

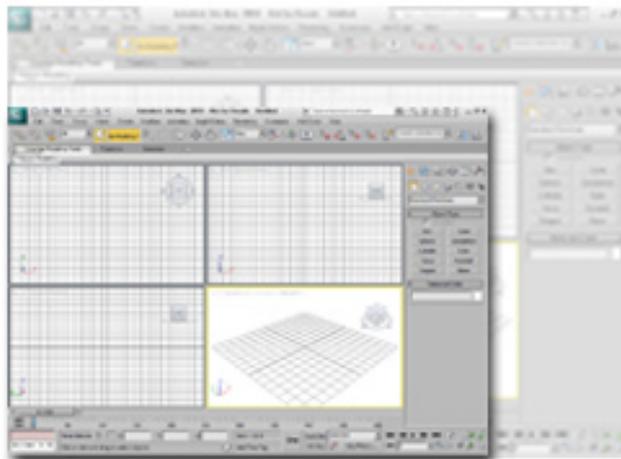


Introduction to Autodesk 3ds Max 2013

Learning Objectives

After completing this chapter, you will be able to:

- *Understand the Autodesk 3ds Max interface components*
- *Use controls for creating or modifying the objects*
- *Use hotkeys in Autodesk 3ds Max*
- *Customize hotkeys*
- *Customize the colors of the scene elements*



INTRODUCTION TO Autodesk 3ds Max 2013

Welcome to the world of Autodesk 3ds Max, an advanced application that is used to create still or animated 3D models and objects. With the help of this application, you can create realistic scenes by modifying objects, applying maps and materials to a scene, assigning environment to a scene, adding lights and cameras, and so on. Before working with Autodesk 3ds Max, you should have the basic knowledge of various tools and commands available in this software. In this chapter, you will learn the basic features of Autodesk 3ds Max.

GETTING STARTED WITH Autodesk 3ds Max

First, you need to install Autodesk 3ds Max 2013 on your system. On installing the software, the **Autodesk 3ds Max 2013** shortcut icon will automatically be created on the desktop. Double-click on this icon to start Autodesk 3ds Max. Alternatively, you can start Autodesk 3ds Max from the **Start** menu. To do so, choose **Start > All Programs > Autodesk > Autodesk 3ds Max 2013 > Autodesk 3ds Max 2013** from the **Start** menu, refer to Figure 1-1.

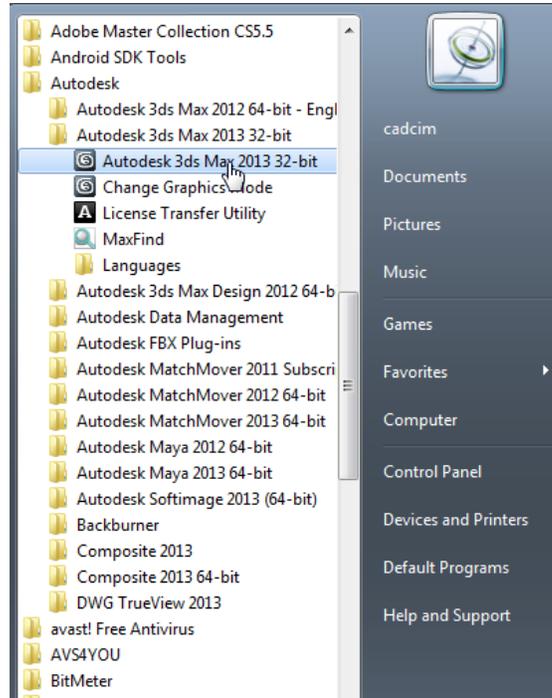


Figure 1-1 Starting Autodesk 3ds Max 2013 using the **Start** menu

The system will prepare to start Autodesk 3ds Max 2013 by loading all the required files. If you are running Autodesk 3ds Max 2013 for the first time, the **Autodesk Customer Involvement Program** dialog box will be displayed, as shown in Figure 1-2, and you will be prompted to join the Customer Involvement Program (CIP). Select the **Yes, I would like to participate in CIP** radio button and then choose the **OK** button to join the CIP. Else, select the **No, thanks** radio button. On joining the CIP, Autodesk will gather product feature usage and system information from your system to analyze trends and patterns. This entire

information helps Autodesk to improve its product. You can also invoke the **Autodesk Customer Involvement Program** dialog box by choosing **Help > Customer Involvement Program** from the menu bar.

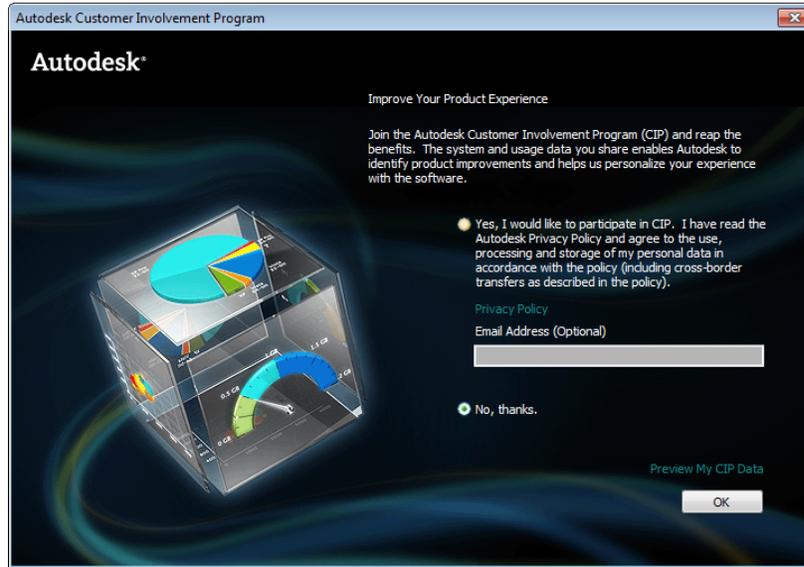


Figure 1-2 The Autodesk Customer Involvement Program dialog box

After all the required files are loaded, the 3ds Max interface will be displayed along with the **Welcome to 3ds Max** dialog box, as shown in Figure 1-3. The **Welcome to 3ds Max** dialog box will display the video tutorials that help you to learn about the basic working environment of the software. To start a tutorial, choose one of the buttons available on the left in this dialog box; the corresponding tutorial will be displayed in a separate window. Also, you can create a new scene, open an existing file, or any recently created files using this dialog box. Choose the **Close** button in the **Welcome to 3ds Max** dialog box to exit it.

STARTING A NEW FILE IN Autodesk 3ds Max

To start a new file in Autodesk 3ds Max, choose the **Application** button at the top left corner of the interface; the **Application** menu will be displayed. Next, choose **New > New All** from the **Application** menu; a new file will be displayed in the 3ds Max interface. The new file will clear all contents of the current file. Alternatively, press the CTRL+N keys; the **New Scene** dialog box will be displayed, as shown in Figure 1-4. By default, the **New All** radio button is selected in this dialog box. It is used to clear all the contents in the current scene and open a new file. Choose the **OK** button; a new file will be displayed.

You can also reuse the objects from the current scene in the new scene. Select the **Keep Objects** radio button in the **New Scene** dialog box to keep only the objects from the current scene for the new file. However, on selecting this radio button, all the animation keys and links between the objects will be cleared. To keep the objects and the links between them, select the **Keep Objects and Hierarchy** radio button. However, in this case, the animation keys will be deleted.

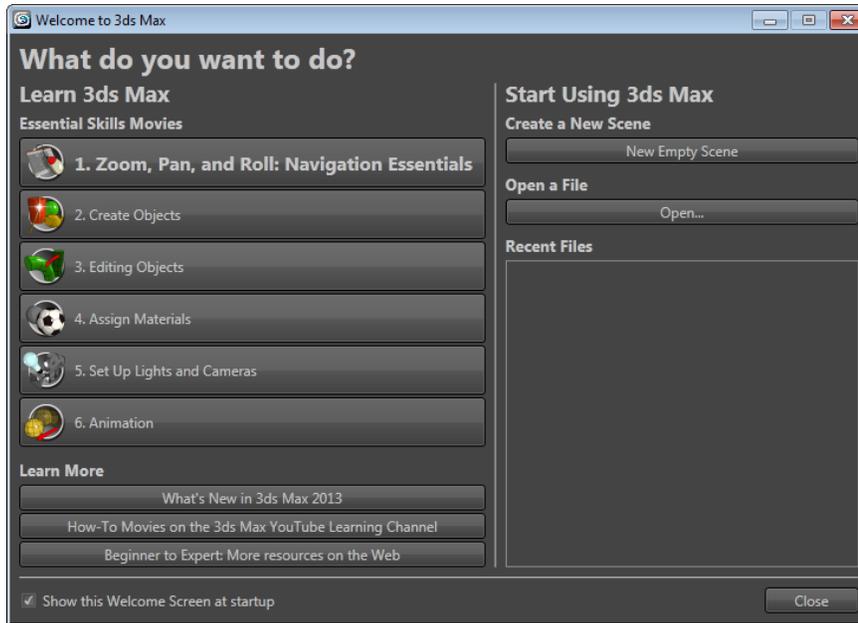


Figure 1-3 The Welcome to 3ds Max dialog box

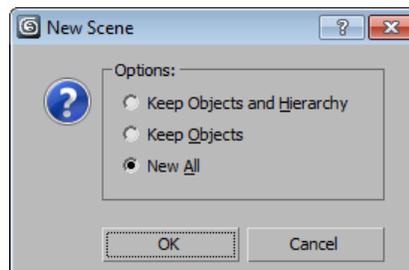


Figure 1-4 The New Scene dialog box

Before starting a new scene in Autodesk 3ds Max, it is recommended to reset Autodesk 3ds Max and start afresh. By doing so, you will be able to reset all settings for the new scene. To reset Autodesk 3ds Max, choose **Reset** from the **Application** menu; the **3ds Max** message box will be displayed, as shown in Figure 1-5. Also, you will be prompted to specify if you really want to reset 3ds Max. Choose the **Yes** button; the Autodesk 3ds Max will be reset.

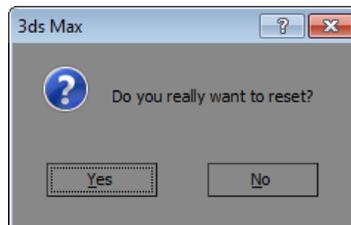


Figure 1-5 The 3ds Max message box

Autodesk 3ds Max INTERFACE COMPONENTS

The 3ds Max interface screen consists of different components, as shown in Figure 1-6. These components are discussed next.

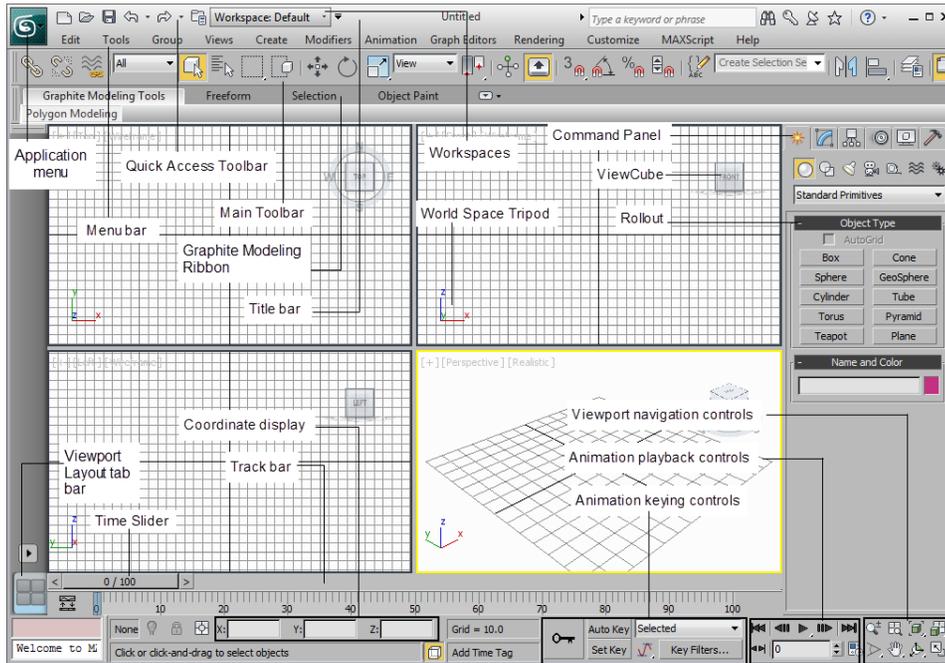


Figure 1-6 Different screen components of Autodesk 3ds Max interface screen

Menu Bar

The menu bar is located just below the title bar, refer to Figure 1-6 and contains various pull-down menus. Some of the pull-down menus are standard window menus such as **Edit**, **Help**, and so on while others are 3ds Max pull-down menus such as **Create**, **Modifiers**, **Animation**, **Graph Editors**, **Rendering**, **Customize**, and so on. The title of each pull-down menu indicates the purpose of commands in the menu. When you choose one of the menu titles, Autodesk 3ds Max displays the corresponding pull-down menu. Each menu consists of a collection of commands. In a pull-down menu, the dots after a command indicate that a dialog box will be displayed on choosing that command. An arrow next to a command indicates that a cascading menu will be displayed on placing the cursor on that command. For some of the commands in the pull-down menus, the keyboard shortcuts are displayed on their right side, as shown in Figure 1-7.

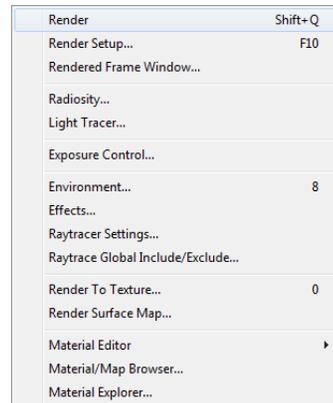
Application Menu

The **Application** menu is used to manage the files created in 3ds Max. To display this menu, as shown in Figure 1-8, choose the **Application** button on the top left of the 3ds Max screen. This menu comprises the most commonly used file management options. In Autodesk 3ds Max 2013, the **Send to** option is added which provides interoperability with Autodesk applications such as Softimage, MotionBuilder, Maya, and Mudbox. When you choose **Send**

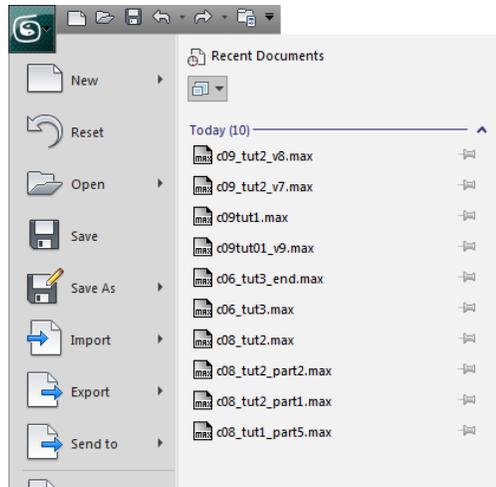
to from the **Application** menu, a cascading menu will be displayed. Choose the desired option from the cascading menu; a submenu will be displayed with the following options: **Send as New Scene**, **Update Current Scene**, **Add to Current Scene**, and **Select Previously Sent Objects**. You can choose the option from this menu as per your requirement.

On the right of the menu is the **Recent Documents** page that provides a complete information about the files that were previously saved in 3ds Max. You can change the size of the icons of the recent documents. To do so, choose the **Icon or Image Display** button from the **Application** menu, refer to Figure 1-8; a drop-down list will be displayed, as shown in Figure 1-9. Select the icon size from the drop-down list to change the size of the icons of the recent documents.

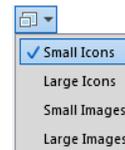
You can also use the keyboard shortcuts to work with the **Application** menu. To do so, press ALT+F; the **Application** menu will be displayed with all shortcuts, as shown in Figure 1-10. Next, press the shortcut key based on your requirement; the corresponding command will be executed. However, if you click again on the **Application** menu after pressing the ALT+F keys, the **Application** menu will not display the shortcuts. You can repeat the process to view the shortcuts again.



*Figure 1-7 The keyboard shortcuts for some commands in the **Rendering** pull-down menu*



*Figure 1-8 Partial view of the **Application** menu*



*Figure 1-9 The **Icon or Image Display** drop-down list*

Quick Access Toolbar

The **Quick Access Toolbar** comprises of the most commonly used file management buttons, as shown in Figure 1-11. These buttons are also available in the **Application** menu. Apart from the commonly used buttons, the **Quick Access Toolbar** contains the **Redo Scene Operation** and **Undo Scene Operation** buttons.

Workspaces

The workspace in 3ds Max 2013 includes toolbars, menus, the ribbon, hotkeys, quad menus, and viewport layout presets. You can switch between the different workspaces by choosing the required option from the Workspaces drop-down located on the **Quick Access Toolbar**, refer to Figure 1-11. To create a new workspace, first change the interface setup as required and then choose the **Manage Workspaces** option from the Workspaces drop-down; the **Manage Workspaces** dialog box will be displayed. In this dialog box, choose the **Save as New Workspace** button; the **Create New Workspace** dialog box is displayed. Enter the name in the **Name** edit box in the **New Workspace** area and then choose the **OK** button to close the dialog box. Next, close the **Manage Workspaces** dialog box. The newly created workspace will be active now.

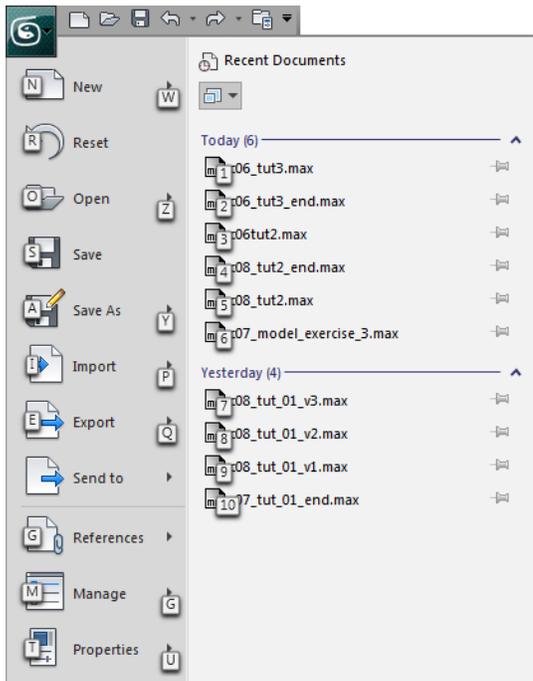


Figure 1-10 The **Application** menu with the shortcuts

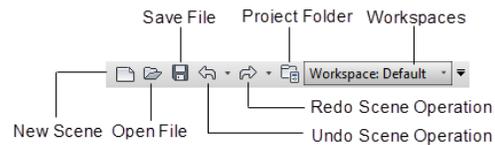


Figure 1-11 The **Quick Access Toolbar**

Toolbars

In Autodesk 3ds Max, there are various commands available in toolbars as buttons or tools. By default, only the **Main Toolbar** will be displayed on Autodesk 3ds Max screen. However, you can display other toolbars such as **Snaps**, **Axis Constraints**, **Extras**, **MassFX Toolbar**, and so on in the 3ds Max screen. Also, you can move, resize, and undock them based on your requirements. To display these toolbars, right-click in the blank area on the **Main Toolbar**; a shortcut menu will be displayed with the names of all toolbars, as shown in Figure 1-12. Next, choose the name of the required toolbar; the chosen toolbar will be displayed on the screen. Also, you can hide any of the displayed toolbars by choosing its name from the shortcut menu.

The **Main Toolbar** provides quick access to many tools and dialog boxes such as **Select and Link**, **Unlink Selection**, **Select Object**, **Material Editor**, and so on. This toolbar is docked just below the menu bar. You will learn more about the tools available in various toolbars in the later chapters.

Command Panel

By default, the **Command Panel** is docked on the right of the 3ds Max screen. There are six tabs in the **Command Panel**: **Create**, **Modify**, **Hierarchy**, **Motion**, **Display**, and **Utilities**, as shown in Figure 1-13. Most of the 3ds Max modeling and animation tools are placed in these tabs. The tools in the **Command Panel** are used to create, modify, and animate the objects. Each tab has several rollouts that can be expanded or collapsed. These tabs in the **Command Panel** are discussed next.

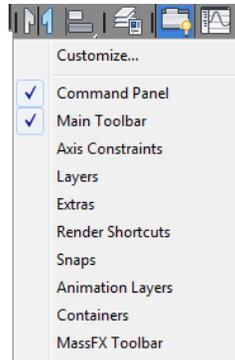


Figure 1-12 The shortcut menu displayed to view the hidden toolbars

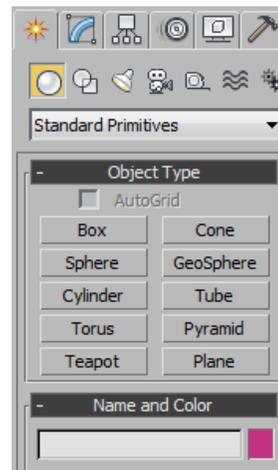


Figure 1-13 The Command Panel



The **Create** tab is chosen by default. The tools in the **Create** tab are used to create objects, cameras, lights, and so on.



The **Modify** tab is used to modify the selected objects in the viewport by modifying the parameters, applying various modifiers, and editing the editable objects such as editable mesh or editable poly.



The **Hierarchy** tab is used to control the links in the hierarchy, joints, and inverse kinematics.



The **Motion** tab is used to control the animation controllers.



The **Display** tab is used to hide and unhide the objects in the viewport.



The **Utilities** tab is used to access various utility programs.



Note

You can undock the **Command Panel** and **Main Toolbar** and place them anywhere on the screen. To do so, move the cursor on the top of the **Main Toolbar**; the cursor will change into an arrow with two overlapping rectangles. Now, press and hold the left mouse button and drag the **Main Toolbar** to the desired location. Double-click on the **Main Toolbar** to dock it back to its default position.



Viewports

When you start Autodesk 3ds Max, you are provided with a default interface. This interface consists of four equally sized viewports surrounded by tools and commands, refer to Figure 1-6. These viewports are labeled as Top, Front, Left, and Perspective. The viewports in Autodesk 3ds Max are used to create 3D scenes. Also, they enable you to view a scene from different angles. When you create an object in the viewport, the Top, Front, and Left viewports will display the top, front, and left orthographic views of the object, respectively.

You can modify the size of the viewports by dragging the intersection of the viewports. To restore the original size, right-click on the intersection of the dividing lines; a shortcut menu will be displayed, as shown in Figure 1-14. Choose the **Reset Layout** option from the shortcut menu; the default size of the viewports will be displayed.

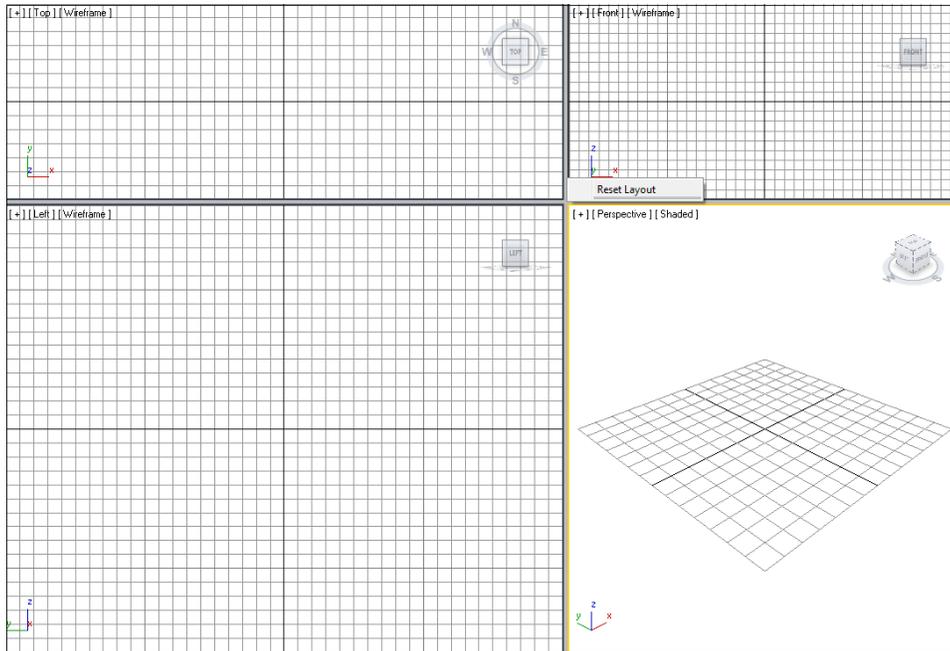


Figure 1-14 Choosing the **Reset Layout** option from the shortcut menu

Among the four viewports, one will be highlighted with a yellow border. It is known as the active viewport. Note that only one viewport can be activated at a time. To activate another viewport, you need to click on it. You can also activate a viewport by middle-clicking on it. On doing so, the selection state of the objects will be maintained.

On the bottom left corner of each viewport, there is a world-space tripod, as shown in Figure 1-15. The world-space tripod has three axes, X, Y, and Z, which are displayed in red, green, and blue colors, respectively. The tripod always refers to the world coordinate system, regardless of the local coordinate system. ViewCube is placed on the top right corner of the viewport, as shown in Figure 1-15. The ViewCube provides visual feedback of the current orientation of the viewport.

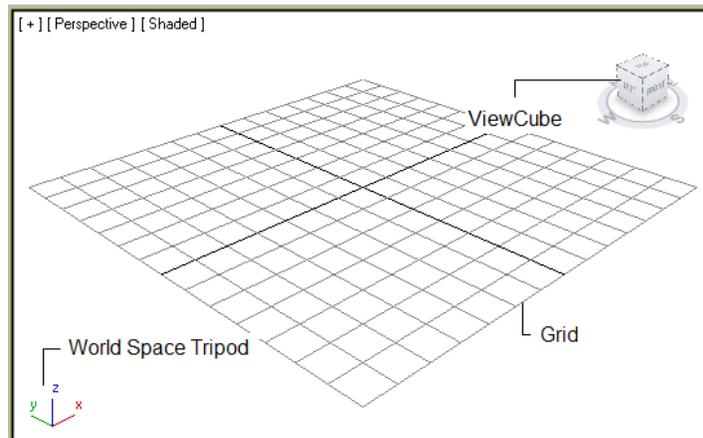


Figure 1-15 The world space tripod, grid, and ViewCube in the Perspective viewport



Note

The ViewCube will not be visible in the camera, light, and shape viewports.

It is important to note that the Local coordinate system defines an object's local position in a scene, whereas the World coordinate system uses fixed axes to define the position of all objects in the world space. Each viewport has a grid placed in it, refer to Figure 1-15. It is like a graph paper in which all the lines intersect each other at right angles. You can modify the spacing in the grids. The grids in all viewports act as an aid to visualize the spacing and distance while creating objects. Also, they are used as a construction plane to create and align the objects. You can also use the grids as a reference system while using the snap tools to align the objects. You can also hide the grid in the viewport. To do so, press the G key; the grid will disappear from the viewport.

On the top left corner of each viewport, there are three viewport labels: General viewport label, Point of view (POV) viewport label, and Shading viewport label, refer to Figure 1-16. When you click on any of the viewport labels, the corresponding shortcut menu will be displayed, as shown in Figure 1-17. The options in these shortcut menus are used to modify various aspects of the active viewport.

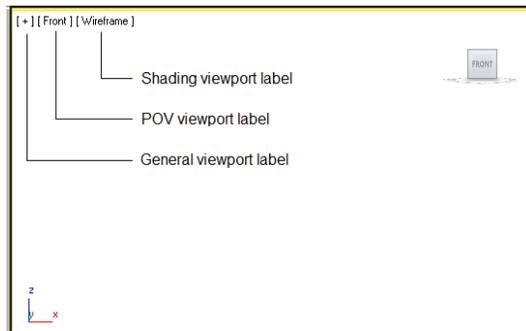


Figure 1-16 The viewport labels in the Front viewport

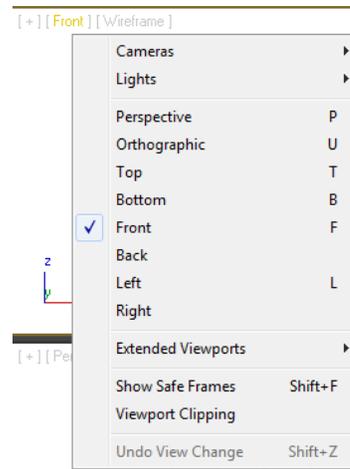


Figure 1-17 The shortcut menu displayed on clicking the POV viewport label

You can configure the active viewport by using the options in the General viewport label menu. Choose the **Configure Viewports** option from this menu; the **Viewport Configuration** dialog box will be displayed. Various commands in this dialog box can be used to configure the viewports. You already know that four equally sized viewports are displayed on the screen. However, you can change the viewport configuration based on your requirement. To change the basic configuration of the viewports, choose the **Layout** tab in the **Viewport Configuration** dialog box, refer to Figure 1-18. In the **Layout** tab, you can specify the division method of the viewports. There are 14 types of configurations displayed at the top in the dialog box. Select the required configuration and then choose the **OK** button; the viewports will be displayed according to the configuration that you have selected in the **Viewport Configuration** dialog box.



Note

The viewport configuration specifies how the viewports will be arranged on the screen.

You can change the default viewport to any other viewport type available such as Bottom, Right, and so on, by using the options in the POV viewport label menu. To do so, click on the POV viewport label; a shortcut menu will be displayed. Choose the name of the viewport that you want to display.

You can also use the Shading viewport label menu for defining the type of shading displayed in the viewport. The different types of shading types are: **Realistic, Shaded, Consistent Colors, Wireframe, Edged Faces, Bounding Box, Hidden Line**, and so on. However, some of these shading types are available in the cascading menu of the **Stylized** option, refer to Figure 1-19. These shading types are **Graphite, Color Pencil, Ink**, and so on. You can choose any one of the options to change the shading. You will learn more about these shading types in the **Stylized** menu in the Chapter 2.

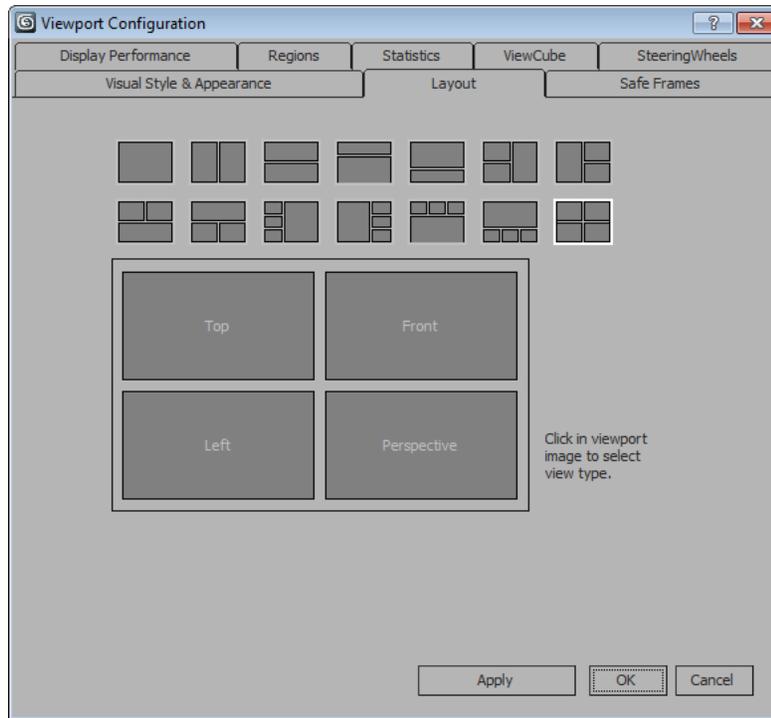


Figure 1-18 The *Layout* tab of the *Viewport Configuration* dialog box

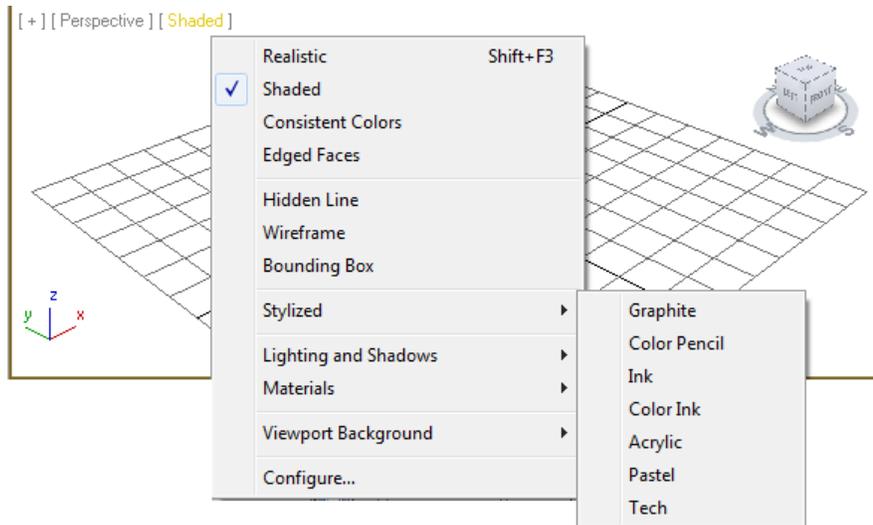


Figure 1-19 Different shading types in the cascading menu of the *Stylized* option

Viewport Navigation Controls

There are various tools available at the bottom right corner of the Autodesk 3ds Max screen, as shown in Figure 1-20. These tools are known as viewport navigation controls and they are used to control the display and navigation of the viewport. The tools displayed in the viewport navigation controls depend on the viewport selected. For example, if the Camera viewport is selected, its corresponding tools will be displayed in the viewport navigation control. These tools are discussed in detail in the later chapters.

Viewport Layout Tab Bar

The new interface component, Viewport Layout tab bar, enables you to store multiple viewport setups in a single scene. You can switch between different viewport setups with a click of the mouse. This bar is active by default and it is located on the extreme left of the interface screen, refer to Figure 1-6. By default, there is a single tab at the bottom of the bar that represents the startup layout. To add more layout tabs to the bar, click on the arrow button on the bar; the **Standard Viewport Layouts** flyout will be displayed. Next, choose the required option from the flyout; the chosen layout tab will be added to the bar. To remove a tab from the bar, right-click on the tab; a shortcut menu will be displayed. Next, choose **Delete Tab** from the shortcut menu.

New

Animation Playback Controls

The tools in the animation playback controls are displayed on the left side of the viewport navigation controls, refer to Figure 1-21. These tools are used to control the animation in the active viewport. Also, you can set the total number of frames, animation length, and other settings of the animation using these tools.

Animation Keying Controls

The tools in the animation keying controls are displayed on the left side of the animation playback controls, refer to Figure 1-22. These tools are used to enter or exit different animation modes.



Figure 1-20 The viewport navigation controls



Figure 1-21 The animation playback controls



Figure 1-22 The animation keying controls

Track Bar

The track bar lies between the time slider and the status bar, refer to Figure 1-23. It displays a timeline along with the frame numbers.

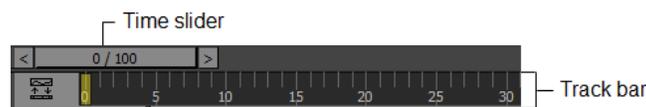


Figure 1-23 Partial view of the track bar and the time slider

Time Slider

The time slider displays the current frame and the total number of frames in the current time segment, refer to Figure 1-23. You can view the animation at each frame by dragging the time slider. The time segment is the total range of frames that you can access using the time slider. By default, it ranges from 0 to 100. You can set the range using the **Time Configuration** dialog box, about which you will learn in the later chapters.

Status Bar

There are various tools in the status bar that provide information about the scene and the active command, as shown in Figure 1-24. The prompt line, which is located at the bottom of the screen, displays information about the active command or tool. On top of the status bar, a text box known as the status line is available. This status line displays the number of currently selected objects (current selection set). The **Selection Lock Toggle** tool on the right side of the status bar is used to lock the selection set. The Coordinate display/transform type-in area displays the X, Y, and Z coordinates of the cursor or the currently selected object. The Coordinate display/transform type-in area can also be used to enter transform values while moving, scaling, or rotating the selected object(s).

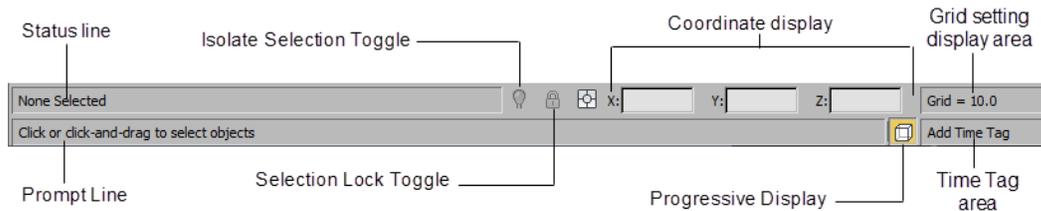


Figure 1-24 The status bar

The grid setting display area is placed on the right of the Coordinate display area. It displays the size of the grid. The time tag area located below the grid setting display area is used to assign the text labels at any point of time in your animation. Click on the time tag area; the **Add Tag** and **Edit Tag** options will be displayed. Use these options to add or edit the text labels at any point of time in your animation.

The **Progressive Display** button placed on the right of the prompt line is used to improve the viewport performance in a complex scene by decreasing the visual fidelity of some of the objects temporarily. This results in smoother viewport motions and object transformations in such scenes. It also improves viewport quality incrementally depending on the availability of processing time. To activate this feature, right-click on the **Progressive Display** button; the **Viewport Configuration** dialog box will be displayed. The **Display Performance** tab is chosen by default in this dialog box, as shown in Figure 1-25. Now, change the settings in the **Display Performance** tab based on your requirement and choose the **OK** button.

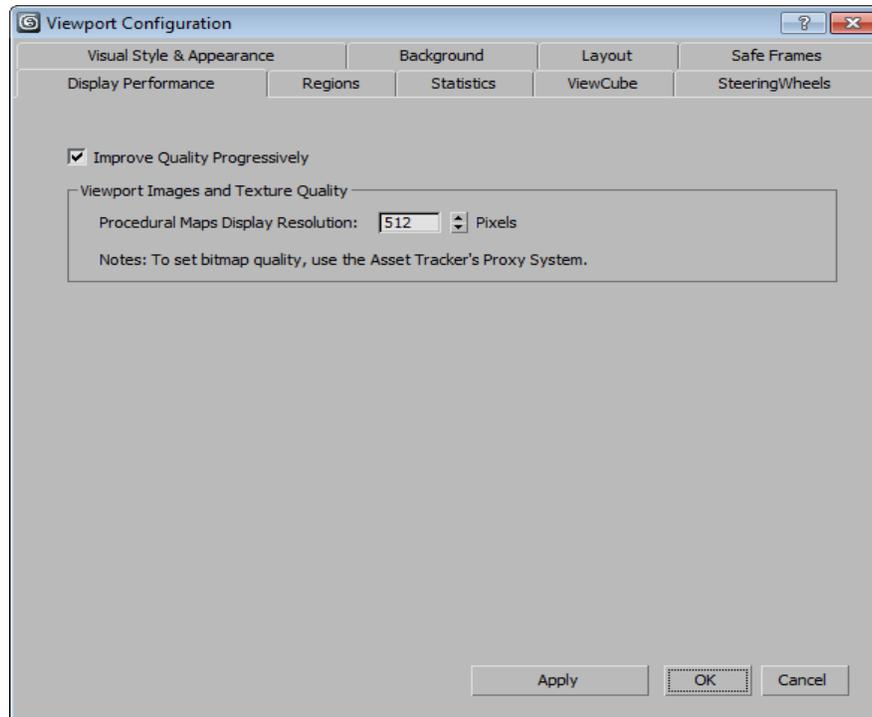


Figure 1-25 The Display Performance tab chosen in the Viewport Configuration dialog box

SNAPS SETTINGS

Snaps restrict the movement of the cursor to a specific part of an object or grid. There are four buttons available for snap settings in the **Main Toolbar**: **Snaps Toggle**, **Angle Snap Toggle**, **Percent Snap Toggle**, and **Spinner Snap Toggle**. If you right-click on the **Snaps Toggle**, **Angle Snap Toggle**, or **Percent Snap Toggle** button, the **Grid and Snap Settings** dialog box will be displayed, as shown in Figure 1-26. In this dialog box, you can select different parts of the objects or grid where the cursor will snap to. You can turn the snap command on and off by pressing the S key or by choosing the **Snaps Toggle** button. If you choose and hold the **Snaps Toggle** button, a flyout will be displayed. This flyout contains the **2D Snap**, **2.5 Snap**, and **3D Snap** tools, which can be invoked to snap the cursor.

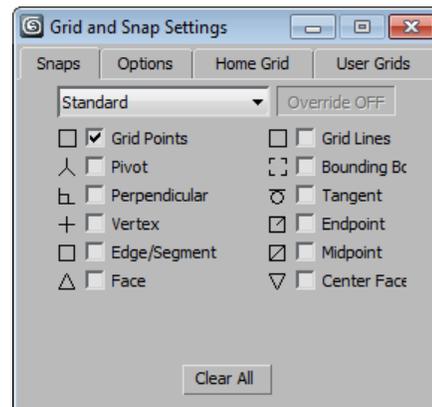


Figure 1-26 The Grid and Snap Settings dialog box

Snaps Toggle

Main Toolbar: Snaps Toggle

Menu bar: Tools > Grids and Snaps > Snaps Toggle

Keyboard: S

The **Snaps Toggle** tool is used to snap the objects on the grid. On choosing the **Snaps Toggle** tool, a flyout will be displayed, as shown in Figure 1-27. This flyout has three tools and these tools are discussed next.

2D Snap



If you choose the **2D Snap** tool from the **Snaps Toggle** flyout, then the cursor snaps to the active grid in two dimensions, X and Y. The Z-axis is not taken into consideration.

2.5D Snap



If you choose the **2.5D Snap** tool from the **Snaps Toggle** flyout, then the cursor snaps to the vertices and edges of the objects projected on the active grid.

3D Snap



If you choose the **3D Snap** tool from the **Snaps Toggle** flyout, then the cursor snaps to any object in 3D space using the **3D Snap** tool.

If you invoke any snap tool from the **Snaps Toggle** flyout, when the **Select and Move** tool is active, the move gizmo will show a small circle at its center, as shown in Figure 1-28. On moving the gizmo or snap handle, this axis center will act as the start snap point. This feature also helps in increasing the accuracy of snaps.

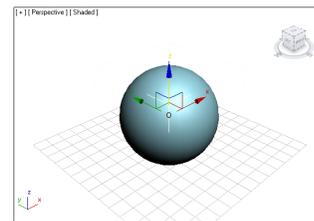


Figure 1-28 A small circle displayed at the center of the move gizmo

Angle Snap Toggle

Main Toolbar: Angle Snap Toggle

Menu bar: Tools > Grids and Snaps > Angle Snap Toggle

Keyboard: A



The **Angle Snap Toggle** tool enables you to rotate an object in angular increments. The increment value is specified in the **Angle** spinner of the **Grid and Snap Settings** dialog box. You can invoke this dialog box by right-clicking on the **Angle Snap Toggle** tool; the **Grid and Snap Settings** dialog box will be displayed. In this dialog box, by default the **Options** tab is chosen and the value in the **Angle** spinner is set to 5.0.



Figure 1-27 The **Snaps Toggle** flyout

Percent Snap Toggle

Main Toolbar: Percent Snap Toggle
Menu bar: Tools > Grids and Snaps > Percent Snap Toggle
Keyboard: CTRL+SHIFT+P



The **Percent Snap Toggle** tool enables you to scale an object in percent increments. The increment value can be specified in the **Percent** spinner of the **Grid and Snap Settings** dialog box. You can invoke this dialog box by right-clicking on the **Percent Snap Toggle** tool; the **Grid and Snap Settings** dialog box will be displayed. In this dialog box, by default the **Options** tab is chosen and the value set in the **Percent** spinner is set to 10.0.

Spinner Snap Toggle

Main Toolbar: Spinner Snap Toggle



The **Spinner Snap Toggle** tool is used to set the single increment or decrement value for all spinners in Autodesk 3ds Max. By default, the increment or decrement value is set to 1. To specify the increment value, right-click on the **Spinner Snap Toggle** tool; the **Preference Settings** dialog box will be displayed. In this dialog box, choose the **General** tab if it is not already chosen. Now, in the **Spinners** area, set a value in the **Snap** spinner, refer to Figure 1-29.

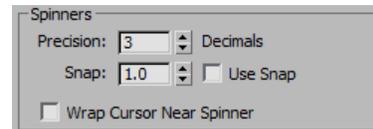


Figure 1-29 The Spinners area in the Preference Settings dialog box

Also, select the **Use Snap** check box and choose the **OK** button; the **Spinner Snap Toggle** tool in the **Main Toolbar** is invoked. Now, when you use any spinner in Autodesk 3ds Max, the value will increase or decrease according to the value that you have specified in the **Preference Settings** dialog box.

UNITS SETUP

The units setup in Autodesk 3ds Max is used to specify the units that help in measuring the geometry in a scene. By default, the units in Autodesk 3ds Max are generic units, which are scaled in inches. You can change the settings for units by using the **Customize** pull-down menu. To do so, choose **Customize > Units Setup** from the menu bar; the **Units Setup** dialog box will be displayed, as shown in Figure 1-30. By default, the **Generic Units** radio button is selected in this dialog box. Select any other radio button as per the requirement from the **Display Unit Scale** area of this dialog box and then choose the **OK** button; the limits in all spinners in Autodesk 3ds Max will be modified accordingly.

Setting Grid Spacing

To set the spacing between the visible grids in the viewports, choose **Tools > Grids and Snaps > Grid and Snap Settings** from the menu bar; the **Grid and Snap Settings** dialog box will be displayed. Choose the **Home Grid** tab in this dialog box, as shown in Figure 1-31. In the **Grid Dimensions** area, set the value in the **Grid Spacing** spinner to specify the size of the smallest square of the grid. The value in the spinners will be measured in the units that you specify

in the units setup. Set the value in the **Major Lines every Nth Grid Line** spinner to specify the number of squares between the major lines in the grid. Set the value in the **Perspective View Grid Extent** spinner to specify the size of the home grid in the Perspective viewport. Note that the default grid displayed in the viewports on starting Autodesk 3ds Max is known as the Home grid.

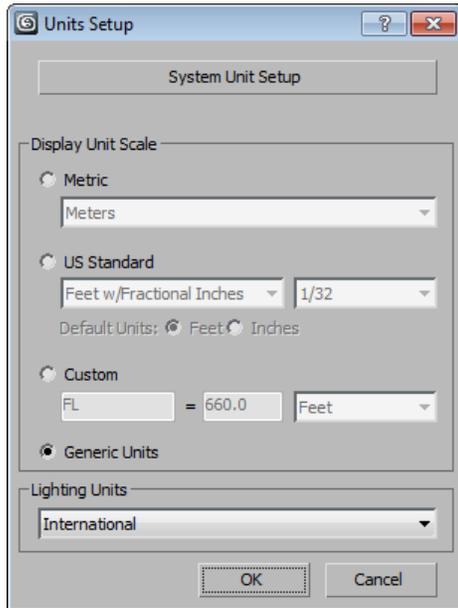


Figure 1-30 The Units Setup dialog box

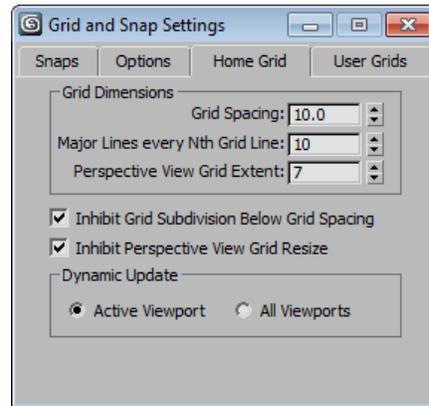


Figure 1-31 The Home Grid tab chosen in the Grid and Snap Settings dialog box

In the **Dynamic Update** area, the **Active Viewport** radio button is selected by default. It is used to update the active viewport according to the new values of the **Grid and Snap Settings** dialog box. Select the **All Viewports** radio button to update all viewports simultaneously according to the new values that you set in the spinners of the **Grid and Snap Settings** dialog box.

UNDO AND REDO TOOLS

Quick Access Toolbar: Undo Scene Operation or Redo Scene Operation
Menu bar: Edit > Undo or Redo
Keyboard: CTRL+Z (Undo) or CTRL+Y (Redo)



The **Undo** tool is used to revert the last actions performed while creating or modifying a model in Autodesk 3ds Max. To undo an action, invoke the **Undo Scene Operation** tool from the **Quick Access Toolbar** or press the CTRL+Z keys. You need to invoke the **Undo Scene Operation** tool repeatedly till all the earlier performed actions are reversed. To reverse a number of actions at a time, click on the arrow of the **Undo Scene Operation** tool in the **Quick Access Toolbar**; a list of actions will be displayed, refer to Figure 1-32. Move the cursor over the number of actions that you want to reverse; the actions will be selected. Next, click on the list. By default, you can reverse your actions up to 20 times. If you want to change this number, choose **Customize > Preferences** in the menu bar; the **Preference**

Settings dialog box will be displayed. By default, the **General** tab is chosen in this dialog box. In the **Scene Undo** area, set the new value in the **Levels** spinner, as shown in Figure 1-33.

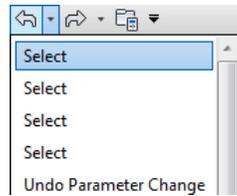


Figure 1-32 The list of actions displayed after clicking on the **Undo Scene Operation** tool

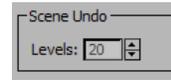


Figure 1-33 The **Scene Undo** area in the **Preference Settings** dialog box



The **Redo** tool is used to revert the last actions performed by the **Undo** tool. To redo an action, invoke the **Redo Scene Operation** tool from the **Quick Access Toolbar** or press the CTRL+Y keys. You need to invoke the **Redo Scene Operation** tool repeatedly till you want to reverse the actions performed earlier. To reverse a number of actions at a time, click on the arrow of the **Redo Scene Operation** tool in the **Quick Access Toolbar**; a list of last actions will be displayed. Move the cursor over the number of actions that you want to reverse; the actions will be selected. Next, click on the list.

HOLD AND FETCH TOOLS

Menu bar:	Edit > Hold or Fetch
Keyboard:	CTRL+H (Hold) or ALT+CTRL+F (Fetch)

Sometimes you may want to perform different experiments on a scene. In such as a case you need to hold the scene. The **Hold** tool is used to hold a scene and it saves the work in a temporary file with the name *maxhold.mx*.

The file is saved at the location `\Documents\3dsmax\autoback`. To perform an experiment using the new commands in a scene, invoke the **Hold** tool from the **Edit** menu or press the CTRL+H keys. Next, if you need to go back to the previous command, choose the **Fetch** tool from the **Edit** menu or press ALT+CTRL+F; the **About to Fetch. OK?** dialog box will be displayed, as shown in Figure 1-34. Choose the **Yes** button; the scene with the previous command will be displayed. In this way, you can go back to a series of commands using the **Hold** tool.



Figure 1-34 The **About to Fetch. OK?** dialog box



Note

When you use the **Fetch** tool in a scene, the history of the actions performed so far will be deleted. As a result, you cannot undo or redo the actions performed before invoking this tool.

HOTKEYS

In Autodesk 3ds Max, you can use the keys on the keyboard to invoke some of the tools. These keys are known as the hotkeys. You can work faster and more efficiently using the hotkeys. The major hotkeys and their functions are listed next.

Main Toolbar

The hotkeys that can be used to invoke the tools from the **Main Toolbar** are given next.

H	Invokes the Select by Name tool
S	Invokes the Snaps Toggle tool
A	Invokes the Angle Snap Toggle tool
CTRL+SHIFT+P	Invokes the Percent Snap Toggle tool
M	Displays the Material Editor dialog box
SHIFT+Q	Invokes the Quick Render tool

Viewport Navigation Controls

The hot keys that can be used to invoke the tools in the viewport navigation controls are given next.

ALT+CTRL+Z	Performs the action of the Zoom Extents tool
ALT+W	Invokes the Maximize Viewport Toggle tool
ALT+Z	Invokes the Zoom tool
CTRL+W	Invokes the Zoom Region tool
CTRL+P	Invokes the Pan View tool
Scroll the middle mouse button	Zooms in or out the active viewport
CTRL+R	Invokes the Orbit tool
SHIFT+Z	Used to undo the Zoom or Pan command actions
ALT+ press and hold the middle mouse button and move the mouse	Performs the actions of the Orbit tool

The following hot keys are used to change the POV viewport labels:

V	Invokes the viewport quad menu
T	Invokes the Top viewport
F	Invokes the Front viewport
L	Invokes the Left viewport
P	Invokes the Perspective viewport

B	Invokes the Bottom viewport
U	Invokes the Orthographic viewport

Animation Playback Controls

The hot keys that can be used to invoke the tools in the animation playback controls are given next.

N	Invokes the Toggle Autokey Mode tool
Home	Go to start frame
End	Go to end frame
/ (backslash)	Plays animation
ESC	Stop the animation
, (comma)	Go to previous frame
. (period)	Go to next frame

Customizing the HotKeys

In Autodesk 3ds Max, you can create your own keyboard shortcuts. To do so, choose **Customize > Customize User Interface** from the menu bar; the **Customize User Interface** dialog box will be displayed, as shown in Figure 1-35. In this dialog box, the **Keyboard** tab is chosen by default. Next, select a command from the **Group** and **Category** drop-down lists; the list of the corresponding actions will be displayed just below the **Category** drop-down list. Now, select one of the actions from the list and then enter the key that you want to assign to the selected action in the **Hotkey** text box. Next, choose the **Assign** button; the key is assigned to the selected action.

CUSTOMIZING THE COLORS OF THE USER INTERFACE

Autodesk 3ds Max allows you to modify the colors of the software interface. You can modify the colors for almost every element in the interface. To modify the colors, choose **Customize > Customize User Interface** in the menu bar; the **Customize User Interface** dialog box will be displayed. Choose the **Colors** tab from this dialog box, refer to Figure 1-35. Next, select the category of the interface element from the **Elements** drop-down list; the list of the corresponding elements will be displayed just below the **Elements** drop-down list. Now, select one of the elements from the list and choose the color swatch on the right of the **Elements** drop-down list; the **Color Selector** dialog box will be displayed. Select a new color and choose the **OK** button to close the **Color Selector** dialog box.

You can reset the new color to the default one. To do so, choose the **Reset** button at the bottom of the **Customize User Interface** dialog box; the **Revert Color File** message box will be displayed, as shown in Figure 1-36. Choose the **Yes** button; the default color will be displayed in the color swatch.

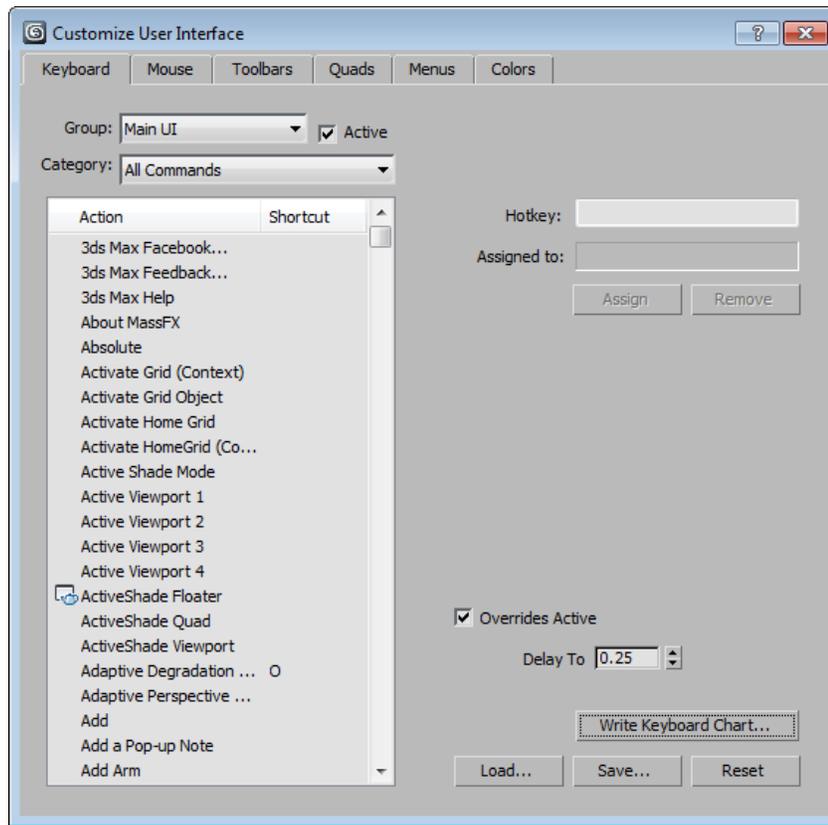


Figure 1-35 The *Customize User Interface* dialog box

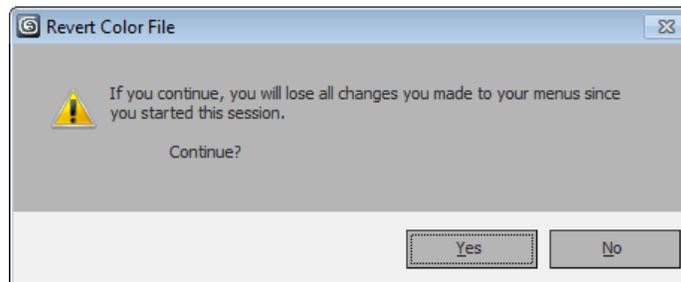


Figure 1-36 The *Revert Color File* message box

**Note**

For the printing purpose, this textbook will follow the white background. However, for a better understanding and a clear visualization at various places, this textbook will follow other color schemes as well.

In addition, the **Shaded** shading type is used throughout the textbook in all screen captures. Moreover, at some places in figures, grids will be hidden for better understanding and visualization. In some tutorials, you have been instructed to browse the images and max files from the CADCIM website. Therefore, before starting the tutorials, download the images and max files from <http://www.cadcim.com>. The path of the files is as follows:

Textbooks > Animation and Visual Effects > 3ds Max > Autodesk 3ds Max 2013: A Comprehensive Guide

Self-Evaluation Test

Answer the following questions and then compare them to those given at the end of this chapter:

1. Which of the following tools is used to improve the performance of a viewport in a complex scene by temporarily decreasing the visual fidelity of some of the objects?

(a) Progressive Display	(b) Snaps Toggle flyout
(c) Mirror	(d) All of these

2. Which of the following tabs should be chosen to control the animation controllers?

(a) Motion	(b) Display
(c) Hierarchy	(d) None of these

3. Which of the following dialog boxes is used to set the spacing in the grids displayed in the viewports?

(a) Customize User Interface	(b) Grid and Snap Settings
(c) Units Setup	(d) All of these

4. Which of the following combinations of keys is used to invoke the pan tool?

(a) CTRL+P	(b) SHIFT+Z
(c) CTRL+A	(d) CTRL+W

5. The _____ is located at the bottom of the screen and displays the information about the active command or tool.

6. The _____ dialog box displays video tutorials which help in learning the basic working environment of the Autodesk 3ds Max.

7. Most of the 3ds Max modeling and animation tools can be invoked from the tabs located in the **Command Panel**. (T/F)
8. The default interface of Autodesk 3ds Max consists of three equal viewports that are surrounded by tools and commands. (T/F)
9. In Autodesk 3ds Max, you can modify the colors of almost every element in the interface. (T/F)
10. The tools in the animation playback controls are used to control the display of a viewport. (T/F)

Review Questions

Answer the following questions:

1. The _____ provides visual feedback of the current orientation of the viewport.
2. The _____ is located between the time slider and the status bar.
3. The _____ tool located on the right of the status bar is used to lock a selection set.
4. The option in the _____ drop-down are used to switch between the saved layout setup.
5. The Viewport Layout tab bar enables you to store multiple viewport setups in a single scene.
6. Snapping restricts the movement of the cursor to a specific part of an object or grid. (T/F)
7. The options in the General viewport label menu are used for defining the type of shadings displayed in the viewport. (T/F)

Answers to Self-Evaluation Test

1. a, 2. a, 3. b, 4. a, 5. prompt line, 6. **Welcome to 3ds Max**, 7. T, 8. F, 9. T, 10. F