

# **Autodesk Maya 2017**

## **A Comprehensive Guide**

**(9<sup>th</sup> Edition)**

**CADCIM Technologies**

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Schererville, IN 46375, USA  
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to enlighten the young and curious minds  
of our future generations*

*To students, who are dedicated to learning new technologies  
and making the world a better place to live in*

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*To employees of CADCIM Technologies for their valuable help*

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# Preface

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## Autodesk Maya 2017

Welcome to the world of Autodesk Maya 2017. Autodesk Maya 2017 is a powerful, integrated 3D modeling, animation, visual effects, and rendering software developed by Autodesk Inc. This integrated node-based 3D software finds its application in the development of films, games, and design projects. A wide range of 3D visual effects, computer graphics, and character animation tools make it an ideal platform for 3D artists. The intuitive user interface and workflow tools of Maya 2017 have made the job of design visualization specialists a lot easier.

**Autodesk Maya 2017: A Comprehensive Guide** textbook covers all features of Autodesk Maya 2017 in a simple, lucid, and comprehensive manner. It aims at harnessing the power of Autodesk Maya 2017 for 3D and visual effects artists, and designers. This textbook will help you transform your imagination into reality with ease. Also, it will unleash your creativity, thus helping you create realistic 3D models, animation, and visual effects. It caters to the needs of both the novice and advanced users of Maya 2017 and is ideally suited for learning at your convenience and at your pace.

The salient features of this textbook are as follows:

- **Tutorial Approach**

The author has adopted the tutorial point-of-view and the learn-by-doing approach throughout the textbook. This approach will guide the users through the process of creating the models, adding textures, and animating them in the tutorials.

- **Real-World Models as Projects**

The author has used about 37 real-world modeling and animation projects as tutorials in this textbook. This will enable the readers to relate the tutorials to the real-world models in the animation and visual effects industry. In addition, there are about 34 exercises that are also based on the real-world animation projects.

- **Tips and Notes**

Additional information related to various topics is provided to the users in the form of tips and notes.

- **Learning Objectives**

The first page of every chapter summarizes the topics that will be covered in that chapter.

- **Self-Evaluation Test, Review Questions, and Exercises**

Each chapter ends with Self-Evaluation Test so that the users can assess their knowledge of the chapter. The answers to Self-Evaluation Test are given at the end of the chapter. Also, the Review Questions and Exercises are given at the end of each chapter and they can be used by the instructors as test questions and exercises.

### • Heavily Illustrated Text

The text in this book is heavily illustrated with about 550 diagrams and screen captures.

## Symbols Used in the Textbook

### Note



The author has provided additional information to the users about the topic being discussed in the form of notes.

### Tip



Special information and techniques are provided in the form of tips that helps in increasing the efficiency of the users.



This symbol indicates that the command or tool being discussed is new in Autodesk Maya 2017.



This symbol indicates that the command or tool being discussed has been enhanced in Autodesk Maya 2017.

## Formatting Conventions Used in the Textbook

Please refer to the following list for the formatting conventions used in this textbook.

- Names of tools, buttons, options, tabs, attributes, renderer, and toolbars are written in bold face  
Example: The **Unfold Selected UVs** tool, the **Apply and Close** button, the **Assign Material to Selection** option, the Maya Software renderer, the **Fill Style** attribute, and so on.
- Names of dialog boxes, drop-down lists, areas, edit boxes, check boxes, and radio buttons are written in boldface.  
Example: The **Save As** dialog box, the **Look In** drop-down list, the **Display** area, the **Particle name** edit box, the **Color feedback** check box, and the **Center** radio button.
- Values entered in edit boxes are written in boldface.  
Example: In the **Particle Size** area, enter the value **0.450** in the **Radius** edit box.
- Names of the files are italicized.  
Example: *c13tut2.mb*
- The methods of invoking a tool/option from menubar or the toolbar are given in a shaded box.

**Menubar:** Edit Mesh > Components > Bridge  
**UV Texture Editor Toolbar:** Select > Polygons > Select Shortest Edge Path Tool

## Naming Conventions Used in the Textbook

### Tool

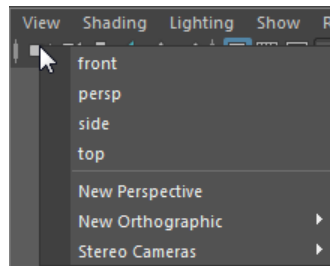
If you click on an item in a panel of the Tool Box and a command is invoked to create/edit an object or perform some action, then that item is termed as **tool**.

For example:

**Select Tool, Lasso Tool, Move Tool, Scale Tool, Rotate Tool, Show Manipulator Tool**

### Flyout

A flyout is a menu that contains options with similar type of functions. Figure 1 shows the flyout displayed on pressing the right mouse button on the **Select Camera** tool.



*Figure 1 The flyout displayed on clicking the right mouse button on the **Select Camera** tool*

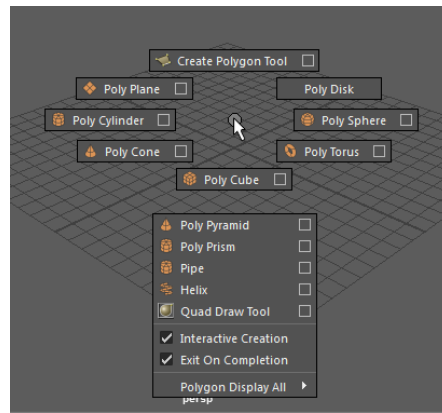
### Marking Menus

Marking menus are similar to shortcut menus that consist of almost all the tools required to perform an operation on an object. There are three types of marking menus in Maya.

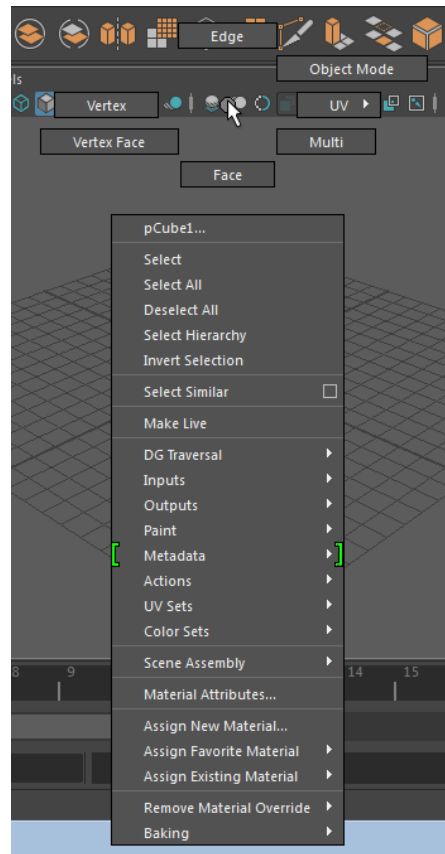
The first type of marking menu is used to create default objects in the viewport. To create a default object, press and hold the SHIFT key and then right-click anywhere in the viewport; a marking menu will be displayed, as shown in Figure 2.

The second type of marking menu is used to switch among various components of an object such as vertices, faces, edges, and so on. To invoke this marking menu, select an object and right-click; a marking menu will be displayed, as shown in Figure 3.

The third type of marking menu is used to modify the components of an object. To invoke this marking menu, select a component, press and hold the SHIFT key, and then right-click on the selected object; a marking menu will be displayed, as shown in Figure 4.



**Figure 2** Marking menu displaying options for creating default objects



**Figure 3** Marking menu displaying components of the selected object

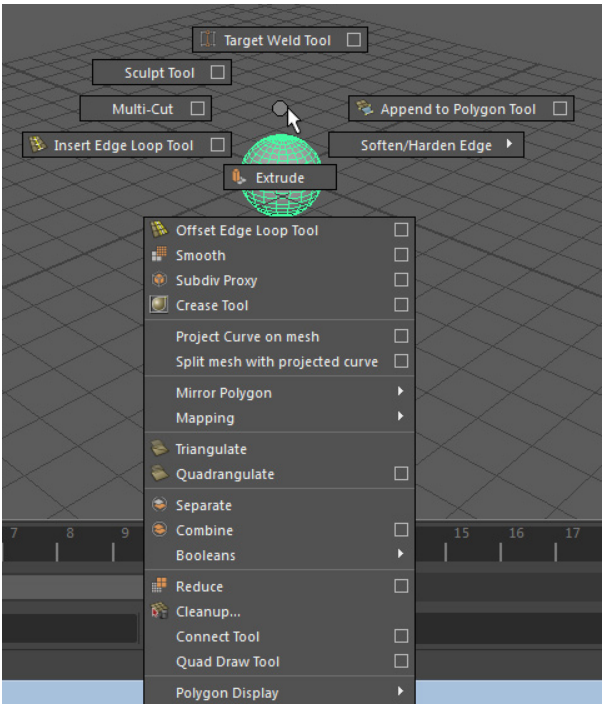


Figure 4 The marking menu displaying various tools for modifying the components of an object

### Button

The item in a dialog box that has a 3D shape is termed as **Button**. For example, **Extrude** button, **Apply** button, **Close** button, and so on, refer to Figure 5.

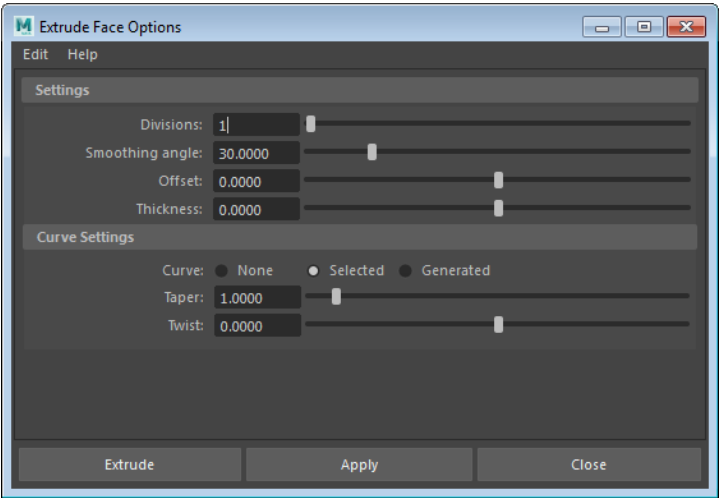
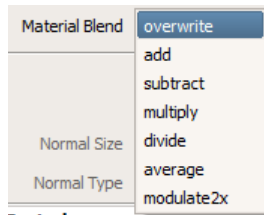


Figure 5 The *Extrude*, *Apply*, and *Close* buttons

## Drop-down List

A drop-down list is the one in which a set of options are grouped together. You can set various parameters using these options. You can identify a drop-down list with a down arrow on it. For example, **Material Blend** drop-down list, refer to Figure 6.



**Figure 6** The *MenuSet* drop-down list

## Naming Convention Used for the Resources

You can access resource files related to this textbook by visiting [www.cadcim.com](http://www.cadcim.com). The path to access resources is as follows: *Textbooks > Animation and Visual Effects > Maya > Autodesk Maya 2017: A Comprehensive Guide*.

On this page, there are several drop-downs. You can download a resource file by first selecting it from the desired drop-down and then choosing the **Download** button corresponding to it. Table 1 shows the naming conventions in detail.

**Table 1** Naming conventions used for the resources in the textbook

Drop-down	Convention
Evaluation Chapters	<b>Evaluation Chapters</b> <i>c01_maya_2017_eval.zip</i> , <i>c02_maya_2017_eval.zip</i> , and so on <b>TOC</b> <i>toc_maya_2017.zip</i>
Part Files	<i>c01_maya_2017_prt.zip</i> , <i>c02_maya_2017_prt.zip</i> , and so on
Tutorial Files	<b>Tutorials</b> <i>c01_maya_2017_tut.zip</i> , <i>c02_maya_2017_tut.zip</i> , and so on
Rendering/Media Files/ Data	<b>Rendered Output - Tutorials</b> <i>c01_maya_2017_rndr.zip</i> , <i>c02_maya_2017_rndr.zip</i> , and so on
PowerPoint Presentations (Faculty only)	<i>c01_maya_2017_ppt.zip</i> , <i>c02_maya_2017_ppt.zip</i> , and so on
IG (Faculty Only)	<i>ig_maya_2017.zip</i>

## Free Companion Website

It has been our constant endeavor to provide you the best textbooks and services at affordable price. In this endeavor, we have come out with a free companion website that will facilitate the process of teaching and learning of Autodesk Maya 2017. If you purchase this textbook, you will get access to the companion website.

The following resources are available for faculty and students in this website:

### Faculty Resources

- **Technical Support**

You can get online technical support by contacting [techsupport@cadcim.com](mailto:techsupport@cadcim.com).

- **Instructor Guide**

Solutions to all review questions and exercises in the textbook are provided in this guide to help the faculty members test the skills of the students.

- **PowerPoint Presentations**

The contents of the book are arranged in powerpoint slides that can be used by the faculty for their lectures.

- **Maya Files**

The Maya files used in illustration, examples, and exercises are available for free download.

- **Rendered Images**

If you do an exercise or tutorial, you can compare your rendered output with the one provided in the CADCIM website.

- **Additional Resources**

You can access additional learning resources by visiting <http://mayaexperts.blogspot.com>.

### Student Resources

- **Technical Support**

You can get online technical support by contacting [techsupport@cadcim.com](mailto:techsupport@cadcim.com).

- **Maya Files**

The Maya files used in illustrations and examples are available for free download.

- **Rendered Images**

If you do an exercise or tutorial, you can compare your rendered output with the one provided in the CADCIM website.

- **Additional Resources**

You can access additional learning resources by visiting <http://mayaexperts.blogspot.com>.

If you face any problem in accessing these files, please contact the publisher at [sales@cadcim.com](mailto:sales@cadcim.com) or the author at [stickoo@pnw.edu](mailto:stickoo@pnw.edu) or [tickoo525@gmail.com](mailto:tickoo525@gmail.com).

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