3Dplus 2.0 Companion

For Windows

Contents

SPC SOFTWARE PUBLISHING CORPORATION

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Welcome

Welcome

Ready to add a new dimension to your Web graphics projects, presentations, or desktop publishing? 3DPlus 2.0 will take you there! And no special skills are required—whether you use Wizards to create instant 3D elements and animations for you, or construct your own 3D scenes. 3DPlus puts all the tools and resources you'll need within easy reach. To create, you just pick and choose, mix and match—customize to your heart's content. The professional-quality results will amaze you!

About the Companion

This Companion is your guide to getting started and getting results with 3DPlus—from initial installation through advanced tips and examples.

1. **Welcome.** Read on for a feature summary—a checklist of the fun that's in store for you.
2. **Installation and Startup.** How to get up and running, and create instant 3D designs and animations.
3. **Working with 3D Scenes.** First, some 3D basics. Then, give us fifteen minutes... we'll put all our tools at your command.
4. **Working with 3D Animation**. How to add movement to your static scenes for eye-catching 3D animations and movies.
5. **Using 3DPlus with Other Software.** How to incorporate your 3D creations in graphics, presentation, or desktop publishing programs.

What you'll find in 3DPlus 2.0...

We've re-engineered 3DPlus from the ground up to blend state-of-the-art capabilities into an even more convenient interface.

- **New 3D Animation Capability**
  Make any 3D scene come alive! Simply place key frames for the object properties you want to vary—let 3DPlus generate the in-between motion. Your objects can move, rotate, change size or color, and much more. The result: an animated GIF ready for your Web site or presentation.

- **Improved Ease-of-Use**
  You'll appreciate the new Wizard interface that simplifies creating new designs and animations, and the convenient, tabbed Studio bar for tools and resources. Functions like rotation and extrusion have been streamlined. And now you can select multiple objects, zoom in or out with a single click, and use WYSIWYG text entry to preview fonts and formatting.
- **Enhanced 3D Resources**
  Use the handy branching menus to browse a large set of 3D models—from basic geometric shapes to complex man-made objects. To customize your objects and scenes, choose from a new collection of background images, an improved texture library, and an expanded selection of lighting schemes.
- **Improved 3D Tools**
  Try the new QuickShape tool for adjustable instant objects! Choose from six preset camera angles, or simply drag for freeform camera views *and* object rotations. Experiment with new lighting types and controls for brilliant effects. Easily rotate, resize, and move bitmap textures on any object.
- **Performance Advances**
  An improved 3D model format. Apply your choice of textures, colors, and bevels to complex clipart objects, with separate material controls for front, sides, and back. Built-in DirectX™ support affords speedier 3D rendering—and five anti-aliasing quality levels let you pick one that's right for *your* system.
- **Customizability**
  Now you can store your own custom lighting schemes, materials, and bevels as Studio thumbnails, right there whenever you need them. Import standard metafiles as 3D models, then weave them into your scenes for a whole new range of design possibilities.
- **Direct Output Preview**
  Forget the trial and error approach! The Export dialog now features a built-in window so you can preview color depth, dithering, and palette settings in a single step, *before* conversion. And for top-quality Web GIFs, take advantage of transparency and background anti-aliasing. And of course, you can embed 3DPlus scenes directly in publications using OLE. Who said great results were hard to come by?

Getting Started

Registration, upgrades, and support

If you see the Registration Wizard when you launch 3DPlus, please take a moment to complete the registration process. Just call Serif toll-free and provide the installation number and code shown. We'll give you a personalized registration number in return. Remember, if you need technical support please contact us. We aim to provide fast, friendly service and knowledgeable help.

Installation

What you need to run 3DPlus

Serif 3DPlus runs with Windows 95, 98, or 2000, so you'll need a PC setup that runs Windows adequately. If you need help installing Windows or setting up your printer, refer to Windows documentation and help (see below).

- IBM compatible Pentium PC with CD-ROM drive and mouse (or other Microsoft compatible pointing device)
- Microsoft Windows® 95, 98, 98 SE, or 2000 operating system
- 16MB (Windows 95/98), 24MB (Windows 98 SE), or 64MB (Windows 2000) RAM
- 40MB (recommended install) free hard disk space
- SVGA display (16-bit color) or higher

Additional disk resources and memory are required when editing large or complex documents.

Optional components include:

- Windows-compatible printer
- TWAIN-compatible scanner and/or digital camera
- Internet account and connection required for accessing online resources

What you need to know

Don't worry if you've never worked with 3D graphics software. 3DPlus requires no special knowledge. It's all based on WYSIWYG (What You See Is What You Get), so WYDKCHY (What You Don't Know Can't Hurt You)! Follow along on the Companion's guided tours and you'll be up to speed in no time.

If you're new to Windows computing, you will find it much easier if, before installing and using 3DPlus, you spend a little time becoming familiar with the operating environment.

- From the Windows desktop, click the **Start** button at the lower left and choose **Help**.

First-time install

To install Serif 3DPlus, simply insert the CD-ROM into your CD-ROM drive. The AutoRun feature automatically starts the Setup process. (If it doesn't, follow the manual install procedure described below.)

Just answer the on-screen questions to install the program. You will be given the choice between a Recommended install (which optimizes performance by loading speed-critical files to your hard drive for best performance) or a Custom install (which lets you specify the files you want copied to your hard drive).

3DPlus 2.0 Design CD-ROM

If you've purchased the Design CD-ROM, we suggest you install it as soon as you've finished installing from the Program CD-ROM. Again, the AutoRun feature will automatically start the Setup when you insert the Design CD-ROM into your drive.

Manual install/re-install

To re-install the software or to change any part of the installation at a later date, select **Settings/Control Panel** from the Windows Start menu and then click on the **Add/Remove Programs** icon. Make sure the correct CD-ROM is inserted into your CD-ROM drive and then simply follow the on-screen instructions. To install just one particular component to your hard drive, choose the Custom option and check only that component.

Starting 3DPlus

Once 3DPlus has been installed, you'll be ready to start. Setup adds a **Serif 3DPlus 2.0** icon to the **Programs** submenu of the Windows Start menu.

- ❑ Use the Windows **Start** menu to start 3DPlus, or if 3DPlus is already running choose **New** from the File menu.

3DPlus launches and displays the Startup Wizard, with these options:

- ♦ **Use a 3D Design Wizard** and **Use a 3D Animation Wizard** let you preview and select a variety of cool effects, ready for you to customize or use "as is."
- ♦ **Start from Scratch** opens a blank scene window.
- ♦ **Open Saved Scene** lets you browse and open your own files.
- ♦ **Online Resources** links you to the Serif Web sites.

If you're just getting started with 3DPlus, here's a recommended learning sequence:

1. From the Startup Wizard, choose one of the 3D Wizard options.
2. Follow the Wizard's prompts to create an instant design or animation (see the next section, *Instant designs and animations*).
3. To begin learning about 3DPlus tools and menus, just move the mouse pointer around the screen. Watch the **HintLine** at the bottom of the screen for capsule descriptions of each feature.

4 Choose **Help Contents** from the Help menu to see what's available in online help. The contents screen points you to the extensive Visual Reference and How To sections. Click **Help on Help** for some tips on how to proceed.

5 Refer to the following Companion chapters for self-paced, hands-on tours of 3DPlus tools and functions.

Instant designs and animations…

Creating amazing 3D effects that you can be proud of is easy with 3DPlus. You can get started right away with the automated 3D Wizards.

- ❑ Run the Startup Wizard (**File/New**).

If the Startup Wizard fails to appear, check **Use Startup Wizard** on the **File/Preferences...** screen, then try again.

For a 3D Design...

- ❑ From the Startup Wizard, click **Use a 3D Design Wizard** and you'll see the Wizard categories displayed on the left. Browse using the category menu and select a basic design from the Wizards shown at the right. Then click **Next>** to move on to the next section of the Wizard.
- ❑ Type your own text, replacing the sample text, and click **Next>**. If you change your mind or want to revisit the choices, click **<Back** to retrace your steps.
- ❑ On the following screens, make choices as requested—for example, a bevel effect for edges and a material effect for surfaces—

clicking **Next>** each time.

- Finally, click a background, then click **Finish** to complete the Wizard sequence.

Your new design appears in the 3DPlus scene window.

For a 3D Animation...

- From the Startup Wizard, click **Use a 3D Animation Wizard** and you'll see the Wizard categories displayed on the left, with animated previews on the right. Browse using the category menu and select a basic animation. Then click **Next>** to move on to the next section of the Wizard.
- Type your own text, replacing the sample text, and click **Next>**. If you change your mind or want to revisit the choices, click **<Back** to retrace your steps.
- On the following screens, make choices as requested—for example, a bevel effect for edges and a material effect for surfaces—clicking **Next>** each time.
- Finally, click **Finish** to complete the Wizard sequence.

Your new animation appears in the 3DPlus scene window.

- Click the  **Play** button on the Animation toolbar to start playback. (To display the Animation toolbar, choose **Toolbars** from the View menu and check **Animation** on the submenu.)

Choosing a driver setting

If you have a DirectX hardware driver installed on your system, 3DPlus will use DirectX hardware acceleration to render scenes. Occasionally, driver or video adapter incompatibilities may lead to display problems such as difficulty viewing materials on objects, or selecting a particular light source. If such problems occur, or your scenes just don't look the way they should, try switching to the software driver setting.

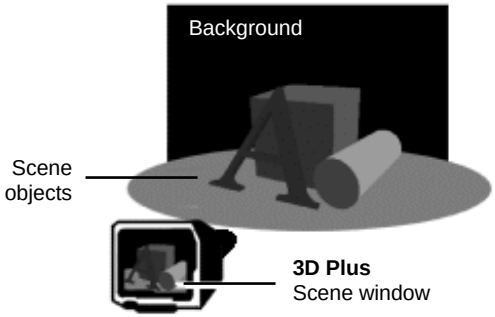
To select the software driver, choose **Preferences...** from the File menu and check the "Software" option.

Working with 3D Scenes

It’s a 3D world...

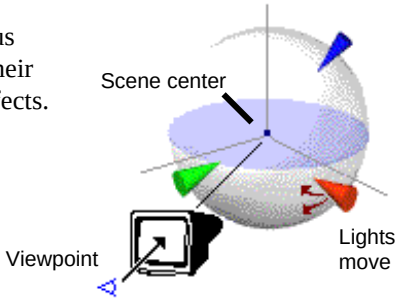
The best part of using 3DPlus is that you can create terrific effects without having to master all sorts of spatial concepts and computer jargon. If you can grasp height, width, and depth, you’re halfway home! But learning any new program does involve a bit of trial and error. Here’s some background to help minimize the “error” part.

The main 3DPlus window consists of a **frame** (with titlebar, menus, etc.) enclosing a **scene window**. Imagine you’re behind a video camera, looking at a “set” with one or more **objects** positioned against a **background**. The 3DPlus scene window is what you’d see through the camera’s viewfinder. As you’d expect, there are tools to let you rearrange the objects, substitute a different background image, or change the studio lighting for different effects. But that’s not all. With 3DPlus, you can instantly change an object’s colors and dimensions, rotate it in space, apply cool surface textures, create your own mini-universes of text and shapes, create animation... and more!



New objects appear at the **scene center**. From the camera’s **viewpoint**, looking through the scene window, you see the objects in perspective. You can reposition objects to be nearer or farther away, and their sizes change accordingly.

You can also place **lights** of various types around the scene, and vary their color and intensity for different effects.



To set the width and height of the scene, choose **Scene Setup...** from the File menu, or right-click on an empty part of the scene window and choose **Scene Setup...**. Select a unit of measurement and enter the width and height. Note that your screen resolution setting (800x600, for example) will affect the actual size of the scene when it's printed.

At **normal view** level (1:1 or 100%), the size of the scene window you see equals the size you've specified in Scene Setup. 3DPlus gives you several ways of adjusting your working view without affecting the actual scene size:

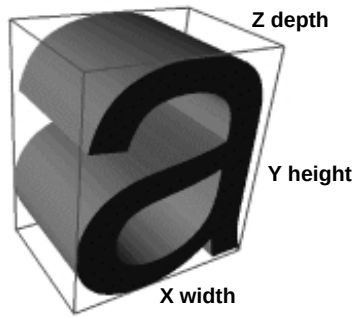
 To zoom in or out, choose the **Zoom** tool on the Tools toolbar, then left-click on the scene window to zoom in, or right-click to zoom out.

 To adjust the scene window's size to fit within the main window area, click the **Fit on Screen** button on the Standard toolbar, or choose **Zoom** from the View menu (or the scene's right-click menu) and select **Fit on Screen**.

To restore the scene window to its actual size, click the **Normal View (1:1)** button on the Standard toolbar, or choose **Zoom** from the View menu (or the scene's right-click menu) and select **Normal View (1:1)**.

Each three-dimensional object takes up space in three directions, defined in 3D parlance as the **X, Y,** and **Z axes**.

Think of the X axis as defining the object's **width** or left-to-right dimension, and the Y axis as defining its **height** or top-to-bottom dimension. For example, the X and Y axes define the black character "a" in this text object.



The Z axis defines the object's **depth** or front-to-back dimension. It's this extra dimension that gives us "3D."

To learn how to manipulate these and other object properties, follow along in the next section as we explore the 3DPlus interface.

Guided Tour: 3D scenes

You've seen how a Wizard helps you create a simple 3D design or animation in no time at all. 3DPlus is so easy to use, with such compelling effects, that you're sure to want to experiment on your own. Starting from scratch with a new scene is nearly as simple as using a Wizard!

Whether you're adding finishing touches to a Wizard-based creation or pushing the limits of your own creativity, the following guided tour will help you get up to speed. We'll use ❑ checkbox bullets to mark the ongoing tutorial thread—steps we'd like you to complete as you follow along with the text. Save your work occasionally as you go along.

The main purpose of this tour is to introduce you to the various tools—not to make you an expert! For additional details on each tool and procedure, be sure to consult online help's **Visual Reference** and **How To** sections.

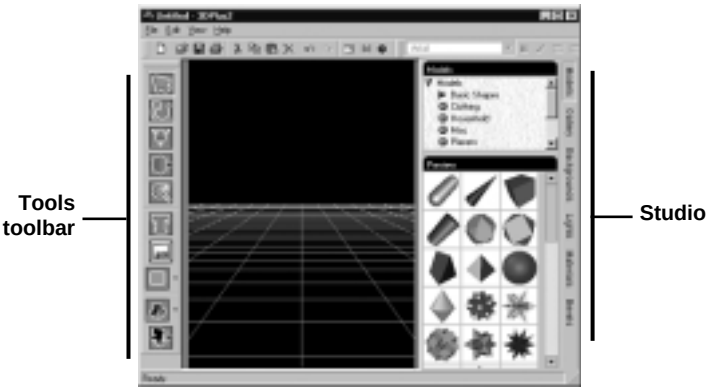
Making a scene

We'll begin by creating a new, blank scene window.

❑ Start 3DPlus or, if it's already running, choose **New** from the File menu, and select the "Start from Scratch" Wizard option.)

Your screen will look something like the illustration below. We've resized the main window to bring the tools a bit closer to the scene window. You can also click the **Fit to Screen** button to maximize the working area.

❑ Take a moment to identify the **Tools toolbar** on the left side of the window, and the **Studio tabs** on the right.



The lattice of blue lines is the **floor grid**, a plane that slices through the scene center at the zero point of the scene's Y (vertical) axis. Initially, the camera is elevated five degrees above this plane, affording a perspective view. For the moment, we don't need either the grid or the Animation toolbar, so we can hide them.

- ❑ Right-click anywhere in the blank scene and uncheck **Grid** on the menu.
- ❑ If the Animation toolbar is visible, click its **Close** button to hide it.

The object of the exercise

Adding 3D models, also called "objects," to the scene is a snap!

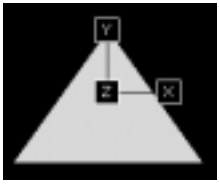
- ❑ Click the Studio's **Models** tab to reveal the Basic Shapes category. Click the Pyramid shape (third row down in the middle).

3DPlus locates the model on the CD-ROM and creates a new pyramid object at the scene center. (For future reference, you can also drag models from the Models tab and drop them at a specific position.)

The pyramid, like all the basic shapes, has a white color by default, and no special texture or other attributes. Initially, what you see is a front view of the object, which is why it looks like a triangle. Let's prove that it really has three dimensions.

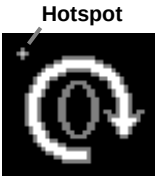
The right tool for the job

- ❑  On the Tools toolbar at the left, click the button for the **Rotate tool**. Immediately, a set of labels appears, centered on the pyramid. (If you don't see the labels right away, just click on the pyramid to select it.)

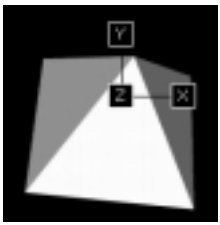


The labels and lines plot the three axes of the 3D scene. As you might expect, the X axis is horizontal, the Y axis runs vertically, and the Z axis—the depth plane—runs straight from our viewpoint into the scene center, which is why we can't see its axis line.

- ❑ Click on the "Y" axis label with the Rotate cursor, being sure to click with the cursor's "hotspot"—a single dot, as shown here. Drag from side to side, then up and down. Now try the same thing, only dragging the "X" axis label, and then the "Z" axis label.



And there it is: 3D!



As you've probably noticed, dragging up has the same effect as dragging to the right; the down and left mouse actions are similarly paired, a 3DPlus convention.

By the way, 3DPlus features multiple levels of undo (which you can set in **File/Preferences...**)—so if you seem to have rotated your pyramid hopelessly out of alignment, you can always backtrack...

Let's continue to explore the offerings on the Tools toolbar, using the pyramid as a sort of geometric guinea pig.

❑  Click to select the **Move/Size tool**.

As its name implies, this tool handles two functions. If you click directly on an object, you can drag it around in the scene along the X or Y axes. (Its distance from the camera, or Z-distance, doesn't change.) Alternatively, you can click one of the object's handles—the red dots at the corners of the selection—and drag to resize it. (In this case, the object responds by growing or shrinking in three dimensions, although its center doesn't move.)

❑ Try moving and resizing the pyramid. Watch for the special cursor that appears when you're over a handle: it tells you that dragging will result in a resize operation.

Before proceeding, let's make life a bit more interesting by adding a second object to the scene—this time, a QuickShape.

❑  Click the little down arrow on the **Insert QuickShape tool**, third from the bottom on the Tools toolbar. (The actual button icon varies, depending on which shape you selected most recently.) From the flyout menu that appears, choose the "Moon" shape (third row, left). The cursor changes to a light bulb icon.

❑ Click in the scene window and drag sideways with the light bulb cursor until a crescent shape appears and is roughly as big as the pyramid object. When you release the mouse button, you'll see a slider and two small buttons.

You can adjust the outline of any QuickShape by dragging its slider(s). In this case, the single slider varies the "phase" of the moon object.

- Experiment with the slider, leaving the moon as a typical thin crescent shape. Then click the ☑ button to confirm the shape. (Clicking ☒ would cancel it.)

As with the pyramid earlier, the moon object initially appears in straight-on front view.

- Use the Rotate tool to swivel the moon to a more interesting angle.

The next item on the Tools toolbar is the **Stretch tool**, which lets you adjust a single object's size along one dimension at a time—for example, to make it thicker or thinner without changing its height or width.

- Select the Stretch tool and click on the moon object.

Again, you'll see axis labels; but this time they represent the axes of the object itself, as it's currently positioned in space. To make an object wider, drag out on its X axis. To reduce its height, drag down on its Y axis, and so on.

- Experiment with the tool until you get accustomed to the changes along each axis. Then return the moon to its original shape, more or less.

- Choose the Move/Size tool and drag the moon down until it intersects the pyramid. Both objects are still centered the same distance from the camera; where they take up the same space, they overlap with intriguing results.

The **Distance tool** lets you move an object's center along the scene's Z axis—in other words move it closer to (or further from) the camera viewpoint. This lets you place one object in front of another in your scenes.

- Choose the Distance tool and click on the moon object to select it. Now drag the object slightly down (or right). Doing so decreases the Z-distance and brings the object closer; dragging up or left pushes the object away. Although the object appears to grow or shrink, bear in mind that it hasn't actually changed size—only position.

- **TIP:** In working with objects, you'll often find yourself switching between the first four tools on the Tools toolbar. Use the shortcuts shown at right to jump quickly from one tool to another.

To choose:	Press:
Move/Size tool	Ctrl+1
Rotate tool	Ctrl+2
Stretch tool	Ctrl+3
Distance tool	Ctrl+4

-  Next, click the **Text tool**. Immediately, a text edit window pops up. Type a couple of words (we chose "Nile Style") and pick a font from the drop-down list (we applied Stylistic SF). Click **OK**.

The text you typed appears in the scene as a new text object (front view, of course.)

- Use the four basic tools (Move/Size, Rotate, etc.) to adjust the text and place it in relation to the other objects.

You can edit any text object by selecting it, then using the controls on the Standard toolbar to change font, alignment, and so on. To bring up the text edit window again, simply double-click the text object—then you can retype the text as needed.

TIP: You can select multiple objects by holding down the **Shift** key when selecting each object, or by dragging out a marquee around a group of objects. Then use any of the basic tools to edit the resulting multiple selection as if it were a single object.

So far, we've covered tools that affect selected objects in the scene. The Tools toolbar also includes two tools that let you alter the camera viewpoint, thus changing the appearance of the scene as a whole. Let's take a quick look.

- Click in a blank part of the scene to deselect all objects. Notice that the HintLine readout below the scene now shows values for the camera.

The current "camera angle" value is given as "0º 5º", denoting a 5-degree elevation in the vertical plane. This is the default starting camera angle for new scenes, and we haven't changed it since starting the tour.

-  Click the down arrow on the **Camera Angle tool**. A flyout menu appears, with seven choices. Move the cursor over the choices and you'll see six of them are preset camera angles: Front, Back, Top, Bottom, Left, Right.

- Click each of the preset buttons in turn and watch as the scene changes. As you do so, keep an eye on the HintLine readout.

The Hintline values describe how far the camera's position deviates from the straight-on Front view (which is "0º 0º"). If the camera moves horizontally from this Front view, the first value changes; vertically, and the second value changes. (For more, see the online help topic on the Camera Angle tool.)

Besides the six preset viewpoints, you can use the Camera Angle tool in freeform mode to display the scene from any viewpoint.

- On the Camera Angle flyout, click the Freeform choice, and you'll see the scene jump back to the initial "0º 5º" view. Then drag freely in the scene window. You'll see the view change continuously, following your mouse movements.

Note that the Freeform button "remembers" your last freeform angle, allowing you to select one of the preset angles and then quickly return to the freeform viewpoint.

-  Finally, choose the **Camera Distance tool** and drag in the scene window. Again, the whole scene changes. This adjustment can be useful for trimming (or adding) extra space around the edges of the scene.

Some local color

Up to this point, we've been content to leave all the objects in the scene in their original, rather pallid condition. And in fact, we've got a nice grayscale composition going. But before concluding the tour, let's liven things up a bit.

In 3DPlus, there are three basic ways of adding color to a scene. Each involves using one or more of the Studio tabs on the right side of the workspace.

To...	You can...
Change the scene background	Use the **Backgrounds tab** to select a solid color or image as a background
Change the base color of individual objects	Use the **Materials tab** to select a base color for a selected object
Change the scene's color scheme	Use the **Gallery** to select a preset lighting scheme, and/or Use the **Lights tab** to customize the scene lighting, adding lights of different colors

We'll look at a couple of these techniques by way of introducing the Studio, and let you have fun exploring the others on your own.

❑ 

Click the **Materials** tab button.

When we speak of an object's "material," we're talking about a set of surface properties that you can vary, and which are saved along with the object. **Base color** is just one of these properties. (The others are **texture**, **transparency**, and **shine**.) The Materials tab lets you tweak an object's material definition by adjusting each of these attributes independently. For now, we'll just focus on color.

❑ Using any of the basic tools, select the moon object. Now click any color swatch in the scrolling table at the bottom of the Materials tab. Click another swatch.

With each click, the object's color changes. (We prefer a yellow moon, but you may have your own ideas!) By the way, the multi-colored swatch at the upper left of the color table represents "Original Color"—click it if you want to restore an object to its initial base color.

❑ Experiment with coloring each of the three objects in the scene until you find a pleasing combination.

Shedding light on the situation

Taken together, all the lights used in a scene are known as the scene's **lighting scheme**—and every scene has one. In addition to the Floodlight that's standard in every new scene, 3DPlus provides four different types of lights (Spot, Ambient, Distant, and Point) that you can mix and match in any number or combination. Although each type of light has its own special properties—detailed in online help—one thing they have in common is the ability to take on a particular color. You can use multiple lights of different colors, in different positions, to

create subtle interactions with the base colors of scene objects.

To get a feel for how the lights work, let's look at a couple of them.

- 

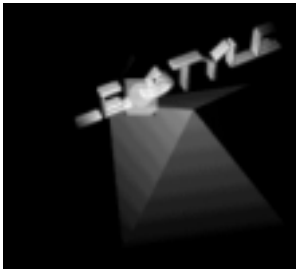
Click the **Lights** tab button and notice the scrolling region in the center of the tab. At this point, there should be just one entry: "Floodlight."

- Click the light bulb icon next to the light's name to turn off the light. The scene goes dark! Click again to restore illumination.
- In the swatch panel at the bottom of the tab, click any color.

Now the scene is bathed in a vivid glow. Notice that the swatch to the right of the "Floodlight" entry has now taken on the color you chose. Changing the color of a light is as easy as changing an object's base color.

- Drag the **Intensity** slider to the left, and you'll see the scene fade as the floodlight's output dims.
- Near the top of the tab, click the **Insert Spotlight** button. Right away you'll see a change in the scene, as a spotlight object appears in the center and casts a default hue of its own on the surroundings.

Spotlights, point lights, or distant lights that are turned on in a scene appear as objects as long as the Lights tab is selected. You can use the basic tools to reposition them. (Floodlights and ambient lights don't appear as objects.)



- Click the floodlight's bulb icon to turn it off, so that only the spotlight remains on. Using the Move/Size tool, drag the spotlight object from side to side. You'll find it's like shining a flashlight around in the dark.
- Now try the Rotate and Distance tools on the spotlight object. You'll see the beam's width change as you move the light in or out with respect to the scene. Try swiveling the light to illuminate specific objects. It helps if you visualize the light as a bulb inside a housing, with its beam projecting forward, as shown at right.

You can investigate the other light types at your convenience. We suggest you continue the same approach: turn off everything but the one light and then play around. (For details on each light type, search for “lights” in the online help index.)

In the meantime, let’s not overlook that the Studio’s Gallery tab is well stocked with predefined lighting schemes, material definitions, and bevels—so you may find exactly the effect you need without any extra effort!

- From the Lights tab, click the **View Gallery** button to open the Gallery tab’s Lights section directly. You’ll see an array of preview thumbnails, each depicting a different lighting scheme.
- Click a few thumbnails in turn to see how each one affects the scene. To see which lights and settings make up any particular scheme, just click the **Lights** tab button. (It’s another good way to learn about the various light types.)

Finally, note that the Gallery includes a “My Gallery” section where you can store your own custom lighting schemes and materials (there’s a corresponding section on the Backgrounds tab, too). Saving custom effects is simply a matter of right-clicking on an object or scene.

4

Working with 3D Animation

The easiest way to get started with animation is to choose the **3D Animation Wizard** option from the Startup Wizard screen. Once you've selected and customized an animation, click **Finish** to bring it into the scene window.

The Animation toolbar appears once you've loaded an animation. (To show or hide any toolbar manually, choose **Toolbars** from the View menu and check or uncheck the item.) You'll see that the Animation toolbar consists of a basic **Control Panel** for playing back animations and (when expanded) an **Edit Panel** which lets you edit existing animations or create new ones. You can drag the toolbar outside the main window to increase the available workspace. Here's the toolbar's Control Panel:

The first set of three buttons are **Play**, **Stop**, and **Pause/Resume**. Use these to preview the animation directly in the scene window. The second set of buttons serve to set the playback mode. Click **Single Run** to play the sequence once, stopping on the last frame. The next button, **Ping Pong**, plays the sequence indefinitely—first forward, then backward. Finally, the **Loop** button also sets up an endless repeat condition, this time repeating from the first frame each time.

3DPlus animations are just like static scenes, but with multiple variations stored as **frames**. (We'll explain more about frames below.) In order to use an animation on a Web page or in a presentation, you'll need to export it to a standard format known as **animated GIF** (generally pronounced to rhyme with "riff"). Options that you set using the Animation toolbar, such as playback mode and speed, are incorporated into the animation when it's converted to a GIF.

Animation basics

To understand how animation works in 3DPlus, consider a basic 3D scene with several objects. Instead of pointing a still camera at the scene, imagine we're using a movie camera that lets us expose one frame at a time. Between each exposure, we can adjust one or more of the scene objects in various ways. We might change an object's position over time, so that it appeared to move from one side of the scene to the other. Or we might change its rotation angle, so that a sphere appeared to spin on its axis. Once we've shot a series of frames, we can play them back rapidly and see the motion unfold.

Creating animation in 3DPlus is a fast and flexible process. In general, you first decide how many frames you want in the sequence. Then you issue instructions to the scene objects, telling them how to behave during the sequence. Naturally, each object that will change needs its own set of instructions. For each such object, you'll specify which properties need to vary, and define several **key frames** that show the object exactly as you want it to appear at that point in the sequence. 3DPlus takes care of the rest: it examines the key frames and automatically generates "in-between" frames that take care of the transformations. The result is a seamless animation.

For each object, you can set key frames for Position, Size, Rotation, Texture, Color, and Transparency. For the scene as a whole, you can set key frames for the two Camera properties, angle and distance. Take a moment to think about the movements that could result from varying each property: zooms and pans, pinwheels, flying planes, planetary orbits, appearing and disappearing shapes, leaping lizards, exploding text! To get started, try the following mini-lesson.

Guided Tour: 3D animation

Follow along with this step-by-step example and create a rotating globe!

Around the world in 20 frames

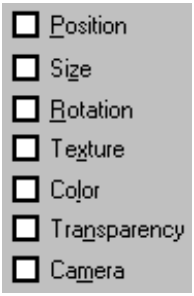
- Choose **New** from the File menu (choose the "Start from Scratch" Wizard option) to start with a new, blank scene. If the floor grid is visible, right-click in the scene and uncheck **Grid** to turn it off.
- Click the Studio's **Models** tab and select the "Planets" category. Click the "Earth" model's thumbnail and a globe object will appear in the center of the scene, complete with seas and continents. The African continent takes up most of the right half of the globe.

- Show the Animation toolbar (using **View/Toolbars**) if it's not already visible. Click the **More** button if necessary to reveal the extended Edit Panel.

In the upper Frames group, note that the **Total** box is showing there are 20 frames in the sequence (the default value). The **Current** box shows we're looking at frame 1, and so the adjacent **Current Frame** slider is set to its far left position. Looking at the lower Key Frames group, you'll see an assortment of various check boxes with associated sliders

and buttons. These will all be much less mysterious in a moment.

- With the Move/Size tool, deselect the Earth by clicking in an empty part of the scene window, and now in the Key Frames group you'll see that only the **Camera** property is enabled. That's because Camera Angle and Camera Distance apply to the scene as a whole, regardless of what's selected.



- Now select the Earth object, and all the check boxes for object-specific properties become available, as at right.

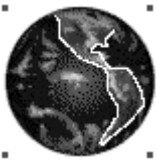
Let's create the key frames that will tell the Earth how to rotate. In order to generate a convincing full-cycle rotation, 3DPlus needs us to provide several snapshots of what the Earth should look like at key positions in the cycle. So let's proceed to define our key frames: a starting and ending view, and a couple of intermediate views.

- The only property we need to include in the animation is rotation, so check the **Rotation** box.

- Click the  button at the right of the **Rotation Key Frame** slider. A key frame marker appears at the far left of the slider (frame 1).

- Click about a third of the way along the **Current Frame** slider, at frame 8. We'll create a key frame for the first intermediate view here.

- Choose the Rotate tool. Click on the "Y" axis label and drag down to rotate the Earth until the east coast of South America is just disappearing over the horizon (on the HintLine "object angle" readout, a Y value of about -105°). When you release the button after dragging, 3DPlus inserts an automatic key frame marker at frame 8 at on the **Rotation Key Frame** slider.



Note that 3DPlus automatically defines a new key frame each time you adjust one of the object properties included in the animation—that is, a property you've checked in the Key Frames group. (If for any reason you don't want a new key frame, just click the button to delete it.)

- Click on the **Current Frame** slider again, this time selecting frame 15. To create the second intermediate view, drag down on the Y axis until Australia is centered in the view (Y value of about 130º on the HintLine). A third key frame marker appears.

- For the end frame of the sequence, the Earth should be rotated nearly all the way around, just short of its starting position. To get to the end frame, type "20" into the **Current Frame** box, or click the far right end of the **Current Frame** slider. The scene will still look as it did in frame 15.

- Drag down on the Y axis to continue the Earth's rotation. Watch the HintLine and stop rotating when the Y value is about 10º. A fourth key frame marker appears at the far right of the **Rotation Key Frame** slider.

- Now click the  **Play** button and you'll see the Earth rotate!

  To make it rotate continuously, click the  **Loop** button.

Congratulations! You've just made the Earth move.

Editing animations

If you've just completed the mini-lesson above, or have created an animation using a Wizard (or perhaps one of your own design), the Edit Panel on the Animation toolbar will show the key frames defined for each object in the scene. If there's more than one object, you'll need to click each one individually to see its key frames. Note that animations will often include static objects that don't move at all during the sequence.

It's easy to edit animations by adding new objects to the scene (with or without movement), replacing Wizard text with your own, and so on. Here are some additional pointers on working with the Animation toolbar:

- You can click on any key frame marker to jump to that frame.
- For a rapid preview, drag the **Current Frame** slider.
- If a particular object transformation appears jerky, first determine which property and key frame seem to be the source of the problem. Then go to that key frame and either:

- Adjust the object property itself or
- Move the key frame marker slightly (e.g. drag it left or right a frame at a time).

Moving two key frames closer together has the effect of speeding up the transformation between them; moving them apart slows things down.

♦ To change the overall playback speed, type a new value into the **Speed** box and press **Enter**. Bear in mind that playback in 3DPlus may not match the frame-per-second rate shown in the box. That value, will, however, be used when the animation is exported. To determine an optimal rate setting, always preview the exported .GIF file in a browser or GIF editing program.

♦ To change the sequence length, simply type a new value into the **Total** box and press **Enter** (but see the following paragraph). Frames are added or subtracted at the end of the sequence. In general, the final .GIF file will be more compact if it has fewer frames. There's nothing fixed about the default length of 20 frames. Many convincing animations can be accomplished in 10 frames or less.

♦ Be careful if adding or subtracting frames after you've defined key frames. Obviously, the resulting sequence won't have the same number of frames—and there's no undo for this action—so decide beforehand what you want 3DPlus to do with the existing key frames.

- To preserve the current "spread" of key frames between the first and last frames, keep the **Interpolate Key Frames** box checked. For example, if you had a 12-frame sequence with key frames on 1, 6, and 12, and increased the total frames to 20 with interpolation, the resulting key frames would be on 1, 10, and 20.
- Uncheck the box to leave existing key frames exactly where they are. With no interpolation, the key frames in our 12-to-20-frame example would remain at 1, 6, and 12. This would be useful if you planned to add add more motion to the end of the existing sequence. Note that if you subtract frames with no interpolation, key frames at the end of your sequence may be deleted.

5

Using 3DPlus with Other Software

Aside from printing a scene out directly, there are two basic ways of incorporating a 3DPlus image in a publication or other graphic context: exporting and OLE.

Exporting

Exporting means converting a 3DPlus scene to an external file format, as opposed to saving it in the native .3D2 format.

When you export, the entire scene window gets converted to an anti-aliased bitmap graphic. You can fine-tune the graphic in a paint editing program (like Serif PhotoPlus), so you don't have to worry if there's extra background showing around the scene objects. You can crop the image later. But make sure you're satisfied with the composition, lighting, and colors in the scene before you export—it's much more difficult to change those later.

Remember that the scene will be exported at its actual size, as specified in the **File/Scene Setup** dialog. If you're using a separate paint program, you can always downsize the image later on.

When you're done you can import your 3DPlus effect as a graphic, into your favorite DTP, word-processor or any other application you choose.

Tip: To preview how the scene will appear when anti-aliasing is applied, click the **Render Preview** button on the Standard toolbar.

For additional details on export options, see the How To topic "Exporting" in online help.

To export a static scene, choose **Export...** from the File menu. Use the **Save as Type** pull-down menu to specify the export file format. Provide a file name and folder location, and click **Save**.

To export an animation, choose **Export Animation...** from the File menu and provide a file name and folder location.

Export settings

In the Export dialog, set any options available for the particular image and file format. The appearance of the dialog changes somewhat depending on the format. One standard feature is the Image Preview window, which provides an accurate rendering of how your scene will look using the current combination of settings. You can zoom in and out, drag the scene to center it in the window, and experiment with different export options until the results are satisfactory.

- **Bit Depth:** Bit depth relates to the number of colors in the exported image. For example, a bit depth of 4 bits per pixel can store 16 values; 8 bits per pixel, 256, and so on. 16-bit images have roughly "thousands" of values to describe each pixel's color, and 24-bit images have "millions." Of course, images with higher bit depth take up more disk space. Choose the bit depth that corresponds to the number of colors in the exported image. For 256-color images, you have the option of applying either an **Optimized** or a **Web-safe** palette..
- **Palette:** A color palette is a table of color values that gets stored with any image having 8 bits (256 colors) or less. If you're exporting at 8 bits (256 colors) or less:
  - The default **Optimized** setting lets the 3DPlus export filter determine the best colors to apply. This generally results in smooth color gradations and quite acceptable appearance when viewed on a High Color (16-bit) or better color display.
  - Choose **Web-safe** to reduce the colors to only those found in the 216-color palette used by Web browsers on limited-color systems. This will ensure that an image you place on a Web page won't change its appearance when viewed on such systems.
- **Dithering:** Dithering comes into play with images being reduced to 8 bits (256 colors) or less. It's a method of approximating colors outside the actual image palette—for example, by alternating pixels of red and blue from within the palette to produce the visual impression of a purple color that's not in the palette. While dithering can degrade solid-color areas, with 3D images it's usually more important to preserve subtle gradations of color.
  - To preserve gradations of color and/or an image background, dithering is clearly the best choice. You can choose either Ordered or Error Diffusion dithering. The former produces a discernably patterned effect, while the latter tends to average away the patterns for a more natural result.
  - To minimize file size, or if you happen to have an image with few colors, you can opt for no dithering—and the export filter will pick "nearest-match" color values from the palette being applied. You may see some color shifting, but the solid color areas will be preserved.

- **GIF Options:** .GIF files support transparency—one reason they're commonly used over backgrounds on Web pages. If your scene uses a solid color background, 3DPlus gives you the option of exporting as .GIF with transparency—so the background color goes clear and "drops out." In this mode you can either turn anti-aliasing off for a sharper edge, or leave it on, in which case you'll get bits of the background color around the edges of objects in the scene.
  Tip: For a GIF that blends smoothly with the color of a Web page, match your 3DPlus scene's background color to that of the Web page, and export as transparent with anti-aliasing on.

- **Compression:** Compression schemes, which apply different algorithms to encode the image information with fewer total bits and bytes, are used in many formats. Depending on the format, 3DPlus may include a choice of compression scheme. In general, use the default setting unless you know for a fact that some other scheme is called for.
  With the .JPG format, recommended for photographic backgrounds, you can set the level of quality desired using a slider. As you might expect, the highest-quality setting uses least compression, with no loss of image quality but the largest file size. The lowest-quality setting applies maximum compression for smallest size, but yields rather poor quality.

OLE (Object Linking and Embedding)

Exporting 3DPlus files as bitmap graphics is appropriate when you're working with an application that requires images in a specific format (such as .JPG or .GIF for a Web page editor), or if you need to edit the graphic using a paint program. The drawback of exporting is that you lose the ability to edit the scene itself in 3DPlus.

Many applications—for example, Serif's desktop publishing program PagePlus—allow you to insert a 3DPlus scene as an OLE object. This means you can still use 3DPlus to modify the scene later, if necessary. For example, you can change the text in a text object or alter the color scheme without having to start from scratch.

In some situations, exporting (as described earlier) may be your only choice. For example, if your graphic requires a transparent background, you'll need to export to the .GIF format. Also, you may find that OLE can be slow and cumbersome due to the amount of bitmap data required for displaying and printing 3DPlus objects at suitable quality.

To insert a 3DPlus OLE object into a client application, choose the application's **Insert Object...** command, usually found on its Edit menu, and select "Serif 3DPlus 2.0" from the list of object types. Then, to insert a saved 3DPlus (.3D2) file, choose the **Create from File** option and locate the file name. Check the **Link** box to link the object or leave the box unchecked to embed the object (so it's independent of the original file). Or, to create a new 3DPlus object, choose the **Create New** option. 3DPlus opens with the Startup Wizard (or a blank scene window if the Wizard is turned off). When you've created the scene, choose **Update** from the File menu to insert the scene as an object (or update the image already there) without closing 3DPlus.

To edit a 3DPlus object in any application, double-click the 3DPlus OLE object within the application, or select the object and choose the application's **Edit Object** command. In Serif PagePlus, either action will launch 3DPlus, displaying the scene ready for editing.

Other OLE settings

In some applications, including Microsoft Word and PagePlus, resizing the object will trigger 3DPlus to regenerate the bitmap data to match the new size of the object.

3DPlus provides OLE settings for **resolution** (number of dots per inch) and **anti-aliasing** (smoothing) that control how much bitmap data is used to display the 3DPlus object.

You can set these values using **View/OLE Render Quality...**. In general, the higher you set the resolution or anti-aliasing values, the more work your computer has to do to display the object—so set the values no higher than necessary to obtain the level of quality you require.

For additional details on using OLE, see the How To topic "Linking and embedding" in online help.