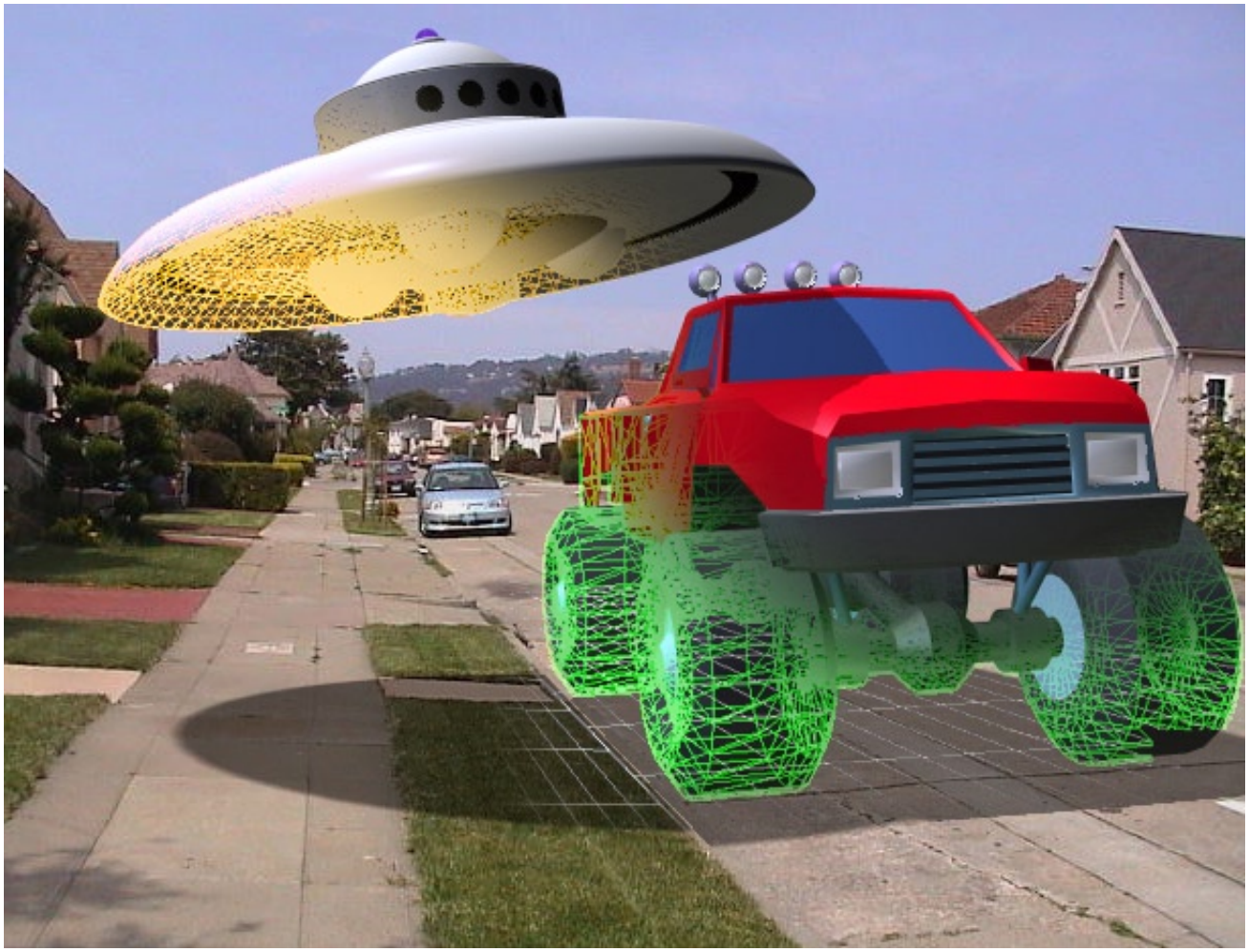
ModelShop



Modelshop 1.0

User's Guide

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Introduction

Digital Element Modelshop™ is a revolutionary new plug-in for Photoshop, which gives you the power to add real 3D models to your image without the complexities normally associated with traditional 3D packages.

Modelshop supports **3D Studio** (**.3ds*), **Alias Wavefront** (**.obj*), **LightWave** (**.lwo*) and **AutoCad DXF** (**.dxf*) object file formats. Once imported, these objects can be moved, rotated, and scaled aganst your Photoshop image background.

Modelshop's lighting tools make it possible to project shadows from objects onto the background. When you've assembled your Modelshop scene, you can rasterize it to a number of supported image formats, including BMP, GIF, IFF, JPG, PCX, PICT, RGB, TGA and TIF.

When used in conjunction with Photoshop's Layer tools, Modelshop offers a high degree of creative power in compositing 3D models with photographic backgrounds.

Note: *ModelShop works only in RGB color mode (either 8 bits per pixel or16 bits per pixel). To output a CYMK image, you'll need to convert it from RGB mode after you've closed the Modelshop interface.*

Setting Up

Modelshop is easy to install. Regardless of the version you have purchased, two steps are involved: (1) Installing the software and (2) Registering the product. Follow the instructions below, depending on the version you have purchased.

Installing the PC Version

Modelshop runs on PhotoShop 6 or better and works best with any system that meets the recommended requirements for PhotoShop 6.0. If you have purchased a CD, insert it into the drive and the program should auto-load. If it does not start automatically, then go to menu Start\Run... and type in X:\Windows\setup.exe , where X is your CD-ROM drive letter. If you have purchased the downloaded version, go to the directory you downloaded it into and double-click on *InstallModelshop.exe*.

After you click on *InstallModelshop.exe* an installation dialog should appear. Follow the installation instructions. Your serial number is on the back of the CD case if you purchased the retail version or was sent to you in an e-mail if you purchased the downloaded version. Enter the serial number, including the dash, during the installation procedure. If you chose standard pathways for installing Adobe Photoshop, then choose the plug-in directory as you target directory. For Photoshop 6, that would default to: Program Files\Adobe\PhotoShop 6.0\plug-in. If you have a custom path to Photoshop, then make sure you install in the Plug-in directory under PhotoShop. The installer will create a DE folder and within it a Modelshop folder.

Installing the Macintosh Version

If you have bought the packaged version, access the CD and copy file Modelshop.hqx from the Mac directory on a CD to a temporary directory on your hard drive. If you have the downloadable version, go to the directory you downloaded the software to. Double-click on Modelshop.hqx. When the archive is unpacked a folder named “Digital Element” will appear in addition to ModelshopUnpack.sea file. Move “Digital Element” folder to the directory where plug-ins for Adobe Photoshop are located (PhotoShop 6.0\plug-in if you chose standard pathways for installing Adobe Photoshop). Remove ModelshopUnpack.sea. If you have purchased the CD and inadvertently double-clicked on Modelshop.hqx, you can click OK for the error message and manually select the installation directory.

The Modelshop Interface

The primary working area in Modelshop is the *Main Viewport*. This is a small window where you can see real time updates of the changes you have made to your imported objects.

Across the top of the Modelshop interface is a toolbar. This area contains a number of controls for manipulating your imported objects, and for updating the image in the Main Viewport.

Look at Current Object - This brings the selected object into the center of the Main Viewport.

Delete Current Object - Clears a selected object from the Modelshop interface. You can also use the '-' and 'Delete' keys to do this.

Move Left/Right and ***Up/Down*** - This control enables you to move the currently selected object along its X and Y-axes. Dragging right will move the object right and dragging left will move the object left. This value can also be read and set numerically at the bottom of the Main Viewport area.

Move Forward/Backward - This control enables you to move the currently selected object along its Z-axis. Dragging right will move the object away from the camera and dragging left will move the object closer. This value can also be read and set numerically at the bottom of the Main Viewport area.

Rotate X - The rotate x control enables you to rotate the currently selected object around its X-axis. The imaginary axis goes through the center of the object so the rotation will occur in place. Dragging down will rotate the object in the positive direction and dragging up will rotate the object in the opposite direction. This value can also be read and set numerically at the bottom of the Main Viewport area.

Rotate Y - The rotate y control enables you to rotate the currently selected object around its Y-axis. The imaginary axis goes through the center of the object so the rotation will occur in place. Dragging right will rotate the object in the positive direction and dragging left will rotate the object in the opposite direction. This value can also be read and set numerically at the bottom of the Main Viewport area.

Rotate Z - The rotate Z control enables you to rotate the currently selected object around its Z-axis. The imaginary axis goes through the center of the object so the rotation will occur in place. Dragging right will rotate the object in the positive direction and dragging left will rotate the object in the opposite direction. This value can also be read and set numerically at the bottom of the Main Viewport area.

Scale X - The Scale X button allows you to resize the currently selected object along its X-axis (the left-right direction).

Scale Y - The scale Y button allows you to resize the currently selected object along its Y-axis (the up-down direction).

Scale Z - The scale Z button allows you to resize the currently selected object along its Z-axis (the forward-backward direction).

Uniform Scale - The Uniform Scale button allows you to resize the currently selected object along all three of its axes.

Note:

*When using the **Move**, **Rotate** or **Scale** tools, you can press the 'Alt' key to change the axis in which you are working.*

You can also return an object to its previous state by clicking on the right mouse button while holding down the left mouse button.

Zoom - The Zoom tool allows you to zoom in or out of your scene. Simply select the tool and click on the area that you want magnified. You can zoom out on your scene by holding down the "ALT" key while you click. Double-clicking on the Zoom tool will reset your image to the default 100%. The Zoom value can also be read and set numerically at the bottom of the Main Viewport area.

Pan - The Pan tool allows you to temporarily move the scene in any direction relative to the camera. With the pan tool you can look at specific areas of your scene without affecting the final render. The pan tools changes appear on screen only; it is essentially a tool that will allow you to inspect your work before rendering. The Pan Tool only activates when the Zoom amount is greater than 100%.

Default View - Returns the Main Viewport work area to its default values. This button can be used if you ever get "lost" in your scene and need help getting your bearings.

Render Mode Control

This control group allows you to switch the Main Viewport rendering type between the *Wireframe*, *Preview* and *Production* modes. You can also use the "M" key to switch between modes.

Wireframe - Shows only the bounding lines of each object but allows for faster manipulation of your scene (especially if you have multiple objects on screen).

Preview Rendering - Allows you to view basic shading details of your object without having to wait for Modelshop to re-render the Main Viewport. Intersections between objects and Shadow Planes are best viewed in this rendering mode.

Production Rendering - This is a realistic representation of your objects suitable for use when you really need to see the details of each object. This is also the only rendering mode that displays shadows.

Update Preview - Redraws the image in the Main Viewport. This feature can be set to redraw automatically in the Preferences panel.

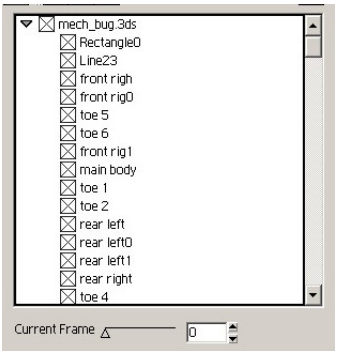
New Scene - Clears all objects from the Modelshop working area, and resets lights to default number of one.

Open File - Loads a 3D file into the Modelshop workspace. You can also use the '+' or "Insert' key to do this.

Save File - Save your Modelshop session to a *.3ps file. This file can be loaded back into the Modelshop workspace later.

The window at the upper right part of the Modelshop interface is the *Scene Tree*. This window displays all of the objects imported into the current Modelshop session. If an imported object is the topmost item in a *hierarchy* (that is, several additional objects are grouped together with it), then its *subordinate* objects appear as 'sub-items' can and can be accessed by clicking on the *Expand* arrow adjacent to the main object. If an entire scene file is imported, objects (and their hierarchies) appear as 'sub-items' in the Scene Tree.

The slider at the bottom of the Scene Tree changes depending on what kind of item is selected:



- Scenes and objects that contain animation data may display a *Current Frame* slider, which can be set manually or numerically.
- Shadow Planes display a color picker, and an *Opacity* slider similar to Photoshop's own *Layer Opacity* control.

***About* -** Displays information about Modelshop's version number, its authors, and the installed copy's registration status.

***Preferences* -** Enables/disables various options for your Modelshop session:

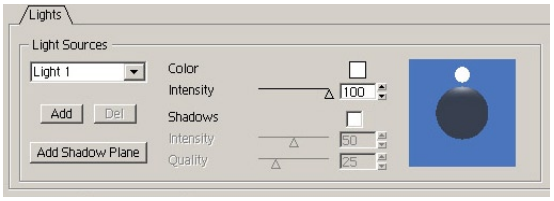
- **Auto Refresh -** Sets the automatic redraw feature.
- **Confirm Deletion -** Displays a dialog box when an object is cleared from the Modelshop session.
- **Save Absolute Filenames -** Embeds a filepath in a saved scene file. This data allows Modelshop to auto-locate an object file, if the scene is loaded from the same computer on which it was saved.
- **Ask Image Name -** Loaded objects may use separate image files for textures. Modelshop checks for any associated image files automatically. Enabling this option opens a file requestor if the image is not found after the initial search. The user then manually locates the file.
- **Save Image Path -** Allows user to set a new file path for Modelshop to use when reloading objects or scenes. The path is saved in *ImageFolder.ini*, in the Modelshop folder.
- **Ask Project Name -** Opens a file requestor if a project is not found after initial automatic search.
- **Save Project Path -** Allows user to set a new file path for Modelshop to use when reloading projects. The path is saved in *ProjectFolder.ini*, in the Modelshop folder.
- **Show Error Messages -** Displays warning and error alerts that may occur when objects are imported into Modelshop.
- **Show Dialog Before Importing -** Displays format-specific messages that may appear during import process.
- **Read Keyframes -** Imports animation data from *.3DS files.
- **Flip Faces -** Reverses polygons so that they face in opposite direction.
- **Flip Normals -** Reverses polygon normals so that they face in opposite direction (this option applies only to files in the *.OBJ format).

***Preview* -** Opens a full-resolution preview of your Modelshop scene, using Production Rendering mode.

***OK* -** Applies Modelshop settings to the current Layer in Photoshop.

***Cancel* –** Closes the Modelshop interface. Settings are **not** applied in Photoshop.

Below the Main Viewport are the controls for Modelshop's Lights.



Light Sources – Selects between the available lights in your Modelshop settings. Lights are selected for editing one at a time.

***Add* –** Creates a new Light Source.

***Delete* –** Removes a selected Light Source.

***Add Shadow Plane* -** Adds a ground plane object. This plane is positioned under or near an imported object, in order to receive a shadow cast from that object.

***Color* –** Click and hold on the colored box to select the color for your light. You can also bring up the platform specific color picker by double-clicking on the box.

***Intensity* –** This is effectively the strength of the selected light set. The higher the setting, the stronger the light color will appear in the image.

Shadows – If you'd like your object to a cast shadow onto a Shadow Plane, make sure this boxed is checked. It is important to note that this can be a processor intensive parameter. Some complex Modelshop scenes may be more easily editable if this feature is left disabled until final render time.

***Intensity* –** This controls the darkness of the shadow created by Modelshop. A low number will result in a very faint shadow and a high number will result in a very dark, black shadow.

***Quality* –** Controls the amount of detail and 'pixelization' visible in the shadow. Lower settings produce less detailed shadows that render quickly; higher settings create shadows with more detail, but which also take longer to render.

***Light Placement* –** This is a graphical interface that allows you to select and move your lights around your objects. This can greatly simplify the process of matching the lighting within Modelshop to the lighting in your background image. Simply click and drag on a light to reposition it.

***Ambient Light* –** The ambient light is a global light source, which affects the overall color of the lighted and shadowed colors of your object. It is a very subtle setting and can be used to really make the object "fit" into your scene.

***Ambient Color* –** As with the Light Color picker, simply click and hold on the colored box to select your ambient light color. You can also bring up the platform specific color picker by double-clicking on the box.

***Intensity* –** Causes the selected ambient color to become more or less pronounced.

Note: *Modelshop creates shadows by using a special image map known as a* ***shadow map****. A low Quality setting creates the shadow map at a lower resolution, and the map's individual pixels may become visible, although Modelshop will try to minimize this by blurring the shadow. Additionally, the amount of detail that the map can support will be reduced if the map has fewer pixels to work with. Ideally, the best shadow balances sufficient resolution with appropriate rendering times.*

Modelshop Excercises

Now that we've familiarized ourselves with its interface, let's try out Modelshop's powerful toolset with a few simple exercises.

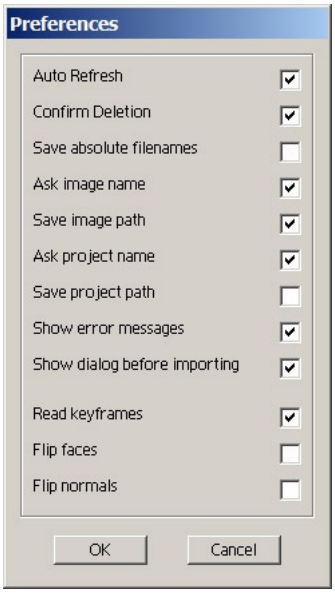
1. Make sure Modelshop is installed in the appropriate folder on your hard drive.

2. Launch Adobe Photoshop. Open the included photo file '**Sample_Background_1.JPG'**.

3. In the Filter pull-down menu, select *Digital Element*, and then *Modelshop*.

4. Once Modelshop opens, click on Open File and select the sample object '**mech_bug.3ds**'.

5. When the Preferences panel opens, use the settings shown here.



6. Let's view our object in *Wireframe* mode.

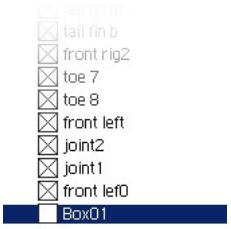
7. Click on the *Move Left/Right* / *Up/Down* button and use it to position the object so that is larger in the frame.

8. Select the *Rotate Y* tool and drag your mouse cursor through the Main Viewport. Observe the change to your view of the object.

9. Now let's view our object in the shaded Preview Rendering mode. Rotate the object again. Notice the redraw is a bit slower. This is due to the additional calculations that Modelshop must perform to update the shading data.

10. Notice that the '**mech_bug**' object contains it own ground plane. This could be useful for receiving a shadow from the bug, but it would also obscure the background photo. We'll need to make it invisible, and then add our own Shadow Plane.

11. In the Scene Tree, click on the *Expand* arrow to view the bug's sub-items. Scroll down to **Box01** and click on its checkbox to hide it. You can scroll back up to the arrow and click on it again to *Collapse* the item tree.



12. Now our bug appears to be more naturally positioned in the scene. If necessary, take a few moments to position and rotate it into place.

13. Let's add a Shadow Plane. Click on the Add Shadow Plane button. Use the Rotate X and Rotate Y controls to match the rotation of the bug, so that it appears to be standing on the plain.

Note: Although it may be helpful to switch into Wireframe render mode again before doing this, try raising and lowering the Shadow Plane in Preview mode; the plane will visibly intersect with the object, giving you a better idea of when it is beneath the bug's feet.

14. Enable Shadows by clicking on its checkbox.

15. Change the view mode to Production Rendering. When rendering is complete, click **OK**.

16. Congratulations! You have just composited a giant mechanical insect into a quiet woodland setting. As you can see, having a shadow beneath our imported object really 'ties' it into the scene.

Now let's go a few steps further with Modelshop's lights and Shadow Planes.

1. Open the photo file '**Sample_Background_2.JPG**'.

2. Launch Modelshop and switch to Wireframe Render mode.

3. Load the '**Teapot.lwo**' sample model and use the Move and Rotate tools to position the object in the frame, as we did in the previous exercise.

4. Add a Shadow Plane, and Rotate it into a matching position beneath the teapot.

5. Use the Scale X tool to bring the right edge of the Shadow Plane into alignment with the edge of the sidewalk in the background photo.

6. Add a second Shadow Plane. Rotate it numerically:

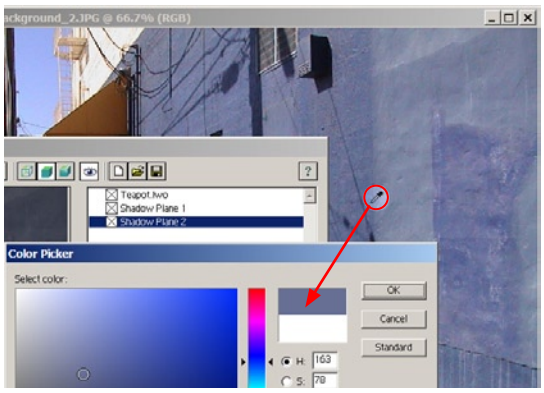
90 degrees on the Z-axis, and approximately **16 degrees** on the X-axis.

7. Change the Rendering mode to Preview, so that we can see how **Shadow Plane 2** is intersecting the teapot.

8. Note the area where **Shadow Plane 2** intersects **Shadow Plane 1**. Move **Shadow Plane 2** to the right, until this intersecting area aligns with the sidewalk edge.

9. We want to try to match our lighting in Modelshop with the lighting in the background photo. In the photo, the sun's position is somewhere above and to the left of the camera. Move the light into a matching position in the graphical interface.

10. Add a second light. This will be the fill light from the sky, and it will also act as a bounce light from the blue wall at the right side of the photo.



11. Double-click on the second light's color picker. Select a deep blue color, or –if the source photo is visible in the main Photoshop interface– move the cursor over the blue wall; the cursor will change to an

Eyedropper tool. Click once to 'pick up' the color sample and click **OK** to close the color picker.

12. Add a third light to simulate the bounce illumination from the sidewalk. Repeat the previous step to position the light, and sample the color from the source image. This light will require an intensity value well under 100%.

13. Enable Shadows by clicking on its checkbox, and increase the shadow Quality setting from the default value of **25%** to **60%.**

14. Click on *Preview*. As we can see, our compound shadow really 'places' the object in the scene, and the replicated lighting scheme subtly enhances the

effect. If you are satisfied with the result, click **Close** to return to Modelshop, and then **OK** to apply your settings to the image and return to Photoshop.

15. If you want to apply your Modelshop session to a separate Photoshop layer, Step Backward to undo the changes and make a new layer. Now re-launch Modelshop. The settings from the previous settings will still be in place, although the background image will not be visible. Click **OK** to apply them to the new layer.

16. Save your changes to the sample image, or use Save As to create a separate file.

This concludes our Modelshop exercises. Check our website for future online Modelshop tutorials, as well as tutorials for Digital Element's complete line of Photoshop plug-ins.

Good luck ,and happy Modelshopping!