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# SEGA 3D Editor 1.72US ReadMe



3D Editor

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## ■ Introduction

The 3D Editor opens 3D data files in the SEGA3D and DXF formats and can access stored 3D images from any direction. It can also paste textures onto or add colors to the polygonal faces of these images and store the result in SEGA3D format.

## ■ Restrictions

The following SEGA development target boxes work with version 1.72US:

1. SATURN Target Model-S Graphics Box



2. SATURN Cartridge Development System (abbr. CartDev) US



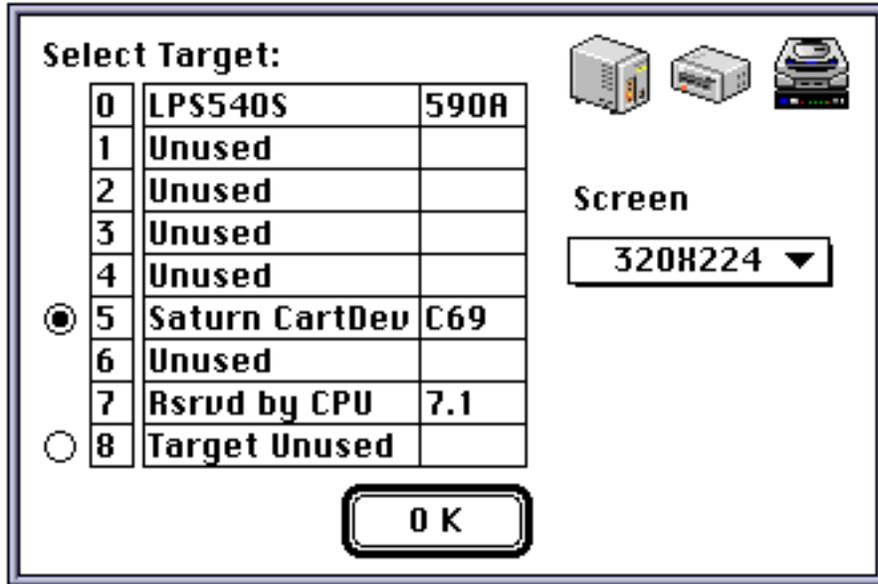
Please refer to the target manuals for precautions when connecting the target box.

## ■ Basic Operation

The following screen is displayed when the application is started up.

Select the target box to be connected and click "OK".

Also, the TV screen size may be modified as necessary.



## ■ Input Files

The 3D Editor Open dialog box only lists files in SEGA3D or DXF formats and does not display text files in other formats.

## ■ Using 3D Editor

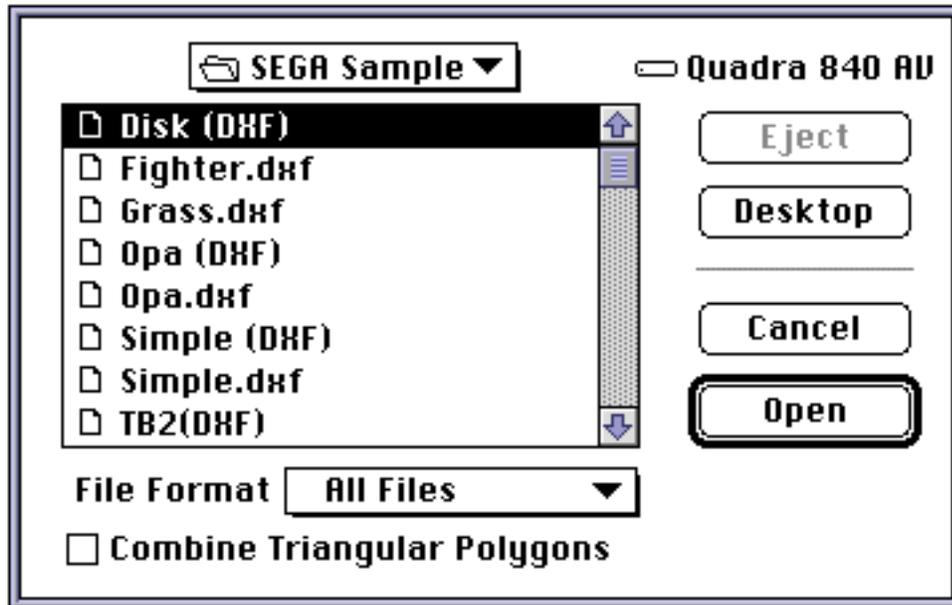
### ◆ File Menu

File	
Open...	⌘O
Close	⌘W
Save	⌘S
Save As...	
Revert	
Environment Settings...	
Quit	⌘Q

### ▲ Open

Displays an Open dialog box with a pop-up menu for specifying the file format.

The files specified on the pop-up menu are displayed as a list. Adjacent polygons can be combined during read-in by checking off the "Combine Triangular Polygons" box. Other features are similar to the Open menu for other applications.



▲ **Close**

Closes the open window. (The close box on the window has the same function.)

A dialog box will ask whether or not to save the changes made to a file. To save, click the "Save" button in the dialog box. A file may also be saved using the "Save" function under the File menu. (Use this function when closing the last of multiple windows, when the command key (⌘) and option key are pressed together, or when quitting the application.)

▲ **Save**

Saves changes that are made to the open window. (The file is replaced. It is not modified.)

▲ **Save As...**

Displays a dialog box with a pop-up menu for specifying the file format.

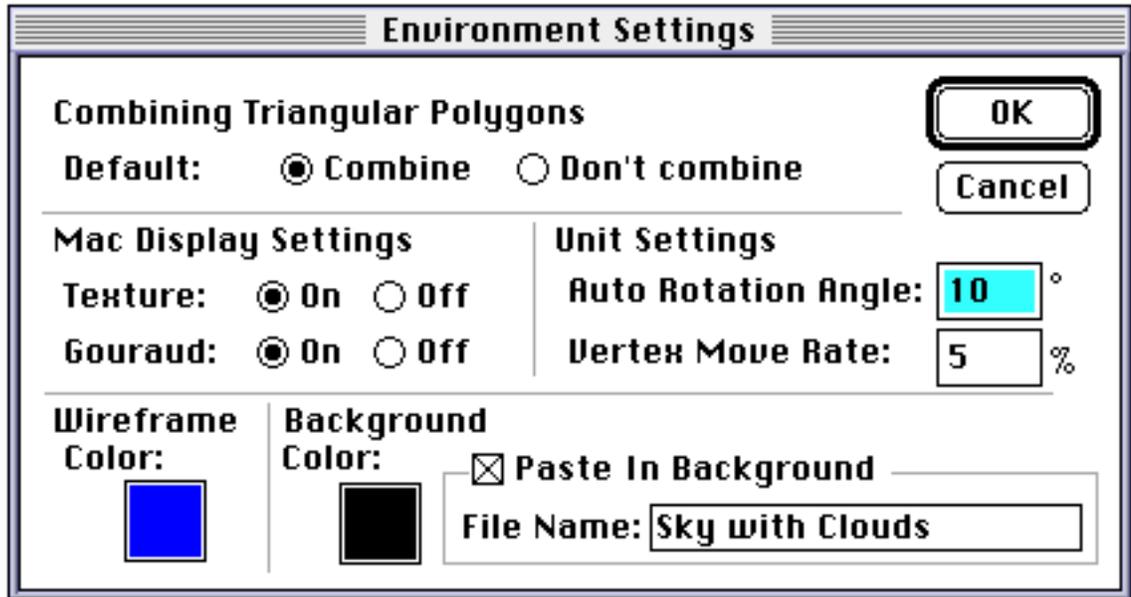
Specify the file format using the pop-up menu. If the format that is selected is different from the original format, the program converts the file and then saves it.

▲ **Revert**

Reverts to the contents previously saved.

▲ **Environment Settings (Preferences)**

Displays the following dialog box. Set each item.



- **Combining Triangular Polygons:** Select the default setting for "Combine Triangular Polygons" found in the dialog box that appears when "Open" is selected from the File menu. This box is easily overlooked, so it is convenient to set the desired default under Preferences.
- **Mac Display Settings**
  - **Texture:** When "On", textures pasted on materials are displayed as images on the Macintosh similar to that displayed on a TV screen.
  - **Gouraud Display:** When set to "On", an image close to the TV screen is displayed on the Macintosh when Gouraud shading is selected.  
Set to "Off" to facilitate operation during editing.
- **Unit Settings**
  - **Auto Rotation Angle:** Sets the rotation angle for a 3D image by using the tools described below.

- Y-axis automatic rotation tool



- X-axis automatic rotation tool



- Z-axis automatic rotation tool



- Vertex Move Rate: Sets the move rate of the vertex data modification function.
- **Wire Frame:**
  - Color: Sets the wire frame color.
- **Background:**
  - Color: Sets the background color.
  - Paste On Background: Sets the image data to be pasted onto the background.

### ▲ **Quit**

Ends the application. Closing an unsaved file will call up a dialog box that asks whether or not to save the changes made.

◆ **Edit Menu**

This menu is not used frequently in the 3D Editor, but it is very effective for copying and pasting when setting materials. "Undo" is useful when combining triangular polygons manually.

■ **Caution:**

"Undo" is not functional for many of the model or polygon editing tools.

◆ **Scene Menu**

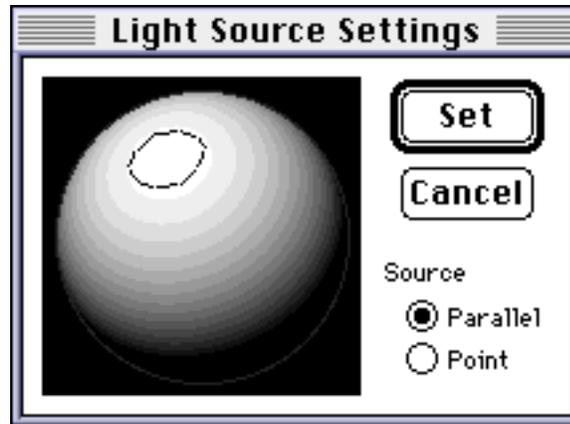
<b>Scene</b>	
<b>Camera Settings...</b>	
<b>Light Source Settings...</b>	
<b>Wireframe</b>	
<b>Hide Hidden Surfaces</b>	
<b>Flip Entire Object</b>	
<b>Gouraud Shading</b>	
<b>Flat Shading</b>	
<b>Flat Color</b>	
<b>Custom Color</b>	
<b>Transparent</b>	
<b>Pause Target</b>	⌘T
<b>Enlarge</b>	⌘+
<b>Reduce</b>	⌘-
<b>Zoom</b>	▶

▲ **Camera Settings**

Currently not supported.

### ▲ Light Source Settings

The following window is displayed. Specify the position of the light source.



Click on an area of the sphere to set it as the light source. Drag to adjust the position. Move between the front and back by dragging off the edge of the sphere and then dragging back onto it.

The program allows selection of parallel or point light sources for the sphere type.

### ▲ Wireframe

This is a toggle menu. When this menu is checked off, a wireframe of the 3D image is displayed.

### ▲ Hide Hidden Surfaces

This is a toggle menu. When this menu is checked, the hidden surfaces of the wireframe display are hidden. Areas that are covered by other polygons are also hidden.

### ▲ Flip Entire Image

This is a toggle menu. When an image is displayed from a DXF or similar file, the specifications for its surfaces are sometimes inverted. Checking this menu will display them as normal 3D images.

### ▲ Gouraud Shading

**Flat Shading**

**Flat Color**

**Custom Color**

**Transparent**

This is a check menu for selecting one of the above. Gouraud shading, flat shading and flat color are all shading methods. When these are selected, the shading methods set for individual materials are ignored.

Custom color is displayed with the shading method set for the individual material.

When "Transparent" is selected, a wireframe is automatically set and the image is displayed only as a wireframe.

Gouraud shading may appear similar to flat shading when displayed on a Macintosh; however, it is displayed as Gouraud shading on the SATURN.

#### ▲ **Pause Target**

This is a toggle menu. When this menu is selected, no transfers are executed to the target.

#### ▲ **Enlarge**

Enlarges the scene window image.

#### ▲ **Reduce**

Reduces the scene window image.

#### ▲ **Zoom**

Displays an image according to the zoom selection from a hierarchical menu.

### ◆ **Window Menu**

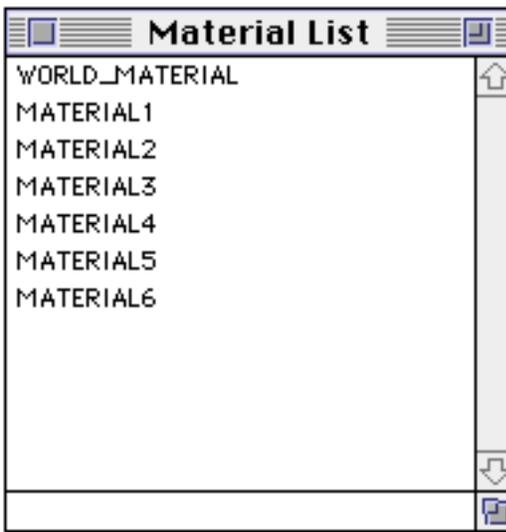


#### ▲ **Material Settings**

This is a toggle menu that turns the settings window for materials on and off. Select this menu item to display or activate the material settings window.

### ▲ Material List

This is a toggle menu that turns the material list window on and off.

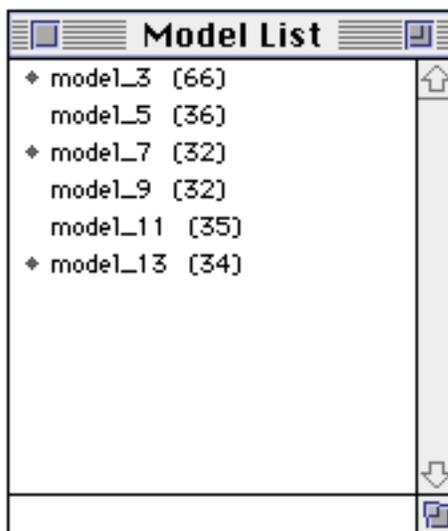


The material list window displays all the material names currently displayed in the scene file. Double click on a material name to replace the material of a selected polygon (via the polygon selection tool) located in the scene window.

Shift and click using the polygon select tool in the scene window to select multiple polygons. The same material can be pasted to multiple polygons at once by using this method.

### ▲ Model List

This is a toggle menu that turns the model list window on and off.

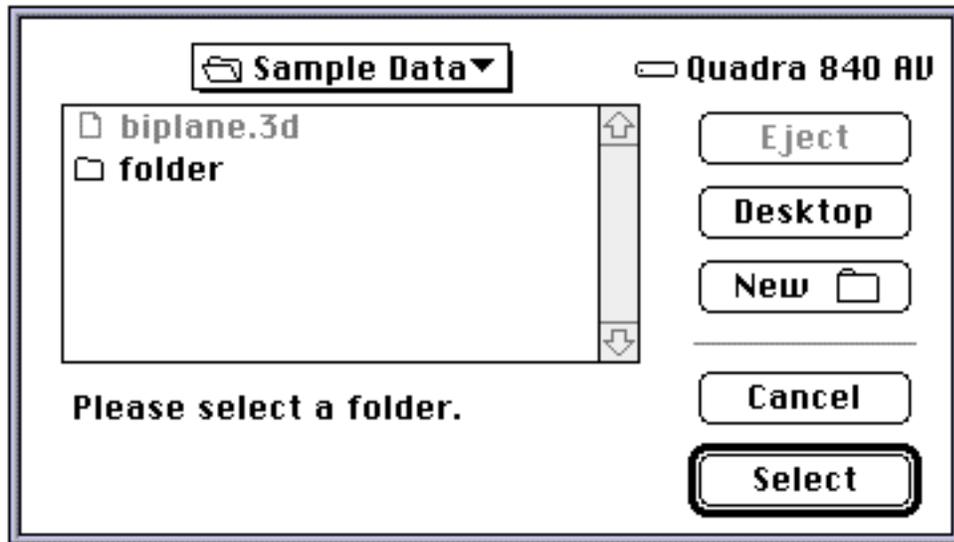


The model list window displays all the model names currently displayed in the scene file. Double click on a model name to switch the display setting between on or off.

Shift and click to select multiple models. This enables the user to select display setting on or off for multiple models at once.

### ▲ Texture List

The following Open dialog box appears. Select the folder which contains the texture to be left open.



The textures are displayed in a list window as shown below. When setting materials, drag and drop to paste textures. Users may find it useful to create custom icons on folders because these icons are used in the list. Double-click on the window to open the texture window and to view textures.



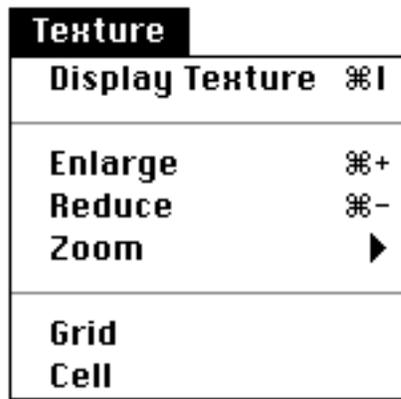
### ▲ New Window

When viewing a single 3D image from file, other windows can be opened to view the image from various directions.

### ▲ Window List

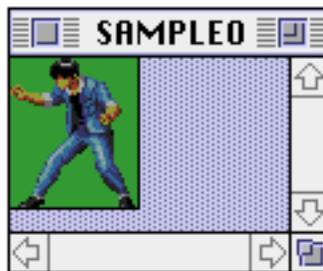
A list of currently displayed windows appears at the bottom of the New Window menu. The window selected on this menu appears at the very front.

◆ **Texture Menu**



▲ **Display Texture**

Opens a Texture window that displays texture image files (PICT, DGT, RGB).



▲ **Enlarge**

Enlarges the image in the Texture window.

▲ **Reduce**

Reduces the image in the Texture window.

▲ **Zoom**

Displays the image according to the specified zoom.

▲ **Grid**

Displays a dot-by-dot grid when enlarged by a power of 4 or more.

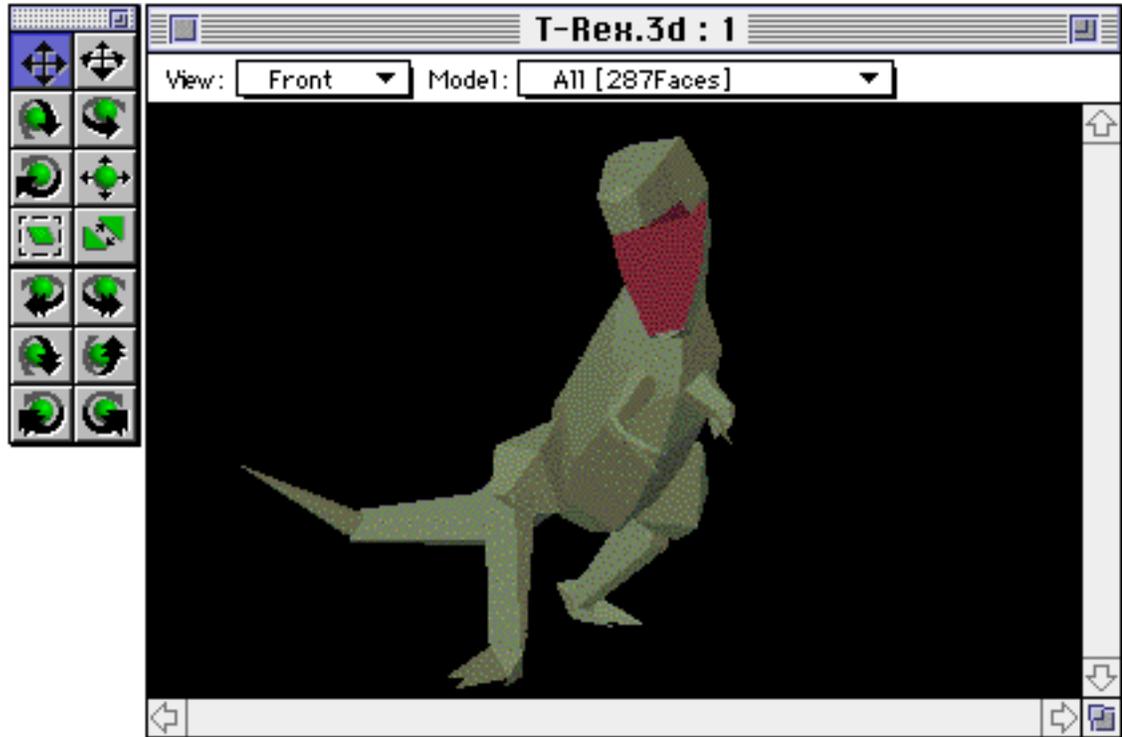
▲ **Cell**

Displays a grid for each cell (8 dots).

◆ **Tool Palette and Scene Window**

▲ **Scene Window**

3D images are displayed in a scene window as shown below:



## ▲ Tool Palette

The tool palette includes:

- vertical/horizontal move tool



- front-to-back/horizontal move tool



- Y-axis rotation tool



- X-axis rotation tool



- Z-axis rotation tool



- scaling tool



- polygon select tool



- combine triangular polygons tool



Select a tool, move the mouse to the scene window, then click and drag.

The scene window has menus for specifying image views and to display each model.

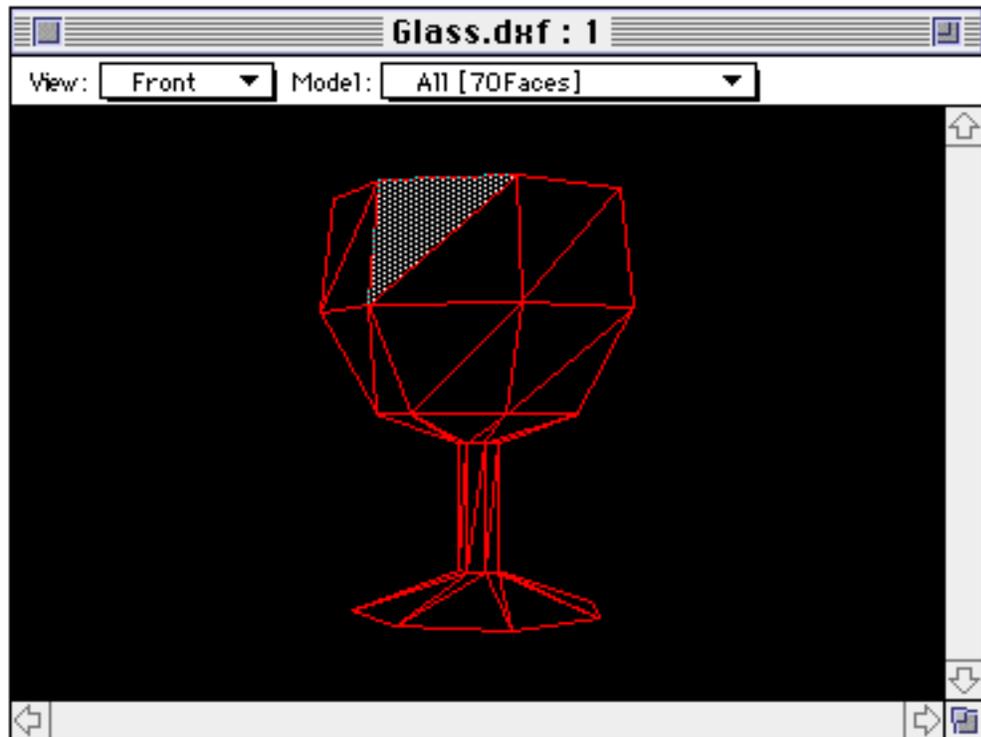


Shift + click while using the polygon select tool to select multiple polygons. This enables the user to add material information to multiple polygons.



The combine triangular polygons tool combines 2 adjacent triangles such as those illustrated in the figure below. First, move the mouse to the first triangle and drag the mouse with the mouse button depressed, on the adjacent triangle. When the mouse is moved on top of a second polygon that can be combined with the first polygon, the 2 polygons are simultaneously displayed with a selection mark. Do not select polygons that are not on the same plane since they cannot be combined.

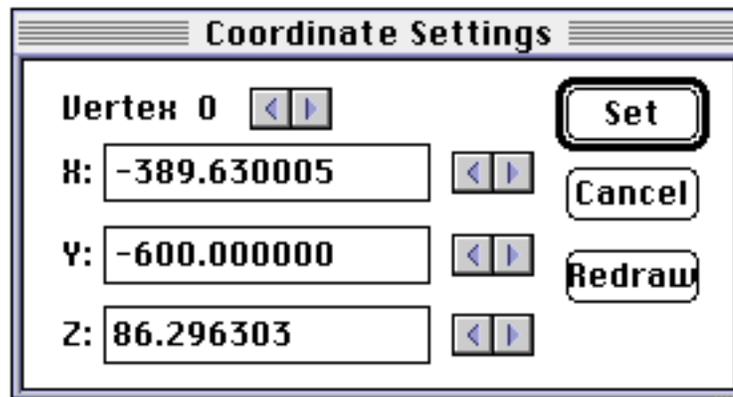
If the Option key is pressed while executing the above, polygons that are not on the same plane can be forcibly joined. Note that in this case, 4-sided polygon data will be saved, but the exact 3D information will be lost.



If a triangular polygon is selected, press Option + Command (⌘) key simultaneously to display overlapping vertices.

### ▲ Coordinate Settings Window

Select a polygon in the scene window, then by using Control + click, display the Coordinate Settings window. Use this window to modify vertex data.



Control + click selects the closest vertex of the polygon. The desired vertex may also be selected from the same polygon by using the Coordinate Settings window. The same vertex can be optionally selected in the coordinate settings window. Vertices can be modified by inputting the numerical value directly, or by modifying the vertex change rate in "Environment Settings".

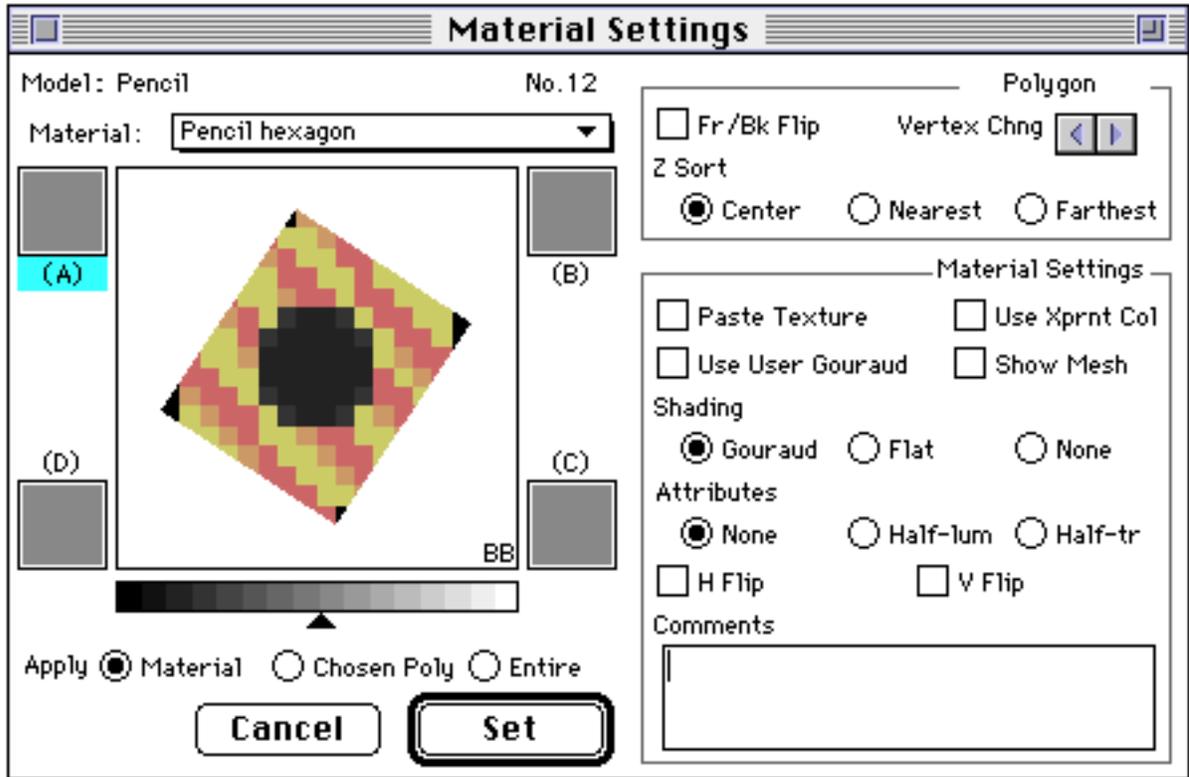
The modified vertex coordinate data becomes fixed when the Set button is pressed, or another vertex is selected. The setting can be canceled by pressing the Cancel button. Click on the Redraw button while modifying to preview the operation.

### ■ Caution:

"Undo" is not functional for many of the model or polygon editing tools.

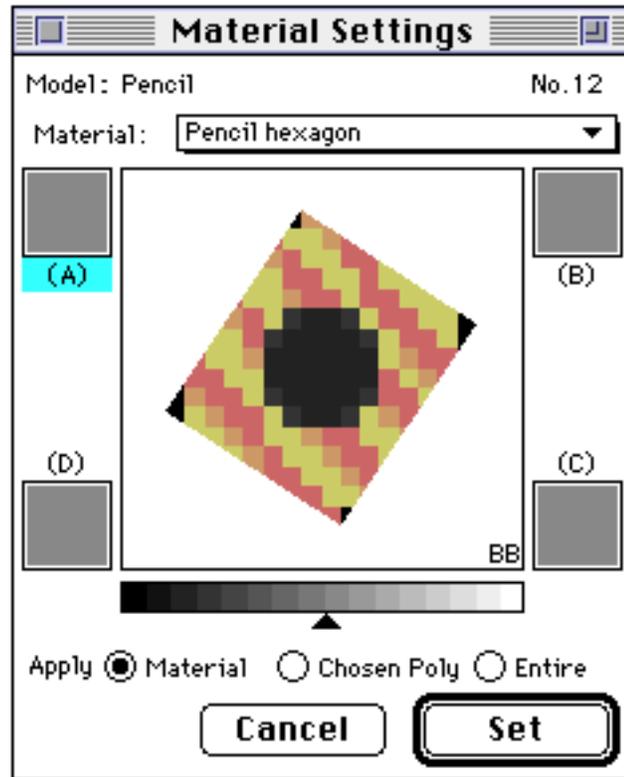
### ▲ Material Settings Window

Materials are set in a scene window as shown below:



Select a polygon from the scene window by using the polygon select tool. The selected polygon is displayed in the box, as shown above, along with the associated model name “BB” and its polygon number.

Click on the zoom box in the upper-right to reduce the window size.

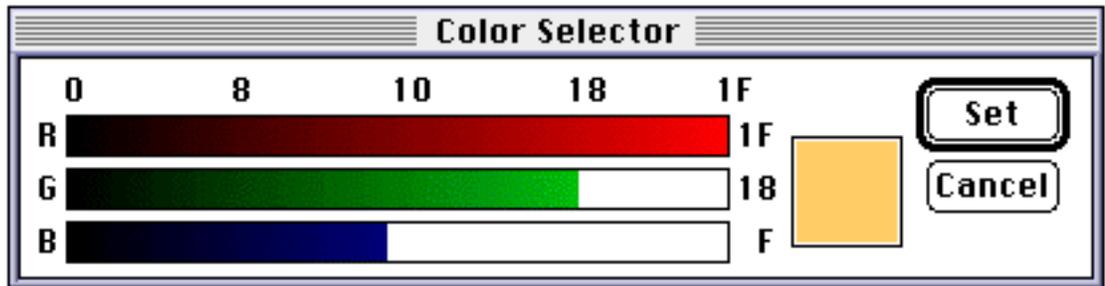


Materials are stored by their names. The materials set for each polygon are set in the materials pop-up menu. When a material is modified, the change is reflected in all of the polygons set with that material. Materials for each polygon can be switched by using the materials pop-up menu and selecting a material that is saved in a file. This pop-up menu can also be used to add new or rename materials.

The material settings are reflected in the polygons only after the Set button is clicked. Specify the desired range in which to apply the material settings by selecting an item from "Apply".

### ▲ Color Selector Dialog

Click the polygon displayed in the Material Settings window to display the Color Selector dialog box. Use this dialog box to select non-textured color.



To set Gouraud colors for a polygon, first, click on one of the rectangles labeled (A), (B), (C), and (D) to display a Color Selector dialog box that is similar to that above. Then, adjust the Color Selector.

Note that Gouraud color can only be used when the "Use User Gouraud" check box is checked off.



The level control indicated by the gray level is the Gouraud offset. 3D Editor outputs the polygon color calculation results based on the above discussed Gouraud color and the set offset value.

\*There is no SATURN function that can set the Gouraud offset. If the value set here is used on the SATURN, it is also necessary to support the setting at the program level.

The items set under "Polygon" is applied to one polygon. The contents set here can be changed for each polygon, regardless of the material settings.

Use "Vertex Chng" to change the order of the polygon vertices. This function is mainly effective when the direction of texture data cannot be specified as desired.

Check off the "Use Xprnt Col" box under "Material Settings" to display black (\$0000) texture data as transparent in color.

◆ **Option Menu**



The Option menu appears on the tool bar when the Model List window is activated.

▲ **Show All Models**

Displays all the models that appear in the scene file.

▲ **Show Specified Only**

Displays specified models only; all others are not displayed.

▲ **Show Non-Specified**

Displays all models that are not specified; specified models are not displayed.

▲ **Select All Models**

Selects all models.

▲ **Clear Select**

Cancel all selections.

## 3D Editor 1.72E: Release Notes

### ■ Information on version upgrade from 1.71E →1.72E

- ◆ The texture folder can now be set via the network and restarted successfully.

Note: All previous settings are lost. The selection of a folder via network is not recommended since the connection may fail. We recommend loading the system with all necessary folders before starting the process.

- ◆ The sides of polygons that should be visible can now be seen under the special criteria.

### ■ Restrictions

Version 1.72E supports the following SEGA Development targets:

1. SATURN Target Model-S Graphics Box
2. SATURN Cartridge Development System (abbr. CartDev)

Refer to the target manuals for precautions when connecting the target box.

### ■ Power PC compatibility

Runs in Power PC Native Mode.