part of a hair group and/or a cloth group.
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POSER 5 REFERENCE MANUAL

Since body parts and materials are the most obvious forms of grouping, let's use them to illustrate grouping as a whole since the same concepts apply to hair and cloth groups as well. The graphic displays the material assignments for the above-displayed body parts.

You can see that the head, neck, and portions of the chest use the skin material. The chest and collars use the shirt material. The eyes use eyeball, pupil, and iris materials. The head uses several materials including skin, lips, and eyebrows.



The important things to remember are:

- Poser 5 groups polygons by body part, material, hair, and cloth, and these groups are independent of each other.
- Each material in a figure/prop gets assigned a unique numbered ID, and that ID is in turn used by a polygon to specify which material should be applied to that polygon. For example, the skin material may have ID 1, the shirt ID 2, etc. Each polygon in a figure/prop includes the ID number of the material assigned to that polygon. Changing a material itself will affect the appearance of all polygons that have the corresponding material ID. For example, if one made the skin green, then all polygons with the "skin" material ID would turn green regardless of the body part.

The following table depicts a partial list of the relationships between body parts and materials in the **Poser 4 Casual Woman** figure:

Body Part	Assigned Material(s)
Head	 skin eyeBrow lashes lips innermouth tongue teeth inmouth
Eyeballs (left and right)	eyeBallpupiliris
Neck	• skin
Collars (left and right)	• shirt
Chest	• skin • shirt

Again, the only relationship between the body parts, materials, hair, and cloth is that defined by the figure's creator. Poser does not mandate any such relationship.

Now that we have differentiated between body part and material groups and mentioned hair and cloth, let's describe hair and cloth groups in more detail:

HAIR GROUPS

Hair groups are groups of polygons that can also belong to any body part, prop, and material group. Polygons that are part of hair groups can have real 3D hair grown on them. Please refer to "Hair Room" on page 57 for more information about the **Hair** room.

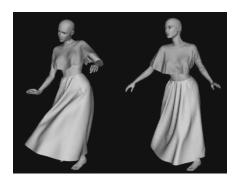


CLOTH GROUPS

Poser 5's **Cloth** room allows you to create realistic cloth that you can use for almost any purpose in your scene. Cloth groups are actually *vertex groups*, meaning that they are groups of vertices instead of polygons, however this makes little difference in the overall discussion. Vertices belonging to a cloth group cannot belong to a body part group.

Here is an example of a figure wearing Poser 5 cloth, which consists of props with named groups. See how the cloth realistically drapes and moves as the figure moves:

Please refer to "Cloth Room" on page 58 for more information about the **Cloth** room



Chapter 8: Multi/Sub-object Materials

ach figure/prop has its own unique material list containing individual materials within that list. You can see this for yourself by creating a Poser scene with two or more figures/props and opening the **Material** room.

This sample scene has two figures (Casual Woman and Business Man) and two props (Female Hair and Male Hair). The **Material** room therefore displays the following selections:



Materials	Materials
skin	shirt
nails	jacket
shoes	tie
souls	pants
pants	buttons
belt	souls
huckle	shoe1

Figure 1: Woman Figure 2: Man

As you can see, "Figure 1: Woman" and "Figure 2: Man" each have different materials lists. Each object in a Poser 5 scene has its own list of materials, which is different for each object. These lists of materials behave like a multi/sub-object material list/table.

WHY MULTI/SUB-OBJECT MATERIALS?

The purpose of having more than one material per figure (multi/sub-object materials) is to provide each polygon with a different or shared material property with other polygons. This gives you control over material properties down to the polygon level.

A side benefit is that multi/sub-object materials also allow great flexibility. For example, if you have a scene with multiple figures, each figure can have its own skin and clothing colors. Selecting one figure or prop displays only the materials assigned to just that figure/prop, which organizes your materials and prevents possible confusion. Also, if you save a figure or prop to the **Library** palette, its materials will be saved as well, thereby preserving your work.

COLOR

Color is easy. By applying a color to an object or material group, you are essentially dumping a bucket full of paint on that object or group. Color goes a long way toward establishing the final look of your object but it doesn't tell the whole story. For example,

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painting an apple red is obvious, but the simple red color does not contain the other colors and shades, nor does it portray the apple's small imperfections and other features. Thus, a material that simply uses color ends up looking plastic.

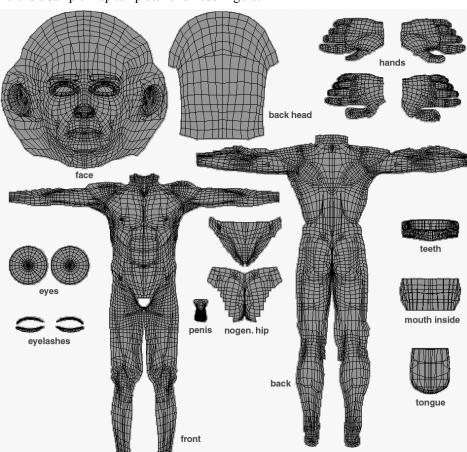
ABOUT MAPS & TEMPLATES

Look at your own skin. Notice the differing colors, hairs, veins, moles, and other features. Look at any object. Is it smooth or rough? Opaque or transparent? If transparent, does it have the same transparency all over or in portions? Is it matte or glossy? Is it reflective? What sort of texture or pattern does it have? Now look at the objects around you. They all have different material properties. How can you capture these properties in your 3D objects? One answer is *mapping*. Each object in your Poser scene can have its own maps, which are used for specifying various attributes. Maps provide an efficient way to add advanced effects to your objects. For example, if you had to model every wrinkle, mole, eyelash, hair, or other feature, your object's polygon count (number of polygons) would quickly become prohibitive. In fact, most of the 3D figures and other objects you see in feature films have relatively low polygon counts and make extensive use of mapping.

As you know, most maps are two-dimensional representations of 3D surfaces. Each point on the Earth's surface that lies within the map's area of coverage corresponds to a point on the map. Depending on the area being mapped and the mapping method used, the map may or may not resemble the actual surfaces it represents. This effect is called *distortion* and is most easily seen on world maps created using the Mercator projection. We could spend a lot of time on this, but the important things to remember are that:

- Maps are 2D representations of 3D surfaces.
- Each coordinate (location) on the 3D surface corresponds to a location on the map.
- The map may or may not resemble the 3D surface.

POSER 5 REFERENCE MANUAL



Here is a sample map template for a Poser figure:

The grid-like lines on the map correspond to the polygons on the figure mesh object itself. Blank areas do not correspond to any part of the figure and are ignored. Thus, you can "color outside the lines" without ill effect, since only color falling within the lines actually appears on the figure.

Do not move these shapes!
Only paint within shapes will be applied to model.

Maps used for figures normally use the UV coordinate system where the upper left corner corresponds to 0,0 and the bottom right corner to 1,1. Thus, the exact center of the map would be at 0.5,0.5. For any given object, you start with the blank template shown above and modify it depending on the type of map you are creating.

BUMP MAPS

A *bump map* is used to simulate roughness on a surface. Bump maps are grayscale images where dark gray/black signifies lower areas and bright white/light gray areas signify higher areas. They work by shifting the object's normals to give the illusion of depth. On a human figure, a bump map allows you to simulate wrinkles and other imperfections/textures.



TRANSPARENCY MAPS

A transparency map is like a bump map in that it is a grayscale image. Transparency maps regulate the amount of opacity in a given location. The darker the color is, the greater the transparency, and vice versa. Here's a sample transparency map for eyelashes.

Look at the bump map, right. The lighter colored areas around the eyelashes indicate that they should have height, that is, they should stand out from the figure itself. The texture map (see below) specifies the lashes'



color as rough smears. The transparency map above allows only those portions of the texture map corresponding to the lighter areas to show through. The combined effect is eyelashes that stick out from the eyes. Where there are no eyelashes, you can see the skin beneath them. This is a great example of how combining maps can create very realistic effects.

REFLECTION MAP

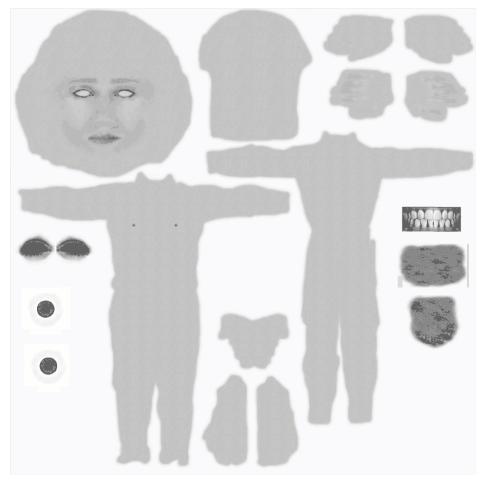
Reflection maps are also grayscale. As the name implies, they are used to differentiate areas of varying reflectivity. The use of reflection maps allows you to, for example, create a patterned mirror where the patterns have a higher or lower amount of reflection.

DISPLACEMENT MAP

Displacement maps are very similar to bump maps but with a key difference: Instead of simply shifting normals, displacement maps actually move (displace) an object's geometry. Thus, displacements provide more "real" depth than bump maps. Displacement occurs at render time, meaning that objects will look smooth until rendered.

TEXTURE MAP

All map types (bump, transparency, etc.) are 2D representations of 3D objects, and texture maps are no exception. Texture maps are the primary way of making 3D objects look real. Texture maps make skin on your Poser figure look real, add realistic grain to wood, etc. The following example shows a texture map for one of the Poser figures:



You can use shader elements such as color to get an effect without using texture maps, but you won't be able to precisely place features where you want them (such as painted fingernails on the ends of the fingers).



TEXTURE MAPS ARE FULLY COLORED, UNLIKE THE GRAYSCALE EXAMPLE SHOWN ABOVE.

PROCEDURAL SHADERS

Poser 5's new FireFly rendering engine supports the use of *procedural shaders* (or *shaders* for short). Shaders consist of a *root node* that can be modified by adding additional *nodes* that modify one or more of the root node's values. A node's output can modify one or more nodes, and you can use more than one node to influence another. You can include all of the maps we've discussed above when building shaders. You can also create realistic materials that don't require any maps at all, or you can have other nodes modifying any maps you decide to use. Thus, shaders are a second method of creating materials that may or may not integrate maps. Please refer to "Material Room" on page 55 for information about Poser 5's **Material** room.

PUTTING IT ALL TOGETHER

The following image demonstrates the results you can achieve by combining the various types of maps:



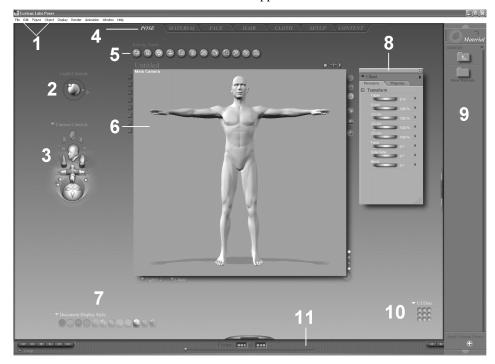
Poser 5: The ultimate 3D character solution!

PART 3

The Poser 5 Interface

Chapter 9: Poser 5 Pose Room

he **Pose** room is the focal point for much of your Poser activity. This is where you add figures and props to your scene and perform your desired posing/animation of figures and props (you'll use the **Hair**, **Cloth**, **Material**, and **Face** rooms to set up and animate these items and can access the **Library** palette from any room). This chapter introduces you to the basic Poser 5 interface. Later portions of this manual go into detail about each interface element. The **Pose** room appears as follows:



In addition to rooms, Poser 5 uses floating palettes and windows. Much of its functionality is available within floating palettes and windows within the room itself. Most Poser 5 rooms (including the **Pose** room) allow you to customize your Poser workspace by hiding/displaying and relocating controls anywhere you like. You can even save up to nine different screen configurations for the entire Poser workspace.

The numbers on the image above identify the controls available in the **Pose** room:

- Menu bar (1)
- Lighting controls (2)

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- Camera controls (3)
- Room tabs (4)
- Editing tools (5)
- **Document** window (6)
- **Display** controls (7)
- Properties & Parameters palettes (8)
- Library palette (9)
- Memory dots (10)
- Animation controls (11)

Please refer to "Setting Up Your Workspace" on page 63 for more information about creating and saving custom workspace layouts. The following sections provide a brief description of the labeled interface elements and references to more detailed information.

MENU BAR

The **Menu Bar** consists of a series of pull-down menus used for accessing Poser functionality. Some menus and/or submenus duplicate other on-screen interface elements. The **Menu Bar** appears as follows and is available from every Poser 5 room:

File Edit Figure Object Display Render Animation Window Help

Please refer to Part 5: "The Poser 5 Menu Bar" on page 81 for complete descriptions of all **Menu Bar** pull-down menus and sub-menus.

LIGHTING CONTROLS

The **Lighting** controls allow you to adjust lighting properties. Use it for such purposes as adding and removing lights, and specifying light colors and other light properties. The **Lighting** controls appear as follows:

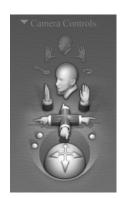
Please refer to Chapter 28: "Lighting" on page 158 for more information about the **Lighting** controls.



CAMERA CONTROLS

The **Camera** controls allow you to select and move one or more Poser 5 cameras. There are two types of camera controls: **View** and **Position**:

The topmost controls are the **View** controls. Clicking one of these controls activates the **Face**, **Left Hand**, or **Right Hand** camera, as appropriate. You can also scroll through the list of available cameras. The **Position** controls appear below these controls and are used to move or rotate the currently selected camera. The **Camera Plane** position controls move the camera along the X, Y, and/or Z axis, while the **Trackball** rotates the currently selected camera without changing its location in 3D space. To use the **Camera** controls, simply click and drag your desired control. Moving a



camera does not change the locations or poses of figures, props, and other elements in your scene.

A subset of these **Camera** controls appears in the upper-right corner of the **Document** window. Please refer to Chapter 27: "Cameras" on page 148 for complete information about the **Camera** controls.

ROOM TABS

The **Room** tabs allow you to switch from room to room within Poser 5. To enter a room, simply click its tab.

POSE \[MATERIAL \] FACE \[HAIR \] CLOTH \[SETUP \] CONTENT

EDITING TOOLS

The **Editing Tools** palette contains the tools you use most often when posing figures/props:

By selecting a body part or prop followed by the desired **Editing** tool, you can pose objects in various ways such as translating (moving side to side or back and forth), rotating, twisting, etc. You can also perform other functions such as editing Inverse Kinematic (IK) chains and working with element/material groups. Each **Editing** tool is a little different, but their basic usage is as follows:



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- 1 Select your desired body part or prop (referred to as an *element* or *actor*) in your scene by clicking that actor.
- 2 Select the desired **Editing** tool. You can only have one **Editing** tool selected at a time. The currently selected **Editing** tool appears yellow within the Poser 5 interface.
- **3** Click and drag to perform the selected tool's function.

To create still or animated poses, you can use the **Editing** tools in any combination to create a virtually infinite number of poses. Please refer to "The Editing Tools" on page 171 for more information on the **Editing** tools. In addition, each tool is discussed in depth where appropriate in this manual.

DOCUMENT WINDOW

The **Document** window is your viewport into the Poser 5 *Studio* where you view and pose your figure and interact directly with your scene. Each view of the **Document** window is taken through a virtual camera, which means you can view each scene from multiple angles, either one at a time or from up to four angles at once:

You can position cameras to view your scene from any angle or distance and can resize the **Document** window to suit your needs. In addition, the **Document** window has numerous controls around its edges that you use to change the appearance of scene elements. You can also select objects within your scene by clicking them directly within the **Document** window or by using the menus on the bottom of the window. Please refer to Chapter 25: "The Document Window" on page 139 for more information about the **Document** window.

DISPLAY CONTROLS

The **Display** controls allow you to select your desired preview mode for your entire scene, a figure or prop, and/or specific elements of your currently selected figure/prop:



Please refer to Chapter 26: "The Display Controls" on page 145 for more information about the **Display** controls.

PARAMETERS/PROPERTIES PALETTE

Poser 5 combines the previous **Properties** dialog boxes and **Parameter** dials into a single easy-to-use palette that allows you to access any scene object's properties and parameters in one convenient location:

To switch between the **Properties** and **Parameters** palettes, simply click the desired tab at the top of the palette. Please refer to "The Parameters/Properties Palette" on page 177 for more information about properties and parameters.



NOTE

ALTHOUGH BOTH PROPERTIES AND PARAMETERS APPEAR IN THE SAME PALETTE, WE WILL TREAT THEM AS SEPARATE ENTITIES THROUGHOUT THIS MANUAL FOR CLARITY.



The **Parameters** palette contains all of an object's parameters (transformation settings, as described in "Parameters Palette" on page 180) and morph targets. Each object type has specialized parameters, which are described where appropriate in this manual. Further, individual objects can have parameters unique to that object. For example, different figures have different morph targets available.

PROPERTIES PALETTE

The **Properties** palette contains all of an object's properties. In addition to certain universal properties (which are described in "Properties" on page 178), each object type has specialized properties, which are described where appropriate in this manual.



LIBRARY PALETTE

The **Library** palette allows you to access all of the content available to your installation of Poser 5, including both content included with Poser 5 and any additional content you may have obtained. The palette contains categories (**Figures**, **Props**, etc.) and subcategories (**People**, **New Figures**, etc.) for organizing your Poser 5 content:

Use the **Library** palette to add or remove elements from your Poser 5 scenes. Please refer to Chapter 24: "The Poser Library" on page 126 for more information about the **Library** palette. Poser 5 ships with a wide array of content that you can use to create thousands of unique still and animated scenes. You can also use the **Content** room to locate and obtain even more free and for-sale content from leading 3D marketplaces! Please refer to "Content Room" on page 60 for more information about the **Content** room.



MEMORY DOTS

Being able to customize your workspace wouldn't be useful if you had no way of saving your preferences. Poser 5 includes **Memory** dots that allow you to save poses, camera locations, and user interface (UI) preferences and to switch between saved items with a single mouse click.



Clicking the arrow to the left of the description allows you to select your desired set of **Memory** dots.

Please refer to the following for more information on each type of **Memory** dot:



- Pose Dots: Pose dots are described in further detail in "Pose Dots" on page 187.
- Camera Dots: Camera dots are described in further detail in "Camera Dots" on page 157.
- *UI Dots*: **UI** dots are described in further detail in "Setting Up Your Workspace" on page 63.

USING MEMORY DOTS

To use Memory dots:

- 1 Set up your pose, cameras, and/or interface (UI) the way you want them.
- **2** Use the pull-down menu to select the dot type, as described above.

POSER 5 REFERENCE MANUAL

3 Click an empty memory dot. This dot will appear full, as shown to the right:

To use a dot, simply click it. The stored settings are applied to your scene. To clear a memory dot (delete its information and make it appear empty again), press and hold [ALT] while clicking the memory dot you wish to erase.



ANIMATION CONTROLS

The **Animation** controls allow you to preview animations and set up keyframes. You do this by posing your figure, moving to a new frame, and changing the pose. Clicking the **Play** button plays an animation using the keyframes. The **Animation** controls appear as follows:



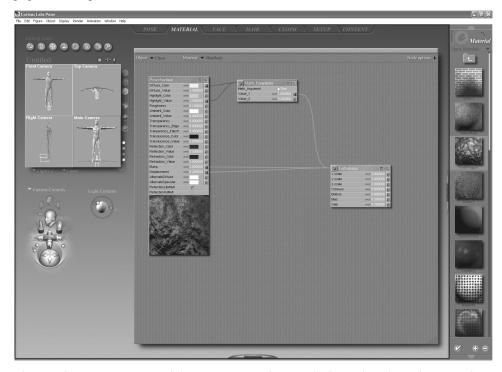
Please refer to "Using the Animation Controls" on page 279 to learn more about the **Animation** controls, and to Chapter 37: "Animating with Poser" on page 272 for more information about creating and rendering animations using Poser 5.

Chapter 10: Other Poser 5 Rooms

urious Labs introduced the concept of rooms (separate workspaces) with the release of the Pro Pack add-on package for Poser 4. Poser 5 expands this concept to include five more rooms, each containing powerful new functionality. To enter a particular room, click its tab along the top edge of the Poser 5 workspace.

MATERIAL ROOM

The **Material** room allows you to create a nearly infinite array of static or animated materials using *shaders*. Please refer to Chapter 8: "Multi/Sub-object Materials" on page 40 for a general discussion about materials.



Please refer to Part 8: "Materials" on page 305 for more information about the **Material** room.

FACE ROOM

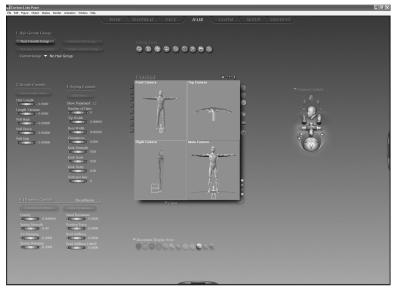
Poser 5 expands the revolutionary face-building technology contained within Curious Labs' Avatar Lab product by including the **Face** room, which allows you to map a 3D face and shape a head of yourself or anyone using two photographs (front and side). You can even mix and match photos to create interesting effects! The **Face** room appears as follows:



Please refer to Chapter 33: "The Face Room" on page 227 for more information about the **Face** room.

HAIR ROOM

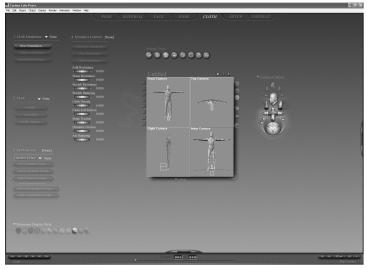
The **Hair** room allows you to create hair groups and grow real strand-based hair. You can control how the hair grows, style the hair, and control its dynamics. You can even add force fields to simulate wind. The **Hair** room appears as follows:



Please refer to Chapter 34: "The Hair Room" on page 240 for more information about the **Hair** room.

CLOTH ROOM

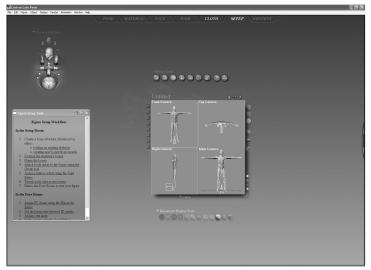
The **Cloth** room allows you to convert objects into dynamic cloth objects that can be realistically simulated. **Cloth** interacts with other scene objects. You can even add force fields to simulate wind. The **Cloth** room appears as follows:



Please refer to Chapter 35: "The Cloth Room" on page 249 for more information about the **Cloth** room.

SETUP ROOM

The graphical **Setup** room allows you to give imported objects motion by adding joints and body parts. You can import body part and joint information in the form of skeletons from existing figures to minimize your work even further. The **Setup** room appears as follows:

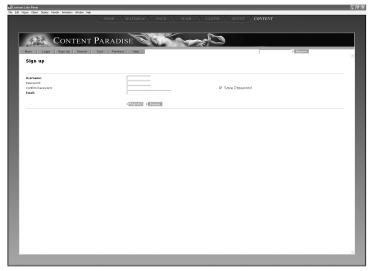


Please refer to Chapter 36: "The Setup Room" on page 261 for more information about the **Setup** room.

CONTENT ROOM

Much of Poser 5's value comes from the capability to add custom content (such as figures, textures, props, hair, poses, etc.) to the Library palette. Whether you create your own add-ons or purchase some of the rich variety of available content, you will find your artistic abilities and range growing with every new addition.

Poser 5 includes the **Content** room gateway to the online Content Paradise portal, where you can obtain free or purchased content. To complement this feature, Poser 5 can auto-detect and attempt to install your add-on content for you. Simply choose your item, download it, and Poser 5 does the rest!



Please refer to Part 10: "Adding New Poser Content" on page 361 for more information about the **Content** room.

Chapter 11: Setting Up the Poser Workspace



his chapter discusses the ways in which you can customize Poser to suit your individual needs.

MEMORY ALLOTMENT (WINDOWS)

Windows does not allow you to allocate memory on a per-application basis. Please refer to your Windows documentation for information on changing Windows memory settings.

SETTING APPLICATION PREFERENCES

Poser 5's **General Preferences** window allows you to control certain global Poser settings. Open this dialog by selecting **Edit>Preferences** as described in "General Preferences" on page 96. The **General Preferences** window appears.

Click the **OK** button when finished to save your preferences and close the dialog. The following topics describe the available preferences.



DOCUMENT PREFERENCE

If you customize the **Document** window by resizing and/or moving it, selecting the **Launch to preferred state** radio button will save these changes when you exit and relaunch Poser. This is different than the **Memory** dots, which store settings on a per-scenefile basis. If you want your **Document** window to revert to its default location and size whenever you launch Poser 5, select the **Launch to factory state** button. Please refer to "The Document Window" on page 139 for more information about the **Document** window.

INTERFACE PREFERENCE

If you customize the Poser 5 interface by adding, removing, rotating, resizing, and/or hiding different elements, selecting the **Launch to preferred state** radio button will save these changes when you exit and re-launch Poser. This is different than the **Memory** dots, which store settings on a per-scene-file basis. If you want your Poser 5 interface to revert to its default location and size whenever you launch Poser 5, select the **Launch to factory**

state button. Please refer to "The Document Window" on page 139 for more information about the **Document** window

COMPRESSED FILE SUPPORT

Poser 5 supports the use of compressed files, which can save significant amounts of space. To use compressed files, check the **Use file compression** checkbox. Clearing the checkbox disables compressed file support.



NOTE

POSER USES STANDARD Z-LIB COMPRESSION, ALLOWING YOU TO USE ANY Z-LIB COMPATIBLE COMPRESSION/ DECOMPRESSION APPLICATION TO COMPRESS/DECOMPRESS FILES.

All Poser files (scene, figure, pose, expression, hair, hand, prop, light, camera, material) can be compressed. Compressed Poser files have the extension *.**Z (*.PZZ, *.CRZ, *.FCZ, etc.). Poser prop files are saved with the extension P2Z to avoid confusion with compressed scene files. If you plan to distribute files for use by artists with previous versions of Poser, please be sure to save them uncompressed. Poser supports file compression beginning with the Pro Pack add-on for Poser 4.



SOME ADVANCED ARTISTS USE A TEXT EDITING APPLICATION TO DIRECTLY EDIT POSER FILES. YOU MUST UNCOMPRESS COMPRESSED FILES BEFORE EDITING THEM. TO DO THIS, YOU CAN EITHER LOAD A FILE INTO POSER, DISABLE COMPRESSED FILE SUPPORT, AND SAVE THE RESULTS TO A NEW FILENAME OR USE A THIRD-PARTY COMPRESSION UTILITY SUCH AS WINZIP OR STUFFIT TO UNCOMPRESS THE FILE. IF YOU USE THE SECOND METHOD. YOU CAN RECOMPRESS THE FILE WHEN YOU'VE FINISHED MAKING EDITS.

SETTING THE PYTHON EDITOR

Clicking the **Set Python editor** button opens a standard **Browse** dialog, allowing you to select the application you wish to use to edit PoserPython scripts (such as Notepad for Windows).

DISPLAY UNITS

Poser 5 allows you to work with real-world units, enhancing your ability to make accurate recreations. Use the **Display units** pull-down menu to make your selection. The available choices are:

- Poser native units
- Inches
- Feet
- Millimeters

- Centimeters
- Meters

SETTING UP YOUR WORKSPACE

The Poser 5 workspace consists of the entire Poser 5 screen, including controls, the **Document** window, and other room-specific interface elements. You can customize most of these elements to suit the way you work and store your preferences for later use.

CUSTOMIZING WORKSPACE ELEMENTS

You can customize workspace elements as follows:

- To reposition a workspace element (such as the **Editing** tools), click and drag the desired element's title (text label) to its new position. You can also "window-shade" a control, meaning that only its title will appear until you move the cursor over it. To do this, double-click the desired item's title.
- You can toggle the **Editing** tools and **Display** controls between horizontal and vertical display by pressing [ALT] while clicking the element you wish to rotate.
- You can reposition the workspace background image in the same manner as other workspace elements (clicking and dragging).
- You can cycle through several available workspace background images (the decorative background image in your Poser workspace) by pressing [ALT] while clicking the image. One option is no image; in that case, pressing [ALT] while clicking any blank portion of the workspace will display the first available image.

UI MEMORY DOTS

You can save up to nine interface configurations using the **Memory** dots (described in "Memory Dots" on page 53). Each **Memory** dot retains your selected interface settings for your scene. This feature is specific to your current scene, meaning that UI dots cannot be transferred to different scenes. To save UI settings and have them accessible in any Poser scene, you need to modify Poser 5's general preferences as described in "Setting Application Preferences" on page 61.

SETTING UP THE DOCUMENT WINDOW

Please refer to "The Document Window" on page 139 for more information on customizing the **Document** window and using the controls found there.

PART 4

Your First Poser Scenes

Chapter 12: Let's Make a Scene

y now, you've installed Poser 5 and launched the application. You may be feeling a bit bewildered by the interface and intimidated by the sheer size of this manual. We designed Poser 5 to be as easy to learn and use as possible and included this chapter to walk you through creating a simple scene using a character that you will customize and animate. Later, we'll include a brief **Setup** room tutorial that guides you through building your very own Poser character and discuss creating image maps.

Curious Labs would like to thank Cris Palomino and Mary Dell for contributing the tutorial in this chapter and Christopher Orth for providing the waterfall image. Please see your Poser 5 CD's Documentation\Tutorial Images folder for the images from this tutorial.

GROWING HAIR

- 1 Launch Poser. By default, you'll arrive in the **Pose** room. The figure should be selected already. If not, click any part of the body to select it and press [DEL] to delete the figure.
- 2 Open the Library palette and select Figures>Poser 1-4>Poser 4 Hi>P4 Nude Woman by double-clicking the icon. Next, select Hair>Poser 4 Hair>Female Hair 5 and double-click that icon.
- 3 The Current Actor menu (second from the left at the bottom left of your Document window) lists the hair you just added, meaning it's selected. Now that you know how to add a hair prop, press [DEL] to delete it (but leave the figure). Let's add some dynamic strand-based hair instead.
- **4** Select the figure's head by clicking it. Be sure you've selected the head, not an eye (the word **Head** appears in the **Parameters** palette when the head is selected).
- 5 Click and hold on the words **Main Camera** at the top-left corner of the **Document** window and select **Face Camera** from the pull-down menu, then click the **Hair** tab at the top of the workspace to switch to the **Hair** room, where we'll give the character a rakish Mohawk.
- **6** Press the **New Growth Group** button and give your new group a unique name such as "Head Hair 1". Be sure this group is selected as the **Current Group**.
- 7 Press the **Edit Growth Group** button, which opens the **Group Editor** palette (see "The Grouping Tool & Group Editor Palette" on page 209 for an image of this palette). Notice that the figure goes black and the head outlines in green when you move your cursor over the head.
- **8** Use the **Display** controls to select **Wireframe** mode (click the third icon from the left).

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- 9 Select the Add (+) tool, then select the polygons on which you would like to grow hair. Selected polygons turn red, indicating their status. You may select them one at a time or click and drag a rectangle to select all polygons within that area. Selecting Wireframe selects all polygons within the selection area on both the front and back of the object. If you only want to select polygons that are visible from your viewing angle, select the Hidden Line (fourth from the left in the Display controls) mode.
- **10** Use the three **Mini Camera** controls at the top right of the **Document** window to rotate the head so you can see the top. For the Mohawk, select about four rows of polygons running down the center of the head.
- **11** Use the **Subtract** (-) tool to remove any accidentally added polygons. Rotate your view and check your selection from all sides.
- **12** Exit the **Grouping** tool and select **Texture Shaded** in the **Display** controls (far right). The figure's head should still be selected and "Head Hair 1" should be the current hair group.
- **13** Press the **Grow Guide Hairs** button in the **Growth Controls** area. The figure will grow some sparse, strange-looking hairs on its head. These are the guide hairs.
- **14** Turn the two **Length** dials and the three **Pull** dials until you have an overall shape that you like. Use very small motion increments.
- **15** In the **Styling Controls** section, check the **Show Populated** checkbox to show the full head of hair.
- **16** Adjust the **Styling** controls any way you like to get the look you want.
- 17 Click the Hair Style tool (second from right in the Editing tools) to open the Hair Style Tool palette.
- 18 Select the Select Hairs tool and clear the Show Populated box (you can toggle this option on and off as you work). Select a section at the front. For this, we recommend viewing the head from the side to ensure you only select hairs in the front. Selected guide hairs have a yellow dot at their ends. Selecting hairs activates the other tools. If you accidentally selected some guide hairs you don't wish to style, you can either choose the Deselect Hairs tool or press [CTRL] while clicking the unwanted hairs.
- **19** Select the **Twist Hairs** tool and drag your mouse left or right. Try some of the other tools if you like or continue styling different parts of the hair. Be sure to save your work often so you can go back and redo something if you make a mistake.
- **20** Repeat steps 17-19 for any other hair section you want to style.

ADDING CLOTHING

At this point, we've brought a figure into the Studio and given her strand-based hair. Let's apply some conforming (Poser 4) clothing:

- 1 Return to the **Pose** room and open the **Library** palette. Select **Figures>Clothing-Conforming>Clothing-P4 Female**, and add the **Bikini Top** by single-clicking it then clicking the **Apply Library Preset** button. The bikini top appears behind the figure. By default, this new figure (Poser treats conforming clothing like figures) is selected.
- 2 Select Figure>Conform to and select Figure 1 (or whichever figure the character is) in the ensuing dialog to correctly position the bikini top on the figure's chest.
- **3** Continue adding additional clothing by repeating steps 1 and 2. Do not layer clothing (such as adding a shirt on top of the bikini top).

APPLYING A SHADER

Let's try out the Material room.

- 1 Pose your figure with an upturned hand to hold the next item you'll add to the scene.
- 2 Open the Library palette, select Props>Primitives, and add the Ball object.
- **3** Use the **Translate** tool to position the ball in the figure's hand or just above it.
- **4** Enter the **Material** room by clicking its room tab at the top of the Poser workspace. Make sure the ball is selected.
- 5 Click the input (plug-like icon) on the root node's **Reflection_Color** channel, and select **New Node>Lighting>Environment Map>Sphere Map**
- 6 Click the sphere map's Color input and select New Node>2D Textures>Image_Map.
- 7 Click None in the Image_Source channel to open the Texture Manager dialog and browse to the location of your reflection map (in this case, we're using the image "waterfall.jpg", which is available for download from the Curious Labs Web site.
- 8 Click the closed eye in the **Image Map** node title bar to see your selected map. Repeat this for the **Sphere Map** node to see the distortion created by the spherical mapping.
- 9 Render the scene by pressing [CTRL]+[R]. You may want to open the Render Options window (Render>Render Options) to make sure that the FireFly renderer is selected.

ANIMATE!

We've added hair, clothing, and a cool reflection to our figure. Now let's make her walk.

- 1 Set your figure in the center of your document window.
- **2** Open the **Library** palette, select **Poses>Walk Designer**, and choose any walk you like.
- 3 Open the Animation controls at the bottom of the Poser workspace, click the Play button, and watch your figure move! If you like, you can select Animation>Make Movie to render an animation to AVI format.

These brief tutorials are designed to show you just a little of Poser 5's amazing functionality and new features. From here, we encourage you to experiment and have fun!

Chapter 13: Creating Custom Figures

Т

his section provides two examples of creating Poser figures from imported props (geometries). Tutorial files are located on your Poser 5 CD in the **Documentation\Samples** folder.

EXAMPLE ONE: WORMY

Wormy is a happy little inchworm that also happens to be a great example of how you can rapidly create a simple figure using the **Setup** room.

1 Begin by launching Poser and importing the file wormy.obj from your Poser 5 CD's Documentation\Samples folder. Do this by selecting File>Import>Wavefront OBJ and navigating to the folder on your CD. Set both Full Tracking and the Texture Shaded document display style. Do this by clicking the third button (from the top) on the right side of the Document window followed by clicking the rightmost button in the Display controls.



- **2** Enter the **Setup** room by clicking the **Setup** room tab.
- 3 Set a side camera, such as **Right**, by clicking the words **Main Camera** in the **Document** window and selecting **From Right**. Next, select the **Bone** tool (3rd from the right in the **Editing** tools). Starting near the bottom, create the first (hip) bone going up Wormy's body. This hip bone is the parent for the entire figure. Next, create three additional bones for the Abdomen, Chest, and Head. Please refer to "The Setup Room" on page 261 for more information about the **Setup** room.



- 4 Click the hip joint (base of the bottommost bone), and create two more bones going down Wormy's tail as follows. Remember that the tailbones are children of the hip bone (see "Hierarchy" on page 35 for an explanation of hierarchical relationships).
- 5 Select the **Group** tool (just to the left of the **Bone** tool in the **Editing** tools), then click the **Auto Group** button in the **Group Editor** palette to create groups of polygons and attach them to the bone structure you created. Click the **Next Group** button several times to see the groups that have been created. You can modify these groups as discussed in "The Grouping Tool & Group Editor Palette" on page 209. Close the **Group Editor** palette and exit to



the **Pose** room. Try posing **Wormy** using the **Translate** tool (third **Editing** tool from the left):

You will probably notice that there is a problem with the joints when you try to move the tail: Wormy's waist deforms incorrectly. Correct this by opening the **Joint Editor** palette, selecting the upper tail joint, and making the following adjustments (see "The Joint Editor Palette" on page 219 for more information about the **Joint Editor** palette):

- Rotation Order: Select **ZYX** as the rotation order.
- <u>X-Rotation</u>: Select the **X-Rotate** parameter and position the inclusion/exclusion angles as shown:
- **6** Close the **Joint Editor** palette and try moving Wormy's tail. The tail now bulges as if muscles were flexing, creating a far more natural appearance. You can, of course, create any effect you desire by tweaking the joints.



Congratulations! In just a couple of minutes, you have transformed Wormy from a static prop into a fully poseable Poser figure!

EXAMPLE TWO: GOLDY THE ROBOT

Wormy used a simple bone structure built from scratch. Goldy the Robot was originally created by assembling Poser props from the **Props** category within the **Library** palette (see "Using Objects from the Library Palette" on page 135). For this example, she will use a skeleton belonging to an existing library figure and be adjusted as necessary.

- 1 Begin by launching Poser and importing the file goldy.obj from your Poser 5 CD's **Documentation\Samples** folder.
- 2 Set both Full Tracking and the Texture Shaded document display style, and enter the Setup room.
- **3** Select the **Front** camera. Goldy should now appear as follows:
- 4 Open the Figure library and select **Figures>Poser 2 Lo>Default Guy**. Click the **Change Figure** button to load the skeleton. If you prefer, you can also begin at the hip and create a skeleton from scratch, just as you did with Wormy:





- 5 Select the **Translate** tool and position the bones on your left (Goldy's right) side and center (Outline display style shown for maximum contrast).
- Select Figure>Symmetry> Right to Left. Click Yes when prompted to copy joint zone setups. Goldy's skeleton should now look something like this:
- 7 Goldy's bones are now aligned side to side. Select a side camera (or multiple pane view, as described in "Single/Multiple-View Panes" on page 140) and adjust the front-to-back alignment. As in the previous step, you can use symmetry to save time. When you are finished, select the Main camera and fly around Goldy to make sure that the skeleton is correctly placed.
- At this point, you could use the **Auto Group** tool. However, Goldy's hoop will not work properly, since the **Grouping** tool will assign its polygons to the hips and abdomen, causing the hoop to distort or break as Goldy moves. To prevent this, select a side view, select the abdomen bone, and draw a new bone protruding from Goldy's center to the hoop.
- The **Auto Group** tool will assign some of the hoop polygons to the bone you created, and others to the hip, thighs, etc. Simply select the group corresponding to the bone you created in the previous step, and add the rest of the hoop polygons to the group to make the hoop move properly.
- **10** Check all of the groups to ensure that the correct polygons are assigned to each group. Make any necessary adjustments. When you are finished, exit the **Setup** room and try posing Goldy.
- 11 Not too bad for a few minutes' work. Still, to make Goldy move like a robot instead of an organic figure, you will need to adjust the joint parameters. You may also need to adjust the bones and/or turn off body part bending by selecting body parts and/or disabling bending in the **Properties** palette. The Poser scene Goldy Raw.pz3 in your Poser 5 CD's Documentation\Samples folder shows Goldy just after leaving the **Setup** room. Goldy Adjusted.pz3 in the same folder shows Goldy after her joint parameters and bones have been adjusted. Notice how she now moves like the robot she is. Load this file, select each joint, and note its parameters. Try using the Walk Designer (see "Using the Walk Designer" on page 275) and playing the resulting animation.



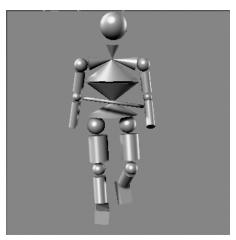








12 The final step is to make Goldy gold. To do this, enter the Material room and make the Diffuse_Color, Ambient_Color, and Reflective_Color attributes gold as described in "Root Node Help" on page 315. Render the scene to see Goldy in all her glory!



Chapter 14: Creating and Assigning Textures

reating your own textures for figures and/or props requires a solid grasp of the concepts explained in Part 2: "3D Basics" on page 23 and knowledge of one or more 2D graphics tools such as Adobe Photoshop. The process of creating textures is very similar if not identical for many 3D applications. While it's impossible to cover the entire process in this book, we can give you enough information to understand the basics and begin creating your own maps.



NOTE

THIS SECTION COVERS CREATING MAPS. PLEASE REFER TO PART 8 FOR INFORMATION ABOUT APPLYING MAPS TO SHADERS.

CREATING TEXTURE TEMPLATES

If you use the figures and props that came with Poser (or if you buy figures from most third-party vendors), they probably come with one or more ready-made texture maps and one or more blank templates. If you need to create a new texture template, you'll need to follow a process that is roughly similar to the following:

- 1 Create your mesh object in your preferred 3D modeling application.
- **2** Export the mesh in a format supported by Poser (see "Export" on page 88 for a list of supported formats).
- 3 If your 3D modeling application supports exporting your mesh object with UV mapping data, be sure to do this, as this will probably create your template for you. Please refer to your 3D modeling application documentation for information.
- 4 If your exported object does not have UV information, you'll need to use an application such as UV Mapper (http://www.uvmapper.com) to create the UV information and a blank template that can be used for any sort of map (texture, bump, transparency, reflection, displacement, etc.). If you use a third-party application to create texture templates, please refer to that application's documentation for information on using that application. Also, should you require technical support, please contact the application's creator or vendor. Curious Labs cannot provide support for third-party applications.

CREATING AND USING TEXTURE MAPS

This subsection contains a brief tutorial on creating texture maps. The proper use of maps can create stunning results such as the scene below:



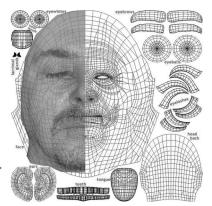
If you've seen some computer-animated movies lately, you were probably astounded by the realism of the characters; this high level of believability was achieved using high-quality 3D models and image maps. The fact is, image maps can make or break a model's believability. What may surprise you is that Poser 5 can generate equally realistic results for you. We are going to give you some pointers on how you can do this yourself using Poser 5 and a 2D graphics application such as Adobe Photoshop. The primary topic for this tutorial is texture maps, however the same principles apply to all types of image maps. Please refer to "About Maps & Templates" on page 41 for information about the various types of image maps.

NOTE

POSER 5'S MATERIAL ROOM CAN CREATE COMPLETE MATERIALS WITHOUT NEEDING ANY IMAGE MAPS. TO OBTAIN PRECISE RESULTS, HOWEVER (SUCH AS A TATTOO IN A SPECIFIC LOCATION), YOU WILL NEED TO INCLUDE IMAGE MAPS IN YOUR SHADERS FOR TEXTURE, BUMP, TRANSPARENCY, ETC. IMAGE MAPS ARE ADDED TO NODES USING THE MATERIAL ROOM. ALSO, THE FACE ROOM CAN CREATE CUSTOM HEAD TEXTURES FOR THE POSER 5 FIGURES FROM IMAGES OR EVEN FROM SCRATCH!

A texture map looks like a skinned 3D model spread out onto a flat surface. Imagine peeling an orange and flattening the peelings on a table- that's a texture map. When creating a texture, remember that it will ultimately be wrapped around your object and that you'll need to pay special attention to the edges, which will be seams when the texture is rendered

Texture makers use a UV map (template) to place the texture's major pieces. A UV map provides gridlike lines that correspond to the object's geometry, provides a coloring book approach to making



textures, and only requires a good graphics editing software package such as Adobe Photoshop. Like a coloring book, items not placed properly within the grid lines render askew, and anything bleeding over the edge of the grid does not appear at all when rendered. This is one time where you definitely want to stay between the lines! The texture maps for the figures and props that are included with Poser 5 are located on the content CD. Because realistic human textures are the hardest to achieve, we decided to describe creating one for this section. The same principles apply to any texture you are creating, be it a brick wall, animal fur, a plant- any figure or prop for which you want to use texture mapping.

The brief explanation that follows is courtesy of Ms. Syyd Raven, who created the textures used by Poser 5's new human figures:

Save often and under different filenames to preserve each step of your work.

Maps of 1500-3000 pixels provide an ideal realism/performance balance. Some third-party textures can be 4000 pixels or more, however these can slow Poser down because they require additional computing resources.

The figure used for these renders requires two maps, one for his head, and one for his body. Different Poser figures may use one or two texture maps, depending on the figure. The following sections address each map separately, and the same principles apply to figures that only use one map.



NOTE

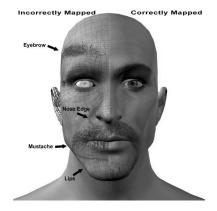
AS DISCUSSED ABOVE, CREATING MAPS IS AN ADVANCED PROCESS THAT CAN REQUIRE ONE OR MORE THIRD-PARTY TOOLS. CURIOUS LABS CANNOT PROVIDE SUPPORT OR ADDITIONAL INFORMATION ON CREATING TEXTURE MAPS BEYOND THE TECHNICAL ASPECTS THAT DIRECTLY INVOLVE POSER. THE MATERIAL PRESENTED IN THIS SECTION IS FOR INFORMATIONAL PURPOSES ONLY.

THE HEAD MAP

- Photos used for the basis of your texture should roughly match the final texture map size.
- Work on one side at a time
- Set the photograph's opacity to approximately 50% so you can use the underlying template to align it; scale, rotate, and clone individual facial features to perfectly fit the map.

With your image editor running, launch Poser and apply the head texture to the figure:

- Set the figure's material color to white and highlights to black in the material editor.
- Render the model with white lighting, no shadow, and antialiasing enabled to test texture alignment.
- Test various morph targets on the face to verify that the texture remains in alignment.



- Make changes in your image editing software and test render in Poser as many times as you need.
- Once you are satisfied with your map, mirror the completed side by copying and pasting into a new layer and flipping the new section.
- After mirroring the texture, you may notice a line down the center. Remove this line by cloning an area with a matching color, cutting and pasting small photo pieces from the original source image, using the blend tool, or any combination of these methods.
- Change and add various details (lines, moles, etc.). No face is perfectly symmetrical!
- Continue expanding the skin to a bit beyond the template edge.
- While testing, rotate the head to see the ear and side of the neck; you will need to pay
 close attention to these areas to ensure that there are no seams.

- Cut out and place individual teeth, giving the front six (top) and eight (bottom) the most detail. Realistic teeth are somewhat gray/yellow, not white.
- Photograph a tongue and apply it directly to the map. Pay attention to the deep grooved center line; this adds credibility to the texture when the model's mouth is open.
- The inner mouth looks reminiscent of a rib cage surrounding lungs.
- Lachrymal glands (tear ducts) have wetness and roundness.
- Take close-up photos of eyes.
- Paying attention to eye reflections dramatically increases the realism of your renders.
- Have the model hold their eyes wide open to show the whites and roundness of the iris.
- Make the veins thin and not overly red to avoid bloodshot-looking eyes.

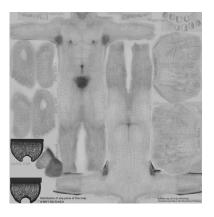




THE BODY MAP

The body's fine details (hair, moles, etc.) require larger maps to avoid blurring and pixilation. Many third-party body maps are double the size of the corresponding head map.

- It's difficult to use complete photos for textures since they will not align correctly. Size and rotate working images or photos using separate layers.
- Lay out the entire body first, without worrying about matching edges to get major portions in place, then finesse the edges with everincreasing detail.



- Male maps require more detail than females because of body hair.
- Photograph small areas, treating arms as 4-sided objects; concentrate on elbow creases.

- Male necks can include beards or stubble, which can be problematic due to different resolutions between the head and body textures.
- Nipples can be tricky due to low resolution and may require fine-tuning, especially on female maps due to breast morphs.
- Hands are also important; get close-ups of both sides.
- Take care to include hand veins on the final texture as well as creases that match the model's geometry.
- Use the same map for the left and right hand, then add asymmetrical features. Repeat this for the feet
- Cut individual fingernails and toenails from your photographs and fit them into the template.
- Make sure you test all your work-in-progress in Poser.
- When the body is complete, correct the head and body color to make them the same shade/hue. Writing down your color values can be a big help.



CREATING AND USING BUMP, REFLECTION, AND TRANSPARENCY MAPS

To be fully realistic, many textures also need transparency and bump maps. For example, the eyelash area template needs to be white where you want the object or eyelash visible. Consequently, you will start with a black background and draw in white where you want the eyelashes to appear when rendered. A graphics tablet works well for this, since eyelashes require a natural curved line that tapers to a point, which can be hard to achieve with a mouse. If you don't own a graphics tablet, you can begin with a very large map and reduce it to the proper size later. The larger map will make it easier to draw the lines with accuracy.

Bump maps add further realism to skin pores, scars, or moles. For photorealistic skin, it's imperative to deal with major landmarks (moles, birthmarks, etc.) using a bump map. The quickest way to create bump maps is to copy the finished texture, desaturate it (that is, remove all the color leaving only the black and white components), and invert it. Then convert it to grayscale. This reduces the file's size and memory requirements.

Poser allows you to adjust the bump maps' height, so it's a good idea to design them with very high contrast (or the most bump). Most graphics packages have automatic contrast controls; this is a great way to quickly get the widest range of bump for your maps. If needed, you can decrease the bump height within Poser before render time.

White areas of the bump map are high, and black areas are low. In order for your texture to make a plausible map, you will have to invert it before you can use it. If you forget to do this, it may take you a while to figure out why your test renders look a bit odd. A good example of this would be whiskers pushing in instead of outward.



NOTE

BUMP MAPS SIMPLY DISTURB AN OBJECT'S NORMALS. IF YOU APPLY A BUMP MAP TO A SPHERE, THE SURFACE WILL SEEM ROUGH WHILE THE EDGES REMAIN SMOOTH. POSER 5'S MATERIAL ROOM CONTAINS A DISPLACEMENT CHANNEL, ALLOWING YOU TO USE BUMP MAPS TO ACTUALLY ALTER THE GEOMETRY. FOR EXAMPLE, APPLYING A DISPLACEMENT MAP TO A SPHERE WOULD MAKE THE EDGES APPEAR ROUGH.

Once you've adjusted the contrast and desaturated your texture, you can start modifying it to suit your particular needs. Go ahead, give it a shot: You might be pleasantly surprised with your results!



Armed with these tips, you should be well on your way to making your own textures. Please refer to "Third-Party Forums" on page 9 for links to various Poser galleries and resources with information on creating your own Poser textures.

PART 5

The Poser 5 Menu Bar

Chapter 15: The File Menu



s the name implies, the **File** menu is where you work with your Poser scene files.

NEW

Selecting **File>New** creates a new Poser scene. A warning dialog appears if you have any unsaved changes. If this dialog appears:

- Selecting Don't Save creates a new Poser scene without saving your unsaved changes.
 All unsaved changes will be lost, so use this option carefully!
- Selecting Cancel closes the dialog, leaving your current Poser scene open.
- Selecting Save opens a standard Save dialog box, allowing you to save your current Poser scene. After saving your current scene, the new scene will be created.

OPEN

Selecting **File>Open** opens a standard **Open** dialog box, allowing you to access and work on a previously saved Poser scene file. You are prompted to save any unsaved changes in your current scene, if any (see above).

CLOSE

Selecting **File>Close** closes your current Poser scene while leaving the Poser application running. You are prompted to save any unsaved changes in your current scene.

SAVE

Selecting **File>Save** saves your current Poser scene using your previously specified filename and save location. If you have not previously saved your scene, Poser will open the standard **Save As** dialog box, allowing you to name and save your current Poser scene (see below).

SAVE AS

Selecting **File>Save As** saves your current Poser scene allowing you to select a different filename and/or save location. This feature is useful for creating different versions of work, which allows you to return to any previous stage if you decide you don't like your

progress beyond a given save point. For example, you could save *myscene_1.pz3*, then save new versions as *myscene_2.pz3*, *myscene_3.pz3*, and so forth.

COMPRESSED FILE SUPPORT

Poser 5 allows you to compress saved figures/props/scenes to save hard drive room. To enable compression support, select **Edit>General Preferences** and check the **Save Compressed Files** box as described above in "Setting Application Preferences" on page 61.

REVERT

Selecting File>Revert allows you to undo your changes and reopen your current scene file in its last-saved state. This is a great way to do your recent changes over, however you will lose everything you've done since the last time you saved your scene. This is why we recommend that you save your scene often and, if you think you may want to return to an earlier version, to save progressive versions of your work using the Save As command. Clicking Cancel returns you to Poser, and clicking Revert proceeds to load the last saved version of your current scene.

IMPORT

Selecting **File>Import** allows you to bring both Poser and non-Poser files into your scenes. These could be images, movies, or props (which you can convert into Poser figures as described in Chapter 36: "The Setup Room" on page 261).

IMPORTING MOVIES

To import movies, select **File>Import>AVI Footage** (PC) or **File>Import>QuickTime** (Macintosh). You can use imported movies to add background action to your Poser animations. For example, you could have a scene with two Poser characters sitting on a train with an imported movie showing the scenery rolling past as if the train was in motion.

If your imported movie's size or *aspect ratio* (width/height) is different than your current **Document** window settings, you will be asked if you want to rescale your **Document** window to fit. Selecting **Yes** resizes your **Document** window to fit the imported movie. Selecting **No** "stretches" the **Document** window to accommodate the movie. You may see areas of the **Document** window not covered by the imported movie. Changing the aspect ratio of imported movies can introduce unwanted artifacts and distortions into your scene

when rendered. Curious Labs therefore recommend resizing your **Document** window or importing correctly sized animations.





Figure 1: Proper Fit

Figure 2: Improper Fit

Imported movies will begin at the first frame of your Poser animation. If your animation is longer than the movie, the movie will remain in the background paused at its last frame. If your animation is shorter than the movie, you will see Frames 1-x of the imported movie, where x is the number of frames in your Poser animation.

When importing movies, you should try to light your scene in a manner consistent with the background so as to blend them together. Please see Chapter 28: "Lighting" on page 158 for information about lights in Poser 5.

IMPORTING BACKGROUND PICTURES

You can also import static images as backgrounds. For example, if you are creating a scene with Poser characters in a room with a window, you could use a background image to simulate the view from the window. Selecting File>Import>Background Picture opens a standard Open dialog, allowing you to select your image's format and location. As with movie imports, you are asked if you wish to resize your Document window to match the imported image, and the results are the same as described above. Changing the aspect ratio of imported images can introduce unwanted artifacts into your scene when rendered and can result in blank areas on the sides of the Document window (see above). We therefore recommend resizing your Document window or importing correctly sized images. Poser 5 supports importing background images in the following formats: SGI, 8BP, BMP, DIB, FPX, GIF, JPG, MAC, PCT, PIC, PNG, PNT, PSD, TGA, and TPI.

When importing images, you should try to light your scene in a manner consistent with the background so as to blend them together. Please see Chapter 28: "Lighting" on page 158 for information about lights in Poser 5.

IMPORTING POSER DOCUMENTS OR PROPS

Selecting File>Import>Poser Document/Prop imports either an entire Poser scene or a Poser prop into your scene. This can be useful for inserting props that are not part of your Library palette's Props category. Imported scenes/props become part of your current scene complete with animations, morphs, poses, etc. This option opens a standard dialog box allowing you to browse for the desired file. Use the Files of type pull-down menu to select one of the following types of Poser files:

- Poser 1.0 file (*.POZ): This option imports Poser 1.0 scenes.
- Poser 2.0 file (*.PZR): This option imports Poser 2.0 scenes.
- Poser 3.0 & later (*.PZ3): This option imports Poser 3.0 and later scenes.
- Compressed Poser Files (*.PZZ): This option imports compressed Poser scene files saved using either Pro Pack for Poser 4 or Poser 5 (see "Compressed File Support" on page 62 for more information about compressed file support within Poser 5).
- Poser 3 prop library (*.PP2): This option imports Poser prop files.

IMPORTING POSER 1.0 LIBRARIES

Selecting File>Import>Poser 1.0 Library imports a Poser 1 Library.

IMPORTING SOUND

Selecting **File>Import>Sound** allows you to import WAV sound clips that you can use as a soundtrack for your animation. Imported sounds are added to the beginning of your animation and play every time you play your animation. Upon selecting this option, a standard **Open** dialog appears, allowing you to select the filename and location of the sound file you wish to import. Please refer to "Editing Sound" on page 291 for information on editing sounds within Poser 5. Please refer to "Synching Sound & Motion" on page 291 for information on working with imported sounds.

IMPORTING BVH MOTION CAPTURE FILES

Selecting **File>Import>BVH Motion** allows you to import motion-capture files in the popular BVH format. A standard **Import** dialog appears, allowing you to select your desired path and filename.

To determine the correct axis or scale for the BVH files consult the developer's readme or documentation. Developers such as Biovision or House of Moves will provide this information. Or, you can specify whether a figure's arms are aligned in the X or Z axis during import. The align axis is determined at the time of recording. Choose the correct axis so your figure will move correctly. Begin by selecting the body. Import the BVH file and select the **Z-Axis** arm alignment and **Scale Automatically** options. Some actors may

not be recognized, but the BVH file will still load. If you make a mistake, return to Frame 1 and re-import the file. Imported BVH keyframes are applied to the currently selected figure and can be edited like any other keyframe (see "Editing Keyframes on the Timeline" on page 285).

IMPORTING 3D OBJECTS

Poser 5 allows you to import geometries in the following formats:

- RIB (File>Import>RIB)
- 3DMF (File>Import>Quickdraw 3DMF)
- 3D Studio Max (*.3DS format in Windows only) (File>Import>3D Studio)
- DXF (File>Import>DXF)
- Wavefront OBJ (File>Import>Wavefront OBJ)
- Lightwave 5 LWO files (File>Import>Lightwave 5)

Most 3D modeling applications support exporting to at least one of the above formats. Some formats, such as Wavefront OBJ, allow you to save geometries as either polygons or NURBS surfaces. Poser 5 will only accept geometries saved as polygons.

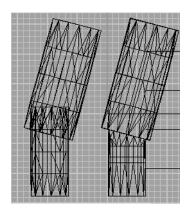
Tips & Tricks

When using your favorite 3D modeling application for creating new geometries for conversion into Poser figures/props, it is a good idea to follow these guidelines in order to speed up the figure creation process and provide a better end result:

 Make sure that you do not have duplicate or overlapping polygons. Duplicate polygons occur when you have two identical parts of the geometry occupying the same location, for example if you accidentally paste an item twice. The following graphic depicts an instance of duplicated polygons within a 3D modeling application:



- Eliminate overlapping polygons, which can occur if
 pieces of the geometry are embedded within each
 other. The following graphic shows an example of
 overlapping polygons on the left (the smaller pipe
 embedded within the larger one), and the correct
 way to create the geometry on the right (without
 overlapping polygons):
- Poser 5 allows you to import geometries as a single file with groups within the file, as separate files, or as a single file with no groups. We recommend that you create your geometries as single files with no groups, since Poser 5 includes powerful grouping tools and since some geometry formats (such as



- Wavefront OBJ) allow you to assign polygons to more than one group at a time. Importing geometries with polygons assigned to more than one group will cause Poser 5 to duplicate those polygons, resulting in additional unwanted figure parts.
- Use the following procedure to import geometries into Poser:
- 1 Begin the process by creating a polygonal mesh object in your favorite 3D modeling application. Once you have finished, import it into Poser by selecting File>Import>format, where format is the format you wish to import (such as OBJ). A Standard Open dialog appears, allowing you to select your desired filename and path.
- 2 Once you have selected the desired geometry, the **Prop Import Options** dialog appears. It contains the following options:
 - Centered: Checking the Centered checkbox positions the imported geometry in the center of the studio.
 - *Place on floor*: When enabled, the **Place on Floor** option places the bottom of the prop at "ground level" on the floor of the studio.
 - Percent of standard figure size: The Percent of standard figure size option scales the geometry relative to the height of a standard Poser figure. For example, setting the scale to 50% imports the geometry at 50% of the height of a standard Poser figure. The rest of the geometry scales to maintain the correct proportions relative to the selected height. When importing DXF geometries, Poser considers one DXF unit as being equal to the height of a standard Poser figure, or about six feet.
 - Offset: Entering numeric values in one or more of the **Offset** fields positions the geometry at the selected position within the studio.
 - *Weld identical vertices*: When enabled, the **Weld identical vertices** option unites identical vertices within the geometry.

- Make polygon normals consistent: If the geometry file contains vertex normals, checking the Make polygon normals consistent checkbox makes the polygon normals consistent with the vertex normals.
- Flip normals: The Flip Normals option reverses all of the geometry's normals.
- Flip U Texture Coordinates: The Flip U Texture Coordinates option reverses the geometry's U texture coordinates.
- Flip V Texture Coordinates: The Flip V Texture Coordinates option reverses the geometry's V texture coordinates.

Once you have finished selecting your desired options, click the **OK** button.

3 The geometry file imports into Poser 5. The amount of time required to import a geometry file depends on factors such as the size of the file, number of polygons or groups, speed of your computer, etc. A progress indicator tracks the import process. When the process is complete, the imported geometry appears in your Poser 5 **Document** window.

Imported geometries are treated as static props. You can add props to the **Library** palette as described in "Maintaining Your Library Palette" on page 131 and/or can convert props into poseable Poser figures using either the graphical **Setup** room (see Chapter



36: "The Setup Room" on page 261 for instructions on using the **Setup** room) or the legacy text-based method (refer to the electronic Poser 3 Advanced Tips & Tricks manual, available on your Poser 5 CD in the **Documentation** folder).

EXPORT

In addition to supporting a wide range of import formats, Poser 5 supports many formats for export, allowing you to use your Poser output with your favorite 2D and 3D applications.

EXPORTING IMAGES

To export an image, select **File>Export>Image**. A standard **Save As** dialog appears, allowing you to specify your desired filename and save location. In addition, you may be able to select various image-specific attributes (such as quality for JPG exports).

Exporting an image saves a snapshot of your current scene exactly as it appears in your **Document** window.

EXPORTING BVH MOTION FILES

To export a BVH motion capture file:

- **1** Select the figure you wish to export.
- 2 Select File>Export>BHV Motion.
- **3** Select **Scale Automatically**. If the exported file looks incorrect, re-export it and disable automatic scaling.

A standard **Save** dialog appears, allowing you to specify your desired filename and save location

EXPORTING PAINTER SCRIPTS

Selecting **File>Export>Painter Script** exports the current Sketch Designer settings to Corel Painter. You must be in the Sketch Designer (see Chapter 49: "The Sketch Designer Renderer" on page 352) in order to use this option. This has been tested to work with Painter 6 and previous versions and may work with later versions but is not supported.

EXPORTING 3D OBJECTS

Poser 5 allows you to export 3D objects in RIB, 3DMF, 3DS, DXF, HAnim, OBJ, Detailer Text, VRML, LWO, and OBJ formats by selecting **Filer>Export>** format, where format is one of the supported export formats. To export to a 3D format:

- 1 Select File>Export>format.
- 2 In the dialog that appears, check the appropriate radio button to export either a still (at the current frame of your animation) or an animation. If you select to export an animation, enter the frame starting and ending numbers in the appropriate text boxes and click **OK**.
- **3** Select the actor(s) you want to export in the following dialog and click **OK**.
- **4** A standard **Save As** dialog appears, allowing you to select your desired filename and path.



IF YOU ARE TRYING TO CREATE A FULL-BODY MORPH TARGET, DO NOT SELECT FILE>EXPORT>OBJ. INSTEAD, SELECT FIGURE>CREATE FULL BODY MORPH.

EXPORTING MACROMEDIA FLASH FILES

Macromedia Flash is a popular 2D format most commonly used for animating Web content. You can export your Poser file to the Flash format and then use the Flash application to modify the file. Flash presentations are normally viewed directly within Web browsers using the Macromedia Flash plug-in.

Please refer to Chapter 50: "Rendering Animations" on page 356 for more information about the **Make Movie** dialog, and to "Flash Settings" on page 357 for information about setting Macromedia Flash export options.

VIEWPOINT EXPERIENCE TECHNOLOGY

To export a Poser file to the Viewpoint Media Player format:

- 1 Create your animation and any animation sets you wish to include in the Viewpoint file. Please refer to "Animation Sets" on page 292 for more information. Select File>Export>Viewpoint Experience Technology to open the Viewpoint Export dialog, which allows you to adjust the following settings:
 - File Generation: Check the appropriate box to specify whether or not you wish an HTML file to be generated along with the Viewpoint files. This HTML file is what allows you to view Viewpoint files in your Web browser. The source HTML code can be inserted into any HTML, allowing you to embed Viewpoint files in your Web pages. You will need to visit http://www.viewpoint.com to obtain a broadcast key prior to displaying Viewpoint content on publicly accessible Web pages.
 - Viewpoint Window Size: Enter your desired window size in the Width and Height fields. Larger window sizes will allow your viewers to see more detail, but may limit performance depending on a viewer's computer capabilities. Larger windows require more processing power.
 - Quality: Set your desired image and geometry quality in the Image quality and Geometry quality fields. Higher quality improves the fidelity of the image and the geometric detail but can limit performance.
 - Compression: Checking the Save compressed box compresses saved Viewpoint files so they require less disk space.
 - Textures: Checking the Use wavelet textures box enables Viewpoint's TrixelsNT wavelet compression technology, creating a better-looking presentation. Leaving this box blank saves textures as JPEG (*.JPG) files.
 - Animation Sets: Check the Use animation sets box if you wish to use animation sets. Please refer to "Animation Sets" on page 292 for a complete description of animation sets.
 - Camera Animation: If your scene includes camera animation, checking the Ignore camera animation box leaves this out of the Viewpoint file, which can make it easier to view.
 - Soft Edges: Checking the Soft edges in HTML window box causes items in the Viewpoint scene to fade out if they extend beyond the viewing window edge. Clearing this box leaves a hard window edge.

- Scale: Enter your desired scale in the Scale Factor field. A value of 1 corresponds to 100%.
- Broadcast Key: Enter your Viewpoint broadcast key in the Broadcast Key field. You can obtain a Viewpoint broadcast key by visiting Viewpoint at http://www.viewpoint.com. If you do not have a broadcast key, your published Viewpoint files will display with a "VIEWPOINT" watermark over the entire image. Please follow the instructions on the Viewpoint Web site for obtaining a broadcast key and setting this key up on your Web server. Enter the key's location as the URL in Poser 5's Publishing dialog.

Click **OK** when you have finished selecting your desired options.

- 2 You will see a standard **Save** dialog asking you to specify a filename and path for your saved files. The Viewpoint exporter will save two or three files, depending on your selection. Each file will have your specified filename and its own extension.
- 3 The Viewpoint Preview window appears as shown. If your export contains animation sets, they will be disabled during the preview.

 Viewpoint may not support all of Poser's animation capabilities. You may click and drag in the preview pane to fly around the scene. Please refer to the Viewpoint section of the Poser 5 readme file for information on supported features within Viewpoint.



Please visit Viewpoint's Web site for guidelines regarding polygon count, textures, etc. when using this format.

Viewing Exported Viewpoint Files

To view your exported Viewpoint Experience Technology files, you will need to download the free Web browser plug-in available from Viewpoint by visiting http://www.viewpoint.com. You will then be able to open your saved Viewpoint presentation provided you generated an HTML file. If you did not create an HTML file when creating the presentation, you can download the free MTX2HTML utility from Viewpoint's Web site. If you are visiting a Web site containing Viewpoint content, you will be prompted to install the plug-in.



NOTE

TO HOST YOUR EXPORTED VIEWPOINT CONTENT, YOU WILL NEED TO OBTAIN A BROADCAST KEY FROM VIEWPOINT. KEYS ARE FREE FOR NON-COMMERCIAL USES AND INEXPENSIVELY PRICED FOR SMALL BUSINESSES.

Once opened, your Viewpoint file appears in your Web browser:

Any animation that is not part of an animation set will begin playing. To start or stop an animation set, click the **Start <set>** and **Stop <set>** buttons, as appropriate. The example on the right shows both animation sets stopped. However, with both sets started, you should be able to recognize the Poser walk cycle.

You can rotate your presentation by clicking and dragging the left mouse button. To zoom in and out, right-click and drag.





Right_Arm Stop Right_Arm Left_Arm Stop Left_Arm

RUN PYTHON SCRIPT

Selecting File>Run Python Script opens a standard Open dialog, allowing you to browse for your desired PoserPython script. Once you locate your script, select it and click OK to execute it

REINITIALIZE PYTHON

Selecting File>Reinitialize Python reinitializes the PoserPython script handler.

CONVERT HIER FILE

Selecting **File>Convert Hier File** opens a standard **Open** dialog box prompting to you locate and open a Poser 3 Hierarchy file (*.phi). If this file contains no errors, this function creates a Poser Figure (*.cr2) file. Please refer to "About Poser Files" on page 368 for more information about Poser files and their functions.

Hierarchy files are used when creating custom figures using the text-based method (see Chapter 36: "The Setup Room" on page 261). With the inclusion of the graphical **Setup** room in Poser 5, this older method, while still supported, is far longer and more tedious since it forces you to do everything manually while in a text-based environment. If you do wish to create custom Poser figures using this older method, please refer to the Poser 3 Advanced Tips & Tricks Manual. This document is in PDF format and is saved on your Poser 5 CD in the **Documentation** folder

PRINT SETUP

Selecting **File>Print Setup** opens a standard **Print Setup** dialog box allowing you to set up your printers. Please refer to your operating system and/or printer documentation for information on setting your print preferences.

PRINT

Selecting **File>Print** sends your current scene to your selected printer. A standard **Print** dialog box opens allowing you to select your desired printer and general printing properties. Poser documents always print using the full page size. Please refer to your operating system documentation for information on selecting print options.

EXIT

Selecting File>Exit closes Poser 5. You are prompted to save any unsaved changes.

Chapter 16: The Edit Menu



he **Edit** menu allows you to perform basic editing functions and access your Poser application's general preferences settings.

UNDO

Selecting **Edit>Undo** reverses your last action. You can also press [CTRL]+[Z]. You cannot undo some operations (such as certain commands in the **Material**, **Face**, **Hair**, and **Cloth** rooms). Poser 5 allows a single level of undo.

CUT

Selecting **Edit>Cut** removes the selected element(s) and places them in the system Clipboard for later pasting. You can do this for poses and other functions.

COPY

Selecting **Edit>Copy** copies the selected element to the Clipboard. You can copy and paste elements and poses. For example, here's a figure whose Abdomen pose has been copied to its arm:

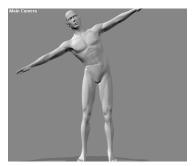




Figure 1: Before

Figure 2: After

To copy and paste a shaped body part:

- 1 Manipulate the body part using any tool you desire.
- **2** Select the body part (source), then select **Edit>Copy** or press [CTRL]+[C].
- 3 Click to select the body part you wish to copy to (target) and select Edit>Paste or press [CTRL]+[V] (see following subsection). This copies all settings from the source to the target, including deformers.

PASTE

Selecting **Edit>Paste** places the item stored in the Clipboard into your current scene. If you are pasting a pose, select the element to apply the copied pose to, then make your selection.



NOTE

COPYING AND PASTING POSES FROM ONE SIDE TO THE OTHER DOES NOT MIRROR THE POSES. THE SAME POSE IS APPLIED. TO MIRROR POSES. USE THE SYMMETRY FUNCTION.

COPY PICTURE

Selecting **Edit>Copy Picture** takes a snapshot of your scene, which you can then paste into a graphics application such as Adobe Photoshop. Your scene is copied exactly as displayed in the **Document** window.



NOTE

COPYING AND PASTING IMAGES IN THIS MANNER IS NOT THE SAME AS RENDERING. PLEASE REFER TO PART 9 FOR INFORMATION ON RENDERING POSER 5 SCENES

RESTORE

Need to restore a scene element to its default state? Selecting **Edit>Restore** opens a submenu allowing you to restore scene elements, which are completely restored to their Poser 5 default states, including but not limited to position, scale, morphs, parameters, materials, parent/child relationships, etc. This function is literally for cases when you wish to go back and start all over again. Use it with care! The **Restore** submenu appears as follows:

Your options are:

- *Element*: Selecting **Edit>Restore>Element** restores the current element to its default state. An element could be a body part, prop, single camera, or single light.
- Figure: Selecting Edit>Restore>Figure restores the current figure to its default state.
- Lights: Selecting Edit>Restore>Lights restores all lights in your scene to their Poser default state.
- Camera: Selecting Edit>Restore>Camera restores the current camera to its default state.
- *All*: Selecting **Edit>Restore>All** restores all scene elements to their default states. Use this option with care!

MEMORIZE

While working, you might arrive at a convenient stopping point. You know you like what you have so far and do not want to revert all the way back to the Poser default state should you need to restore one or more scene elements (or even the entire scene) at a later time. No problem. Select **Edit>Memorize** and the element(s) you wish to memorize (the list is the same as for the **Restore** submenu, above). Doing this essentially changes the default for your selected item(s), which can be undesirable in some cases. Redoing this operation saves the new default overwriting the old. If you later select **Edit>Restore**, your element(s) will be restored to the last memorized settings.

Memorization works on a per-file basis, meaning that memorizing defaults in one file does not affect the defaults of other Poser files or **Library** entries.

GENERAL PREFERENCES

Selecting Edit>General Preferences opens the General Preferences dialog box, allowing you to set certain global Poser options. Please refer to "Setting Application Preferences" on page 61 for information on the options available via this dialog box.

Chapter 17: The Figure Menu



he **Figure** menu allows you to select several high-level options for figures/props.

FIGURE HEIGHT

Poser provides several figure heights, which you can adjust by selecting **Figure>Figure Height** and selecting one of the eight heights available. Figure heights are measured in "heads", meaning the ratio of the head height to the overall body height:

- *Baby*: 4 heads (each head is approximately 6 inches tall)
- *Toddler*: 5 heads (each head is approximately 6.5 inches tall)
- Child: 6 heads (each head is approximately 7 inches tall)
- Juvenile: 7 heads (each head is approximately 7.5 inches tall)
- Adolescent: 7.5 heads (each head is approximately 9 inches tall)
- *Ideal Adult*: 8 heads (each head is approximately 9 inches tall)
- Fashion Model: 8.5 heads (each head is approximately 9 inches tall)
- Heroic Model: 9 heads (each head is approximately 9 inches tall)
- You can create interesting effects by applying different height settings to different figures.

SET FIGURE PARENT

You can attach props to body parts, body parts to each other, figures to props, figures to figures, cameras to body parts- the list goes on and on. Setting a parent creates a hierarchical relationship, as described in "Hierarchy" on page 35. You can parent entire figures to various other scene elements. To set a parent for a figure:

POSER 5 REFERENCE MANUAL

- 1 Select the figure you wish to parent (make the child of another object).
- 2 Select Figure Parent to open the Figure Parent dialog:
- 3 Select the desired parent object and click OK. To parent props, camera, etc., select Object>Change Parent as described in "Change Parent" on page 104.



CONFORM TO

Selecting **Figure>Conform To** conforms the currently selected article of Poser figure-based clothing to the desired base figure. Please refer to "Adding Clothing" on page 136 for information on conforming figure-based clothing to Poser figures. Please visit some of the online forums (listed in "Third-Party Forums" on page 9) for information and tutorials about creating conforming clothing.

CREATE FULL BODY MORPH

Selecting **Figure>Create Full Body Morph** creates a full-body morph target for the currently selected figure. Please refer to "Creating Full-Figure Morph Targets" on page 207 for information on creating full body morphs.



NOTE

THIS IS THE CORRECT WAY TO CREATE FULL-BODY MORPHS. SELECTING FILE>EXPORT>OBJ WILL NOT WORK.

USE INVERSE KINEMATICS

Inverse Kinematics can add realism to your scenes. You can toggle Inverse kinematics (IK) on and off for the following limbs:

- Left Leg
- Right Leg
- Left Arm
- Right Arm

To toggle IK on or off for a limb, select **Figure>Use Inverse Kinematics>***limb*, where *limb* is one of the four limbs. A checkbox next to a limb indicates that IK is active for that limb, and vice versa. Please refer to "Inverse Kinematics (IK)" on page 168 for more information about Inverse Kinematics.

USE LIMITS

Selecting **Figure>Use Limits** toggles parameter limits on and off. Please refer to "Editing Parameter Dials" on page 182 for information about setting limits for parameter dials. The figures included with your copy of Poser 5 have realistic limits applied to them, meaning that you can't, for example, bend a knee backward. Limits are not active when this option is toggled off.

GENITALIA

Some male and female nude models are anatomically correct. Selecting **Figure>Genitalia** toggles displaying genitals on or off.

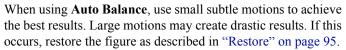


NOTE

MANY FEMALE FIGURES DO NOT HAVE MODELED GENITALIA, RELYING INSTEAD ON TEXTURE/BUMP/
TRANSPARENCY MAPS TO CREATE THE APPEARANCE OF GENITALIA. THIS OPTION ONLY WORKS FOR FIGURES
THAT HAVE MODELED GENITALIA THAT IS SET UP TO TAKE ADVANTAGE OF THIS FEATURE. TO REMOVE
GENITALS ON A FEMALE CHARACTER THAT DOES NOT HAVE MODELED GENITALIA, YOU WILL NEED TO MODIFY
THE TEXTURE MAP. THE POSER 5 NUDE FEMALE MODEL CONTAINS MODELED GENITALIA, WHICH ARE
CONTROLLABLE VIA THIS FUNCTION.

AUTO BALANCE

The **Auto Balance** feature is a valuable tool for helping create realistic poses. When enabled, Poser calculates a figure's mathematical "weight" and maintains it. In the following example, there is more weight in the figure's hip or center portion than in the torso. As you pose a figure, **Auto Balance** adjusts body parts to maintain the original weight distribution, resulting in more natural-looking poses without having to use several position adjustments:





Selecting **Figure>Auto Balance** toggles Auto Balance on and off for the selected figure. A check mark appears next to this option when it's enabled. Reselecting this option clears the check mark and disables Auto Balance for the selected figure.

LOCK FIGURE

Selecting **Figure**>**Lock Figure** locks the figure in its current position. You cannot pose or move a locked figure. This is a great way of protecting your work in complex scenes

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where you have finished posing a figure and don't want it to move accidentally. A check mark appears next to this option when the currently selected figure is locked. Reselecting this option removes the check mark and unlocks the figure.

LOCK HAND PARTS

Selecting **Figure>Lock Hand Parts** locks the selected hand in position, protecting it against accidental position changes while you pose the rest of your figure. To use this option:

- 1 Select the hand to lock.
- 2 Select Figure>Lock Hand Parts. The hand is now locked. This command is not available for all Poser figures.

Please refer to "Posing Hands" on page 186 for information on posing hands.

DROP TO FLOOR

You can place a figure in any position, such as in the middle of a flying leap. You can leave your figure in the air, or you can lower it to the ground depending on your needs. Selecting **Figure>Drop to Floor** brings the lowest part of the selected figure or prop into contact with the Studio floor. To display the floor, refer to "Ground Plane" on page 113.

SYMMETRY

The **Symmetry** command allows you to copy pose characteristics from one side of the body to another, which can save you time when creating scenes in the **Pose** room or when building custom figures using the **Setup** room. Pose an arm and/or leg, and use this command to instantly apply the same position to the other side. You can also swap entire poses from side to side and straighten the currently selected figure's torso:



Figure 1: Before



Figure 2: After



Figure 3: Swap

Selecting **Figure>Symmetry** opens the **Symmetry** menu, which contains the following options for your currently selected figure:

- Left to Right: Selecting Left to Right applies the position of the bones on the left side of the figure to the right side.
- Right to Left: Selecting Right to Left applies the position of the bones on the right side of the figure to the left side.
- Swap Right and Left: Selecting Swap Right and Left swaps the positions of the bones on the right and left sides of the figure.
- Left Arm to Right Arm: Selecting Left Arm to Right Arm positions the right arm bones in the same position as the left arm.
- Right Arm to Left Arm: Selecting Right Arm to Left Arm positions the left arm bones in the same position as the right arm.
- Swap Right and Left Arms: Selecting Swap Right and Left Arms swaps the positions of the bones on the right and left arms of the figure.
- Left Leg to Right Leg: Selecting Left Leg to Right Leg positions the right leg bones in the same position as the left leg.
- Right Leg to Left Leg: Selecting Right Leg to Left Leg positions the left leg bones in the same position as the right leg.
- Swap Right and Left Legs: Selecting Swap Right and Left Legs swaps the positions of the bones on the right and left legs of the figure.
- Straighten Torso: Selecting Straighten Torso straightens the torso area (Hip, Abdomen, Chest).

When you select a Symmetry function, a dialog box appears asking if you wish to copy the joint zone setup as well. Click Yes to apply the symmetry to the bone structure, or No to avoid copying the joint setup.



■ NOTE

SYMMETRY ALSO COPIES ELEMENT SETTINGS (MORPH TARGETS, DEFORMERS, PARAMETERS, ETC.) FROM ONE SIDE TO THE OTHER. FOR EXAMPLE, IF YOU SCALE THE LEFT HAND TO 200% AND APPLY LEFT TO RIGHT SYMMETRY, THE OTHER HAND WILL SCALE AS WELL. DO NOT USE THIS COMMAND IF YOU WANT TO USE ASYMMETRICAL SETTINGS.

DELETE FIGURE

Selecting **Figure>Delete Figure** deletes the currently selected figure. A confirmation dialog appears. Click **OK** to proceed with the deletion or **Cancel** to abort. Windows users can also delete a figure by selecting it and pressing [DEL].

HIDE FIGURE

Selecting **Figure>Hide Figure** hides the currently selected figure if you have more than one figure in your scene. This is helpful when you work with complex scenes, especially where a figure is getting in your way. You can also hide a figure by selecting the figure to hide by selecting **Body** using the **Select Element** pull-down menu and clearing the **Visible** checkbox in the **Properties** palette as described in "Properties" on page 178.



NOTE

COLLISION DETECTION SETTINGS DO NOT APPLY TO HIDDEN OBJECTS.

SHOW ALL FIGURES

Selecting **Figure>Show All Figures** makes all hidden figures in your scene visible. You can also make hidden figures visible by selecting them and checking the **Visible** checkbox in the **Properties** palette. If one or more body parts are set to invisible, these will remain invisible when the selected figure is shown.

CREATE WALK PATH

Walk paths are designed to work with the **Walk Designer** (see "Using the Walk Designer" on page 275). While the **Walk Designer** specifies how your figure walks, a walk path specifies where. The path is a curve drawn in the **Document** window that sets the figure's course as it moves about the studio. Create the path, design the walk, and the figure walks along the path from start to end, stopping at the end.

To create a walk path, Select **Figure>Create Walk Path**. A default path appears in the Studio. We recommend shifting to the **Top** camera and zooming out to get the best view of your scene and walk path, but you can work using any camera you like. The following image shows a default walk path:





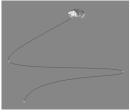
NOTE

WALK PATHS MUST BE CREATED ON THE GROUND PLANE.

SHAPING CURVES

The curve's position is defined using control points. Click and drag control points to shape your path any way you like:

You can position the beginning and end of the walk path by dragging the end control points. You can also reposition the entire walk path by selecting the ring that appears when your



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cursor is near the walk path, which functions like the **Figure Ring** discussed in "Selecting Body Parts" on page 170

ADDING AND REMOVING CONTROL POINTS

To add control points, simply click anywhere along the line. Your new control points appear. Adding control points can add detail and/or lengthen your walk path:



To delete control points, press and hold [ALT] while clicking the point you wish to remove.

Once you have completed your walk path, use the **Walk Designer** to design a walk for your figure. Please refer to "Using the Walk Designer" on page 275 for more information about the **Walk Designer**.



NOTE

BECAUSE OF THE NATURE OF THE SPLINE USED FOR WALK PATHS, IT IS IMPOSSIBLE TO CREATE A HARD RIGHT-ANGLE TURN. THESE AND OTHER ABRUPT DIRECTION CHANGES CAN RESULT IN UNNATURAL-LOOKING WALKS.

NOTE

ONCE YOU HAVE CREATED A WALK USING THE WALK DESIGNER, YOU CAN DELETE THE WALK PATH. THE FIGURE WILL STILL BEHAVE AS THOUGH THE WALK PATH WAS PRESENT.

Chapter 18: The Object Menu



he **Object** menu allows you to manipulate objects within your scene.

PROPERTIES

Selecting **Object>Properties** opens the **Properties** palette for the currently selected element. Please refer to "Properties" on page 178 for more information about the **Properties** palette.

LOCK ACTOR

Selecting **Object>Lock Actor** locks the currently selected element (body part, prop, etc.). To lock your desired actor, select it, then select **Object>Lock Actor**. The currently selected actor will be locked, meaning that it will not move relative to its parent. For example, if the elbow is bent 45 degrees relative to the upper arm, it will hold that position. Locking actors is a great way to protect your work once you've perfected a portion of your figure.

To unlock a locked actor, select it and **Object>Lock Actor**. A checkbox appears next to this menu item when the selected actor is locked, and reselecting this option clears the checkbox and unlocks the actor.

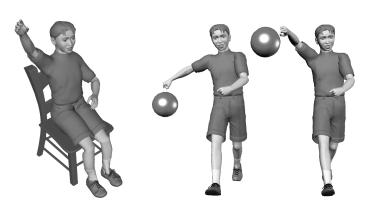
CHANGE PARENT

You can attach props to body parts, body parts to each other, figures to props, figures to figures, cameras to body parts, etc. Setting a parent creates a hierarchical relationship, as described in "Hierarchy" on page 35. You can even control whether parented props bend along with their parent body part. Some items like sunglasses, etc. should not bend. However, other items such as elbow pads on a roller blader should bend with the parent. You should change parent props before posing your figures, since it may be harder to align props with figures once the figures have been posed (such as a sword in a warrior's hand).

Here's an example of a ball parented to a figure's right hand:

You could also parent a chair to a figure's hip and make the chair inherit the figure's bend:

Your parenting choices are virtually unlimited. For example, how about



parenting a camera to a figure's head? This could create some interesting effects.

To set a parent for an element:

- 1 Select the object you wish to parent (make the child of another object).
- 2 If necessary, use the **Editing** tools, deformers, and/or parameter dials to position and shape the object. Ensure the correct positioning using either a detailed preview style (such as **Lit Wireframe**), zooming in close, or a test render. You can also enable **Collision Detection** to prevent the selected object from penetrating its parent object, or vice versa. Please refer to "Collision Detection" on page 142 for more information about the **Collision Detection** feature.
- 3 Select Object>Change Parent (or click the Set Parent button in the Properties palette) to open the Figure Parent dialog:
- **4** Select the desired parent object (object to which the currently selected object will be attached).
- 5 If you want the prop to bend like its parent, check the **Inherit** bends of parent checkbox.
- 6 Click OK

In the preceding examples, we parented the ball to the figure's right hand and the chair to the figure's hip. To set parents for an entire figure, select **Figure>Set Figure Parent** as described in "Set Figure Parent" on page 97.



You can aim body parts, cameras, props, lights, etc. at other scene elements using the **Point At** command. This works in numerous situations, such as having a figure's eyes track a moving object, keeping a camera focused on the action, etc. This is different than

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parenting in that no hierarchical relationship is created. One object simply points at another. By contrast, parented objects retain their exact position and orientation relative to their parent actors.

To point an actor at another actor:

- 1 Select the element you want to aim using the **Select Item** popup menu.
- 2 Select Object>Point At to open a dialog box listing the actors in the scene.

Select the object to aim at and click **OK**. The selected element points at the object and a **Point At** parameter dial appears in that element's **Parameters** palette. Selecting 1 points the element directly at its selected target, and 0 points the element away from the target.



To disable pointing for an element:

- **1** Select the element.
- 2 Select Object>Point At.
- **3** Select **None** in the dialog that appears and click **OK**.

REPLACE BODY PART WITH PROP

Poser 5 lets you replace a body part with a prop, such as a hook on a pirate's hand or a mushroom for a man's head (right). This example was created by importing a model of a mushroom, then replacing the figure's head with that mushroom. You should replace body parts with props before posing figures to make positioning and aligning easier. To replace a body part with a prop:

- **1** Add or import the desired prop.
- 2 Position and deform the prop as desired using the Editing tools, deformers, and/or parameter dials. Be sure that the prop's position overlaps the body a little (in most cases) to avoid a "break" where the body meets the prop. You might also want to make the body part being replaced invisible using the Properties palette as described in "Properties" on page 178.
- 3 Select Object>Replace Body Part with Prop to open the Replace Part dialog.
- **4** Choose the prop to swap using the **Prop** pull-down menu and click **OK**. The prop assumes the name of the body part being replaced.

If the replaced body part doesn't look right, try disabling bending by selecting the replaced body part and clearing the **Bend** checkbox in the **Properties** palette. You can also use the **Joint Editor** palette to make adjustments. This is an advanced feature and should be used with care. Please refer to "The Joint Editor Palette" on page 219 for information on using the **Joint Editor** palette. The prop retains its material groups (see Chapter 8: "Multi/Sub-object Materials" on page 40), meaning you can apply shaders to it as you can with any other material groups in your scene.



NOTE

PROPS TURNED INTO BODY PARTS RETAIN THEIR CURRENT POSITIONS RELATIVE TO THE FIGURE THAT THEY HAD PRIOR TO BEING CONVERTED. BE SURE TO PLACE PROPS IN THEIR DESIRED LOCATIONS BEFORE TURNING THEM INTO BODY PARTS.

CHANGING FIGURES WITH REPLACED GEOMETRY

If you try to change a figure that has a prop for a body part using the **Change** function in the **Library** palette, a warning will appear asking if you want to keep the replaced geometry on the new figure replacing the old:

- To keep the props that have replaced body parts, check the Keep modified geometries
 button. To keep the props attached to their parents on the new figure, check the Keeps
 props attached to figure checkbox. Click OK when ready.
- To undo a geometry change and restore a figure's default geometry, simply reload the original figure from the **Library** palette.

LOAD MORPH TARGET

Selecting **Object>Load Morph Target** allows you to load a morph target for your currently selected element. Please refer to "Creating and Using Morph Targets" on page 206 for more information about morph targets.

SPAWN MORPH TARGET

Selecting **Object>Spawn Morph Target** creates a morph target from deformed objects (body parts, props) in your scene. You will be asked to name your new morph target, and a dial with your specified name will appear in the object's **Parameters** palette. Please refer to "Creating and Using Morph Targets" on page 206 for more information about morph targets.

CREATE MAGNET

Selecting **Object>Create Magnet** creates a magnet deformer.

Please refer to "Magnets" on page 197 for more information about magnets.



CREATE WAVE

Selecting **Object>Create Wave** creates a new wave deformer.

Please refer to "Wave Deformers" on page 202 for more information about wave deformers.



CREATE SPOT LIGHT

Selecting **Object>Create Spot Light** creates a new spot light. Please refer to Chapter 28: "Lighting" on page 158 for more information about lights.

CREATE WIND FORCE

Selecting **Object>Create Force** creates a new wind force field deformer.

Please refer to "Wind Force Fields" on page 200 for more information about force fields.



DELETE OBJECT

Selecting **Object>Delete Object** deletes the currently selected prop. A confirmation dialog appears. Click **OK** to delete the prop, **Cancel** to abort.

The **Display** menu controls Poser workspace and **Document** window displays.

Chapter 19: The Display Menu



s the name implies, the **Display** menu controls how items appear in your Poser workspace.

CAMERA VIEW

Selecting **Display>Camera View** allows you to select one of the cameras available in your scene. Please refer to Chapter 27: "Cameras" on page 148 for information on cameras.

DOCUMENT STYLE

Selecting **Display>Document Style** allows you to select a display style for your entire Poser scene. This is the same as using the **Display** controls. Please refer to Chapter 26: "The Display Controls" on page 145 for more information about display styles.

FIGURE STYLE

Selecting **Display>Figure Style** allows you to select a display style for your currently selected Poser figure. This is the same as using the **Display** controls. Please refer to Chapter 26: "The Display Controls" on page 145 for more information about display styles.

ELEMENT STYLE

Selecting **Display>Element Style** allows you to select a display style for your currently selected scene element. This is the same as using the **Display** controls. Please refer to Chapter 26: "The Display Controls" on page 145 for more information about display styles.

DEPTH CUED

Selecting **Display>Depth Cued** toggles depth cueing on and off. Depth cueing makes objects fade as they get further from the camera. A check mark appears when this feature is active and vice versa. Please refer to "Depth Cueing and Shadows" on page 142 for more information about depth cueing.



TRACKING

Selecting **Display>Tracking** allows you to set your desired tracking mode. Please refer to "Tracking Mode" on page 141 for more information about tracking modes.

DEFORMERS

As the name implies, deformers (morph targets, parameters, force fields, and magnets) affect the shape of figures and props within your scene. Each deformer type is discussed in its own section later in this manual. Selecting **Display>Deformers** allows you to:

- Show all deformers (magnets, waves, and force fields) in your scene (Display>Deformers>Show All).
- Hide all deformers in your scene (Display>Deformers>Hide All).
- Only show the currently selected deformer. (Display>Deformers>Show current selection only).

A check mark appears next to the currently selected deformer display mode. You can select hidden deformers using the **Current Actor** pull-down menu. Hiding some or all deformers can reduce clutter, particularly in complex scenes.

GROUND SHADOWS

Selecting **Display>Ground Shadows** displays or hides ground shadows, as shown:

Please refer to "Depth Cueing and Shadows" on page 142 for more information about ground shadows.

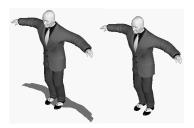


FIGURE CIRCLE

Selecting **Display>Figure Circle** toggles displaying a white circle around your currently selected figure in your scene, which turns red depending on cursor location, allowing you to select the entire figure. Please refer to "Selecting Body Parts" on page 170 for more information about the **Figure Circle**.

BEND BODY PARTS

Selecting **Display>Bend Body Parts** toggles bending on and off. All body parts are separate elements (actors). As you change their positions, Poser 5 attempts to maintain continuity over the entire body. The arm should connect smoothly to the shoulder, etc. Poser 5 achieves these smooth transitions by bending body parts where they join. However, the bends that work well for a body part might not work well when applied to figures created from props, or figures that have some body parts replaced by props



(such as replacing a hand with a hook for a pirate character). Rendering images with bending disabled can cause figures to appear "broken", as shown above.

FOREGROUND/BACKGROUND COLOR

Selecting **Display>Foreground Color** or **Display>Background Color** allows you to specify the Document Window's foreground and background colors, respectively. You can also do this using the **Color** controls located next to the **Document** window. Please refer to "Colors" on page 143 for an explanation of foreground and background colors.

PAPER TEXTURE

Selecting **Display>Paper Texture** allows you to choose a texture for the Document Window background that functions like paper, making it look like your scene is being created on a sheet of paper. To select a texture, select **Display>Paper Texture>style**, where *style* is one of the available paper styles:

•	Paper Grain: Displays a grainy paper surface.	
•	Noise: Displays a 2D granite-like paper surface.	
•	Noise Embossed: Same as above, except a 3D texture.	
•	Weave: 2D woven rag paper.	
•	Weave Embossed: Same as above, except a 3D texture.	
•	<i>Grid</i> : Fine and coarse lines set against the Document window background (can be useful for posing figures and arranging scene elements).	
•	Graph: Displays blue lines on a white background.	
•	Legal: Displays yellow paper with blue horizontal lines.	
•	None: Removes all paper textures.	

Paper textures do not appear in rendered output.

SHOW BACKGROUND PICTURE

If you have a background image in your scene that was placed there using either the **File** menu (see "Importing Background Pictures" on page 84) or by pasting the current figure/prop into the background (see below), then selecting **Display>Show Background Picture** toggles displaying this image on and off. Please refer to "Importing Movies" on page 83 for more information on adding a background animation to your Poser scene.

CLEAR BACKGROUND PICTURE

Selecting **Display>Clear Background Picture** deletes the currently displayed background image (if any).

PASTE INTO BACKGROUND

You can paste an image of your currently selected figure/prop into your scene background:

To do this, select the prop/figure you wish to paste into the background, then Select **Display>Paste Into Background**. If you do this more than once, each succeeding image supersedes the previous one. This is also true if you import a separate background image/movie.



SHOW BACKGROUND FOOTAGE

Selecting **Display>Show Background Footage** displays imported animation footage in the studio background.

CLEAR BACKGROUND FOOTAGE

Selecting **Display>Clear Background Footage** removes imported animation footage from your scene.

GUIDES

Poser provides several guides to assist you when posing figures. Guides are particularly useful for helping you achieve a particular perspective more easily. To display a guide, select **Display>Guides** and select the guide you wish to display. A check mark appears next to visible guides. To hide a guide, select **Display>Guides** and select the guide you wish to hide. Hidden guides have no check marks next to them. The available guides are:

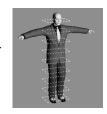
GROUND PLANE

The ground plane provides a basic reference of the camera's position relative to the studio. It also helps show scene elements' vertical positions relative to one another. You can display the ground plane using the same display style as the rest of your scene or you can give it its own display styles.



HEAD LENGTHS

This guide references the figure's height. Most people are roughly seven "heads" tall, meaning that the average head is 1/7th the height of a person. This guide can be helpful when you are performing body-shaping operations such as using morph targets.



HORIZON LINE

This guide references the studio's horizon line. You can check camera orientation by selecting a camera and checking its position relative to the horizon line. The horizon line is also useful when creating perspective between two or more figures or other scene elements. For example, if the horizon line crosses the front figure's chest, arrange all the figures so that the horizon line crosses their chests as well. This ensures that all figures are on the same plane and contributes to a viewer's sense that all figures have their feet on the ground.



HIP-SHOULDER RELATIONSHIP

This guide displays the relationship between the figure's upper and lower body. It helps you see the side-to-side, bend, and twist in the hip, abdomen, and chest. This is particularly useful when editing/viewing your figure using different cameras.



VANISHING LINES

Vanishing lines are an artistic technique for achieving realistic perspective. You can see this is real life by standing at the corner of a long building and sighting along a wall. You will see that the roof and the ground appear to converge the farther away you look until they eventually meet. This phenomenon is one of the things that give objects the appearance of depth in both real and virtual life.



Chapter 20: The Render Menu



he **Render** menu is where you render still images of your scene and access Poser 5's render options.

RENDER

Selecting **Render>Render** renders your current scene using the currently selected renderer (X or Y) and that renderer's current settings. Please refer to Part 9: "Rendering" on page 339 for more information about the Poser 4 and FireFly render engines and adjusting render settings.

SKETCH STYLE RENDER

Selecting **Render**>**Sketch Style Render** renders your scene using the current Sketch Designer settings. Please see Chapter 49: "The Sketch Designer Renderer" on page 352 for information on working with the Sketch Designer. Once you've set your options, you can use this menu command for rendering at any time while working in your scene.

ANTIALIAS DOCUMENT

Selecting Render>Antialias Document smooths rough edges in your Document window view for preview purposes.

Antialiasing is a process of applying a small amount of blue to object edges to smooth them and avoid a "pixilated" appearance. The following images show a test render both without (left) and with (right) antialiasing enabled.



You can specify whether or not to apply antialiasing during renders when setting render options. Please refer to Chapter 45: "Setting Render Options" on page 340 for more information about setting render options.

MOTION BLUR

As you probably know, fast-moving objects appear blurry. The blur is caused by the fact that our eyes cannot "refresh" quickly enough to see that the object is no longer in its previous location. The new **Motion Blur** feature lets you give your animations the illusion of motion, adding a whole new dynamic and level of realism to your renderings.

Please see "Render Settings" on page 342 for information about using the **Motion Blur** feature. You can also blur a single frame for test purposes by selecting **Render>MotionBlur Document**.



MATERIALS

Selecting **Render>Materials** opens the **Material** room. Please refer to Part 8: "Materials" on page 305 for information about the **Material** room.

Chapter 21: The Animation Menu



he Animation menu lets you control various aspects of your Poser animations.

MOVIE OUTPUT SETTINGS

Selecting **Animation>Movie Output Settings** opens the **Render Options** window, where you can specify your animation and rendering settings in one location. Please refer to Chapter 46: "The Render Options Window" on page 341 for more information about the **Render Options** window.

MAKE MOVIE

Setting **Animation>Make Movie** opens the **Make movie** window. Please refer to Chapter 50: "Rendering Animations" on page 356 for more information on rendering animations in Poser 5.

RETIME ANIMATION

Selecting **Animation>Retime Animation** allows you to adjust the timing of your animations. Please refer to "Retiming Keyframes" on page 287 for more information.

RESAMPLE KEY FRAMES

Selecting **Animation>Resample Key Frames** opens the **Resample Keys** window, which allows you to increase or decrease the number of keyframes in your animation:



This window has the following options:

- Modify: Check the appropriate radio button to sample keyframes for the Current Element (prop, body part, etc.), Current Figure (entire figure), or Everything (entire scene).
- Resample Method: You have two options for resampling keyframes:
 - Automatic: Selecting the Analyze Curvature radio button causes Poser 5 to examine the amount of curvature (change over time) in your animation and automatically assign new keyframes.

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• *Manual*: Checking the **Make keyframe every** radio button and entering a value in the **Frames** field forces Poser 5 to create a keyframe every X frames, where X is the value you entered in the field.

LOOP INTERPOLATION

If your animation contains looping cycles (such as a walk) that do not match evenly (causing jerky motions between the end of one loop and the start of the next), toggling **Animation>Loop Interpolation** on can smooth out your animation.

QUATERNION INTERPOLATION

Quaternion interpolation is a mathematical formula that can smooth rough animations. If your animation remains jerky after editing keyframes and all other efforts at smoothing it out, selecting **Animation>Quaternion Interpolation** can possibly help. This option should be toggled on as a last resort.

SKIP FRAMES

Selecting **Animation>Skip Frames** toggles skipping frames on and off. This option can help speed playback.

MUTE SOUND

Selecting **Animation>Mute Sound** toggles sound muting during animation playback. A check mark appears when muting is enabled, and vice versa.

CLEAR SOUND

Selecting **Animation>Clear Sound** deletes the sound previously imported into your Poser scene.

PLAY MOVIE FILE

Selecting **Animation>Play Movie File** allows you to open a movie file for playback within Poser. A standard **Open** dialog appears, allowing you to browse to your desired movie file.

Chapter 22: The Window Menu



he **Window** menu allows you to access various Poser 5 windows and palettes.

ANIMATION PALETTE

Selecting **Window>Animation Palette** opens the **Animation** palette. Please refer to "Using the Animation Palette" on page 282 for information about the **Animation** palette and creating Poser animations.

GRAPH

Selecting **Window>Graph** opens the **Graph** for the selected element in your scene. Please refer to "About the Graph Palette" on page 289 for information about using the Graph when making Poser animations.

LIBRARIES

Selecting **Window>Libraries** opens the **Library** palette. Please refer to Chapter 24: "The Poser Library" on page 126 for more information about the **Library** palette.

HIERARCHY EDITOR

Selecting **Window>Hierarchy Editor** opens the **Hierarchy Editor** window. Please refer to "Using the Hierarchy Editor" on page 215 for more information about the **Hierarchy Editor** window.

JOINT EDITOR

Selecting **Window>Joint Editor** opens the **Joint Editor** palette. Please refer to "The Joint Editor Palette" on page 219 for more information about the **Joint Editor** palette.

SKETCH DESIGNER

Selecting **Window>Sketch Designer** opens the **Sketch Designer** window. Please refer to Chapter 49: "The Sketch Designer Renderer" on page 352 for more information about the Sketch Designer renderer.

WALK DESIGNER

Selecting **Window>Walk Designer** opens the **Walk Designer** window. Please refer to "Using the Walk Designer" on page 275 for more information about the **Walk Designer** window.

PYTHON SCRIPTS

Selecting **Window>Python Scripts** opens the **Python Scripts** palette. Please refer to "The Python Scripts Palette" on page 302 for more information about the **Python Scripts** palette.

ROOM HELP

Selecting **Window>Room Help** opens an HTML window with information to assist you in using the Poser 5 rooms.

CAMERA CONTROLS

Selecting Window>Camera Controls toggles displaying the Camera controls on and off. A check mark next to this option indicates that the controls are being displayed, and vice versa. Please refer to "The Camera Controls" on page 148 for more information about the Camera controls.

DOCUMENT TOOLS

Selecting **Window>Document Tools** toggles displaying the **Document** window tools on and off. A check mark next to this option indicates that the controls are being displayed, and vice versa. Please refer to Chapter 25: "The Document Window" on page 139 for more information about the **Document** window.

PREVIEW STYLES

Selecting **Window>Preview Styles** toggles displaying the **Display** controls. A check mark next to this option indicates that the controls are being displayed, and vice versa. Please refer to Chapter 26: "The Display Controls" on page 145 for more information about the **Display** controls.

EDITING TOOLS

Selecting **Window>Editing Tools** toggles displaying the **Editing** tools on and off. A check mark next to this option indicates that the controls are being displayed, and vice versa. Please refer to "The Editing Tools" on page 171 for more information about the **Editing** tools.

LIGHT CONTROLS

Selecting **Window>Light Controls** toggles displaying the **Light** controls on and off. A checkmark next to this option indicates that the controls are being displayed, and vice versa. Please refer to Chapter 28: "Lighting" on page 158 for more information about the **Light** controls.

MEMORY DOTS

Selecting **Window>Memory Dots** toggles displaying the **Memory** dots on and off. A checkmark next to this option indicates that the controls are being displayed, and vice versa. Please refer to "Memory Dots" on page 53 for more information about the **Memory** dots.

PARAMETERS PALETTE

Selecting **Window>Parameters Palette** toggles displaying the **Parameters** palette on and off. A checkmark next to this option indicates that the controls are being displayed, and vice versa. Please refer to "Parameters Palette" on page 180 for more information about the **Parameters** palette.

Animation Controls

Selecting **Window>Animation Controls** toggles displaying the **Animation** controls on and off. A checkmark next to this option indicates that the controls are being displayed, and vice versa. Please refer to "Using the Animation Controls" on page 279 for more information about the **Animation** controls.

Show All Tools

Selecting **Window>Show all Tools** displays all Poser workspace tools. Please refer to Part 3: "The Poser 5 Interface" on page 47 for brief information about the Poser workspace tools.

HIDE ALL TOOLS

Selecting Window>Hide all Tools hides all Poser workspace tools.

TOOL TITLES

Selecting **Window>Tool Titles** toggles displaying the titles above the displayed tools on and off. A checkmark next to this option indicates that the titles are being displayed, and vice versa.

DOCUMENT WINDOW SIZE

Selecting Window>Document Windows Size opens the Set Window Size dialog allowing you to resize your Document window. Please refer to "Document Window Size" on page 141 for information about resizing your Document window.

Chapter 23: The Help Menu



he **Help** menu provides assistance while you're using Poser.

POSER 5 HELP

Selecting Help>Poser 5 Help opens this manual in Adobe Acrobat (PDF) format.

POSERPYTHON HELP

Selecting **Help>PoserPython Methods** opens the *Poser 5 PoserPython Methods* Manual in Adobe Acrobat (PDF) format. Please refer to Part 7: "PoserPython" on page 295 for information about PoserPython.

TUTORIALS

Selecting **Help>Tutorials** opens the Curious Labs Poser 5 Tutorials page. Please check this page regularly since we will be adding new tutorials as they become available.

ABOUT POSER

Selecting **Help>About Poser** displays your Poser version and licensing information. You will need this information when contacting Curious Labs Technical Support.

CURIOUS LABS WEB LINKS

Selecting **Help>Curious Labs Web Links** opens Curious Labs Web pages containing lots of useful information about Poser.

OTHER WEB LINKS

Selecting **Help>Other Web Links** opens an assortment of online Web pages containing lots of useful information about Poser.

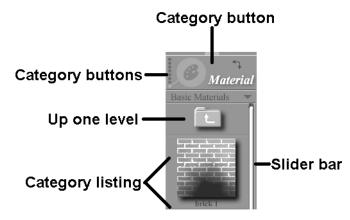
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PART 6

Poser Workspace Reference

CHAPTER 24: THE POSER LIBRARY

oser 5's new hierarchical **Library** palette provides access to all of the content that ships with Poser 5 such as figures, props, lights, cameras, etc. The **Library** palette contains nine categories, discussed below. Each category is further divided into subcategories. You can create and remove categories and subcategories, and can add and remove content to/from the **Library** palette (see "Maintaining Your Library Palette" on page 131 for information on maintaining your **Library** palette). Poser 5 can automatically install content purchased or obtained using the **Content** room as described in Chapter 52: "About The Poser 5 Content Room" on page 362. The **Library** palette appears as shown below, and the following sections discuss the **Library** palette in detail.



DISPLAYING THE LIBRARY PALETTE

To display the **Library** palette, either click the handle on the right side of your Poser screen or select **Window>Libraries**. Selecting either of these options when the **Library** palette is open closes the **Library** palette.

ACCESSING DIFFERENT CONTENT LIBRARIES

Previous versions of Poser restricted you to using the Library contained under your Poser installation's **Runtime** folder. Poser 5 now contains two libraries: **Runtime** (contains the content that shipped with your copy of Poser 5) and **Download** (default folder for added third-party content). You may add as many Libraries as you wish. This feature allows you to store Poser content in different folders and/or different drives, making content management more powerful than ever. Also, should you need to reinstall Poser 5 for any

reason, you can do so without affecting your custom Libraries. You can access each of your Libraries using the **Library** palette.

SWITCHING LIBRARIES

To switch Libraries, open any **Library** palette category (see "Accessing Different Content Libraries" on page 126) and click the **Up One Level** icon. Once you have reached the top, or Library level, your **Library** palette will contain the following default icons, plus any additional libraries you may have added:



To switch Libraries, simply click the desired **Library** icon, then click the **Apply Library Preset** button (check mark), or double-click the desired **Library** icon. A red dot appears next to the active Library. Your **Library** palette will only display content residing in the currently selected Library. For example, if you add a figure to your **Downloads** Library, that figure will only be available from your **Library** palette when the **Downloads** Library is active. Of course, you may add objects from one Library to your scene and switch Libraries in midstream without adverse effects.

ADDING LIBRARIES

To add a Library:

- 1 Open any **Library** palette category and click the **Up One Level** icon as described above until you see the **Library** icons.
- 2 Click the **Add to Library** button (+) to open a standard **Browse for Folder** dialog box allowing you to select a folder on any of your local or mapped network drives within which to build a new Library. Clicking **OK** creates the new Library and adds subfolders for each **Library** palette category (Figures, Props, etc.) under your selected folder. You may then populate this new Library at will.



WHEN ADDING EXISTING POSER LIBRARIES TO YOUR POSER 5 LIBRARY PALETTE, YOU MUST PRESERVE YOUR RUNTIME FOLDER NAME AND STRUCTURE (<PRIVE>:\<FOLDER>\<SUBFOLDER>\RUNTIME\<FOLDERS>.

NAVIGATE THE BROWSE DIALOG TO YOUR DESIRED RUNTIME FOLDER. THE ADDED LIBRARY WILL APPEAR USING THE NAME OF THE FOLDER CONTAINING THE RUNTIME FOLDER.

REMOVING LIBRARIES

To remove a Library:

- 1 Open any **Library** palette category and click the **Up One Level** icon as described above until you see the **Library** icons.
- **2** Select the Library to remove.

POSER 5 REFERENCE MANUAL

3 Click the Remove from Library button (minus sign) to remove the selected Library from the Library palette. Deleting Libraries only severs the link between the Library folders and the Library palette. It does not remove any of the folders or content from your hard drive. You will need to do this manually if you wish to completely remove the Library. This option protects your data from accidental deletion and allows you to reuse Libraries at need (such as from removable drives, etc.).



WARNING: EXERCISE EXTREME CAUTION WHEN DELETING LIBRARY FOLDERS FROM YOUR HARD DRIVE, AS THEY WILL BE IRRETRIEVABLY LOST.

CHOOSING A CATEGORY

To choose a category, click a category button to open your selected category. If your desired category is not visible, you can:

- Scroll the Library palette up and down using the scroll bar on the right.
- If you have another category open, move your mouse pointer over the small buttons to
 the left of the current category name (see image above) to scroll through the list of
 available categories.
- Click the current category name to close the current category and see the top-level
 Library palette display. When your desired category appears, click it to switch to that
 category.
- Click the current subcategory name to open the Subcategory pop-up menu displaying
 a list of all categories/subcategories in the Library palette.

The **Library** palette categories are described in further detail below in "About Library Palette Categories" on page 129. Please refer to "Using Objects from the Library Palette" on page 135 for information on working with **Library** palette content.

CHOOSING A SUBCATEGORY

When you open a **Library** palette category, a list of the subcategories therein appears:

Move your cursor to your desired subcategory and click to open it. It may take a few seconds for your selected subcategory to open depending on the



amount of content in the selected subcategory. To return to the category level, click the **Up One Level** icon. Please refer to "Using Objects from the Library Palette" on page 135 for information on working with **Library** palette content.

ABOUT LIBRARY PALETTE CATEGORIES

The default categories are broken down by Poser file type. Please refer to "Poser File Types" on page 369 for a brief discussion of Poser file types and how they relate to using Poser.

FIGURES

This **Library** palette category houses your Poser figures (*.cr2). Remember that clothing items are treated as figures, except for Poser 5 cloth created in the **Cloth** room, which is treated like a prop. This category contains many figures to work with, including various types of males and females, children, skeletons, mannequins, stick figures, and animals. Some models are available in high- and low- resolution versions. Use high-resolution models for realism, and low-resolution models (these have very low polygon counts) when performance matters. Newer Poser figures feature fully articulated hands and feet with movable fingers and toes.

POSES

This **Library** palette category houses poses (*.pz2), which can be applied to your currently selected figure. To add a pose, select the figure to apply the pose to, then apply the pose. Pose files contain joint positions for each of the figure's joints (such as Left Elbow bend 45 degrees). They do not store morph or parameter data, meaning that they cannot, for example, store facial expressions. Poses are often designed for a particular figure. For example, a pose created for the Poser 5 male figure may not work correctly when applied to the Poser 4 Nude Woman (Posette) due to the different joint setups between the two figures. Pose files store pose information for an entire figure, including its hands (see below for more information).

Advanced Poser users have created a method of storing material definitions for an entire figure in a pose file. These are called Material Poses or MAT files for short. MAT files can save considerable time, since they can apply colors and maps to an entire figure simply by loading them from the **Library** palette instead of having to add them one by one. Third-party Poser users invented MAT files, which are an advanced feature that has not been created or tested by Curious Labs. If you need help with MAT files, please refer to the file creator (if you purchased or obtained a MAT file using the **Content** room, for example) or to one of the many online resources, some of which are listed in "Third-Party Forums" on page 9. Curious Labs does support the MAT files included in your Poser 5 installation.

NOTE

WHEN ADDING A POSE TO A FIGURE, FACIAL EXPRESIONS ARE NOT APPLIED, EVEN IF THEY ARE INCLUDED IN THE POSE FILE. THIS PRESERVES ANY WORK YOU HAVE DONE TO YOUR FIGURE PRIOR TO APPLYING THE POSE. TO APPLY FACIAL EXPRESSIONS. USE THE EXPRESSIONS LIBRARY PALETTE CATEGORY.

EXPRESSIONS

This **Library** palette category houses facial expression files (*.fc2), which can be applied to your currently selected figure. To add an expression, select the figure to apply the expression to, then apply the face. Expression files contain parameter settings that activate facial morph targets (see "Creating and Using Morph Targets" on page 206 for information about morph targets) to create the expression. These files are the same as if you manually adjusted each of the face dials available for your current figure, except that they apply preset values at once, saving time. Facial expressions are often designed for a particular figure, since each figure can have different facial parameters available. For example, an expression file created for the Poser 2 Default Guy figure will not work on the Poser 5 Male figure, because he has far more available facial parameters.

HAIR

This **Library** palette category houses hair (*.hr2) files, which can be applied to your currently selected figure. Hair created for one figure may or may not work with other figures. Poser 5 hair created in the **Hair** room cannot be saved to the **Library** palette; it is created on a per-figure basis. Poser 5 (strand-based) hair is a special case. Please refer to "Adding Hair" on page 137 for more information.

HANDS

This **Library** palette category houses hand (*.hd2) files, which can be applied to your currently selected figure. Hand files are subsets of Pose files that only contain positioning information for the hand and its children (fingers). If you apply a pose file to a figure then apply a hand, only the hand positions will change. If, however, you apply a hand file to a figure followed by a pose, the pose application will override the positions specified by the hand file

PROPS

This **Library** palette category houses props (*.pp2), which are loosely defined as static or poseable objects that are not figures. Items such as swords, balls, canes, furniture, walls, etc. fall into this category. Poser 5 (dynamic) cloth also appears here.

LIGHTS

This **Library** palette category houses lights (*.lt2), which includes the number, color, position, and other lighting attributes. Please refer to Chapter 28: "Lighting" on page 158 for a description of Poser lights.

CAMERA

This **Library** palette category houses cameras (*.cm2), which includes all Poser cameras, their positions, and other attributes. Please refer to Chapter 27: "Cameras" on page 148 for information about Poser cameras

MATERIAL

This **Library** palette category houses materials (*.mt5), which include all Poser 5 materials and any associated shader trees created or loaded into the **Material** room. Please refer to Part 8: "Materials" on page 305 for information about the **Material** room.

MAINTAINING YOUR LIBRARY PALETTE

You can maintain your **Library** palette by creating categories and subcategories to organize your saved items, and by adding and removing items to and from the **Library** palette, as described below.

Adding content to the **Library** palette entails three basic steps:

- 1 Selecting a Library palette category.
- **2** Selecting/creating a subcategory.
- **3** Saving the item to the **Library** palette in the selected category/subcategory.

You can, of course, skip Steps 1 and/or 2 if your desired category/subcategory already exists

CREATING A NEW SUBCATEGORY

To create a **Library** palette subcategory:

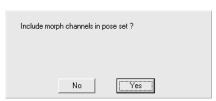
- 1 Click the **Library** palette category where you want to create the subcategory. For example, if you want to save a pose subcategory, select the **Pose** category.
- 2 Open the Library palette Subcategory pop-up menu and select Add New Category at the bottom.
- **3** Enter your desired subcategory name in the dialog that appears, then click **OK**. Your new subcategory appears under your selected category in the **Library** palette.

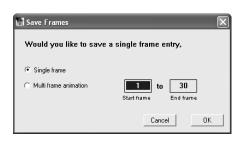
ADDING ITEMS TO THE LIBRARY (STUDIO)

Saving an item to the **Library** palette adds the appropriate item to the currently selected category/subcategory. To add an item to the **Library** palette:

1 Select your desired category/subcategory.

- 2 Click the Add to Library icon (+) at the bottom of the Library palette.
- **3** Complete the dialog that follows (see following subtopics for information on category-specific dialogs).
- 4 Enter a name for the new **Library** palette item and click **OK**. You may be prompted to select a subset of actors for inclusion in the saved item, depending on the item type being saved (poses, expressions, props, lights, and cameras). Please refer to the following sub-topic for information on selecting actors.
- 5 Depending on the Library palette category being saved to, you may be asked if you wish to save morph channels (such as facial expressions, muscle bulges, etc.). Click Yes to include morph channels in the Library palette item, or No to exclude them.
- 6 Certain categories can save animated data (such as an animated pose like swinging a golf club). To select only the current frame, select Single Frame. To save more than one frame of animation, select Multiple Frames and enter your desired starting and ending frame numbers. Click OK when you have finished making your selections.





7 Your new item will be added to the Library palette and will be accessible whenever Poser is running. Poser also saves a picture of your current scene taken from the currently selected camera as a preview. Thus, you may wish to position the camera to capture the item being saved.



TO ADD POSER 5 CLOTH TO THE LIBRARY PALETTE, ADD IT AS YOU WOULD ANY OTHER PROP. FOR POSER 5 HAIR OBJECTS, YOU MUST EITHER SAVE A POSER SCENE FILE (PZ3) WITH YOUR HAIR OBJECT IN IT OR GROW HAIR ON A PROP AND SAVE THAT PROP TO THE LIBRARY PALETTE.

Adding Actors to a Library Palette Entry

If you opt to select a subset of actors within your scene for saving to the **Library** palette, the **Hierarchy Selection** dialog appears, allowing you to specify the actors you wish to include in your new **Library** palette entry:

The list of actors appears hierarchically, just as it does in the **Hierarchy Editor** window (see "Using the Hierarchy Editor" on page 215). You can expand collapsed hierarchies by clicking the + sign next to a collapsed branch, and can collapse expanded branches by clicking the - sign next to an expanded branch.



To include an actor in your new **Library** palette entry, check the box to the left of your desired actor. Clearing an actor's checkbox excludes it from the **Library** palette entry. Excluding an actor that is a parent of one or more actors excludes the children actors as well.

Adding Poser 5 Dynamic Cloth to the Library Palette

Adding Poser 5 (dynamic) cloth to the **Library** palette is a special case that merits its own topic. To add dynamic cloth:

- 1 If not done yet, load your desired figure and be sure to disable Inverse Kinematics (see "Inverse Kinematics (IK)" on page 168). Next, open the **Joint Editor** palette (see "The Joint Editor Palette" on page 219) and click the **Zero Figure** button.
- 2 If not loaded yet, load or import your desired cloth object and ensure it fits the figure without obvious intersections. If importing a static prop, convert it into Poser 5 cloth using the **Cloth** room as described in Chapter 35: "The Cloth Room" on page 249.
- 3 Select the cloth, then open its **Properties** palette and click the **Set Parent** button (or select **Object>Set Parent**)
- 4 The Choose Parent window appears. Select Hip, being sure not to check the Inherit bends of parent checkbox.
- **5** Open the **Library** palette to the **Props>Dynamic Cloth** category and select your desired subcategory as described above. Save the cloth object.
- **6** You will be prompted to save the object as a smart prop. Click **Yes**.



IF YOUR CLOTH OBJECT IS NOT TIED TO A FIGURE (SUCH AS A TABLECLOTH), SIMPLY SAVE IT AS A PROP.

Adding Poser 5 Dynamic Hair to the Library Palette

Poser 5 hair cannot be saved to the **Library** palette as a standalone object, meaning you can't add it to figures/props in the same manner as Poser 4 (prop-based) hair. There are three ways to save Poser 5 hair for later use:

- Saving a PZ3 file with the hair object in it (you can do a merge function later, as explained in "Importing Poser Documents or Props" on page 85).
- Saving a prop/body part with a hair object on it. In this case, simply add the prop with the hair to your scene. For example, you could create a prop from a character's head, grow hair on that prop, and save that prop to the **Library** palette.
- The **Library** palette includes skullcaps designed to fit the Poser 5 Male and Poser 5 Female figures. These skullcaps are available in the Hair>Poser 5 Hair>Skullcap-Wig category. To use a skullcap, add it to your scene, create and style hair, then save the skullcap with your new hair style back to the **Library** palette for use on other figures. Add skullcaps to figures just as you would prop-based hair. This is the preferred method for saving Poser 5 hair.



SKULLCAPS ARE ALSO USEFUL BECAUSE THEY HAVE A HIGHER POLYGON COUNT THAN THE UNDERLYING HEAD, GIVING YOU MORE DETAILED CONTROL OVER HAIR SURFACES. YOU CAN SPAWN PROPS FROM ANY FIGURE OR PROP, SUBDIVIDE THEM IN YOUR FAVORITE 3D MODELING APPLICATION, THEN APPLY THEM ANYWHERE YOU LIKE TO OBTAIN MORE DETAILED RESULTS.

To save dynamic hair to the **Library** palette:

- 1 Select a hair group and open the **Hair>Poser 5 Hair** category in the **Library** palette.
- 1 Click the Add to Library button.
- 2 You will be prompted to select your desired hair subset(s).
- 3 Clicking the Select Subset button in the Set Name dialog opens a hierarchical display allowing you to select the hair groups that you want to save. Be sure to save the parent object!



NOTE

POSER 5 HAIR IS CREATED ON A PER-OBJECT BASIS FOR EACH SCENE.

ADDING ITEMS TO THE LIBRARY PALETTE (MANUAL METHOD)

You can also add items to the **Library** palette by creating folders and subfolders in the Poser hierarchy and adding your items directly to those folders. Please refer to Appendix B: "Poser File Structure" on page 368 for more information about the Poser file structure.



THIS IS AN ADVANCED FEATURE THAT SHOULD ONLY BE UNDERTAKEN BY ADVANCED POSER USERS WHO ARE FAMILIAR WITH CREATING CUSTOM CONTENT. MANUALLY ADDING LIBRARY ITEMS COULD RESULT IN MISPLACING FILES, WHICH COULD CAUSE THESE LIBRARY ITEMS TO BE INVISIBLE AND/OR UNUSABLE. CURIOUS LABS CANNOT PROVIDE TECHNICAL SUPPORT FOR PEOPLE WHO MANUALLY CREATE CONTENT FOLDERS. IF YOU PURCHASED CONTENT AND ARE UNABLE TO GET IT TO APPEAR IN THE LIBRARY OR IF IT HAS OTHER ERRORS, PLEASE CONTACT THE CONTENT CREATOR.

ADDING ITEMS TO THE LIBRARY PALETTE (POSER 5 DOWNLOAD MANAGER)

Poser 5's new Download Manager can detect and install Poser content downloaded using the **Content** room. Please refer to Part 10: "Adding New Poser Content" on page 361 for more information about the **Content** room.

DELETING ITEMS FROM THE LIBRARY PALETTE

To delete an item from the **Library** palette, select it by clicking its preview image, then click the **Delete from Library** icon (-) at the bottom of the palette (see below for an image of the **Library** icons).



NOTE

DELETIONS ARE PERMANENT! BE SURE YOU REALLY WANT TO DELETE THE SELECTED ITEM. IF YOU HAVE NOT SAVED YOUR CONTENT ELSEWHERE (SUCH AS ARCHIVING THE SOURCE FILES), THE DELETED CONTENT WILL BE PERMANENTLY LOST. YOU CANNOT UNDO CONTENT DELETIONS.

USING OBJECTS FROM THE LIBRARY PALETTE

The **Library** icons appear as shown on the right. From left to right, these icons are:



- Change Item: Clicking the Change Item button replaces the currently selected item in the Studio (figure, pose, etc.) with the Library palette item.
- Add New Item: Clicking the Add New Item button adds an instance of the currently selected Library palette item to the scene without deleting any item currently in the scene.
- Add to Library: Clicking the Add to Library button adds the selected item to the Library palette.
- Remove from Library: Clicking the Remove from Library button removes the selected item from the Library palette.

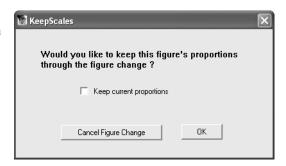
PLACING/ADDING ITEMS TO THE STUDIO

To add additional items to the Studio, select your desired **Library** palette category and subcategory, then click the **Add New Item** icon in the **Library** palette. This works across all **Library** palette categories.

If you want to replace a figure in your scene with one from the Library palette:

1 Select the figure you wish to replace and click the Change Item button. The Keep Scales dialog appears:

To have the new figure retain the old figure's proportions, check the **Keep current proportions** checkbox. Leaving this checkbox blank allows the new figure to retain its own proportions.



2 Click **OK** to proceed to the next step or **Cancel** to abort.

REMOVING AN ITEM FROM THE STUDIO

To remove an item from the Studio, first select the item to remove by either selecting it in the **Document** window or using the **Current Actor** pull-down menu (see "Select Figure/Current Actor Menus" on page 143), then press [DEL].

ADDING CLOTHING

Non-Poser 5 Clothing

To add clothing created using previous version of Poser:

- **1** Select the figure you wish to clothe.
- **2** Add the desired clothing item to your scene using the **Library** palette. The clothing appears in its default pose.
- 3 Select the figure you wish to conform the clothes to using the **Select Figure** pull-down menu (described in "Select Figure/Current Actor Menus" on page 143) and select **Figure>Conform To**. A dialog box appears with a pull-down menu listing all figures in your scene. Select the figure you wish to conform the clothing to in the dialog that appears. Click **OK** when finished. The clothing conforms to the figure:



Poser 5 Clothing

Poser 5 cloth retains its dynamics when saved to the **Library** palette, but you will need to create a new simulation whenever you add saved cloth objects. To add Poser 5 cloth to your current figure:

- 1 Select the item from the **Library** palette and add it to your scene, then switch to the **Cloth** room.
- **2** Create a new simulation group, and select **Body** as your desired collision object.
- **3** Recalculate the simulation.

Please refer to Chapter 35: "The Cloth Room" on page 249 for detailed information about the **Cloth** room and its controls.

USING CLOTHING WITHOUT A FIGURE

Non-Poser 5 Clothing

Clothing created prior to Poser 5 is treated like any other Poser figure and can be added to the Studio and posed/animated just like any other Poser figure. Please see above for more information

Poser 5 Clothing

Poser 5 cloth retains its dynamics when saved to the **Library** palette, but you will need to create a new simulation whenever you add saved cloth objects. To add Poser 5 cloth without a figure:

- 1 Select the item from the **Library** palette and add it to your scene, then switch to the **Cloth** room.
- **2** Create a new simulation group, and select your desired collision object(s), if any.
- **3** Recalculate the simulation

Please refer to Chapter 35: "The Cloth Room" on page 249 for detailed information about the **Cloth** room and its controls

ADDING HAIR

To add either dynamic hair or created prior to Poser 5:

- **1** Select the figure to which you wish to add hair.
- 2 Select your desired hair using the **Library** palette and click the **Add** icon. The hair is added to the figure.

You may need to reposition the hair to precisely fit the figure's head. To do this, use the **Current Actor pull-down** menu to select the hair, then use the hair's **Trans** parameter dials in the **Parameters** palette.



NOTE

IF YOUR FIGURE ALREADY HAS PRE-POSER 5 HAIR, ADDING NEW HAIR REPLACES THE OLD.

ADDING PROPS

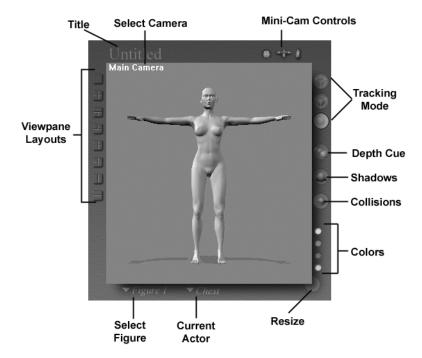
To add a prop to your scene, select the prop from the Library palette and click Add.

If you wish to have the prop move with another scene item (such as a catcher's mitt moving in concert with the figure's hand), you need to specify a parent for that prop. Please refer to "Change Parent" on page 104 for directions on setting a parent for an object.

Chapter 25: The Document Window



he **Document** window is your portal to the Studio where you view and can directly manipulate your scene and the elements within it. The **Document** window appears as follows:



The following topics discuss the **Document** window controls and how to use them:

TITLE

The **Title** displays the current Poser scene (such as **My Scene.pz3**).

CHANGING CAMERAS WITHIN A PANE

You can change the selected camera in each pane of the **Document** window. To do this, click the camera label in the upper-left corner of the desired pane to open the **Select Camera** menu:

✓ Main Camera	Ctrl+M
Aux Camera	
From Left	Ctrl+;
From Right	Ctrl+'
Erom Top	Chrl+T

To change the camera, click your desired option. The view in the selected pane will switch to your newly selected camera. To toggle between single pane and the most recently selected multiple-pane layout, press [D]. Press [F] to cycle through all of the available multiple-pane layouts.

MINI CAMERA CONTROLS

The **Mini Camera Controls** contain a subset of the total available **Camera** controls. From left to right, these are:

- Rotation trackball: The Rotation trackball tilts and spins the currently selected camera about all three axes.
- *Move XZ*: Clicking and dragging the **Move XZ** control moves the currently selected camera along the X and/or Z axes.
- *Move XY*: Clicking and dragging the **Move XY** control moves the currently selected camera along the X and/or Y axes.

Please refer to Chapter 27: "Cameras" on page 148 for detailed information about the **Camera** controls.

SINGLE/MULTIPLE-VIEW PANES

By default, the **Document** window consists of one pane, meaning that you can view your scene using one camera at a time. You can, however, add up to four simultaneous viewing panes (cameras) to your **Document** window using eight customizable layouts, which helps you visualize your scene in all dimensions. To select a layout, click your desired **Document Window Layout** button to switch to the selected viewing layout. You can resize panes by clicking and dragging their borders. Poser 5 remembers layouts, pane sizes, and camera selections if you switch layouts while working on a given scene, and these selections are also saved when you save your Poser scene. To use the same layout every time you launch Poser, select the **Previous State** option from the **General Preferences** dialog as described in "Setting Application Preferences" on page 61. You can also save up to nine pane/camera layouts using the UI **Memory** dots (see "Memory Dots" on page 53).

Clicking anywhere in a pane makes that pane active. A red border appears around the active pane.

DOCUMENT WINDOW SIZE

You can resize the **Document** window in one of two ways:

- Clicking and dragging the Window Handle to your desired size.
- Double-clicking the Window Size label, which opens the Set Window Size dialog. Enter your desired Document Window height and width (in pixels) in the appropriate fields and click OK to resize the Document window. In the Set Window Size dialog, checking the Constrain Aspect Ratio box forces the Document window to maintain its current width-to-height ratio. Checking the Lock Window box prevents you from resizing the Document window. Clearing a checkbox disables the specified option.

The **Document** window size is saved in the same manner described above for layouts/camera views.

TRACKING MODE

Tracking is a blocking and performance-enhancing feature that changes how an object is displayed when you reposition either its parts or a camera. There are three **Tracking Mode** buttons in the upper-right corner of the Document Window. From top to bottom, these are:

- Box: Box Tracking mode displays scene elements (figures and props) as boxes all the
 time, whether still or moving. This is the fastest way to preview scenes and is useful
 for rough blocking work.
- Fast: Fast Tracking mode displays figures and props in the currently selected display
 style while they or the camera are still and as boxes when in motion. This combines an
 accurate scene view so you can see before and after images without waiting for each
 frame to fully render. Fast tracking can help save time while blocking out scenes and
 creating animations.
- Full: Full Tracking mode displays scene elements in the currently selected Document
 window display style at all times, whether still or animated. This mode is suitable for
 users with high-performance computers and for performing fine-tuning on previously
 blocked-out scenes.

DEPTH CUEING AND SHADOWS

The two buttons beneath the three **Tracking Mode** buttons on the right side of the **Document** window control depth cueing and shadows, respectively:

 Depth Cueing: Depth Cueing adds dimension to scene elements visible in the Document Window. When Depth Cueing is enabled, elements farther away from the camera fade into the distance. This provides a quick visual indication of the depth of your scene, which can be helpful if you are viewing it using a single pane. To toggle depth cueing on and



off, click the **Depth Cueing** button. Depth Cueing depends on the total depth of your scene. For example, if your scene consists of a single figure, the portions of that figure farthest from the camera will appear faded out. Adding another element (such as a prop) farther from the camera than the figure will cause the prop to appear faded with the figure being more visible. This is useful if you wish to control the amount of depth cueing in your scene.

• Shadows: Items in your scene can cast shadows on the ground plane, which can help you orient them in 3D space. Disabling shadows can help speed up scene redraw time. Clicking the Shadows button toggles drop shadows on and off for your scene. These shadows are not shadows in the traditional sense, meaning that they do not depend on the scene lighting. They are generic shadows intended solely to aid you in creating your scene.



• Depth cueing and shadows do not affect your rendered output.

COLLISION DETECTION

A collision occurs when two objects in your scene partially or completely occupy the same 3D space. Clicking the **Collision Detection** button opens a pop-up menu that allows you to set the following collision options for your current Poser scene:

- Collisions On: Checking the Collisions on option prevents objects in your scene from colliding with/penetrating each other.
- *Collisions Off:* Checking the **Collisions off** option allows objects in your scene to collide with/penetrate each other.
- Show Intersections: Checking the **Show intersections** option displays colliding polygons in red when objects in your scene collide with/penetrate each other but does not prevent the collision.

Once you have set collision preferences for your scene, you must then enable collision detection for each of the objects for which you want to use this feature. Do this by

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selecting your desired objects one at a time and checking the **Collision Detection** checkbox in that object's **Properties** palette. This feature only works between objects that have collision detection enabled. If you have one object enabled and one disabled, collision detection will not work.



OBJECTS LOSE THEIR COLLISION DETECTION SETTINGS WHEN HIDDEN.

COLORS

You can improve your view of your scene by altering the foreground, background, shadow, and ground colors appearing within the **Document** window. The four dots located on the lower-right side of the **Document** Window allow you to control the following colors, respectively:

- Foreground: Clicking the Foreground button opens the Poser Color Picker and
 displays an eyedropper icon. Pressing [ALT] while clicking this button opens your
 operating system's standard Color Picker. Position this dropper over the color you
 wish to select and click it. If you use the operating system's standard Color Picker, you
 can alter the color using numeric values. The Foreground color affects the color of the
 Silhouette, Outline, Wireframe, and Hidden Line display modes (see Chapter 26: "The
 Display Controls" on page 145).
- *Background*: Change the **Background** color as described above. This color affects the Studio background.
- *Shadow*: Change the **Shadow** color as described above. This color affects the preview shadow displayed in the **Document** window (if enabled).
- *Ground*: Change this color as described above. This color affects the ground plane displayed in the **Document** window (if enabled).

SELECT FIGURE/CURRENT ACTOR MENUS

The bottom left of the **Document** window contains the **Select Figure** (left) and **Current Actor** (right) pull-down menus. The currently selected figure/item appears as labels, and that item's properties and parameter dials are accessible in the **Properties** and **Parameters** palettes, respectively. You can also select figures, props, and other scene objects by clicking them directly in the **Document** window.

• Select Figure Menu: Use the **Select Figure** pull-down menu to select your desired figure. This can be helpful if you have a number of figures in your scene (particularly if you are using conforming clothing, each item of which is a Poser figure).

- Current Actor Menu: The Current Actor pull-down menu allows you to select scene items as follows:
- Body Parts: Selecting Current Actor>Body Parts opens the list of the currently selected figure's body parts. This option selects only the specified body part on the currently selected figure.
- *Body*: Selecting **Current Actor>Body** selects the entire body and all body parts of the currently selected figure.
- *Props*: Selecting **Current Actor>Props** opens the list of all props in your scene (including hair and cloth objects), allowing you to select your desired prop.
- Cameras: Selecting Current Actor>Cameras opens the list of the cameras in your scene. Please refer to Chapter 27: "Cameras" on page 148 for information about Poser 5 cameras.
- *Lights*: Selecting Current Actor>Lights opens the list of lights in your scene. Please refer to Chapter 28: "Lighting" on page 158 for information about Poser lights.

Chapter 26: The Display Controls

oser allows you to select 12 display styles. Selecting a different display style can help you better visualize your scene and/or add additional artistic interest to your rendered output. You can select display styles on the scene, figure/prop, or element (body part) level. By default, The **Display** controls appears with **Document** selected, as follows:



Clicking the arrow to the left of the title opens a pull-down menu with the following options:

- Document: Selecting the Document option accesses the Document Display controls.
 Changing this selection affects how all scene elements (figures and props) are displayed.
- *Figure*: Selecting the **Figure** option accesses the **Figure Display** controls, which causes only the selected figure or prop to display in the selected style without affecting the other scene elements.
- *Element*: Selecting the **Element** option accesses the **Element Display** control, which causes only the currently selected element (body part or prop part) to display in the selected style without affecting the other scene elements.

To select a different display style, click the desired button. From left to right, these buttons are:

- *Silhouette*: displays the figure/element only as a cutout, as shown to the right.
- Outline: displays the figure/element only as an outline. When either the entire scene or an entire figure is displayed in this mode, outlines appear around each actor (body part), as shown to the right.





 Wireframe: displays the figure/element as a polygonal mesh. This mode displays the actual polygons comprising the figure/element, including polygons that would normally be hidden from view (such as a figure's back when viewed from the front), as shown to the right.



 Hidden Line: displays only the figure/element's polygons that would normally be visible from the current camera. For example, if you are viewing a figure from the front, the polygons forming the back would not be visible, as shown to the right.



 Lit Wireframe: displays much the same as the Wireframe display style, except that the polygons' colors correspond to the color of the surface material, as shown to the right.



 Flat Shaded: displays figures/elements using the surface material colors while displaying the mesh facets, as shown to the right.



• *Flat Lined*: same as the Flat Shaded display style, except that black mesh lines clearly denote polygon edges, as shown to the right.



• *Cartoon*: displays the figure/element using a simulated hand-drawn style, as shown to the right.



 Cartoon With Line: same as the Cartoon display style, except that figures/elements are outlined with black lines, as shown to the right.



• *Smooth Shaded*: displays figures/elements as smooth continuous surfaces with the material colors, as shown to the right.



• *Smooth Lined*: combines the Flat Lined and Smooth Shaded by displaying the polygons as a black mesh over a smooth surface, as shown to the right.



• *Texture Shaded*: displays figures/elements using texture maps, as shown to the right.

You can also change display styles by selecting **Display>Document Style**, **Display>Figure Style**, and **Display>Element Style**.

By default, Poser 5 renders using the **Texture Shaded** mode. While rendering high-resolution output using the currently selected display styles and/or depth cueing, etc. is not directly supported, you can achieve excellent results using the rendering tips discussed in Chapter 51: "Tips & Tricks" on page 359.

Chapter 27: Cameras

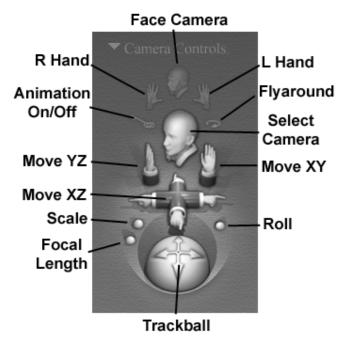
Т

his section describes how Poser 5's cameras work. As indicated previously, cameras aim at the Studio from different vantage points. Switching cameras allows you to view your scene from up to four of these vantage points at once.

THE CAMERA CONTROLS

The **Camera** controls allow you to quickly select and position cameras. Used in conjunction with the available **Document** window layouts, they allow you to quickly navigate your scene and/or set up final shots for still or animated output. Remember that every view you see of your scene inside the **Document** window is done using one or more cameras. You can move cameras in any direction, however positioning them can be a time-consuming process. Having multiple cameras allows you to use preset camera positions to quickly navigate your scene, while the ability to position cameras allows you to create custom still or moving shots for use either while working on your scene or during rendering.

The **Camera** controls appear as follows in the Poser workspace:



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In addition, the **Mini Camera** controls appear on the top of the **Document** window, allowing you to navigate your scene without having to have the full **Camera** controls visible (such as when you are using the **Material** room).



The Mini Camera controls consist of (from left to right) the Trackball, Move XY, and Move XY controls. These function identically to their counterparts in the main Camera controls and are therefore detailed in this chapter.

THE MAIN, AUXILIARY, AND POSING CAMERAS

The Main, Auxiliary, and Posing cameras rotate about the center of the Studio. By default, figures and props are placed at the center of the Studio. Moving figures/props does not alter these camera's positions. The Auxiliary camera provides a secondary camera for your use, such as when you are deciding which shot to render and want to explore possibilities without affecting your previous camera positioning/animation work.

The **Posing** camera is similar to the **Main** and **Auxiliary** Cameras except that it rotates about the currently selected figure, not the Studio. If you select another figure, the **Posing** camera moves to that figure/prop.

THE FACE CAMERA

The **Face** camera provides a close-up of the currently selected figure's face, allowing you to precisely adjust facial expressions and see your results in detail. This camera rotates around the currently selected figure's face and moves if you select another figure. This camera also works with animal figures. To switch to the **Face** camera, select your desired figure and click the **Face Camera** control.



NOTE

FOR THE FACE CAMERA TO WORK PROPERLY, BE SURE YOUR FIGURES' HEADS ARE ALL NAMED "HEAD". THIS IS NOT AN ISSUE FOR FIGURES THAT WERE INCLUDED WITH POSER 5 BUT COULD BE AN ISSUE FOR THIRD-PARTY CONTENT AND CUSTOM FIGURES YOU CREATE YOURSELF.

LEFT AND RIGHT HAND CAMERAS

Like the **Face** camera, you can zoom in on the left or right hand of the currently selected figure to fine-tune gestures and other hand positions. Hand cameras also focus on the currently selected figure. If the figure is an animal, the Hand cameras will focus on the feet/paws/claws as appropriate. To switch to a hand camera, click the **Left hand** or **Right Hand** icon as appropriate.



NOTE

FOR THE HAND CAMERAS TO WORK PROPERLY, BE SURE YOUR FIGURES' HANDS ARE ALL NAMED "LEFT HAND" AND "RIGHT HAND". THIS IS NOT AN ISSUE FOR FIGURES THAT WERE INCLUDED WITH POSER 5 BUT COULD BE AN ISSUE FOR THIRD-PARTY CONTENT AND CUSTOM FIGURES YOU CREATE YOURSELF.

THE DOLLY CAMERA

The **Dolly** camera rotates about its own center independently of scene contents, meaning it can move around and between elements in the scene. If you want to emulate a motion picture camera, the **Dolly** camera is your best choice.

ORTHOGONAL CAMERAS

The **Left**, **Right**, **Top**, **Bottom**, **Front**, and **Back** cameras are *orthogonal* cameras, meaning that they product orthogonal projections. Orthogonal projections makes objects appear flat (2D), without the perspective of 3D views. Orthogonal cameras cannot be rotated, since they are permanently aligned to the X, Y, and Z axes in the Studio. Because of this, they make excellent references for viewing your scene. Please refer to "About 3D Space" on page 24 for a general discussion about 3D views.

SHADOW LIGHT CAMERAS

There is one **Shadow Light** camera for each light in your scene. Each shadow camera shares both XYZ location and aim direction with its assigned light. Poser uses these cameras to calculate shadows cast by the objects in each light's path. Positioning these cameras and/or adjusting their parameters/properties can affect how shadows appear in your rendered scenes. You can select these cameras using the **Select Actor** pull-down menu. Shadow cameras have a reduced set of properties/parameters (see "Accessing Camera Properties & Parameters" on page 153 for more information).

CHANGING CAMERAS

To change a camera:

- 1 Click the arrow to the left of the title and use the **Cameras** pull-down menu as described above.
- **2** Click the camera label in any **Document** window pane.
- 3 Click the Face, Left Hand, or Right Hand icon in the Camera controls (see above).
- 4 Click the **Select Camera** control in the **Camera** controls (see below).
- 5 Select **Display>Camera View** using the Menu Bar, then selecting your desired camera in the **Cameras** pull-down menu.

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The available 3D cameras are: Main, Auxiliary, Posing, Face, Left Hand, Right Hand, and Dolly. The available orthogonal (2D) cameras are: Left, Right, Top, Bottom, Front, and Back. When you render stills or animations, the rendering takes place using the currently selected camera. Please refer to Part 9: "Rendering" on page 339 for more information on rendering. Each camera is discussed above.

SELECT CAMERA CONTROL

Clicking and dragging the cursor over the **Select Camera** control cycles through the available camera views and changes the **Document** window or currently active view pane to the newly selected camera.

By default, the **Select Camera** control allows you to select among some of the available cameras. You can replace a camera available in the **Select Camera** control with your currently selected camera by selecting the camera you want to create a shortcut for and Pressing [ALT] while clicking your desired **Select Camera** control to replace that camera with your currently selected camera.

ANIMATING ON/OFF

Clicking the **Camera Animation** control toggles camera animation on and off. You can also do this using the **Properties** palette as described in "Properties" on page 178.

FLYAROUND VIEW

The **Flyaround** view places the currently selected camera on a virtual track above and away from the center of the Studio and orbits around your scene, displaying all elements within view. This is an excellent way to quickly see how your scene looks in 3D space. Once activated, this view remains active until toggled off. To toggle **Flyaround** on and off, click the control (shown below) or make the selection using the **Cameras** pull-down menu.

POSITIONING CAMERAS

In addition to selecting cameras, the **Camera** controls allow you to position your currently selected camera using one or more of the following controls. If you have more than one camera active (multiple **Document** window view panes), these controls will only affect the currently selected camera.

CAMERA PLANE CONTROLS

The **Camera Plane** controls constrain camera motion to specific 3D planes (axes), helping you move the camera with precision:

- Move YZ: The Move YZ control constrains camera motions to the up/down (Y) and front/back (Z) axes.
- *Move XY*: The **Move XY** control constrains camera motions to the side/side (X) and up/down (Y) axes.
- Move XZ: The Move XZ control constrains camera motions to the side/side (X) and front/back (Z) axes.

ROTATION TRACKBALL

The **Rotation** trackball tilts and spins the currently selected camera about all three axes. The **Main**, **Auxiliary**, **Posing**, and **Dolly** cameras rotate about the center of the Studio. The **Posing** camera rotates around the currently selected figure. The **Face** and **Hand** cameras rotate about the respective actors (body parts) of the selected figure. You can also use the **Rotation** trackball by pressing [ALT] and dragging the cursor around the Studio using the **Document** window.

SCALE CONTROL

The **Scale Camera** control works like a zoom lens. Click the control and drag right to zoom towards the camera's aim point (Studio, figure, or actor, depending on the camera). Clicking and dragging left zooms out, and vice versa.

FOCAL LENGTH CONTROL

The **Focal Length** control increases or decreases the selected camera's focal length. Clicking the control and dragging right increases the focal length, while clicking and dragging to the left reduces the focal length. You can also adjust the camera's **Focal Length** parameter in the **Parameters** palette.

ROLL CONTROL

The **Roll Camera** control banks the camera to the left or right, tilting your view of the Studio. Click the control and drag left or right to tilt the camera in the indicated direction.

CAMERA NAME

You can rename cameras to suit your needs. To do this, select the camera you wish to rename and enter its new name in the **Properties** palette.

ANIMATION ON/OFF

Camera animation allows camera movements to appear as part of rendered movies, allowing for such techniques as follow shots, flyaround views, etc. Please refer to Chapter 37: "Animating with Poser" on page 272 for more information on creating animations. To enable/disable camera animation, open the **Properties** palette. Check the **Animating** box to have the selected camera's movements recorded as keyframes in your animation, or clear it to disable this feature. With this feature disabled, you can still move the camera but its movements will not be recorded as keyframes in your animation.

When a camera is animated, your view of your scene changes over time, which can add realism and interest to your animation. Watch a movie and notice how often the camera moves. You can animate Poser 5 cameras just like any other 3D object using keyframes and tween frames. Different cameras will animate differently, since they have differing centers of motion.

You can only use one camera per animation; you cannot switch cameras in mid animation. To do this, create separate clips then edit them together using video editing software such as Adobe Premiere.

ACCESSING CAMERA PROPERTIES & PARAMETERS

When you select a camera, its properties and parameters will appear in the **Properties** and **Parameters** palettes, respectively. To access a camera's properties and parameters in the appropriate palette when you do not currently have a camera selected, you can:

- Click your desired camera object if it is visible in the **Document** window.
- Use the Current Actor pull-down menu.

CAMERA PROPERTIES

Cameras have the following properties, available in the **Properties** palette:

- Name: The Name field displays the camera name. Enter a new name in this field if you desire.
- Visible: Checking the Visible checkbox makes the camera visible in the Document window, and vice versa.
- Animating: Checking the Animating checkbox allows the camera motions to be saved in your animations. Please refer to "Animating On/Off" on page 151 for more information about animating cameras.

CAMERA PARAMETERS

When a camera is selected, you can use the parameter dials on the **Parameters** palette to precisely adjust that camera's position. The **Dolly**, **Posing**, **Face**, and **Hand** cameras have the standard 3D **Pitch**, **Yaw**, and **Roll** parameters, while the **Main** and **Auxiliary** cameras have **xOrbit**, **yOrbit**, and **zOrbit** parameters. These parameters are measured in degrees.

Like all parameter dials, clicking and dragging a dial to the right increases its value, and clicking and dragging to the left decreases its value. You can also click your desired parameter's numeric value to open a text field allowing you to directly type your desired value.

XYZ Orbit

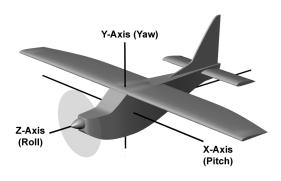
The **Orbit** parameters orbit the selected camera around the indicated Studio axis. It helps to think of the selected axis as the center of a wheel with the camera being at the edge. The camera maintains its distance from the axis and remains pointing in the same direction relative to its starting point. Setting positive degrees of rotation in the **Orbit** parameter dials orbits the selected camera in a counterclockwise direction around the selected axis, and vice versa.

- *xOrbit*: The **xOrbit** parameter orbits the selected camera using the Studio's X axis as the center of rotation.
- *yOrbit*: The **yOrbit** parameter orbits the selected camera using the Studio's Y axis as the center of rotation.
- *zOrbit*: The **zOrbit** parameter orbits the selected camera using the Studio's Z axis as the center of rotation.

PITCH, ROLL, YAW

These parameters rotate the **Dolly**, **Posing**, **Face**, and **Hand** cameras about their own axes. To illustrate this, let's use the example of a small plane with its X, Y, and Z axes labeled:

Pitch: The Pitch parameter rotates
the selected camera about its own
X axis (up/down). A positive
number pitches the camera up (the
scene appears to pitch down), and
vice versa.



- *Roll*: the **Roll** parameter rotates the selected camera about its own Z axis (tip left/tip right). A positive number rolls the camera to the left (the scene appears to rotate to the right), and vice versa.
- Yaw: The Yaw parameter rotates the selected camera about its own Y axis (rotate left/rotate right). A positive number yaws the camera to the left (scene appears to yaw to the right), and vice versa.

XYZ SCALE

As mentioned above, camera scale functions like a zoom lens. The **Scale** control zooms the camera equally in all three axes. Using the parameter dials, however, you can scale in any amount using any combination of axes to create distorted effects. While this might give the same appearance as distorting the figures/props in your scene, scaling cameras only affects the selected camera; items in your scene are not affected. Decreasing scale values zooms in along the selected axis, and vice versa.

- *xScale*: The **xScale** parameter changes the camera's horizontal scale.
- *yScale*: The **yScale** parameter changes the camera's vertical scale.
- zScale: The zScale parameter changes the camera's depth scale.
- Scale: The Scale parameter dial changes the selected camera's scale equally along all
 three axes and functions in the same manner as the Scale camera control. If you have
 already selected unequal scales using the individual axis controls, the Scale dial/
 control preserves your previously selected ratios.

XYZ DOLLY

The **Dolly** parameter dials move the selected camera along the desired axis without altering its orientation, just like a movie camera on a dolly cart, as shown below:

- *DollyX*: The **DollyX** parameter moves the camera laterally. Increasing this value moves the camera to the right.
- *DollyY*: The **DollyY** parameter moves the camera vertically. Increasing this value moves the camera up.
- DollyZ: the DollyZ parameter moves the camera in and out. Increasing this value
 moves the camera in and out.

FOCAL, PERSPECTIVE, AND HITHER

- Focal: The Focal parameter dial sets the camera's focal length.
- *Perspective*: The **Perspective** parameter shifts the current camera's perspective without changing the camera's location. This can give the illusion that the camera is farther or nearer to objects in your scene.
- *Hither*: The **Hither** parameter controls the distance of the *clipping plane*. Objects (or portions thereof) closer to the camera than the hither distance will not appear in your view pane.

POINTING & LOCKING CAMERAS

As with any other object in your scene, you can use the **Hierarchy Editor** (see "Using the Hierarchy Editor" on page 215) to keep cameras pointed at certain other objects.

POINTING CAMERAS AT SCENE OBJECTS

To point your camera at another scene object:

- 1 Select your desired camera using the Current Actor pop-up.
- 2 Select Object>Point At to open the Choose Actor dialog.
- **3** Choose your desired scene object in the list of actors (the camera can point at anything) and click **OK**.

The camera will point at the selected object and a **Point At** parameter dial will appear in the Parameters palette for that camera. Setting this parameter to 1 locks the camera on target, and 0 completely disables pointing. Intermediate values cause the camera to lag behind the object it's pointing at. This parameter allows you to create interesting effects when creating animations.

DISABLING CAMERA POINTING

To disable camera pointing:

- 1 Select your desired camera using the Current Actor pop-up.
- 2 Select Object>Point At to open the Choose Actor dialog.
- 3 Choose None in the list of actors (the camera can point at anything) and click OK.

LOCKING CAMERAS

Once you have positioned a camera to your liking, you can lock it to prevent it from being moved. To lock a camera, select it as described above, then select **Object>Lock Actor**. Selecting this option again toggles locking off.

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CAMERA DOTS

You can save up to nine camera configurations using the **Memory** dots (described in "Memory Dots" on page 53). Each **Memory** dot retains the settings for all cameras in your scene. This feature is specific to your current scene, meaning that **Camera** dots cannot be transferred to different scenes. To save camera settings and have them accessible in any Poser scene, you need to add camera sets to the **Library** palette as described below.

SAVING CAMERA SETS

The Cameras category in the Library palette allows you to save camera positions and access them using a few mouse clicks. Camera positions are saved relative to the Studio, not figures or other scene items. Saving camera sets saves all cameras; you cannot save one camera. As with any other Library palette category, you can add subcategories to the Cameras categories. Please refer to Chapter 24: "The Poser Library" on page 126 for a description of the Library palette, and to "Maintaining Your Library Palette" on page 131 for information on adding items to it.

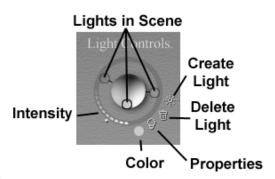
Chapter 28: Lighting

ights add color to your scene, reveal cues in forms, enhance muscle contours, set moods, cast shadows, etc. Good lighting is a key element of getting your scene to look right when you render it. Lights work in renderings and in the Lit Wireframe and Flat Shaded preview modes (refer to Chapter 26: "The Display Controls" on page 145 for information about display styles). You can use as many lights as you need in your Studio, with the only limitation being your system's resources.

Lights can also help you create effects. For example, you could add a reflection map to an element in your scene, causing it to direct light back at the source. Please refer to Chapter 7: "Groups" on page 37 for an explanation of material groups and to Part 8: "Materials" on page 305 for information on creating material shaders for your scene elements.

The lighting controls appear as follows:

Each light has customizable characteristics, such as rotation, color, and intensity (brightness). You can turn lights on or off, adjust how the brightness diminishes as you reach the edge of a light's range (the *falloff*), and specify whether or not a light casts a shadow. You can also animate lights to create effects such as lightning or flickering streetlights. As with any other



Poser object, you can parent lights to scene elements to have the light move as the source element moves. By default, Poser scenes include three infinite lights.

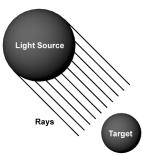
When you add, remove, move, or adjust lights, the **Document** window, **Lighting** controls, and the selected light's parameter dials automatically adjust to show the light's new position/properties, allowing you to preview your changes in real time.

LIGHT TYPES

Poser 5 allows you to create two types of lights: infinite and spot.

INFINITE LIGHTS

Infinite lights are comparable to the sun or moon shining on the Earth. Rays from infinite lights are parallel as they enter your Studio. If you have multiple figures and/or props in your scene, infinite lights shine on each item equally. You cannot place any scene element beyond an infinite light's range, and no figure/prop can be lit differently than another.



SPOTLIGHTS

Spotlights cast light in a specific direction, throwing light along a cone-shaped path to create a classic stage spot effect. These lights are useful for illuminating specific objects or for creating lighting effects. Spotlights can increase rendering times.

SELECTING LIGHTS

You can select lights as follows:

- Clicking one of the Lights in the **Light Position** indicator.
- Using the Current Actor pop-up menu.

CREATING LIGHTS

To create a light, click the **Add Light** icon in the **Lighting** controls. Your new light will appear in the **Light Position** indicator. By default, Poser creates spotlights. To change the newly created light to an infinite light, select the new light and click the **Light Properties** icon (see below for information about light properties).

ADJUSTING LIGHT INTENSITY

You can set a light's intensity using the **Brightness** control like a dimmer switch. Click and drag the brightness indicator to the left to dim the selected light, or to the right to brighten it. You can also set the light's intensity using the parameter dials in the **Parameters** palette.



YOU CAN SET A LIGHT'S INTENSITY TO A NEGATIVE VALUE, THEREBY CREATING A "NON-LIGHT" THAT WILL ACTUALLY DARKEN THE AFFECTED AREA(S) OF YOUR SCENE. YOU CAN USE THIS FEATURE TO CREATE INTERESTING EFFECTS.

LIGHT COLOR

Light colors contribute to your scene's overall appearance and mood. Unlike paints, light colors multiply instead of mixing and adding to one another. For example, a red figure with blue lighting would appear black, not purple. If you don't want a light to affect the color of items in your scene, set that light's color to white or gray. Because of this relationship between scene items and lights, you might want to set your scene items' colors before setting lighting colors.

To change a light's color, click the **Color** icon in the **Lighting** controls to open a standard Color Picker dialog. Make your selection, and your selected light will change to its new color. You can also set a light's color using the parameter dials in the **Parameters** palette.

DELETE LIGHT

Select the light you wish to delete and click the **Delete Light** icon in the **Lighting** controls.

AIMING LIGHTS

You should finish posing your figures and positioning your props before aiming your lights. Doing this in reverse will cause your scene elements' appearances to change as you move them. For example, rotating a figure 180 degrees causes illumination falling on its front to fall on its back. You may need to re-aim your lights to continue working. Some traditional artists place a bright light above and to the left of a figure. Using a strong single light source lets you see shading on distant and oblique surfaces, contributing to the scene's depth and curvature. You may want to read books on lighting, including using lights in photographic studios, to give you ideas on using lights to enhance your Poser scenes.

If you import a background image or movie, you should set your lights to mimic the lighting in the background. For example, if your background image shows a strong light coming from the figure's right, don't light the figure from the left. This will help preserve consistency between your Studio and the background and help integrate both elements together. Ideally, when working with backgrounds, you should have the background look like part of your scene. If your scene is a room using an image of a brightly lit background visible through the windows, you should have most of your lighting streaming in through

the windows to blend the room and its contents with the outside world and lend realism to your scene.

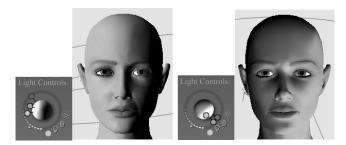
You can aim lights using any of the following methods:

- Using the **Light Position** control (see below).
- Moving a light's indicator in the **Document** window (see below).
- Using the **Editing** tools (**Rotate** and **Twist** for infinite lights, and **Rotate**, **Twist**, **Translate/Pull** and **Translate In/Out** for spotlights. Please refer to "The Editing Tools" on page 171 for information on using the **Editing** tools).
- Using the selected light's parameter dials in the **Parameters** palette.
- Using the **Figure>Point At** ("Point At" on page 105) or **Object>Set Parent** ("Change Parent" on page 104) menus.
- Using the desired light's **Shadow** camera, as described in "Shadow Light Cameras" on page 150.

As discussed above, infinite lights always shine into the studio. Aiming an infinite light sets the location from which the light shines (such as setting the sun's position in the sky). When aiming spotlights, you're setting both the angle at which the light shines and the light's position in 3D space.

USING THE LIGHT POSITION CONTROL

The globe in the center of the **Light Position** indicator represents your Poser scene in 3D space, and the light dots represent the positions of each of the lights within your scene. Dragging these dots to different positions around the globe adjusts the lighting angle, as shown below:





CLICKING ANYWHERE IN THE LIGHT POSITION CONTROL SELECTS THE NEAREST LIGHT.

USING LIGHT INDICATORS

When you select a light, Poser displays a light indicator describing your selected light's position in the **Document** window. In some cases, viewing the indicator from a different angle can help you visualize your light's position. You can switch Camera views and/or zoom to view light indicators from different angles.

INFINITE LIGHT INDICATORS

An infinite light's indicator appears as a ring surrounding the currently selected figure/prop. This ring serves as the equatorial line of an invisible globe with the light shining down on your scene from the point on the equator indicated by the arrows, as shown here:



Then viewed from oblique angles, the circle appears as an ellipse, helping show if the light is in front of or behind the figure. The light is not actually on the edge of the indicator. The indicator simply represents a larger globe encompassing the entire studio. You can click and drag a light indicator to reposition the selected light.

SPOTLIGHT INDICATORS

A spotlight's indicator appears as the outline of a spotlight in your Studio depicting both the light's position in 3D space (remember, you can position spotlights in 3D space, unlike infinite lights) and the direction the light is pointing, as shown here:

Clicking and dragging a spotlight's indicator moves the light around the Studio.





NOTE

YOU MAY WANT TO USE ORTHOGONAL VIEWS (LEFT, RIGHT, TOP, BOTTOM, FRONT, OR BACK) TO MOVE SPOTLIGHT INDICATORS, SINCE DOING SO CONSTRAINS THE SPOTLIGHT'S MOTION TO TWO DIMENSIONS (YZ IF USING THE LEFT OR RIGHT VIEWS, XZ IF USING THE TOP OR BOTTOM VIEWS, AND XY IF USING THE FRONT OR BACK VIEWS). USING PERSPECTIVE VIEWS CAN MOVE YOUR SPOTLIGHT IN OBLIQUE DIRECTIONS, CAUSING UNEXPECTED LIGHTING EFFECTS.

LIGHT PROPERTIES

Light properties help you fine-tune your lighting effects. To access a light's properties, select the light and either click the **Light Properties** icon in the **Lighting** controls or select **Object>Properties**. You can also access light properties in the **Properties** palette.

You can control the following light properties:

- Visible: Checking the Visible checkbox makes the light visible in the Document window, and vice versa.
- Animating: Checking the Animating checkbox allows you to animate the light just as
 you would any other Poser object. Animated lights can also have different settings in
 various keyframes. For example, you could create a red spotlight on your figure's left
 side that orbits overhead and turns blue. When you rendered this animation, you would
 see your figure's color changing and shadows moving with the light. You cannot
 animate lights that are turned off (see above).
- On/Off: Checking the On box turns the light on, just like flicking its switch. Clearing
 the checkbox turns the light off. As a shortcut, you can also press [ALT] while clicking
 a light in the Lighting controls to toggle the selected light on or off.
- *Infinite/Spot*: Check the appropriate radio button (**Infinite** or **Spot**) to make your selection. Spot and infinite lights are discussed above.
- Shadows: Checking the Shadows checkbox enables you to choose one of the following two options:
- Raytrace Shadows: Selecting Raytrace Shadows enables raytracing of shadows. Enabling this option activates the Shadow Blur Radius dial (see below)
- Depth Map Shadows: Selecting Depth Map Shadows enables depth-based shadow mapping for greater accuracy. Enabling this option activates both the following dials:
 - Shadow Blur Radius: All shadows have a blurry region around their edges. The **Shadow Blur Radius** parameter specifies the radius of this blurry region.
 - Shadow Min Bias: The **Shadow Min Bias** parameter specifies how far to shift samples towards the light source to prevent self-shadowing of objects.

- Atmosphere Strength: The Atmosphere Strength dial and field allows you to specify the strength of atmospheric (volumetric) effects. This attribute is used in conjunction with the Root Atmosphere node, which is described in "Root Atmosphere Node" on page 318.
- *Color*: Clicking the **Color** button opens the Poser Color Picker, allowing you to set the light's color.
- Set Parent: Clicking the **Set Parent** button allows you to make the light a child of another element in your scene.

LIGHT PARAMETERS

Be sure to select the light you wish to work with before using the parameter dials to avoid accidentally changing settings for the wrong light. Once you've adjusted a light the way you want it, you can use the **Lock Actor** command (see "Lock Actor" on page 104) to prevent accidental changes. Lights have the following parameters, available in the **Parameters** palette:

ANGLE START/END (SPOTLIGHT ONLY)

The **Angle Start** and **Angle End** values allow you to specify how a spotlight's light "falls off" as you approach the edge of the cone of light projected by the spotlight. The **Angle Start** parameter specifies the amount of light (in percent) present at the start of the cone of light projected by the spotlight, and the **Angle End** parameter specifies the percentage of intensity present at the cone's end.

DISTANCE START/END (SPOTLIGHT ONLY)

As you know, light fades with distance from its source. The **Distance Start** and **Distance End** parameters specify the distance from the light source (in grid units) where the spotlight's intensity begins to drop (fall off), and the distance in grid units when the spotlight is no longer casting light, respectively.

SHADOW

Poser lights can cast shadows, if you enable this option using the selected light's **Cast Shadow** property in the **Properties** palette as described above. Shadows add depth, realism, and dramatic effects to your still or animated scenes. To change the cast of a light's shadow, move the light.

Spotlights cast shadows based on the spotlight's angular range, meaning that tighter spotlights produce cleaner shadows. By contrast, infinite lights adjust the view to fill the screen with all objects that cast shadows. Because of this, if you render a close-up of a

scene with many figures and/or props (especially widely spaced items), the shadow map will not contain much information



NOTE

EACH LIGHT HAS A SHADOW CAMERA, AVAILABLE USING THE CURRENT ACTOR PULL-DOWN MENU. ADVANCED USERS CAN AIM THESE CAMERAS AS DESIRED. EACH LIGHT'S SHADOW MAP CONTAINS SHADOW INFORMATION FOR THE SCENE AS VIEWED THROUGH THAT LIGHT'S SHADOW CAMERA.

The shadow-related parameter dials are:

- Shadow: Use the **Shadow** parameter dial to specify the selected light's shadow strength. A setting of 0 disables cast shadows for the selected light, while a setting of 100% casts a dark shadow. You can animate shadow strength over time.
- Map Size: The Map Size parameter dial sets the size of the selected light's shadow map in pixels (shadow maps are square). Poser uses image maps to apply shadows to objects in the scene, and applies these shadows during rendering. Larger map sizes increase the accuracy and detail of shadow maps, but at a cost in memory and render time. For example, each 1024x1024 map requires about 4MB of space, while a 2048x2048 map requires 16MB. You cannot animate the shadow map's size.

XYZ ROTATION

Adjusting these dials adjusts the direction in which the light is pointing. For example, think of the sun's path across the sky throughout the day and how it appears farther north or south with the changing of seasons. When the **xRotate** and **yRotate** dials are set to 0 degrees, the light aims at the Studio from the front. **ZRotate** is only significant when the **xRotate** and **yRotate** settings are not 0,0 or 180, 180. In all cases, the figure is in the default position:

- xRotate: The xRotate parameter rotates the selected light about the X axis.
- *yRotate*: The **yRotate** parameter rotates the selected light about the Y axis.
- zRotate: The zRotate parameter rotates the selected light about the Z axis.

SCALE

The **Scale** parameter dial allows you to scale a light's indicator. This does not affect the light itself.

RED, GREEN, BLUE

The **Red**, **Green**, and **Blue** dials specify the amount of each of the three primary colors to add to a light's final color. A value of 1 means that the selected color is fully added, and 0 means that color is not included at all. Using these three primary colors to create a final color is called RGB lighting (Red, Green, Blue). Each of the three colors can have 256

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values ranging from 0 to 255. This gives us 256 red, 256 green, and 256 blue shades to work with, or 256³ (16,777,216) total possible colors. Parameter dial values correspond to RBG values as follows:

- Parameter dial 0 = RGB color value 0 for the selected color.
- Parameter dial 1 = RGB color value 255 for the selected color.

INTENSITY

You can control your light's intensity using the **Brightness** control or the **Intensity** parameter dial. A setting of 0% means the light is fully off, and a setting of 100% means the light is completely on (at full brightness/intensity).

XYZ TRANSLATION (SPOTLIGHT ONLY)

The **Translation** dials allow you to specify a spotlight's precise location in 3D space by specifying grid coordinates. As previously described, spotlights emit light from their location in 3D space, meaning that objects "behind" the light are not illuminated.

SAVING & LOADING LIGHT SETS

You can save light sets to the Library, allowing you to reuse them in later scenes. Light sets have the file extension *.LT2 and are saved to the **Lights** Library. Please refer to "Maintaining Your Library Palette" on page 131 for information about adding items to the **Library** palette.

ANIMATING LIGHTS

Lights can be animated like other Poser objects using keyframes and tween frames. Please see Chapter 37: "Animating with Poser" on page 272 for information about animating within Poser

Chapter 29: Posing Figures



his chapter explains how to pose figures and the tools you'll use while doing so. Posing is the process of bending, twisting, and pulling a figure into new and fantastic positions. You can even create movies.

GENERAL POSING PRINCIPLES

A pose has two aspects: how the body parts move relative to the rest of the body (such as if you raise or lower an arm, your shoulder, upper arm, forearm, hand, and fingers are moving relative to the rest of your body) and the figure's position relative to the Studio (such as if you walk around a room). Poser 5's **Editing** tools allow you to move body parts, figures, and props by simply clicking and dragging. It doesn't get any easier!

When posing in Poser 5, you're working in all three dimensions. Your only limitations are specific motion limits placed on joints to keep poses realistic. Enabling limits prevents, for example, a figure's knees from bending backward or the head from twisting 360 degrees. However, you can disable limits and put your figures into any position you can imagine.

POSING AND CAMERA VIEWS

Newer Poser figures (Version 3 and later) allow you to pose faces and hands (expressions, gestures, etc.). Poser includes **Face** and **Hand** Cameras that zoom into these areas for close-up work.

While posing, you can switch cameras to view your work from many different angles and can even select up to four simultaneous camera views in the **Document** window (see Chapter 25: "The Document Window" on page 139). It is recommended that you select the **Posing** camera while working, thus saving the **Main** and **Auxiliary** cameras for your final shots, particularly if rendering animations.

THE POSE LIBRARY

You can add poses you create to the **Pose** Library, as described in "Maintaining Your Library Palette" on page 131, or you can apply still or animated poses to your currently selected figure as described in "Using Objects from the Library Palette" on page 135.

TRANSLATION

Translation moves multiple body parts by pulling them in a chain. To visualize this, imagine a person lying down with their arms out to their sides. If you were to take hold of the hand and lift it, at first only the affected arm would move. Keep moving higher, you'd lift the shoulders, chest, hips, and eventually the whole person off the ground. Poser 5's **Editing** tools work this way. Drag any part and connected parts follow. Parts move, bend, and twist as you would expect them to.

INVERSE KINEMATICS (IK)

Poser's Inverse Kinematics (IK) features help you achieve realistic poses and add naturallooking motion to your animations. IK effects are most apparent when using the **Editing** tools. Translate the hip, and the legs bend to accommodate the new hip position without changing the positions of the feet. Arms behave similarly: Place a figure's hands against an imaginary wall and move the hip forward. The arms bend while the hands remain fixed in position.



NOTE

ENABLING IK ON A POSE CREATED WITH IK DISABLED MAY ALTER YOUR POSE.

Understanding IK

Kinematics is the study of motion velocity, rotation, and position. In terms of structures such as arms and legs, kinematics is used to calculate how actions taken at a structure's root determine the position and rotation of the other end. For example, hold your arm straight and rotate your shoulder joint. Kinematics calculates the change in position of your arm, hand, and fingers. If you know the angle by which you rotated your shoulder, you can calculate your arm's new position.

It follows that Inverse Kinematics studies the same problem from the other end: The extremity moves, and IK determines how the objects joined to it must respond in order to support the new placement. If you raise your hand straight out to the side, your hand, arm, and shoulder must move to accommodate your hand's new position. Or if someone was to grab your hand and push, your arm would bend while your body remains still.

Poser supports IK for the arms and legs. With IK enabled, you can translate the hands and feet and achieve appropriate arm and leg positions automatically. IK creates targets to indicate the end of the chain. When the hands or feet move, the target is set to its new position. Moving any other body part keeps the target in its original position relative to the rest of the body. Once the target is reached, the end of the chain is fixed and the other parts must bend to accommodate the hand or foot position. For example, a foot reaches its target and the knee bends.

To work effectively with IK, you need to keep the following things in mind:

- IK is enabled when you are working with the **Editing** tools.
- The **Rotate**, **Translate**, and **Twist** tools may not behave as you might expect for some body parts. For example, you cannot easily rotate or translate a thigh or shin when IK is enabled for that leg because the foot's position takes precedence. This behavior corresponds to real life: When you stand, your feet and legs support your body, meaning that you cannot arbitrarily move or rotate them. This consideration applies to both the **Editing** tools and the parameter dials.
- You cannot use IK and the **Chain Break** tool (see "Chain Break" on page 174) on the same limb.

Enabling/Disabling IK

You can use IK on a figure's arms and legs. Figures added to Poser scenes have IK enabled for the legs but not the arms, since this setting works the best for most artists' preferences. To enable or disable IK, select **Figure>Use Inverse Kinematics** and the limb (**Right Arm**, **Left Arm**, **Right Leg**, or **Left Leg**) to enable/disable IK. A check mark next to a limb indicates that IK is enabled for that limb, and vice versa.

LIMITING MOTION

The **Use Limits** option keeps body parts from moving beyond natural ranges of motion. The figures that come with Poser have realistic limits that can be applied. Third-party content may or may not have realistic joint limits. If you have questions about a particular piece of content, please contact the content's creator or the marketplace where you purchased the content. "Natural" is a subjective definition. The limits for Poser figures are a rough guideline that may or may not look right to you. You can customize maximum and minimum limits using the methods described in "Editing Parameter Dials" on page 182.

Select **Figure>Use Limits** to toggle limits on and off. A checkmark next to this option indicates that limits are being enforced, and vice versa.

POSING BODY PARTS

Like their real-world counterparts, Poser figures are made of body parts connected by joints. Posing a figure entails manipulating separate body parts to create a new position or pose. Body parts are independent, and each considered an element (or actor) in its own right. This concept holds true no matter what the figure looks like (snake, 2-legged, 8-legged, etc.). There are some special posing cases:

- Hands (see "Posing Hands" on page 186)
- Faces (see "Posing Faces" on page 184)
- Eyes (see "Posing Eyes" on page 186)

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• Animals (see "Posing Animals" on page 187)

POSING A FIGURE

The easiest way to pose a figure is to use the **Editing** tools as described in "The Editing Tools" on page 171. The part will move based on the part selected, your currently selected Editing tool, your camera angle, and whether or not IK is enabled. You can also use the parameter dials on the **Parameters** palette to precisely move parts. Most poses are created using the **Editing** tools to get the rough position followed by the parameter dials for fine adjustments.

SELECTING BODY PARTS

Before you begin posing figures, you need to know how to select the body part(s) you wish to move in order to create your still or animated pose. You can select body parts using the **Editing** tools, the **Current Actor** pull-down menu, or by clicking the desired part in the **Document** window. Each of a figure's body parts is a poseable element.



USING THE EDITING TOOLS

To select a body part using the **Editing** tools, click your desired tool then click the body part you wish to pose. The currently selected body part is highlighted in the **Document** window and labeled in the **Select Figure** and **Current Actor** menus on the bottom left corner of the **Document** window

USING THE CURRENT ACTOR PULL-DOWN MENU

To select a body part using the pull-down menus:

- 1 Select the desired figure using the **Select Figure** pull-down menu.
- 2 Select your desired body part using the Current Actor Item pull-down menu.

This method can be preferable if your scene has several figures and/or detailed body parts (such as poseable fingers and toes).

THE EDITING TOOLS

The **Editing** tools appear as follows on your Poser workspace:



As described in "Setting Up Your Workspace" on page 63, you can locate the **Editing** tools wherever you like on your Poser screen and can display or hide the title. You can also toggle the **Editing** tools between appearing horizontally (default) or vertically. To do this, place your cursor over any one of the **Editing** tools and press [ALT] while clicking your left mouse button.

The **Editing** tools let you move body parts in many different ways. A tool's effect can vary depending on whether or not Inverse Kinematics (IK) is enabled. Please refer to "Inverse Kinematics (IK)" on page 168 for information about IK. **Editing** tools can pose an individual body part or a complete figure.

To pose a body part, select it and drag. To pose the entire figure, either:

- Click and drag your desired **Editing** tool.
- Select your desired **Editing** tool, then select the **Figure Ring** surrounding your desired figure and drag. The **Figure Ring** is highlighted when selected, indicating that you are working on the entire figure at once.

To move an entire figure, you can:

- Click and drag an Editing tool.
- Select and drag the Figure Ring.
- Select **Body** using the **Select Actor** pull-down menu.
- Select the figure's hip and move it (with IK disabled).

When using an **Editing** tool in the **Document** window, your cursor changes to a visual representation of the selected tool. This helps you keep track of how you're moving the selected figure or element.

When using an **Editing** tool with a figure prop, you don't need to click and drag with the cursor positioned over the affected item; you can click and drag anywhere in the **Document** window. Also, be aware that your camera view affects how your figure or element appears. Depending on the pose you are creating, you may want to switch to a different camera. For example, if you are moving an arm in front of a figure, a side view will give you a good view of the arm's position relative to the figure's front, and so on. You can change **Camera** views as described in "Changing Cameras within a Pane" on

page 139, and can even view your Poser scene from multiple cameras at once, as described in "Single/Multiple-View Panes" on page 140.

From left to right, the **Editing** tools are:



The **Rotate** tool bends a body part at its joint. Rotation works in three dimensions, allowing you to make a lot of progress very quickly. To rotate a body part, select the body part you wish to rotate and drag perpendicular to the part to cause the rotation to rotate up and down (relative to your point of view). Dragging parallel to the part rotates it in and out, again relative to your point of view.

To rotate the entire figure, select it. Dragging the mouse up/down and left/right functions as a trackball and rotates the figure on its own axes based on your camera location. You can also adjust an item's rotation using the **Parameter** dials, as discussed in "Parameters Palette" on page 180.

TWIST

The **Twist** tool rotates a figure/part/prop along its own axis. You can twist an entire figure by selecting it and dragging. Most of the body's joints don't allow much twisting. For example, your forearm can twist almost 180 degrees while your wrist can hardly twist at all. The twist axis of the head, neck, and torso is along the spine. For the forearm, the axis lies along the arm's length. Twisting an entire figure rotates it about its own axis. If the figure is standing, it spins around. If lying down, it rolls over. You can also adjust an item's twist using the parameter dials, as discussed in "Parameters Palette" on page 180.

TRANSLATE/PULL @



The **Translate/Pull** tool moves the selected figure/part/prop vertically around or laterally around the Camera's X and Y axes depending on how you drag. The translation may occur on the figure's X, Y, and or Z axes depending on the position of the camera relative to the figure. You can translate body parts or figures, and can also adjust an item's translation using the parameter dials, as discussed in "Parameters Palette" on page 180.

TRANSLATE IN/OUT



The **Translate In/Out** tool moves the selected figure/part/prop along the Camera's Z axis (in and out). This translation may take place along the figure's X, Y, and/or Z axes. Dragging down pulls the item towards you, and vice versa. Moving an item towards you makes that items seem larger, and vice versa. You can also adjust an item's translation using the parameter dials, as discussed in "Parameters Palette" on page 180.

SCALE (1)



The Scale tool allows you to scale the selected figure/part/prop along the camera's X and Y axes. The item's affected axes will vary depending on the camera's position relative to that item. Dragging in towards the element reduces the scale, and dragging away from the element increases the scale. To scale in two dimensions, drag laterally. Dragging vertically scales in the third dimension. The axes affected depend on your currently selected camera position. You can also press and hold [SHIFT] while using this tool to scale evenly in all three dimensions. Make a mistake? No problem. Select **Edit>Undo**, or press [CTRL]+[Z]. Poser allows one level of undo. You can animate scale using the parameter dials as described in "Parameters Palette" on page 180.

To scale an entire figure, select the desired figure using the **Select Figure** pull-down menu in the **Document** window or by clicking its **Figure Ring**. A figure's size is relevant only in relation to other figures and props within your scene. To pose a single figure, scaling is not necessary: You can simply zoom the camera. If you are working with two or more figures and want to give one the appearance of being in the distance, it's best to simply move the selected figure to the background using the **Translate** tool (see above). You can also adjust an item's scale using the parameter dials, as discussed in "Parameters Palette" on page 180.

TAPER 🖤



The **Taper** tool allows you to taper the selected figure/part/prop along the Camera's X and Y axes. The item's affected axes will vary depending on the Camera's position relative to that item. This only affects the end of the selected actor that is most distant from the center of the body. Dragging to the right increases the amount of taper, and dragging to the left decreases the taper, "flaring" the selected actor. You can also adjust an item's taper using the parameter dials, as discussed in "Parameters Palette" on page 180.

CHAIN BREAK



The **Chain Break** tool ends the chain of parts affected by the Translate tools.

Using chain breaks on different body parts can create interesting effects. For example, to prevent the chest from moving, apply a chain break to it. You can then translate the hand freely without moving the chest: only the hand, forearm, upper arm, and shoulder will move. You must have IK disabled on the desired limb(s) in order for this to work. Please refer to "Inverse Kinematics (IK)" on page 168 for information about Inverse Kinematics.

To add a chain break, select the **Chain Break** tool and click where you want the chain broken. A Chain Break icon appears wherever you insert a break. You can insert as many breaks in your scene as needed. To remove a chain break, click the desired icon.



NOTE

ALL FIGURES HAVE CHAIN BREAKS AT THEIR HIPS. YOU CANNOT REMOVE THESE BREAKS.

COLOR



The **Color** tool allows you to select a material group's surface (diffuse) color. Please refer to "Root Node Help" on page 315 for information about setting colors and other material values.

GROUPING



The **Grouping** tool opens the **Group Editor** palette, which is discussed in "The Grouping Tool & Group Editor Palette" on page 209.

VIEW MAGNIFIER



The View Magnifier tool allows you to zoom in and out to and from your desired areas of the **Document** window without altering the position of your currently selected camera. This can be of great help when working with scenes.

To use the View Magnifier tool, select it:

• Click anywhere in the **Document** window or current view pane to zoom in on the selected area. Repeated clicking will continue zooming in one step per click.

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- To zoom in on a specific region in the **Document** window, click and drag a rectangle around the area you wish to magnify. Your view will zoom in on the closest point that encompasses your selected region.
- To zoom out, press [CTRL] while clicking in the **Document** window.

MORPH PUTTY



The **Morph Putty** tool allows you to visually sculpt your figures' morph targets by selecting and moving vertices. You can do this with any scene object that has morph targets. Please refer to "Creating and Using Morph Targets" on page 206 for more information about morph targets.

To use the **Morph Putty** tool:

- 1 Select the body part you wish to sculpt, then select the Morph Putty tool. The Morph Putty Tool dialog appears, displaying all of the morph targets available for the selected body part:
- **2** The list of morph targets is hierarchical and displays branches containing the available morph targets. Clicking the – icon next to an expanded branch collapses that branch, and clicking the + icon next to a collapsed branch expands that branch. You can also use the scroll bars to navigate the list. The **Morph Putty** tool will manipulate all selected morph targets. Checking the checkbox



Exaggeration min

Exaggeration max

EP Mouth Sad

Lock all Unlock all

- next to a morph target includes the specified morph target when using the tool, and clearing it means the specified morph target will not be affected by the tool. Even if a morph target is enabled, it may or may not be affected by your use of the tool. For example, selecting a vertex in the forehead may affect the eyebrows but will not affect the mouth. Select your desired morph target(s), then click and drag any vertex on the selected body part.
- 3 Once you have a portion of the body part the way you want it, you can click the Pin button then click one or more vertices to pin them, preventing further manipulation as you work on other areas of the object. Pinned vertices appear as red dots on the current object and may move as you keep adjusting other portions of the body part (depending on how many morph targets affect the pinned vertex), however they will retain their current settings. Also, pins are retained if you stop using the Morph Putty tool and resume using it later. To stop pinning vertices, click the **Putty** button (see below). You may notice some trembling if you adjust morphs that affect pinned vertices.

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The Morph Putty Tool dialog has the following functions:

- *Putty*: Clicking the **Putty** button re-enables the **Morph Putty** tool. Click this button after pinning vertices to resume adjusting morphs.
- Pin: Clicking the Pin button disables the Morph Putty tool and allows you to pin one
 or more vertices as discussed above.
- Clear Morphs: Clicking the Clear Morphs button resets all morphs. Use this option
 with care as it will undo all of your changes, even if you exit and resume using the
 Morph Putty tool.
- *Clear Pins*: Clicking the **Clear Pins** button removes all pins previously applied to the current object.
- Exaggeration min/max: Mathematically, each morph target defines a displacement vector (v) on each object vertex, and its exaggeration value defines a multiplier (w). Thus, a morph target's net effect is p + wv, where p is the original vertex position. If w=1, we add v+p. W can be any value. The larger w is, the more exaggeration this morph target's effect has. The Exaggeration Min and Exaggeration Max values globally define the limits for w across all morph target weights when the putty tool operates. No morph target can contribute more than its limits (see "Editing Parameter Dials" on page 182 for more information about parameter dial limits). Increasing limits therefore increases the exaggeration effects of all morph targets.
- Lock All: Clicking the Lock All button locks all morph targets, which disables morph-based shape changes. This is handy when you're satisfied with your overall shape and only want to fine-tune a few specific morphs. In that case, you could use this option then unlock only those morphs you want to adjust.
- *Unlock All*: Clicking the **Unlock All** button unlocks all morph targets, allowing you to modify them.



TO MOVE IN THE Z AXIS, PRESS AND HOLD [CTRL] WHILE DRAGGING.

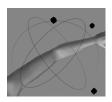
DIRECT MANIPULATION



The **Direct Manipulation** tool allows you to directly adjust an element's **Translate**, Scale, and Rotation parameters:

To adjust an element, first select the **Direct Manipulation** tool, then select your desired element:

Clicking and dragging one of the shaded boxes above the selected element increase or decreases the element's X, Y, or Z scale. This is the same as adjusting the xScale, yScale, and zScale parameters, respectively.



You can also click and drag the colored circles to rotate the selected element along its axes. This occurs using object coordinates for optimum control. Dragging the red circle rotates about the element's X axis. The green circle rotates about the element's Y axis, and the blue circle rotates about the element's Z axis. The cursor changes to indicate which transformation will occur. For example, move the cursor over the circles, the cursor changes to a rotation icon, and so forth. Elements rotate about their origins.

Clicking near the selected element's origin translates the element as if you were using the **Translate** tool. Clicking away from the origin and axes/circles allows you to rotate the element as if you were using the **Rotate** tool.

THE PARAMETERS/PROPERTIES PALETTE

Previous versions of Poser separated the parameter dials and object properties into separate dialogs. Poser 5 introduces a new combined **Properties/Parameters** palette that lets you quickly switch between a selected element's properties and parameter dials:

For clarity, each tab on this combined palette is referred to as a separate palette, either the **Properties** palette or the **Parameters** palette, as appropriate. To switch between the two, click your desired tab. You can also access an object's **Properties** palette by double-clicking the desired object. Once you do this, clicking the **Parameters** tab opens the same object's **Parameters** palette. You can also access both palettes by selecting Window>Properties palette or Window>Parameters palette, respectively.



PROPERTIES

The **Properties** palette contains the properties available for the currently selected scene element. Properties for lights, cameras, props, etc. are listed in their respective sections. This section describes the properties available to figures and body parts.



FIGURE PROPERTIES

Figures have the following properties:

- Name: The Name field displays the figure name. Enter a new name in this field if you desire.
- Visible: Checking the Visible checkbox makes the figure visible and vice versa.
- Visible in Raytracing: Checking the Visible in Raytracing checkbox makes the figure visible in raytraced reflections, such as if the figure is in front of a mirror. Clearing this checkbox makes the figure not appear in reflections. This option is used when raytracing.
- Collision detection: Checking the Collision Detection checkbox enables collision detection for the currently selected figure.
- Displacement Bounds: The Displacement Bounds property determines the figure's displacement boundary. Please refer to "Render Settings" on page 342 for more information about displacement bounds.

BODY PART PROPERTIES

Body parts have the following properties:

- Internal Name: The Internal Name field displays the body part's internal (hidden)
 name, which Poser uses to track that part. You cannot edit a body part's internal name
 within Poser.
- Name: The Name field displays the body part's name. Enter a new name in this field if you desire.
- Visible: Checking the Visible checkbox makes the body part visible and vice versa.
- Visible in Raytracing: Checking the Visible in Raytracing checkbox makes the body
 part visible in raytraced reflections, such as if the figure is in front of a mirror. Clearing
 this checkbox makes the figure not appear in reflections. This option is used when
 raytracing.

- Bend: Checking the Bend checkbox enables bending for the selected body part and vice versa. Bends are discussed in "Bend Body Parts" on page 111. Remember that selecting Display>Bend Body Parts bends all body parts and this property only affects the currently selected body part.
- Casts Shadows: Checking the Casts Shadows checkbox forces the selected body part
 to cast a shadow, which will be visible in your scene. Clearing this box means the
 selected body part casts no shadow.
- *Collision Detection*: Checking the **Collision Detection** checkbox enables collision detection for the currently selected body part.
- Apply Collision Setting to Children: Clicking the Apply Collision Setting to Children button applies the currently selected body part's collision detection setting to that part's children parts (if any).
- Add Morph Targets: Clicking the Add Morph Targets button displays the Add
 Target dialog, allowing you to load a custom morph target for the selected body part
 (which is then editable using the Morph Putty tool as described in "Morph Putty" on
 page 175). Please refer to "Creating and Using Morph Targets" on page 206 for more
 information about adding morph targets.
- *Displacement Bounds*: The **Displacement Bounds** property determines the body part's displacement boundary. Please refer to "Render Settings" on page 342 for more information about displacement bounds.
- Shading Rate: The **Shading Rate** allows you to specify the desired shading rate for the currently selected body part. Please refer to "Render Settings" on page 342 for more information about shading rates.
- Smooth Polygons: Checking the **Smooth Polygons** checkbox causes Poser to smooth the body part's polygons at render time to eliminate or reduce a "faceted" appearance caused by flat polygons. This option can cause sharp corners to appear round. If the affected body part has sharp angles, you should experiment with disabling this option for optimum results.

PARAMETERS PALETTE

The **Parameters** palette contains all of the parameters for the currently selected scene element:



The following topics discuss the **Parameters** palette in detail.

CURRENT ACTOR MENU

The **Parameter** palette's **Current Actor** pull-down menu (1) functions the same as the **Current Actor** pull-down at the bottom left of the **Document** window. Please refer to "Select Figure/Current Actor Menus" on page 143 for more information about the **Current Actor** menu.

PARAMETER PALETTE MENU

The **Parameter Palette** menu (2) contains the following options:

- Create New Group: Selecting Create New Group creates a new subgroup under the
 currently selected group. The Create New Group dialog appears prompting you for a
 name. Enter your desired name in the field. To rename an existing group (or if you
 make a mistake when creating the group), double-clicking the group name in the
 Parameters palette opens a field allowing you to specify a new name.
- Delete Selected Groups: Selecting Delete Selected Group deletes the currently selected group. Parameter dials in deleted groups are moved to the next highest group or subgroup, as appropriate.
- Display as ordered list: The Display as ordered list option toggles displaying
 parameter dials in groups (Poser 5 default) or in an ungrouped list (pre-Poser 5
 default). A checkmark means groups and subgroups are not displayed, and vice versa.
- Memorize: Selecting Memorize memorizes the current parameter dial settings as default. Please refer to "Memorize" on page 96 for more information on memorizing parameter dials.
- Restore: Selecting Restore restores the most recently memorized defaults. Please refer to "Restore" on page 95 for more information about restoring saved defaults.

• Delete Object: Selecting **Delete Object** deletes the current object.

PARAMETER DIAL GROUPS

Previous versions of Poser displayed all parameter dials together in one list that could easily become too long for convenient navigation or confusing. Poser 5 introduces parameter dial grouping (3), which organizes parameters into easy to navigate categories.



DIFFERENT FIGURES MAY HAVE DIFFERENT PARAMETER DIAL GROUPS.

Parameter dial groups have the following functionality:

- Clicking the + sign next to a collapsed group/subgroup expands that group/subgroup.
- Clicking the sign next to an expanded group/subgroup collapses that group/subgroup.
- Double-clicking a group name allows you to rename that group.
- You can drag and drop groups to change their hierarchical relationship to each other. For example, a group could become a subgroup under another group, and vice versa.
- You can drag and drop parameter dials to different locations within the same group or across groups and subgroups to organize them as you see fit.



NOTE

PARAMETER DIAL GROUPS AND SUBGROUPS ARE SAVED IN YOUR POSER 5 SCENE FILES.

PARAMETER DIALS

The parameter dials (4) in the **Parameters** palette let you pose a figure and adjust other attributes for figures, props, lights, camera, etc. using precise numerical increments. Every body part and many other elements have their own parameter dial. When an entire figure is selected, the displayed parameters affect the entire figure. To use a parameter dial, you can either click and drag it to the right to increase the selected value or left to decrease it. You can also click the displayed numeric value and manually enter your desired value using the text box that appears.

To restore a parameter dial's default (or last memorized) setting, press and hold [ALT] while clicking the desired parameter dial. To change a parameter dial's default value, set the dial to your desired value and either select **Edit>Memorize**>*element*, as described in "Memorize" on page 96, or use the **Parameter Palette** menu as described in "Parameter Palette Menu" on page 180.

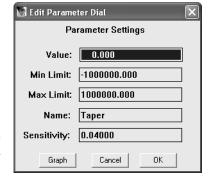
Each parameter dial has its own **Parameter Dial** menu (5), which is accessible by clicking the arrow to the right of your desired parameter dial. The **Parameter Dial** menu has the following options:

- Reset: Selecting **Reset** resets the parameter dial to its default or last-memorized value.
- Settings: Selecting Settings opens the Edit Parameter Dial dialog, described in the following topic.
- *Graph*: Selecting **Graph** opens the **Graph** palette for the selected element. Please refer to "Using Graphs" on page 288 for more information about the **Graph** palette.
- Recalculate Dynamics: If you have a dynamic object selected (Poser 5 hair or cloth), selecting the Recalculate Dynamics option recalculates the dynamics for that object. Please refer to "Step Four: Setting Hair Dynamics" on page 245 and to "Step 4: Cloth Dynamics Controls" on page 257 for information about Poser 5 hair and cloth dynamics, respectively.
- Split Morph: When enabled, selecting Split Morph splits the currently selected morph into left and right sides, allowing you to apply the selected morph target asymmetrically. You can use this, for example, to introduce irregularities into a figure's head, enhancing realism because no person's head is perfectly symmetrical.

EDITING PARAMETER DIALS

You can edit parameter dials by double-clicking your selected parameter dial to open an **Edit Parameter Dial** dialog, which allows you to set the following limits:

- *Value*: The **Value** number sets the current parameter dial value.
- Min/Max Limit: The Min Limit and Max Limit
 values define the minimum and maximum limits
 for the parameter, respectively. The numbers can
 stand for different types of values depending on
 the parameter you are editing. If it is a joint



parameter, the value will be expressed in degrees above or below 0 (neutral). If you are adjusting a scale parameter, the number will be a percentage with 100 being normal size.

- Name: You can rename the parameter by entering a new name in the Name field.
- Sensitivity: The **Sensitivity** value modifies the parameter dial's sensitivity to clicking and dragging. A lower number decreases the sensitivity and vice versa.

• *Graph*: Clicking the **Graph** button opens the Graph palette for the selected element. Please refer to "Using Graphs" on page 288 for more information about the **Graph** palette.

Click **OK** when you have finished making changes.

UNIVERSAL/FIGURE PARAMETERS

This topic discusses both universal parameter dials and those used for figures. Parameters for cameras, lights, and other elements are discussed in their respective sections.

Scale Parameters

Taper: The **Taper** parameter dial tapers the selected body part/prop. This function is the same as using the **Taper** tool, described in "Taper" on page 173.

Scale: The Scale parameter dial enlarges or shrinks the selected body part/prop in all three axes equally. This is the same as using the Scale tool, described in "Scale" on page 173. Normal scale is 100%

XYZScale: The **xScale**, **yScale**, and **zScale** parameter dials enlarge or shrink the selected body part/prop along the selected axis only. This allows you to squeeze or stretch items. This is the same as using the **Scale** tool. Normal scale is 100%.

Breast Size: Female models' chests include the **BRLarge** and **BRSmall** parameter dials for changing the breast size. Dragging the **BRLarge** dial to the right enlarges the breasts, while dragging the **BRSmall** dial to the right shrinks them.

Posing Parameters

The following parameters are available for posing:

- *Twist*: The **Twist** parameter dial rotates a body part along its own axis. For example, using twist on the head and neck turns the head. This is the same as using the Twist tool, described in "Twist" on page 172.
- *Bend*: The **Bend** parameter dial rotates a body part on its major axis. Most body parts bend forward and back, except for the shoulder and hands, which bend up and down.
- *Side-to-Side*: The **Side-to-Side** parameter dial rotates a body part perpendicular to its major axis. The thigh has lots of side-to-side motion, while the knee has very little.
- Turn: The Turn parameter dial only appears for the feet and turns them inward or outward.
- Front-Back: The Front-Back parameter dial is used with shoulders and collars to rotate them forward or back, perpendicular to their major axis.

Body Parameter Dials

The following parameter dials are available for entire figures. Remember to select the correct figure when working with multiple figures in a scene:

- XYZRotate: The xRotate, yRotate, and zRotate parameter dials rotate a figure around the X, Y, or Z axis as appropriate.
- XYZTran: the xTran, yTran, and zTran parameter dials move a figure along the indicated axis.
- Superhero: The **Superhero** parameter dial is available when the figure's **Body** is selected and transforms your mild-mannered figure into a musclebound hunk by dragging a dial.



NOTE

THE XYZTRAN AND OTHER POSITIONING DIALS REFLECT THE CURRENTLY SELECTED UNIT OF MEASURE, WHICH IS AVAILABLE IN THE GENERAL PREFERENCES WINDOW. FOR EXAMPLE, IF A DIAL IS SET TO 12 INCHES AND YOU CHANGE UNITS TO FEET, THE DIAL WILL NOW READ 1 FOOT.

Character Morphs-Head

Please see below for information about posing heads and face parameters.



NOTE

DIFFERENT POSER AND THIRD-PARTY FIGURES WILL HAVE DIFFERENT BODY MORPHS. CURIOUS LABS CANNOT PROVIDE SUPPORT FOR THIRD-PARTY FIGURES. PLEASE CONTACT THE VENDOR WHERE YOU OBTAINED YOUR THIRD-PARTY CONTENT FOR TECHNICAL SUPPORT.

Character Morphs-Hand

Please refer to "Posing Hands" on page 186 for information on posing hands and hand Parameter dials.

Posing Faces

Poser's human figures and many third-party figures have fully articulated faces, meaning you can position facial muscles such as mouth, eyebrows, cheeks, and eyes to create different facial expressions using the Parameter dials and/or the Morph Putty tool (described in "Morph Putty" on page 175).



NOTE

SOME OLDER POSER FIGURES DO NOT HAVE POSEABLE FACES.

When you select a head, a series of face-specific parameter dials appears in the **Parameters** palette, each dial controlling a different aspect of the face. When using face parameter dials, think of it as manipulating facial muscles to achieve the final results.

The **Face** camera uses the selected figure's face as its center of rotation, allowing you to preview your face poses up close.

FACE PARAMETERS

Face parameters normally operate in the range of 0 to 1, with 0 being fully off and 1 being fully on. Negative values (<0) produce inverted poses, and poses greater than +/- 1 give exaggerated poses. For example, a negative **Frown** parameter setting produces a slight smile. Face parameters are morph targets that can be used in concert to create expressions. Please refer to "Creating and Using Morph Targets" on page 206 for information on morph targets and how they work inside Poser.

Some Poser characters contain ethnicity morphs designed to lend a more ethnic appearance. Select one of the characters from the **Figure>Characters** category in the **Library** palette and bring it into the Studio. These characters contain an **Ethnicity** dial that increases or decreases that character's overall ethnic appearance. This is a morph target parameter that automatically loads when the character is loaded into the Studio.

In addition to ethnic morphs, Poser figures contain an array of facial morphs and parameters that allow you to create an endless variety of faces and expressions. The list of face parameters varies by figure, and the all parameters are self-explanatory. To view the available face parameters, select the desired figure's head and open the **Parameters** palette.

FACES & PHONEMES

A *phoneme* is a linguistic term for the positions of the tongue, lips, and teeth as they make sounds. Producing certain sounds requires the mouth and tongue to be in certain positions. Stringing phonemes together is what produces speech.

Poser allows you to create the appearance of phonemes (sometimes called *visemes*) to accurately simulate speech, a useful feature when adding sound to your scenes (such as a speech). You simulate speech by using different phonemes and keyframes to synch your figure's mouth movements to the sound. Alternatively, you can obtain third-party software such as Mimic by Lipsinc (http://www.lipsinc.com). Please remember that Curious Labs cannot support third-party software. If you need support for a third-party application, please contact the software creator and/or vendor.



AT THE TIME THIS REFERENCE MANUAL WENT TO PRESS, LIPSING WAS IN A STATE OF TRANSITION. MIMIC IS INCLUDED IN THIS MANUAL FOR COMPLETENESS.

POSING EYES

To pose eyes, select them using either the **Editing** tools or the **Current Actor** pop-up menu and position them using the parameter dials.

POSING HANDS

Many Poser figures have fully articulated hands. When you move a finger, the appropriate knuckle(s) bend. You can pose hands for both these figures and older Poser figures without articulated hand joints by applying hand poses from the **Library** palette.

The **Left Hand** and **Right Hand** cameras use the hand as their centers of rotation, making it easier to create precise hand poses.

Use the **Editing** tools to pose hands as you would any other body part. Please refer to "The Editing Tools" on page 171 for information on using the **Editing** tools. You can also apply preset hand poses to any Poser figure using the **Hand** category in the **Library** palette just as you would any other pose.

When you select the main portion of a hand (labeled **Left Hand** and **Right Hand** in the **Item Select** menu), a special set of hand parameter dials appears in the **Parameters** palette. These dials are as follows:

- *Grasp*: The **Grasp** parameter dial controls how tightly the hand/fist is clenched.
- *Thumb*: The **Thumb** parameter dial moves the thumb. Higher values move the thumb in towards the hand, and vice versa.
- *Spread*: The **Spread** parameter dial controls the amount of hand spread. Higher values spread the hand out, and vice versa.

USING THE HAND MODEL

Poser includes the **Left Hand** and **Right Hand** models, allowing you to pose hands without the clutter of other figures, props, body parts, etc. These appear as disembodied hands floating in the Studio. You can use these base hands to create hand poses, which you can then add to the **Library** palette.

USING PRESET HANDS

When you're done posing a hand, you can save it to the Hands library. Hand poses are a subset of a figure pose, meaning that figure poses include the hands but hands don't include figures.



THE HAND LIBRARY INCLUDES THE BASIC HANDS AND POSER 2 FIG. HANDS SUBCATEGORIES. YOU CAN ONLY APPLY BASIC HANDS TO THE PEOPLE AND POSER 3 FIGURE SUBCATEGORIES, AND CAN ONLY APPLY POSER 2 FIG. HANDS TO POSER 2 FIGURES.

To use a preset hand pose:

- 1 Click a figure to select it.
- 2 Open the Library palette and open the Hands category and your desired subcategory.
- **3** Double-click the pose you want to use. A dialog appears asking if you wish to apply the preset to the left or right hand. Make your selection and click **OK**.

POSING ANIMALS

You can pose animals using the same techniques used to pose humans. Animals have their own set of IK settings, bend zones, and limits. On the Horse model, for example, moving the hip down toward the ground does not make the animal sit, unlike a human figure. **Editing** tools, parameter dials, menus, etc. all work the same with animals as they do with humans. Technically speaking, animals and human figures are identical,

and Poser makes no distinction between them.





THE STOCK ANIMAL FIGURES SHIPPING WITH POSER USE THE SAME LIMB NAMES AS HUMANS, THAT IS, FRONT LEGS AND PAWS ARE LABELED SHOULDER, ARM, HAND, ETC. THIS MEANS THAT ANIMAL FIGURES WILL NOT WORK IN THE WALK DESIGNER, WHICH WAS CREATED FOR USE WITH TWO-LEGGED FIGURES. TO ANIMATE AN ANIMAL WALKING OR RUNNING, YOU NEED TO KEYFRAME ITS STRIDES MANUALLY.

POSING ANIMAL HEADS

Several animal models have fully articulated heads. For example, you can pose the dog's mouth and ears. Use the parameter dials just as you would for a human figure. The available parameter dials for a given animal's head will vary depending on the animal.

Pose Dots

You can save up to nine pose configurations using the **Memory** dots (described in "Memory Dots" on page 53). Each **Memory** dot retains all of your selected figure's pose. This feature is specific to your current scene, meaning that **Pose** dots cannot be transferred to different scenes. To save pose settings and have them accessible in any Poser scene, you need to add pose sets to the **Library** palette.

SAVING POSES IN THE LIBRARY

All parameters are saved along with body part positions when you save a pose to the **Library** palette. To save a pose to the **Library** palette:

- 1 Open the Library palette.
- **2** Select the **Pose** category and your desired subcategory.
- **3** Follow the directions in "Adding Items to the Library (Studio)" on page 131.

Chapter 30: Working with Props

oser lets you add props to your scene. Props are three-dimensional objects that your figures can interact with or that simply add interest to your scene. Props can be accessories to add to your figure's character such as a wig, a moustache, a pair of sunglasses, a cigar, or a briefcase. Or, your figure could base its pose on a prop, such as leaning on a cane, climbing a ladder, or tossing a ball. This chapter covers hair, figure-based clothing, and miscellaneous props not fitting into these categories. Poser 5 treats figure-based (Poser 4 and previous) clothing items like figures, however it's appropriate to treat figure-based clothing as props in this chapter for the sake of discussion.

ABOUT PROPS

You can manipulate props just as you would any other element, which is why you see the term body part/prop used throughout this manual. You can change a prop's color, shape, deformation, material, maps (if it has UV coordinates – refer to "About Maps & Templates" on page 41 for more information). Props can even cast shadows.

Poser 5's replaceable geometry feature (see "Replace Body Part with Prop" on page 106) lets you replace body parts with props, making the prop actually part of the figure. You can also parent a prop to a body part or another prop or scene element, such as a briefcase in a hand. Please refer to "Hierarchy" on page 35 for information about hierarchies in general, and to "Using the Hierarchy Editor" on page 215 for information on



creating hierarchies within Poser. Props also add general interest and meaning to your scenes, such as a mushroom for a frog to perch on.

You can select props from the Props category in the **Library** palette, the **Content** room, or import props in a variety of popular 3D formats. You can also create your own props in your favorite 3D modeling application (provided that application exports to one or more formats supported by Poser 5's **Import** function).

Props function like other scene elements, meaning you can use the **Editing** tools and parameter dials and can specify properties in the **Properties** palette. You can also create groups using the **Group Editor** palette (see "The Grouping Tool & Group Editor Palette" on page 209).

HAIR

Poser 5's new **Hair** room (see Chapter 34: "The Hair Room" on page 240) adds a whole new dimension to adding realistic hair to your figures, props, etc. The new **Hair** room lets you create real strand-based hair! Of course, Poser 5 still supports prop-based hair. We'll discuss both forms of hair in this section.

POSER 5 HAIR

Poser 5's **Hair** room adds dynamic strand-based hair to your scene elements for ultimate realism. You can create as much or as little hair anywhere you like on any object in your scene and can even use it to add fur, lichens, grass, and many other effects. Please refer to Chapter 34: "The Hair Room" on page 240 for more information about Poser 5 hair and the **Hair** room.



NOTE

BY DEFAULT, STRAND-BASED HAIR REQUIRES SIGNIFICANT COMPUTING RESOURCES, SO YOU SHOULD BE CAREFUL NOT TO OVERLOAD YOUR SYSTEM. PLEASE SEE THE DETAILED INFORMATION ABOUT THE HAIR ROOM FOR MORE INFORMATION.

PROP-BASED HAIR

Prop-based hair (hair created for Poser 4 & 5 or previous versions) is a special kind of prop that automatically attaches itself to a figure's head. You can choose from a number of styles in the **Library** palette (see "Hair" on page 130). Once assigned, hair moves with the figure's head. Some newer hair models that come with Poser are morphable, as are many third-party hair props.



To add hair to a figure from the **Library** palette, please refer to "Adding Items to the Library (Studio)" on page 131. Hair includes parameter dials in the **Parameters** palette (see "Prop Parameters" on page 195), allowing you to specify its scale and position. Some hair also includes morph target parameter dials that allow you to, for example, swing a ponytail as a character walks. The **Library** palette also contains a poseable hair model, which contains elements just like a figure. You can edit and pose these elements just as you would any Poser figure:

To use the poseable hair model:

- 1 Add the Poser 4 Nude Woman figure from the Library palette.
- 2 Select and add the Conforming Long Curls hair model from the People>Clothing-Female category in the Library palette.
- **3** Set the head as the parent for the hair as described in "Change Parent" on page 104.

CLOTHING

Poser 5's new **Cloth** room (see Chapter 35: "The Cloth Room" on page 249) adds a whole new dimension to adding realistic clothing to your figures and cloth objects to your scenes. You can even add realistic motion to clothes that will react as the character moves (such as a skirt on a walking woman) and can be windblown using wind force fields (described in "Wind Force Fields" on page 200). Of course, Poser 5 supports prop-based clothing (clothing created for Poser 4 & 5 or previous versions) and ships with both cloth and figure-based clothing. We'll discuss both forms of clothing in this section.

POSER 5 CLOTHING

Please refer to "Adding Clothing" on page 136 for information about adding Poser 5 cloth to a figure or scene.

FIGURE-BASED CLOTHING

In addition to cloth objects, Poser 5 includes libraries of figure-based clothing that you can use on nude figures, which are located in the **Figures>Clothing-Conforming** category of the **Library** palette and includes shirts, pants, shoes, dresses, skirts, etc.

As mentioned previously, articles of figure-based clothing behave like regular Poser figures and are the same as any other Poser figure from a technical standpoint. For example, shirts have chest, neck, abdomen, and arm elements. Clothing includes all parameters as the respective body parts on a figure.

You can add figure-based clothing to your scene and define it as a conforming figure, meaning that it attaches itself to the base figure and snaps to the base figure's similarly named body parts. Clothing moves with the base figure.

Adding Figure-based Clothing to a Figure

To add figure-based clothing to a figure:

Select it from the **Library** palette and click the **Add New Figure** icon to bring it into your scene. Be sure to select clothing items designed for your desired source figure. The clothing appears in the scene, as shown in the previous graphic.

- 1 Use the Choose Figure pop-up to select the clothing item.
- 2 Select Figure>Conform to, and select the desired base figure in the pop-up that appears. Your clothing will snap to the figure, assume the figure's pose, and move as its base figure moves.





NOTE

SOME TIGHT-FITTING FIGURE-BASED CLOTHING MAY NOT COMPLETELY COVER THE BASE FIGURE'S SKIN, PARTICULARLY WHEN THE FIGURE IS ANIMATED. TO FIX THIS, SELECT THE BASE FIGURE'S BODY PARTS COVERED BY THE CLOTHING AND MAKE THEM INVISIBLE USING THE PROPERTIES PALETTE.

ADDING, IMPORTING, & DELETING PROPS

There are several ways to bring props into Poser:

THE PROPS LIBRARY

You can add props from the **Library** palette's **Props** category as described in "Adding Hair" on page 137.

IMPORTING PROPS

You can import props created in other 3D applications using Poser's **Import** functionality, described in "Import" on page 83.

Poser places props in the Studio with your specified origin point. If you do not specify an origin point, the prop will appear in the center of the Studio. If you import a prop and can't see it, the prop may be too large and/or your currently selected camera may be zoomed in too close to see it. Try zooming out and/or switching cameras. You will probably have to scale and translate props to get them where you want them in your scene, using either the **Editing** tools or the prop's **Parameter** dials.

MOVING, RESIZING, AND DEFORMING PROPS

You can move, resize, and deform props using the **Editing** tools, the **Properties** palette, and/or the **Parameters** palette.

DELETING PROPS

To delete a prop, select the prop you wish to delete and either select **Object>Delete Prop** or press [DEL].

CREATING NEW PROPS

You can use the **Grouping** tool to select specific polygons on a figure or prop, as discussed in "The Grouping Tool & Group Editor Palette" on page 209. This feature allows you to create new props. For example, this graphic shows an example of a face mask created to fit the figure by



selecting polygons in the figure's face and creating a prop, which was then exported to a 3D modeling application for finalizing.

To create a prop:

Select the prop or body part you want to base the prop on.

- 1 Select the **Grouping** tool to open the **Group Editor** palette.
- **2** Select polygons for a new group and create and name the prop.
- **3** The new prop is now listed in the **Current Actor** pull-down menu and can be moved, shaped, and edited like any other prop.

You can save your new prop to the **Library** palette as described in "Adding Items to the Library (Studio)" on page 131.

CREATING PROP PARAMETERS

You can use morph targets to create new parameters for your props. Please refer to "Creating and Using Morph Targets" on page 206 for more information about morph targets.

THE PROP ORIGIN

A prop's origin appears in the **Document** window as 3D crosshairs. This is the center of that prop's rotation and scale. When you rotate a prop, it rotates about its origin. It grows or shrinks from the origin point when scaled. You can display a prop's origin by selecting the desired prop and checking the **Display Origin** checkbox in the **Properties** palette.

You can move a prop's origin using the **originXYZ** parameter dials. Moving the origin alters the prop's rotation and scale points. When adjusting the origin parameters, remember that you are making these adjustments based on the prop's original origin location, not its current position.

PROP PROPERTIES

Props have the following properties:

- Internal Name: The Internal Name field displays the prop's internal (hidden) name, which Poser uses to track that part. You cannot edit a prop's internal name within Poser.
- Name: The Name field displays the prop name. Enter a new name in this field if you desire.
- Visible: Checking the Visible checkbox makes the prop visible and vice versa.

- *Visible in Raytracing*: Checking the **Visible in Raytracing** checkbox makes the prop visible in raytraced reflections, such as if the figure is in front of a mirror. Clearing this checkbox makes the figure not appear in reflections.
- Casts Shadows: Checking the Casts Shadows checkbox forces the selected prop to
 cast a shadow, which will be visible in your scene. Clearing this box means the
 selected body part casts no shadow.
- Display Origin: Checking the Display Origin checkbox displays the prop's origin.
 Please refer to "The Prop Origin" on page 193 for more information about prop origins.
- Collision detection: Checking the Collision Detection checkbox enables collision
 detection for the currently selected prop. Please refer to "Collision Detection" on
 page 142 for more information about collision detection.
- Apply Collision Setting to Children: Clicking the Apply Collision Setting to Children button applies the currently selected prop's collision detection setting to that part's children parts (if any).
- Add Morph Targets: Clicking the Add Morph Targets button displays the Add
 Target dialog, allowing you to load a custom morph target for the selected prop
 (which is then editable using the Morph Putty tool). Please refer to "Creating and
 Using Morph Targets" on page 206 for more information about adding morph targets.
- Set Parent: Clicking the Set Parent button allows you to make the prop a child of another element in your scene. Please refer to "Change Parent" on page 104 for information on setting prop parents.
- Displacement Bounds: The Displacement Bounds property determines the prop's displacement boundary. Please refer to "Render Settings" on page 342 for more information about displacement bounds.
- Shading Rate: The Shading Rate allows you to specify the desired shading rate for the
 currently selected prop. Lowering the shading rate improves your render quality but
 consumes computer resources. Please refer to "Render Settings" on page 342 for more
 information about shading rates.
- Smooth Polygons: Checking the **Smooth Polygons** checkbox causes Poser to smooth the prop's polygons at render time to eliminate or reduce a "faceted" appearance caused by flat polygons. This option can cause sharp corners to appear round. If the affected prop has sharp angles, you should experiment with disabling this option for optimum results.

PROP PARAMETERS

Props have the following parameters:

- Scale: The Scale parameter dial increases or decreases the size of the prop in all axes.
- *XYZScale*: The **xScale**, **yScale**, and **zScale** parameter dials increase or decrease the size of the prop in the selected axis.
- XYZRotate: The xRotate, yRotate, and zRotate parameter dials rotate the prop around the selected axis.
- XYZTran: The xTran, yTran, and zTran parameter dials move the prop along the selected axis.

Chapter 31: Modifying Figures & Props

his chapter explains how to create completely custom looks for your figures and props. For example, human bodies come in all shapes and sizes. You can modify proportions using various tools to achieve interesting effects.



ABOUT EDITING FIGURES AND PROPS

Poser 5 includes a wide variety of tools for figure/prop shaping. Here are some tips, tricks, and important things to keep in mind when editing figures and/or props:

- All Poser figures come with morph targets, allowing you to reshape one or more body parts.
- You can use the **Grouping** tool (see "The Grouping Tool & Group Editor Palette" on page 209) to create cloth, hair, or other groups. You can deform polygon groups.
- The **Scale** and **Taper** tools (see "Scale" on page 173 and "Taper" on page 173, respectively) can change a body or element's shape.
- Deformers (magnets, force fields, and waves) can also alter shapes.
- You can replace body parts with props (see "Replace Body Part with Prop" on page 106).
- You can save your work to the **Library** palette.
- You can modify entire figures or individual body parts. For example, enlarging the
 abdomen can create a beer belly. Widening the head broadens the face. Shaping figures
 is easiest when the figure is in its default pose where you can clearly see the results of
 each of your actions.
- You may want to hide the other figures and props in your scene for an uncluttered view (see "Hide Figure" on page 102).
- As you finish shaping and posing each body part, you can lock it as described in "Lock Actor" on page 104 And, once you've posed your figure, you can guard against accidental changes by locking the entire figure as described in "Lock Figure" on page 99.
- Symmetry can be a huge time saver, allowing you to pose half your figure and apply the pose to the other side. Please refer to "Symmetry" on page 100 for information

about using Symmetry. Also, try using cutting and pasting (see Chapter 16: "The Edit Menu" on page 94) to apply poses across multiple figures.

 If your computer can support it, we recommend enabling Full Tracking mode (see "Tracking Mode" on page 141) so you can view your work in real time. This does require extra computing resources, which can affect performance depending on your computer's specifications and the complexity of your scene.

USING DEFORMERS

Posers deformers (magnets, force fields, waves, morphs) shape body parts, props, and figures into new and interesting forms. You can stretch a nose, make a belly bounce with a walk, make hair and clothing blow in the wind, and create almost any body shape you can imagine. You can animate deformer settings and positions, allowing you to create (for example) gusting winds (force field), bulging muscles (morph targets), etc. The Wave, Force Field, and Magnet deformers can also create custom morph targets. Please refer to "Creating and Using Morph Targets" on page 206 for information about morph targets. Let's discuss deformers.

MAGNETS

Magnets distort objects by stretching them. You can use the **Rotate**, **Twist**, **Translate**, and **Scale** tools on magnets. Please see "The Editing Tools" on page 171 for information on using the **Editing** tools. Here's an example of a sphere deformed by a magnet:

CREATING MAGNET DEFORMERS

To create a magnet, select the object you wish to deform then select **Object>Create Magnet**. This creates three Magnet objects, which together comprise the deformer.



- *Magnet Object*: The Magnet Object defines the behavior of the actual magnet.
- *Magnet Base*: The Magnet Base defines the zero point of the area to be deformed. Moving the Magnet Base moves the Magnet Object as well.
- *Magnet Zone*: The Magnet Zone defines the area being deformed. You can move and shape the Magnet Zone to suit your needs.

Magnets work by deforming the area within the Magnet Zone along the axis defined by the Magnet Base and Magnet Object in an amount dependent on the distance between the Magnet Object and the Magnet Base.



USING EDITING TOOLS WITH MAGNET OBJECTS

To use **Editing** tools on a Magnet Object, select the magnet in the **Current Actor** pulldown menu, then select your desired **Editing** tool:

- Rotate: The **Rotate** tool rotates the Magnet Object around its three axes.
- Twist: The **Twist** tool rotates the Magnet Object along its own axis.
- *Translate/Pull*: The **Translate/Pull** tool moves the Magnet Object horizontally or vertically.
- Translate In/Out: The Translate In/Out tool moves the Magnet Object in or out from the center of the Studio.
- *Scale*: The **Scale** tool increases or decreases the size of the Magnet Object.

MAGNET DEFORMER PROPERTIES

Magnet Objects, Magnet Bases, and Magnet Zones have properties that you can edit using the **Properties** palette.

Magnet Object Properties

Magnet Objects have the following properties:

- Name: The Name property allows you to rename the Magnet Object by entering your desired name in this field.
- *Visible*: The **Visible** checkbox toggles visibility on and off. Checking the box makes the object visible, and vice versa.
- Add element to deform: Checking the **Add element to deform** button opens a hierarchy list, allowing you to select added elements to be deformed by the Magnet. This only works if the selected element(s) are within the Magnet Zone.

Magnet Base Properties

Magnet Bases have the following properties:

- Name: The Name property allows you to rename the Magnet Base by entering your desired name in this field.
- *Visible*: The **Visible** checkbox toggles visibility on and off. Checking the box makes the object visible, and vice versa.
- Display Origin: The **Display Origin** checkbox displays **the Magnet Base's axes**. This is useful because translations, rotations, etc. occur based on the Magnet Base's axes, not the studio's. See "Global vs. Local Coordinates" on page 28 for a discussion about local vs. global coordinates.

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- Casts Shadows: Checking the Casts Shadows checkbox forces the selected body part
 to cast a shadow, which will be visible in your scene. Clearing this box means the
 selected body part casts no shadow.
- Add Morph Targets: Clicking the Add Morph Targets button displays the Add
 Target dialog, allowing you to load a custom morph target for the selected force field
 (which is then editable using the Morph Putty tool as described in "Morph Putty" on
 page 175). Please refer to "Creating and Using Morph Targets" on page 206 for more
 information about adding morph targets.
- Set Parent: Clicking the **Set Parent** button allows you to make the Magnet Base a child of another element in your scene. Please refer to "Hierarchy" on page 35 for a description of hierarchical relationships and to "Change Parent" on page 104 for information on setting parents.

Magnet Zone Properties

Magnet Zones have the following properties:

- Name: The Name property allows you to rename the Magnet Zone by entering your desired name in this field.
- *Visible*: The **Visibility** checkbox toggles visibility on and off. Checking the box makes the object visible, and vice versa.
- *Group*: Checking the **Group** checkbox enables grouping, allowing you to deform a grouped portion of the selected element(s). You can create groups to deform, and groups can consist of portions of one or more body parts, props, etc. Please see "The Grouping Tool & Group Editor Palette" on page 209 for information on using the **Grouping** tool. A group is selected when a checkbox appears next to the group listing.
- Edit Falloff Graph: Clicking the Edit Falloff Graph button allows you to edit the Magnet Zone's Falloff graph, which determines where the deforming area ends or falls off. Please see the following topic for information on using this graph.
- Set Parent: Clicking the Set Parent button allows you to make the Magnet Zone a
 child of another element in your scene. Please refer to "Hierarchy" on page 35 for a
 description of hierarchical relationships and to "Change Parent" on page 104 for
 information on setting parents.



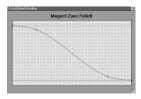
SETTING THE MAGNET ZONE'S DISPLAY STYLE TO WIREFRAME CAN HELP MAKE IT MORE VISIBLE IN YOUR DOCUMENT WINDOW.

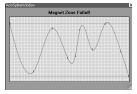
Magnet Zone Falloff Graph

Selecting **Edit Falloff Graph** in the Magnet Zone **Properties** palette opens the **Magnet Zone Falloff** window:

The left side of this graph depicts the center of the Magnet Zone, and the right side is its edge. By default, a smooth curve appears, meaning that the magnet's influence gradually tapers off towards the edges of its zone. By adjusting this curve, you can alter the falloff properties:

To move control points click and drag them up and down. Raising a control point increases the magnet zone's influence at the location. To add control points, click any spot along the curve. You cannot remove added control points.





MAGNET OBJECT PARAMETERS

Magnet Objects have the following parameter dials in the **Parameters** palette:

- Scale: The Scale parameter dial increases or decreases the size of the Magnet Object in all axes.
- XYZScale: The xScale, yScale, and zScale parameter dials increase or decrease the size of the Magnet Object in the selected axis.
- XYZRotate: The xRotate, yRotate, and zRotate parameter dials rotate the Magnet Object around the selected axis.
- XYZTran: The xTran, yTran, and zTran parameter dials move the Magnet Object along the selected axis.

LOCKING MAGNETS

You can lock magnets to prevent accidental changes. Please refer to "Lock Actor" on page 104.

WIND FORCE FIELDS

Selecting **Object>Create Wind Force** creates a wind force field that ads realistic wind to your scenes. Force fields affect Poser 5 hair and cloth.

You can position force fields using the **Editing** tools just as you would any other prop.



FORCE FIELD PROPERTIES

Force fields have the following properties, available in the **Properties** palette:

- Internal Name: The Internal Name field displays the force field's internal (hidden) name, which Poser uses to track that part. You cannot edit a force field's internal name within Poser
- *Name*: The **Name** field displays the force field name. Enter a new name in this field if you desire.
- Visible: Checking the Visible checkbox makes the force field visible and vice versa.
- *Visible in Raytracing*: Checking the **Visible in Raytracing** checkbox makes the force field visible in raytraced reflections, such as if the figure is in front of a mirror. Clearing this checkbox makes the force field not appear in reflections.
- Casts Shadows: Checking the Casts Shadows checkbox forces the selected force field
 to cast a shadow, which will be visible in your scene. Clearing this box means the
 selected force field casts no shadow.
- Display Origin: Checking the Display Origin checkbox display's the force field's origin. Please refer to "The Prop Origin" on page 193 for more information about force field origins.
- Collision detection: Checking the Collision Detection checkbox enables collision detection for the currently selected force field. Please refer to "Collision Detection" on page 142 for more information about collision detection.
- Apply Collision Setting to Children: Clicking the Apply Collision Setting to Children button applies the currently selected force field's collision detection setting to that part's children parts (if any).
- Add Morph Targets: Clicking the Add Morph Targets button displays the Add
 Target dialog, allowing you to load a custom morph target for the selected force field,
 which is then editable using the Morph Putty tool. Please refer to "Creating and
 Using Morph Targets" on page 206 for more information about adding morph targets.
- Set Parent: Clicking the **Set Parent** button allows you to make the force field a child of another element in your scene. Please refer to "Hierarchy" on page 35 for a description of hierarchical relationships and to "Change Parent" on page 104 for information on setting force field parents.
- *Displacement Bounds*: The **Displacement Bounds** property determines the force field's displacement boundary. Please refer to "Render Settings" on page 342 for more information about displacement bounds.

Shading Rate: The Shading Rate allows you to specify the desired shading rate for the
currently selected force field. Please refer to "Render Settings" on page 342 for more
information about shading rates.

FORCE FIELD PARAMETERS

Force fields have the following parameters, available in the **Parameters** palette:

- Scale: Increases or decreases the size of the force field in all axes.
- XYZScale: The xScale, yScale, and zScale parameter dials increase or decrease the size of the force field in the selected axis. This is only available for the force field.
- XYZRotate: The xRotate, yRotate, and zRotate parameter dials rotate the force field around the selected axis.
- XYZTran: The xTran, yTran, and zTran parameter dials move the force field along the selected axis.
- *Amplitude*: The **Amplitude** parameter controls the strength of the force field. Increasing this value increases the wind speed, and vice versa.
- *Spread Angle*: The **Spread Angle** parameter specifies the force field's angle of effecting degrees.
- Range: The Range parameter specifies the force field's range of effect in the currently selected units (feet, millimeters, etc.).
- *Turbulence*: The **Turbulence** parameter controls the amount of irregularity in the force field's wind stream and can be used to simulate gusts.

WAVE DEFORMERS

Wave deformers distort objects by creating wave paths. You can use the **Rotate**, **Twist**, **Translate**, and **Scale** tools on wave deformers. Please see "The Editing Tools" on page 171 for information on using the **Editing** tools. Here's an example of a sphere deformed by a wave:



CREATING WAVE DEFORMERS

To create a wave, select the object you wish to deform then select **Object>Create Wave**. This creates two Wave objects, which together comprise the deformer. The two parts are:

• Wave Object: The Wave Object defines the behavior of the actual wave.

• *Wave Zone*: The Wave Zone defines the area being deformed. You can move and shape the Wave Zone to suit your needs.

USING EDITING TOOLS WITH WAVE DEFORMERS

To use **Editing** tools on a Wave Object, select the wave in the **Current Actor** pull-down menu, then select your desired **Editing** tool:

- *Rotate*: The **Rotate** tool rotates the Wave Object/Zone around its three axes.
- Twist: The **Twist** tool rotates the Wave Object/Zone along its own axis.
- *Translate/Pull*: The **Translate/Pull** tool moves the Wave Object/Zone horizontally or vertically. This does not affect the Radial wave.
- *Translate In/Out*: The **Translate In/Out** tool moves the Wave Object/Zone in or out from the center of the Studio.
- Scale: The Scale tool increases or decreases the size of the Wave Object.

WAVE DEFORMER PROPERTIES

Wave Objects and Zones have properties that you can edit using the **Properties** palette.

Wave Object Properties

Wave Objects have the following properties:

- Name: The Name field allows you to rename the Wave Object by entering your desired name in this field.
- *Visible*: The **Visible** checkbox toggles visibility on and off. Checking the box makes the object visible, and vice versa.
- *Radial Wave*: Checking the **Radial Wave** radio button causes the wave to spread from its origin like ripples in a pond.
- *Directional Wave*: Checking the **Directional Wave** radio button causes the wave to spread in a linear fashion. The following two properties control the direction.
- *Deformer Aligned*: Checking the **Deformer Aligned** radio button cause waves to propagate along the direction of the Wave Object.
- *Object Normals*: Checking the **Object Normals** radio button cause waves to propagate along the affected object's normals.
- Add element to deform: Clicking the **Add element to deform** button opens a hierarchy list, allowing you to select added elements to be deformed by the wave. This only works if the selected element(s) are within the Wave Zone.

Wave Zone Properties

Wave Zones have the following properties:

- Name: The Name field allows you to rename the Wave Zone by entering your desired name in this field
- *Visible*: The **Visible** checkbox toggles visibility on and off. Checking the box makes the object visible, and vice versa.
- *Group*: Clicking the **Group** button allows you to deform a grouped portion of the selected element(s). You can create groups to deform, and groups can consist of portions of one or more body parts, props, etc. Please see "The Grouping Tool & Group Editor Palette" on page 209 for information on using the **Grouping** tool. A group is selected when a checkbox appears next to the group listing.
- Edit Falloff Graph: Clicking the Edit Falloff Graph button allows you to edit the Wave Zone's Falloff Graph, which determines where the deforming area ends or falls off. Please see the following topic for information on using this graph.
- Set Parent: Checking the **Set Parent** button allows you to set a parent object for the Wave Zone. Please refer to "Change Parent" on page 104 for information about parenting objects.



NOTE

SETTING THE WAVE ZONE'S DISPLAY STYLE TO WIREFRAME CAN HELP MAKE IT MORE VISIBLE IN YOUR DOCUMENT WINDOW.

Wave Zone Falloff Graph

Clicking the **Edit Falloff Graph** button in the Wave Zone Properties opens the **Wave Zone Falloff** window, which appears and functions in the same manner as the Magnet Falloff Graph depicted in "Magnet Zone Falloff Graph" on page 200.

WAVE DEFORMER PARAMETERS

Wave deformers can use the following parameter dials in the **Parameters** palette:

- *Scale*: Increases or decreases the size of the Wave Object in all axes.
- XYZScale: The xScale, yScale, and zScale parameter dials increase or decrease the size of the Wave Zone in the selected axis. This is only available for the Wave Zone.
- XYZRotate: The xRotate, yRotate, and zRotate parameter dials rotate the Wave Object around the selected axis.
- XYZTran: The xTran, yTran, and zTran parameter dials move the Wave Object along the selected axis.

In addition, there are certain parameter dials that are only available for waves:

- *Phase*: The **Phase** parameter dial defines the position of the wave in infinite time. Use this parameter when animating waves.
- Amplitude: The Amplitude parameter dial defines the wave's height.
- *Wavelength*: The **Wavelength** parameter dial defines the distance between wave crests (frequency).
- Stretch: The **Stretch** parameter dial controls the sharpness of each wave.
- *Amp Noise*: The **Amp Noise** parameter dial defines the randomness or noise of the wave's amplitude.
- *Freq Noise*: The **Freq Noise** parameter dial defines the randomness or noise of the wave pattern's frequency.
- Sinusoidal: The Sinusoidal parameter dial defines the size of the sine wave pattern.
- *Square*: The **Square** parameter dial defines the shape of the wave pattern. Increasing this value creates square-shaped waves.
- *Triangular*: The **Triangular** parameter dial defines the shape of the wave pattern. Increasing this value creates triangle-shaped waves.
- *Turbulence*: The **Turbulence** parameter dial defines the roughness of a wave pattern. Increasing this value creates jagged, turbulent waves, and vice versa.
- Offset: The **Offset** parameter dial defines if the wave's pattern is above, on, or below the wave's origin. Increasing this value brings the wave pattern above the origin. This is helpful if, for example, you want to keep clothing from deforming the underlying figure.

USING DEFORMERS WITH GROUPED OBJECTS

You can create custom groups using the **Group Editor** palette as described in "The Grouping Tool & Group Editor Palette" on page 209 and apply deformers to these groups. Groups can contain parts of one or more body parts/props. You can select these groups by name using the **Properties** palette for selected magnets or waves. To apply a deformer to a group:

Select the body part/prop containing the group.

- **1** Create the deformer as described above.
- **2** Select the deformer's Zone and access that zone's properties as described above. Check the **Group** checkbox, then select one or more groups from the pop-up that appears. A group is selected when a checkbox appears next to it.

This procedure deforms on the grouped sections of body parts/props.

USING BODY PARAMETER DIALS

Body parameter dials are available using the **Parameters** palette. Please refer to "Body Parameter Dials" on page 184 for information on using body parameter dials.

CREATING AND USING MORPH TARGETS

Morph targets are custom parameters added to body parts or props that allow you to reshape the affected part(s). Poser includes some built-in morph targets with the stock figures, and you can create your own. Morph targets allow you to easily resize and reshape items and are fully animatable.



While morph targets appear as parameter dials in the **Parameters** palette, they are actually custom geometry containing the deformation, which you then apply using **Parameter** dials. Does this seem confusing? It's actually pretty simple once you get the hang of it. Let's explore this functionality a little further. You can create your own morph targets using Poser and/or another application. This manual primarily covers creating morph targets in Poser, but we will discuss using third-party applications in general terms. Within Poser, you use a combination of deformers and existing morph channels (such as the Worry parameter) to create morph targets. Each morph target gets its own **Parameter** dial whenever the affected element(s) are selected and the morph target is loaded. For example, if you create a morph called Bulging Bicep for the upper arm, you'll see the **Bulging Bicep** parameter dial in the **Parameters** palette when you've loaded the morph target and selected the upper arm.

CREATING MORPH TARGETS

At its most basic, creating a morph target in Poser goes like this:

1 Shape an element using any combination of deformers you like to get the results you want. Shaping multiple elements on a body part includes all changes in the shape in the morph target.

- 2 Select the body part/prop's properties in the **Properties** palette, then select **Spawn Morph Target**. A dialog appears asking you to name your new target.
- **3** Enter your desired name and click **OK**. A parameter dial appears in the **Parameters** palette with the name of your new morph target. At this point, you can delete all deformers used to create the morph.

Numbers greater than 0 apply the morph to the selected element(s), and vice versa. A value of 1 means the morph target is fully applied, a value of -1 means the morph is completely applied in reverse, and numbers greater than +/-1 create exaggerated effects. Using the **Bulging Bicep** example, a value of 1 applies the bulge fully, a value of -1 applies a full anti-bulge (the reverse of the original morph), and so on.

CREATING FULL-FIGURE MORPH TARGETS

You can save multiple body parts and then save the entire pose as a full-figure morph target. The new morph target encompasses all of the parameters for that pose, meaning that everything morphs at the same time. Only morph channels combine into a full-body morph. Deformers are not automatically turned into morph targets for full-figure morphs, nor are scales, rotations, and translations.

To create a full-body morph target:

- 1 Create morph targets for as many body parts as you wish. Refer to this section for assistance if needed.
- 2 Morph each body part using the new **Parameter** dials as discussed in "Parameters Palette" on page 180. Set them to the values you want to appear in the full-body morph. For example, setting the **Bulging Bicep** value to 0.5 means that the full body morph, when set to 1, will morph that part of the figure as if you had applied the original morph with a value of 0.5.
- 3 Select the entire figure, then select **Figure>Create Full Body Morph**. Enter a name for your new morph in the **Set Name** dialog that appears.

When you select the figure's body again, a parameter dial with your new morph target will appear. This morph functions just like any other morph: Numbers greater than 0 apply the morph to the selected element(s), and vice versa. A value of 1 means the morph target is fully applied, a value of -1 means the morph is completely applied in reverse, and numbers grater than +/-1 create exaggerated effects. Using the **Bulging Bicep** example, a value of 1 applies the bulge fully, a value of -1 applies a full anti-bulge (the reverse of the original morph), and so forth.

SAVING MORPH TARGETS

You can save morphed figures to the **Library** palette. Saved figures retain their custom parameter dials, meaning you can use them the next time you load that figure. To save a figure to the **Library** palette, please refer to "Adding Items to the Library (Studio)" on page 131.

ADDING CUSTOM MORPH TARGETS

You can add morph targets that you created using a third-party application and apply them to your figures and props. You can also add third-party morphs obtained from online sources such as Poser's **Content** room, which links you to several leading Poser content marketplaces. Please refer to Part 10: "Adding New Poser Content" on page 361 for more information on Poser's **Content** room. To add a custom morph target:

1 Select the body part/prop to which you want to apply the morph and open its properties in the **Parameters** palette.

AddTargetDlog

Add Shape Interpolation Target:

- 2 Select Add Morph target to open the Add Shape Interpolation target dialog.
- 3 Enter the complete path and filename to our desired morph or use the **Locate** button to open a standard **Browse** dialog allowing you to locate the correct file. Your selected file must be in OBJ format, contain the same number of vertices as the original body part/prop, and must only contain the body part/prop being morphed.
- **4** Enter a name for the added file, then click **OK** to exit back to the **Parameters** palette. A new parameter dial appears with the name of the newly added morph.

DELETING MORPH TARGETS

You can use the **Hierarchy Editor** palette to delete morphs, as explained in "Working with Hierarchy Branches" on page 216.

USING THE MORPH PUTTY TOOL

In addition to using parameter dials, you can sculpt existing morph targets using the **Morph Putty** tool, which is described in "Morph Putty" on page 175.

CREATING CUSTOM MORPH TARGETS

You can create morph targets using your favorite 3D modeling application so long as that application can import and export Wavefront OBJ (*.OBJ) files. To do this:

- 1 Export the body part for which you wish to create the morph target as explained in "Export" on page 88.
- **2** Import the body part into your favorite 3D modeling application.
- **3** Edit the geometry, being careful to only move vertices. Do not add or remove vertices, or your morph target will not work.
- **4** Export the edited geometry from the 3D modeling application in the Wavefront OBJ (*.OBJ) format.
- **5** Load the morph target.

THE GROUPING TOOL & GROUP EDITOR PALETTE

The **Grouping** tool lets you select and group individual polygons (See Chapter 7: "Groups" on page 37 for information about groups). This is useful for various tasks within Poser such as:

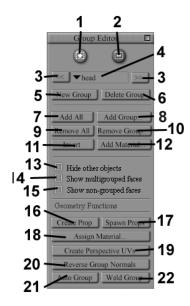
- Creating material groups in the **Material** room. Please refer to Part 8: "Materials" on page 305 for information about the **Material** room.
- Creating hair groups in the **Hair** room. Please refer to Chapter 34: "The Hair Room" on page 240 for information about the **Hair** room.
- Creating cloth groups in the **Cloth** room. Please refer to Chapter 35: "The Cloth Room" on page 249 for information about the **Cloth** room.
- Creating body parts in the Setup room. Please refer to Chapter 36: "The Setup Room" on page 261 for more information about the Setup room.
- Creating props.

You can also create new props and deform and morph selected portions of an element. Selecting the **Grouping** tool displays the **Group Editor** palette. When this option is selected, all figures and objects in the Studio turn gray.

POLYGON & VERTEX MODES

The **Grouping** tool operates in polygon or vertex mode. In polygon mode, you can add/remove your currently selected polygon(s) to the current polygon group. In vertex mode, you can add/remove your currently selected vertex/vertices to the current vertex group.

In polygon mode, you can only create/edit/delete polygon groups. Likewise, in vertex mode, you can only create/edit/delete vertex groups. However, polygon groups are accessible from the **Group Editor** palette using certain commands (such as **Add Group**).



Polygon groups will appear in the popup menu (#4 in the image) with the suffix **P**. Poser automatically selects the correct mode depending on which room you are current in. For example, in the **Pose** room, the **Grouping** tool only operates in polygon mode; in the **Cloth** room, it operates in vertex mode.

Poser 5 uses vertex groups for dynamic cloth objects in the **Cloth** room and for styling hair in the **Hair** room. For cloth, using vertices allows you to select the edges of a cloth object (such one side of a sheet hanging from a clothesline and blowing in the wind). This effect cannot be achieved using polygon grouping.

USING THE GROUP EDITOR PALETTE

To create/edit a group, select the **Grouping** tool, which opens the **Group Editor** palette. The **Group Editor** palette has the following functions:

- Select button (1): Clicking the **Select** button adds polygons/vertices to the current group.
- Deselect button (2): Clicking the **Deselect** button removes polygons/vertices from the current group.
- Previous and Next buttons (3): Clicking the Previous (<<) and Next (>>) buttons
 cycles through the currently existing groups. Alternatively, you can use the pull-down
 menu between these buttons to jump directly to the desired group. These buttons are
 primarily used in the Hair and Cloth rooms.

- Current Group pull-down menu (4): Use the Current Group pull-down menu to jump directly to your desired group. This menu is primarily used in the Hair and Cloth rooms.
- New Group button (5): Clicking the **New Group** button creates a new group with the currently selected polygons. Enter a name for the group in the dialog box that appears. This function is disabled in the **Hair** and **Cloth** rooms.
- *Delete Group button (6)*: Clicking the **Delete Group** button deletes the currently selected group.
- Add All button (7): Clicking the **Add All** button places all polygons comprising the current object into the currently selected group.
- *Add Group button (8)*: Clicking the **Add Group** button adds the polygons or vertices from the selected subgroup to the current (currently selected) group.
- *Remove All button (9)*: Clicking the **Remove All** button removes all polygons from the currently selected group.
- *Remove Group button (10)*: Clicking the **Remove Group** button removes the polygons or vertices from the selected subgroup to the current (currently selected) group.
- *Invert button (11)*: Clicking the **Invert** button inverts the current selection, that is, selects all deselected polygons and vice versa.
- Add Material button (12): Clicking the **Add Material** button creates a new material group consisting of the currently selected polygon(s).
- *Hide Other Objects box (13)*: Checking the **Hide Other Objects** checkbox hides all objects in your scene other than the currently selected object, which can help if you have a complex scene and only want to see the object being worked on.
- Show Multigrouped Faces box (14): Checking the **Show multigrouped faces** checkbox displays all polygons that are assigned to more than one group. This can occur if you grouped your geometry in the 3D modeling application and accidentally assigned some polygons to more than one group.
- Show Nongrouped Faces box (15): Checking the **Show nongrouped faces** box displays all polygons that do not belong to a group. If you leave the **Setup** room with one or more polygons that are not attached to a bone, they will be maintained on a prop attached to the figure and will be available for grouping again when you return to the **Setup** room.

NOTE

THE ABOVE COMMANDS ARE NECESSARY FOR CREATING A FIGURE USING THE GEOMETRY AND BONE STRUCTURE. THE FOLLOWING COMMANDS ARE USEFUL AND CAN BE PERFORMED IN THE SETUP ROOM; HOWEVER, THEY ARE NOT NECESSARY FOR FIGURE CREATION. THEY MAY, HOWEVER, BE NECESSARY FOR RENDERING AND FINISHING SCENES USING THE NEWLY CREATED FIGURE.

- Create Prop button (16): Clicking the Create Prop button creates a new prop from the selected group or polygons. Enter a name for your new prop in the dialog that appears.
- Spawn Props button (17): Clicking the **Spawn Prop** button creates props for all groups that have been created. Two examples of this might be to create a suit of form-fitting armor or the basis for clothing props.
- Assign Material button (18): Clicking the Assign Material button creates a new material class for the selected polygon(s). A dialog box will appear asking you to name the new material class. A material class is a parameter that determines the polygons to which a material is applied. For example, if you are creating a figure with gloves on, you could select the polygons of both gloves as a material class. Later, you could use the Material command to assign a material, texture, bump maps, etc. to the gloves. You can think of material classes as groups that define areas where materials are applied.
- Create Perspective UVs button (19): Clicking the Create Perspective UVs button maps texture coordinates for a group. An example of using this command might be to map an imported background image of a face to a Poser group corresponding to the figure's face. The face's texture coordinates would map to the image.
- Reverse Group Normals button (20): Clicking the Reverse Group Normals button reverses the normals of the selected group. This allows you to turn environment-type objects or other imports inside out for interactive rendering as desired.
- Auto Group button (21): See below.
- Weld Group button (22): See below.

THE AUTO GROUP COMMAND

When you are creating groups for a newly imported geometry (**Setup** room), you can save time and effort by clicking the **Auto Group** button near the bottom of the **Group Editor** palette. This option is particularly useful when you are creating custom Poser figures in the **Setup** room. If you choose to use the **Auto Group** feature, be sure to do so after creating, positioning, and naming the bone structure! This is because the **Auto Group** feature places polygons into groups based on their location in 3D space relative to the available bones. This can cause very unpredictable and disorganized results if the bone structure has not been properly created, positioned, and named.

NOTE

USING THE AUTO GROUP FEATURE BEFORE YOU HAVE CREATED, POSITIONED, AND NAMED THE BONE STRUCTURE CAN RESULT IN UNPREDICTABLE GROUPS THAT WILL THEN REQUIRE EXTENSIVE TIME-CONSUMING REPAIR.

The **Auto Group** feature is designed for one-time use when you first create a figure. You can use it as often as you wish; however, it completely regroups every polygon in the geometry or figure, which will cause the figure to lose all pre-existing group assignments that match bone names. If you must use the **Auto Group** feature again after creating your figure, do it with care.

The **Auto Group** feature causes Poser to take a "best guess" when grouping polygons and bones. You may find that you need to fine-tune the automatically created groups by manually selecting polygons and moving them to different groups. Do this by selecting the target group and then selecting the polygon(s) you wish to move to the target group.

9

NOTE

THE GROUPING TOOL AUTOMATICALLY REMOVES POLYGONS FROM OTHER NAMED GROUPS (INCLUDING NO_BONE) AND ADDS THEM TO THE SELECTED TARGET GROUP IN ORDER TO AVOID HAVING POLYGONS ASSIGNED TO MORE THAN ONE GROUP AT A TIME. GROUP EDITOR PALETTE COMMANDS DO NOT SHARE THIS FUNCTIONALITY.

THE WELD GROUP COMMAND

The **Weld Group** feature can be useful if, for example, you need to make alterations to your groups after you leave the **Setup** room or if you import a prop with groups that you want to change. On the **Setup** room, once your figure is created, Poser breaks the single geometry into pieces corresponding to the groups you created. If you reassign polygons to different groups, the original breaks remain, which can cause your figure to appear broken or disconnected at the point where the old group boundaries lie.

The best way to illustrate this is by using an example. Say you create a figure with, among others, groups for the head and neck. After leaving the **Setup** room, Poser breaks the single geometry into pieces whose edges correspond to the group boundaries you created. This is necessary in order to allow the figure to bend. Later, you decide to move the neck higher into the head by reassigning some of the polygons in the head group to the neck group. You can do this easily using the **Grouping** tool.

Poser creates a new break in the geometry at the new group boundary; however, the old break at the old group boundary still exists. This can cause your figure's neck to appear broken or discontinuous as you pose and render it. To solve this problem, you would:

- 1 Select the **Grouping** tool.
- **2** Select the neck group.
- **3** Click the **Weld Group** button.



NOTE

THE WELD GROUP FUNCTION ALTERS AND COMBINES THE VERTICES ON EITHER SIDE OF THE BREAK SO AS TO CREATE A SMOOTH BRIDGE ACROSS THE GAP. A GOOD WAY TO THINK OF THIS IS TO IMAGINE SEALING A CRACK. THE FILLER COMPOUND JOINS THE TWO SURFACES, BUT DOES MINUTELY ALTER THE SURFACE TOPOGRAPHY WHERE THE CRACK USED TO BE. THE WELD GROUP FUNCTION WORKS THIS WAY AS WELL, MODIFYING THE GEOMETRY SLIGHTLY IN ORDER TO ELIMINATE THE BREAK. THIS SHOULD BE UNNOTICEABLE IN MOST CASES.

CREATING/EDITING GROUPS

To create a group, select the **Grouping** tool. You can then click individual polygons or click and drag to select multiple polygons. If you accidentally select one or more wrong polygons, you can deselect them by using the **Deselect** tool (see above) or pressing [CTRL] while clicking or dragging. If you are in the **Setup** room, polygons that have been removed from a group will automatically be added to a group called **NO_BONE** so that you can see which polygons are unassigned and correct the problems before leaving the **Setup** room.

To select polygons that are currently out of view, you can use the **Wireframe** display style, the camera trackball to change the view of your figure, and/or multiple viewpanes to bring the desired polygons into view.



NOTE

WHILE WORKING WITH THE GROUPING TOOL, PRESSING [ALT] ALLOWS YOU TO QUICKLY ACCESS THE CAMERA TRACKBALL.

While you are selecting polygons, it is possible that you will select some polygons that have previously been assigned to a different group, either by accident or by design. If this happens, the **Grouping** tool will remove the subject polygons from their previous group and assign them to the new group in order to ensure that no polygons belong to more than one group at a time.



NOTE

THE GROUP EDITOR PALETTE COMMANDS DO NOT SHARE THIS FUNCTIONALITY.

When you are creating groups for figures (**Setup** room), it is important to remember that joint bending only occurs between an object and its parent. The bends do not progress to other children or above the parent in the hierarchy. Keep this in mind as you create your groups, and later when you fine-tune your joints.



NOTE

THE GROUP EDITOR PALETTE APPEARS WHENEVER THE GROUPING TOOL IS SELECTED.

USING THE HIERARCHY EDITOR

In order to display a figure in the Studio, Poser must interpret information about the figure's geometry and body part parameters. This information allows Poser to create bendable joints between parent and child objects.

A scene's hierarchy describes the parent-child relationships of all objects in your scenes. Please refer to "Hierarchy" on page 35 for more information about hierarchies in general. Body parts or props that are physically located at a seam are generally contained in either a parent or child object. The scene's hierarchy also defines data like joint rotation orders and IK relationships. A Poser document's hierarchy contains:

- The complete list of all objects in the scene's universe, including figures, props, body parts, lights, and cameras.
- Hierarchical connections (parent/child relationships) between scene objects.
- Parameters, including rotation, translation, morph targets, and Point At (see "Point At" on page 105).
- IK chains.

The **Hierarchy Editor** palette allows you to:

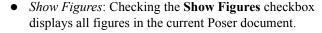
- Select scene elements. Selecting an element in the **Hierarchy Editor** palette selects that item in the **Document** window, **Current Actor** pull-down, and **Graph** palette.
- Access object properties. Double-clicking an object listing in the Hierarchy Editor
 palette opens the Properties palette for the selected item.
- Quickly hide or view scene elements.
- Rename or delete elements and parameters such as morph targets or Point At parameters.
- Set up or change parent-child relationships for props.
- Set up Inverse Kinematics (IK) chains.
- Change rotation orders for props or body parts.
- Create new figures. The addition of the graphical Setup room (see Chapter 36: "The Setup Room" on page 261) eliminates the need to use the Hierarchy Editor palette to create figures.
- Expand or contract the hierarchy list to view parents and children or parents only.

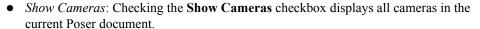
DISPLAYING THE HIERARCHY EDITOR

To display the **Hierarchy Editor** palette, select Window>Hierarchy Editor.

CONTROLLING THE DISPLAY

You can control what appears in the **Hierarchy Editor** palette by selecting your desired display options at the top of the palette. Checking a box enables the selected option, and clearing it disables that option. The options are as follows:





- Show Parameters: Checking the **Show Parameters** checkbox displays all object parameters in the current Poser document.
- Show All Parameters: Checking the Show All Parameters checkbox displays all parameters in the current Poser document.
- Show Props: Checking the **Show Props** checkbox displays all props in the current Poser document.
- Show Deformers: Checking the **Show Deformers** checkbox displays all magnets, waves, morph targets, and force fields in the current Poser document (scene).
- Show Lights: Checking the **Show Lights** checkbox displays all lights in the current Poser document

WORKING WITH HIERARCHY BRANCHES

You can perform the following basic actions using the hierarchy listing:

- To expand a hierarchy branch, click the plus (+) sign next to the branch you wish to collapse.
- To collapse a hierarchy branch, click the minus sign (-) next to the branch you wish to collapse.
- To select an object, click its listing.
- To make an object visible or invisible, click the eye next to the desired icon. The eye appears bright white when an object is visible and gray when invisible.
- To view the **Properties** palette for an object, double-click the selected object's listing.

- To delete a figure, prop, or light from your scene, select the item to delete then press [DEL]. You cannot delete body parts, cameras, or the ground plane.
- To rename an object, click it and hover the cursor for a few seconds to open a text box. Enter the object's new name in the text box.

REORDERING SCENE ELEMENTS

You can reorder scene elements including props and deformers. Reordering deformers can be useful, especially when you have a long hierarchy listing. You can also reorder morph targets and parameters such as rotation orders (this is the same as using the **Joint Editor** palette). You can also reorder light, camera, and prop **Point At** parameters.



BE CAREFUL WHEN CHANGING ROTATION ORDERS AS THIS MIGHT CAUSE UNEXPECTED BEHAVIOR.

ESTABLISHING HIERARCHAL RELATIONSHIPS

This does the same thing as the **Set Parent** menu command (see "Change Parent" on page 104). To establish a hierarchical relationship using the Hierarchy Editor:

- **1** Load your desired prop(s) into the scene.
- 2 Open the **Hierarchy Editor** palette and find the prop.
- 3 Drag the child object on top of the root (parent) object. A white box appears and the cursor changes to a checkbox when the child object is on top of an object that can be used as a parent.
- **4** Drop the object.

To reorder a child at the same hierarchical level:

- 1 Click the child object and drag to its new location. A white line appears just below the target location, indicating where the object will be placed once dropped.
- **2** Drop the object.

You can also create hierarchies spanning figures (such as a woman on horseback):

- **1** Select the child figure.
- **2** Drag the child figure onto the desired parent.
- **3** Drop the child.

You can also set up hierarchies between figures outside the **Hierarchy Editor** palette as follows:

1 Use the pop-up to select the child figure.

- 2 Select Figure Parent (see "Set Figure Parent" on page 97) to open the Set Parent dialog.
- **3** Select the parent body/body part in the dialog and click **OK**.

APPLYING THE STANDARD HIERARCHY

Please refer to the electronic (PDF format) *Poser 3 Advanced Tips & Tricks Manual* in your Poser 5 CD's Documentation folder for more information about this function.

APPLYING STANDARD ROTATION ORDER

Please refer to the electronic (PDF format) *Poser 3 Advanced Tips & Tricks Manual* in your Poser 5 CD's Documentation folder for more information about this function.

CREATING IK CHAINS

To create an IK chain:

- 1 Scroll to the bottom of the hierarchy list using the scroll bar and click the **IK Chains** entry to enable the **Create IK Chain** button.
- 2 Enter a name for the chain you are creating in the dialog box that pops up and click **OK**. A blank IK chain appears in the list.
- **3** Plan each element in the IK chain from root to goal. For example, the IK chain for the right arm has the right hand as the goal.
- 4 From the hierarchy list, click and drag body part listings onto the new blank IK chain. They will be added to the IK chain in the order you drag them from root to goal. Proceed to add parts to the chain in the order of root to goal.



NOTE

BE CAREFUL WHEN CREATING IK CHAINS AS YOU COULD CAUSE YOUR FIGURE TO MOVE IN UNEXPECTED WAYS WHEN THE NEW IK CHAIN IS ADDED.

USING IK

To enable IK for your figure, select **Figure>Use Inverse Kinematics** and select the chain you wish to enable. You will see the chains you created as well as the standard Poser chains (if you added chains to a standard Poser figure). A check mark appears next to each enabled IK chain. To disable IK, select **Figure>Use Inverse Kinematics** and select the chain you wish to disable. You can also open the Hierarchy Editor and check and uncheck the boxes next to each IK chain in the list to enable and disable IK.

CREATING A NEW FIGURE

Please refer to the electronic (PDF format) *Poser 3 Advanced Tips & Tricks Manual* in your Poser 5 CD's Documentation folder for more information on this legacy method of figure creation.

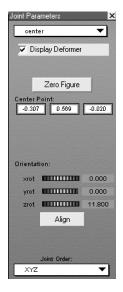
THE JOINT EDITOR PALETTE

This section explains how to use the **Joint Editor** palette for positioning and/or fine-tuning joints. To open the palette, select **Window>Joint Editor**.

The **Joint Editor** palette adjusts the currently selected joint (**Pose** room) or bone (**Setup** room) by allowing you to control both joints and blend zones. You can manipulate joints and blend transformers directly, thereby modifying how a joint or bone works. You can use this functionality to:

- Fine-tune the blending of existing figures to suit your needs.
- Create new types of effects.
- Customize joints and transformers when creating your own figures (such as using the **Setup** room, described in Chapter 36: "The Setup Room" on page 261).

A figure's joints control how parts bend, twist, and bulge. Realistic figure movement is controlled by joint settings. For example, a human knee can't bend forward.



A figure's bending and twisting motion is created using transformers, which skew, stretch, or scale polygons in the transformation zones to produce the desired motion. This is how a single static mesh object can become a fully poseable figure within Poser. Transformation zones are defined by assigning inclusion and exclusion angles to each zone. Polygons in the exclusion angle are not affected by a joint bending, while polygons in the inclusion angle are affected. The area between the inclusion and exclusion angles is called the *blend zone*, where polygons are adjusted to create a smooth transition between surrounding polygons.

ABOUT JOINT ATTRIBUTES

Each joint in a figure's bone structure has some or all of the following attributes. The attributes available for each joint depend on the currently selected joint. You can think of the **Joint Editor** palette as working with body parts or bones, since the end result is the same. For the sake of discussion, it is appropriate to think of the **Joint Editor** palette as acting on body parts when in the **Pose** room and bones within the **Setup** room.

- Center: The Center attribute sets the center of rotation for the selected bone. It is available for all bones, body parts, and props. For example, hold your arm out with the palm up, bend it at the elbow, and notice that the center of the rotation is about halfway between your inner and outer elbow. Notice how your skin contracts above the center of rotation and expands beneath it. Imagine if the center of rotation was in a different location and how that would affect the appearance of your arm as you bend it. Move some other joints and imagine the changes that might occur if you shifted those centers. The Center attribute controls this aspect of joint motion.
- Twist: The **Twist** attribute changes the location of the twist deformer for the selected bone. There is no **Twist** attribute for the hip bone or its equivalent, since the hip is the parent for the entire figure and twisting the hip twists the entire figure in unison. Holding your arm out with the palm down, twist it so your palm is facing up. Notice how most of your arm does not change, except for a region in your upper arm where the skin and muscles twist as you move. Imagine if the twisting began and/or ended in a different location. The **Twist** attribute controls this aspect of joint motion.
- Bend: Adjusting the Bend attribute controls the angles of the bend transformers and
 defines how bulges are created. Flex various joints and note both the limits of your
 flexibility and how skin and muscles bulge as you move. The Bend attribute lets you
 control how this occurs in your figure.
- Side to Side/Front to Back: Like the Bend attribute, the Side-Side and Front-Back
 attributes control the angles of the Side-Side and Front-Back transformers and define
 how bulges are created. These attributes are suited for omnidirectional joints such as
 your wrists, shoulders, hips, ankles, etc.
- Inclusion/Exclusion Angles: The Inclusion and Exclusion angles control which polygons move as a result of a joint bending and how the body parts on either side of the joint blend to accommodate the move. If you move any part of your body (for example bending your elbow), you will note that the skin on your upper and lower arms remains still except for the region near your elbow. Around your elbow, skin stretches or contracts depending on its location and the direction of motion. Slightly removed from the actual motion area, your skin and muscles move to adjust to the motion and preserve a smooth transition. When editing inclusion and exclusion angles, the red lines represent the exclusion angle while the green lines represent the inclusion angle.

USING THE JOINT EDITOR PALETTE

This section discusses using the **Joint Editor** palette in general terms and covers the options common to all joint parameters. To edit a joint's parameters, begin by selecting the desired joint and opening the **Joint Editor** palette by selecting **Window>Joint Editor**. The general options available are:

- Selecting a Joint: To select a joint, click the desired bone or joint.
- Selecting a Joint Parameter: Use the pull-down menu at the top of the **Joint Editor** palette to select the joint attribute you wish to edit from among those available for the selected joint. Parameters available for the selected attribute will appear in the palette.
- *Display Deformer*: The **Display Deformer** option toggles the display of the actual joint on and off (which may be redundant when you are in the **Setup** room).
- Use Spherical Falloff Zones: The Use Spherical Falloff Zones option toggles spherical falloff zones on and off. Please refer to "Spherical Falloff Zones" on page 224 for more information about falloff zones.
- Zero Figure: Selecting **Zero Figure** reverts all joint rotation parameters to zero.

The following section contains detailed information for each joint attribute.

EDITING JOINT ATTRIBUTES

This section explains how to adjust each available joint parameter.

Center

The following options are available when adjusting the **Center** joint parameter:

- *Center Point*: The **Center Point** attribute defines the XYZ position of the joint (center of the body part). 0,0,0 is located in the center of the bone structure on the floor.
- Orientation: The **Orientation** attribute defines the XYZ rotation of the joint and its axis. Click and drag the dials to set a value. Pressing and holding [ALT] while clicking a dial resets its value to 0
- Align: Clicking the **Align** button aligns the joint with its underlying body part or group. This option can be useful once you have created groups and attached the bones to the geometry. Prior to that point in the process, however, there is nothing to align the joint to.

Twist

When IK is enabled, child bones rotate when the parent is twisted. Twisting the hip normally moves the entire body since the hip is usually the parent for the entire figure, meaning that the hip does not have this parameter. By default, the Twist axis runs lengthwise down the center of each body part. For example, the arm twist axis is X, while legs twist along the Y axis.

The **Twist Start** and **Twist End** values define the beginning and ending points of a bone's twist area. Enter your desired values in the appropriate boxes. Note that you can make twist areas larger than the selected bone, which can make a twisting motion appear more natural. In many cases, the bone's parent should be included in the twist zone.

When this parameter is selected, a line with two handles appears on the figure. The red handle represents the starting point of the twist transformation area, and the green handle represents the end. Dragging these handles increases or decreases the Twist area.

You can use the **Editing** tools to adjust this parameter. This parameter exists in three dimensions, meaning you can rotate the figure to see the joint from any angle. You may, however, want to leave the figure in its default position and use the orthogonal cameras (Top, Bottom, Left, Right, Front, Back) to constrain movement to two axes, possibly avoiding much confusion.



Inclusion & Exclusion Angles

The **Bend**, **Side-Side**, and **Front to Back** parameters allow you to define the inclusion and exclusion angles for the selected joint. The inclusion angle appears as two green lines forming an angle, with the exclusion angle being a pair of red lines forming an angle.

The inclusion angle defines which polygons are affected by moving the selected joint. Using the previous example of bending your arm at the elbow, your entire arm below your elbow moves. By contrast, the exclusion angle defines those polygons not affected by moving the current joint. Notice that your upper arm does not move if you simply bend your elbow.

The area between the inclusion and exclusion angles is called the blend zone, where Poser stretches, bends, and shrinks polygons to achieve a smooth transition between figure elements. This is the same as when you flex your leg and the skin in the area of your hip contracts or stretches as needed to accommodate the move.



The above graphic shows the exclusion angle above the hip, the inclusion angle below, and the blend area in the vicinity of the joint itself. To edit inclusion and exclusion angles:

- 1 Move the cursor to an end point of the inclusion or exclusion angles until the cursor changes to a target symbol.
- **2** Drag the angle. It is recommended that you use Full Tracking mode to view the effects of your changes as you drag. You can also enter your desired values in the text boxes.

You can use the **Editing** tools to adjust this parameter. This parameter exists in three dimensions, meaning you can rotate the figure to see the joint from any angle. You may, however, want to leave the figure in its default position and use the orthogonal cameras (Top, Bottom, Left, Right, Front, Back) to constrain movement to two axes, possibly avoiding much confusion.

Bend, Side to Side, and Front to Back

These parameters change the angles of the bend, side-to-side, and front-to-back transformers, respectively. Further, Poser can create bulges to emulate your muscles bulging as you move. Each of these three parameters is functionally identical when editing these joint attributes in the **Joint Editor** palette. They consist of the following settings:

- *Center Point*: The **Center Point** defines the center of the joint in 3D space. 0,0,0 is defined as being in the center of the skeleton on the floor. The motion (bending, side to side or front to back) occurs at the center point.
- *Joint Angles*: The **Static A** and **Static D** values determine the exclusion angle. The **Dynamic B** and **Dynamic C** angles determine the inclusion angle.
- Bulge Settings: Checking the Apply Bulge checkbox causes the polygons to flex and
 bulge as the joint moves, emulating the muscle bulging when real bodies move. If the
 box is checked, the polygons in the blend zone will be stretched or pinched to create
 bulges or wrinkles. Left and Right refers to the skeleton's right and left. The positive
 dials control how much bulging out will occur when the joint moves, and the negative
 dials control the amount of wrinkling and pinching.

You can use the **Editing** tools to adjust these parameters. These parameters exists in three dimensions, meaning you can rotate the figure to see the joint from any angle. You may, however, want to leave the figure in its default position and use the orthogonal cameras (Top, Bottom, Left, Right, Front, Back) to constrain movement to two axes, possibly avoiding much confusion.

Scaling

Each body part has parameters allowing you to scale the parent and child body parts. These settings are similar to the **Twist** parameters and follow the **Twist** axis of the child or parent body part. For example, the Poser 4 Business Man figure's Right Collar body part has scaling controls for the chest (parent) along the Y axis and the Right Shoulder (child) along the X axis.



The **High End/Start** and **Low Start/End** parameters define a blending area. For example, when scaling the head, you may also want to scale the top of the neck to achieve a smooth fit. When setting these parameters, only one setting (high or low) is relevant. The unused parameter pair gets automatically set to some unrealistic number (such as 99,000 or 100,000), thus indicating that it is not relevant to the area you're working on. Do not edit these out-of-limit settings.

Each blending zone's end is represented in red, with its beginning in green. Effects can be either uniform or can use spherical falloff zones, discussed below.

SPHERICAL FALLOFF ZONES

Spherical Falloff Zones are an advanced method of controlling blending between two bones or body parts. Two spheres, a green inner sphere and a red outer sphere, represent the falloff zones

The green sphere defines the area that is 100% affected by the transformation (motion), and the red sphere defines the limit of the transformer's effect. The area between the spheres is the blending area, and the transformer's effect gradually decreases from 100% at the boundary of the inner sphere to 0% at the boundary of the outer sphere.

You can display spherical falloff zones in any available mode. To change how a sphere is displayed:

- **1** Select the sphere.
- 2 Select Display>Element Styles.
- **3** Select your desired display mode.

Wireframe mode allows you to see the spheres' areas of effect while still being able to see the underlying bones/geometry.

You can edit spherical falloff zones just as you would any bone or body part using the Editing tools. When adding new falloff zones, their default position is 0,0,0.

ROTATION ORDERS

The **Joint Editor** palette includes the **Joint Order** pull-down menu that defines the joint's axes of rotation. The joint order is expressed as three letters corresponding to the X, Y, and Z axes



NOTE

USING THE FRONT CAMERA POSITION, THE X AXIS RUNS FROM LEFT TO RIGHT, THE Y AXIS RUNS UP AND DOWN, AND THE Z AXIS RUNS FROM THE FRONT TO THE BACK.

Determining the best rotation order for each joint is an important part of getting your figure to move exactly how you want it to. When you create new bones with the bone tool, Poser takes its best guess at determining the best rotation order for the bone. You can select rotation orders by bringing up the **Joint Editor** palette and selecting the desired order from the **Joint Order** pull-down menu.



NOTE

IF YOU CHANGE JOINT ORDER, YOU WILL PROBABLY NEED TO READJUST THE JOINT ZONES ON THE CURRENTLY SELECTED BONE.

Each joint consists of three separate joint primitives, one twist and two joints. The twist primitive is always placed first in the joint order. Because of ordered rotation problems, it is then best to place the rotation axis through which the joint is most likely to move last in the order, with the remaining rotation axis placed in the middle. For example, a shin is vertical and twists about the Y-axis. When the shin bends, it is most likely to bend around the X-axis. Thus, the best rotation joint order for the shin is YZX.

NOTE

THIS MAY SEEM A LITTLE CONFUSING AT FIRST. A GOOD WAY TO VISUALIZE THE CORRECT ROTATION ORDER IS TO PICTURE THE FIGURE FACING DIRECTLY TOWARDS THE FRONT OF THE STUDIO. FOR EACH POSSIBLE MOTION OF A GIVEN JOINT IMAGINE A LINE RUNNING THROUGH THE CENTER OF THE JOINT. FOR EXAMPLE, THE SHIN TWISTS ALONG A LINE RUNNING STRAIGHT UP AND DOWN AND ROTATES ALONG A LINE RUNNING FROM LEFT TO RIGHT. THE VERTICAL LINE CORRESPONDS TO THE Y AXIS, AND THE LEFT-TO-RIGHT LINE CORRESPONDS TO THE X AXIS. IT IS NOW EASY TO DETERMINE THE PROPER JOINT ORDER OF YZX BASED ON THIS VISUALIZATION AND THE REQUIREMENTS OUTLINED ABOVE.

You can also use curve bends instead of the normal twist/joint/joint bends. When you set up a joint using curves, the joint will have one twist and one curve primitive. The curve primitive will automatically bend the body part as if that part were part of a curved chain of objects. This feature is very handy for body parts such as tails or antennae.

COPYING AND SAVING JOINT SETTINGS

To copy joint settings from one side of your figure to the other, use symmetry as described in "Symmetry" on page 100.

To save your **Joint Editor** palette settings, you must either save your scene or save the affected figure to the **Library** palette. Please refer to "Save" on page 82 for information on saving Poser scenes, and to Chapter 24: "The Poser Library" on page 126 for information on working with the **Library** palette.

Chapter 32: The Material Room

he **Material** room's numerous nodes require significant space in this manual. Because of this, the **Material** room information has its own dedicated part in this manual. Please refer to Part 8: "Materials" on page 305 for information about using the **Material** room and creating and applying Poser materials and shaders.

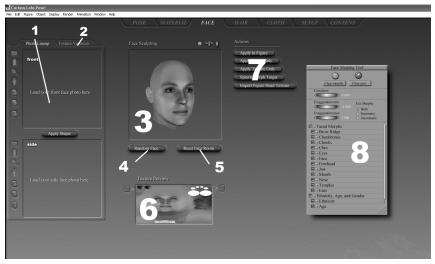
Chapter 33: The Face Room

dding convincing custom faces to a 3D object and creating a personalized head can be an extremely complex undertaking, but Poser 5's powerful **Face** room makes this process a snap. In just a few minutes, you can make your figure look like you, one of your friends, or anyone! You can do this by loading two images of the desired person, applying custom textures, sculpting the head, or any combination of these methods.

NOTE

BY DEFAULT, AN HTML HELP WINDOW OPENS WHEN YOU ENTER THE FACE ROOM. THIS WINDOW CONTAINS ADDITIONAL TIPS AND TRICKS FOR OBTAINING OPTIMAL RESULTS. IF YOU DO NOT SEE THIS WINDOW, PLEASE SELECT **WINDOW>ROOM HELP**.

The **Face** room creates heads for use with the standard Poser 5 male and female figures. It appears as follows:



The **Face** room contains the following interface elements in addition to some of the standard elements:

• *Photo Lineup (1)*: The **Photo Lineup** area is where you load images and align them using a variety of tools. Once finished, clicking the **Apply Shape** button generates geometry matching your photos. The texture map based on the photos gets generated on the fly.

- Texture Variation (2): The **Texture Variation** area lets you apply a multitude of ethnic and other settings to modify the current head texture map.
- Face Shaping Tool window (3): The Face Shaping Tool window displays a preview of your 3D head with textures. This window features Mini Camera controls in its upper right corner. You can also use the Face Shaping tool (see "The Face Shaping Tool" on page 234) to sculpt the face to your exact specifications.
- Random Face button (4): Clicking the **Random Face** button creates a completely random face. This will erase any prior work you've done in the **Face** room and should be used with care. The **Random Face** feature is a great way to create realistic-looking characters by clicking a single button. Click it as many times as you like until you get the look you want!
- Reset Face room button (5): Clicking the **Reset Face room** button restores the default head shape and texture. This will erase all of your prior **Face** room work. Use this option with care.
- *Texture Preview window (area 6)*: The **Texture Preview** window lets you see your head texture map as you edit it and also allows you to load and save textures for further work.
- Action Buttons (area 7): The **Action** buttons are where you apply customized head geometries to your figures, spawn morph targets, or import head texture maps.
- Face Shaping Tool window (area 8): The Face Shaping Tool window is where you control the Face Shaping tool, which is the equivalent of the Morph Putty tool (see "Morph Putty" on page 175) for the Face room. You can modify heads by using the parameter dials and/or the tool in this room.

Each of these areas is discussed below in this chapter. As mentioned above, there are several methods for creating custom heads:

- Using two images to shape the geometry and create a texture map.
- Using the **Face Shaping** tool to sculpt the head as you desire.
- Using the Texture Variation area to create custom texture maps quickly and easily.
- Using the **Random Face** feature.
- The **Face** room allows you to do any or all of these things when creating heads. We'll discuss the other functionality in the subsequent sections. For now, let's walk through using images to create a custom head.



IF YOU MAKE A MISTAKE OR WANT TO RESET THE FACE ROOM TO ITS DEFAULT STATE, CLICK THE RESET FACE ROOM BUTTON. THIS ERASES ALL LOADED IMAGES, DELETES GEOMETRY CHANGES, AND LOSES ANY TEXTURE MODIFICATIONS YOU MADE. USE THIS OPTION WITH CARE!

USING IMAGES TO CREATE HEADS

Creating custom 3D heads from existing images/photographs (digital or scanned!) requires the following steps:

- **1** Load the images.
- **2** Align the images (if needed).
- **3** Align the geometry to the images.
- **4** Apply the new shape to your figure.

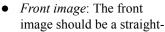
Apply the images you used to create the head as a texture map, then apply the geometry shape and texture to the head.

Once you've completed these steps, you can proceed to use the **Face Shaping** tool and/or the **Texture Variation** functionality. If you do not want to use your own images, feel free to skip ahead and explore the other head creation/customization methods.

STEP 1: IMAGES

Creating a personalized head that matches a real person involves using two pictures to create a texture map. Let's load some images and build a personalized head!

Please follow these simple guidelines for optimum results:







on front view with the subject directly facing the camera and with the camera level with the subject's face. The picture should be close enough to capture plenty of detail. Lighting should also be adjusted to capture the most detail. Overly bright lighting will give the image a washed-out appearance, while overly dark lighting will not show off enough detail. The person's mouth should be closed and the overall facial expression should be neutral for best results.

Side image: The side image should be a direct side view with the subject facing 90 degrees from the camera and with the camera level with the subject's face. The remaining guidelines for the front image apply to the side image as well. Ideally, the front and side views should be taken from the same distance.

The above images are great examples of ideal images. You can use less than ideal or even mismatched images, however you may get some unpredictable results. Each image has its own alignment tools that can help position it optimally (see next step). Of course, you can always experiment and have fun if you want to!

The **Face** room supports most common image formats.



NOTE

YOU MUST IMPORT EXISTING IMAGES. POSER DOES NOT HAVE THE FUNCTIONALITY TO CREATE IMAGES. IMAGES CAN BE PHOTOGRAPHS, LINE DRAWINGS, PAINTINGS, ETC. THE FACE ROOM ACCEPTS MOST COMMON IMAGE FORMATS. TEXTURES GENERATED FROM THESE IMAGES ARE SIZED AT 512X512 PIXELS BY DEFAULT.

STEP 2: THE LINEUP

Begin by clicking the **Load** icon (see below) for the front or side image in the **Photo Lineup** area and locate the image you want to use. For each image, Poser 5 will ask you to locate several points on the face. This will help it align and match the default 3D head to the images, which you can then fine tune. To locate the specified facial point on your own photo, click its location as shown in the example face.

For the front image, you'll be asked to locate the outside corner of the figure's right eye and left corner of the lips, as shown below:

For the side image, you'll need to locate the top of the right earlobe and the front of the chin in the same manner as you did for the front image.



NOTE

THE SIDE IMAGE USES THE SUBJECT'S RIGHT SIDE. IF YOUR SIDE IMAGE IS OF THE SUBJECT'S LEFT SIDE, YOU CAN CLICK THE FLIP ICON TO REVERSE THE IMAGE.



Once loaded, the images appear in the workspace and the 3D head and texture map appear.

Loading the images and locating the requested areas allows Poser 5 to do a good job of approximating the location and shape of the head geometry. You may, however, wish to go in and perform some manual adjustments of the geometry's location relative to the image.

To do this, each of the two images in the **Photo Lineup** area has the following tools:



- Load: Clicking the Load icon opens a standard OS dialog allowing you to browse for and select your desired front image. Once you load an image, you'll be prompted to locate various facial features. This helps Poser 5 custom-fit the 3D head to the images, as described above.
- *Delete*: Clicking the **Delete** icon deletes the currently loaded image.
- Zoom: Clicking and dragging the Zoom icon allows you to zoom in or out of the
 current image, allowing you to more precisely position and shape the head geometry.
 Clicking the Zoom icon and dragging to the right or up zooms in, and vice versa. This
 tool simply shifts your point of view; it does not affect the images or the geometry.
 You cannot zoom out more than your image's original size.
- Pan: Clicking and dragging the Pan tool moves the image in the same direction as your mouse movement. This is particularly useful if you need to zoom in to a particular area. You can individually pan the front and side images up, down, left, or right. The front image will pan in the X and Y axes (side-side and up-down) and the side image will pan in the Y and Z axes (up-down and front-back). This tool simply shifts your point of view; it does not affect the images or the geometry.
- Rotate Geometry: Improper rotation may cause unsatisfactory photo lineup results. Ideally, the head should not be rotated relative to the camera. However, many photos show the head slightly rotated about the X axis (up and down), the Y axis (looking left to right), or the Z axis (tilting left toright). The Face room automatically detects and compensates for some rotation (about the Z axis in the front view and about the X axis in the side view), but you may still need to perform additional manual adjustments for best results:
 - To rotate about the X axis (front view), click and drag the mouse horizontally while pressing [SHIFT].

- To rotate about the Y axis (front view), click and drag the mouse horizontally while pressing [ALT].
- To rotate about the Z axis (front view), click and drag the mouse horizontally without pressing any keys.
- To rotate about the X axis (side view), click and drag the mouse horizontally without pressing any keys.
- Scale Geometry: Clicking and dragging the Scale Geometry tool scales the geometry
 to align it to the image. This feature is useful if your loaded image(s) are larger or
 smaller than the geometry outline. You can pan up, down, left, and/or right. This tool
 scales the geometry without altering the image or your point of view.
- *Pan Geometry*: Clicking and dragging the **Pan Geometry** tool and dragging the mouse pans the geometry. This feature is useful if your loaded image(s) are not perfectly aligned with the geometry. The front image will pan in the X and Y axes (side-side and up-down) and the side image will pan in the Y and Z axes (up-down and front-back). This tool pans the geometry without altering the image or your point of view.

Poser 5 does a great job at guessing how to build the head based on the images, however you'll probably need to fine-tune the head for best results. The head appears superimposed on the images with red lines showing the facial features and green control points. In this case, the head is a bit off-center as can be seen by both the superimpositions and the texture map. How do you fix this? Easy: Perform a little virtual surgery.

STEP 3: CYBER FACE LIFTS

Looking at your loaded images, you will see the red outlines of a head superimposed on the images. Each major facial feature (eyes, nose, mouth, chin, etc.) has one or more *control points*, which appear as green dots. All you need to do is move the control points until they match the underlying image. Do this by placing the mouse pointer over the control point you wish to move. The cursor will change, at which point you can drag the selected control point up, down, left, or right. For example, you'd move the middle nose point until it's just under the bridge of the nose and the two side points until they're at the corners of the nostrils, and so on. As you move the control points, you'll see the head beginning to conform more and more to the figure. You will also see lines indicating how each control point has moved from itsa original position.

You can also move the entire head using the **Rotate Geometry**, **Scale Geometry**, and **Pan Geometry** tools, which are described above. These tools move the head outline and alter the head geometry to match. To move your image without altering the head geometry, use the **Pan Image** tool, also described above. This will cause the image to slide over the geometry.

If you make a mistake while moving the control points, you can press [CTRL]+[Z] or select **Edit>Undo** to undo your most recent change.



NOTE

PLEASE REFER TO THE FACE ROOM HTML HELP WINDOW FOR ADDITIONAL TIPS & TRICKS. BY DEFAULT, THIS WINDOW APPEARS WHEN YOU ENTER THE FACE ROOM. IF IT DOES NOT APPEAR, SELECT **WINDOW>ROOM HELP** TO OPEN THE WINDOW.

Here's the above example after it's been adjusted:

Looking at the example, you can see that the head matches the images far more closely after being adjusted. The 3D head looks far more realistic, and the texture map is aligned properly.



NOTE

YOU CAN USE THE ZOOM TOOL TO MOVE IN CLOSER TO YOUR IMAGES FOR EVEN MORE PRECISE CONTROL OVER THE RESULTS.



STEP 4: APPLYING THE GEOMETRY/TEXTURE

Once you're finished adjusting the head, click the **Apply Shape** button to apply your images to create a custom head, which will appear in the **Face Shaping Tool** window. The texture map is created on the fly as you work.



NOTE

CLICKING THE APPLY SHAPE BUTTON WILL ERASE ANY WORK YOU MAY HAVE DONE WITH THE FACE SHAPING TOOL. IF YOU WANT TO USE A COMBINATION OF IMAGES AND SHAPING, BE SURE TO WORK WITH THE IMAGES BEFORE USING THE FACE SHAPING TOOL. THIS ALSO OCCURS WITH TEXTURES; LOADING IMAGES WILL UNDO ANY WORK YOU HAVE DONE IN THE TEXTURE VARIATION AREA (SEE BELOW).

CREATING CUSTOM TEXTURES

The **Face** room includes the **Texture Variation** area, which allows you to create custom head textures from scratch or modify existing textures. To access the **Texture Variation** area, click the **Texture Variation** tab in area 2 of the **Face** room. This area allows you to:

- Create new textures from scratch by modifying the default texture.
- Modify textures created by loading images as discussed above.
- Edit loaded texture maps (see below).



NOTE

BE SURE TO LOAD/CREATE YOUR TEXTURE BEFORE USING THE TEXTURE VARIATION AREA, AS DOING SO AFTERWARD WILL LOSE YOUR CHANGES.

The **Texture Variation** area uses parameter dials that function similarly to the dials in the **Parameters** palette, whose functionality is described in "Parameters Palette" on page 180. You can use the **Parameter Dial** menu to access dial settings, reset a dial, or open the selected dial's **Graph** (discussed in "Using Graphs" on page 288). You cannot, however, memorize **Texture Variation** dials. The available **Texture Variation** dials are:

- Facial Color: The Facial Color dials modify the color of several facial regions and include Beard dark/light, Eye sockets light/dark, Eyebrows lower light/dark, and Eyebrows upper light/dark.
- Ethnicity/Age & Gender: The Ethnicity/Age/Gender dials generate ethnic, age, and gender traits and include less/more African, less/more European, less/more Southeast Asian, less/more East Indian, Younger/Older, and Male/Female.
- To modify your texture or the default texture, simply adjust the dials. Your work will
 appear in real time in both the Face Shaping Tool and Texture Preview windows.

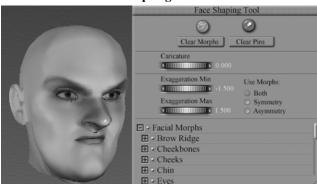


NOTE

TEXTURES CREATED IN THE FACE ROOM ARE SCALED TO 512X512 PIXELS. TO USE LARGER TEXTURE MAPS, FIRST IMPORT A CUSTOM TEXTURE, THEN MODIFY IT.

THE FACE SHAPING TOOL

The **Face Shaping** tool allows you to visually sculpt your custom head by selecting and moving vertices. The **Face** room contains a wide array of custom vertex editing parameters for the Poser 5 head that allow you to create virtually any face imaginable. By default, the **Face Shaping** tool is active whenever your cursor is within the **Face Shaping Tool** window. Just as with the **Morph Putty** tool (see "Morph Putty" on page 175), you



can use any combination of clicking and dragging morph targets and/or adjusting **Face Shaping** parameter dials in the **Face Sculpting Tool** window.

To use the **Face Shaping** tool:

- 1 Select the Face Shaping tool in the Face Sculpting Tool palette.
- 2 Click the portion of the face you wish to adjust and drag the mouse. This selects the vertex nearest the spot where you clicked and moves it in the direction you drag the mouse. You can use the Mini Camera controls in the upper right corner of the Face Shaping window to position the head exactly where you want it at any time before, during, or after sculpting. Vertices are moved relative to your viewing angle. For example, if you are looking at the face head-on, clicking and dragging will move the morph up, down, left, and right. If you are looking at the top of the head, dragging will move vertices left, right, forward, and backward.
- 3 The Face Shaping tool will manipulate all selected parameters in the Face Shaping Tool window. Checking the checkbox next to a parameter dial includes the specified vertex parameter when using the tool, and clearing it means the tool will not affect the specified vertex parameter. Even if a parameter is enabled, it may or may not be affected by your use of the tool. For example, selecting a vertex in the forehead may affect the eyebrows but may not affect the mouth. Select your desired parameter(s), then click and drag any vertex on the head.
- 4 Once you have a portion of the head the way you want it, you can click the **Pin** button to freeze the selected vertex from further manipulation. Pinned vertices may move as you keep adjusting other portions of the body part, however they will retain their current settings.

If you make a mistake, you can click the **Clear Morphs** button to reset all morph targets to their default values (0). Also, if you want to clear all pins, you can click the **Clear Pin Points** button. Both buttons are located in the **Face Shaping Tool** window along with other functionality (see below).

THE FACE SHAPING TOOL WINDOW

The **Face Shaping** tool adjusts the parameters available in the **Face Shaping Tool** window, which uses parameter dials that function similarly to the dials in the **Parameters** palette. You can use the **Parameter Dial** menu to access dial settings, reset a dial, or open the selected dial's **Graph** (discussed in "Using Graphs" on page 288) You cannot, however, memorize **Face Shaping Tool** dials.



NOTE

THIS IS DIFFERENT THAN CREATING FACIAL EXPRESSIONS SINCE YOU ARE ACTUALLY MODIFYING HEAD GEOMETRY INSTEAD OF SIMPLY APPLYING MORPHS TO CREATE A FACIAL EXPRESSION.

When sculpting a head, you can use the **Face Shaping** tool, the dials in the **Face Shaping Tool** window, or any combination you wish. The available **Face Shaping Tool** window parameter dials are:

- Facial morphs: The Facial Morphs dial groups includes the following sub-groups and dials:
 - Brow Ridge: The Brow Ridge dials are High/Low, Inner Up/Down, Outer Up/Down, and Forward Axis Twist.
 - Cheekbones: The Cheekbones dials are High/Low, Shallow/Pronounced, Thin/Wide, and Protrusion Asymmetry.
 - Cheeks: The Cheeks dials are Concave/Convex, and Round/Gaunt.
 - Chin: The Chin dials are Forward/Back, Pronounced/Recessed, Retracted/
 Jutting, Shallow/Deep, Small/Large, Short/Tall, Thin/Wide, Chin Axis Twist,
 Forward Axis Shift, and Transverse Shift.
 - Eyes: The Eyes dials are Up/Down, Small/Large, Tilt Inward/Outward, Together/Apart, Height Disparity, and Transverse Shift.
 - Face: The Face dials are: Brow/Nose/Chin Ratio, Forehead/Sellion/Nose Ratio, Light/Heavy, Round/Gaunt, Thin/Wide, Coronal Bend, Coronal Shear, and Vertical Axis Twist.
 - Forehead: The Forehead dials are: Small/Large, Short/Tall, Tilt Forward/ Back, and Forward Axis Twist.
 - Jaw: The Jaw dials are Retracted/Jutting:, Wide/Thin, Jaw-Neck Slope High/ Low, and Concave/Convex.
 - Mouth: The Mouth dials are Drawn/Pursed, Happy/Sad, High/Low, Protruding/Retracted, Tilt Up/Down, Underbite/Overbite, Mouth-Chin Distance Short/Long, Corners Transverse Shift, and Twist and Shift.
 - Lips: The Lips dials are Deflated/Inflated, Large/Small, and Puckered/ Retracted.

- Nose: The Nose dials are Coronal Shear, Transverse Shift, Up/Down, Flat/ Pointed, Short/Long, Tilt Up/Down, Tip Transverse Shift, Transverse Shift, and Vertical Axis Twist.
- Nose Bridge: The Nose Bridge dials are Shallow/Deep, Short/Long, and Transverse Shift.
- Nose Sellion: The Nose Sellion dials are Up/Down, Shallow/Deep, Thin/Wide, and Transverse Shift
- Nose Region: The Nose Region dials are Concave/Convex and Frontal Axes
 Twist.
- *Temples*: The **Temples** dial is **Thin/Wide**.
- Ears: The Ears dials are Up/Down, Back/Front, Short/Long, Thin/Wide, Vertical Shear, and Forward Axis Shear.
- Ethnicity, Age, and Gender: The Ethnicity/Age/Gender dials generate ethnic, age, and gender traits and include less/more African, less/more European, less/more Southeast Asian, less/more East Indian, Younger/Older, and Male/Female.
- Standard Figures>Poser 5: The **Standard Figures>Poser 5** dials generate the appearance of one or more of the standard Poser 5 figures and include **Don**, **Judy**, **Will**, and **Penny**.

To create/modify your head, simply adjust the dials or use the tool directly on the head. Your work will appear in real time in the **Face Shaping Tool** window.

CARICATURES

The **Caricature** dial allows you to exaggerate or de-exaggerate the head and facial features. It has a meta effect, meaning it impacts the results of the other sculpting tools. Increasing the value increases the exaggeration, and vice versa, as follows:

The default value is 0. Values>0 apply exaggeration to the head, and values<0 but greater than -1 apply de-exaggeration. A value of -1 corresponds to the default head. For example, if you created a long nose with the other tools, a value of 1 creates a very long nose, -1 is the default nose, and -3 creates a very short nose.



CARICATURE VALUES NEAR –1 WILL WORK FOR OVERALL DE-EXAGGERATION, HOWEVER OTHER TOOLS (FACE SHAPING, RANDOM FACE, ETC.) WILL HAVE LITTLE EFFECT DUE TO THE CARICATURE DIAL'S META EFFECT.

LOADING/SAVING/PREVIEWING TEXTURES

The **Face** room loads the default Poser 5 texture, which is visible in the **Texture Preview** window. The **Texture Preview** window shows real-time previews of your head's texture

beginning with the default and through any changes you make by loading images and/or customizing textures. You can also load and save textures to your hard drive for later use. To load a texture, click the **Load Texture** icon on the left side of the **Texture Preview** window, which opens a **Load Head Texture** window that allows you to browse for the file you wish to load. You can modify loaded textures.

To save the texture being displayed in the **Texture Preview** window, click the **Save Texture** icon on the right side of the **Texture Preview** window, which opens a standard **Save As** dialog (see "Save As" on page 82 for information about the **Save As** dialog).

The Poser 5 male figures use different texture coordinates than the female and child figures. When loading and saving textures, you are prompted to select if the texture is for the Poser 5 male figure. Select **Yes** if the texture if for the male, or **No** if the texture is for the female or child figures.

APPLYING CUSTOM HEADS/TEXTURES

Once you've finished making changes to the head and/or texture, you may perform the following actions:

- Apply to Figure: Clicking the Apply to Figure button applies the head in the Face
 room to the currently selected figure in your scene. This figure should be either the
 Poser 5 Standard Male or the Poser 5 Standard Female in order for the head to
 perfectly match the neck geometry.
- *Apply Shape Only*: Clicking the **Apply Shape Only** dial applies the head shape to the currently selected figure without applying the texture map.
- Apply Texture Only: Clicking the **Apply Texture Only** dial applies the head texture to the currently selected figure without applying the head shape.
- Spawn Morph Target: Clicking the **Spawn Morph Target** button allows you to save the head as a morph target. Please refer to "Creating Morph Targets" on page 206 for more information about spawning morph targets.
- Import Figure Head Texture: Clicking the Import Figure Head Texture button imports the currently selected figure's head texture, which you can then modify by creating textures as described above. Imported textures retain their original sizes. For example, if you import a 1000x1000 texture, all changes you make to it in the Face room will retain the imported size. This is a great way to create textures that are larger than the Face room's default 512x512 size.



IF YOU APPLY ONE OR MORE HEADS TO A SCENE WITH NO FIGURE, THE APPLIED HEAD(S) WILL BECOME PROPS. IF YOUR SCENE HAS MULTIPLE FIGURES, THE HEAD WILL BE APPLIED TO THE CURRENTLY SELECTED FIGURE VISIBLE IN THE SELECT FIGURE MENU.



TO REMOVE A CUSTOM TEXTURE AFTER APPLYING IT TO YOUR FIGURE, GO INTO THE MATERIAL ROOM AND SELECT THE **FACEROOMSKIN** MATERIAL. YOU CAN THEN REPLACE THE APPLIED TEXTURE MAP WITH ONE OF YOUR OWN, REMOVE THE IMAGE MAP, ETC. AS DESIRED.

SAVING FACES

To save faces from the **Face** room, you must save PZ3 files containing the applied head. You can also spawn morph targets.

Chapter 34: The Hair Room

oser 5's new **Hair** room allows you to create dynamic strand-based 3D hair for your figures or props. You can add hair wherever you like on any object in your scene and can add shaders in the **Material** room (see Part 8: "Materials" on page 305) to give your hair almost any appearance from bleach blond to moss, lichens, grass, etc. (a shader tree is created for each hair group and is accessible in the **Material** room). You can even apply **Force Fields** (see "Wind Force Fields" on page 200) to create realistic wind effects for your animations!



HAIR CONTAINS MANY POLYGONS THAT REQUIRE ADDED COMPUTING RESOURCES.

The **Hair** room appears as follows:



In addition to some standard tools, the **Hair** room has the following interface elements:

- Hair Growth Groups Controls (1): The **Hair Growth Groups** controls allow you to create, edit, and delete hair growth groups.
- *Growth Controls (2)*: The **Growth Controls** allow you to specify how hair grows on growth groups.

- *Styling Controls (3)*: As the name implies, the **Styling Controls** allow you to control the appearance of hair.
- Dynamics Controls (4): The Dynamics Controls allow you to control how your hair behaves during animations.

The following subsections will walk you through creating Poser 5 hair.

NOTE

YOU CAN FIND SKULL-CAP PROPS WITH PRE-GROWN AND STYLED HAIR IN THE **HAIR>POSER 5 HAIR>DYNAMIC HAIR** CATEGORY WITHIN THE **LIBRARY** PALETTE.

STEP ONE: DEFINING HAIR GROUPS

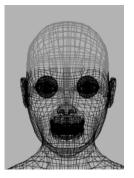
If you want to be able to use the hair you are creating for other figures, please refer to "Adding Poser 5 Dynamic Hair to the Library Palette" on page 134 for more information before proceeding. The first step in creating Poser 5 hair is to define a group of polygons as a *hair group*. Please refer to Chapter 7: "Groups" on page 37 for a general discussion about groups. A hair group is a cluster of polygons that has been defined as an area on which hair will grow. To do this:

- **1** Select the object you wish to grow hair on.
- 2 Click the New Growth Group button in Area 1 of the Hair room to create a new group called Hair_1 by default. Subsequent hair groups are numbered sequentially (Hair_2, etc.). You can rename groups by entering a new name in the New Growth Group Name box that appears. Click OK to proceed or Cancel to abort.
- 3 Click the Edit Growth Group button to enable the Grouping tool and open the Group Editor palette. Be sure that you have the correct hair group selected before selecting polygons for the group. Please refer to "The Grouping Tool & Group Editor Palette" on page 209 for information about using the grouping tools.
- 4 Select the polygons you wish to include in the hair group you are creating.

You can create as many growth groups as you like, such as head hair, moustaches, beards, chest, back, etc.

WARNING

BE SURE THAT YOU HAVE THE CORRECT HAIR GROUP SELECTED IN THE GROUP EDITOR PALETTE BEFORE SELECTING POLYGONS FOR THE GROUP!



STEP TWO: GROWING HAIR

Once you've created a hair growth group, the next step is to grow the *guide hairs*. As the name implies, guide hairs influence how nearby hairs will grow. To do this, click the **Grow Guide Hairs** button. The currently selected hair group will sprout guide hairs:

Guide hairs both shape the hair group and increase performance by allowing you to toggle displaying the fully populated hair group on and off (see below). Either before or after growing the guide hairs, you can apply some general parameters to determine the overall hair shape. These are:



- Hair Length: The Hair Length parameter determines the overall length of the guide hairs and subsequent populated hairs. Increasing this parameter lengthens the hair and vice versa.
- Length Variance: Real hair tends to vary somewhat in length. The Length Variance
 parameter allows you to control how much the hair length will vary in the currently
 selected hair group. A value of 0 means that all guide hairs are exactly the same length
 while a value of 1 adds a great deal of variation.
- Pull Back: Most hair on peoples' heads tends to be combed or pulled back along the scalp. The Pull Back parameter controls the extent to which guide hairs are pulled pack. Increasing this value pulls the guide hairs farther back and flattens them along the scalp. Negative values push the hair forward and away from the scalp.
- Pull Down: Just as most hair is pulled back, it can hang down thanks to styling, gravity, or both factors. The Pull Down parameter determines the extent to which this occurs. Increasing this value pulls the hair down and flattens it along the head and vice versa. Negative values create anti-gravity hair.
- Once you've completed this step, your hair will be in place and will have its rough shape.



DON'T CONFUSE THE PULL BACK AND PULL DOWN PARAMETERS AS REPLACING GRAVITY OR OTHER DYNAMICS THAT YOU CAN SET AFTER STYLING THE HAIR. THESE PARAMETERS MERELY SET THE HAIR'S STARTING POSITIONS.

STEP THREE: STYLING HAIR

Now that you've grown the guide hairs and set some basic parameters for how the hair will look, your next step is to style the hair the way you want it. You can do this by setting the included styling parameters and/or by using the **Hair Edit** tool. You can use the **Hair Edit** tool at any time after growing hair, although we recommend that you complete the previous step.

NOTE

YOU CAN TOGGLE THE SHOW POPULATED FUNCTION ON AND OFF WHILE YOU WORK TO CHECK YOUR RESULTS AS YOU GO.

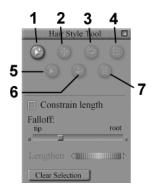
Please see the following subsection for information on using the **Hair Edit** tool. The hair styling parameters are as follows:

- Show Populated: Checking the Show Populated checkbox displays both the guide
 hairs and the population hairs. This will show you exactly how the hair will look, but
 does increase render/display refresh time. This box must be checked prior to rendering
 your image in order for the hairs to appear.
- Number of Hairs: The Number of Hairs parameter controls the total number of hairs
 in the group. Increasing this number makes the hair fuller and more lush. The ability to
 Control the total number of hairs is a powerful feature since it allows you to create
 custom effects, however the total number of hairs can impact rendering and redraw
 times. Experiment with this number to get optimum coverage without adding too many
 hairs.
- Tip Width: The Tip Width parameter controls the hairs' widths (diameters) at their tips. Hair usually thins somewhat as it progresses from root to tip, so this number will typically be less than the Root Width parameter, below.
- Root Width: The **Root Width** parameter controls the hairs' widths (diameters) at their roots. Hair usually thins somewhat as it progresses from root to tip, so this number will typically be larger than the **Tip Width** parameter, above.
- Clumpiness: The Clumpiness parameter determines the hairs' tendency to form dreadlock-like bunches.
- *Kink Strength*: The **Kink Strength** parameter is the measure of how wavy/curly hair is. Increasing this value increase the hairs' waviness, and vice versa.
- *Kink Scale*: The **Kink Scale** parameter determines the size of hair waves/curls. Increasing this value increase the hairs' waviness, and vice versa.
- Kink Delay: The Kink Delay parameter specifies the distance from the root at which
 the hair begins to curl/wave. Increasing this value increase the distance from the root,
 and vice versa.
- Verts Per Hair: The Verts per hair parameter controls how many vertex points are in
 each strand of hair. Increasing this value results in smoother, more flowing hair but
 increases the system resources needed to render/redraw your scene.
- Style Hairs: Clicking the Style Hairs button selects the Hair Select tool and opens the Hair Style Tool palette (see below).

USING THE HAIR EDIT TOOL/PALETTE

The **Hair Select** tool is only available in the **Hair** room. It allows you to directly edit guide hairs and create a nearly infinite variety of hair styles (parts, tails, etc.). You can access it by either selecting it in the **Editing** tools or by clicking the **Hair Select** button as described above. The **Hair Style Tool** palette appears as follows:

You have the following controls available for directly manipulating guide hairs:



Add Hairs to Selection (1): Select the Select Hairs tool,
then click and drag a rectangle around the guide hairs you wish to
select for further styling. Unselected guide hairs are not affected by the
Hair Edit tools. Selected hairs are all affected equally. Selecting more
guide hairs can be faster, however you can select as few as one hair for
precise control over the style.





NOTE

FOR FINER CONTROL OVER WHICH HAIRS ARE SELECTED, TRY SWITCHING CAMERAS OR USING THE MAGNIFIER TOOL TO ZOOM IN CLOSE.



NOTE

HAIR GROWTH IS BASED ON THE PARENT OBJECT'S POLYGON COUNT. IF YOU WISH TO ADD DETAILED HAIR GROUPS TO A LOW-POLY PROP OR TO A PORTION OF A FIGURE WITH A LOW POLY COUNT, YOU CAN SPAWN A PROP OF THE AREA YOU WISH TO GROW HAIR ON, SUBDIVIDE THAT PROP IN YOUR FAVORITE 3D MODELING APPLICATION, THEN RE-IMPORT THE PROP AND APPLY IT WHERE NEEDED. THIS IS THE SAME IDEA AS SKULL CAPS EXCEPT THAT YOU ARE NOT LIMITED TO HEADS.

- Translate Hairs (2): The **Translate Hairs** tool moves the selected hair vertically around or laterally around the camera's X and Y axes depending how you drag. The translation may occur on the hair's X, Y, and or Z-axes depending on the position of the camera relative to the hair.
- Curl Hairs (3): The Curl Hairs tool bends a guide hair. Hair rotation works in three dimensions, allowing you to make a lot of progress very quickly. Dragging perpendicular to the hair rotates it up and down (relative to your point of view).
 Dragging parallel to the hair rotates it in and out, again relative to your point of view.
- Scale Hairs (4): The Scale Hairs tool allows you to scale the selected hair along the
 camera's X and Y axes. The hair's affected axes will vary depending on the camera's
 position relative to that item. Dragging in towards the root reduces the scale, and
 dragging away from the root increases the scale. Dragging laterally scales hair in two
 dimensions, and dragging vertically scales hair in the third dimension. The axes

affected depend on your currently selected camera position. You can also press and hold [SHIFT] while using this tool to scale the selected hair(s) evenly in all three dimensions

- Remove Hairs from Selection (5): Select the **Deselect Hairs** tool, then click and drag a rectangle around the guide hairs you wish to deselect from further styling. The **Hair Edit** tools do not affect unselected guide hairs.
- Translate In/Out (6): The **Translate Hairs In-Out** tool moves the selected hair(s) along the Camera's Z axis (in and out). This translation may take place along the hair's X, Y, and/or Z axes. Dragging down pulls the hair towards you, and vice versa.
- Twist (7): The **Twist Hairs** tool rotates selected hair(s) along their own axis.

In addition to the editing tools, the palette has the following controls:

- Constrain Length: Checking the Constrain Length checkbox forces all selected guide
 hairs to retain their current lengths no matter how you use the hair editing tools.
 Clearing this box allows the length to vary depending on how you use the hair editing
 tools (for example, you could use the Hair Translate tool to lengthen some guide
 hairs to create a ponytail.
- Falloff: The Falloff slider controls the portion of the hair affected by the styling. Moving the slider to the left causes the tools to only act near the tip of the hair. Moving the slider to the right causes the styling tools to affect more of the hair's length. With the slider all the way to the right, the entire hair is affected from root to tip.
- Lengthen: Moving the Lengthen dial to the right lengthens the selected guide hairs and vice versa.
- Clear Selection: Clicking the Clear Selection button deselects all selected guide hairs.

To exit this tool, either click the **Close** box on the palette's upper right-hand corner or select another **Editing** tool.



NOTE

THE HAIR EDIT TOOLS DO NOT AFFECT FIGURES OR PROPS IN YOUR SCENE, AND THE DOCUMENT EDITING TOOLS DO NOT AFFECT HAIR.

STEP FOUR: SETTING HAIR DYNAMICS

You've got your hair grown and styled. Now let's add some dynamics to control how the hair will behave during animations:

• *Do Collisions*: Checking the **Do Collisions** box enables collisions detection for the current hair group, which will prevent hairs from penetrating other objects in the scene (for example, long hair will not penetrate a figure's head).

- *Gravity*: The **Gravity** parameter controls the strength of gravitational force acting on the hair
- *Spring Strength*: The **Spring Strength** parameter determines the hair's springiness. Increasing this value increases the springiness. A rubber band is a good example of an object with a high amount of springiness.
- Air Damping: The Air Damping parameter specifies the hair's air resistance that
 occurs whenever the hair is moving through the air. Short hair has a lower resistance
 than long hair. Set this parameter with care as excessive values could cause the hair to
 behave unpredictably.
- Spring Damping: The **Spring Damping** parameter controls the hair's elasticity.
- *Bend Resistance*: The **Bend Resistance** parameter controls the hair's resistance to bending or folding upon itself.
- Position Force: The Position Force parameter is a force that pulls the hair vertices towards their choreographed position. Increasing this value decreases hair dynamics, and vice versa.
- Root Stiffness: The **Root Stiffness** parameter determines how stiff the hair is at its root.
- Root Stiffness Falloff: The Root Stiffness Falloff parameter controls how quickly the hair's root stiffness decreases from root to tip.
- Calculate Dynamics: Clicking the Calculate Dynamics button applies the current dynamic settings to the selected hair group. The number of frames in the keyframed animation determines the calculation length. Populated hairs do not display during calculation.
- *Do Collisions*: Checking the **Do Collisions** checkbox checks surrounding polygons and collides against them during the simulation.

HAIR PROPERTIES & PARAMETERS

To access a hair object's parameters and properties, you must first select the desired hair object. Poser 5 hair has the following properties and parameters:

HAIR PROPERTIES

- *Name*: The **Name** field displays the hair object's name. Enter a new name in this field if you desire.
- Visible: Checking the Visible checkbox makes the hair object visible and vice versa.

- *Visible in Raytracing*: Checking the **Visible in Raytracing** checkbox makes the hair object visible in raytraced reflections, such as if the figure is in front of a mirror. Clearing this checkbox makes the figure not appear in reflections.
- Bend: Checking the Bend checkbox enables bending for the selected hair object and vice versa. Bends are discussed in "Bend Body Parts" on page 111. Remember that selecting Display>Bend Body Parts bends all scene objects and this property only affects the currently selected body part.
- Casts Shadows: Checking the Casts Shadows checkbox forces the selected prop to
 cast a shadow, which will be visible in your scene. Clearing this box means the
 selected hair object casts no shadow.
- Displacement Bounds: The Displacement Bounds property determines the hair object's displacement boundary. Please refer to Chapter 45: "Setting Render Options" on page 340 for more information about displacement bounds.
- Recalculate Dynamics: The **Recalculate Dynamics** option recalculates the dynamics for the current hair object. Please refer to Chapter 45: "Setting Render Options" on page 340 for information about Poser 5 hair dynamics.
- Shading Rate: The **Shading Rate** allows you to specify the desired shading rate for the currently selected hair object. Please refer to Chapter 45: "Setting Render Options" on page 340 for more information about shading rates.

HAIR PARAMETERS

Poser 5 hair has the following parameters:

- Dynamics: The Dynamics parameter sets the amount by which the previously specified dynamics will be played during animations. A setting of 1 means the dynamics will play exactly as specified, a value of 2 means the dynamics will behave as though all values were set to 200% of their current settings, and so forth. Numbers below 1 reduce the amount by which dynamics are applied, and negative numbers apply the dynamics in reverse.
- XYZRotate: The xRotate, yRotate, and zRotate parameter dials rotate the hair object around the selected axis.
- *Scale*: Increases or decreases the size of the hair object in all axes.
- *XYZScale*: The **xScale**, **yScale**, and **zScale** parameter dials increase or decrease the size of the hair object in the selected axis. This is only available for the Wave Zone.
- XYZTran: The xTran, yTran, and zTran parameter dials move the hair object along the selected axis

HAIR COLORS AND MATERIALS

Each Poser 5 hair object in your scene has its own shader tree, which is accessible in the **Material** room, allowing you to color your hair and add interesting effects. Please refer to Part 8: "Materials" on page 305 for more information about the **Material** room. As with any other object, you can select Poser 5 hair by clicking it in the **Document** window, using the **Current Actor** menu, etc.

SAVING DYNAMIC HAIR TO THE LIBRARY PALETTE

You cannot directly save dynamic hair to the **Library** palette. Please refer to "Adding Poser 5 Dynamic Hair to the Library Palette" on page 134 for more information.

Chapter 35: The Cloth Room

oser 5's new **Cloth** room allows you to create realistic cloth that behaves like real fabric. Want to add custom clothing to a figure? Create a tablecloth? How about a flying carpet? Poser 5 makes it easy to create stunning cloth effects. And, you can even apply a **Force Field** for realistic wind effects! The **Cloth** room appears as follows:



In addition to standard UI elements, the **Cloth** room contains the following UI elements:

- *Cloth Simulations (1)*: The **Cloth Simulation** area allows you to create, delete, and set up cloth simulators.
- *Cloth (2)*: The **Cloth** area allows you to convert objects to and from Poser 5 cloth objects and to set up collision detection for your cloth.
- *Cloth Groups (3)*: The **Cloth Groups** area is where you set up dynamic, choreographed, constrained, and decorated cloth groups.
- Dynamics Controls (4): The **Dynamics Controls** group sets up dynamic parameters.

NOTE

THE CLOTH ROOM HELP CONTAINS ADDITIONAL INFORMATION ABOUT IMPORTING PROPS FOR USE AS CLOTH.

CONFORMING VS. DYNAMIC CLOTH

As mentioned elsewhere in this manual, conforming cloth is treated like a Poser 4 figure, including body parts, while dynamic cloth consists of props with dynamic and other behaviors applied to simulate cloth. Poser 5 supports both types of cloth.

Dynamic cloth adds incredible realism to your scenes by causing cloth objects to move as they would in real life. Want a tablecloth to drape over a table? A slip cover over furniture? A flowing skirt to move as a figure walks? Dynamic cloth does all this and more. However, dynamic cloth objects require increased computing resources beyond those of conforming clothing.

Items such as socks, bikinis, tights, etc. don't need to be dynamic since in real life these types of clothing tend to be close-fitting with little to no room for independent motion. Thus, you should use conforming clothing for these situations because it requires fewer computing resources.

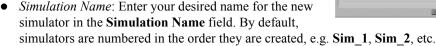
STEP 1: CREATE/SET UP A CLOTH SIMULATOR

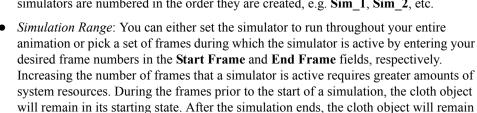
The first step in creating Poser 5 cloth is creating and setting up a cloth simulator. You may have as many simulators as you wish in your scene, however each simulator requires system resources (RAM/CPU cycles) and increases rendering time.

CREATING THE SIMULATOR

To create a simulator, click the **New Simulation** button in the **Cloth Simulation** area of the screen to open the **Simulator Settings** dialog:

The **Simulator Settings** dialog box has the following options:





in its ending state for the rest of your animation. Additionally, the **Steps per frame** parameter dial controls the number of calculation steps per frame in order to smooth



the cloth simulation. Increasing this value improves the simulation results but requires additional computing resources.

- Additional Cloth Collision Options: These checkboxes allow you to toggle the
 following additional collision detection options on and off. By default, collisions are
 calculated using cloth vertices against object polygons.
 - Object Vertex against cloth polygon: Checking the Object Vertex against cloth
 polygon checkbox performs additional collision calculations using object vertices
 and cloth polygons, which helps eliminate tears or holes that may occur when an
 object collides with the cloth. Enabling this option slows the simulation.
 - Object Polygon against cloth polygon: Checking the Object Polygon against cloth polygon checkbox performs additional collision calculations using object polygons and cloth polygons, which helps eliminate tears or holes that may occur when an object collides with the cloth. Enabling this option slows the simulation.
 - *Cloth self-collision*: Checking the **Cloth self collision** checkbox allows a cloth to detect its own polygons during simulation, preventing (for example) a cape or a flag from passing through itself. Enabling this option slows the simulation.
- *Cloth Draping*: The **Cloth Draping** options are:
 - *Drape Frame*: The **Drape Frame** value allows you to set the number of frames per object to settle the cloth.
 - Calculate Drape: Clicking the Calculate Drape button calculates the cloth object's draping behavior and caches the simulation. When calculating the simulation, cached drape settlings are added before beginning cloth simulations, meaning that the settled cloth drape is at frame 1 before the simulation begins.

When you have finished setting up the simulator options, click **OK** to accept your choices and create the simulator or **Cancel** to exit without creating the simulator.

The **Cloth Simulation** area has two other buttons:

- *Delete Simulation*: Simulation results are cached in a file during simulation computation, which Poser automatically loads to save time and resources. Clicking the **Delete Simulation** button deletes the cache contents.
- Simulation Settings: Clicking the **Simulation Settings button** reopens the **Simulation Settings** window, allowing you to alter your cloth simulator settings.

NOTE

THINK OF A CLOTH SIMULATOR AS AN ENVELOPE SUPPLYING BASIC BEHAVIORAL PROPERTIES. YOU CAN HAVE MULTIPLE CLOTH OBJECTS IN EACH SIMULATION AND/OR MULTIPLE SIMULATIONS IN EACH POSER SCENE. EACH CLOTH OBJECT, HOWEVER, CAN ONLY BELONG TO ONE SIMULATION AT A TIME. INCREASING THE NUMBER OF SIMULATIONS IN A SCENE CAN ADD COMPLEXITY AND INTEREST, BUT ALSO REQUIRES INCREASED COMPUTING RESOURCES.

The arrow at the top right of the **Cloth Simulation** area displays the currently selected simulator. Clicking this arrow opens a pull-down menu allowing you to select any of the cloth simulators in your scene for modification.

STEP 2: CLOTH CONTROLS

Now that you've created a simulator, your next step is to add cloth objects. Do this using the **Cloth** controls (area 2 of your screen).

CLOTHIFYING OBJECTS

To turn an object into a Poser 5 cloth object, select it and click the **Clothify** button to open the **Clothify** window, which displays a list of objects eligible to be turned into Poser 5 cloth. Use the **Object to clothify** pull-down menu to select your desired object, and click the **Clothify** button to make the cloth object, or **Cancel** to abort.

To turn a Poser 5 cloth object back into a normal prop, select it and click the **Unclothify** button. The prop will return to its pre-clothified shape, however it will retain its vertex groups and dynamic parameters, meaning you won't have to start from scratch if you reclothify the object later.

You can also create static props and morph targets from cloth objects as described in "Creating Props and Morph Targets" on page 260.

SPECIFYING COLLISION OBJECTS

Once the simulator is created and you've specified the basic parameters and created Poser 5 cloth, the next part of the simulator creation process is defining the objects that will use collision detection (*collision objects*) with the cloth. Each collision object will behave in accordance with the specified collision behaviors when contacting the cloth. Non collision objects will not use collision detection with the cloth



object. To set up collision objects, click the **Collide Against** button to open the **Cloth Collision Objects** window:

The **Cloth Collision Objects** window has the following options:

Add/Remove Collision Objects: Clicking the Add/Remove button opens the
Hierarchy Selection window, which displays a hierarchical list of all the objects in
your scene, including body parts on figures. By default, all scene objects are selected
(selected objects are checked). Add and remove collision objects by checking/clearing
the checkboxes next to each object listing in the window, then click the OK button to
accept your choices or Cancel to abort. Added objects appear in the Current

Collision Object pull-down menu in the **Cloth Collision Objects** window. You can set collision options for each collision object by selecting it using the pull-down menu and specifying the desired settings.

- Collision Offset: The Collision Offset parameter determines the distance between a cloth object and a collision object at which the collision detection calculations begin. Increasing this value can help avoid accidental collisions, especially during animations, because Poser requires a little time to calculate actual collisions. Increasing this value too high can consume extra computing resources. Experimentation will quickly yield the proper value for each simulation. Please see "Collision Offset & Depth" on page 254 for more information.
- Collision Depth: The Collision Depth parameter specifies how close the cloth object must be to a collision object in order for a collision to take place. Increasing this value increases the distance at which the cloth and collision object will collide. This is useful when creating clothing, because the cloth will be kept away from the figure. Increasing this distance makes the cloth appear more static but avoids having body parts penetrate the cloth (such as a leg poking through a skirt). Experimentation will quickly yield the proper value for each simulation. Please see "Collision Offset & Depth" on page 254 for more information.
- Static Friction: The Static Friction parameter sets the coefficient of friction for the collision object. This is similar to the Dynamic Friction parameter except that this is the force required to get a stationary cloth in contact with a solid to start moving. For example, nylon over smooth plastic will have a very low amount of static friction while denim over wood will have a high amount. You can use the Collision Friction checkbox (see below) to use the collision object's value or the simulation's value.
- Dynamic Friction: The **Dynamic Friction** parameter sets the coefficient of friction for the collision object when the object is in motion. Moving a piece of cloth across a surface causes friction. Silk moving over a steel surface has low resistance, while cotton moving over skin or coarse sandpaper over rough wood has high resistance. You can use the **Collision Friction** checkbox (see below) to use the collision object's value or the simulation's value.
- Figure Collision Options: The Figure Collision Options allow you to specify how the current cloth object will behave when it drapes across/collides with a figure. Most clothes dressed on a figure are modeled in such a way so that they will fit on the target figure when the figure is in default pose. However, most simulations including figures and dresses will not use figure's default pose at the start of simulation. In order for the simulation to work correctly, we need to simulate the cloth draping process: given certain frames, the underlying figure will interpolate from default pose to the start pose, and the draping simulation ensures the cloth fits the figure at the start frame:

- Start Draping From Zero Pose: Checking the **Start draping from zero pose** checkbox is used when creating cloth to be used as clothing on a figure. For example, you can convert Poser 4 or previous clothing into Poser 5 cloth objects and drape them over a figure beginning from that figure's default pose. This is useful when applying dynamic cloth to a posed figure.
- Ignore Head Collisions: Checking the Ignore head collisions checkbox causes
 the collision detection not to apply when the cloth collides with a figure's head.
 This is useful for cloth that will not normally touch the head, such as shirts, pants,
 etc.
- *Ignore Hand Collisions*: Checking the **Ignore hand collisions** checkbox causes the collision detection not to apply when the cloth collides with a figure's hands.
- *Ignore Feet Collisions*: Checking the **Ignore feet collisions** checkbox causes the collision detection not to apply when the cloth collides with a figure's feet.



NOTE

ADDING COLLISION OBJECTS INCREASES THE COMPUTING RESOURCES REQUIRED TO CALCULATE CLOTH BEHAVIOR AND DYNAMICS. THUS, YOU SHOULD SPECIFY THE MINIMUM NUMBER OF COLLISION OBJECTS POSSIBLE.

When you have finished setting up the collision objects, click **OK** to accept your choices and create the simulator or **Cancel** to exit without creating the simulator.

The arrow at the top right of the **Cloth** area displays the currently selected cloth object. Clicking this arrow opens a pull-down menu allowing you to select any of the cloth objects in your scene for modification.

COLLISION OFFSET & DEPTH

The Collision depth and Collision offset dials are limited to minimum 0.1cm and maximum 10cm.

Before adjusting these settings, be sure to enable the Object vertex against cloth polygon and Object polygon against cloth polygon options in the Simulator Settings dialog. You may also try reducing the Steps per frame value from its default of 0.2 to as little as 0.005.

A real piece of cloth has two sides (inside & outside) and thickness. A cloth mesh is composed of polygons, which mathematically have zero thickness. The **Collision Depth** and **Collision Offset** dials emulate thickness by "extruding" the cloth inwards by the amount of **Collision depth** units and outward by the amount of **Collision offset** units. Thus, the cloth now has a "thickness" of collision offset + collision depth. Any specified collision object intersecting this volume will be treated as a collision.

STEP 3: CLOTH GROUPS

Objects being converted to cloth must have single-sided, connected (welded) polygons without caps. Once you've created a cloth simulator and cloth object, the next step is to create cloth groups (groups of vertices) within each object, thus subdividing the cloth object into regions (in the same manner as, for example, dividing a body part into different material groups). The exception is decorative objects such as buttons, belt buckles, etc., which should be separate (non-welded) objects. Cloth groups use vertices instead of polygons, meaning that the **Group Editor** palette operates in vertex mode in the **Cloth** room (as opposed to polygons). You can convert polygon groups to vertex groups in the **Cloth** room by clicking the **Add Group** button to open a pop-up list of existing groups. Group names with the suffix [P] are polygon groups. Selecting polygon groups includes all vertices of the affected polygons. There are four types of groups available for cloth objects:

- Dynamic: Dynamic cloth groups are simulated using the Dynamics Controls (see following step), which determine how the cloth will move, fold, drape, etc. as it moves (gravity, wind force, etc.) or as an underlying figure/prop moves (such as a ball underneath a carpet or a figure underneath clothing). You can create multiple dynamic groups for each clothing object, and each dynamic group can have different dynamics settings. You cannot directly animate dynamic groups by using regular keyframing. By default, cloth objects are created with one dynamic group (_default_) comprising the entire object.
- Choreographed: Each cloth object can have one choreographed group. This group is automatically created with empty contents when you clothify an object.
 Choreographed vertices can follow keyframed movement or be excluded from the cloth simulation.
- Constrained: Each cloth object can have one constrained group, which is automatically created with empty contents when you clothify an object. Constrained vertices "stick" to corresponding polygon faces of the underlying figure. This makes constrained groups useful for complex cloth regions that follow the movement of the underlying body part. For example, you want a belt on a skirt to follow the waist's movements. Not placing the belt's vertices into the constrained group causes the cloth simulator to make the cloth fall (due to gravity) until the skirt hits the body and remains where it stopped. This does not guarantee that the belt will stay over the waist. Further, if the belt contains complex geometry, the simulation will slow down. Constraining the belt vertices keeps the belt at the waist and reduces simulation time.
- Decorations: Each cloth object can have two decorations groups (one "soft" and one
 "rigid". These groups are automatically created with empty contents when you clothify
 an object. The decoration groups animate, moving as underlying cloth moves while
 staying over the underlying body. Good candidates for decoration vertices include tiny

or thin polygons such as pockets, belt loops, buttons, a knot in a tie, etc. These are usually items sitting on another cloth group and have only passive movement, either following underlying body movement or other parts of the cloth. Because of their small size and/or irregularity, these can cause issues if not placed into this group. The decorations group favors accessories that are geometrically separated from the cloth mesh object. There are two reasons for this:

- If the decorations group shares vertices with the cloth mesh, the decorations
 vertices will not be simulated. This causes the simulator to treat these areas as
 boundaries, resulting in increased movement of these areas compared to
 neighboring regions of the cloth.
- Welding accessories to the cloth mesh often creates a complex mesh where one edge is shared by more than two polygons.

The two types of decoration groups are:

- *Soft:* Objects in the soft decorated group move with the underlying cloth and can flex as the cloth flexes. A good example would be a belt loop.
- *Rigid:* Objects in the rigid decorated group move with the underlying cloth but do not bend or flex. Good examples of rigid decoration objects are buttons or the knot in a tie.

If you want the current cloth object to consist of a single dynamic group, you're done. Continue on to Step 4 (below) to set your dynamics. If, however, you want to create multiple groups, you can do so using the following buttons:

New Dynamic Group: Clicking the New Dynamic Group button opens the New Dynamic Vertex Group Name box. Enter your desired name for the new dynamic group and click OK to proceed or Cancel to abort. By default, your entire cloth object consists of a dynamic group called _default_. Any vertices that are not part of other dynamic, constrained, choreographed, or decorated groups when you're done creating/editing groups will remain in the _default_ group.

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NOTE

SINCE EACH CLOTH OBJECT CAN ONLY HAVE ONE CHOREOGRAPHED, CONSTRAINED, AND/OR ONE EACH SOFT & HARD DECORATED GROUPS, YOU CAN ONLY ASSIGN NAMES TO DYNAMIC GROUPS.

- *Delete Dynamic Group*: Clicking the **Delete Dynamic Group** button deletes the currently selected dynamic group.
- Edit Dynamic Group: Clicking the Edit Dynamic Group button opens the Group
 Editor palette, which allows you to add or remove vertices from the currently selected
 group. Please refer to "The Grouping Tool & Group Editor Palette" on page 209 for
 information on using the Group Editor palette.

- Edit Choreographed Group: Clicking the Edit Choreographed Group button opens the Group Editor palette, which allows you to add or remove vertices from the currently selected choreographed group (_choreographed_). Please refer to "The Grouping Tool & Group Editor Palette" on page 209 for information on using the Group Editor palette.
- Edit Constrained Group: Clicking the Edit Constrained Group button opens the Group Editor palette, which allows you to add or remove vertices from the currently selected constrained group (_constrained_). Please refer to "The Grouping Tool & Group Editor Palette" on page 209 for information on using the Group Editor palette.
- Edit Soft Decorative Group: Clicking the Edit Soft Decorative Group button opens
 the Group Editor palette, which allows you to add or remove vertices from the
 currently selected soft decoration group (_softDecorated_). Please refer to "The
 Grouping Tool & Group Editor Palette" on page 209 for information on using the
 Group Editor palette.
- Edit Rigid Decorative Group: Clicking the Edit Rigid Decorative Group button
 opens the Group Editor palette, which allows you to add or remove vertices from the
 currently selected rigid decoration group (_rigidDecorated_). Please refer to "The
 Grouping Tool & Group Editor Palette" on page 209 for information on using the
 Group Editor palette.

Keep the following in mind when working with cloth groups:

- Adding vertices to the current group removes them from other groups.
- Removing vertices from the default group adds them to the choreographed group.
- Removing vertices from any group adds them to the default group.

The arrow at the top right of the **Cloth** area displays the currently selected cloth group within the currently selected cloth object. Clicking this arrow opens a pull-down menu allowing you to select any of the cloth groups in the current cloth object for modification. To work on a different cloth object, use the pull-down menu available in the **Cloth** area (Step 2).

STEP 4: CLOTH DYNAMICS CONTROLS

Once you've created and edited cloth groups, the next step is to define dynamic properties for each of the dynamic groups in the currently selected cloth object. Dynamic properties control how the dynamic groups will move and behave when the dynamics are calculated. The **Cloth Dynamics Controls** have the following buttons:

- Calculate Simulation: Clicking the Calculate Simulation button takes into account all
 of the simulation, object, group, and dynamics settings included in the current
 simulation and calculates the behavior of all of the cloth objects in the simulation for
 all of the specified frames. Please see above for information on specifying cloth
 simulation frame ranges.
- *Play Simulation*: Clicking the **Play simulation** button plays the currently selected simulation, allowing you to see how the cloth behaves over time. If you don't like the current behavior, you can alter any of the **Cloth** room settings and try again.
- Clear Simulation: Clicking the Clear Simulation button empties all stored data in the
 current simulation (such as altering collision settings, adding/removing objects, editing
 groups, changing dynamics control settings, etc.), allowing you to specify new
 dynamics, thus modifying how the cloth object behaves. If you clear the simulation
 and play the animation, what you are seeing is simply keyframe animation with no
 simulation being calculated.

The **Cloth** room includes the following dynamics controls:

- Fold Resistance: The Fold Resistance parameter specifies the resistance to out-ofplane bending (folding). Increasing this value lessens the cloth's ability to bend. Soft fabrics like silk fold very easily, so a low value (1.0) is appropriate. By contrast, hard leather tends not to fold, so a higher value would be appropriate.
- Shear Resistance: The **Shear Resistance** parameter controls the cloth's resistance to in-plane shearing, or side-to-side bending. A low shearing resistance allows the cloth triangles (caused, for example, when the corner of a rectangular piece of cloth is draped over a surface) to collapse in on themselves, so a value of 50.0 or thereabouts is appropriate. Wool has a low shear resistance while leather has a very high amount.
- Stretch Resistance: The Stretch Resistance parameter specifies the cloth's resistance to in-plane bending (stretching). Most cloth is highly resistant to stretching, with some exceptions like spandex, which is more elastic. The default of 50.0 gives a fairly high resistance to stretching suitable for cotton-type materials. A lower value might be suitable for stretchy materials such as Lycra.
- Stretch Damping: The **Stretch Damping** parameter controls the internal energy loss caused by the motion of the cloth fibers against each other. Higher damping causes the cloth to lose its motion more quickly. Excessively high values can make the cloth look like it is moving in syrup, and extremely low values can cause the cloth to behave irregularly. A value of 0.01 is suitable for more uses.
- Cloth Density: The Cloth Density parameter specifies the mass-per-unit area density of the cloth in grams per square centimeter. If you take a 1cm x 1cm piece of cloth and weigh it, the weight in grams is what this parameter should be set to. For example, silk is very light while leather is very heavy by comparison.

- Cloth Self Friction: The Cloth Self Friction parameter sets the coefficient of friction between one part of the cloth and another, or how easily the cloth moves over itself. Higher values prevent the cloth from sliding over itself. For example, rayon has a very low amount of self-friction while denim has a fairly high amount.
- Static Friction: The **Static Friction** parameter sets the amount of friction between the cloth and solid objects. This is similar to the **Dynamic Friction** parameter except that this is the force required to get a stationary cloth in contact with a solid to start moving. For example, nylon over smooth plastic will have a very low amount of static friction while denim over wood will have a high amount.
- Dynamic Friction: The **Dynamic Friction** parameter sets the coefficient of friction between the cloth and solid objects when the cloth is in motion. Moving a piece of cloth across a surface causes friction. Silk moving over a steel surface has low resistance, while cotton moving over skin or coarse sandpaper over rough wood has high resistance.
- Air Damping: The Air Damping parameter specifies the cloth's air resistance that
 occurs whenever the cloth is moving through the air. Tightly woven cloth has a higher
 resistance than loosely woven fabric. Set this parameter with care as excessive values
 could cause the cloth to behave unpredictably.
- Collision Friction: Checking the Collision Friction checkbox ignores the cloth object's Static Friction and Dynamic Friction parameters, instead using those same parameters belonging to the collision objects themselves. Clearing this checkbox applies the cloth dynamic settings.
- Reset: Clicking the **Reset** button resets all **Cloth** room dynamics.

The label at the top right of the **Cloth Dynamics Controls** area displays the currently selected cloth object. To change the object, use the pull-down menu in the **Cloth** area (Step 2).

CLOTH PARAMETERS & PROPERTIES

To access a cloth object's parameters and properties, you must first select the desired cloth object.

- Poser 5 cloth objects have the same properties as props. Please refer to "Prop Properties" on page 193 for information about prop properties.
- Poser 5 cloth has the same parameters as Poser 5 hair objects. Please refer to "Hair Parameters" on page 247 for information about hair object parameters.

SAVING DYNAMIC CLOTH TO THE LIBRARY PALETTE

Please refer to "Adding Poser 5 Dynamic Cloth to the Library Palette" on page 133 for mor information on saving dynamic clothing to the **Library** palette.

CREATING PROPS AND MORPH TARGETS

You can convert cloth objects into static props or morph targets for use in scenes where a cloth-like look is desired without the need for a dynamic cloth object. For example, you could create a tablecloth using dynamic cloth and a table prop then convert the dynamic cloth object into a static prop for use in future scenes. If you did this, you would only need to include table legs where visible between the floor and the edge of the cloth, thereby giving you full realism while reducing your scene's polygon count. How about a ghost created from a sheet draped over a figure, converted to a static prop, then made poseable in the **Setup** room? The possibilities are almost endless!

To create a prop:

- 1 Clothify an object as described above.
- **2** Use the **Animation** controls to move to your desired frame (the cloth shape changes with each frame as the simulation plays).
- 3 Use the **Grouping** tool to create a new prop. Please refer to "The Grouping Tool & Group Editor Palette" on page 209 for information on using the **Grouping** tool and the **Group Editor** palette.

Creating a prop in this method preserves the shape of the original cloth object at the time you created the prop but removes all transformation (position, rotation, and scale). For example, if you stretch a square into a rectangle, the new prop will appear as a square deformed by the cloth simulation. In this case, reapplying the transformations applied to the original clothified object restores the original appearance to the static prop.

To create a morph target, follow steps 1 & 2 above, then spawn a morph target as you would for any other prop/body part as described in "Creating and Using Morph Targets" on page 206. You can then apply the morph target to a prop.



NOTE

MORPH TARGETS CREATED IN THIS MANNER WORK IN EXACTLY THE SAME MANNER AS OTHER MORPH TARGETS, MEANING THAT ALL DYNAMIC MOTION IS LOST.

You can also export clothified props just like you would any other scene object. Exported cloth objects become static mesh objects in your chosen export format. To do this, follow steps 1 & 2 above, then export the object as described in "Export" on page 88.

Chapter 36: The Setup Room



oser 5 includes the graphical **Setup** room, which debuted with the release of the Pro Pack addition for Poser 4. This room allows you to create/modify Poser figures in a completely graphical environment.

TEXT-BASED VS. GRAPHICAL FIGURE CREATION

Before the Pro Pack add-in for Poser 4, figure creators used a text-based method of converting OBJ models that had been pre-grouped into specifically named body parts. Poser 5 still supports this method of figure creation, however the graphical **Setup** room can eliminate 90% of your figure creation time.

Figure creators wishing to create Poser figures using the old method should refer to the electronic **Poser 3 Advanced Techniques** document, which covers the old figure creation method in detail. This document is in Adobe Acrobat (PDF) format and is included on your Poser 5 CD in the **Documentation** folder.

ABOUT THE SETUP ROOM

The **Setup** room is one of Poser 5's most powerful features. It allows you to modify existing props or figures, or even create your own for use with Poser. A figure's mere appearance has no effect on how it functions within Poser; as in reality, articulation and animation depend on two things:

- The figure's underlying *skeleton* (called a bone structure). The bone structure determines the hierarchy and location of joints.
- The manner in which the figure's polygons (the rough equivalent of skin and muscles) are *grouped* or attached to the bones.

NOTE

FIGURES DO NOT HAVE TO BE ANTHROPOMORPHIC (HUMAN-SHAPED).

There are three ways to make figures:

- using hierarchy files combined with an external model
- using the hierarchy palette to combine props together to form a figure
- importing a geometry and using the Setup room

The **Setup** room allows you to create and set joints, hierarchies, groups, and IK chains.



NOTE

THE SETUP ROOM IS AN EXTREMELY POWERFUL TOOL THAT CAN PERMANENTLY MODIFY YOUR FIGURES, INCLUDING THOSE ORIGINALLY INCLUDED WITH POSER 5. ALWAYS SAVE YOUR FIGURES TO THE LIBRARY PALETTE TO PREVENT INADVERTENTLY DAMAGING ONE OF YOUR EXISTING FIGURES AND TO ENABLE YOU TO RETURN TO A PREVIOUS FIGURE SETUP IF YOU CHOOSE TO. THIS WILL ALSO HELP YOU KEEP YOUR FIGURES ORGANIZED AND EASY TO FIND.



NOTE

AVOID LOSING YOUR WORK! BE SURE TO SAVE YOUR WORK FREQUENTLY AND POSSIBLY TO DIFFERENT FILES IN CASE YOU RUN INTO PROBLEMS.

THE FIGURE SETUP PROCESS

In general, the **Setup** room figure creation/modification process is as follows:

- 1 Create the geometry for your new figure in your favorite 3D modeling application and import it as a prop using the File>Import command. Once the geometry is complete, enter the Setup room.
- **2** Create and/or modify your figure's bone structure or skeleton. Like a real skeleton, your figure's skeleton performs numerous critical functions. You can import a skeleton from a similar figure or create your figure's skeleton from scratch.
- **3** Position the skeleton and joints to match your figure. This step is critical to ensure that your figure bends as accurately as possible.
- **4** "Put meat on the bones" by grouping the various portions of your figure and assigning bones to those groups.
- **5** Fine-tune the figure's joints, and then exit the **Setup** room to test your new figure and complete the figure creation/modification process.
- 6 Assign IK chains using the Hierarchy Editor, set favored IK angles and joint limits, and memorize this information.
- 7 Readjust your figure's joints if necessary, and then save your new figure to the Library palette.

The actual process involves a greater number of detailed steps, each of which is discussed in this chapter.



NOTE

EXITING THE SETUP ROOM DURING THE FIGURE CREATION PROCESS MAY CAUSE YOU TO LOSE SOME RECENT CHANGES. A WARNING WILL APPEAR IF EXITING THE SETUP ROOM WILL CAUSE DATA LOSS.

THE SETUP ROOM INTERFACE

The **Setup** room interface is designed to be virtually identical to the **Pose** room interface and functionality, albeit with a few minor changes:

- You cannot pose the figure you are creating while in the Setup room. Instead, the
 figure's bone structure (if any) appears in the document window, allowing you to
 position and adjust each bone.
- While in the Setup room, loading a figure from the Library palette loads the selected figure's bone system and applies it to the current object. Geometry is altered when switching between the Pose and Setup rooms. While in the Pose room, each body part is treated as a separate geometry object. While in the Setup room, all of the body parts are combined into a single object for easier grouping and welding operations. Clicking the Create New Figure button in the Library palette loads the selected figure's bone structure for modification and use on the figure you are creating or modifying. You can also double-click the figure to load its bones.

The following sections explain the figure setup process in detail.

STEP 1: IMPORTING/ARRANGING GEOMETRIES

Begin the figure creation process by inserting the prop(s) you wish to assemble into a figure. Do this by adding props to your scene using the **Library** palette and/or by importing geometry objects (static mesh objects or props). If using more than one prop, be sure to arrange your props in their final positions before beginning the figure conversion process. Please refer to "Import" on page 83 for information on importing geometries into Poser.

STEP 2: LOADING AND/OR CREATING BONE STRUCTURES

This section describes what bone structures are, what they do, and how to create/modify a bone structure for your imported geometry or figure.

ABOUT BONE STRUCTURES

Each Poser figure includes hierarchy and joint information that together determine how the figure behaves when posed. The **Setup** room expresses this information as a bone structure or skeleton that is tailored to each figure. Skeletons are a critical part of your figures because they define where and how the figure bends, just as your own bones define how and where you bend. Skeletons provide the following information for each figure:

 Defining the figure's hierarchy: The skeleton defines the parent/child relationships in your figure. Please refer to "Hierarchy" on page 35 for information about hierarchies within Poser 5.

- *Locating joints*: Just as with your own skeleton, your figure will only bend at joints, which are the places where bone ends meet.
- Limiting figure movement: By now, you are keenly aware that each joint in your body
 has a limited range of motion under normal circumstances. For example, your elbow
 only bends in one direction and cannot flex beyond straightening your arm out, your
 wrist can move in any direction within a narrow cone, and so forth. You can define
 limits for each of your figure's joints. These limits can prevent you from creating
 unnatural looking poses, one part of the figure crossing through another part, etc.
- Figure resolution: Early Poser figures allowed a limited range of flexibility. For example, the Poser 2 figure Default Guy allows you to bend the shoulder, arm, and wrist. You cannot bend the palm or fingers. By contrast, the Poser 4
 Casual Man figure lets you adjust the precise



position of each finger and Poser 5 figures also include poseable toes. The graphic on the left shows the **Default Guy** right hand and underlying bone structure, and the graphic on the right shows the **Casual Man** right hand and bone structure:

Default Guy has only one bone to define his entire hand, while **Casual Man** has a far more realistic bone structure complete with palm and fully articulated finger joints. The more bones your figure's skeleton has, the greater degree of flexibility (resolution) it will have.



NOTE

BONES APPEAR AS LIGHT GRAY TRIANGLES WITH THE BASES POINTING TOWARDS THEIR PARENTS AND THE TIPS POINTING TOWARDS THE CHILDREN. SELECTED BONES APPEAR RED.

ABOUT CREATING A BONE SYSTEM

There are two basic scenarios for creating or editing a bone system:

 Modifying an existing figure: If you have a figure loaded when you enter the Setup room, the current figure's normal bone system will automatically be loaded, and the separate body parts will be combined into a single object for easier manipulation while in the Setup room.



• Creating a new figure: You enter the **Setup** room with a geometry (prop) selected. You can then load a bone structure from an existing figure by selecting the desired figure in the **Library** palette and clicking the **Change Figure**

button. Or, you can use the **Bone** tool to create a fully customized bone system. You can also combine these methods by loading a bone structure and using the **Bone** tool to make modifications. The **Bone** tool appears in the **Setup** room workspace with the other **Editing** tools.

The following sections discuss selecting a bone system for your geometry and using the Bone tool.

SELECTING THE PROPER STRUCTURE

The quickest way to define a bone structure for your new figure is to load the bone structure of a figure that resembles your current object as closely as possible. For example, the simple geometry shown below does not require a high-resolution bone structure, since it does not have fingers or other detailed features. If you are creating an animal figure, you should probably load an animal figure's bone structure. The basic idea is to minimize the amount of work you have to do.



In the above graphic, the positions of the bones do not match the corresponding portions of the geometry. Positioning the bones as discussed in further detail below will rectify this situation.

INSERTING & DELETING BONES

The **Bone** tool lets you create bones, either within a bone structure or from scratch. To create a bone, click at the point where you want the bone to begin (base) and drag to where you want the end (tip). You can fine-tune the bone's position and parameters later, so you do not need to worry too much about being perfect.

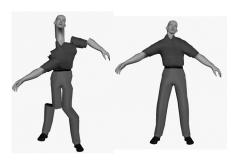
New bones are created as children of the most recently selected or created bone. You can select a previously created bone (or any bone in the skeleton) and add new child bones by single-clicking the bone you wish to use as a parent and following the procedure in the previous paragraph. The graphic shows a new bone inserted between the hip (parent) and thigh (child).



To delete a bone, simply select it and press [DEL].

POSITIONING THE BONES

Now that your bone structure is built to match your geometry, the next step is to align the bones with the geometry. Unless you have already built a bone structure for a figure and have simply tweaked the geometry slightly, the chances are that the default bone positions will not line up with the geometry, as shown in the graphic on the right. The figure on the left illustrates the effects of having a bone structure that is not positioned according to the



geometry, while the figure on the right demonstrates proper figure behavior.

You can position bones using any of three methods:

- Select one of the available Editing tools (Rotate, Twist, Translate/Pull, Translate In/Out, or Scale) and position the bones using the mouse.
- Use the **Joint Editor** palette to precisely position joints.
- Use the **Symmetry** control (see "Symmetry" on page 100) to position the bones on the opposite side of the figure.

You will probably use a combination of all three methods as you work to position the bones on your geometry. The following sections discuss each of the three methods in detail.

With the Mouse

You can position bones with the mouse in one of two ways:

- Selecting the desired Editing tool followed by clicking in the middle of a bone uses
 the selected tool to modify the position of both the selected bone, all of its children,
 and all joint settings for both the current bone and all children (including spherical
 falloff zones). Please refer to "Spherical Falloff Zones" on page 224 for an explanation
 of spherical falloff zones. This is the preferred method for roughly aligning bones with
 the geometry.
- Clicking near the beginning or end of a selected bone allows you to translate just the selected endpoint regardless of the selected Editing tool. The mouse pointer changes to a bull's eye when you select a bone and place the pointer near the beginning or end of the selected bone, as shown



When editing bone endpoints, joint settings such as spherical falloff zones are not adjusted. Please refer to "Spherical Falloff Zones" on page 224 for an explanation of

spherical falloff zones. This method is good for making minor adjustments once the bones have been placed near their final positions.



NOTE

WHEN POSITIONING BONES USING THE MOUSE, YOU SHOULD USE ONE OF THE ORTHOGONAL CAMERAS (LEFT, RIGHT, TOP, BOTTOM, FRONT, BACK) TO ENSURE THAT YOU ARE ONLY POSITIONING THEM IN ONE PLANE AT A TIME. ALTERNATIVELY, YOU CAN USE THE DOCUMENT WINDOW'S MULTIPLE PANE VIEW TO POSITION THE BONES IN 3D SPACE.

With the Joint Editor Palette

In addition to (or instead of) using the mouse to position bones, you can use the Joint
Parameters palette by selecting the bone you wish to edit. Please refer to "The Joint
Editor Palette" on page 219 for complete information on using the Joint Editor
palette.

Using Symmetry

Assuming your imported geometry is symmetrical, you can drastically reduce the amount of time it takes for you to position bones by positioning only those bones on half of the geometry and then using the **Symmetry** tool to automatically position the rest of the bones. Please refer to "Symmetry" on page 100 for information on using the **Symmetry** tool.



NOTE

THE SYMMETRY FUNCTIONS INVOLVING ARMS, LEGS, AND THE TORSO ONLY WORK WHEN THE BONES IN THOSE REGIONS HAVE BEEN NAMED AND GROUPED SO AS TO BELONG TO THE SELECTED AREAS OF THE GEOMETRY. IF YOU HAVE LOADED AN EXISTING BONE STRUCTURE FOR USE WITH YOUR CURRENT GEOMETRY, THE BONES WILL ALREADY BE NAMED FOR YOU.

When you select a symmetry function, a dialog box appears asking if you wish to copy the joint zone setup as well. Click **Yes** to apply the symmetry to the bone structure.

STEP 3: NAMING THE BONES

Double-clicking a bone opens its **Properties** palette:

The **Properties** palette allows you to modify the following settings:

• Internal Name: You can modify a bone's internal name while in the Setup room by entering your desired name in the Internal Name field. Poser uses internal names to find a group of polygons with a matching name. It is best to begin with an existing bone structure when creating figures so that you can start the process with a set of bones that already have standard internal names. You can, of course, create figures using custom internal and group names; however, this makes the process more difficult since you need to track the internal names and the portions of the skeleton and geometry they correspond to.

Name: The Name field is where you input your desired external name, which you use
for your own reference. You can use any name you wish. This can be helpful if, for
example, you are working in different languages.



ANY OTHER DISPLAYED OPTIONS DO NOT AFFECT BONES AND SHOULD BE IGNORED.

STEP 4: ATTACHING BONES TO GEOMETRY PARTS

This is the part of the **Setup** room figure creation process where you associate (group) bones with portions of the geometry, giving your geometry the ability to bend and move. It is important that you take great care during this step to ensure that your new figure will be able to bend and, just as importantly, bend correctly.

Your geometry consists of many polygons that together form its overall shape. At this point, Poser knows the skeleton, including its joints, parents, and children. It knows that moving one bone will affect its children and may affect the parent, and it knows how each joint should behave. However, Poser does not yet know which polygons need to move for any given movement of the skeleton. To enable your geometry to bend, you must combine logical subsets of the polygons that make up your geometry and group each subset with the appropriate bone.

Where you need to be careful is in being sure that the correct polygons are assigned to the correct bones, that is, the right arm should move when you move the right shoulder bone, and so forth. It is possible to assign any polygon to any bone. You could have polygons in the leg region grouped with a bone in the neck, for example. You could even have random polygons scattered around the geometry grouped with any bone in the skeleton. While you may wish to do this for experimental or artistic purposes, this manual will assume that you are trying to create a realistic figure from the geometry and skeleton.

Now that the skeleton is complete, it is appropriate to think of each bone as a body part. For each such body part, an identically named group of polygons on the geometry must exist. Each of the joints will cause the grouped polygons to bend where parent and child groups touch. Poser knows which polygons to bend by matching the internal name of the bone being moved with the internal name of a group of polygons.



IF YOU ARE ADJUSTING AN EXISTING FIGURE IN THE SETUP ROOM, THE NECESSARY BODY GROUPS WILL ALREADY EXIST AND MAY ALREADY BE PROPERLY SET UP.

To create groups, select the **Grouping** tool, which opens the **Group Editor** palette.

REQUIREMENTS

As discussed in "Importing 3D Objects" on page 86, your imported geometry cannot have overlapping or duplicated polygons and, if you have created groups when you built the geometry, the polygons in the geometry cannot belong to more than one group at a time.

The **Setup** room allows you to create figures from a single geometry consisting of ungrouped polygons. This is the recommended method.

GROUPING

Please refer to "The Grouping Tool & Group Editor Palette" on page 209 for information about using the **Grouping** tool and the **Group Editor** palette.

STEP 5: ASSIGNING ROTATION ORDERS

Your bones are positioned and your groups created. Your once-static geometry has come alive! You can perform this step when you are first creating and defining joints; however, it appears here in the figure creation process so that you can leave the **Setup** room to see how changes to the rotation order affect your figure's motion and appearance. Please refer to "Rotation Orders" on page 224 for information on setting joint rotation orders.

STEP 6: FINE-TUNING JOINTS

At this point, you may want to go back and fine-tune some or all of your joints so as to make your figure behave exactly as you want it to. Do this using the **Bone** tool and/or **Joint Editor** palette as discussed in "The Joint Editor Palette" on page 219.

Remember that joint bending only occurs between an object and its parent. The bends do not progress to other children or above the parent in the hierarchy. Be sure to keep this in mind as you tweak the joints. Also, if you have body parts which are symmetrical left to right, and are named using the convention of starting with "r" for right-side body parts and "l" for left-side body parts, you can automatically copy joint zones by using one of the symmetry commands as discussed in "Symmetry" on page 100. This can save time and effort when tweaking joints, and ensures that one side of your figure will behave exactly like the other part.

STEP 7: TESTING YOUR FIGURE

This is the moment you have been working towards. At this point, return to the **Pose** room and put your new figure through its paces. You can use multiple view panes and the **Camera** controls to see your figure from all angles to ensure that it is performing as expected. If you need to make any adjustments, you can always return to the **Setup** room

to further refine your figure. Congratulations: Your once-static geometry prop is now a moveable Poser figure!

STEP 8: Assigning IK Chains

In order for you to be able to use IK on your new figure, you need to create at least one inverse kinematics chain using the **Hierarchy Editor**, as discussed in "Using the Hierarchy Editor" on page 215.



NOTE

YOU CREATED THE PARENT/CHILD HIERARCHIES IN YOUR FIGURE WHEN YOU CREATED AND EDITED THE BONE STRUCTURE. THE HIERARCHY EDITOR WILL PERFORM ALL OF ITS FUNCTIONS ON YOUR NEW FIGURE.

STEP 8: INVERSE KINEMATICS

If you wish to add IK capabilities to your figure, you need to add IK chains as discussed in "Creating IK Chains" on page 218.

STEP 9: SETTING & MEMORIZING FAVORED IK ANGLES

Poser's inverse kinematics works based on the current rotations of a body part. Proper IK angles must be preset in the figure in order for IK to work predictably. The original joint rotation values help the IK logic know which way to bend some of the joints and will affect how the IK works as the figure moves. Setting and memorizing favored IK angles is therefore important.

Before memorizing the default positions for all of the body parts, you should bend the parts used in IK chains so that they favor their natural bending directions. For example, a standing person's thighs bend slightly forward and out from vertical, and her or his shins bend slightly back and in.

To set favored IK angles:

- **1** Disable the affected IK chain(s).
- **2** Position each body part in the chain by slightly bending it in the direction it would bend under IK by a few degrees.
- 3 Save the angles by memorizing the body parts or the entire figure by selecting Edit>Memorize>Element or Edit>Memorize>Figure, respectively.
- **4** Enable the affected IK chain(s).

Please refer to "Inverse Kinematics (IK)" on page 168 for more information about Poser 5's Inverse Kinematics features

STEP 10: SETTING JOINT LIMITS

As you are well aware, each of your body's joints has limits on its motion. For example, you cannot extend your arm at the elbow beyond the point where your arm is straight. Further, it is not possible for one of your body parts to "collide" or intrude on another part. You cannot simply put your hand through your chest. Poser allows you to set limits for each joint to mimic these natural limits and help prevent you from creating unnatural poses. Additionally, you can create limits on the amount that a body part can be scaled and tapered, and you may have other options available depending on the body part in question.

To set limits for a body part, simply select the desired body part, then double-click any of the parameter dials in the **Parameters** palette to open an **Edit Parameter** dialog box, where you can set limits for the selected parameter. Please refer to "Editing Parameter Dials" on page 182 for information on setting parameter limits.

STEP 11: FINALIZING YOUR NEW FIGURE

At this point, you have created and fine-tuned a new Poser figure. From a technical standpoint, the figure creation process is complete. If you wish, you can add materials and textures, make additional adjustments, and do anything you need to do in order to consider the project complete.

STEP 12: MEMORIZING AND SAVING YOUR NEW FIGURE

You have hopefully been saving your figure throughout the creation process. Now that it is complete, be sure to memorize the figure by selecting **Edit>Memorize>Figure**. Also, be sure to save your figure in the **Library** palette. You can save your figure in an existing subcategory or create your own.

DELETING INTERIM FIGURES

If you have saved draft figures as recommended during the figure creation process, you may want to delete these draft figures to avoid wasting hard drive space. To delete an item, select it in the **Library** palette and click the **Delete from Library** icon (-) at the bottom of the palette.

TROUBLESHOOTING

When creating a new figure from an existing figure, there may be existing parameters that no longer function properly with the new geometry. For instance, morph targets that used to work on the old figure may do nothing if you change the geometry. You can delete these channels in the **Hierarchy Editor** by checking the **Show Parameters** box, selecting the parameters to delete, and pressing [DEL].

Chapter 37: Animating with Poser

oser 5 allows you to animate figures and props, giving life to your scenes. You can use your work in multimedia projects, on the Web, and in videos by exporting rendered results to either Windows AVI or Macintosh QuickTime format. AVI movies are rendered in 32-bit color, which by default includes an alpha channel (mask) for each frame. This can aid in compositing the animation with other movie footage. QuickTime movies can also contain an Alpha channel if set to render at millions of colors.

Exported animations can be opened and edited in post-production tools such as Adobe Premiere and Adobe After Effects, where you can edit sequences and add special effects. While you can create long animations, we recommend creating a series of shorter animations and piecing your scenes together using an editing application. Real movies follow this guideline as well: Each time a camera angle changes, you're seeing a new take of a scene or a different scene altogether. This includes cases such as conversations, where the camera is switching back and forth between the participants. Poser includes many powerful tools designed to help you create stunningly realistic animations. Animation is easy to learn but hard to master. Start with short simple movies and work up as your skills improve. The results may surprise you!

ABOUT ANIMATIONS

At its simplest, the animation process is as follows:

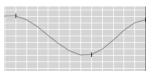
- 1 Decide how many frames you want in your animation. One way to do this is to decide how long your animation will be in seconds, then multiply that by the your desired number of frames per second (*frame rate*).
- **2** Create a starting pose.
- **3** Select your next keyframe.
- **4** Create a new pose.
- **5** Repeat Steps 2 and 3 until your animation is complete.

Poser uses a technique called *keyframe animation* to simulate motion based on a series of still poses. You set up a series of poses at different points in time. These are the *keyframes*. Poser fills in the gaps, creating the illusion of motion. This keeps you from having to move your figure each time you want to create a motion, such as is done in *stop-frame animation*, where each frame is individually positioned (many "Claymation" movies use stop-frame animation).

INTERPOLATION

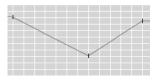
The process of filling in the blanks between keyframes is called *interpolation*, and the frames between keyframes are called *tweens*. Interpolation determines how intermediate poses are created. Please refer to "Splines" on page 32 for a general discussion about interpolation. Poser supports four types of interpolation, which allows you to make subtle changes to your animations. Interpolation settings apply to a range of frames, meaning that you can use different interpolation methods at different intervals in your animation. The four types of interpolation available for Poser animations are:

Spline: Places tween poses and settings on a curve.
 Motion begins at one keyframe, accelerates to full velocity, and gradually slows down as it approaches the next keyframe. For example, if the first keyframe has an arm by a figure's side and the second one has it raised, the

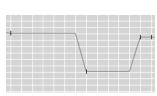


arm will begin moving slowly, accelerate to a constant velocity, and slow as it reaches the second keyframe. This is not to say that the movement will be fast; actual speed of motion depends on the amount of change between keyframes and the number of tween frames. In our above example, having the second keyframe 5 frames from the first would make a very rapid motion, while having 100 frames would make a very slow motion. The key thing to remember is that this type of animation resembles a smooth curve and is normally the most realistic.

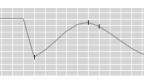
 Linear: Takes the two keyframes and divides the motion between them equally with no acceleration or deceleration of the moving items. In the above example, the arm would move at a constant velocity from keyframe to keyframe. If you created a third keyframe with the arm back down, the change direction at the second keyframe would be abrupt.



Constant: This has no intermediate poses. If you set a
series of poses with different keyframes, the first pose
will be maintained until the second keyframe, at which
point it will instantly change to the second pose, which
will be maintained until the third keyframe, and so on.



 Break Spline: Stops interpolation at the selected point so you can begin a new interpolation style. This is useful for blending different interpolation styles. For example, a bouncing ball moves in a smooth arc until it hits the floor, at which point it undergoes an abrupt change in



direction and speed. This is one scenario where changing interpolation styles can aid your animating work.

By default, your animation moves over the **Document** window's background. You can have still or animated backgrounds in your scenes. Please refer to "Importing Background Pictures" on page 84 and to "Importing Movies" on page 83 for more information about backgrounds in Poser scenes.

ANIMATION TOOLS

Poser has four animation tools:

- Animation controls: The Animation controls appear at the bottom of your Poser
 workspace as described in "Using the Animation Controls" on page 279 and allow you
 to create quick click-and-drag animations as well as preview your work. Access the
 Animation controls by clicking the handle at the bottom of your Poser workspace.
- Animation Palette: The Animation palette lets you edit keyframe positions and create more complex animations. You can also edit individual actors and edit keyframes.
 Access the Animation palette by selecting Window>Animation Palette. Please refer to "Using the Animation Palette" on page 282 for more information about the Animation palette.
- Graph: Each actor in your scene has a Graph for each of its possible motions, allowing you to exercise minute control over your animations. Access the Graph for any parameter by using the desired parameter dial's menu as described in "Parameters Palette" on page 180. Please refer to "Using Graphs" on page 288 for more information about the Graph.
- Walk Designer: Creating realistic walking movements is one of the hardest animation tasks to accomplish. Poser's Walk Designer takes the effort out of this process and lets you quickly create realistic walks (for human figures only). Access the Walk Designer by selecting Window>Walk Designer. Please refer to "Using the Walk Designer" on page 275 for more information about the Walk Designer.

WHAT YOU CAN ANIMATE

What can you animate using Poser 5? Just about everything! Here are some examples:

- Figures (humans, animals, clothing, etc.): If you can imagine a motion, you can create it using Poser! Please refer to Chapter 29: "Posing Figures" on page 167 for information about posing human figures, and to "Posing Animals" on page 187 for some information about posing animals.
- Hands: Gestures and small motions add incredible realism to videos. Many amateur animators ignore hands when animating, which subtly detracts from your scene's realism. Please refer to "Posing Hands" on page 186 for information about posing hands

- Faces: Animating faces can add emotion and power to your scene and can also mimic speech. Please refer to "Posing Faces" on page 184 for more information about posing faces
- Props: You can animate props by moving them about the Studio, parenting them to other actors, etc. Please refer to "About Props" on page 189 for more information about props.
- *Deformers*: You can animate magnets, waves, morph targets, and parameters.
- Force Fields: You can animate Force Fields to create realistic wind effects for Poser 5 hair and Poser 5 cloth.
- *Materials*: You can animate material shaders as described in Part 8: "Materials" on page 305.
- Walk Paths: You can create paths that your figures walk along, as described in "Create Walk Path" on page 102.
- *Background*: You can animate the background using the **Material** room. Please refer to Part 8: "Materials" on page 305 for more information about the **Material** room.
- Movie nodes: You can play movies on any object using movie nodes in the Material room.

INVERSE KINEMATICS

You can use IK or not in your animations, however it is a global setting. If enabled, it's on for the duration of your animation, and vice versa. You can turn it on or off while you work, but the final setting is what will "stick" in your final animation. Toggling IK on and off can affect your animation; it's best to pick an option and stick with it to avoid having unexpected changes occur in your animation. Please refer to "Inverse Kinematics (IK)" on page 168 for more information about Inverse Kinematics.

USING THE WALK DESIGNER

Of the wide range of human motions, walking is among the hardest to simulate with any degree of accuracy. Walking looks simple: just place one foot in front of the other. In reality, however, it is an incredibly complex motion involving a variety of muscles in the legs, torso, arms—practically the entire body. Thus, creating an accurate walk simulation entails a great deal of precision posing. Poser's **Walk Designer** allows you to bypass most of this and create a realistic walk using just a few simple steps.

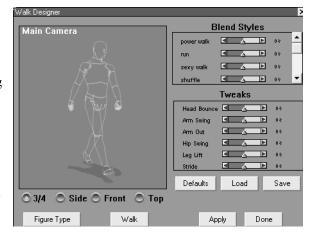
Creating a walking figure is a two-step process. The first step entails creating a walk path for your selected figure that defines where s/he is going to walk. Please refer to "Create Walk Path" on page 102 for more information about creating walk paths.

To open the Walk Designer, select your desired figure, then select Window>Walk Designer.

Unless you want your figure to walk in place (walk without going anywhere), create a walk as follows:

- 1 Create a walk path (your figure will follow this path when walking)
- 2 Create a walk using the Walk Designer.





sections. The upper set of controls creates the walk's larger motions, while the lower set lets you set up the walk's secondary motions. To preview a walk, click the **Walk** button at any time while using the **Walk Designer**. The preview will loop indefinitely and the button will change to **Stop**.

VIEWS

As you can see in the previous graphic, the Walk Designer includes a real-time preview of the walk being created. As you change the parameters, the walk changes to reflect your updates. You can specify the angle from which to preview your walk by checking the appropriate radio button underneath the Preview pane:

- (default): Checking the radio button looks at the figure on an angle.
- *Side*: Checking the **Side** radio button looks at the figure's side.
- Front: Checking the **Front** radio button looks at the figure's front.
- *Top*: Checking the **Top** radio button looks down from the top.



THE WALK DESIGNER REFLECTS YOUR CURRENT POSER STUDIO'S FOREGROUND, BACKGROUND, AND SHADOW COLORS, AS WELL AS TRACKING MODE.

LOADING FIGURE TYPES

This step is optional, however it can address potential issues such as irregular or jerky motions in generated walks. To load a figure type, click the **Load** button in the Walk Designer and use the standard **Open** dialog to locate your desired character (*.CR2) file.

Please see Appendix B: "Poser File Structure" on page 368 for more information about Poser file types, including CR2 files.



NOTE

TRY LOADING THE SAME FIGURE YOU'RE WORKING ON. FOR EXAMPLE, IF CREATING A WALK FOR THE POSER 5 MALE FIGURE. LOAD HIM INTO THE WALK DESIGNER FOR BEST RESULTS.

BLEND & TWEAK STYLES

Once you've loaded your figure type, you can begin designing your walk. By default, the sliders are all in the middle of their ranges. This combination applies a workable default walk. Dragging a slide to the right increases its value and effect, and vice versa. To create a walk:

- 1 Drag the **Blend** sliders to create the large motions. Use the preview to view all of the available settings. Try using combinations of several settings, and remember that small changes can produce dramatic results.
- **2** Adjust the **Tweak** sliders to fine-tune the walk.
- 3 When your walk looks the way you want it to, click the **Done** button to open the **Apply** Walk dialog (see below).



NOTE

CLICKING THE DEFAULTS BUTTON RESTORES ALL SLIDERS TO THEIR DEFAULT POSITIONS.

LOADING & SAVING WALKS

You can load and save walk files using the **Walk Designer**. This is not the same as saving animated poses to the **Library** palette. To save a walk, create it, then click the **Save** button to open a standard dialog box allowing you to specify the name and location for the saved walk. Select your desired path, enter a name for the saved walk, and click **OK**.

To load a walk, click the **Load** button to open a standard **Open** dialog, allowing you to specify a path and filename for the walk file to load.



NOTE

FOR GREATEST REALISM, LOAD WALKS CREATED USING THE SAME FIGURE TYPE.

APPLYING WALKS

Once you've created your walk, you need to apply it to the figure's walk path (see "Create Walk Path" on page 102 for instructions on creating walk paths). The Walk Apply dialog allows you to specify various options for applying your newly created walk. If you want your figure to walk in place, you can use this dialog without having a walk path.

You have the following options when applying walks:

- Start Frame: Enter the frame in your animation where the walk will begin in the Start Frame field
- End Frame: Enter the frame in your animation where the walk will end in the End Frame field. The more frames allocated, the slower and more natural the motion will be.
- *Figure*: If your scene has more than one figure in it, the **Figure** pull-down menu allows you to select the figure to apply the walk to.
- *Path*: If your scene has more than one walk path, you can use the **Path** pull-down menu to specify the walk path to use.
- Walk in Place: Checking the **Walk in Place** box causes the selected figure to walk in place without going anywhere. You can use this option to create a walk without a walk path.
- *Cycle Repeat*: Enter the number of times to repeat the entire walk cycle in your animation in the **Cycle Repeat** field (default is 1).
- Always Complete Last Step: Checking the Always complete last step box forces the
 walk animation to complete within the allotted time. This is useful if the walk ends in
 mid-stride at the end.
- Transition From/To Pose at Path Start/End: The Transition from pose and Transition to end options allow your figure to smoothly transition into and out of the walk at the beginning and end of the walk cycle, respectively. When enabled, Poser interpolates between the figure's pose at the start of the walk and the settings you specified in the Walk Designer, and vice versa at the end of the cycle. For example, you can use this feature to quickly set up a runner by posing the figure in the crouched starting position, designing a run, and specifying a realistic transition time. When you play your

animation, the runner will come off the starting blocks and begin the run. Checking one or both boxes enables the specified option(s). Once enabled, enter the number of frames to be used for the transition. Longer time periods (more frames) allow more realistic movements and vice versa.

Align Head: Checking the Align Head box lets you control how the figure's head acts
as it moves along the walk path. One Step Ahead keeps the head aligned with the
body and produces the most head movements. End of Path keeps the figure's head
looking at the end of the walk path no matter where it leads. Next Sharp Turn aligns
the head to the turns in the walk path, the head only moving when the path curves.

USING THE ANIMATION CONTROLS

The **Animation** controls are at the bottom of your Poser workspace and contain the tools most commonly used when creating animations. They allow you to add and edit keyframes and preview your animation. The **Animation** controls appear as follows:



TIMELINE/FRAME INDICATOR

The center portion of the **Animation** controls displays the **Timeline**, which represents the total time of your animation in Poser. This timeline contains a pointer (**Scrubber**) representing the location of the current frame relative to the entire animation, which is visible in the **Document** window. The **Scrubber** is very commonly used to quickly find specific points within animations. Click and drag the **Scrubber** to quickly navigate your animation. The **Frame Indicator** indicates both the total number of frames in your animation and your current position within that timeline, with the left field indicating position and the right indicating length. For example, if the two numbers read 60 and 120, that means that you are viewing the 60th frame of an animation that is 120 frames long.

You can jump to a specific frame by clicking the left number field and entering the frame number you wish to jump to. You can also add or remove frames by clicking the right number field and entering the number of frames you wish in your animation. Entering a larger number lengthens your animation and vice versa. Shortening animations will cut the excess frames from the end. For example, if you reduce an animation from 120 to 90 frames, you will lose the final 30 frames.

PLAY CONTROLS

The **Play** controls appear on the left side of the **Animation** Controls and allow you to preview your animation using VCR-like controls. From left to right, the **Play** controls are as follows:

- First Frame: Clicking the First Frame button moves to the first frame in your animation.
- End Frame: Clicking the End Frame button moves to the last frame in your animation.
- Stop: Clicking the **Stop** button stops animation playback at the current frame.
- Play/Pause: Clicking the Play button plays your animation at normal speed, including background movies and sounds (if any). While your animation is playing, this button becomes the Pause button. Clicking it freezes the animation at the current frame.
- *Step Backward*: Clicking the **Step Backward** button moves back to the previous frame (i.e., the frame before the current one).
- *Step Forward*: Clicking the **Step Forward** button moves forward one frame (i.e., the frame after the current one).
- Loop: Checking the Loop radio button causes you animation to repeat itself continuously when playing until you click the Stop button.

Animation previews run in the **Document** window. Be sure to select the appropriate tracking mode (see "Tracking Mode" on page 141).

RECORDING KEYFRAMES

Poser records changes made to figures, props, materials, etc. as keyframes. Create keyframes by moving the scrubber to a new point on the timeline and making your desired change(s) to your scene. Recorded keyframes store new body part positions, new prop positions, material settings, etc. for each figure and prop within your scene. You can only record one set of position parameter settings for any given keyframe. For example, if you select a frame and move a figure's arm up then change your mind and move the arm down again, the downward position is what will be "remembered" and what will affect your animation. To make a figure's arm wave up and down:

- **1** Select a starting pose.
- **2** Move out your desired number of frames.
- **3** Raise the arm using the **Editing** tools.
- **4** Move down several more frames.
- **5** Lower the arm, again using the **Editing** tools.

6 Continue creating keyframes until the motion sequence is complete.



CAMERA ANIMATION MUST BE ENABLED FOR THE CURRENTLY SELECTED CAMERA IN ORDER TO AUTOMATICALLY RECORD KEYFRAMES. IF ANIMATION IS DISABLED, YOU CAN ADD KEYFRAMES MANUALLY (SEE FOLLOWING SUBSECTION).

KEYFRAME CONTROLS

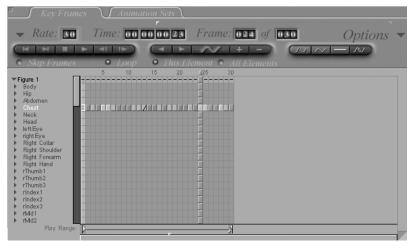
In most cases, Poser's automatic animation engine records keyframes as you create animations. Sometimes, however, you'll want to manually add keyframes, such as when camera animation is disabled. It is important for you to track the status of camera animation, as you could create a series of keyframes without realizing that the animation is off. As mentioned above, if camera animation is disabled, you must manually add keyframes in order to record them. You may also need to fine-tune animations, which may necessitate recording additional keyframes. For example, you could position the figure's left foot at Frames 10 and 20, with Poser calculating its position for the tween frames. If you wanted to refine this, you could add a keyframe at Frame 15.

The **Keyframe** controls allow you to quickly and easily add, preview, and remove keyframes within your animation. From left to right, the **Keyframe** controls are:

- Previous Keyframe: The Previous Keyframe button returns to the previous keyframe.
- Next Keyframe: The Next Keyframe button advances to the next keyframe.
- Display Graph Palette: Clicking the **Display Graph Palette** button displays the **Graph** palette for the selected element. Please see "Using Graphs" on page 288 for more information about the **Graph** palette.
- Add Keyframe: Clicking the Add Keyframe button adds a keyframe at the current frame number. For example, if you have existing keyframes at Frames 15 and 30, you could drag the Scrubber to Frame 22 and insert a keyframe by clicking the Add Keyframes button. You can also insert a keyframe by moving to any frame in your animation and making a change in your scene. This change will automatically be recorded as a new keyframe.
- Remove Keyframe: Clicking the Remove Keyframe button removes the currently selected keyframe. For example, if your character's arm is over his head in Frame 1, down at Frame 15 and out to the side in Frame 30 and you remove the keyframe in Frame 15, the figure's arm will lower to the position specified in Frame 30 without dropping to the figure's side. To delete a keyframe, use the Next Keyframe or Previous Keyframe buttons to locate your desired keyframe, then click the Remove Keyframe button.

USING THE ANIMATION PALETTE

The **Animation** palette is where you edit the keyframes in your animation. It shows the layout of the keyframes and allows you to set and move between them. You can also play animations directly from this palette. To display the **Animation** palette, you can either select **Window>Animation Palette**, or click the **Display Animation** Palette button in the **Animation** controls as described above. To close it, either select **Window>Animation Palette** again, or click the small box in the upper left corner. The **Animation** palette appears as follows:



When you first display this palette, it shows all of the keyframes you previously created using the **Animation** controls, if any. The palette is divided into the following sections:

- Frame Rate: The Frame Rate field allows you to specify the frame rate. See "Frame Rate" on page 283.
- *Time Control*: The **Time** control allows you to view/control your animation referencing running time instead of frames. See "Frame Rate" on page 283.
- Setup/Preview Controls: These are identical to their counterparts in the Animation controls. See "Play Controls" on page 280 for more information.
- *Keyframe Controls*: These are identical to their counterparts in the **Animation** controls. See "Keyframe Controls" on page 281 for more information.
- Interpolation Controls: The Interpolation controls allow you to control how Poser calculates tween frames. Please refer to "Splines" on page 32 for more information.
- Elements List: The Elements List displays a list of all elements in your scene.

- *Timeline Area/Preview Range*: The **Timeline Area** displays your animation frames and keyframes by element and time.
- In addition, the **Animation** palette contains the following buttons. Clicking them toggles their functionality on and off:
- *Skip Frames*: Checking the **Skip Frames** radio button enabling this option drops frames when previewing your animation, speeding up playback.
- *Loop*: See "Play Controls" on page 280.
- This Element/All Elements: See "This Element/All Elements" on page 284.

ANIMATION PALETTE OPTIONS

Clicking the **Options** arrow opens the **Animation** Palette **Options** menu, which contains the following options:

- *Display Frames*: Selecting the **Display Frames** option toggles the **Timeline** columns to display using animation frames.
- *Display Time Code*: Selecting the **Display Time Code** option toggles the **Timeline** columns to display, representing your animation's running time.
- Loop Interpolation: Selecting the **Loop Interpolation** option toggles loop interpolation on and off. Please refer to "Loop Interpolation" on page 118 for more information
- Quaternion Interpolation: Selecting the Quaternion Interpolation option toggles quaternion interpolation on and off. Please refer to "Quaternion Interpolation" on page 118 for more information.

FRAME RATE

The frame rate specifies the number of frames played per second. To change the frame rate, you can either click the current frame rate and enter your desired number in the text box that appears or click the arrow to the left of the current frame rate and make your selection from the **Frame Rate** pull-down menu. Some common frame rate settings are:

- NTSC: 30
- PAL: 25
- Film: 24
- Shockwave: 12 (recommended) or 15

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You can also set the frame rate using the **Render Options** window (Chapter 46: "The Render Options Window" on page 341) and the **Make Movie** window (Chapter 50: "Rendering Animations" on page 356).

TIME

The **Time** control displays the amount of time in your animation between the first frame and the currently selected frame. Time is displayed in SMTPE format (Hours:Minutes:Seconds:Frame). You can jump to a specific point in time by entering your desired numbers in the fields. For example, if you jump to 1 minute in an animation using 24 frames per second, you'll arrive at Frame 1440 (24 frames/sec times 60 seconds). You can use either the **Render Options** window to make these settings.



NOTE

THE MAKE MOVIE WINDOW SETTINGS WILL OVERRIDE THOSE IN THE RENDER OPTIONS WINDOW UNLESS YOU SELECT CURRENT RENDER OPTIONS IN THE MAKE MOVIE WINDOW.

FRAME

You can jump to a specified frame and add and remove frames from your animation as described in "Adding & Removing Keyframes" on page 286.

INTERPOLATION CONTROLS

The **Interpolation** controls allow you to specify the interpolation method (see "Splines" on page 32 for information about Poser interpolation types):



From left to right, the buttons are:

- Spline Section: Clicking the Spline Section button enables Spline interpolation mode.
- Linear Section: Clicking the Linear Section button enables Linear interpolation mode.
- Constant Section: Clicking the Constant Section button enables Constant interpolation mode.
- *Break Spline*: Clicking the **Break Spline** button breaks the current interpolation spline at the selected frame, allowing you to switch interpolation methods.

THIS ELEMENT/ALL ELEMENTS

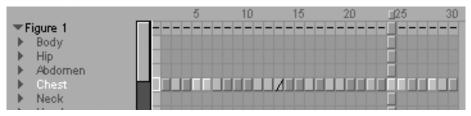
This option selects whether changes made using the **Animation** palette (interpolation type, keyframe changes, etc.) apply to the entire scene or just to the selected element.

Click the **This Element** or **All Elements** radio button, as appropriate, to make your selection



ELEMENTS LIST/TIMELINE

This area displays all of the elements in your scene as well as all of the keyframes stored for each body part/prop/material/etc. Keyframes appear in red, with tween (interpolated) frames appearing in different colors according to their interpolation type (see "Splines" on page 32). You can expand and collapse element listings by clicking the triangles next to elements in the list. Each element can be further expanded to display its animatable properties and parameters. For example, you can view the **Scale** and **Transition** elements for a figure's forearm. The following image displays a portion of the **Elements List** for a scene:



To select an element, click it in the **Element List**. This selects the desired element in the same manner as clicking it in the **Document** window, using the **Current Actor** menu or selecting it using any of the other available selection methods. Poser highlights the currently selected element in the **Elements List** as well as that element's row in the **Timeline**. Use the vertical scroll bar on the right of the **Elements List** and expand and collapse branches to view all of the elements in your scene. Collapsing branches saves space in the display.



NOTE

WHEN YOU COLLAPSE AN ENTIRE FIGURE IN THE ELEMENTS LIST, THE KEYFRAMES DISPLAYED WILL ONLY BE THOSE PERTAINING TO THAT FIGURE'S LOCATION IN THE STUDIO. YOU'LL NEED TO EXPAND THE ELEMENTS LIST TO SHOW POSING/PARAMETER CHANGES.

Double-clicking an element in the list or Selecting an element and clicking the **Show Graph** button opens the **Graph** for the selected item. Please see "Using Graphs" on page 288.

EDITING KEYFRAMES ON THE TIMELINE

You can use the **Timeline** to select, add, edit, or delete keyframes. The **Timeline** appears as a grid that displays keyframes for each element in your scene. Columns indicate time,

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with each column corresponding to a single animation frame or point in time (See "Elements List/Timeline" on page 285). The **Ruler** at the top of this area indicates whether the columns indicate frames or points in time. Each row corresponds to an element in your scene. As described above, the **Timeline** present information using color codes. Use the horizontal and/or vertical scrollbars to navigate the **Timeline** if necessary.

SELECTING KEYFRAMES

By default, Poser selects the first frame in your animation (Frame 1) when you open the **Animation** palette. You can select any frame by clicking in or above its column. You can also enter a number in the **Frame** field. When you select a keyframe, Poser displays the current element's row and time column, creating an intersection.



Selecting a different keyframe moves the intersection to the newly selected point. To select a keyframe, click any one of the dark red squares on the **Timeline** grid.

ADDING & REMOVING KEYFRAMES

Adding keyframes stores a specific pose and/or saves a Poser-created interpolation (tween) frame. You can add keyframes for the entire scene or the selected element by checking either the **This Element** or **All Elements** radio button as described in "This Element/All Elements" on page 284. When **This Element** is selected, keyframes are only recorded for your currently selected element. When **All Elements** is selected, keyframes are recorded for every element in your scene. To add a keyframe:

- 1 Select This Element or All Elements, as appropriate.
- **2** Select the frame or point in time where you wish to add the keyframe.
- 3 Click the Add Keyframes button.

Removing Individual Keyframes

Removing keyframes can modify how your animation appears. You can clear a keyframe for a specific element or your entire scene by selecting **This Element** or **All Elements**, as appropriate. Removing a keyframe does not delete the frame, but removes the saved information. To remove a keyframe:

- 1 Select This Element or All Elements, as appropriate.
- **2** Select the frame or point in time where you wish to remove the keyframe.
- **3** Click the **Delete Keyframes** button.

Removing Multiple Keyframes

To remove an entire range of keyframes, click and drag over the keyframes you wish to delete in the Timeline and press [DEL]. To remove multiple specific keyframes, press and hold [SHIFT] while selecting individual keyframes, then press [DEL].

MOVING KEYFRAMES

While creating animations, you may decide to have one or more keyframes occur earlier or later than your present settings. You may also want to apply the settings in some keyframes to others. Poser allows you to move both individual and multiple keyframes. To do this, click the keyframe you wish to move and drag the colored cell horizontally to its new location. To move multiple keyframes, select them and drag your selection to its new location on the timeline.

COPYING KEYFRAMES

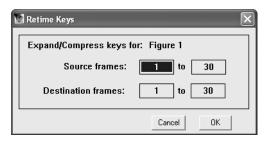
You can copy keyframes, figure parts, and parameters appearing in the **Element List**. By doing this, you can (for example) have several Poser figures marching in perfect step. Although Poser does not limit how you copy and paste keyframes, you should avoid mixing data (such as copying **Scale** parameter settings to a **Rotation** parameter). You can also obtain unexpected results by copying movements from one side of a body to another. If you do copy parameters from side to side, you will need to make the affected parameters negative on the side you copied to.

To copy a keyframe, click the desired keyframe then press and hold [ALT] while dragging the keyframe to its new location. You can move multiple keyframes by selecting them and [ALT]+dragging your selection to its new location. When you reach your destination, select **Edit>Paste** or press [CTRL]+[V].

RETIMING KEYFRAMES

Selecting Animation>Retime
Animation opens the Retime Keys
dialog, which allows you to adjust
keyframe timing in your animation:

By specifying source and destination frame ranges, you can change the amount of time a motion or motions take to occur. This command does not destroy any



keyframes, meaning that you can use it to repeat motions by copying them from one time to another. Selecting a motion in one area and selecting a non-overlapping destination remaps the motion to another time without deleting the original motion.

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- **1** To retime keyframes:
- **2** Open the **Retime Keys** dialog box.
- 3 Enter the start and end frames for the section of animation you want to retime in the **Source Frames** fields
- **4** Enter the range of frames to retime the animation to in the **Destination Frames** fields. If the destination range is longer than the source range, the animation is expanded or slows down, and vice versa.
- **5** Click **OK** when finished.



WHEN USING THIS COMMAND, ALL EXISTING KEYFRAMES IN THE DESTINATION RANGE ARE DELETED.

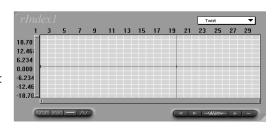
SELECTING THE PLAY RANGE

By default, the entire animation plays when previewing animations using the **Play** controls (see "Play Controls" on page 280). You can, however, opt to view only a portion of your animation during preview. This feature is useful if you have a long animation and only want to focus on small portions at a time. The **Play Range** indicator appears beneath the keyframes in the **Animation** palette. To adjust the play range, drag the beginning and/or end point to your desired starting and ending frames, respectively.

USING GRAPHS

An element's **Graph** palette allows you to perform precise edits on keyframes and modify the interpolation methods used in your animation. The **Graph** palette contains the following functions:

Animatable Properties: The
 Animation Properties pull-down
 menu allows you to select all of the
 animatable properties for the currently selected element.



- Interpolation Methods: See "Selecting Interpolation Types" on page 289.
- Keyframe Controls: See "Keyframe Controls" on page 281.
- Work Area: See below.

The following subsections describe the **Graph's** functionality in further detail.

ABOUT THE GRAPH PALETTE

The **Graph Work Area** consists of two axes and a graph. The horizontal axis represents time in frame numbers. The vertical axis' values change depending on the selected attribute. If you choose a position attribute such as **xTrans**, the values represent positions in 3D space (Cartesian coordinates). If you select an editing property such as **Bend**, the axis represents degrees. A morph parameter's values are measured in percentages.

The **Graph** itself shows the actual change in the attribute over the course of your animation. Its shape indicates the type of interpolation being used. You can also use the **Graph** palette for synchronizing sound to motion, as described in "Synching Sound & Motion" on page 291.

SELECTING INTERPOLATION TYPES

The **Graph** contains controls allowing you to specify interpolation methods, which can be specified on both the element and frame range levels. The **Interpolation** controls appear as follows:



To choose an interpolation method, select the elements and frame range to modify, then click your desired Interpolation button. The **Animation** palette uses color codes to depict varying interpolation methods:

• Spline: Green

Linear: Red

• Constant: Grayed out

• Break Spline: A hash mark appears where **Break Spline** has been applied.

EDITING THE GRAPH

You can edit the graph to achieve varying degrees of interpolation. For example, to decrease the amount of **Spline** interpolation, straighten the curve. You can set the curve's shape using preset interpolation methods or by dragging the curve's points to obtain your desired shape. You can also apply different interpolation methods to different parts of the graph using the **Break Spline** function.

Be aware that changing the graph's shape affects the selected element's motion. To edit the graph, use the **Animation Properties** pull-down menu or select **Graph** from the **Parameters** palette (see "Using Graphs" on page 288) to select the attribute to be edited. Next, drag any point on the graph in the direction you want to move the curve. The curve

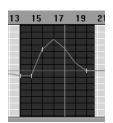
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will reshape itself based on your chosen interpolation method(s). Use the scrollbar to view parts of the graph that are not currently being displayed.

To change the type of interpolation applied to a portion of the graph, click and drag to select the frames you wish to change. Your selected area will become highlighted. Next, click one of the **Interpolation** buttons at the bottom of the palette. This can add keyframes to your animation.

Vertical lines on the graph denote keyframes. You can move these points to change when keyframes occur, and can also add keyframes by clicking the point on the line where you want to insert the keyframe.

The **Current Frame** indicator is a visual reminder of the frame you're currently working on. To select a keyframe, click the **Next Keyframe** or **Previous Keyframe** button, as appropriate, click a keyframe indicator, or drag the **Current Frame** indicator to the frame you wish to edit. Click and drag a rectangle to select a range of frames.



You can also perform the following functions using the **Graph**:

- To move keyframes, click and drag your selected keyframe(s) to its new location.
- To add a keyframe, drag the Current Frame indicator to your desired location and click the Add Keyframe button.
- To delete a keyframe, move the **Current Frame** indicator to the desired keyframe and click the **Delete Keyframe** button.
- To cut, copy, and paste, use the editing hotkeys ([CTRL]+[X], [CTRL]+[C], and [CTRL]+[V], respectively) or the **Edit** menu.
- To close the **Graph** palette, click the small box in the upper left corner.

USING THE GRAPH WITH THE ANIMATION PALETTE

If you open the **Animation** palette, you can access the **Graph** palette for the currently selected scene element by clicking the **Display Graph Palette** button. With both palettes open, you have the following options:

- Double-clicking any element in the **Animation** palette's **Element** list switches the current **Graph** palette to the selected element.
- Pressing [ALT] while double-clicking any element in the Animation palette's
 Element list opens a new Graph palette for the selected element while not affecting
 any other open Graph palettes. You can use this function to open as many
 Graph palettes as you like at one time, which can greatly speed up your animation
 work. You can even open more than one Graph palette for each element, allowing you

to (for example) adjust the Right Forearm's **Twist** and **Bend** at once to achieve smooth realistic movement



NOTE

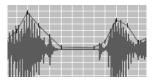
WHEN YOU HAVE MORE THAN ONE **GRAPH** PALETTE OPEN AT ONCE, CHANGING ELEMENTS BY DOUBLE-CLICKING THEM WILL ONLY CHANGE THE MOST RECENTLY OPENED **GRAPH** PALETTE. ALL OTHER **GRAPH** PALETTES WILL RETAIN THEIR CURRENT SETTINGS. IF YOU NEED TO CHANGE MORE THAN ONE **GRAPH** PALETTE, CLOSE OUT ALL UNNEEDED PALETTES, THEN RE-OPEN THEM BY SELECTING YOUR CURRENTLY NEEDED ELEMENTS.

SOUND

Poser allows you to import sounds, which play when your animation plays. This is a great way for you to add soundtracks, speech, etc. to your animations. To import a sound clip, select File>Import>Sound and use the standard Open dialog that appears to locate your desired sound file. Imported sounds attach to your animations at the first frame and play whenever the animation is played. Also, you can only import one sound. If your animation calls for more than one sound, edit your desired sounds together in an audio editing application and create a new sound file for importing into Poser.

EDITING SOUND

Sound duration appears in the **Sound Range** bar at the bottom of the Animation Palette. You can clip imported sounds by shortening the sound bar. However, if sound playback begins at any frame other than 1, the beginning of the sound will be clipped.



To specify start and end frames for the sound, drag arrows on either side of the sound bar.

SYNCHING SOUND & MOTION

The **Graph** palette displays a graphic representation of the sound file called a waveform, which lets you see where changes in sound occur. You can use this information to position keyframes in your animation. Simulate speech by matching peaks in the waveform with changes in mouth position, as shown above. To display waveforms in the **Graph** palette, open it as described in "Using Graphs" on page 288 and click the **Toggle Sound Display** button to toggle waveform display on and off.

ANIMATION SETS

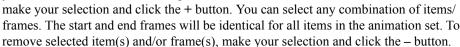
Animation sets are just what the name implies: Named groups of animations covering selected figure/prop elements and parameters over a given range of animation frames. For example, you could animate a figure raising its arm above its head and save the limb's movements to a named animation set.

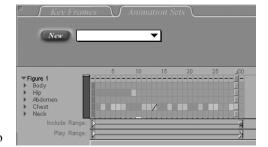
Animation sets are chiefly used when exporting to the Viewpoint Media Player format. Users accessing Viewpoint files can toggle each animation set on and off.

CREATING & EDITING ANIMATION SETS

To work with animation sets, open the **Animation** palette by selecting **Window>Animation Palette**. Click the **Animation Sets** tab to open the **Animation Sets** palette, as shown:

- To create a new animation set, click
 New and name your new set.
- To add selected items and/or frames to your animation set, click and drag to





SETTING ANIMATION SET ATTRIBUTES

The **Attributes** button is for use with Python scripts. You can add any arbitrarily named attribute with an associated value. Using Python scripts, you can use these attributes any way you wish.

VIEWING ANIMATION SETS IN VIEWPOINT FILES

Please refer to "Viewing Exported Viewpoint Files" on page 91.

APPLYING ANIMATION SETS TO FIGURES

You can also apply animation sets to figures. For example, if you create an animation set of an arm being raised, applying that set to your current figure will cause its arm to raise in the exact way specified by the animation set. This feature can help you save time by allowing you to reuse complex animations over and over.

ADVANCED ANIMATION TECHNIQUES

This section is where we stop talking about technical details for a moment and focus on a few artistic considerations. Editing animations is pretty easy work in and of itself. Getting your animation to look just the way you want it and adding realism are the hard parts. A jerky movement can turn smooth and flowing or an unrealistic motion can become realistic if you keep a few simple techniques in mind.

KEYFRAMES AND TIMING

How should you space keyframes? Begin by considering time and frame rate. Space keyframes so that the motion looks natural at the selected frame rate. For example, if you have a motion that requires 4/5 of a second, you'll need 24 frames at 30fps, 20 frames at 24 fps, 9 frames at 12fps, etc. The basic formula is frame rate (in frames per second) times motion duration in seconds = number of frames required.

CREATING REALISTIC MOTION

Now that you've gotten the number of frames required for a motion down, what's next? Break down the motion into component parts. For example, look at a baseball player swinging a bat. At first glance, it may look like the arms are moving. Upon closer inspection, however, you see that the entire body is in motion. Some movements, like the arms and legs, are more pronounced that others. So, begin with the large movements then go back and work on the finer adjustments. Using our baseball player example, you could start with two keyframes: One at the beginning of the swing, the other at the end.

Previewing this animation with only two keyframes would probably give you a pretty good result, however the details are where your animations will shine. Now that the major motions are roughed in, let's add some detail. For example, add the hip swings, shoulder tilts, etc. The subtle details may not be overly noticeable, but your viewers will pick up their presence or absence though they may not be able to tell you what's wrong with your animation if these elements are not present. Poser's **Animation** palette and graph (described in the previous sections) are ideal for this fine-tuning.

By working this way, you can create any kind of action and can make that animation look as realistic as possible.

POSER 5 REFERENCE MANUAL

LONG/COMPLEX ANIMATIONS

If you are trying to make a long movie or one that incorporates changing cameras, you should create small clips and edit them together in a video editing application such as Adobe Premiere.

SAVING ANIMATIONS TO THE LIBRARY

You can save animations to the **Library** palette as still (single-frame) or animated (multiple frame) poses for use with other figures/props.

PART 7

PoserPython

CHAPTER 38: ABOUT POSERPYTHON

his section explains a few Python basics and lists each of the customized PoserPython methods, including explaining functionality and providing syntax and use examples. It provides a certain level of background and behind-the-scenes explanations that will put the PoserPython types and methods involved into context.

Note that this chapter assumes that you have at least a basic level of understanding about the Python scripting language. While it does explain a few basic Python concepts in order to add clarity and context, this chapter is not intended to teach you Python. There are numerous excellent sources of information for learning Python, many of which are available for free. Please refer to "Other Important Resources" on page 9 for a listing of some recommended Python resources.

Python (named after Monty Python's Flying Circus) is a high-level, interpreted, object-oriented scripting language first developed in 1989 by Mr. Guido van Rossum and first released into the public domain in 1991 after extensive testing. It is an extremely powerful and easy-to-learn language that runs on virtually all platforms and that can be extensively customized and modified to run with other applications (such as Poser) and programming languages. Because it is in the public domain, Python is freely usable and can be distributed free of charge. Python's inclusion of a number of high-level data types as well as dynamic typing makes it easy for users to get their job done without the implementation hassle common to lower-level languages.

PoserPython is a customized implementation of the Python interpreter that includes many commands not found in the standard Python releases. This customization integrates Python with Poser and provides you with an extensive list of easy-to-use commands that can greatly reduce the time you spend performing repetitive tasks in Poser.

One of PoserPython's best features is that you do not need to be a programmer to begin enjoying its benefits. Poser 5 includes a number of useful sample scripts that can be executed by clicking a button. You never have to see a line of code, and none of your friends will ever label you as a programmer! That said, another of PoserPython's best features is that you can "get under the hood" to write scripts that will do just about anything. PoserPython gives you virtually full control over your Poser documents including figures, props, lights, cameras, scenes, etc. and their building blocks and parameters. As you can see, PoserPython benefits both novice and expert alike!

PoserPython also includes the Numerical Python extension, which loads automatically when Poser starts up. Many geometry methods use this extension for fast manipulation of vertex, set, and polygon information. Please refer to http://www.python.org/topics/scicomp/numpy.html for more information.

WHY PYTHON?

Adding support for a scripting language to Poser gives users unprecedented power and flexibility to automate and customize their Poser experience and liberate creativity and productivity. The combination of simplicity, power, extensibility, and free distribution rights is making Python an increasingly popular programming language and has made it the obvious choice for integration with Poser. The PoserPython additions provide advanced Poser users with virtually infinite control and flexibility: A few lines of Python code can quickly automate processes that might take hours if done manually. And, with Poser's internal structures exposed in the Python environment, you can write importers or exporters that interact with obscure or proprietary data formats. Because Python runs entirely within Poser, the only external application you'll need for creating Python scripts is your favorite text editor.

A WORD OF WARNING

Unlimited control is a double-edged sword. On one hand, users have direct access to their creations and underlying data. On the other hand, it is impossible to anticipate every conceivable PoserPython script. Because of the inherent power that scripting provides, it is possible to accidentally or intentionally destroy data, possibly beyond Poser itself. We at Curious Labs have made every attempt to provide "safe" methods for manipulating Poser internals, and in most cases a Python mistake simply means that the interpreter throws an exception and halts the script execution. Nevertheless, Python is an entire programming language designed with far more than Poser in mind. It is a powerful tool and, like all tools, should be used with care. If you are not familiar with Python basics, we strongly recommend that you obtain training and begin your Python experience slowly and carefully so as to enjoy a smooth and trouble free learning curve.

Chapter 39: Basic PoserPython Concepts



his section describes some of PoserPython's basic concepts in order to provide context.

How Python Integrates with Poser

There are two basic types of programming languages:

- Compiled: A special program called a compiler reads the code written by the programmer, translates it into a form directly readable by a computer, and creates an executable program that can run on its own on any supported computer platform. Languages such as C++ fit into this category.
- Interpreted: Interpreted programming languages require a special program called an interpreter to run the code written by the programmer. The interpreter reads the commands found in the code and executes them from beginning to end without translating the original code. The drawback to interpreted languages is that they must use the interpreter, and the code can never run as a standalone program. The advantage, however, is that a programmer can change the code and see the results very quickly without having to wait for the code to compile. Additions, edits, and deletions become fast and simple.

PoserPython consists of a standard Python interpreter that has been extended to recognize and execute commands that are not included with the standard Python language. PoserPython scripts written using the customized commands will only work with Poser 5. You can, however, pass data back and forth between Poser and other Python scripts, programming languages, and applications.

The standard Poser application contains volumes of data about each item (figure, scene, light, camera, prop, etc.) found within a given scene. You control these parameters via the mouse and interface elements such as menus, buttons, dials, etc. However, you cannot directly manipulate the data itself. This helps make Poser easy to use, but does create limitations. For example, you have no way to automate repetitive tasks or record a complex series of actions for further use. PoserPython circumvents these limitations.

PoserPython exposes much of the raw Poser data. Using Python scripts, you can extract data from Poser, manipulate it, and pass it back into Poser. Essentially, you can program Poser to do what you want, and you are no longer confined to the Poser interface and Poser's built-in functionality.

BASIC PYTHON STRUCTURE

Python is an object-oriented language. An object is a virtual entity combining structured data and the methods in which the data can be manipulated. A method is a procedure for manipulating data, and an argument defines how the method is carried out. A simplistic but effective analogy is that of basic grammar: An object can be equated with a noun, a method with a verb, and an argument with an adjective or adverb. For example, consider the following:

```
car = Factory.Produce(vehicleXL)
```

In this case, the variable car is the result of the object factory being acted upon by the method produce as modified by the argument vehicleXL (the make and model). To put it in lay terms, the car's existence and everything about the car depends on the factory being told to produce a car of a specified make and model. Consider how the value of the variable car can differ based on the following examples:

- car = Mechanic.Repair(car, transmission)
- car = Junkyard.Salvage(vehicleXL)
- car = CarThief.Steal()

In the first example the car argument is passed in, modified by the Mechanic's Repair method, and returned as a working car. The last example contains no argument. In this case, the car thief may not take external input to decide which car to steal. Again, the object defines a structured set of data, the method is what the object does, and any arguments describe how the method is performed.

car may contain either data or a reference or link to data. Please refer to one of the many Python resources (such as those listed in "Other Important Resources" on page 9) for an in-depth discussion of mutable vs. immutable types. The data can be virtually anything including letters, numbers, files, etc. As you begin to think of data in terms of objects and manipulating objects, you will find it far easier and faster to write Python scripts.

SAMPLE PYTHON SCRIPT

This section provides a brief example of how a Python script might look. For this example, let's say that you have an open Poser scene consisting of a figure with its left forearm already selected. The forearm is called an *actor*. An actor is any element of a Poser scene (body part, prop, etc.) and this manual uses the two terms interchangeably. Let's say you want to set the x scale to 88 percent.

```
scene = Poser.Scene()
actor = Scene.CurrentActor()
parm = actor.ParameterByCode(Poser.ParmCodeXSCALE)
parm.SetValue(88)
```

Let's look at the above script in detail:

The script begins by obtaining a variable called scene, which is a reference to the current Poser scene. That scene contains numerous actors. Recall that the left forearm is already selected, so all the script needs to do is request the scene's current actor to define the variable actor. Next, the variable parm consists of a reference to the left forearm's specified parameter, in this case the parameter XSCALE. A parameter code (ParmCode) designates an easy to remember word to signify the desired parameter. Lastly, the value of the parameter to which parm refers is reset to 88, which will cause the left forearm to shrink to 88% of its normal size along the X-axis.

WRITING PYTHON SCRIPTS

Write your Python scripts using your favorite text editor. Alternatively, you can use one of the graphical Python interfaces such as Tkinter for Windows to write your scripts.

FOLDER SYNTAX

Python, among other languages, designates certain special characters as symbols beginning with a Windows-style backslash. Two common examples are \t ([TAB]) and \n (new line). Thus, in Windows, the notation

```
C:\folder\test.txt
is interpreted by Python as
C:[TAB]folder[TAB]text.txt Of C:foldertest.txt
```

To work around this issue, you should use a double backslash (\\) to signify folders. The above example would then become:

C:\\folder\\test.txt

which would be properly interpreted to mean a specific file path.

Alternatively, you can use Macintosh format, which uses colons to signify folders as follows:

:folder:test.txt

RUNNING YOUR SCRIPT

You can run your script directly or via the Poser Scripts palette, both of which are described in the following chapter.

FOR FURTHER INFORMATION

The preceding information was a very brief glimpse into Python and the PoserPython extensions. If you do not currently know Python, you will undoubtedly want to read and learn more about Python and perhaps even become an expert Python programmer.

Chapter 40: Running PoserPython Scripts



oser 5 includes a simple graphical user interface that allows you to execute Python scripts by pressing a button. You can customize the **Python Scripts** palette and, in addition, you can run Python scripts directly.

THE PYTHON SCRIPTS PALETTE

Launch the **Python Scripts** palette within Poser by selecting **Window>Python Scripts**.



NOTE

CLICKING SOME OF THE BUTTONS WILL DISPLAY A SUBMENU OF BUTTONS WITHIN THE PYTHON SCRIPTS PALETTE. THIS IS JUST ONE EXAMPLE OF HOW PYTHON SCRIPTS CAN BE USED TO CUSTOMIZE POSER. YOU CAN WRITE SCRIPTS THAT WILL OPEN BUTTON MENUS AND SUBMENUS. IF YOU ARE CURIOUS, YOU CAN OPEN ONE OF THE EXISTING SUBMENU SCRIPTS TO SEE HOW THIS IS DONE.

USING THE SCRIPT BUTTONS

To run a script, simply press the desired button and the script will execute automatically.



Assigning Buttons Within the Console

Unassigned buttons do not have a label. An ellipsis (...) appears in unassigned buttons to mark their availability. To assign a script to a button, simply press the mouse on the button and locate the desired script (.py file) using the standard operating system file picker. Once you have located the desired script, select it and press **Open**.

EDITING SCRIPTS WITHIN THE CONSOLE

You can edit scripts assigned to a **Poser Scripts** palette button by pressing and holding [CTRL] while clicking the button assigned to the script you wish to edit. This opens the script within your operating system's default text editor for easy modification. Save your changes as appropriate for the editor you are using. You may also select your own editor via the **General Preferences** window, which can be obtained by choosing **Edit>General Preferences** as described in "Setting Application Preferences" on page 61.

UNASSIGNING/REASSIGNING BUTTONS WITHIN THE CONSOLE

To reassign a button to a different Python script, you must first delete its current assignment and then assign the new script to it. Do this by pressing and holding [ALT] while clicking the button you wish to unassign. If you wish to assign the newly freed up button to a different script, do so as outlined above.

RUNNING PYTHON SCRIPTS DIRECTLY

The **Poser Scripts** palette keeps your frequently used scripts close by for easy use. However, you can run any script you wish by selecting **File>Run Python Script** to open the standard operating system navigation dialog. Locate the script you wish to run by browsing your folders and directories, then press **Open** to run the script.

Chapter 41: PoserPython Types & Methods Listing

oserPython consists of hundreds of custom methods, and Curious Labs is continually updating the list of available methods. Please refer to the Poser 5 *PoserPython Methods Manual*, which contains an organized listing of each PoserPython method available in Poser 5. It is included in PDF format on your Poser 5 CD and is also accessible from within Poser 5 by selecting **Help>PoserPython Methods**.

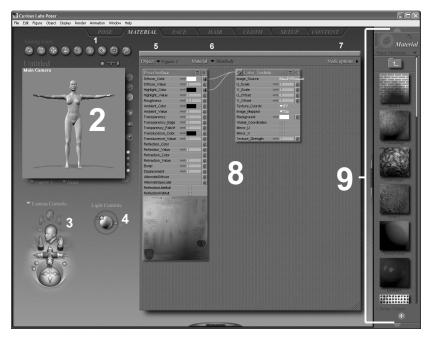
PART 8

Materials

CHAPTER 42: THE MATERIAL ROOM

oser 5's **Material** room is one of the most powerful tools available for creating and editing procedural shaders. The **Material** room is designed from the ground up to provide the ultimate in power, flexibility, and ease of use by artists and animators. You don't need to be a programmer! The addition of the **Material** room gives you ultimate control over the appearance of your Poser scenes.

The **Material** room allows you to describe the material properties of your objects' surfaces by giving you full control over every aspect of shading a surface, from the surface color to complex lighting interactions. Let's explore the **Material** room's basic building blocks. Access the **Material** room by clicking the **Material** room tab at the top of the Poser workspace. The **Material** room appears as follows:



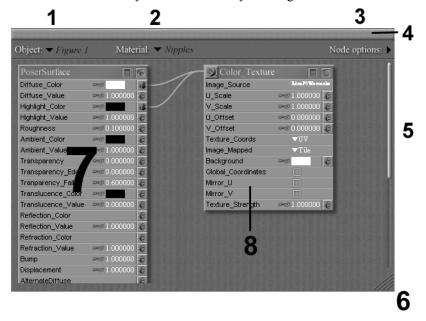
By default, Poser 5's Material room contains the following items:

Eyedropper Tool (1): The Eyedropper tool appears with the Editing tools. Enabling it
and clicking an object in your scene opens that object's shader tree for editing in the
Shader window.

- *Document Window (2)*: Please refer to Chapter 25: "The Document Window" on page 139 for information about the **Document** window.
- Camera Controls (3): Please refer to Chapter 27: "Cameras" on page 148 for information about the Camera controls.
- *Lighting Controls (4)*: Please refer to Chapter 28: "Lighting" on page 158 for information about the **Lighting** controls.
- Object List (5): The Object List functions similarly to the Current Actor menu and has the following options: Props (includes Poser 5 hair and cloth), Lights, Figures, and Background.
- Current Material List (6): The Current Materials list displays all of the material groups in the currently selected figure/prop. Poser organizes materials by figure/prop, thereby avoiding confusion when assigning materials and allowing you to, for example, assign different eye or skin colors to each figure. This method of handling materials is referred to as multi/sub-object materials and is discussed in more detail in Chapter 8: "Multi/Sub-object Materials" on page 40.
- *Node pop-up menu (7)*: The **Node** pop-up menu allows you to add, cut, copy, paste, select, and deselect nodes. For convenience, this can be also accessed by right-clicking within the **Shader** window.
- Shader Window (8): The **Shader w**indow is where you build shaders, which consist of a root node and as many connected nodes as you want. Nodes can modify other nodes or the root node. In the above example, nodes on the right influence those on the left, and the net result appears in the root node. We'll discuss this in more detail later in this part.
- *Library Palette* (9): Please refer to Chapter 24: "The Poser Library" on page 126 for information on working with the **Library** palette.

NAVIGATING THE SHADER WINDOW

The **Shader** window is where you build shaders by working with nodes.



The **Shader** window contains the following elements:

- Object menu (1): The Object menu functions similarly to the Current Actor menu and has the following options: Props (includes Poser 5 hair and cloth), Lights, Figures, and Background.
- Material menu (2): The Material pull-down menu lists all of the materials available
 for the currently selected actor. Poser 5 uses Multi/Sub-object materials, which means
 you will only see the materials assigned to the currently selected figure/prop in this
 menu. Please refer to "Why Multi/Sub-object Materials?" on page 40 for information
 about Multi/Sub-object materials.
- Node Menu (3): Clicking the arrow on the right side of the Shader menu opens the Node menu, which is described below. You can also open this menu by right-clicking in any blank area within the Shader window or by clicking any node input (see below).
- Title Bar (4): You can reposition the **Shader** window using its title bar.

- Scroll bars (5): You can move nodes beyond the edges of the **Shader** window, as shown in the above graphic. Doing this create horizontal and/or vertical slider bars, as appropriate. This allows you to create complex shaders. Keep in mind that complex shaders require more computing resources.
- Resizing Handle (6): Resize the **Shader** window to any dimensions you want by clicking and dragging its resizing handle.
- Root Node (7): The root node for the currently selected material group appears on the left side of the Shader window.
- *Nodes (8)*: Additional nodes also appear in the **Shader** window.

SHADERS

A shader is a combination of nodes working together to create the final desired color, pattern, and texture- in short, the look for your 3D objects. Every shader consists of a root node with a different number of attributes depending on the type of root node (background, material, hair, or light) being used. Each of these attributes can have one or more linked nodes that dynamically controls that attribute's value or color. You can either create materials from scratch or load a premade material. Saving a material saves that materials' shader tree, and loading a material also loads its shader tree. Also, if you load a premade material, you can modify it at will to create a whole new look. Please refer to "Root Nodes" on page 315 for a detailed description of the root nodes.

NOTE

A HAIR ROOT NODE IS ONLY AVAILABLE WHEN A POSER 5 HAIR OBJECT IS SELECTED, AND A LIGHT ROOT NODE IS ONLY AVAILABLE WHEN A LIGHT IS SELECTED.

Chapter 43: Working with Nodes



his chapter describes how to perform various operations with nodes in the **Shader** window.

ABOUT NODES

A *node* is the basic building block used to construct simple or complex *procedural shaders* (also called *shaders*). All nodes have the following elements except where noted:

- Output (1): After accepting and processing any inputs plus its own values, the end result is passed to the output for connection to another node's input. Root nodes do not have this function.
- Node Name (2): This is the name of the node.
 A number will appear when you have two or more of the same node in your shader, for example Clouds 2, Clouds 3, and so forth.
- 5 Spots

 Base Color
 Spot Color
 Spot Size
 Softness
 Threshold
 Global Coordinates

 8
- Show/Hide Values Button (3): Clicking the
 Values button toggles displaying the node values (6) on and off.
- Show/Hide Preview Button (4): Clicking the Preview button toggles displaying the
 node preview (9) on and off. Enabling previews gives you a great idea of how each
 step in your shader tree is contributing to the overall look, however this can increase
 required computing resources.
- Node Values (5): This area shows the values that you can specify for the particular node.
- Value Input (6): You can either input values directly in a node or connect one or more nodes to an input to modify the selected value.
- Animation Toggle (7): Clicking the Animation control toggles animation on and off for the selected value.
- Preview (8): This displays a preview of the node's output.

NODE INTERACTION

You can link nodes to other nodes, thereby controlling one node's input with another node's output. This interaction between nodes is at the heart of the **Material** room's functionality and provides nearly infinite flexibility. Node interaction works by plugging values or colors from one node into another. There is no theoretical limit to how deep these interactions can go, however available memory and CPU speed will play a role in setting practical limits.

BASIC NODE OPERATIONS

Before getting into too much detail, let's learn how to do a few basics with nodes:

SELECTING NODES

To select a node, simply click any blank area within the desired node. To select multiple nodes, press and hold [SHIFT] while making your selections.

EXPANDING/COLLAPSING NODES

You can expand and collapse a node's values and/or preview separately, as described in the previous section.

MOVING NODES

You can move and arrange nodes to suit your particular work style. A node's position has no effect on the shader's function or appearance. To move a node or nodes:

- **1** Select the node(s) you want to move as described above.
- **2** Hold the mouse button down and drag the node(s) to the desired position. Release the mouse button to complete the move.

ENTERING NODE VALUES

To enter a value for a node, click the desired value to open a small window with a value field and a parameter dial. Here, you can enter a numeric value in the field and/or move the parameter dial using the mouse. You can also link one or more nodes to the desired value (see below), which will make the appropriate adjustments.

Some node values are pull-down menus. Use these as you would any other pull-down menu. Also, clicking a color within a node opens a standard Color Picker, which you can use to quickly select your desired color.

THE NODE MENU

You can access the **Node** menu in one of four ways:

- Clicking the **Node** menu arrow in the **Shader** window (see above).
- Clicking either mouse button on a node's input. In this case, the Node menu will only
 have the New node option available and may (depending on the input) have quick
 access options for appropriate nodes to connect to the selected input.
- Clicking either mouse button on a node's output.
- Right-clicking any blank area in the **Shader** window.

The **Node** menu has the following options:

- *Disconnect*: Selecting **Disconnect** disconnects the current link between the affected node's input and all shader(s) contributing to that input. This option will appear when you click a node input with one or more links.
- *New node*: Selecting **New node** creates a new node. Please refer to the following section for more information about creating nodes.
- Cut selected nodes: Selecting Cut selected nodes places a copy of the selected node(s) into the Clipboard and deletes the originals from the Shader window along with any existing links between the cut nodes and others. This preserves any links that exist between the copied nodes.
- Copy selected nodes: Selecting Copy selected nodes places a copy of the selected node(s) into the Clipboard without removing the originals from the Shader window without altering their relationships with other nodes. This preserves any links that exist between the copied nodes but does not copy links between the copied nodes and other nodes. In conjunction with the Paste command (see below), this is a great way to propagate your shader trees (or any portions you like) from shader to shader, thereby allowing you to save time by leveraging previous work.
- Paste: Selecting Paste places a copy of the node(s) stored in the Clipboard into the Shader window.
- Delete selected nodes: Selecting Delete selected nodes deletes all selected node(s).
 Any links to or from deleted nodes are also lost, meaning you will need to reestablish broken connections. Please refer to "Linking Nodes" on page 313 for information on linking/de-linking nodes.
- Apply selected: Selecting Apply selected applies all selected nodes to all materials
 groups in the current object. This overrides existing connections in affected material
 groups but does not delete any nodes.

- Select All: Selecting Select All selects all nodes in your shader, including the root node
- *Invert Selection*: Selecting **Invert Selection** selects all unselected nodes and deselects all selected nodes. In essence, this function reverses your selection.

CREATING NODES

Creating additional nodes is the first step to creating your own shader tree (remember that all shaders have at least a root node). To create a node, open the **Node** menu and select **New Node>Category>Subcategory>Node** to create an instance of your selected node in the **Shader** window. If you open the **Node** menu by clicking a node input, your new node will appear with its output already linked to your current node's input. If you access the **Node** menu in any other manner (see above), the new node will not be linked.

LINKING NODES

After creating a node, you may need to link it to an input on another node. This is accomplished in one of three ways:

- Direct Link: Click the output of the node you wish to link and drag the cursor over the node or shader input you wish to link to. Release the mouse button to complete the link.
- Moving Existing Links: To move a link from one node to another, click the input you want to unlink and drag the cursor off the node. Place the cursor over the input node you wish to link and release the mouse button.
- Clicking and dragging: Click the input you wish to connect a new node to and drag. A
 node connection will appear. When you release the mouse button, the Node menu will
 appear, allowing you to create a new node whose output is pre-connected to your
 selected input.

You can link a node to as many other nodes as you wish and each node input can be linked to as many input nodes as you wish.

DE-LINKING NODES

To break the link between two nodes, click the input you want to unlink and select **Disconnect** in the **Node** menu.

DELETING NODES

To delete a node, select the node you wish to delete and either press [DEL] or select **Node>Delete**.

ANIMATING NODES

You can animate node attributes by clicking the **Animation Toggle** (key icon) for the attribute you wish to animate. When animation is enabled, the icon appears green. When disabled, it appears clear. Clicking the **Animation Toggle** opens a pull-down menu with the following options:

- Animated: Selecting the Animation option toggles animation for the current attribute
 on or off. A check mark appears next to this menu item when animation is enabled, and
 vice-versa.
- *Info:* Each animated attribute has one or more **Info** options depending on the attribute. For example, a numerical node will have one **Info** option for its numeric value, while a color node will have three **Info** options (one each for red, green, and blue). Selecting one of these options allows you to set the current value, maximum and minimum limits, name, and sensitivity. This dialog is exactly the same as the **Edit Parameter Dial** dialog, which is discussed in "Editing Parameter Dials" on page 182.
- Graph: For each Info option that appears above, you will see a Graph option.
 Selecting a Graph option opens the Graph palette for the selected channel. Please refer to "Using Graphs" on page 288 for more information about the Graph palette.

Once animation is enabled, you can animate the attribute's value using any combination of the following methods:

- Keyframes: Move to a frame and set a value, then move to a different frame and set a
 new value.
- *Graph Palette*: Use the **Graph** palette to animate the node.
- Other nodes: Connect other nodes to control how the attribute changes over time.

Please refer to Chapter 37: "Animating with Poser" on page 272 for more information about animating within Poser 5.

Chapter 44: Material Room Nodes

oser 5 includes the following nodes, which, combined and linked to root nodes, can create virtually any shader you can imagine. Nodes are divided into several groups: **Math**, **Lighting**, **Variables**, **3D textures**, and **2D Textures**. Each group and its shaders is discussed in the following sections:

ROOT NODES

As previously mentioned, all shaders include a root node, which can be modified using added nodes that modify the root node. Thus, the root node is itself a complete shader. The **Material** room has three root nodes: **Material**, **Background**, **Light**, and **Atmosphere**. Let's examine these nodes further.

ROOT NODE HELP

Some node attributes have a question mark (?) icon next to them. Clicking this icon opens help for that channel. This help is also available by navigating the **Material** room help window (available by selecting **Window>Room Help** if not already displayed in the **Material** room.

ROOT MATERIAL/HAIR NODE

The **Root Material** node and **Root Hair** nodes contain all of the attributes required to create a complete shader for almost every material group in your scene (figures, props, hair). They both have the following attributes:

- *Diffuse Color*: The **Diffuse_Color** attribute is the surface color that is multiplied through any light striking the object.
- *Diffuse Value*: The **Diffuse_Value** attribute defines the strength of the diffuse color, where 1=100%.
- Specular Color: The **Specular_Color** attribute defines the color of the object's highlight.
- Specular Value: The **Specular_Value** attribute defines the strength of the specular color, where 1=100%.
- Highlight Size: The Highlight_Size attribute defines the quantity of micro-facets on
 the object surface. Micro-facets are tiny imperfections that are invisible to the human
 eye, yet effect the way light is reflected off the surface. Very smooth surfaces (such as
 glass) have very few imperfections and produce a very sharp specular highlight.

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- Surfaces such as paper have extremely high numbers of imperfections in their surface and thus produce subtler specular highlights.
- Ambient Color: The Ambient_Color attribute defines the accumulated, indirect light
 within a scene. This is usually light bounced off other objects or otherwise diffused by
 elements such as the atmosphere.
- *Ambient Value*: The **Ambient_Value** attribute defines the strength of the ambient color, where 1=100%.
- *Transparency*: The **Transparency** attribute defines the object's opacity, where 1=fully transparent.
- Transparency Edge: The Transparency_Edge attribute defines the object's transparency at its edges. For example, a glass appears opaque at its edges.
- *Transparency Falloff*: The **Transparency_Falloff** attribute defines how the transparency changes as it moves towards the object edge. Smaller values create a sharper edge and vice versa.
- *Translucence Color*: The **Translucence_Color** attribute is the color of light passing through the object.
- *Translucence Value*: The **Translucence_Value** attribute defines the strength of the translucent color, where 1=100%.
- Reflection Color: The **Reflection_Color** attribute allows you to specify a reflective color. This is a good input for connecting other nodes to control reflections.
- Reflection Value: The **Reflection_Value** attribute defines the strength of the reflective color, where 1=100%.
- Refraction Color: The **Refraction_Color** attribute defines the color of light refracted by the current object.
- Refraction Value: The **Refraction_Value** attribute defines the strength of the refraction color, where 1=100%.
- *Bump*: The **Bump** attribute defines the amount of bump in the material. See "Bump Maps" on page 43 for information about bump.
- *Displacement*: The **Displacement** attribute defines the amount of displacement in the material. See "Displacement Map" on page 44 for information about displacement.
- Alternate Diffuse: The AlternateDiffuse attribute provides an alternate input for diffuse lighting. Use this channel for Poser 5 hair and anytime you wish to use custom diffuse lighting.

- Alternate Specular: The AlternateSpecular attribute provides an alternate input for specular lighting. Use this channel for Poser 5 hair and anytime you wish to use custom specular lighting.
- Reflection Lite Mult: Checking the **ReflectionLiteMult** checkbox multiplies the total color through the amount of diffuse lighting hitting each point on the surface. This automatically darkens reflections in areas not seen by lights. On by default.
- Reflection Kd Mult: Checking the **ReflectionKdMult** checkbox automatically tints the reflection color by the surface's diffuse color value. Off by default.
- Gradient Bump: Previous versions of Poser used a proprietary file format for bump maps (*.BUM). If you want to use these older file types in Poser 5, connect an image map node to the Gradient_Bump attribute and load your desired *.BUM file into that node (see "Image Map" on page 333 for information on loading images). Then, select Poser 4 Renderer in the Render Options window and check the Ignore Shader Trees checkbox. Please refer to Chapter 48: "Using the Poser 4 Render Engine" on page 350 for more information on the Poser 4 renderer. You cannot use *.BUM files with the FireFly renderer.

ROOT BACKGROUND NODE

The **Root Background** node contains all of the attributes required to create a complete shader for your scene's background and has the following attributes:

- *Color*: The **Color** attribute allows you to choose the background's base color.
- *Diffuse Color*: The **Diffuse_Color** attribute is the surface color that is multiplied through any light striking the object.
- Specular Color: The **Specular_Color** attribute defines the color of the object's highlight.
- *Highlight Size*: The **Highlight Size** attribute defines the size of the highlight.
- *Bump*: The **Bump** attribute defines the amount of bump in the material.



YOU MUST HAVE A HAIR OBJECT SELECTED IN ORDER TO SEE ITS ROOT NODE.

ROOT LIGHT NODE

A root **Light** node appears whenever you have a light selected. Each light in your scene has its own root **Light** node, which has the following attributes:

- *Color*: The **Color** attribute allows you to choose the light's base color.
- *Intensity*: The **Intensity** attribute defines the light's brightness.
- Angle Start: The AngleStart attribute defines the start of the light cone (in degrees) for spotlights.
- Angle End: The AngleEnd attribute defines the end of the light cone (in degrees) for spotlights.
- Angle Expo: The AngleExpo attribute controls how the light fades towards the edge of the light cone (falloff).



YOU MUST HAVE A LIGHT SELECTED IN ORDER TO SEE ITS ROOT NODE.

ROOT ATMOSPHERE NODE

The **Root Background** node contains all of the attributes required to create realistic atmospheric effects such as fog, haze, etc. in your scenes:

- DepthCue_On: Checking the **DepthCue_On** checkbox enables depth cueing, which varies all surface material colors from their original lit colors to the specified depth cue color (see below). This gives an effect similar to enabling the **Depth Cueing** option in the Document window as described in "Depth Cueing and Shadows" on page 142.
- *Volume_On:* Checking the **Volume_On** checkbox enables volumetric effects. You can enable depth cueing and/or volumetric effects individually.
- *DepthCue_Color*: The **DepthCue_Color** attribute specifies the color to use when applying the depth cueing.
- DepthCue_StartDist: The **DepthCue_StartDist** attribute specifies the distance from the current camera at which the depth cueing effect begins. This distance distances is not necessarily displayed in Poser distance units.
- DepthCue_EndDist: The **DepthCue_EndDist** attribute specifies the distance from the current camera at which the depth cueing effect ends. This distance is not necessarily displayed in Poser distance units.
- *Volume_Color*: The **Volume_Color** attribute specifies the color of the volumetric effect. This color is multiplied with the color of the lights in your scene. To use the lights' colors for the volume, set this color to white.

- Volume_Density: The Volume_Density attribute controls the strength of the
 volumetric effect. This effect is multiplied by each light's Atmosphere Strength
 attribute. If this attribute is set to 1.0, the selected light will cast atmospheric effects
 equal to this attribute and so forth. Please refer to "Light Properties" on page 163.
- Volume_StepSize: The Volume_StepSize attribute specifies the distance between rendering samples taken through the volume. Lowering this value increases the quality and requires increased render time.
- *Volume_Noise*: The **Volume_Noise** attribute adds a random factor added to the sample that can help balance out the effect of larger step sizes (see previous attribute).

You can connect nodes to the color and density attributes for more complex effects.



BRIGHT INFINITE LIGHTS CAN WASH OUT VOLUMETRIC EFFECTS UNLESS YOU USE A VERY LOW DENSITY. VOLUMETRIC EFFECTS ARE MOST SUCCESSFULLY USED WITH BOTH SPOTLIGHTS AND CAREFULLY CONTROLLED DENSITY NUMBERS. ALSO, VOLUMETRIC LIGHTING EFFECTS ONLY APPEAR OVER A RENDERED OBJECT. THEY DO NOT APPEAR OVER AN EMPTY BACKGROUND, EVEN WHEN A BACKGROUND SHADER IS IN PLACE. YOU NEED AT LEAST ONE OBJECT IN ON SCREEN IN ORDER FOR VOLUMETRIC LIGHTING EFFECTS TO BE VISIBLE.

MATH NODES

These are the math nodes included with Poser 5. Unless specified otherwise, the list of attributes for each node is listed from top to bottom:

MATH FUNCTION

The **Math Function** node is useful for mathematically merging values, nodes, and other parameters and can be used to create patterns. It has the following attributes:

- *Math Argument*: This pull-down menu defines the math function to be used. Your options are:
 - Add: Selecting Add returns Value 1 plus Value 2.
 - Subtract: Selecting Subtract returns Value 1 minus Value 2.
 - *Multiply*: Selecting **Multiply** returns **Value 1** times **Value 2**.
 - *Divide*: Selecting **Divide** returns **Value 1** divided by **Value 2**.
 - Sine: Selecting Sin returns the sine of Value 1. Value 2 is ignored.
 - Cosine: Selecting Cos returns the cosine of Value 1. Value 2 is ignored.
 - *Tangent*: Selecting **Tan** returns the tangent of **Value 1**. **Value 2** is ignored.
 - Square Root: Selecting **Sqrt** returns the square root of **Value 1**. **Value 2** is ignored.

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- *Power*: Selecting **Pow** returns the **Value 1** to the **Value 2** power (such as 3^3).
- Exponential: Selecting Exp returns the Value 1 times 10 to the Value 2 (such as $3x10^3$)
- Logarithm: Selecting Log returns Value 1 log Value 2.
- Modulus: Selecting Mod returns the modulus (remainder) of Value 1 divided by Value 2.
- Absolute: Selecting **Abs** returns the absolute value of **Value 1**. **Value 2** is ignored.
- Sign: Selecting Sign returns –1 if Value 1 is less than zero, and 1 if Value 1 is greater than or equal to zero. Value 2 is ignored.
- Minimum: Selecting Min returns Value 1 if Value 1 is less than Value 2, otherwise Value 2 is returned.
- Maximum: Selecting Max returns Value 1 if Value 1 is greater than Value 2, otherwise Value 2 is returned
- Clamp: Selecting Clamp returns Value 1 unless Value 1 is less than 0 or greater than 1. If Value 1<0, 0 is returned. If Value 1>1, 1 is returned. Value 2 is ignored.
- *Ceiling*: Selecting **Ceil** returns **Value 1** rounded up to the next whole number. **Value 2** is ignored.
- *Floor*: Selecting **Floor** returns **Value 1** rounded down to the last whole number. **Value 2** is ignored.
- *Round*: Selecting **Round** returns **Value 1** rounded to the nearest whole number. **Value 2** is ignored.
- Step: Selecting Step returns 0 if Value 1 is less than Value 2, and 1 if Value 1 is greater than or equal to Value 2.
- Smooth Step: Selecting Smoothstep returns Value 1 bicubically smoothed. Value 2 is ignored.
- Bias: Selecting Bias adjusts the bias of Value 1 by Value 2.
- Gain: Selecting Gain adjusts the gain of Value 1 by Value 2.
- Value 1: The Value 1 value defines the first value in the math equation.
- Value 2: The Value 2 value defines the second value in the math equation.

COLOR MATH

The **Color Math** node performs the selected mathematical operation with two colors. It has the following attributes:

- *Math Argument*: Please refer to the previous node explanation, above, for a list of math arguments available in this pull-down menu.
- Value 1: The Value 1 attribute defines the first color value in the math equation.
- Value 2: The Value 2 attribute defines the second color value in the math equation.

BLENDER

The **Blender** node blends two colors using a value attribute as an alpha mask. It has the following attributes:

- *Input 1*: The **Input_1** attribute defines the first blend color. Clicking this attribute opens the standard Color Picker.
- *Input 2*: The **Input_2** attribute defines the second blend color. Clicking this attribute opens the standard Color Picker.
- *Blending*: The **Blending** attribute is used to determine the amount of blending. Valid values are from 0 (**Input 1** color only) to 1 (**Input 2** color only).

SIMPLE COLOR

The **Simple Color** node allows you to access a color picker to select a color. Clicking the color (**Color** attribute) opens the Poser Color Picker. Pressing [ALT] while clicking the color or clicking the **OS Picker** in the Poser Color Picker opens your operating system's **Color Picker**.

COLOR RAMP

The **Color Ramp** node takes four colors and creates a spline color map (gradient) with them. You can feed grayscale output from other nodes (turbulence, wood, etc.) into this node to create interesting still or animated effects using the grayscale values as lookups into the color spline, providing a colorized version of the original grayscale image. It has the following attributes:

- Color 1 through Color 4: The Color_1 through Color_4 attributes allow you to input colors for the color spline. Clicking them opens the standard Color Picker.
- *Index*: The **Index** attribute is the grayscale value to lookup into the color spline. This is where you should plug in your grayscale images.

USER DEFINED

The **User Defined** node allows you to define a custom color. The **Color Mode** (bottom) attribute is a pull-down menu allowing you to specify your desired color model. You can choose **RBG**, **HSV**, or **HSL** modes and enter the appropriate attributes in the three fields above, as follows:

- *Top Field*: This attribute allows you to specify the **Red** (RGB) or **Hue** (HSV or HSL) value from 0 to 1.
- *Middle Field*: This attribute allows you to specify the **Green** (RGB) or **Saturation** (HSV or HSL) value from 0 to 1.
- Bottom Field: This attribute allows you to specify the Blue (RGB) or Value (HSV) or Lightness (HSL) value from 0 to 1.

EDGE BLEND

The **Edge Blend** node blends color nodes based on surface and camera angles. It has the following attributes:

- *Inner Color*: The **Inner Color** attribute defines the color of surfaces facing towards the camera. Clicking it opens the standard Color Picker.
- *Outer Color*: The **Outer Color** attribute defines the color of surfaces facing away from the camera. Clicking it opens the standard Color Picker.
- Attenuation: The Attenuation attribute defines the power curve used for transitioning between the inner and outer colors.

COMPONENT

The **Component** node is useful for extracting the red, green, or blue components from an input color. It has the following attributes:

- Component: The Component attribute specifies the color to extract. 0=red, 1=green, and 2=blue
- Color: The Color attribute provides an input for another node, whose output will be processed according to the Component attribute setting.
- Point: The Point attribute provides an input for a point node whose output will be processed according to the Component attribute setting.

VARIABLE NODES

These are the value nodes included with Poser 5. Unless specified otherwise, the list of attributes for each node is listed from top to bottom:

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FRAME NUMBER

The **Frame Number** node returns the current frame number. It has no user-definable attributes.

U TEXTURE COORDINATE

The U node returns the location in S space of the pixel currently being rendered. It has no user-definable attributes.

V TEXTURE COORDINATE

The V node returns the location in T space of the pixel currently being rendered. It has no user-definable attributes.

Ν

The **N** node returns the normal at the specified point. It has the following attributes:

- X: The X attribute is the normal vector's X component.
- Y: The Y attribute is the normal vector's Y component.
- Z: The **Z** attribute is the normal vector's Z component.

P

The **P** node defines a point in space. It has the following attributes:

- X: The X attribute is the point's X location.
- Y: The Y attribute is the point's Y location.
- Z: The **Z** attribute is the point's Z location.

LIGHTING NODES

These are the light nodes included with the **Material** room. Unless specified otherwise, the list of attributes for each node is listed from top to bottom. The **Light** menu item has several sub-menus, each containing one or more nodes. These are listed in the order in which they appear.

DIFFUSE NODES

Diffuse

The **Diffuse** node allows you to use the standard diffuse lighting model. It has the following attributes:

- Diffuse Color: The **Diffuse Color** attribute specifies the diffuse color.
- Diffuse_Value: The Diffuse_Value attribute defines the strength of the diffuse color, where 1=100%.

Clay

The **Clay** node applies a clay-like lighting model to the selected material. It has the following attributes:

- Color: The Color attribute specifies the clay color. Clicking the color opens a Color Picker.
- Kd: The Kd attribute specifies the strength of the color, where 1=100%.
- *Highlight Size*: The **Highlight_Size** attribute defines the size of highlights.

Toon

The **Toon** node gives your material a cartoon-like look. It has the following attributes:

- Light Color: The **LightColor** attribute specifies the light color.
- Dark Color: The **DarkColor** attribute specifies the dark color.
- *Ink Color*: The **InkColor** attribute specifies the ink color.
- Spread: The **Spread** attribute defines the sharpness/softness of edges between colors.
- Line Width: the LineWidth attribute specifies the width of the ink color.

SPECULAR NODES

Specular nodes provide different models for calculating highlights on objects.

Anisotropic

The **Anisotropic** node allows you to create irregularly shaped highlights. It has the following attributes:

Specular Color: The Specular_Color is the color of any highlight that appears on the
object surface. Highlights lend the illusion of shininess. For example, a piece of wood
displays no highlight, while a piece of polished metal has one or more distinct
highlights. This color is generally the same as that of the direct lighting falling on the
affected surface but does not have to be.

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- Specular Value: The **Specular_Value** is the amount of influence the specular color has on the shader. A higher value will create larger, more distinct highlights and vice versa.
- U Highlight Size: The U_Highlight_Size attribute is the highlight's size in the U direction.
- V Highlight Size: The V_Highlight_Size attribute is the highlight's size in the V direction.
- Xdir_X: The Xdir_X attribute controls the size of the specular reflection relative to the X-axis.
- Xdir Y. The Xdir_Y attribute controls the size of the specular reflection relative to the Y-axis.
- *Xdir_Z*: The Xdir_Z attribute controls the size of the specular reflection relative to the Z-axis.

Specular

The **Specular** node defines a model for calculating highlights. It has the same attributes as the **Phong** node, which is discussed below.

Phong

The **Phong** node defines a model for calculating highlights. It has the following attributes:

- Specular Color: The Specular_Color is the color of any highlight that appears on the object surface. Highlights lend the illusion of shininess. For example, a piece of wood displays no highlight, while a piece of polished metal has one or more distinct highlights. This color is generally the same as that of the direct lighting falling on the affected surface but does not have to be.
- Specular Value: The **Specular_Value** is the amount of influence the specular color has on the shader. A higher value will create larger, more distinct highlights and vice versa.
- Size: The Size attribute specifies the size of the highlight.

Glossy

The **Glossy** node defines a model for calculating highlights. It has the following attributes:

- Specular Color: The Specular_Color is the color of any highlight that appears on the object surface. Highlights lend the illusion of shininess. For example, a piece of wood displays no highlight, while a piece of polished metal has one or more distinct highlights. This color is generally the same as that of the direct lighting falling on the affected surface but does not have to be.
- Ks: The **Ks** attribute defines the strength of the specular color, where 1=100%.

- Highlight Size: The **Highlight Size** attribute defines the size of the highlight.
- *Sharpness*: The **Sharpness** attribute defines the sharpness of the highlight's edge.

Blinn

The **Blinn** node defines a model for calculating highlights. It has the following attributes:

- Specular Color: The Specular_Color is the color of any highlight that appears on the
 object surface. Highlights lend the illusion of shininess. For example, a piece of wood
 displays no highlight, while a piece of polished metal has one or more distinct
 highlights. This color is generally the same as that of the direct lighting falling on the
 affected surface but does not have to be.
- *Eccentricity*: The Blinn formula models the microfacets (microscopic imperfections) of the surface as ellipsoids of revolution. The **Eccentricity** attribute controls the size and variation of the imperfections. Use 0 for very shiny surfaces and 1 for very diffuse surfaces
- Specular Roll Off: The **SpecularRollOff** attribute controls the highlight's sharpness.
- Reflectivity: The **Reflectivity** attribute controls the amount of light reflected back to the eye.

RAYTRACE NODES

To use the raytracing nodes, you must have raytracing enabled in the **Render Options** window, as described in "Render Settings" on page 342

Reflect

The **Reflect** node specifies the reflection color when raytracing. It has the following attribute:

- *Background*: The **Background** attribute selects the background color to be used for raytracing. Clicking this attribute opens a standard Color Picker.
- Quality: The Quality attribute controls how many rays are spawned by hitting a surface. Increasing this value increases the realism of reflections but consumes computing resources.
- *Diffusion*: The **Diffusion** attribute controls the randomness of the directions of reflected rays.

Refract

The **Refract** node specifies the refraction color when raytracing. It has the following attribute:

- *Background*: The **Background** attribute selects the background color to be used for raytracing. Clicking this attribute opens a standard Color Picker.
- *Index of Refraction*: The **Index of Refraction** attribute controls how much light bends when passing through the object.
- Quality: The Quality attribute controls how many rays are spawned by hitting a surface. Increasing this value increases the realism of reflections but consumes computing resources.
- *Softness*: The **Softness** attribute controls how sharp or smooth refracted light appears after passing through an object.

ENVIRONMENT MAP NODES

Sphere Map

The **Sphere Map** node is a lighting node for performing spherical reflections. Attach this node to a materials' reflection input (or as a raytrace reflection mode's color attribute) to create spherical reflections. This node has the following attributes:

- Color: The Color attribute specifies the map's color. Clicking the color opens a Color Picker.
- Rotation: The Rotation attribute specifies the maps, rotation along the X, Y, and Z values.

SPECIAL NODES

Skin

The **Skin** node allows you to create realistic skin. It has the following attributes:

- *Skin Color*: The **SkinColor** attribute selects the skin's base color. Clicking this attribute opens a standard Color Picker.
- Sheen Color: The **SheenColor** attribute is the color of any highlight that appears on the object surface. Highlights lend the illusion of shininess. For example, a piece of wood displays no highlight, while a piece of polished metal has one or more distinct highlights. This color is generally the same as that of the direct lighting falling on the affected surface but does not have to be.
- Ka: The **Ka** attribute controls the ambient light strength, where 1=100%.

- Kd: The Kd attribute controls the diffuse light strength, where 1=100%.
- Ks: The **Ks** attribute controls the specular light strength, where 1=100%.
- *Thickness*: The **Thickness** attribute controls the thickness of the top, translucent skin layer.
- ETA: The ETA attribute controls the density of the top, translucent skin layer.

Velvet

The **Velvet** node allows you to create the appearance of realistic velvety fabric. It has the following attributes:

- *Velvet Color*: The **Velvet_Color** attribute selects the color. Clicking this attribute opens a standard Color Picker.
- Velvet Sheen: The Velvet_Sheen attribute is the color of any highlight that appears on
 the object surface. Highlights lend the illusion of shininess. For example, a piece of
 wood displays no highlight, while a piece of polished metal has one or more distinct
 highlights. This color is generally the same as that of the direct lighting falling on the
 affected surface but does not have to be.
- Ka: The **Ka** attribute controls the ambient light strength, where 1=100%.
- *Kd*: The **Kd** attribute controls the diffuse light strength, where 1=100%.
- Ks: The **Ks** attribute controls the specular light strength, where 1=100%.
- *Highlight Size*: The **Highlight_Size** attribute controls the thickness of the top, translucent skin layer.
- Edginess: The ETA attribute controls the density of the top, translucent skin layer.

Hair

The **Hair** node allows you to color your characters' or props' hair. It has the following attributes:

- Root Color: The **Root_Color** attribute selects the color for the root of the hair. Clicking this attribute opens a standard Color Picker.
- *Tip Color*: The **Tip_Color** attribute selects the color for the tip of the hair. Clicking this attribute opens a standard Color Picker.
- Specular Color: The **Specular_Color** attribute selects the hair's highlight color. Clicking this attribute opens a standard Color Picker.
- *Root Softness*: The **Root_Softness** attribute controls the root's transparency, which helps hair blend into the scalp.



TO CREATE REALISTIC HAIR SHADERS, CONNECT THIS NODE TO THE ROOT NODE'S ALTERNATE DIFFUSE ATTRIBUTE.

3D TEXTURE NODES

These are the color nodes included with the **Material** room. Unless specified otherwise, the list of attributes for each node is listed from top to bottom.

FRACTAL SUM

The **Fractal Sum** node is a fractal function that returns values between -1 and 1. It has the following attributes:

- *X Index*: The **x_index** attribute defines the position on the X axis from which to draw a noise sample.
- Y Index: The y_index attribute defines the position on the Y axis from which to draw a noise sample.
- Z Index: The z_index attribute defines the position on the Z axis from which to draw a
 noise sample.
- Octaves: The Octaves attribute defines the number of iterations for the fractal function. Higher values produce more detailed fractals but may increase render time.
- Bottom: The **Bottom** attribute controls the bottom color level or floor.
- *Bias*: The **Bias** attribute specifies how far to shift samples towards the light source to prevent self-shadowing of objects.
- Gain: The Gain attribute controls the balance between light and dark colors.

FBM

The **FBM** node is a multi-fractal function. It has the following attributes:

- *Signed*: Checking the **Signed** checkbox returns values in the range –1 to 1. If unchecked, values less than 0 will be returned unsigned, e.g. –25 will be returned as 25.
- Fractal Increment: The Fractal_Increment attribute controls noise. Lower values result in a smoother noise gradient.
- Frequency Gap: The Frequency_Gap attribute controls fractal size. Higher values product larger fractals.

- *Octaves*: The **Octaves** attribute defines the number of iterations for the fractal function. Higher values produce more detailed fractals but may increase render time.
- *X Index*: The **x_index** attribute defines the position on the X axis from which to draw a noise sample.
- Y Index: The y_index attribute defines the position on the Y axis from which to draw a noise sample.
- Z Index: The z_index attribute defines the position on the Z axis from which to draw a
 noise sample.
- *Bottom*: The **Bottom** attribute controls the bottom color level or floor.
- *Bias*: The **Bias** attribute specifies how far to shift samples towards the light source to prevent self-shadowing of objects.
- Gain: The Gain attribute controls the balance between light and dark colors.

TURBULENCE

The **Turbulence** node is an unsigned fractal function. It has the following attributes:

- *X Index*: The **x_index** attribute defines the position on the X axis from which to draw a noise sample.
- Y Index: The y_index attribute defines the position on the Y axis from which to draw a noise sample.
- *Z Index*: The **z_index** attribute defines the position on the *Z* axis from which to draw a noise sample.
- Octaves: The Octaves attribute defines the number of iterations for the fractal function. Higher values produce more detailed fractals but may increase render time.
- *Bottom*: The **Bottom** attribute controls the bottom color level or floor.
- *Bias*: The **Bias** attribute specifies how far to shift samples towards the light source to prevent self-shadowing of objects.
- Gain: The Gain attribute controls the balance between light and dark colors.

CLOUDS

The **Clouds** node simulates cloud patterns. It has the following attributes:

Sky Color: The Sky_Color attribute defines the areas behind the clouds. Clicking it
opens the standard Color Picker.

- Cloud Cover: The Cloud_Cover attribute defines the clouds. Clicking it opens the standard Color Picker.
- Scale: The Scale attribute defines the size of the clouds.
- Complexity: The Complexity attribute defines the complexity of the cloud patterns.
- Bottom: The **Bottom** attribute controls the bottom color level or floor.
- *Bias*: The **Bias** attribute specifies how far to shift samples towards the light source to prevent self-shadowing of objects.
- Gain: The Gain attribute controls the balance between light and dark colors.
- Global Coordinates: Use the Global_Coordinates pull-down menu to select ON or OFF. When on, the texture is computes using world space instead of object space and vice versa. If this option is on while the object is moving in any way, the texture will appear to "slide" through the object when rendered.

MARBLE

The **Marble** node is a 3D simulation of marble or other stone patterns. It has the following attributes:

- Base Color: The Base_Color attribute defines the base color. Clicking it opens the standard Color Picker.
- Veins: The Veins attribute defines the vein color. Clicking it opens the standard Color Picker
- Scale: The Scale attribute defines the size of the veins.
- *Turbulence*: The **Turbulence** attribute defines the low-frequency randomness of the brick pattern.
- Global Coordinates: Use the Global_Coordinates pull-down menu to select ON or OFF. When on, the texture is computes using world space instead of object space and vice versa. If this option is on while the object is moving in any way, the texture will appear to "slide" through the object when rendered.

NOISE

The **Noise** node adds random "static" or "snow" effects. It has the following attributes:

- *X Index*: The **x_index** attribute defines the position on the X axis from which to draw a noise sample.
- Y Index: The y_index attribute defines the position on the Y axis from which to draw a noise sample.

- Z Index: The z_index attribute defines the position on the Z axis from which to draw a noise sample.
- Min: The **Min** attribute controls the minimum amount of noise.
- Max: The Max attribute controls the minimum amount of noise.

GRANITE

The **Granite** node is a 3D simulation of speckled granite textures. It has the following attributes:

- Base Color: The Base_Color attribute defines the base color. Clicking it opens the standard Color Picker
- Spot Color: The Spot_Color attribute defines the spot color. Clicking it opens the standard Color Picker.
- *Scale*: The **Scale** attribute defines the size of the speckles (spots).
- *Shades*: The **Shades** attribute defines the number of shades used for the texture between the base and spot colors.
- *Balance*: The **Balance** attribute defines the lean towards the base or spot color. Values close to 0 favor the base color while values closer to 1 favor the spot color.
- Global Coordinates: Use the Global_Coordinates pull-down menu to select ON or OFF. When on, the texture is computes using world space instead of object space and vice versa. If this option is on while the object is moving in any way, the texture will appear to "slide" through the object when rendered.

WOOD

The **Wood** node provides a 3D texture that simulates wood patterns. It has the following attributes:

- Light Color: The Light_Wood attribute defines the base wood color. Clicking it opens
 the standard Color Picker.
- *Dark Color*: The **Dark_Wood** attribute defines the wood grain color. Clicking it opens the standard Color Picker.
- Scale: The Scale attribute determines the size of the wood grain.
- *Turbulence*: The **Turbulence** attribute determines the amount of randomness of the wood grain.
- Global Coordinates: Use the Global_Coordinates pull-down menu to select ON or OFF. When on, the texture is computes using world space instead of object space and

vice versa. If this option is on while the object is moving in any way, the texture will appear to "slide" through the object when rendered.

SPOTS

The **Spots** node consists of a 3D texture composed of random spots. It has the following attributes:

- Base Color: The Base_Color attribute defines the base color. Clicking it opens the standard Color Picker.
- Spot Color: The Spot_Color attribute defines the spot color. Clicking it opens the standard Color Picker.
- *Spot Size*: The **Spot_Size** attribute defines the size of the spots.
- Softness: The Softness attribute determines the transition from the spot to the base color.
- Threshold: The Threshold attribute defines the lean towards the base or spot color.
 Values close to 0 favor the base color while values closer to 1 favor the spot color.
- Global Coordinates: Use the Global_Coordinates pull-down menu to select ON or OFF. When on, the texture is computes using world space instead of object space and vice versa. If this option is on while the object is moving in any way, the texture will appear to "slide" through the object when rendered

2D TEXTURE NODES

These are the color nodes included with the **Material** room. Unless specified otherwise, the list of attributes for each node is listed from top to bottom:

IMAGE MAP

The **Image Map** node allows you to specify an image to use as a map (texture, reflection, transparency, bump, displacement, etc.). You can use any image as a map. However, if you want to use a map designed for the particular figure/prop, you must use an image that has been set up to work that way. Please refer to "About Maps & Templates" on page 41 for a general discussion about maps, and to "Creating and Using Texture Maps" on page 75 for a brief description on creating maps. This node has the following attributes:



N

NOTE

SOME OLDER POSER FILES CONTAIN BUMP MAPS CREATED USING THE PROPRIETARY .BUM FILE FORMAT. YOU CAN LOAD .BUM FILES INTO IMAGE MAP NODES AND USE THEM WITH THE POSER 4 RENDERING ENGINE. TO DO THIS, YOU NEED TO ENABLE THE **IGNORE SHADER TREES** OPTION IN THE RENDER OPTIONS WINDOW.

Image Source: Displays the currently loaded image. Clicking the Image Source attribute opens the Texture Manager dialog. To load an image map, click the Browse button to open a standard Open dialog and select the image you wish to load. If you already have an image selected and wish to replace it, first select the new image as described above then click the



Replace button. Click **OK** to implement your changes or **Cancel** to abort.

- *U Scale*: The **U_Scale** attribute sets the U scale factor to apply to the texture map when using UV or VU mapping. When using a projection map method (see below), this is one of two attributes used to define the world space size of the texture map being projected onto the surface.
- *V Scale*: The **V_Scale** attribute sets the V scale factor to apply to the texture map when using UV or VU mapping. When using a projection map method (see below), this is one of two attributes used to define the world space size of the texture map being projected onto the surface.
- *U Offset*: The **U_Offset** attribute defines the U position of the first texture tile in UV space. When using a projection map method (see below), this is one of two attributes used to define the position of the upper left corner of the projection "screen" in grid units.
- *V Offset*: The **V_Offset** attribute defines the V position of the first texture tile in UV space. When using a projection map method (see below), this is one of two attributes used to define the position of the upper left corner of the projection "screen" in grid units.
- Texture Coordinates: The Texture_Coordinates pull-down menu offers the following choices:
 - *UV*: The **UV** option behaves like rubber wallpaper that can stretch over the object surface; the image file is made to correspond with set positions on the object's surface, making any distortion caused by the stretching seem more natural. This is the most versatile mapping method.
 - *VU*: The **VU** option is identical to UV mapping, except that the image map is rotated 90 degrees.

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- XY: The XY option works like a slide projector in that the "screen" being projected onto is the XY plane whose size and position are determined using the U_Scale, V_Scale, U_Offset, and V_Offset parameters. Any surface not oriented with the selected viewing plane will distort the texture at render time.
- *XZ*: Same as above but uses the XZ plane.
- ZY: Same as above but uses the ZY plane.
- Image Mapped: The Image Mapped pull-down menu offers the following choices:
 - *None*: The background color will be used for all areas of the object not covered by the texture map.
 - *Alpha*: The background color will be used for all areas of the object not covered by the texture map. The background color will also be blended with the texture map based on the alpha channel of the texture map.
 - *Clamped*: The edge pixels of the texture map are repeated to cover any area of the object that the texture map does not cover.
 - *Tile*: The texture map will be tiled to ensure total coverage. Tiling is controlled using the **Mirror** U and **Mirror** V attributes, below.
- *Background*: The **Background** attribute specifies the background color. Clicking this attribute opens a standard Color Picker.
- *Global Coordinates*: Checking the **Global_Coordinates** button forces projected maps to use global instead of local coordinates.
- *Mirror U*: Enabling the **Mirror_U** option can help hide the seams between texture cells when tiling textures.
- *Mirror V*: Enabling the **Mirror_V** option can help hide the seams between texture cells when tiling textures.
- *Texture Strength*: The **Texture_Strength** attribute defines the strength of the texture map, where 1=100%.

TILE

The **Tile** node is a 2D texture that simulates tile patterns. It has the following attributes:

- *Tile 1*: The **Tile_1** attribute defines the first tile color. Clicking it opens the standard Color Picker.
- *Tile Shape 1*: The **Tile_Shape_1** pull-down menu defines the shape of the first tile. Your options are:
 - Rectangle: Selecting **Rectangular** will make the tiles rectangular.
 - *Ellipsoid*: Selecting **Ellipsoid** will make the tiles elliptical.

- Tile 2: This attribute defines the second tile color. Clicking it opens the standard Color Picker.
- *Tile Shape 2*: The **Tile_Shape_2** pull-down menu defines the shape of the second tile. This menu has the same options as the **Tile 1 Shape** menu, described above.
- Mortar Color: The Mortar_Color attribute defines the mortar color. Clicking it opens
 the standard Color Picker.
- *Tile Width*: The **Tile Width** attribute defines the tile's width.
- *Tile Height*: The **Tile_Height** attribute defines the tile's height in.
- Mortar Thickness: The Mortar_Thickness attribute determines the spacing between bricks.
- *Turbulence*: Defines the low-frequency randomness of the brick pattern.
- Softness: The **Softness** attribute defines how softly the brick blends into the mortar.
- *Noise*: The **Noise** attribute defines the high-frequency randomness of the brick pattern.

BRICK

The **Brick** node simulates brick or stone wall patterns. It has the following attributes:

- Brick Color: The Brick_Color attribute defines the brick color. Clicking it opens the standard Color Picker.
- *Mortar Color*: The **Mortar_Color** attribute defines the mortar color. Clicking it opens the standard Color Picker.
- Brick Width: The **Brick Width** attribute determines the horizontal scale of the bricks.
- Brick Height: The **Brick Height** attribute determines the vertical scale of the bricks.
- Mortar Width: The Mortar Width attribute determines the spacing between bricks.
- *Turbulence*: The **Turbulence** attribute defines the low frequency randomness of the brick pattern.
- Softness: The **Softness** attribute defines how softly the brick blends into the mortar.
- *Noise*: The **Noise** attribute defines the high frequency randomness of the brick pattern.

WEAVE

The **Weave** node creates woven textile effects. It has the following attributes:

- *Color 1*: The **Color_1** attribute defines the first woven color. Clicking this attribute opens the standard Color Picker.
- Color 2: The Color_2 attribute defines the second woven color. Clicking this attribute opens the standard Color Picker.
- Base Color: The **Base_Color** attribute defines the underlying color behind the woven pattern. Clicking this attribute opens the standard Color Picker.
- U Scale: The U Scale attribute defines the size of the weave in the U direction.
- *V Scale*: The **V_Scale** attribute defines the size of the weave in the V direction.
- *Height*: The **Height** attribute defines the height of the woven pattern.
- *Bias*: The **Bias** attribute adjusts the weave's bias.
- Gain: The Gain attribute adjusts the weave's gain.

MOVIE

The **Movie** node allows you to add animations to materials. It has the following attributes:

- Video Source: The Video_Source attribute specifies the path containing the selected animation.
- U Scale: The U Scale attribute defines the size of the animation in the U direction.
- V Scale: The V Scale attribute defines the size of the animation in the V direction.
- *U Offset*: The **U_Offset** attribute defines the U position of the first texture tile in UV space. When using a projection map method (see below), this is one of two attributes used to define the position of the upper left corner of the projection "screen" in grid units.
- *V Offset*: The **U_Offset** attribute defines the V position of the first texture tile in UV space. When using a projection map method (see below), this is one of two attributes used to define the position of the upper left corner of the projection "screen" in grid units.
- *Texture Coordinates*: The **Texture_Coordinates** pull-down menu offers the following choices:
 - *UV*: The **UV** option behaves like rubber wallpaper that can stretch over the object surface; the PICT file is made to correspond with set positions on the object's

- surface, making any distortion caused by the stretching seem more natural. This is the most versatile mapping method.
- *VU*: The **VU** option is identical to UV mapping, except that the image map is rotated 90 degrees.
- XY. The XY option works like a slide projector in that the "screen" being projected onto is the XY plane whose size and position are determined using the U_Scale, V_Scale, U_Offset, and V_Offset parameters. Any surface not oriented with the selected viewing plane will distort the texture at render time.
- XZ: Same as above but uses the XZ plane.
- ZY: Same as above but uses the ZY plane.
- Image Mapped: The Image_Mapped pull-down menu offers the following choices:
 - None: The background color will be used for all areas of the object not covered by the texture map.
 - *Alpha*: The background color will be used for all areas of the object not covered by the texture map. The background color will also be blended with the texture map based on the alpha channel of the texture map.
 - *Clamped*: The edge pixels of the texture map are repeated to cover any area of the object not which the texture map does not cover.
 - *Tile*: The texture map will be tiled to ensure total coverage. Tiling is controlled using the **Mirror U** and **Mirror V** attributes, below.
- Background: The **Background** attribute specifies the background color.
- *Global Coordinates*: Checking the **Global_Coordinates** button forces projected maps to use global instead of local coordinates.
- *Mirror U*: Enabling the **Mirror_U** option can help hide the seams between texture cells when tiling textures.
- *Mirror V*: Enabling the **Mirror_V** option can help hide the seams between texture cells when tiling textures.
- *Texture Strength*: The **Texture_Strength** attribute defines the strength of the animated texture map, where 1=100%.
- Frame Number: The Frame Number attribute functions primarily as an input for other nodes (such as math and variable nodes), and allows you to retime the animation controlled by this node.
- Loop Movie: Checking the **Loop Movie** checkbox loops the animation.

PART 9

Rendering

CHAPTER 45: SETTING RENDER OPTIONS



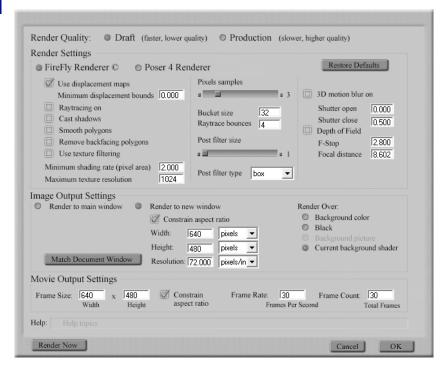
oser 5 allows you to render still and animated scenes using three separate rendering tools:

- All new FireFly rendering engine: This all-new rendering engine supports the use of procedural shaders, contains many controls that let you control exactly how you want your rendered images/movies to appear, and has the capability of generating truly breathtaking results. Please refer to Chapter 46: "The Render Options Window" on page 341 for information on the new consolidated Render Options dialog, then to Chapter 47: "Using The FireFly Render Engine" on page 345 for information on using the FireFly renderer.
- *Poser 4 rendering engine*: When tried, true, and basic is what you need, the classic Poser 4 rendering engine will deliver great results.
- *Sketch Designer*: For Poser 5 The **Sketch Designer** retains its status as a separate window within the application. Please refer to Chapter 49: "The Sketch Designer Renderer" on page 352 for information on using the Sketch Designer renderer.

Chapter 46: The Render Options Window



o open the **Render Options** window, select **Render>Render Options**. This window appears as follows:



The **Render Options** window has the following options:

DRAFT VS. PRODUCTION OPTIONS

A the top of the window, you can click the appropriate radio button to select either **Draft** or **Production** render options:

Checking the **Draft Render Options** radio button selects rendering options that will
provide faster renders at lower quality settings when using the defaults. Use this option
while creating your scene to get an idea what it will look like once it's completed.
Also, Curious Labs recommends using the Poser 4 renderer for draft renders.

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 Checking the Production Render Options radio button selects high-quality render settings. Render times are increased. Use this option for your final output. Curious Labs recommends using the FireFly renderer for production rendering.

You can customize both draft and production default rendering values and restore the defaults by clicking the **Restore Defaults** button.

RENDER SETTINGS

Check the appropriate radio button to select either the FireFly renderer (see Chapter 47: "Using The FireFly Render Engine" on page 345) or the Poser 4 renderer (see Chapter 48: "Using the Poser 4 Render Engine" on page 350).

IMAGE OUTPUT SETTINGS

This portion of the **Render Options** window allows you to control how a still image will be rendered:

- Render to main window: Checking the Render to main window radio button causes rendered images to appear in the Document window. Rendered images will render using the same height and width as the Document window. Please refer to "Document Window Size" on page 141 for information on resizing the Document window. If you select this option, you can save your rendered images by selecting File>Export>Image, as described in "Exporting Images" on page 88.
- Render to new window: Checking the Render to new window radio button opens a
 new window when rendering images. This new window is separate from the
 Document window and can have its own settings:
 - Match Document Window: Clicking the Match Document Window button sets the Document window's current size in the Width and Height fields.
 - Constrain Aspect Ratio: Checking the Constrain Aspect Ratio checkbox preserves the render window's aspect ratio (width divided by height). For example, if you begin with 640x480 and change the 640 to 1280, the height will automatically change to 960. Clearing this checkbox disables this option.
 - *Width*: Enter the width in pixels for the render window in the **Width** field. Larger measurements take longer to render and require more disk space.
 - *Height*: Enter the height in pixels for the render window in the **Height** field. Larger measurements take longer to render and require more disk space.
 - Resolution: Enter the resolution in dot pixels per inch (DPI) in the **Resolution** field. 72DPI is normal for screen-resolution images and is suitable for images you intend to distribute online. 300DPI is appropriate for most print functions, and

1200DPI is used when you need extreme detail. Higher resolution images require more disk space and take longer to render.

- Render Over: These options specify the background to be used when rendering images or movies
 - Background Color: Selecting **Background Color** renders the image/movie over the Document Window's background color. Please refer to "Colors" on page 143 for information about changing **Document** window colors.
 - Black: Selecting **Black** renders the image/movie over a plain black background.
 - Background Picture: Selecting Background Picture renders the image/movie over the background image in your scene. Please refer to "Importing Background Pictures" on page 84 for information on importing background pictures.
 - Current Background Shader: Selecting Current Background Shader renders the image/movie over the specified background shader. Please refer to "Root Background Node" on page 317 for information about using background shaders.

MOVIE OUTPUT SETTINGS

The bottom of the **Render Options** window is where you set basic options for animated output. Before using these options, you must enable the **Current Render Settings** option in the **Make Movie** window, as described in Chapter 50: "Rendering Animations" on page 356. The **Render Options** window lets you set the following animation options:

FRAME SIZE

Select your desired frame size in pixels by entering your desired width and height in the **Width** and **Height** fields, respectively. Some standard movie sizes are:

- 160x120
- 320x240
- 640x480

Checking the **Constrain Aspect Ratio** checkbox preserves the animation's *aspect ratio* (width divided by height). For example, if you begin with 640x480 and change the 640 to 1280, the height will automatically change to 960. Clearing this checkbox disables this option. Larger movies require vastly increased rendering times and take up far more room on your hard drive.

NOTE

THE MAKE MOVIE WINDOW SETTINGS WILL OVERRIDE THOSE IN THE RENDER OPTIONS WINDOW UNLESS YOU SELECT CURRENT RENDER OPTIONS IN THE MAKE MOVIE WINDOW.

FRAME RATE

Enter your desired frame rate (number of frames per second) here. Higher numbers give smoother animations but require longer rendering times and take up more room on your hard drive. Please refer to "Frame Rate" on page 283 for a listing of commonly used frame rates. You can also set these options in the **Make Movie** window (see Chapter 50: "Rendering Animations" on page 356) and in the **Animation** palette (see "Using the Animation Palette" on page 282).

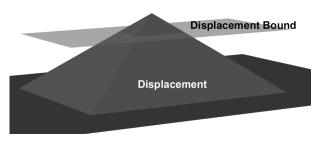
FRAME COUNT

This is the total number of frames in your movie. Your movie's total run time will be the number of frames divided by the frame rate. You can also set this option in the **Animation** controls ("Using the Animation Controls" on page 279), the **Animation** palette, and the **Make Movie** window.

Chapter 47: Using The FireFly Render Engine

his chapter describes the FireFly render options:

- Use Displacement Maps: Checking the Use Displacement Maps button enables (checked) or disables (cleared) using displacement maps in your rendered output. Please see "About Maps & Templates" on page 41 for a description of maps in general, "Displacement Map" on page 44 for a description of displacement maps, and Part 8: "Materials" on page 305 for information about the Material room (maps are added to nodes that are part of shaders).
- Minimum Displacement
 Bounds: The Minimum
 Displacement Bounds
 value is measured in pixels
 and determines the
 maximum visible amount
 of displacement in pixels.
 Displacement is a
 rendering technique that
 adds realistic bumps and



indentations to surfaces. This is normally preferable to modeling deformations directly, since you can alter the *displacement map* (template used for calculating displacement) rather than editing the object. Further, adding such detail directly to objects can exponentially increase its polygon count and greatly affect render time. Enter your desired value in the **Minimum Displacement Bounds** field, which sets the limits for the entire scene. Displacement deformations can possibly exceed the object's specified bounding box. Therefore, this value creates a larger displacement boundary, which exceeds the object's bounding box by the set number of units. If a particular displacement exceeds the displacement bounds at any point, you will see a hole or *patch crack* at the affected location. The following diagram illustrates this concept. In this case, the top of the pyramid exceeds the (displacement) bounds and will therefore be cut off, leaving a patch crack.

- Raytracing On: Checking the Raytracing On box enables ray tracing, and vice versa. Enabling ray tracing greatly enhances renderings, especially curved surfaces, shadows, reflections, and refraction but also greatly increases rendering times. Raytracing projects rays from the camera to every pixel visible in the render window. In most cases, projected rays that strike an object are reflected back to the window and that pixel is set to the object's color at the location where the intersection occurred. If the ray intersects more than one object, the closest object is used. Firing rays from the point of intersection towards light sources creates shadows. If the ray intersects something, that point of the object is in shadow. For reflections, when the ray intersects a reflective surface, a new ray is traced starting from the point of intersection and the color retuned by that ray is incorporated into the color of the original intersection. This process is called recursive raytracing because reflected rays can spawn more reflected rays as long as they keep intersecting reflective objects. The following image shows an example of raytracing. You can set the number of reflections (bounces) using the Raytrace bounces option (see below).
- Cast Shadows: Checking the Cast Shadows checkbox causes the rendering engine to
 calculate shadows when rendering. Individual settings will override this general
 setting. For example, if a figure in your scene is set to not cast shadows, then
 everything else in the scene that can cast a shadow will when the scene is rendered and
 vice versa. Enabling this option adds realism to your renders but can affect render
 time.
- Smooth Polygons: Checking the **Smooth Polygons** checkbox enables polygon smoothing, and vice versa. When enabled, the rendering engine attempts to smooth hard corners on objects. This can result in smoother-looking objects but can also make hard edges look off. You should experiment as each scene is different.
- Remove Back-facing Polygons: Checking the Remove Back-facing Polygons
 checkbox causes all polygons facing away from the camera not to be considered
 during rendering. The actual polygons not considered depend on the camera angle and
 the position/angle of the object(s) in your scene relative to the camera. Enabling this
 option can greatly speed up render times but can affect realism, especially when using
 ray tracing. Clearing this checkbox disables this option.
- *Use Texture Filtering*: Checking the **Use Texture Filtering** checkbox applies a filter to 2D image maps that gives them a softer appearance. This is useful if you have, for example, a tilted plane where the texture map appears aliased in the distance. Filtering consumes computing resources and you should experiment with enabling/disabling this setting to determine if it improves the appearance of your renders.

- Minimum Shading Rate: The Minimum Shading Rate value determines the level to which object polygons will be subdivided (or diced) into micropolygons. For example, a shading rate of 1 means that polygons will be divided into micro-polygons that each occupy approximately one pixel of the rendered image, and a value of 4 means that each micropolygon will cover approximately 4 pixels of the rendered image. Values less than one (such as 0.2) cause each micropolygon to be less than a pixel in size. Micropolygons within a given polygon are as identical in size, shape, and area as possible. At render time, the renderer will subdivide each polygon, sample each micropolygon, and assign the micropolygon's average color to the pixel being rendered. Enter your desired sampling rate in the **Minimum Shading Rate** field. Decreasing this value can refine your renders but increases render time. This value is for your entire scene, meaning that it overrides objects whose shading rates set below this minimum. You can set this value on a per-object basis using the desired object's **Properties** palette. Setting this value in the **Render Options** window overrides all per-object settings that are lower than this global setting. If an object has a higher shading rate, Poser will use the object's shading rate when rendering that object.
- Pixels Samples: Select the XY pixel sample rate by moving the Pixels Samples slider. Alternatively, you can click the dots at either side of the slider to increment (right) or decrement (left) the sample size. Pixel sampling rates determine how many pixels are sampled when calculating antialiasing for a single pixel. For example, a setting of 3 creates a 3-pixel by 3-pixel grid with the pixel being sampled in the center. At render time, the renderer would examine the 3x3 area when determining the color and other values to assign to the pixel currently being rendered. Expanding this number can refine your renders but will greatly affect render times. 3x3 is considered a good default.
- Bucket Size: The bucket is the area being rendered at any one time. Enter your desired value in the **Bucket** Size field. For example, entering a value of 10 creates a rendering bucket that is 10-pixels by 10-pixels in size. At render time, the renderer will render one such 10x10 area at once. Increasing the bucket size increases the area being rendered at once but requires greater system resources. Use caution when enlarging the bucket beyond its default size, and monitor your system resources.
- Raytrace bounces: When raytracing is enabled, the **Raytrace bounces** option specifies how many "bounces" or recursions the renderer will use when raytracing. Higher numbers add realism but also require longer render times.
- Post filter size: The post filter supersamples pixels, that is, samples the colors at various points inside a pixel to arrive at the final pixel color. This is done in order to reduce or eliminate various forms of aliasing (jagged edges) that can occur under different circumstances. The final pixel color is a weighted average of the supersample. Increasing this value increases this effect but affects rendering time and resources. You can adjust this value by moving the Post Filter Size slider or by

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clicking the dots on either slide of the slider to increment (right) or decrement (left) the value by 1 for each click.

Post filter Type: Normally, the farther a post filter sample is from
its center, the less its weight. This can be affected by selecting a
filter that determines the relationship between sample distance and
weight using the Pixel Filter pull-down menu. Your options are as
follows:



• Box: A **Box** filter gives equal weight to all samples in a radius equal to half the pixel filter.

 Gaussian: A Gauss filter gives a variably decreasing amount of weight to all samples in a radius equal to half the pixel filter size with the maximum loss of weight occurring closest to the center of the filter.



 Sinc: A Sinc filter gives a decreasing ripplelike amount of weight to all samples in a radius roughly double the pixel filter size.



• 3D motion blur on: As you probably know, fast moving objects appear blurry. The blur is caused by the fact that our eyes cannot "refresh" quickly enough to see that the object is no longer in its previous location. Poser 5's Motion Blur feature lets you give your animations the illusion of motion, adding a whole new dynamic and level of realism to your renderings. Checking the 3D motion blur on checkbox enables motion blurring for your scene when rendering. When this option is enabled, adjusting the shutter open and close times affects the amount of blurring.

- Shutter open: The **Shutter open** number represents the shutter opening time in fractions of a frame, where 0.0 is the beginning of the frame and 1.0 is the end of the frame. Unlike a real camera shutter, this one opens and closes instantly with zero elapsed time. Regular camera shutters, while extremely fast, require a small time interval to travel between the closed and open positions.
- Shutter close: The **Shutter close** number represents the shutter closing time in fractions of a frame, where 0.0 is the beginning of the frame and 1.0 is the end of the frame. Unlike a real camera shutter, this one opens and closes instantly with zero elapsed time. Regular camera shutters, while extremely fast, require a small time interval to travel between the closed and open positions. For example, setting a beginning time of 0.0 and an ending time of 0.5 means the shutter would be open for the first half of a frame.

- *F-Stop*: The **F-Stop** number represents a lens aperture size. The larger the number, the smaller the aperture opening. Each number is multiplied by a factor of 1.4 as the scale rises, giving standard values of 1.0, 1.4, 2, 2.8, 4, 5.6, 8, 11, 16, 22, 32, etc. Each change either doubles or halves the amount of light transmitted by the lens to the film plane. Basically, calculated from the focal length of the lens divided by the diameter of the bundle of light rays entering the lens and passing through the aperture in the iris diaphragm. On a physical camera, this represents the lens focal length (see next bullet) divided by the f-stop value to determine the actual aperture size. Enter your desired value in the **F-Stop** field.
- *Focal Distance*: The *focal distance* is the distance at which objects appear most in focus. Enter your desired value in the **Focal distance** field.

Once you have finished entering your desired settings, click **OK** to store them. Render settings are saved when you save your scene. Clicking **Cancel** closes the **Render Options** dialog without storing your changes.

To render your scene as a still image, select **Render>Render** or click the **Render Now** button in the **Render Options** dialog.

To render animations, please refer to Chapter 50: "Rendering Animations" on page 356 for more information.

Chapter 48: Using the Poser 4 Render Engine

his chapter explains the Poser 4 render engine settings: The Poser 4 render engine supports many **Material** room shader nodes, with the exceptions of certain features such as displacement, raytracing, 3D motion blur, etc. It also maintains .BUM file format support for backward compatibility with some older Poser files.

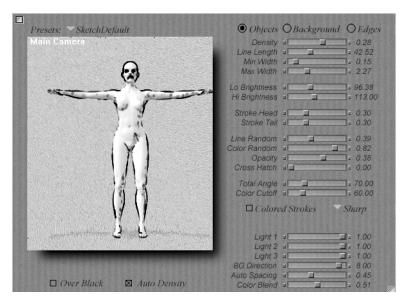
- Anti-alias: Checking the Anti-alias box enables anti-aliasing, which reduces the
 jagged appearance of object edges in rendered images by applying a small amount of
 blurring to blend the object edge into the background. Clearing this checkbox disables
 this option.
- *Use bump maps*: Checking the **Use Bump maps** checkbox enables displaying bump maps applied to objects/props in your scene in the rendered output. Clearing this checkbox disables this option.
- *Use texture maps*: Checking the **Use texture maps** checkbox enables displaying textured maps applied to objects/props in your scene in the rendered output. Clearing this checkbox disables this option.
- Cast shadows: Checking the Cast shadows checkbox causes the rendering engine to
 calculate shadows when rendering. Individual settings will override this general
 setting. For example, if a figure in your scene is set to not cast shadows, then
 everything else in the scene that can cast a shadow will when the scene is rendered and
 vice versa. Enabling this option adds realism to your renders but can affect render
 time.
- Ignore Advanced Shader Trees: Checking the Ignore Advanced Shader Trees checkbox causes the Poser 4 renderer to ignore most shader nodes except for image maps. This option is included for backward compatibility with older Poser material that use bump maps created in the .BUM file format. Enabling this option disconnects all nodes from the root node in the Material room, meaning you will need to reconnect them. Please refer to "Root Material/Hair Node" on page 315 for information about root nodes and to "Image Map" on page 333 for information about using image map nodes.

Once you have finished entering your desired settings, click **OK** to store them. Render settings are saved when you save your scene. Clicking **Cancel** closes the **Render Options** dialog without storing your changes.

To render your scene as a still image, select **Render>Render**, click the **Render Now** button in the **Render Options** dialog, or press [CTRL]+[R]. To render animations, please refer to Chapter 50: "Rendering Animations" on page 356 for more information.

Chapter 49: The Sketch Designer Renderer

oser's **Sketch Designer** renders scenes as sketch-like drawings using black-and-white or colored brush strokes that you can tailor to your liking. Simulate pen, pencil, pastel, charcoal, and even watercolors and paintings without ever having to set foot inside an art school!



You can save **Sketch Designer** renders and reload them later for further work. The Sketch Designer also lets you create amazing animations that look like hand-drawn movies. For best results, try rendering scenes using plenty of detail (hair, clothing, etc.) and dramatic lighting.

To access the Sketch Designer, select Window>Sketch Designer.

SKETCH ELEMENTS

The Sketch Designer recognizes three distinct divisions within your scene:

- *Objects*: Checking the **Objects** radio button allows you to determine the sketch style for objects and figures in your scene.
- *Background*: Checking the **Background** radio button allows you to determine the sketch style for your scene's background.
- *Edges*: Checking the **Edges** radio button allows you to determine the sketch style for the edges of objects and figures in your scene.

PRESETS

You can use the **Presets** pop-up window above the preview pane to select one of the available preset sketch styles. You can also use the sliders and other options to create an almost infinite variety of styles.

The **Presets** pop-up also allows you to create and remove sketch presets. To create a preset, adjust the sketch style to your desired settings, then select **Presets>Create Preset**. Enter a name for your preset and click **OK**. Your new preset will appear in the **Presets** menu.

To delete a preset, select the preset you wish to delete using the **Presets** menu, then select **Presets>Delete Preset**.



THE DELETE PRESET OPTION ALLOWS YOU TO REMOVE THE SKETCH PRESETS INCLUDED WITH POSER. ONCE DELETED, YOU MUST REINSTALL POSER TO RESTORE YOUR FACTORY DEFAULT SKETCH PRESETS.

CHECKBOXES

The Sketch Designer has three checkboxes:

- Over Black: Checking the Over Black checkbox renders your scene over a black background with white strokes. When disabled, the background is white with black strokes.
- Auto Density: Checking the Auto Density checkbox causes stroke density to reach an
 automatic density based on the current scene, ignoring the Density slider setting (see
 below). When disabled, the density is calculated based on the Density slider setting.
- Colored Strokes: Checking the Colored Strokes checkbox causes sketches to be rendered in color. When disabled, sketches are rendered in black and white.

BRUSHES

The **Sketch Designer** includes several predefined brushes, available using the **Brushes** pull-down menu. For maximum effect, try using these brushes with both the **Min Width** and **Max Width** sliders set to higher values.

SKETCH PARAMETERS

The **Sketch Designer** includes the following parameters, controllable using sliders. Moving a slider to the right increases the selected value, and vice versa. These parameters customize many characteristics of the sketched lines. Your sketch redraws each time you adjust a value, allowing you to see the results of your changes.

- *Density*: The **Density** slider controls the density of lines in the sketch.
- Line Length: The Line Length slider defines the length of strokes.
- *Min Width*: The **Min Width** slider defines the width of the edge of each stroke, which affects the brightness of the original image.
- Max Width: The Max Width slider defines the width of the center of each stroke, which affects the brightness of the original image.
- Lo Brightness: The Lo Brightness slider determines the band of tone. A low setting
 only draws lines in the darkest parts of your scene. If the Over Black option is
 disabled, setting this control to 0 produces the best results.
- Hi Brightness: The Hi Brightness slider determines the band of tone. A lower setting
 only draws lines in the darkest parts of your scene. If the Over Black option is
 enabled, setting this control to 1 produces the best results.
- Stroke Head: The Stroke Head slider determines the amount of taper at the stroke's head.
- Stroke Tail: The Stroke Tail slider determines the amount of taper at the stroke's tail.
- Line Random: The Line Random slider controls line randomizations. Higher settings result in more randomly shaped lines.
- Color Random: The Color Random slider controls color randomizations. Higher settings result in more random colorization.
- Opacity: The Opacity slider determines the clarity of lines. Lower values create more transparent strokes.
- Cross Hatch: The Cross Hatch slider controls the frequency of cross-hatching in the strokes.

- *Total Angle*: The **Total Angle** slider determines the total amount of angle change that a stroke can have before it stops drawing. Higher values darken the image. Lower this value when you have lower **Density** settings.
- *Color Cutoff*: The **Color Cutoff** slider determines the threshold of color changes allowed for a stroke. Use this slider in conjunction with **Total Angle**.
- Light 1, 2, and 3: The **Light 1**, **Light 2**, and **Light 3** sliders determine the extent to which the first three lights in your scene contribute to the direction of strokes. Higher values make the strokes go in the direction of the selected light(s).
- BG Direction: The BG Direction slider defines the direction of the background strokes.
- Auto Spacing: The Auto Spacing slider controls the amount of space between strokes
 if the Auto Density option is enabled.
- *Color Blend*: The **Color Blend** slider determines how much color in the Document Window will be blended into the sketch.

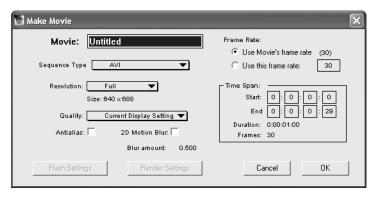
RENDERING SKETCHES

After setting up your sketch, you can render it to the **Document** window. This is useful if you want to export a movie rendered using the Sketch Designer renderer. To render to the **Document** window, select **Render>Sketch Style Render**.

Chapter 50: Rendering Animations



our can access the **Make Movie** window by selecting **Animation>Make Movie**. The **Make Movie** window appears as follows:



To use the **Make Movie** window:

- 1 Enter a name for your movie in the **Movie** field.
- 2 Select your desired movie format using the **Sequence Type** pull-down menu. Your available options are:
 - AVI (windows): This is the default Windows movie format.
 - *OuickTime (Macintosh)*: This is the default Macintosh movie format.
 - *Image Files*: This option creates a series of still images, one for each frame in your animation.
 - Macromedia Flash: Macromedia Flash is a popular format for animations posted on Web sites.
- **3** Select your desired export options:
 - Resolution: Use the **Resolution** pull-down menu to select **Full**, **Half**, **Quarter**, or **Current** (current **Document** window resolution).
 - Quality: Use the Quality pull-down menu to select Current Display Quality or Current Render Quality. If you select Current Render Quality, you can then adjust your render settings by clicking the Render Settings button to open the Render Options window as described in Chapter 46: "The Render Options Window" on page 341. Selecting Current Sketch Settings uses the Sketch Designer renderer, which is described in Chapter 49: "The Sketch Designer Renderer" on page 352.

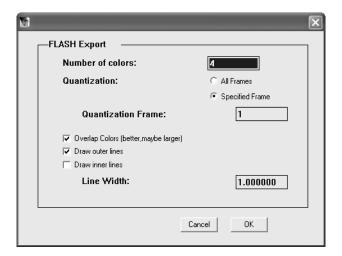


THE MAKE MOVIE WINDOW SETTINGS WILL OVERRIDE THOSE IN THE RENDER OPTIONS WINDOW UNLESS YOU SELECT CURRENT RENDER OPTIONS IN THE MAKE MOVIE WINDOW.

- Flash Settings: See below.
- Frame Rate: Check the appropriate Frame Rate radio button to use the movie's current output frame rate (as opposed to the actual frame rate of the Poser keyframe data) or select your own. Enter the desired frame rate in the box, if applicable. Please refer to "Frame Rate" on page 283 for a listing of common frame rates. This option is also available in the Render Options window.
- *Time Span*: Enter the start and end times for your animation in the format Hours:Minutes:Seconds:Frame in the **Start** and **End** boxes, if desired. This feature is useful if you wish to save a subset of the total animation. For example, if you create a 60-second animation, you could opt to save a 15-second movie beginning 35 seconds into the total animation. The movie duration and total number of frames appear in the **Duration** and **Frames** displays, respectively.
- 4 Click the **OK** button to open the **Save Movie** dialog box, which allows you to browse for your desired folder, then click the **Save** button to save your new animation to the selected folder. Animation renders can take some time depending on your scene, animation settings, and computer, so please be patient.

FLASH SETTINGS

Clicking the Flash Settings button opens the Flash Settings dialog:



You have the following options when exporting Macromedia Flash movies:

- *Number of colors*: Enter the desired number of colors in the **Number of colors** box. Note that adding colors will increase the file size and download time for people viewing this file via the Web. Four colors are good for most situations.
- Quantization: Quantization is the process of selecting the specified number of colors that best represent your Poser figure. Check the appropriate Quantization radio button to select if you want the quantization to occur across All Frames (which can be useful if, for example, you are animating materials) or at a Specified Frame.
- *Quantization Frame*: If you selected **Specific Frame**, enter the frame number where the quantization should occur in the **Specified Frame** field.
- Overlap Colors: Checking the Overlap Colors checkbox causes Macromedia Flash to take the color that is used the most and create a silhouette of the entire object (such as a figure or prop). The next color is placed on top of the first, and so on, with each layer of color containing the layers above it. Selecting this option makes for larger files, but will increase the quality of the final file. Deselecting this option causes blocks of different colors to appear next to each other with no overlapping, which could cause the animated object to appear broken or discontinuous.
- Draw Outer Lines: Checking the Draw Outer Lines checkbox draws a border around the entire silhouette.
- *Draw Inner Lines*: Checking the **Draw Inner Lines** checkbox draws lines around each color layer.
- Line Width: Enter the desired line width (in pixels) in the **Line Width** box.

Chapter 51: Tips & Tricks

his chapter contains a few tips and tricks for improving still and animated renders:

- Experiment with low render settings and gradually increase them until you get the
 results you want. This will render your scene using the optimal balance between
 quality and speed. Small Web animations might need lower quality rendering while a
 piece of fine art might require very high settings.
- Still and animated renders use the currently selected camera. Be sure to select the proper camera before rendering, particularly if camera motion is part of your animation.
- By default, Poser renders using the **Texture Shaded** display style.
- Use the draft and production rendering options to save time while working and produce highly realistic results.

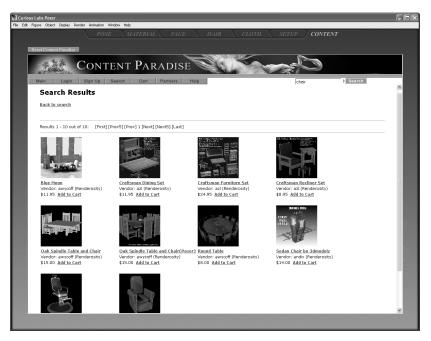
Use prop-based hair and figure-based clothing instead of Poser 5 hair and cloth where you do not need dynamic effects. This will conserve computing resources.

PART 10

Adding New Poser Content

Chapter 52: About The Poser 5 Content Room

elcome to Content Paradise by EGISYS, the Movement Company! Poser 5's Content room accesses Content Paradise, which is your gateway to leading marketplaces that provide both free and for-sale Poser content. Need a Poser figure, prop, texture, or something else? Content Paradise has you covered. And, Poser 5's new Download Manager can auto-install most downloaded content and add it to the Library palette. No more manually placing files in folders! Clicking the Content room tab at the top of the Poser workspace opens the Content room:



Aside from the Download Manager, the **Content** room accesses the online Content Paradise Web server and seamlessly displays Web pages in the Poser workspace. The Content Paradise features and interface are subject to change as EGISYS adds and refines this service. Because of this, the discussion in this reference manual is limited to discussing the Download Manager.

Content Paradise includes comprehensive online help, which is accessible from anywhere in the interface by clicking the **Help** links. Please be sure to read all of the applicable Terms of Service, including the Privacy Policy. Curious Labs and EGISYS reserve the right to alter these policies at any time without prior notice.

DOWNLOADING AND INSTALLING CONTENT

After you purchase your content and check out of the marketplace(s), you will be able to download it to your computer. A progress meter keeps you informed of your download's status. Follow the onscreen instructions to begin the download. Once the data transfer is complete, you can begin the installation process:

The **Installation Options** window appears for each downloaded file once data transfer is complete, with the following options:

- Install: Clicking the Install button installs the downloaded content to your Downloads
 Library. Please see Chapter 24: "The Poser Library" on page 126 for information
 about Libraries and the Library palette. The content will install to the folder specified
 in the Install Path field. To change the folder that content is installed to, enter your
 desired path in the Install Path field.
- Copy: Clicking the Copy button copies downloaded content to the path specified in the Install Path field.
- Cancel: Clicking the Cancel button cancels the installation process. Downloaded content will remain uninstalled in the folder used by Poser for temporary storage. You will need to re-download cancelled content in order to install it.

If the file being installed already exists, a dialog pops up asking if you want to overwrite the existing file. Click **Cancel** to abort, or **OK** to proceed with overwriting the old file.

A confirmation dialog appears once installation is complete. Click **OK** to acknowledge successful installation of your downloaded content.

If Poser cannot recognize the content or cannot install content (such as an executable file), the **Copy to Folder** window appears again with the notification and allows you to browse for a folder. Clicking the **Copy** button copies the content to the specified folder where you can access and process it, and clicking **Cancel** exits the Download Manager.

PART 11

Appendices

Appendix A: Technical Support

e've worked hard to ensure that Poser 5's powerful features are both easy to use and available to users running a wide variety of computers. However, there may be times when you need technical support. Curious Labs is pleased to offer free technical support to registered users of our products. To receive technical support, please visit our Web site at http://www.curiouslabs.com/support and browse through our extensive product FAQs.

Please use the following checklist before contacting Technical Support:

- *Manual*: This Reference Manual answers most Poser 5 questions. Before contacting Technical Support, please read the pertinent section(s) of this manual thoroughly.
- FAQ: Please visit the product FAQs at the above-listed URL.
- *Third-party forums*: If your question is more artistic than technical, check out some of the great online Poser forums where artists come together. Please see "Third-Party Forums" on page 9 for links to a few online forums.

Still don't see your question answered? Please contact Technical Support by clicking the link on the product FAQ (Frequently Asked Questions) page and completing our online support form. When contacting Technical Support, please fill out the form as completely as possible and include as much information as possible. This will help us resolve your issue faster. Once the form is complete, a Technical Support representative will contact you directly as soon as possible. Support requests are answered via email in the order they are received. Online support is free to all registered Poser users. Poser 5 users are automatically registered while installing the application. You may also email support requests to tech@curiouslabs.com.

Telephone support is also free to registered users. Before using telephone support, please check the resources listed above. Phone support is intended to solve critical technical issues. We are unable to answer project-based questions. Phone support is available by calling (831) 462-8902 during normal business hours (U.S. Pacific time). If you call during other hours, or if a representative is not able to answer your call immediately, you will be asked to leave a message, and we will return your call as soon as possible (generally within two business days). When calling, please be in front of your computer with Poser running.

In order to receive support, we require the following information:

- Your name
- Email address
- Telephone number (including international dialing information, if applicable)
- Your current operating system
- Your computer specifications (CPU, RAM, hard drive, video card, etc.)
- Poser 5 serial number
- Detailed description of the problem

This information will help us isolate and resolve your issue. We require this information in order to provide support services and are unable to respond to incomplete requests in a timely fashion.

For international support, please contact your local distributor. Curious Labs maintains a list of our international distributors at http://www.curiouslabs.com.

NOTI

CURIOUS LABS RESERVES THE RIGHT TO ALTER OUR TECHNICAL SUPPORT POLICIES AT ANY TIME WITHOUT ADVANCE NOTICE.

Appendix B: Poser File Structure



his Appendix describes some basics about the Poser file system.

ABOUT POSER FILES

Some advanced Poser users obtain added control over their work by editing the source files directly instead of or in addition to using the Poser application. This manual provides a detailed description of the Poser file formats, including syntax, layout, and commands/parameters contained within each file type.

Poser uses separate files for each character, prop, light, and camera, as well as other files for particular character details (face, hands, etc.). These files typically reside in Poser's Runtime folder. The Poser installer automatically creates folders and inserts files into their correct locations. While each type of Poser file has a separate extension and purpose, each of the file types discussed in this manual (with the exception of OBJ and non-native Poser formats) follows the same general format and uses one or more subsets of the overall Poser command/parameter structure.



NOTE

PLEASE REFER TO THE POSER 5 END USER LICENSE AGREEMENT (EULA) IN PART 1 OF THIS MANUAL FOR INFORMATION REGARDING THE LEGAL USES OF THE POSER FILE FORMATS AND STRUCTURES.

A WORD OF WARNING

Editing files directly can give you ultimate control over your Poser creations and help provide spectacular results. However, editing files directly could cause problems up to and including crashing the Poser application file, corrupting your edited file, and causing data loss.

Curious Labs provides this information as an aid to advanced Poser users for reference purposes only. Direct editing of Poser files is specifically not recommended and is not supported. Please do not contact Curious Labs tech support regarding file-editing problems. Any work you do within Poser files is done solely at your own risk. You are on your own.

This appendix provides some guidance with regard to valid values and error handling, however it is impossible to cover the nearly infinite ways in which you may edit files and how those edits may affect the Poser application or data.

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EDITING FILES

You can edit all native Poser files using a plain text editor such as Notepad (Windows) or Simpletext (Macintosh). In addition, some users have created helpful applications to aid you in editing Poser data. Please refer to the online 3D community at large for help locating and reviewing these third-party applications.

Poser files contain formalized descriptions and instructions written in a code that Poser can read. As with any computer program, each element of a Poser file must be in the correct format, using valid values, and located in the correct portion of the file. Poser files can be large and complex, and it is not advisable to modify them unless you have a good idea how to go about it.

All native Poser files follow a similar structure, however each file type has a separate filename extension and library location (discussed below). The simplest Poser files control props, lights, and cameras, while the most complex (CR2 and PZ3) describe Poser characters and scenes, respectively.

It should rarely be necessary to modify native Poser files outside of Poser, with the notable exception of CR2 files. When editing any Poser files, be sure to back up the original file and work on a copy. This will prevent data loss if something goes wrong. You may also wish to save iterations of files as you work, allowing you to easily revert to a previous state without losing all of your work.

POSER FILE TYPES

There are nine native file types associated with Poser:

- Prop: This file type contains information about a prop including source geometry,
 materials, texture and other maps, etc. Prop files have the extension PP2. Magnet files
 are prop files with a pre-positioned magnet as the prop. Props are often supplied as
 PP2 files with embedded OBJ information. They may also include texture and bump
 map files.
- *Camera*: Camera files contain camera information including location, direction, focal length, etc. They have the extension CM2.
- *Light*: These files contain information on lights, including type, position, color, and other attributes. Light files have the extension LT2.
- *Hair*: Hair files contain information on hair props and are similar to prop files. This file type has the extension HR2. Hair files may have the geometry embedded within them (as opposed to in a separate OBJ file).
- Face: Face files contain information required to articulate and/or deform a face to the desired expression and have the extension FC2.

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- Hands: Like face files, hand files contain information required to articulate hands into the desired positions or gestures. Hand files have the extension HD2.
- Pose: Pose files contain information required to articulate an entire figure into the
 desired position, which can include face and hand information. Pose files have the
 extension PZ2.
- Character: A character file contains all information required for a Poser character including reference geometry, **Joint Editor** palette morph targets, materials, default pose, etc. These files have the extension CR2.
- Scene: This file type is what is created when you create a Poser scene and select
 File>Save within the Poser animation. This file type contains all of the information
 found in the above-mention files plus details on movie, background, rendering,
 animation set, lights, cameras, figures, and other information. Poser scene files have
 the extension PZ3. They are similar in structure to CR2 files.

FILE HIERARCHY

For purely conceptual purposes, it is useful to think of various Poser file formats as falling into a loose hierarchy, with some files containing subsets of information stored within other file types. Also, while each Poser file type contains information unique to that format, several file types are virtually identical in structure. For example, hand and face information is part of a pose, which along with hair forms part of a character, which combined with other information is part of a scene.

FILE FAMILIES

It is also useful to think of Poser files in terms of the types of information they contain. For conceptual purposes only, you can think of Poser files as being grouped into the following families:

- Face, Hands, Pose
- Hair, Prop
- Camera, Light
- Character
- Pose

POSER 5 DEFAULT FILE LOCATIONS

In the list below, note that the following list provides the default locations of the Poser file types. If you are downloading any Poser files, be sure to place them in their correct locations. File placement is most critical for files that belong in the Runtime: Geometries folder. Library files have more flexibility. In the following list, an expression in parentheses means that the subdirectory or name depends upon the figure. You may create your own subfolders and relocate files within the Libraries subfolder. In this case, file locations will be reflected in Poser's Libraries palette. You may place graphic (texture, bump, etc.) files wherever you like, since Poser allows you to specify their locations. The following list gives all file locations relative to the Poser: Runtime folder:

- *OBJ (figure geometry)*: Geometries\(figure name)
- *RSR (small file, PC-only thumbnail graphic)*: libraries\character\ (category)\(character name)
- RSR (large file, both Mac and PC Binary OBJ): Same location as associated geometry file
- *PZ3 (Poser scene)*: any (user-selected location)
- *CM2 (Camera)*: libraries\camera\Camera Sets
- *CR2 (Character)*: libraries\character\(category)\(character name)
- *FC2 (Face)*: libraries\faces\(category\)
- *HR2 (Hair)*: libraries\hair\(category)
- *HD2 (Hand)*: libraries\hand\(category)
- LT2 (Light): libraries\light\Light Sets
- *PZ2 (Pose)*: libraries\pose\(category)
- *PP2 (Prop)*: libraries\props\(category)
- *MT5 (Shader)*: libraries\material\(category)
- *TIF, BMP, BUM, JPG (textures, bump maps, etc.)*: textures\ (category)\(subcategory). You may store additional images in any folder you wish.
- *PZS (Web links)*: Web links\(category)



USERS WHO DOWNLOAD CHARACTERS OR OTHER POSER FILES MAY NEED TO MANUALLY PLACE SOME OR ALL OF THE FILES IN THEIR CORRECT LOCATIONS. PLEASE USE THE ABOVE LIST TO ENSURE CORRECT FILE PLACEMENT.

POSER 5 DOWNLOADED FILE LOCATIONS

By default, Poser 5 places downloaded content (obtained using the **Content** room) in the **Download** library. Please refer to Chapter 24: "The Poser Library" on page 126 for more information about Poser libraries.

OTHER POSER FILE TYPES

Some users may encounter PHI and PCF files. Previous versions of Poser used PHI to perform functions that are now carried out in the hierarchy editor/**Setup** room (Pro Pack & later). PHI files were directly contained within OBJ files, and were located with the OBJ file. PCF files are used by an application called Objaction Mover and are beyond the scope of this document

COMMONLY USED POSER OBJECTS

Morph targets and characters are commonly used and traded/sold by and among users and third-party vendors. This section provides a brief explanation of each.

MORPH TARGETS

Morph targets are supplied as OBJ files that you import into Poser for application to part of a figure. The figure's CR2 file controls morph targets, and a dial appears for each morph target when an applicable body part is selected. For example, a head morph target dial will appear when you select the figure's head. This Reference Manual defines and discusses morph targets in "Creating and Using Morph Targets" on page 206

CHARACTERS & CLOTHING

Characters can be modifications of meshes that come with Poser or can include entirely new OBJ meshes (models). Characters based on pre-existing meshes typically come as CR2, texture, and bump files. Also, each piece of conforming clothing uses CR2 files to make it poseable, making clothing downloads similar to characters; thus, the download is similar to that of a character.

BASIC FILE SYNTAX

As you will see by examining this document, each Poser file type uses the same general syntax.

TABS

Tabs within Poser files are mostly insignificant, however they serve to show file structure, such as:

```
section 1
child 1
grandchild
grandchild n
child n
section n
```

BRACKETS & FILE SECTIONS

Each Poser file opens and closes with brackets ({}), as does each section within a Poser file. Major file sections describe the file version, location and name of the underlying OBJ file (if any), and file properties. One of the major file sections (Channels) contains position, size, texture, morph target, and other properties. Poser automatically modifies values and adds entries as needed.

As described above, brackets denote the beginning and end of file sections. A left bracket begins each section, while a right bracket ends a section:

```
{begins
} ends
For example,
{
section A
}
```

Nested Brackets

As implied above, one can nest file sections using brackets to denote each section and subsection, as follows:

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```
section A
section b
PARAMETERS
Parameters and other items within a section do not need brackets. For example:
section A
       parameter 1
       parameter n
{
section B
       command 1
               parameter 1
               parameter n
       command 2
               parameter 1
               parameter n
}
COMMENTS
You can insert comments into Poser files, as follows:
number 4.01
This text is a comment added to the CR2 file.
}
```

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POSER & OBJ FILES

The Geometries folder contains several dozen subfolders with names corresponding to Poser figures. Each of these subfolders contains OBJ files, each of which is a *mesh object*, e.g. a set of polygons arranged so as to form the desired shape. These polygons are placed into different groups that define important subdivisions within the mesh (such as body parts, also known as *actors*). In order to work with Poser, these groups must have specific names, such as hip, abdomen, etc. Poser 5 does not require such specific naming conventions; figures created using the **Setup** room could have groups named, for example, **Bone 1**.

The OBJ file itself does not contain enough information to allow Poser to produce all of the mesh object's properties, hence the presence of CR2 and other files that provide supplemental information. Poser files can contain embedded information that would normally reside within the OBJ file. This is why many prop downloads do not include an OBJ file.

Some native Poser files normally refer to an underlying OBJ geometry file, which is also in text format. Native Poser files describe parameters controllable within Poser, such as size, position, textures, etc. One OBJ file can have more than one Poser file pointing to it. This happens, for example, if a modified prop, character, etc. is saved to the Library under a different name and/or location.

Character (CR2) files contain Poser-specific details such as size, position, pose, textures, proportions, etc. and also control the dials that change the figure. Normally, one CR2 file governs a single figure. By combining the OBJ mesh information with the CR2 details, Poser can create customized poseable figures.

Some Poser files (pose, face, hands, etc.) work by modifying the CR2 itself. Poses, faces, and hands are already described within the CR2, however applying the data contained in one of these files changes the corresponding values within the CR2 file itself. These applied CR2 changes are then saved to the Poser scene (PZ3) file. If the user saves the modified character in the Library, the modified information gets written to a new CR2 file.

PZ3 files are similar enough to CR2 files to allow changing a PZ3 extension for a given scene file to CR2, thereby creating a new character complete with its associated props, hair, etc.

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