

Scene Graph Editor: User Guide
CS264 – Design of Human-Computer Interfaces
April 24, 2007

Dustin Graves
dgraves@gwu.edu

Overview

The Scene Graph Editor is a tool for inspecting and modifying 3D scenes generated for the OpenSceneGraph SDK. The scene inspector allows simultaneous viewing of a scene from multiple perspectives which can be adjusted with the mouse. The scene editor provides functionality to restructure the hierarchical arrangement of scene objects and alter scene object attributes. Modified scenes can be written to a file for future use.

Getting Started

Interaction with The Scene Graph Editor begins as soon as the program has started. The program can be started from the File Explorer or launched from the command prompt. The program will accept the name of a file to load as input at start time. Existing scene files can be opened once the program is active.

Open Files: The File Open dialog is used to open existing files. It is accessed with the ‘Open...’ option from the program’s ‘File’ menu, or with the ‘Ctrl-O’ key combination.

Working with Views

The Scene Graph Editor displays the visual representation of a scene, or view, within an area of the application window referred to as a viewport. The application starts with a single viewport. New viewports can be drawn with the mouse or created with the Viewport Management dialog. The Viewport Management dialog can also move, resize, and delete existing viewports. Viewport background and ambient light colors can be adjusted, and the view of the scene can be manipulated.

Managing Viewports: The Viewport Management dialog is used to manage viewports. It is accessed with the ‘Manage Viewports...’ option from the program’s ‘View’ menu, or can be launched with the ‘Ctrl-V’ key combination. The Viewport Manager’s ‘Add’ button will create a new viewport with default properties that can be adjusted with the ‘Name’, ‘X’, ‘Y’, ‘Width’, and ‘Height’ data entry fields. The ‘X’ and ‘Y’ fields represent the position of the bottom left corner of the viewport. The ‘Remove’ button will delete the selected viewport.

Mouse-based Viewport Creation: The mouse-based viewport creation procedure is initiated with the ‘Create Viewport’ option from the ‘View’ menu, or with the ‘V’ key. The new view is created by dragging the mouse from the desired start position to the desired end position while pressing the left mouse button.

Background Color Adjustment: The ‘Set Background Color’ option from the ‘View’ menu, or the ‘B’ key, launches a color selection dialog for setting the background color of the view containing the mouse.

Ambient Light Color Adjustment: The ‘Set Ambient Light Color’ of the ‘View’ menu, or the ‘A’ key, launches a color selection dialog for setting the ambient light color of the view containing the mouse.

View manipulation: Dragging the mouse while pressing a button alters the position and angle from which the scene is viewed. Mouse input is processed by the viewport that contains the mouse. The left button rotates the scene, the middle button moves the scene, and the right button adjusts the scene’s zoom factor. The ‘Reset Cameras’ option from the ‘View’ menu, or the ‘R’ key, resets the view to the initial position.

Editing the Scene and Committing Changes

A tree list displaying the hierarchical representation of the scene and a collection of property sheets displaying attributes of individual scene objects, or nodes, provide capability for editing the scene. Changes made to the scene can be saved to the current file or to a new file.

Tree List Editing: The tree list displays each node’s name and type. Nodes are re-parented when dragged and dropped onto other nodes.

Property Sheet Editing: The property sheet displays the properties of a node selected with the tree list. Different node types have different properties. Properties are changed by entering new values to the corresponding data fields and pressing the ‘Enter’ key.

Saving Changes: The modified scene can be saved to the current file with the ‘Save’ option from the ‘File’ menu, or the ‘Ctrl-S’ key combination. This option is only available for a modified scene.

Creating New Files: The Save File dialog is used to save scenes to new files. It is accessed with the ‘Save As...’ option from the file menu, or the ‘Ctrl-Shift-S’ key combination. This option is available at all times.