

# Preface

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**W**henever I withdrew to the computer room, my wife would say that I was off to my “fun and games.” I would flatly deny this accusation, saying that it was serious work that I was involved in. But later, when I emerged with a twinkle in my eye and excitedly asked her to take a look at my latest rendering, I knew that she was right. Working with 3D graphics is pure “fun and games.”

My goal in writing this book was to take all my fun years of playing in 3D and boil them down into something that’s worthwhile for you — the reader. This goal was compounded by the fact that all you Max-heads out there are at different levels. Luckily, I was given enough leeway that I could include a little something for everyone.

The audience level for the book ranges from beginning to intermediate, with a smattering of advanced topics for the seasoned user. If you’re new to Max, then you’ll want to start at the beginning and move methodically through the book. If you’re relatively comfortable making your way around Max, then review the table of contents for sections that can enhance your fundamental base. If you’re a seasoned pro, then you’ll want to watch for coverage of the features new to Release 4.

If you’re so excited to be working with Max that you can’t decide where to start, then head straight for the Quick Start. The Quick Start is a single chapter-long tutorial that takes you through the creation of an entire scene and animation. This Quick Start was included in response to some feedback from readers of the first edition who complained that they didn’t know where to start. For those of you who were too anxious to wade through a mountain of material before you could create something, this Quick Start is for you.

Another goal of this book is to make it a complete reference for Max. To achieve this goal, I’ve gone into painstaking detail on almost every feature in the basic core package, including coverage of every primitive, material and map type, modifier, and controller.

As this book has come together, I’ve tried to write the type of book that I’d like to read. I’ve tried to include a variety of different scenes that are infused with creativity. It is my hope that these examples will not only teach you how to use the software, but provide a creative springboard for you in your own projects. After all, that’s what turns 3D graphics from work into “fun and games.”

## What Is Max?

Max is coming of age. Now with the number 4 attached to its name, it is starting to show some maturity. Before we go any further, I should explain my naming convention. The official name of the product in this release is 3ds max 4 with a lowercase “m,” but I will simply refer to it as Max with a capital “M.” This reference is a nickname given to a piece of software that has become more familiar to me than the family pet (whose name is Pepper by the way). I have not been successful in training Max to come when I call or sit, but it will on occasion play dead.

One way we humans develop our personalities is to incorporate desirable personality traits from those around us. Max’s personality is developing as well — every new release has incorporated a plethora of desirable new features. Many of these features come from the many additional plug-ins being developed to enhance Max. With Release 4, Max has adopted many features that were available as plug-ins for previous releases. Several new features have been magically assimilated into the core product, including the ActiveShade window and the Render elements. These additions make Max’s personality much more likable.

Other personality traits are gained by stretching our beings in new directions. Max and its developers have accomplished this feat as well, with such things as the overhauled Inverse Kinematics features and Parameter Wiring capabilities.

As Max grows up, it will continue to mature by adopting new features and inventing others.

## About This Book

Let me paint a picture of the writing process. It starts with years of experience, which is followed by months of painstaking research. There were system crashes and personal catastrophes and the always present, ever-looming deadlines. I wrote into the early hours of the morning and during the late hours of the night — burning the candle at both ends and in the middle all at the same time. It was grueling and difficult, and spending all this time staring at the Max interface made me feel like . . . well . . . like an *animator*.

Sound familiar? This process actually isn’t much different from what 3D artists, modelers and animators do on a daily basis, and, like you, I find satisfaction in the finished product.

## Tutorials aplenty

I’ve always been a very visual learner — the easiest way for me to gain knowledge is by doing things for myself while exploring at the same time. Other people learn by reading and comprehending ideas. In this book, I’ve tried to present information in

a number of ways to make the information useable for all types of learners. That is why you'll see detailed discussions of the various features along with tutorials that show these concepts in action.

The tutorials appear throughout the book and are clearly marked with the "Tutorial" label in front of the section title. They always include a series of logical steps, typically ending with a figure for you to study and compare. These tutorial examples are provided on the book's CD-ROM to give you a first-hand look and a chance to get some hands-on experience.

I've attempted to "laser focus" all the tutorials down to one or two key concepts. This means that you probably will not want to place the results in your portfolio. For example, many of the early tutorials don't have any materials applied because I felt that using materials before they've been explained would only confuse you.

I've attempted to think of and use examples that are diverse, unique, and interesting, while striving to make them simple, light, and easy to follow. I'm happy to report that every example in the book is included on the CD-ROM along with the models and textures required to complete the tutorial from scratch.

For the second edition, I've taken a different approach to the tutorials. Rather than making each tutorial start from scratch, I've decided to instead give you a starting point. This approach lets me "laser focus" the tutorials even more and with fewer, more relevant steps, you can learn and experience the concepts without the complexity. On the book's CD-ROM, you will find the Max files that are referenced in Step 1 of most tutorials. The completed tutorial's Max file is saved with the word *final* tacked on the end. If you get lost midway through the tutorial, you can open the final resulting file and see for yourself how it is supposed to work.

I've put a lot of effort into this book, and I hope it helps you in your efforts. I present this book as a starting point. In each tutorial, I've purposely left all the creative spice out, leaving room for you to put it in—you're the one with the vision.

## How this book is organized

Many different aspects of 3D graphics exist, and in some larger production houses, you might be focused on only one specific area. However, for smaller organizations or the general hobbyist, you end up wearing all the hats—from modeler and lighting director to animator and post-production compositor. This book is organized to cover all the various aspects of 3D graphics, regardless of the hat on your head.

The book is divided into the following parts:

- ◆ **Quick Start**—This single chapter is an entire animation project presented in several focused tutorials. It is designed to whet your appetite and get you up to speed and producing animations immediately.

- ◆ **Part I: Getting Started with 3ds max 4**— Whether it's understanding the interface, working with the viewports or dealing with files, the chapters in this part will get you comfortable with the interface so you won't get lost moving about this mammoth package.
- ◆ **Part II: Working with Objects**— Max objects can include meshes, cameras, lights, Space Warps, and anything that can be viewed in a viewport. This part includes chapters on how to reference, select, clone, group, link, transform, and modify these various objects. It also includes a chapter on all the various modifiers.
- ◆ **Part III: Modeling**— Max includes several different ways to model objects. This part includes chapters on working with spline shapes, meshes, patches, NURBS, and a variety of specialized compound objects like Lofts and Morphs.
- ◆ **Part IV: Materials and Maps**— With all the various material and map types and parameters, understanding how to create just what you want can be difficult. These chapters explain all the various types and how to use them.
- ◆ **Part V: Lights and Cameras**— This part describes how to control lights and cameras as well as several lighting special effects and the camera utilities. There is also a chapter on using the Camera Matching and Camera Tracking utilities.
- ◆ **Part VI: Particle Systems and Space Warps**— Particle systems can be used to create groups of thousands of particles, and Space Warps can add forces to a Max scene. Chapters in this part explain and provide examples of working with these two unique object types.
- ◆ **Part VII: Animation**— To animate your scenes, you'll want to learn about keyframing, the Track View, and controllers. I cover all of these topics here. I also cover expressions and dynamic simulations in this part.
- ◆ **Part VIII: Inverse Kinematics**— I cover creating and working with bone systems and give complete coverage of the various Inverse Kinematics methods in this part.
- ◆ **Part IX: Rendering and Post-Production**— To produce the final output, you can render the scene or composite it in the Video Post dialog box, as described in this part. In addition, this part discusses environments, Render Elements, Render Effects, and network rendering.
- ◆ **Part X: Customizing Max**— This part provides details on customizing the Max interface and environment. This part also includes a chapter on using Max's scripting language—MAXScript.
- ◆ **Part XI: Extending Max with Plug-Ins**— Plug-ins provide a way to add to and extend the features of Max. The chapters in this part explain how to use plug-ins, and one chapter explains how to create your own plug-ins.

At the very end of this book, you'll also find four appendixes that cover system configuration, Max keyboard shortcuts, plug-ins exclusive to this book, and the contents of the book's CD-ROM.

## Using the book's icons

The following margin icons will help you get the most out of this book:



**Note**

Note boxes highlight useful information that you should take into consideration.



**Tip**

Tips provide an additional bit of advice that will make a particular feature quicker or easier to use.



**Caution**

Cautions warn you of a potential problem before you make a mistake.



**New  
Feature**

This icon highlights features that are new to Release 4.



**Cross-  
Reference**

Watch for this icon to learn where in another chapter you can go to find more information on a particular feature.



**On the  
CD-ROM**

This icon points you toward related materials that are included on the book's CD-ROM.

## The book's CD-ROM and exclusive plug-ins

Computer book CD-ROMs are sometimes just an afterthought that includes a handful of examples and product demos. This book's CD-ROM, however, is much more than that — its content was carefully selected to provide you with an additional resource that can supplement the book. Appendix D, "What's on the CD-ROM?" supplies the details of the content on the CD-ROM.

The CD-ROM includes a large selection of 3D models that you can use in your projects if you choose. Many of these models are used in the tutorials. The CD-ROM also includes the Max files for every tutorial.

If you haven't noticed yet, most of this book is printed in black and white. This can make seeing the details (and colors) of the figures difficult. The CD-ROM includes a complete searchable version of the book along with all the figures in color.

As a special bonus, the CD-ROM also includes several custom-built, exclusive plug-ins developed by Furious Research and Dave Brueck, one of this book's contributing authors. To find out more about these plug-ins, see Appendix C, "Exclusive Bible Plug-Ins."

## Color insert pages

The possibilities of Max are endless, but many individuals and groups have pushed the software a long way. As a sampling of the finished work that can be created, I've included a set of color insert pages that showcase some amazing work done with Max. The 3D artists represented in these pages give you some idea of what is possible.