

N I N T E N D O
NITRO-System
3D Material Editor
Version 2.8.0

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Revision History

Version	Revision Date	Description
2.8.0	6/20/2005	Added/Modified Features <ul style="list-style-type: none"> Added control feature to NITRO-Viewer for static models, which are always displayed (9.4) Added VRAM usage display feature to NITRO-Viewer (9.6)
2.7.0	2/28/2005	Added/Modified Features <ul style="list-style-type: none"> Added information regarding the imd file size to the "File Information" property of the model (7.4.4) Added a feature to operate the animation from NITRO-Viewer (page 104) In NITRO-Viewer setting dialog box, changed the "Binary Conversion" page to "Data Transfer" page, and added the automatic playback option when transferring animation data (9.3.1.3) Added a feature that outputs the snapshot image of NITRO-Viewer (9.5, 12.1.6, 12.2.5, 12.3) Added one type of column item to node list display mode (6.2.4) Added 18 types of column item to material list display mode (6.2.6) Added common features for list display mode: <ul style="list-style-type: none"> Added a feature that rearranges the order of columns (6.2.9.2) Added features that reset the order and width of columns (6.2.9.2, 6.2.9.3, 12.1.3) Added a feature that switches the sorting order of column items to ascending/descending (6.2.2)
2.6.0	2/2/2005	Added/Modified Features <ul style="list-style-type: none"> Added support for NITRO Intermediate File Format Version 1.6.0 Changed the "Texture Coordinate Conversion" item in the material properties and added the texture environment / projection mapping functions. (7.7.4-7.7.6) Added selection of multiple objects and features for editing the properties of multiple selected objects (6.2.1) Changed the "Selection Object" menu to the "Object" menu, and changed its menu items (12.1.5) Changed the display position movement and operation method of the object on the schematic display of the object view (6.2.2.3) Multiple selection object support for material settings copy/paste functionality (7.11.3) Got rid of the function that applies the material settings to other multiple materials (since due to the addition of this function, equivalent operations can now be performed more intuitively) Expanded the NITRO-Viewer game frame rate settings range (9.3.1.2) Made changes so that the icon for each object will display in the object view schematic display (6.2.2) Added a shortcut that switches the view keyboard focus (12.3) Changes to the Manual <ul style="list-style-type: none"> Revised the explanation of the object view, and rearranged the chapter headings.

Version	Revision Date	Description
2.5.0	12/13/2004	<p>Added/Modified Features</p> <ul style="list-style-type: none"> • Added support for NITRO Intermediate File Format Version 1.5.0. • Added "Rendering Priority" and "File Information" to Model Properties (7.4). • Added "Rendering Priority" to Node Properties (7.5). • Added 4 types of flag settings to "Attributes" in Material Properties (7.7). • Changed Graphics Scene Properties (7.3). <ul style="list-style-type: none"> • Changed property item types. • Added depth buffering setting to "Camera". • Added translucent polygon Y sorting settings to "a/translucent". • Added a 1-dot polygon view boundary depth setting value to "Rendering". • Added binary transformation option settings to NITRO-Viewer settings (9.3). • Set property view display to a fixed width. Added view display/hide feature (7). • Changed so that the index for each object shown in property view is displayed at the top of the property view (7.2). • Adjusted existing property layout for each object (7.3-7.9). • Changed so that drag and drop can load multiple files (5.1.2, 8.1.2). <p>Changes to the Manual</p> <ul style="list-style-type: none"> • Revised the description of the main window screen configuration (3.3). • Revised the description of graphics scene data (4.1). • Revised the description of the View menu (12.1). • Revised the description of shortcut keys (12.3).
2.4.0	11/15/2004	<p>Added/Modified Features</p> <ul style="list-style-type: none"> • Changed material setting copy and paste function shortcut keys (7.11). • Changed dialog interface of function that pastes part of copied material setting (7.11.3). • Added function that applies material settings to multiple other materials (7.12). • Changed NITRO-Viewer setting functions (9.3). <ul style="list-style-type: none"> • Added function that controls multiple settings. • Added function that automatically switches between displaying and hiding light shape. • Added game frame rate settings. • Added light operating mode settings. • Added shortcut key to NITRO-Viewer setting function. • Added function for enabling/disabling animation (8.2). • Added function for switching loop play of animation (8.2). <p>Changes to the Manual</p> <ul style="list-style-type: none"> • Revised explanation of folder organization (2.3). • Revised cautions for copying and pasting material settings (7.11). • Revised explanation of line interpolation play for decimal frame of animation (pp. 82, 102, 111, 118). • Revised explanation of menus (12.1). • Revised explanation of toolbars (12.2). • Revised explanation of shortcut keys (12.3).

Version	Revision Date	Description
2.3.0	10/6/2004	<p>Added/Modified Features</p> <ul style="list-style-type: none"> • Changed the specular reflection shininess table setting feature. (7.3.2 & 7.3.8) • Changed the fog density table setting feature. (7.3.5 & 7.3.8) • Changed the toon table setting feature. (7.3.3 & 7.3.4) • Changed the edge color setting feature. (7.3.6 & 7.3.9) • Changed the color picker dialog box. (7.1) <ul style="list-style-type: none"> • Changed the operation method of the color list. • Added a feature to initialize the color list. • Added the animation property display feature. (8.2 & 8.3) • Corrected the problem that the diffuse color could not be set in the material color property depending on the status of the model. <p>Changes to the Manual</p> <ul style="list-style-type: none"> • Added a note regarding the NITRO Viewer. (9.1—last note)
2.2.0	8/30/2004	<p>Added/Modified Features</p> <ul style="list-style-type: none"> • Support for NITRO intermediate file format Version 1.4.2 <p>Changes to the Manual</p> <ul style="list-style-type: none"> • Added to description of installation methods • Revised description of node properties
2.1.0	8/17/2004	<p>Added/Modified Features</p> <ul style="list-style-type: none"> • Added support for NITRO-Viewer 0.9.1 • Added support for loading material color animation (ima files) and texture SRT animation (ita files) and previewing them with NITRO-Viewer • Added show and hide for process meter and animation bar to NITRO-Viewer settings. (Ch 9.3 H, I) <p>Changes to the manual</p> <ul style="list-style-type: none"> • Deleted note concerning limitations to the animation file load feature. (Ch 8.1) • Added note concerning linear interpolation and animation play. (Ch 8.2. A)

Version	Revision Date	Description
2.0.0	8/2/2004	Added/Modified Features <ul style="list-style-type: none">• Added support for NITRO Intermediate File Format Version 1.4.1.• Added a feature for communications with NITRO-Viewer. (Ch 9)• Added features for loading animation files, and animation operations. (Ch 8)• Object View, Display List Mode: New feature gives different colors to object names that have different numbers of characters. (Ch 6.3)• Changed camera properties. (Ch. 7.3.1)• Added a feature for applying and acquiring camera position and focal point position from NITRO-Viewer.• Changed Near and Far setting range.• Changed light properties. (Ch. 7.3.2)• Added features for applying and acquiring light direction for NITRO-Viewer.• Added language setting feature. Changes to the manual <ul style="list-style-type: none">• Revised description of folder organization. (Ch 2.3)• Revised overview description. (Ch. 3)• Revised description of model properties. (CH 7.4)• Added notes concerning material properties not supported in NITRO-Viewer. (Ch 7.7.4)• Revised description of operation with 3DCG tool plug-ins. (Ch 10.1)• Added description of new menu. (Ch 12.1.6)• Added description of new toolbar. (Ch 12.2.5)• Added description of new shortcut key. (Ch 12.3)• Revised trademark notice. (p128)
1.2.0	6/30/2004	Deleted the angle of rotation (twist) setting in Camera Properties (p. 62).
1.1.0	5/24/2004	Changed setting range for fovy in Camera Properties (papragraph 7.3.1).
1.0.0	4/12/2004	Initial version.

1 Preface

This manual describes in detail how to operate the Nintendo NITRO-System 3D Material Editor (hereafter referred to as 3D Material Editor). Refer to this manual if you are using the 3D Material Editor for the first time, or if you want details of operation methods.

1.1 Conventions Used in this Manual

This manual uses the following conventions.

1.1.1 Cautions and Hints

Descriptions that urge caution are noted with a block labeled “**Caution.**”

Caution: Description that urges caution.

Supplementary items or hints are noted with a block labeled “**Hint.**”


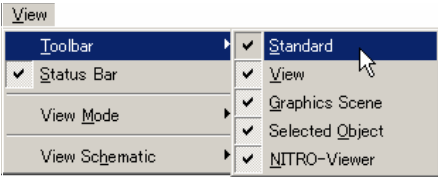
Hint: Supplementary description or hint.

1.1.2 Menu Names and Command Names

Menu names are expressed as “Menu Name”; command names are expressed as “Command Name”.

Command names that appear in a pop-up submenu are expressed as “Submenu Name” -> “Command Name” (Table 1-1).

Table 1-1 - Expressing Menu Names and Command Names

Menu Example	Expression
	“Undo” on the “Edit” menu
	“Toolbar” -> “Standard” on the “View” menu

1.1.3 Key Binding

The + mark indicates key binding (key combinations) (Table 1-2).

Table 1-2 - Key Binding Notation

Key Binding Example	Notation
Hold down the Ctrl key and press the S key	Ctrl + S
Hold down the Ctrl key and the Shift key and press the Tab key	Ctrl + Shift + Tab

2 Setup

This chapter describes how to install the 3D Material Editor. It also describes the 3D Material Editor's folder organization.

2.1 Installation

Use the following procedure when installing the 3D Material Editor for the first time.

1. Copy Files

Copy the `NNS_3DMaterialEditor` folder to any location on the hard disk.

2. Set Environment Variables

Add `NNS_3DME_ROOT` to the PC's user environment variable. Specify the path to the folders that you copied in the previous step.

For example, if you copy the `NNS_3DMaterialEditor` folder to `C:\Program Files`, the environment variable will be `C:\Program Files\NNS_3DMaterialEditor`.

For details on setting the environment variable, see "[2.1.1 Setting the Environment Variables](#)" on page 4.

3. Make Shortcut Files

`NNS_3DmaterialEditor\NNS_3DMaterialEditor.exe` is the 3D Material Editor's executable file. If you need a shortcut to this file, create one in a convenient location.

Hint: The 3D Material Editor does not use the Windows registry.

When upgrading a previously installed version, copy the `NNS_3DMaterialEditor` folder over the existing installation folder. The graphic scene data and initial setting information from the previous version will be retained in the new version.

Note: If you delete the existing installation folder when upgrading, your graphic scene data and initial setting information will be deleted.

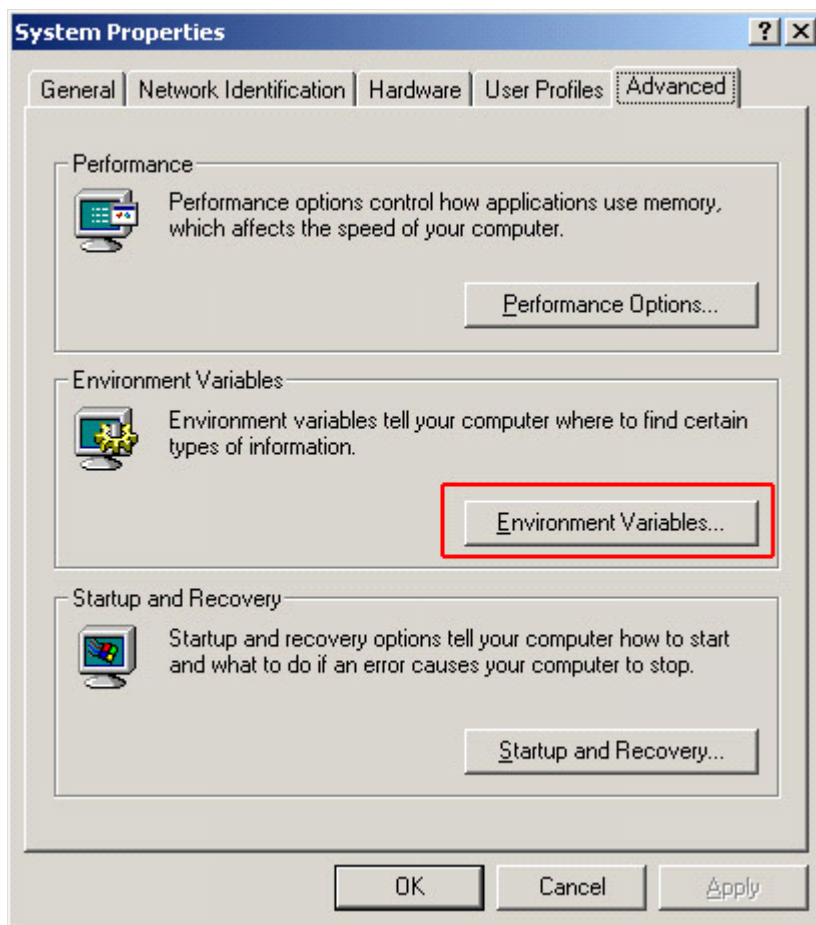
2.1.1 Setting the Environment Variables

The following procedure sets the environment variables. Windows 2000 is used as an example.

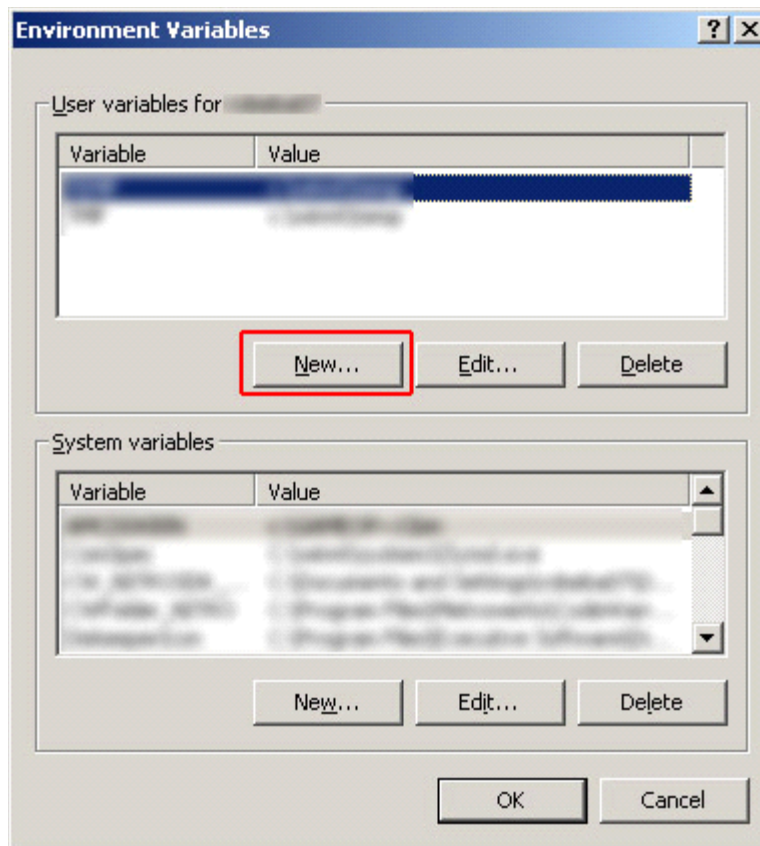
1. Open System Properties and click the “Environment Variables” button on the “Advanced” tab (Figure 2-1).

You can display System Properties by double clicking “System” in Control Panel, or by selecting Properties in “My Computer” on the Desktop.

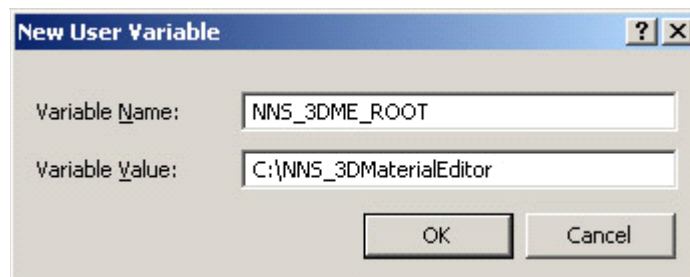
Figure 2-1 - Setting the Environment Variables: 1



2. The Environment Variables dialog box will appear. Click the “New” button on User Environment Variables (Figure 2-2).

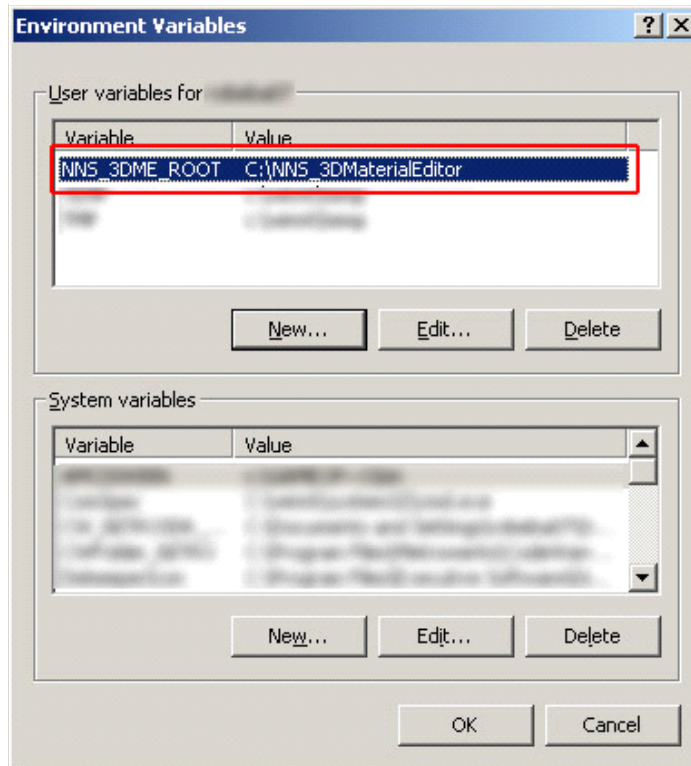
Figure 2-2 - Setting the Environment Variables: 2

3. The New User Variable dialog box will appear. Set `NNS_3DME_ROOT` as the Variable Name, and set the path to the `NNS_3DMaterialEditor` folder as the Variable Value (Figure 2-3).

Figure 2-3 - Setting the Environment Variables: 3

4. NNS_3DME_ROOT will be added to the user environment variables (Figure 2-4). Click the OK button to complete the setting.

Figure 2-4 - Setting the Environment Variables: 4



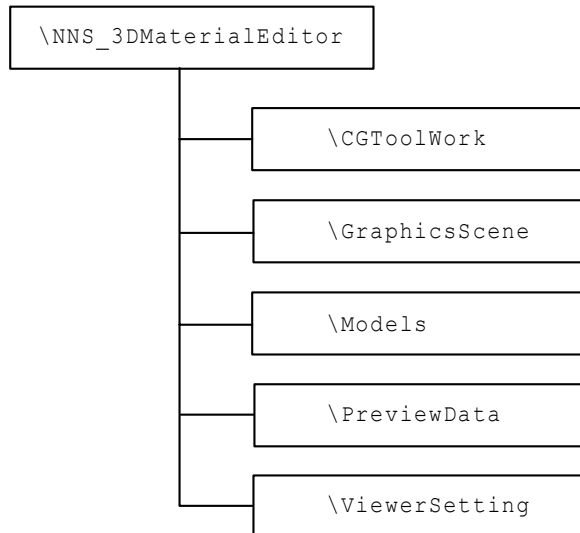
2.2 Uninstall

To uninstall, delete the folder that you copied when you installed the software. Also delete the user environment variable `NNS_3DME_ROOT` that you added.

2.3 Folder Organization

Figure 2-5 shows 3D Material Editor's folder organization.

Figure 2-5 - 3D Material Editor Folder Organization



- NNS_3DMaterialEditor Folder

The files in this folder are required for running the 3D Material Editor:

The executable file NNS_3DMaterialEditor.exe

Library files required when the program runs (.dll)

Supplemental tools for internal processing (.exe)

- CGToolWork Folder

This folder is used to work in conjunction with 3DCG tool plug-ins. **The 3D Material Editor uses this folder internally. Do not edit or change it.** For information on working with 3DCG tool plug-ins, see "[10 Working with 3DCG Tool Plug-ins](#)" on page 135.

- GraphicsScene Folder

This folder is for managing Graphics Scene Data. **The 3D Material Editor uses this folder internally. Do not edit or change it.** For information on Graphics Scene Data, see "[4 Graphics Scene Data](#)" on page 13.

- PreviewData Folder

This is used for communications with NITRO-Viewer. **The 3D Material Editor uses this folder internally. Do not edit or change it.** For information on communications with NITRO-Viewer, see "[9 Communications with NITRO-Viewer](#)" on page 121.

- ViewerSetting Folder

This is used for managing NITRO-Viewer settings. **The 3D Material Editor uses this folder internally. Do not edit or change it.** For details of NITRO-Viewer settings, see "[9.3 NITRO-Viewer Settings](#)" on page 123.

- Models Folder

This is a static model control folder displayed in NITRO-Viewer. **The 3D Material Editor uses this folder internally. Do not edit or change it.** For information on static models, see "[9 Communications with NITRO-Viewer](#)" on page 121.

3 Overview

The 3D Material Editor application runs on Windows. This chapter gives an overview of the 3D Material Editor. It also describes its main features and window organization.

3.1 What is the 3D Material Editor?

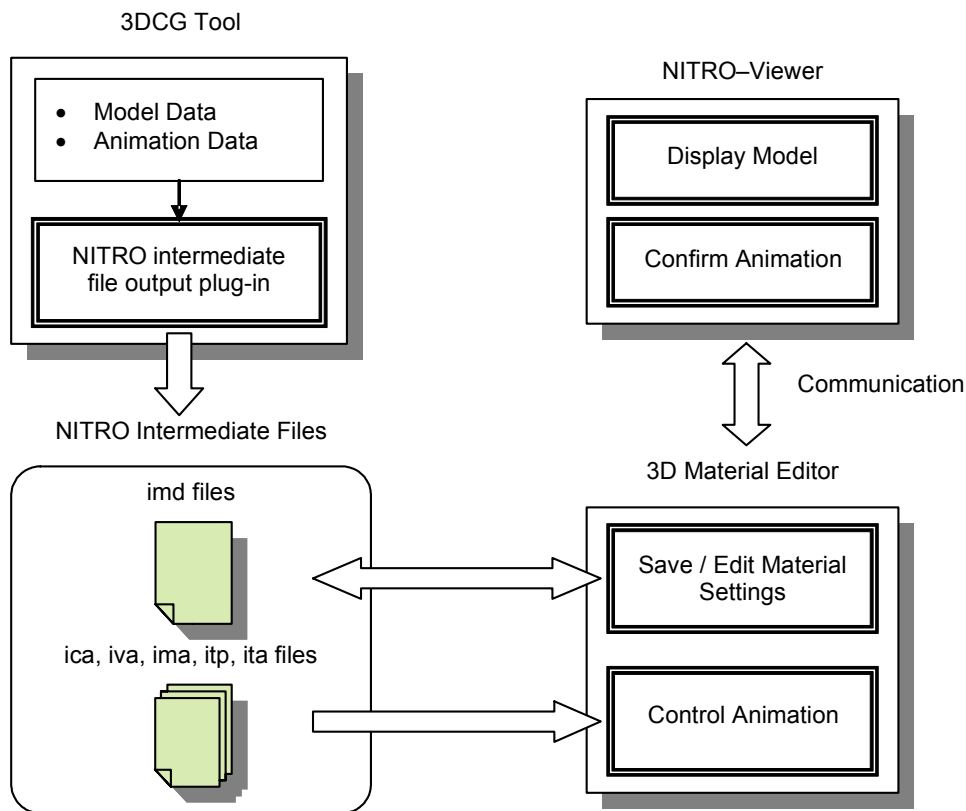
In the Nintendo NITRO-System you can use NITRO intermediate file output plug-ins to output NITRO intermediate files containing information such as model and animation model data that was created with 3DCG tools.

Basically, you can output two types of NITRO intermediate files from 3DCG tools:

- Model data files (imd files)
- Animation files (ica, iva, ima, itp, ita files)

The 3D Material Editor handles NITRO intermediate files. It can edit and save imd file material settings. Additionally, it is possible to communicate with NITRO-Viewer (supplied with the Nintendo NITRO-System) to display imd file models and check animation file animations (Figure 3-1).

Figure 3-1 - 3D Material Editor Overview

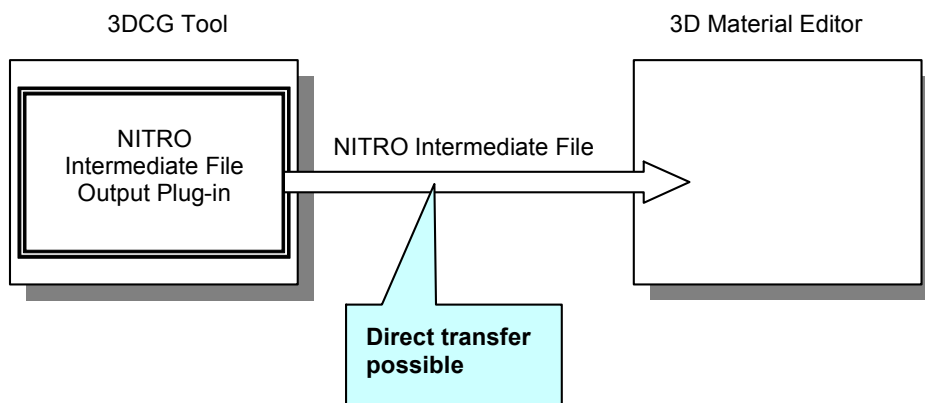


The 3D Material Editor works in conjunction with a 3DCG tool plug-in in order to load NITRO intermediate files efficiently.

Because it works in conjunction with 3DCG tool plug-ins, it is possible to directly transfer to the 3D Material Editor NITRO intermediate files such as model data and animation data files that were created with the 3DCG tool (Figure 3-2).

For information on working in conjunction with 3DCG tool plug-ins, see "[10 Working with 3DCG Tool Plug-ins](#)" on page 135.

Figure 3-2 - The 3D Material Editor Working in Conjunction with 3DCG Tool Plug-ins



3.2 3D Material Editor Features

The main 3D Material Editor features are as follows:

- Load imd files and display such information as model hierarchical structure and structural elements.
- Edit and save material settings in a loaded imd file.
- Merge material settings from another imd file into a loaded imd file.
- Communicate with NITRO-Viewer to preview models and animation.

The 3D Material Editor cannot do the following:

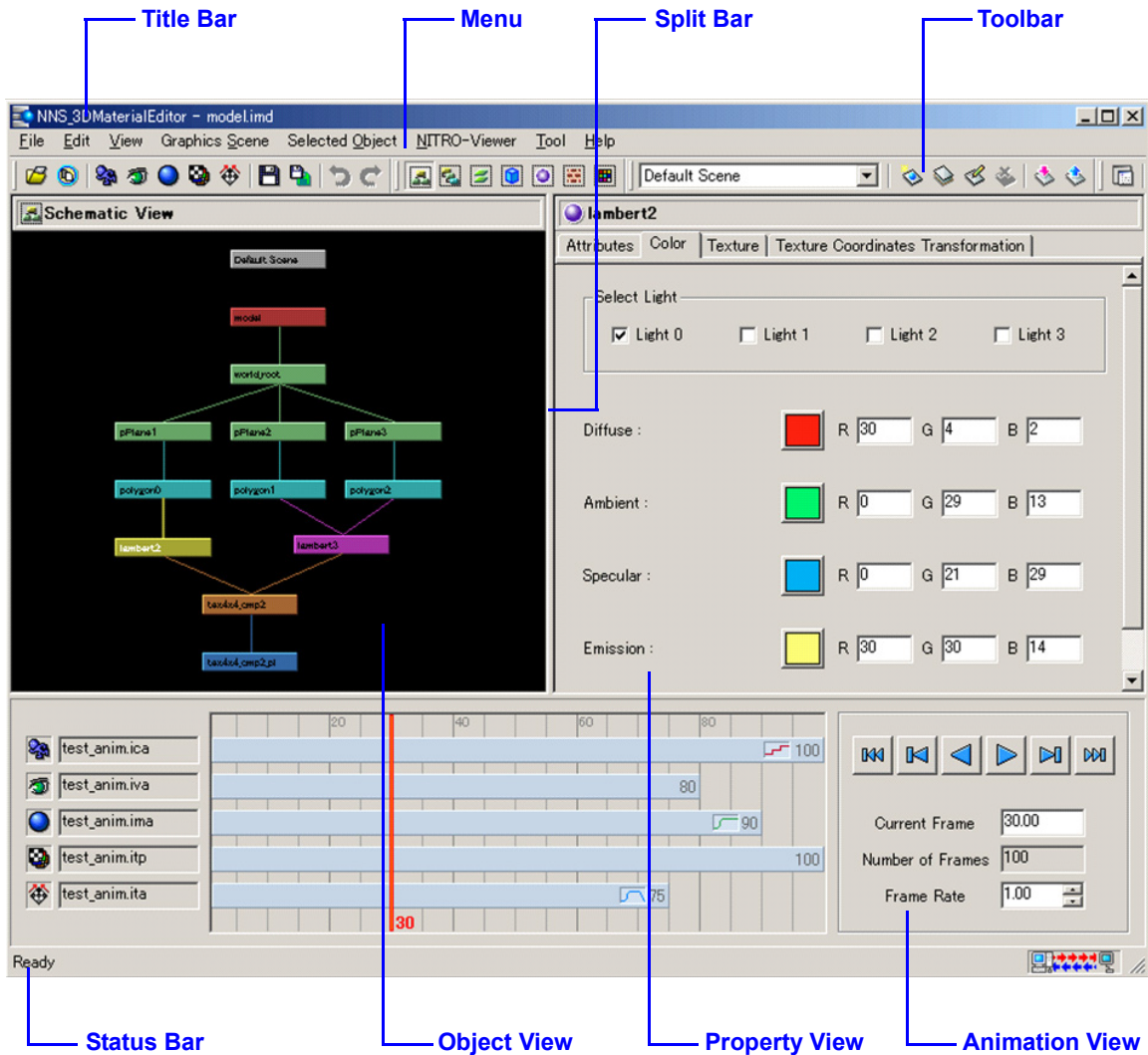
- Create a new imd file (create model data).
- Change the hierarchical structure of the model in a loaded imd file.
- Add or delete material with respect to the model in a loaded imd file.
- Create a new animation file (create animation data).

Caution: The 3D Material Editor cannot modify models, create animation, or change animation. Use a 3DCG tool to perform this type of modification.

3.3 Main Window Screen Layout

This is the layout of the 3D Material Editor's main window (Figure 3-3).

Figure 3-3 - Main Window



Title Bar

The title bar displays the file name of the open imd file. An asterisk (*) will appear to the right of the imd file name if it has been edited and the changes have not been saved.

Menu

The basic 3D Material Editor operations are carried out from the Menu. There are some operations that you will not be able to execute directly from the Menu. For details on the menu, see "[12.1 Menu List](#)" on page 139.

Toolbar

The toolbar contains buttons that correspond to each item on the menu. When you click a toolbar button, you will be able to perform the same operation that you would if you had selected the corresponding menu item. For details on the toolbar, see "[12.2 Toolbar List](#)" on page 143.

Object View

Objects are displayed in this region. Use this view to select objects. For details on objects, see "[6 Objects](#)" on page 31.

Property View

The properties of the selected object are displayed in this region. Use this view to edit properties. For details on properties, see "[7 Properties](#)" on page 53.

Animation View

This region is for animation operations. This view will only be displayed if an animation file has been loaded. For details on animation see "[8 Animation](#)" on page 99.

Status Bar

The Status Bar displays information to help the user operate.

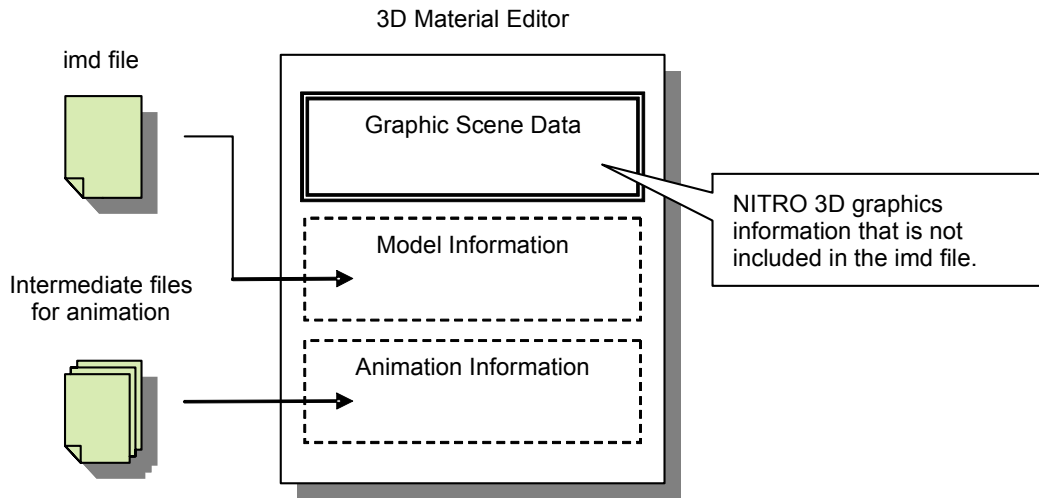
4 Graphics Scene Data

This chapter gives an overview of the Graphics Scene Data that the 3D Material Editor handles. It also describes how to manage and operate Graphics Scene Data.

4.1 What is Graphics Scene Data?

The 3D Material Editor handles information that is related to 3D graphics that NITRO graphics uses, and that is not directly contained in imd files, as **Graphics Scene Data** (Figure 4-1).

Figure 4-1 - What is Graphics Scene Data?



Graphics Scene Data includes the following setting information. For details on setting information, refer to "[7.3 Graphics Scene Properties](#)" on page 55.

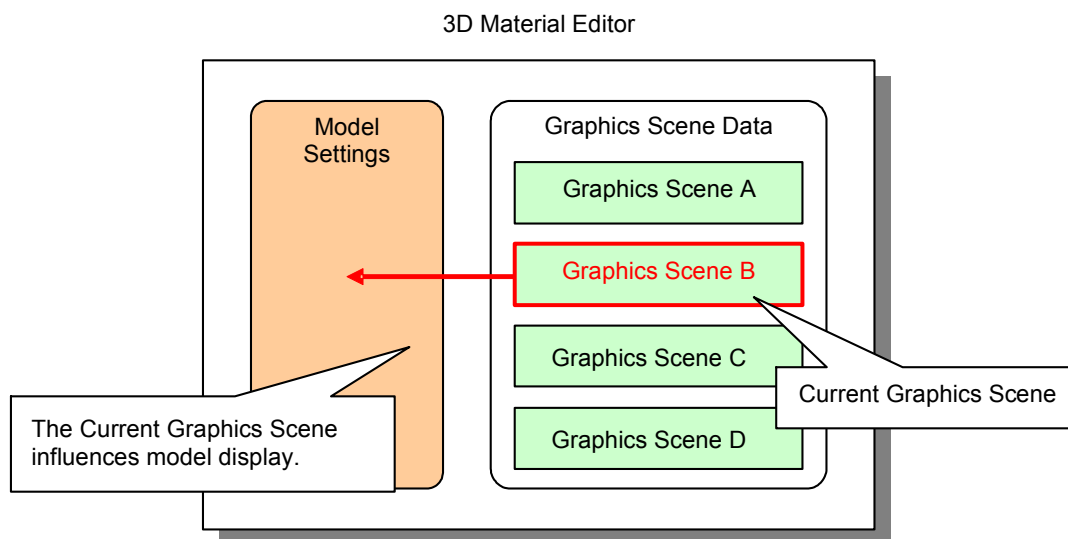
- Settings related to Camera
- Settings related to Light
- Settings related to Toon/Highlight Shading
- Settings related to Alpha / Translucent Process
- Settings related to Fog
- Settings related to Edge Marking
- Settings related to Rendering

4.2 Managing Graphics Scene Data

You can manage the Graphics Scene Data settings by preparing multiple **Graphics Scene** units. You can freely create and delete Graphics Scenes, and name them.

Even if there are multiple Graphics Scenes in the 3D Material Editor, only the Current Graphics Scene will influence the display of the loaded model. You can switch Graphics Scenes by selecting from the ones that you have created (Figure 4-2).

Figure 4-2 - Managing Graphics Scene Data



Hint: When you first start the 3D Material Editor, a Graphics Scene named “Default Scene” will be created automatically and set as the Current Graphics Scene.

Hint: The 3D Material Editor automatically manages Graphics Scene Data internally. All settings will be preserved, even if you restart the 3D Material Editor.

There are five types of Graphics Scene Data operation. You can perform any of these even if an imd file has not been loaded.

- Creating a New Graphics Scene
- Copy a Graphics Scene
- Rename a Graphics Scene
- Delete a Graphics Scene
- Switch the Current Graphics Scene

Caution: There will always be at least one Graphics Scene. If there is only one Graphics Scene, you will not be able to delete it.

4.2.1 Creating a New Graphics Scene

This creates a new Graphics Scene. A newly created Graphics Scene becomes the Current Graphics Scene.

Operating Procedure


1. Select "New" on the "Graphics Scene" menu. (Toolbar button: )
2. This dialog box appears for naming the new Graphics Scene (Figure 4-3). Type a name and click the OK button. You cannot enter a name that is the same as an existing Graphics Scene name.

Figure 4-3 - Creating a New Graphics Scene



4.2.2 Copying a Graphics Scene

This creates a Graphics Scene that has the same settings as the Current Graphics Scene. The newly created Graphics Scene will become the Current Graphics Scene.

Operating Procedure


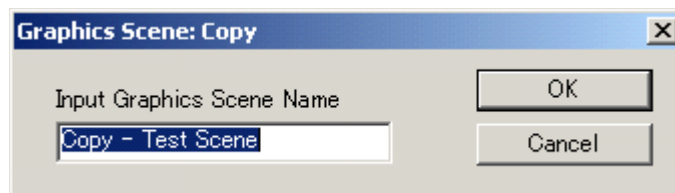
1. Select "Copy (Current Graphics Scene name)" on the "Graphics Scene" menu. (Toolbar button: )
2. This dialog box appears for renaming the copied Graphics Scene (Figure 4-4). Type a name and click the OK button. You cannot enter a name that is the same as an existing Graphics Scene name.

Figure 4-4 - Copying a Graphics Scene



4.2.3 Renaming a Graphics Scene

This renames the Current Graphics Scene.

Operating Procedure


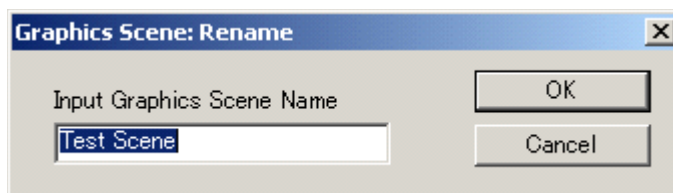
1. Select "Rename (Current Graphics Scene name)" on the "Graphics Scene" menu.
(Toolbar button: )
2. This dialog box appears for renaming the Graphics Scene (Figure 4-5). Type a name and click the OK button. You cannot enter a name that is the same as an existing Graphics Scene name.

Figure 4-5 - Renaming a Graphics Scene



4.2.4 Deleting a Graphics Scene

This deletes the Current Graphics Scene. If there is only one Graphics Scene, you will not be able to delete it. The first remaining Graphics Scene will become the Current Graphics Scene.

Operating Procedure


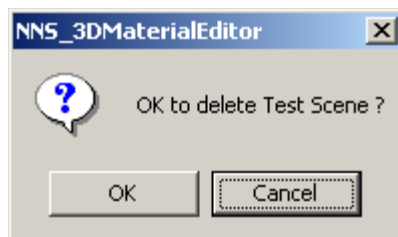
1. Select "Delete (Current Graphics Scene name)" on the "Graphics Scene" menu. (Toolbar button: )
2. A confirmation dialog box will appear (Figure 4-6). If you want to delete, click the OK button.


Figure 4-6 - Deleting a Graphics Scene



4.2.5 Switching the Current Graphics Scene

This switches the Current Graphics Scene.

Operating Procedure

1. Select "Switch Scene" -> "(Graphics Scene name)" on the "Graphics Scene" menu.
(Toolbar combo box: )

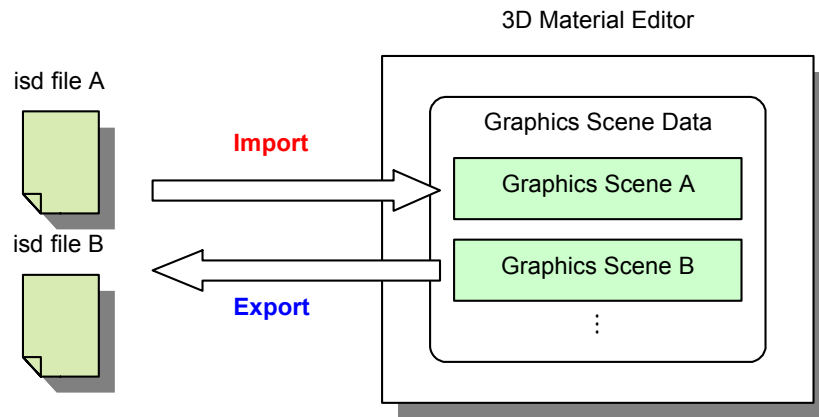
4.3 Importing and Exporting isd Files

Graphics Scene Data is automatically loaded when the 3D Material Editor is started, and saved when the 3D Material Editor is exited. However, the user can also explicitly load or save using a NITRO intermediate file: Graphics Scene data file (isd file).

There are two operations for explicitly loading or saving Graphics Scene Data:

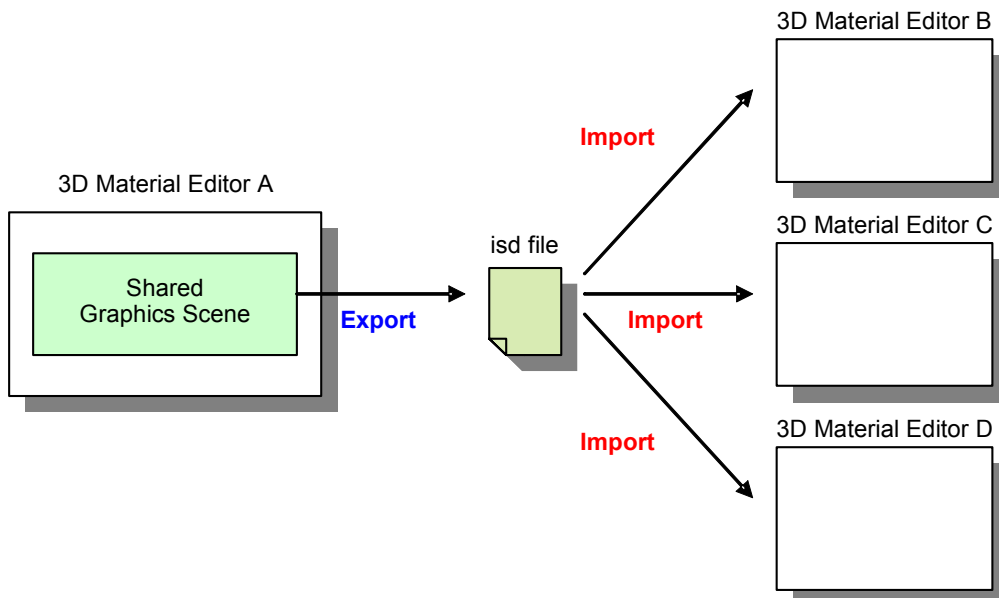
- Import an isd file, and add a Graphics Scene.
- Export each Graphics Scene as an isd file.

Figure 4-7 - Importing and Exporting isd Files



Using the isd file import/export feature, you can share the settings for a specific Graphics Scene across multiple 3D Material Editors (Figure 4-8).

Figure 4-8 - Standardizing Graphics Scene Settings on Multiple 3D Material Editors



4.3.1 Importing isd files

This imports an isd file, and adds a Graphics Scene.

Operating Procedure


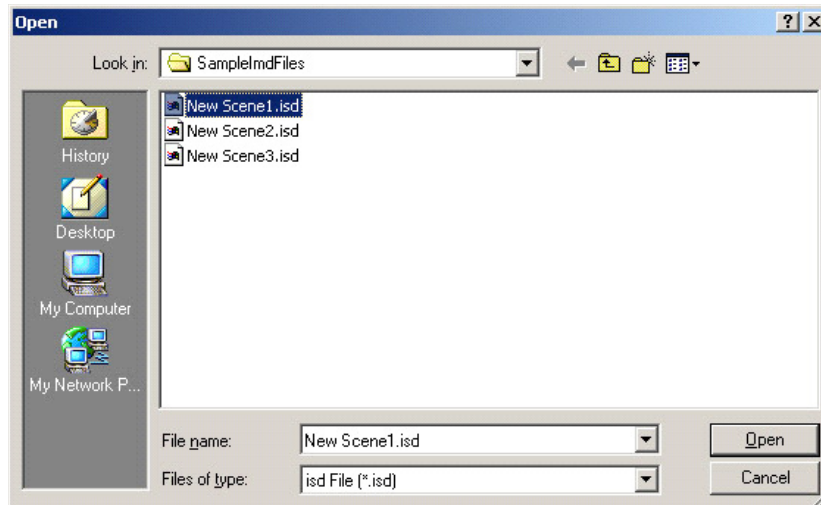
1. Select "Import isd File" on the "Graphics Scene" menu. (Toolbar button: )
2. A file selection dialog box will appear (Figure 4-9). Specify the isd file to import and click the Open button.

Figure 4-9 - Importing an isd File



4.3.2 Exporting an isd File

This exports the Current Graphics Scene as an isd file.

Operating Procedure


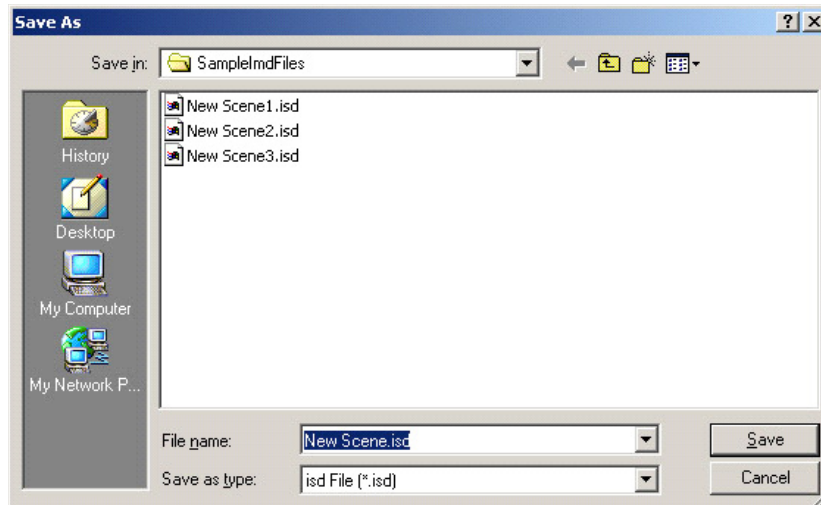
1. Select "Export isd File" on the "Graphics Scene" menu. (Toolbar button: )
2. A file selection dialog box will appear (Figure 4-10). Specify the folder to save in and the file name, and click Save.

Figure 4-10 - Exporting an isd File



5 imd Files

This chapter describes loading, saving, and merge-loading imd files.

5.1 Loading an imd File

There are two methods for loading an imd file:

- Open by specifying a file name
- Open by dragging and dropping

Caution: You can only open one imd file at a time.

5.1.1 Open by Specifying a File Name

This opens an imd file by specifying a file name in the file selection dialog box. If an imd file is already open, it will display a message prompting you to save it before opening the file.

Operating Procedure


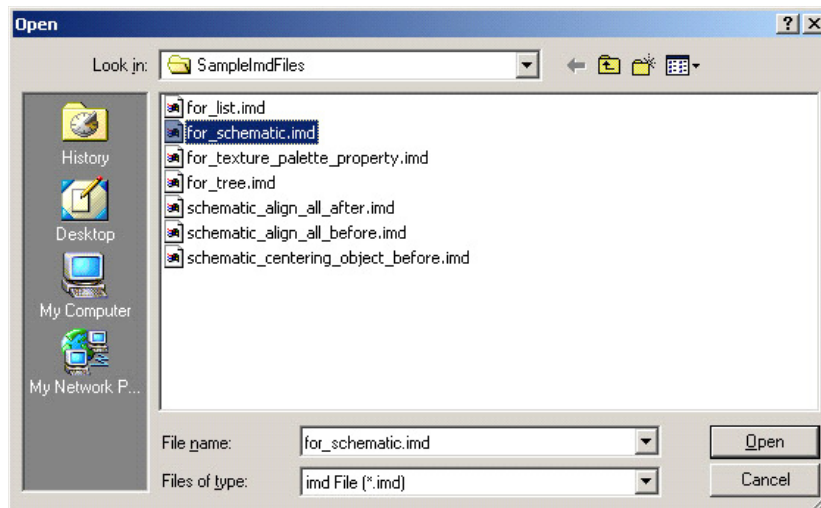
1. Select “Open imd File” in the “File” menu. (Toolbar button: , Shortcut Keys: **Ctrl + O**)
2. The file selection dialog box will appear (Figure 5-1). Specify the file to load and click the Open button.

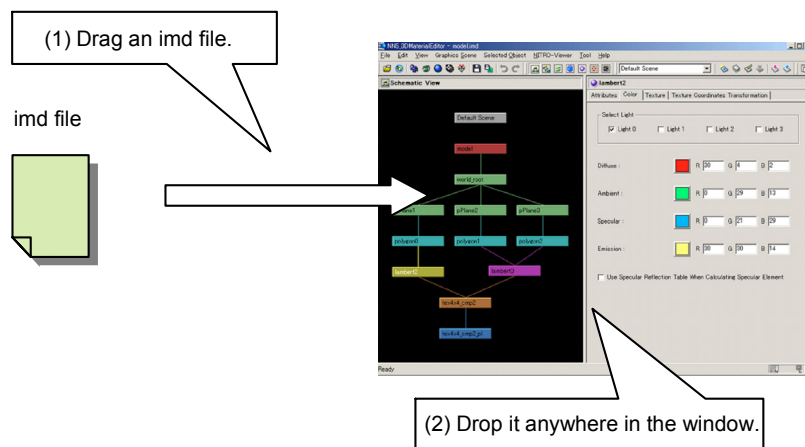
Figure 5-1 - Loading an imd File: Specifying a File Name



This opens an imd file by dragging and dropping. If an imd file is already open, it will display a message prompting you to save it before opening the file.

1. Drag an imd file and drop in anywhere in the main window (Figure 5-2).

Figure 5-2 - Loading an imd File: Dragging and Dropping



Note: If you drag and drop multiple imd files a dialog box will appear for selecting the imd file to load.

Hint: You can simultaneously load imd files and animation files by dragging and dropping them together. For information on loading animation files, see ["8.1 Loading Animation Files"](#) on page 99.

Hint: To simultaneously start the 3D Material Editor and load a file, drag and drop the file into the 3D Material Editor executable file (NNS_3DMaterialEditor.exe) or a shortcut file to the executable file.

You can resave imd file material settings that you edited with the 3D Material Editor in the imd file. There are two methods of doing this:

- Save by overwriting
- Name it and save

This will overwrite the imd file that is currently opened.

Operating Procedure

1. Select “Save imd File” in the “File” menu. (Toolbar button: , Shortcut Keys: **Ctrl + S**)

5.2.2 Name It and Save

This will name an imd file and save it.

Operating Procedure


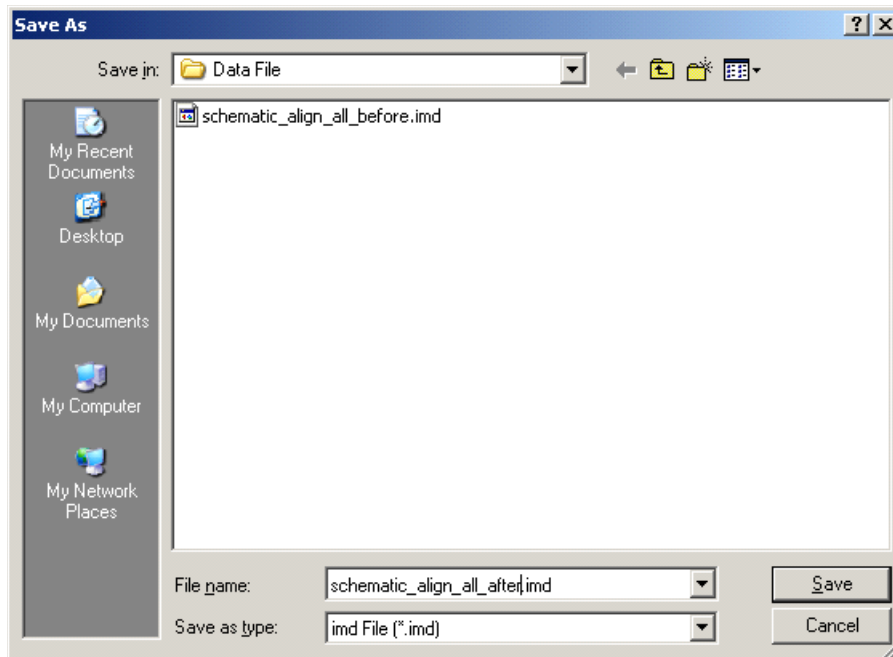
1. Select "Save imd File As" in the "File" menu. (Toolbar button: , Shortcut Keys: **Ctrl + A**)
2. A file dialog box will appear (Figure 5-3). Specify the folder and the file name for saving and click the Save button.

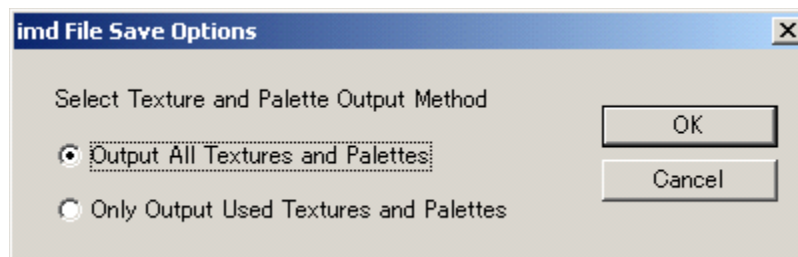
Figure 5-3 - Naming an imd File and Saving It



5.2.3 Methods of Outputting Textures and Palettes

When you save an imd file, if there are textures or palettes that are not used by any material, a dialog box will appear for selecting the method of texture and palette output (Figure 5-4).

Figure 5-4 - Texture and Palette Output Methods



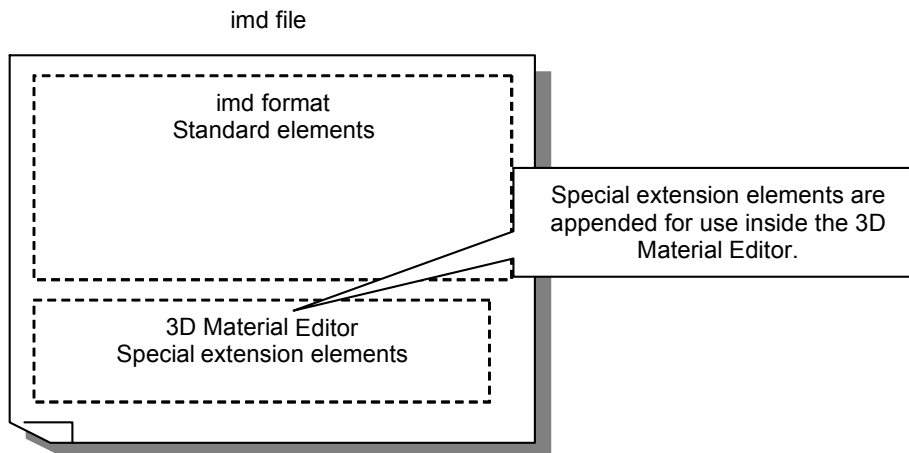
Select one of the following output methods and click the OK button.

- Output all textures and palettes
- Only output used textures and palettes

5.2.3 3D Material Editor Special Extension Elements

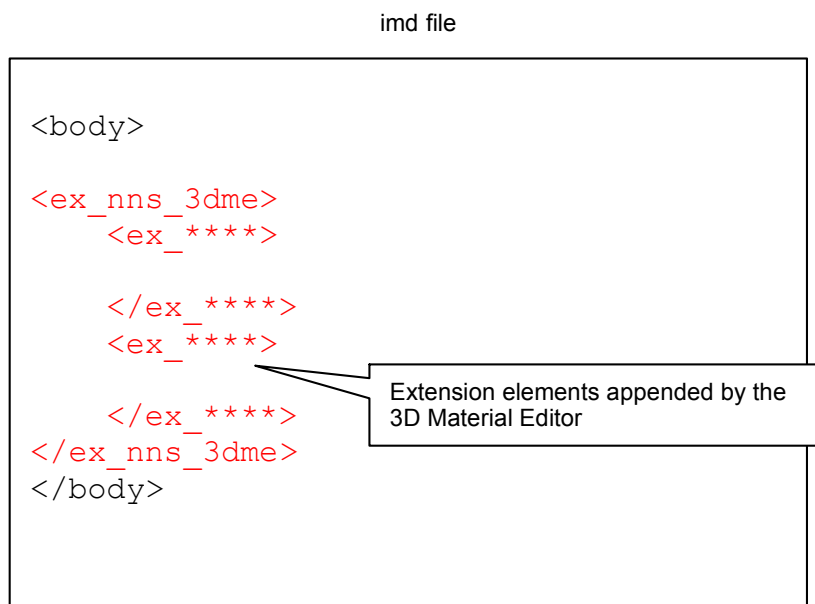
Special extension elements are appended to imd files that the 3D Material Editor outputs. These are only for use inside the 3D Material Editor (Figure 5-5).

Figure 5-5 - Special Extension Elements Appended to the imd File: 1



All of the appended extension elements are output beneath the `<ex_nns_3dme>` element, which is output as a child element of the `<body>` element. The name of the extension elements always begins with `ex_` (Figure 5-6).

Figure 5-6 - Special Extension Elements Appended to the imd File: 2



The attribute values and child elements contained in these extension elements are special information for the 3D Material Editor.

If you want to parse and use the imd file contents, ignore the content that follows these extension elements.

5.3 Merge-Loading imd Files

This describes the imd file merge-load feature.

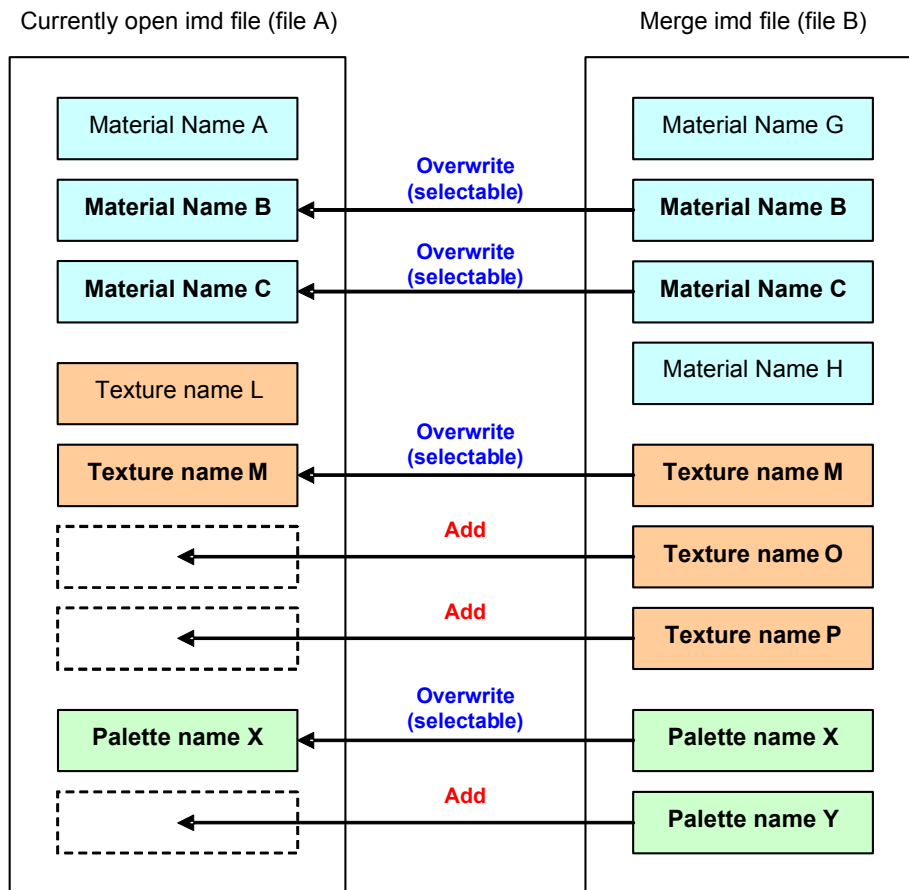
5.3.1 What is imd File Merge-Load?

The imd file merge-load feature merges (combines, mixes) material settings from another imd file into the imd file that is currently open.

Figure 5-7 shows the processes that occur when you merge-load imd file B into the currently open imd file A.

- If materials in files A and B have the same names, those in B will overwrite those in A. You can choose whether to overwrite.
- If textures in files A and B have the same names, those in B will overwrite those in A. You can choose whether to overwrite.
- If palettes in files A and B have the same names, those in B will overwrite those in A. You can choose whether to overwrite.
- Textures that are in file B but are not in file A will be added to file A.
- Palettes that are in file B but are not in file A will be added to file A.

Figure 5-7 - Merge-Loading imd Files



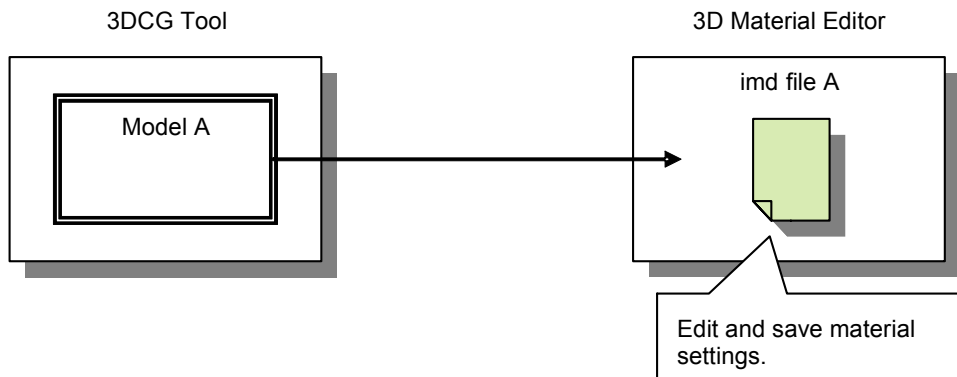
5.3.2 Uses for the Merge-Load Feature

When you use the 3D Material Editor to modify material settings in a model's imd file, and subsequently use a 3DCG tool to edit the model's node structure, polygons, or the like, the material settings in the new imd file will become those of the initial status that the 3DCG tool plug-in outputs.

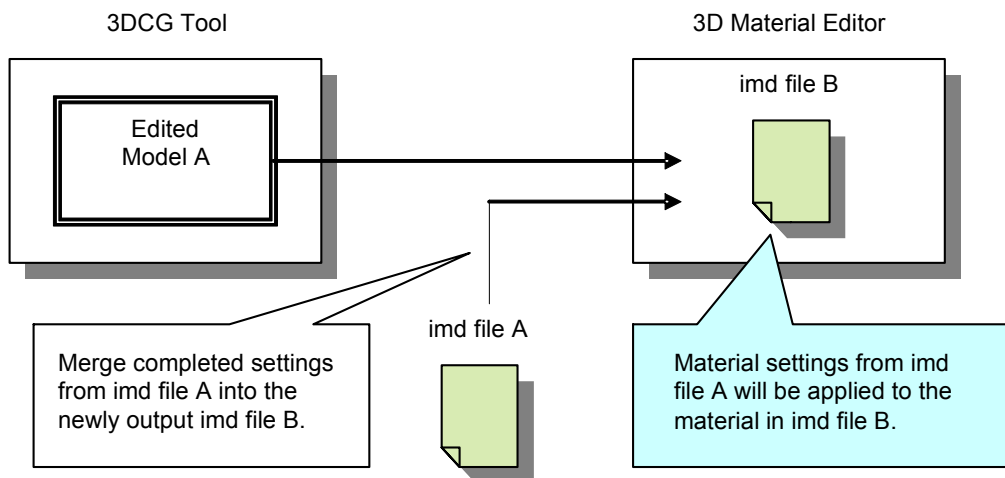
In such a case, if you merge a material setting file that you have already set into the newly output imd file, you will be able to apply the settings to the newly output imd file (Figure 5-8).

Figure 5-8 - Uses for Merge-Load

(1) Edit imd file material settings with the 3D Material Editor.



(2) Edit model A with 3DCG tool



Caution: If the names of materials or textures have been changed in the files, even if you do merge-load, the settings will not be merged. When you edit a model with a 3DCG tool, do not change the names of materials or textures that you plan to merge.

5.3.3 Merge-Load Operational Procedure

Do the following to merge-load imd files.

Operating Procedure


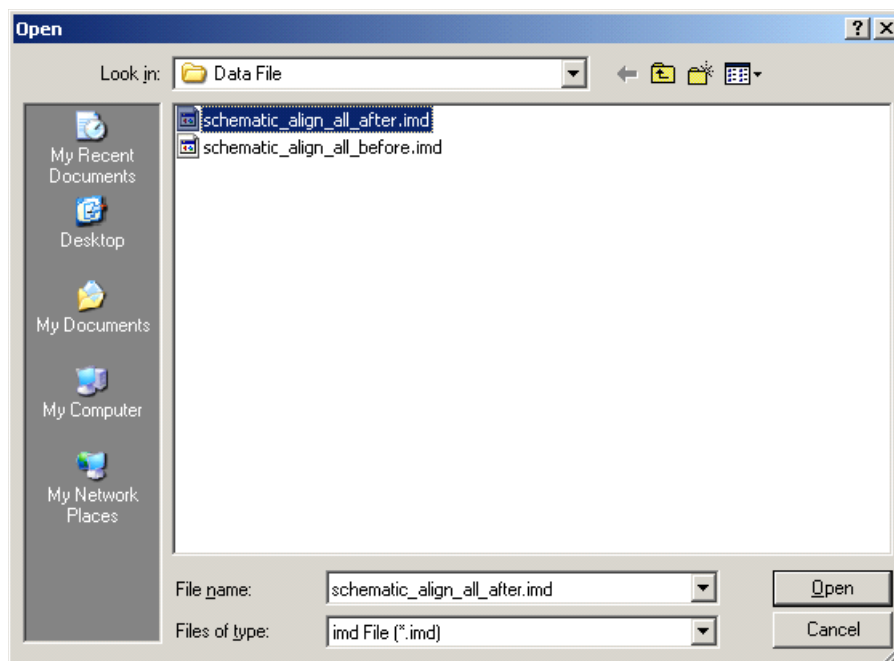
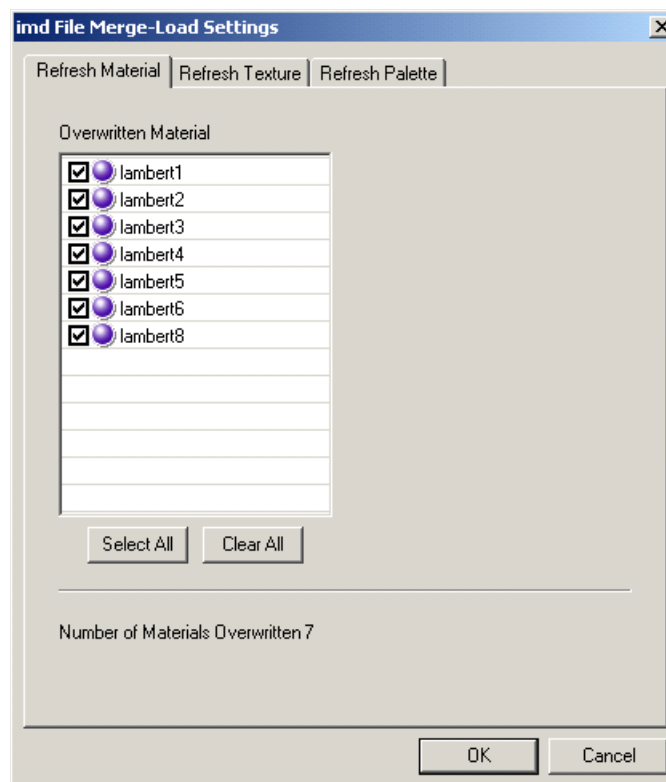
1. Select "imd File Merge-Load" in the "File" menu. (Toolbar button: , Shortcut Keys: **Ctrl + M**)
2. A file selection dialog box appears (Figure 5-9). Select the imd file to merge and click the Open button.

Figure 5-9 - Opening the imd File to Merge-Load

3. The merge-load setting dialog box will appear (Figure 5-10). In each page of the dialog box set the merge-load operations that you want, then click the OK button. For details, see "[5.3.4 The Merge-Load Setting Dialog Box](#)" on page 28.

Figure 5-10 - The Merge-Load Setting Dialog Box

5.3.4 The Merge-Load Setting Dialog Box

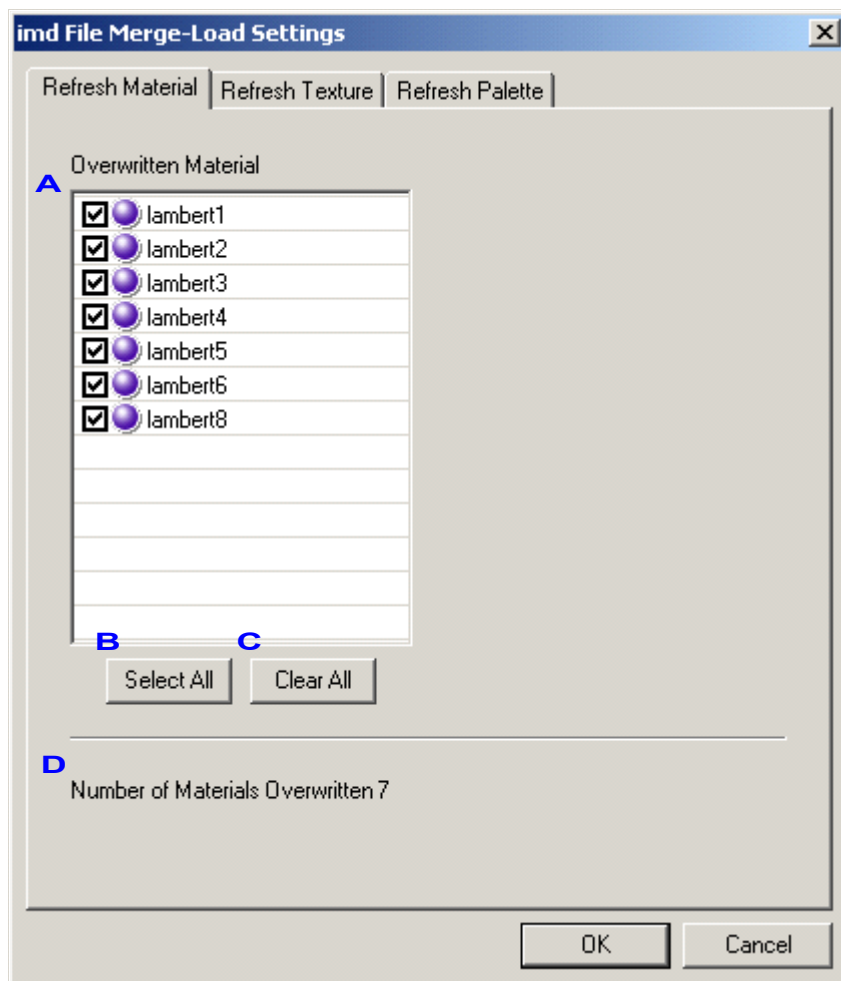
Use the Merge-Load setting dialog box to set the operations that will be carried out when you merge-load imd files. The dialog box contains three setting pages:

- “Material Update” page
- “Texture Update” page
- “Palette Update” page

5.3.4.1 Updating Materials

This makes settings related to material updates (Figure 5-11).

Figure 5-11 - Merge-Load Setting Dialog Box: Updating Materials

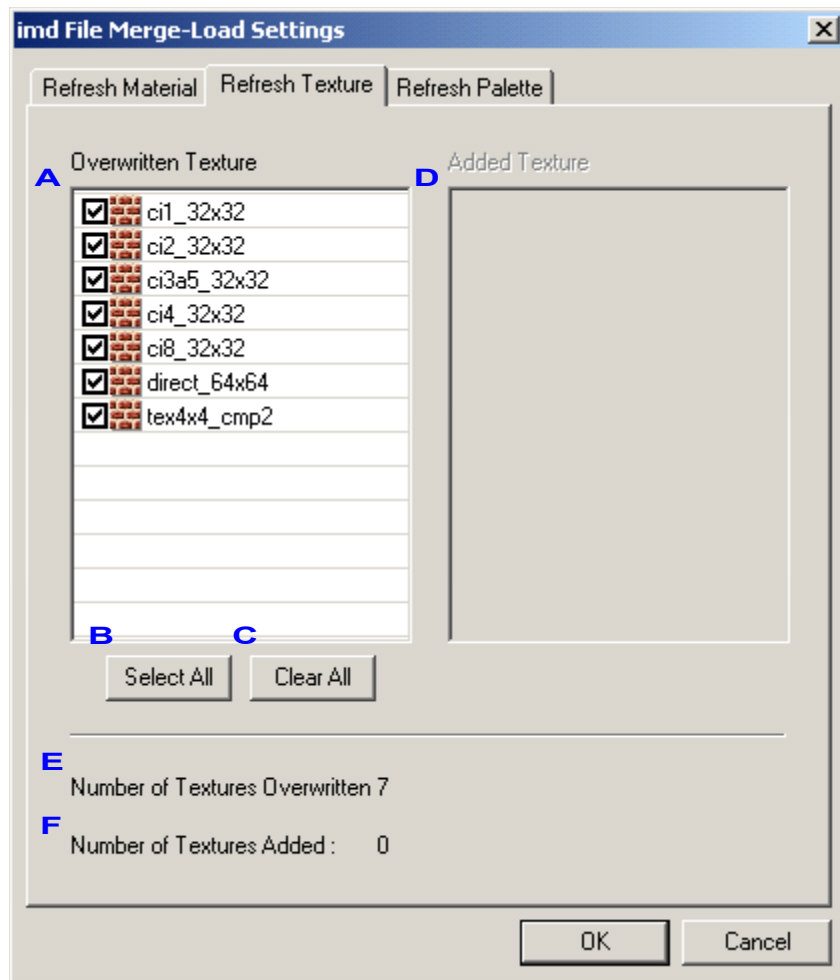


- A.** This list displays the materials that are candidates for overwriting. Materials that are checked will be overwritten. Uncheck items that you do not want to overwrite.
- B.** Click this button to select all of the materials in the list.
- C.** Click this button to uncheck all of the materials in the list.
- D.** This displays the number of materials that will be overwritten.

5.3.4.2 Updating Textures

This makes settings related to texture updates (Figure 5-12).

Figure 5-12 - Merge-Load Setting Dialog Box: Updating Textures

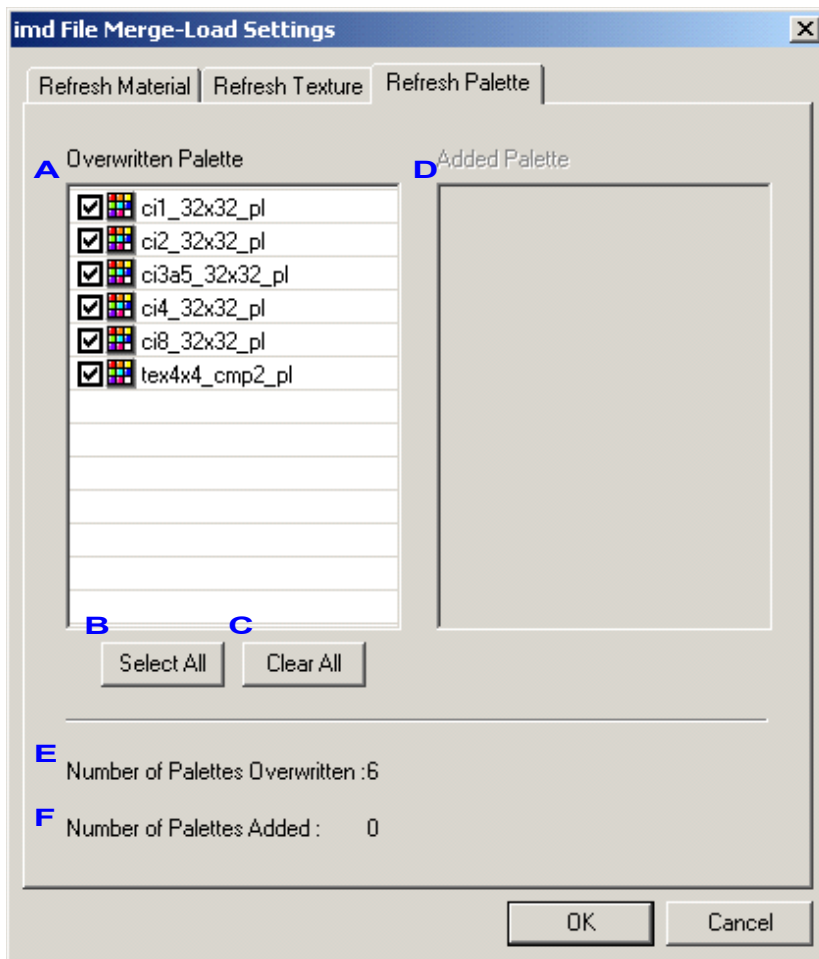


- A.** This list displays the textures that are candidates for overwriting. Textures that are checked will be overwritten. Uncheck items that you do not want to overwrite.
- B.** Click this button to select all of the textures in the list.
- C.** Click this button to uncheck all of the textures in the list.
- D.** This displays a list of the textures that will be added. You cannot modify these textures.
- E.** This displays the number of textures that will be overwritten.
- F.** This displays the number of textures that will be added.

5.3.4.3 Updating Palettes

This makes settings related to palette updates (Figure 5-13).

Figure 5-13 - Merge-Load Setting Dialog Box: Updating Palettes



- A. This list displays the palettes that are candidates for overwriting. Palettes that are checked will be overwritten. Uncheck items that you do not want to overwrite.
- B. Click this button to select all of the palettes in the list.
- C. Click this button to uncheck all of the palettes in the list.
- D. This displays a list of the palettes that will be added. You cannot modify these palettes.
- E. This displays the number of palettes that will be overwritten.
- F. This displays the number of palettes that will be added.

Caution: If all of the following numbers are 0, you will not be able to merge-load. The OK button will be disabled.

- Number of materials that will be overwritten
- Number of textures that will be overwritten
- Number of palettes that will be overwritten
- Number of textures that will be added
- Number of palettes that will be added









6 Objects

This chapter gives an overview of the objects that are displayed in the Object View, and describes selection and operation.

6.1 What is an Object?

In the 3D Material Editor, items for which you can display information, edit settings, or the like are called objects. Table 6-1 describes the different types of objects.

Table 6-1 - Types of Objects

Object	Icon	Description
Graphics Scene		This handles information related to Graphics Scenes. It maps to the Current Graphics Scene.
Model		This handles overall information related to models. It maps to the entire imd file.
Node		This handles information related to nodes. It maps to imd file <code><node></code> elements.
Polygon		This handles information related to polygons. It maps to imd file <code><polygon></code> elements.
Material	 or 	This handles information related to materials. It maps to imd file <code><material></code> elements.
Texture		This handles information related to textures. It maps to imd file <code><tex_image></code> elements.
Palette		This handles information related to palettes. It maps to imd file <code><tex_palette></code> elements.

Materials are represented by two icons:



indicates materials that are not shared by multiple polygons.



indicates materials that are shared by multiple polygons.

6.2 The Object View

Objects are displayed in the Object View. You can select objects in the Object View. You can perform a number of operations on the 3D Material Editor objects that you select.

The Object View has the following view modes. The displayed object and the content of the display differ according to the display mode.

- Schematic View
- Tree View
- Node List View
- Polygon List View
- Material List View
- Texture List View
- Palette List View

The current display mode is displayed at the top of the Object View (Figure 6-1).

Figure 6-1 - View Mode in the Object View



This is how to switch display modes.

Operating Procedure

1. Select "View Mode" → "(View Mode name)" in the "View" menu.

(Toolbar button: , Shortcut Keys: **Ctrl + 1** - **Ctrl + 7**)

6.2.1 Object Selection

Object selection can be performed in all display modes with the following shared operations (Table 6-2)

Table 6-2 - Object Selection

Operation	Description
Clicking the Object	Selects the object. Changes the focus if the object is already selected.
Ctrl + Clicking the Object	Switches between selecting and deselecting the object.
Shift + Clicking the Object	Selects all objects between two objects that have focus.
Dragging	Selects all objects contained within the dragged region.
Clicking an Object Region	Deselects an object.

The following operations can be performed from the menu:


- Selection of a Graphics Scene
- Selection of a Model
- Selection of All Nodes
- Selection of All Polygons
- Selection of All Materials
- Selection of All Textures
- Selection of All Palettes
- Deselection

6.2.1.1 Selecting a Graphics Scene

Selects the current graphics scene.

Operating Procedure

1. Select "Select" → "Graphics Scene" in the "Object" menu.

(Toolbar button: )


6.2.1.2 Selecting a Model

Selects a model.

If no imd file is loaded, nothing can be selected.

Operating Procedure

1. Select "Select" → "Model" in the "Object" menu.


(Toolbar button: )

6.2.1.3 Selecting All Nodes

Selects all nodes.

If there are no nodes in the model, nothing can be selected.

Operating Procedure


1. Select "Select" → "All Nodes" in the "Object" menu.
(Toolbar button: )

6.2.1.4 Selecting All Polygons

Selects all polygons.

If there are no polygons in the model, nothing can be selected.

Operating Procedure


1. Select "Select" → "All Polygons" in the "Object" menu.
(Toolbar button: )

6.2.1.5 Selecting All Materials

Selects all materials

If there are no materials in the model, nothing can be selected.

Operating Procedure


1. Select "Select" → "All Materials" in the "Object" menu.
(Toolbar button: )

6.2.1.6 Selecting All Textures

Selects all textures.

If there are no textures in the model, nothing can be selected.

Operating Procedure

1. Select "Select" → "All Textures" in the "Object" menu.
(Toolbar button: )

6.2.1.7 Selecting All Palettes

Selects all palettes.

If there are no palettes in the model, nothing can be selected.


Operating Procedure

1. Select "Select" → "All Palettes" in the "Object" menu.
(Toolbar button: )

6.2.1.8 Deselecting

Deselects an object.

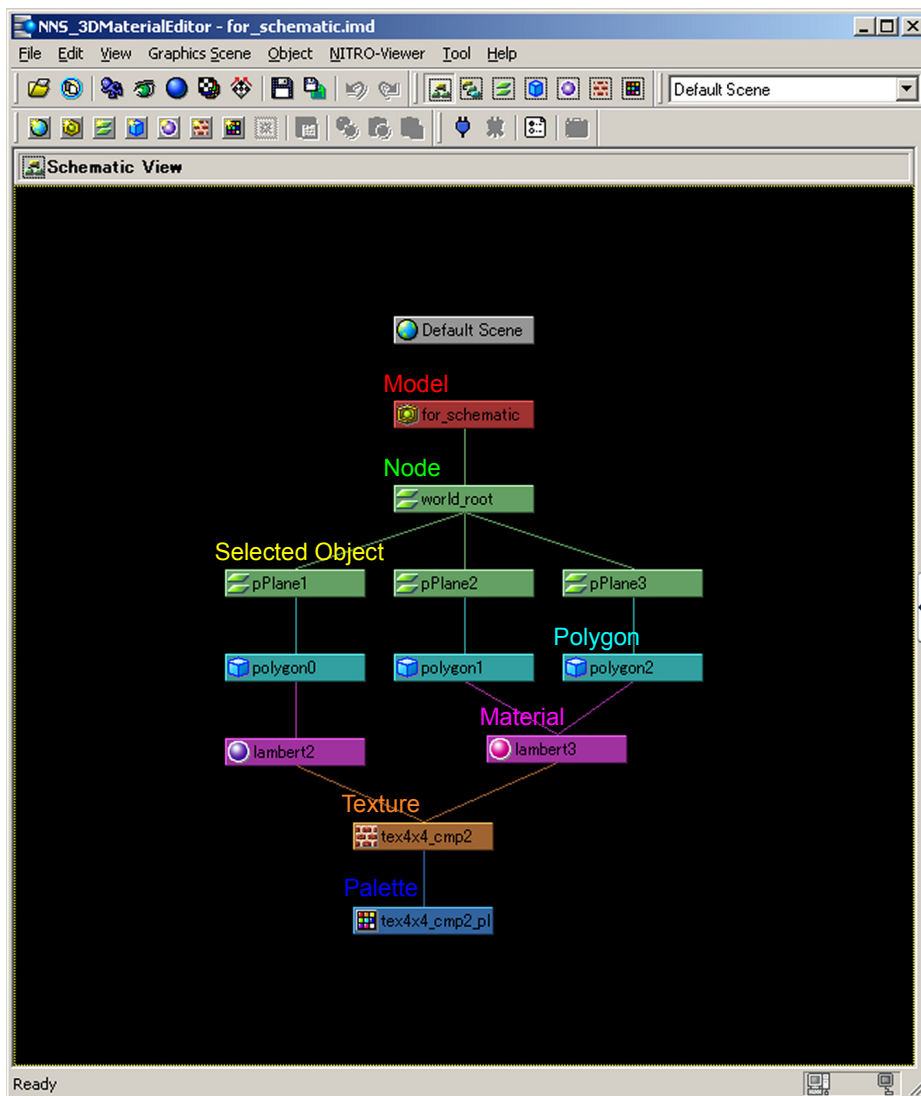
Operating Procedure

1. Select "Deselect" in the "Object" menu.
(Toolbar button: )

6.2.2 Schematic View

This mode schematically displays a model's hierarchical structure. Each type of object appears as a differently colored rectangle. The name and the icon symbol of the object appear inside the rectangle. The selected object is displayed in a highlight color (Figure 6-2).

Figure 6-2 - Object View: Schematic View



The objects are displayed as follows:

- **Graphic Scenes**

Grey rectangles

- **Models**

Red rectangles

- **Nodes**

Green rectangles

The root node is connected to the model by a straight line. Other nodes are connected to parent nodes by straight lines.

- **Polygons**

- **Light blue rectangles**

- Polygons are connected to the nodes that contain them by straight lines.

- **Materials**

- **Purple rectangles**

- Materials are connected to the polygons to which they are applied by straight lines.

- **Textures**

- **Orange rectangles**

- Textures are connected to the materials that use them by straight lines.

- **Palettes**

- **Blue rectangles**

- Palettes are connected to the textures that use them by straight lines.

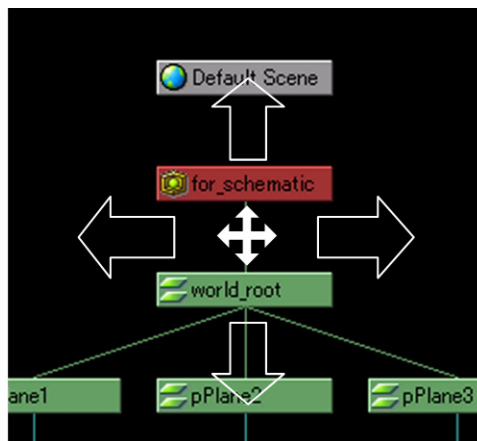
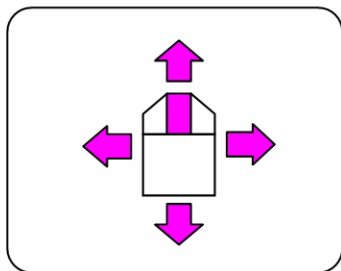
You can perform the following operations in schematic view:

- Scrolling through the view range.
- Enlarging or reducing the view range.
- Moving the view position of each object.
- Displaying everything in the center of the view.
- Displaying a selected object in the center of the view.
- Aligning all objects.
- Aligning below the selected object.

Hint: The positional relationships of each object in the schematic view will be saved in the imd file. These positional relationships will be maintained the next time you open the imd file.

6.2.2.1 Scrolling Through the View Range

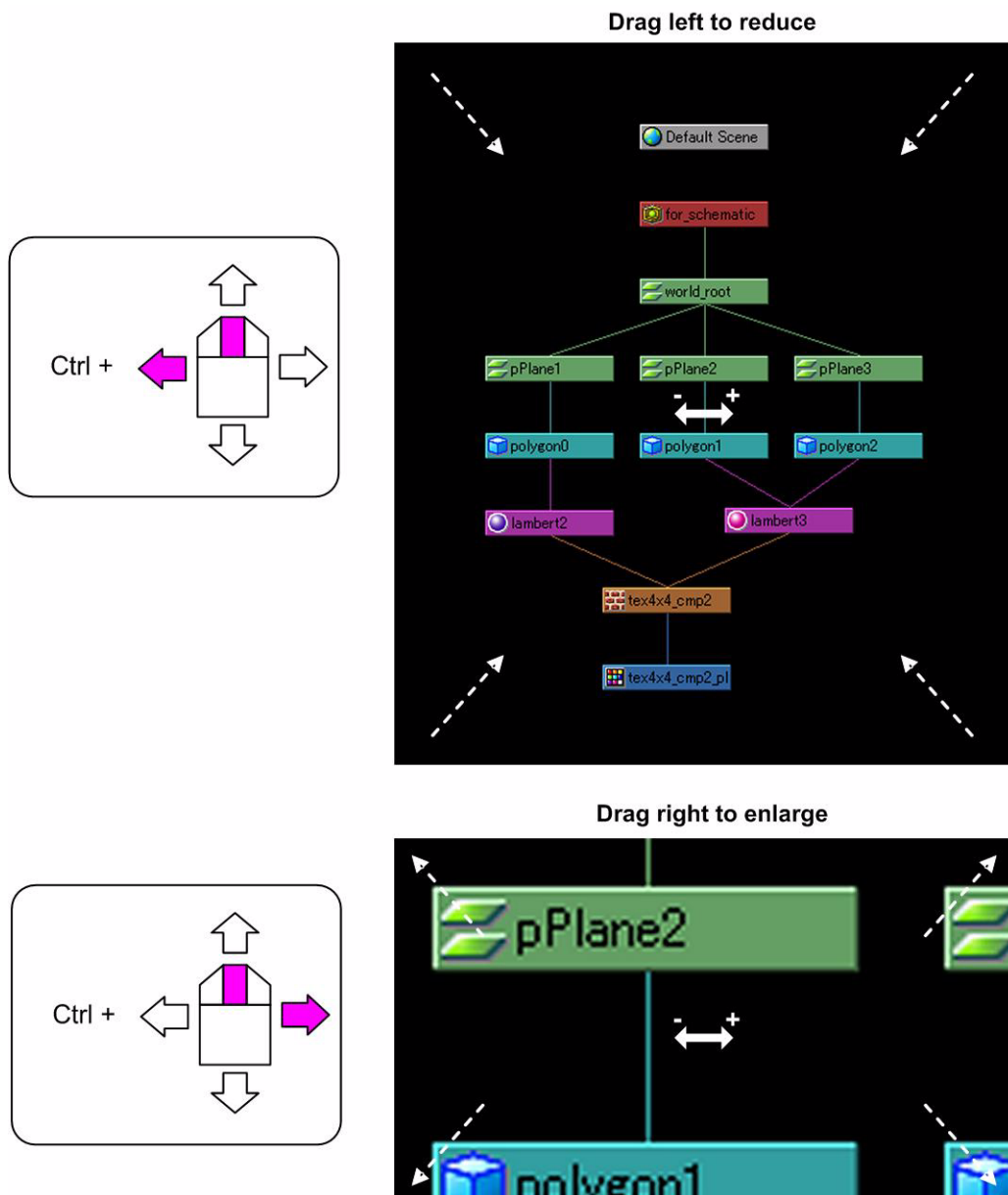
Figure 6-3 - Schematic View Operation: Scrolling the View Range



6.2.2.2 Enlarging and Reducing the View Range

To reduce the view range, **while holding the Ctrl key down, drag with the center mouse button** to the left from anywhere in the display range. The center of the reduced area will be where you started dragging. To enlarge the view range, **while holding the Ctrl key down, drag with the center mouse button** to the right from anywhere in the display range. The center of the enlarged area will be where you started dragging (Figure 6-4).

Figure 6-4 - Schematic View Operations: Reducing / Enlarging the View Range

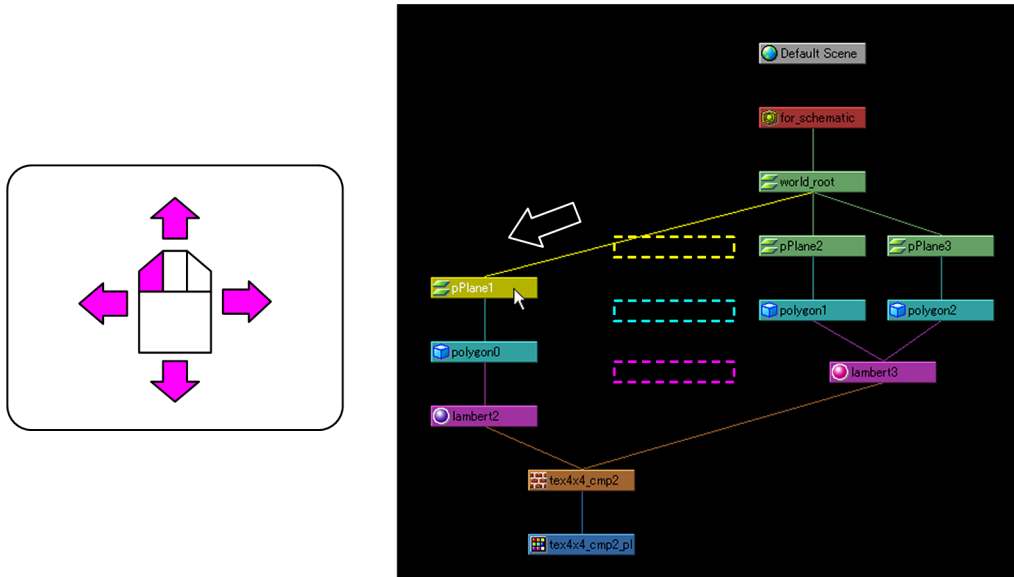


Hint: If your mouse has a wheel, you can do these operations with the wheel. Rotating the wheel forward reduces; rotating it backward enlarges.

6.2.2.3 Moving the View Position of Each Object

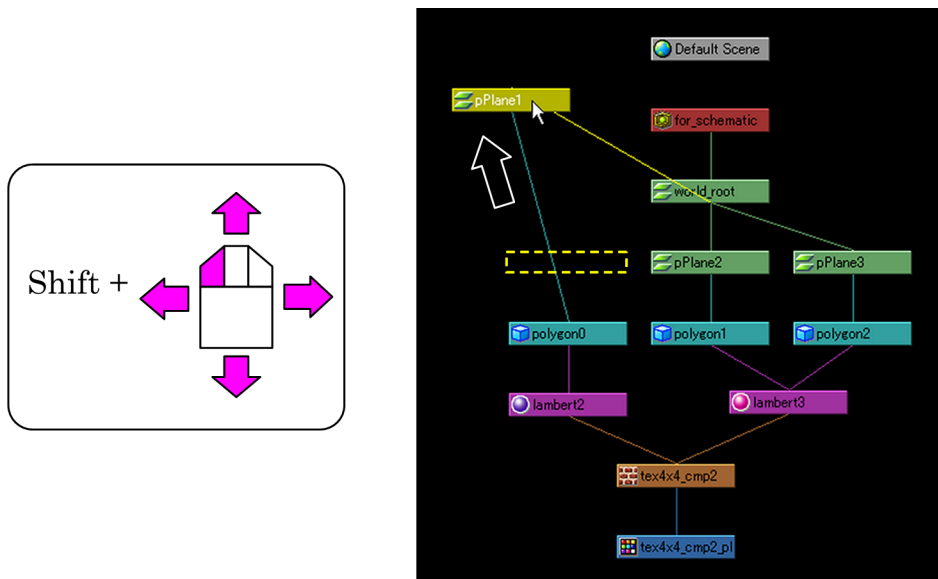
To move the display position of an object and all the objects connected below it, [use the left mouse button to drag a single object to the desired position](#) (Figure 6-5).

Figure 6-5 - Schematic View Operations: Moving Objects 1



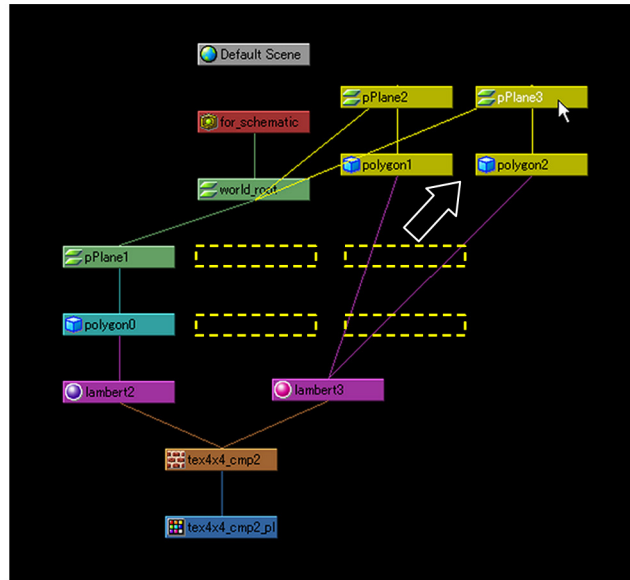
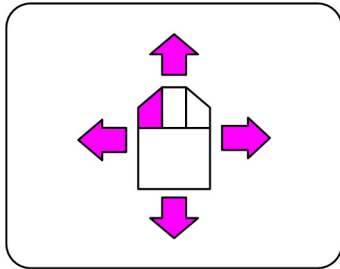
To move the display position of an object without moving the objects below it in the tree, [hold down the Shift key and use the left mouse button to drag the object to the desired position](#) (Figure 6-6).

Figure 6-6 - Schematic View Operations: Moving Objects 2



By dragging with the left mouse button over the multiple selected object rectangles, the display positions of all the objects can be moved at the same time. (Figure 6-7).

Figure 6-7 - Schematic View Operations: Moving Objects 3



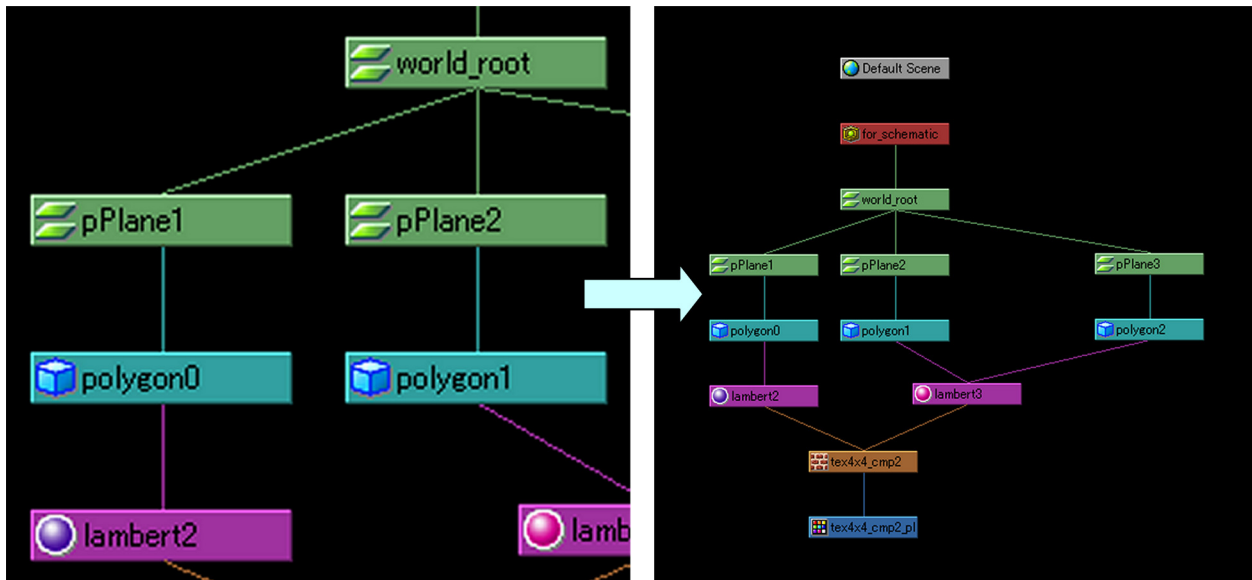
6.2.2.4 Displaying Everything in the Center of the View

This displays all of the objects in the center of the Object View. They will be reduced if they do not fit in the Viewing Range of the Object View (Figure 6-8). The positional relationships of the objects will not change.

Operating Procedure

1. Select "Schematic View" -> "View All in Center" in the "View" menu.

Figure 6-8 - Schematic View Operations: Viewing All in the Center of the View



There are two other ways to do this:

- When the keyboard focus is in the Object View, press the A key.
- Right-click and select "Display All in Center" in the pop-up menu that appears.

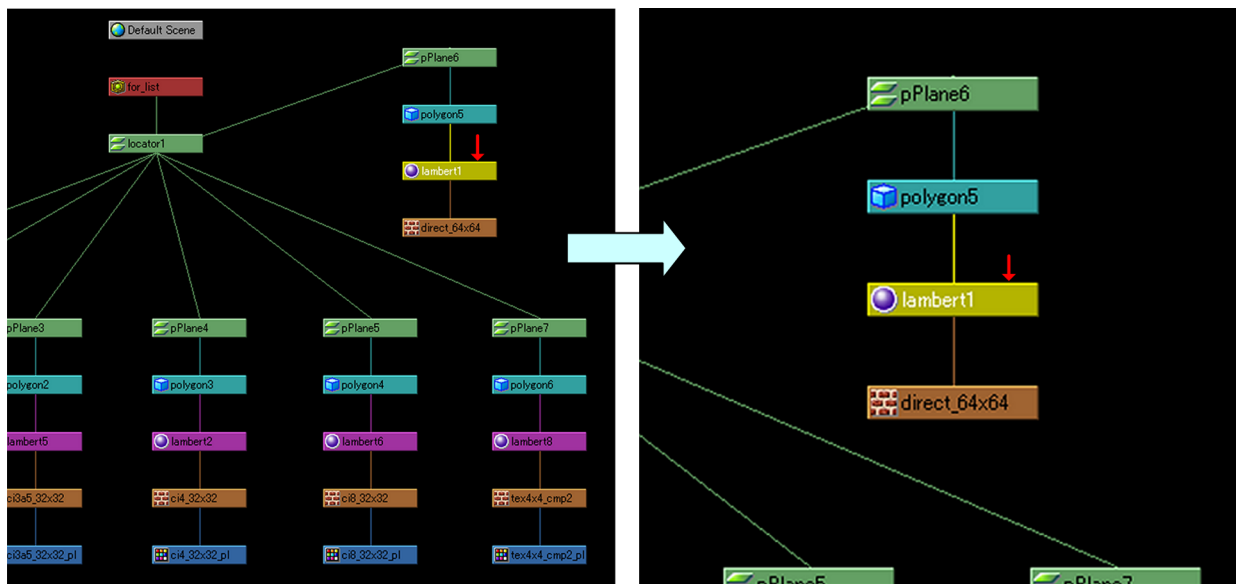
6.2.2.5 Displaying the Selected Object in the View Center

This displays the selected object in the center of the Object View (Figure 6-9). Object positional relationships will not change.

Operating Procedure

1. Select “Schematic View” -> “Display Selected Object in Center” in the “View” menu.

Figure 6-9 - Schematic View Operations: Displaying the Selected Object in the Center of the View



There are two other ways to do this:

- When the keyboard focus is on the Object View, press the F key.
- Right-click and select “Display Selected Object in Center” in the pop-up menu that appears.

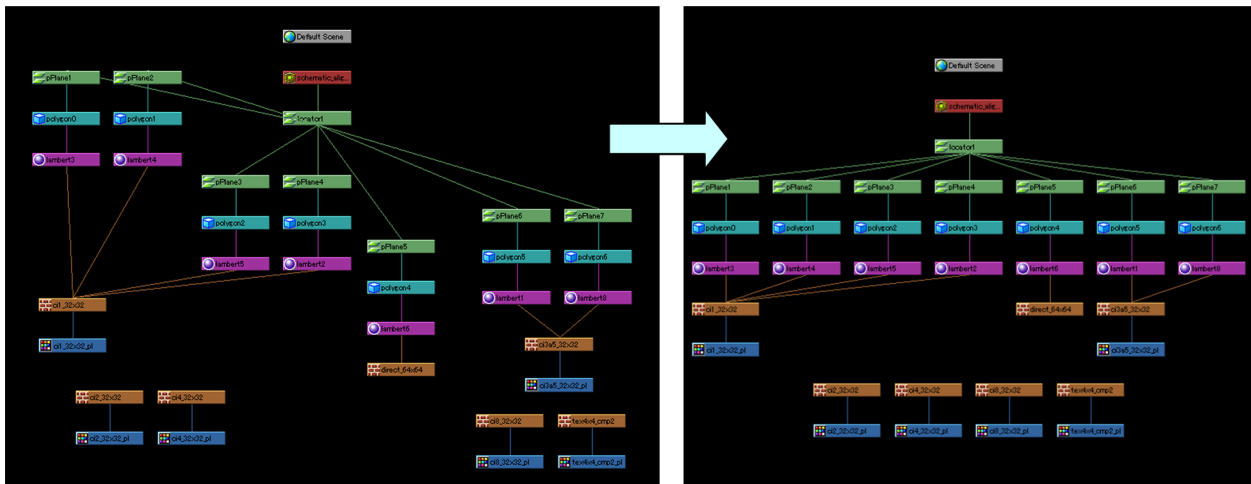
6.2.2.6 Aligning All Objects

This aligns the positions of all of the rectangles for each object. Textures and palettes that are not used by any material will be lined up under the rest of the objects (Figure 6-10). You can only use this when you have loaded an imd file.

Operating Procedure

1. Select "Schematic View" -> "Align All Objects" in the "View" menu.

Figure 6-10 - Schematic View Operations: Aligning All Objects



There are two other ways to do this:

- When the keyboard focus is in the Object View, press the Shift + R keys.
- Right-click and select "Align All Objects" in the pop-up menu that appears.

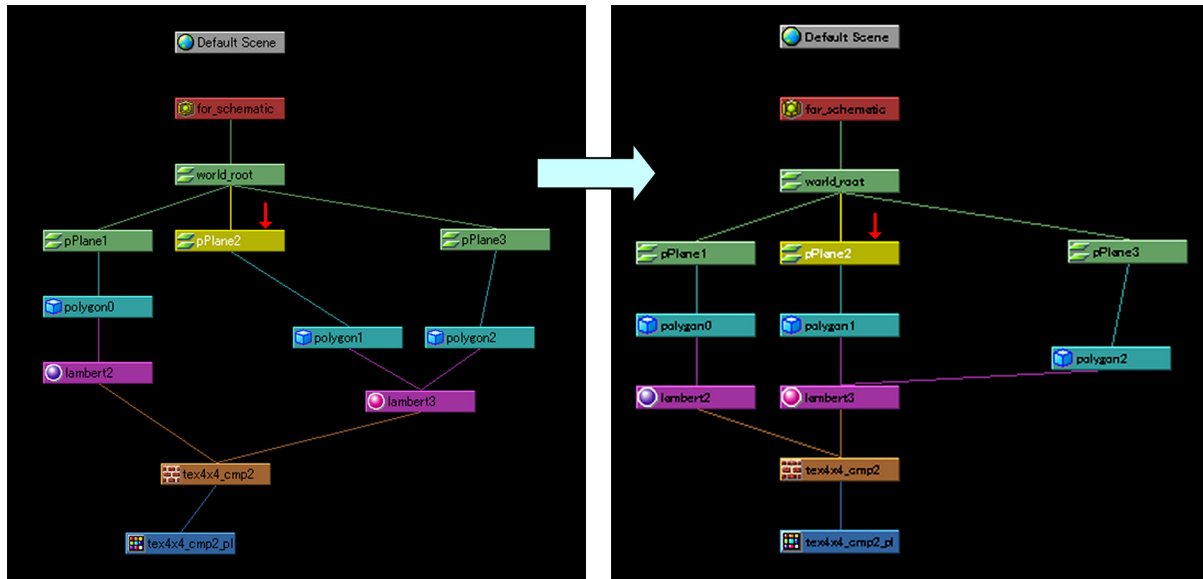
6.2.2.7 Aligning from Selected Object Down

This aligns the positions of all of the objects connected below the selected object.

Operating Procedure

1. Select “Schematic View” -> “Align from Selected Object Down” in the “View” menu.

Figure 6-11 - Schematic View Operations: Aligning from Selected Object Down



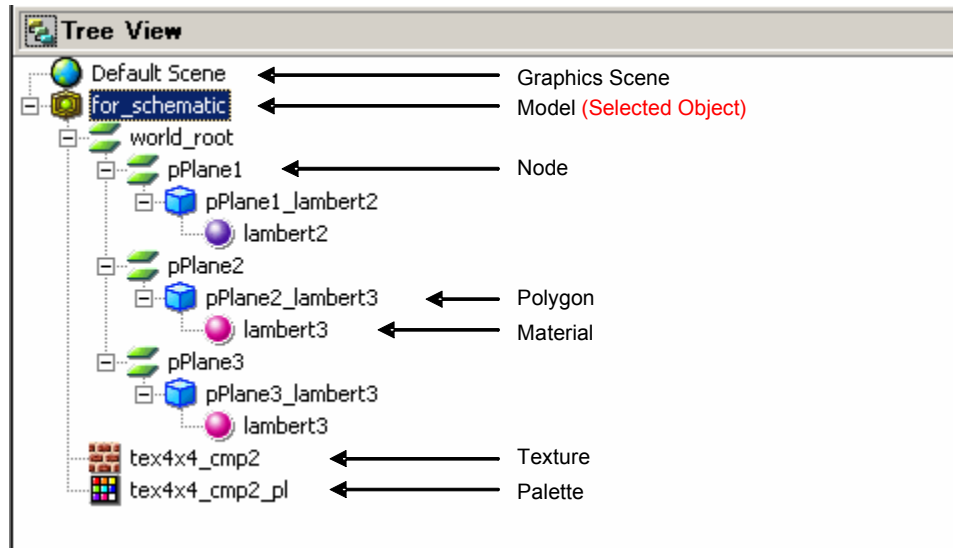
There are two other ways to do this:

- When the keyboard focus is on the Object View, press the Shift + L keys.
- Right-click and select “Align from Selected Object Down” in the pop-up menu that appears.

6.2.3 Tree View

This mode displays the model's hierarchical structure in Windows tree format. The objects are displayed as items on a tree made of icons and names (Figure 6-12).

Figure 6-12 - Object View: Tree View



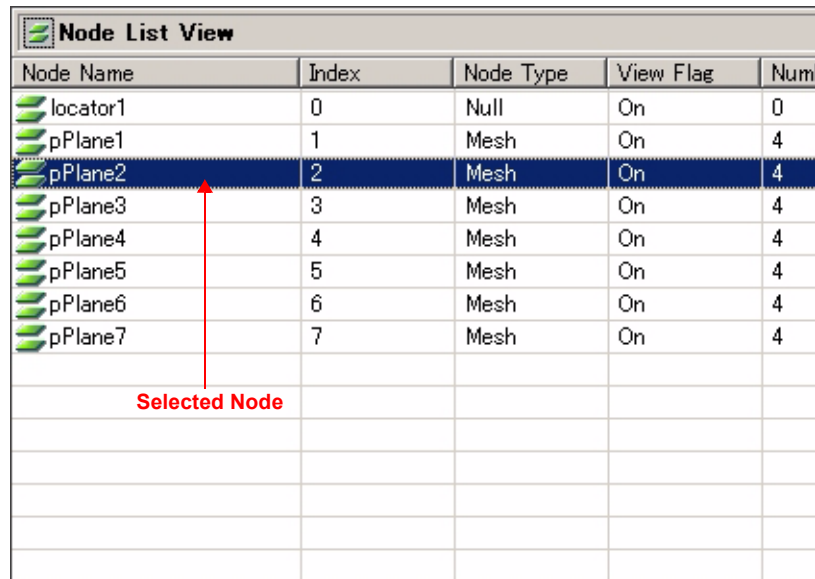
The objects are displayed as follows:

- **Graphics Scene**
Displayed as the root of the tree.
- **Model**
Displayed as the root of the tree, in parallel with the Graphics Scene.
- **Nodes**
The root node is displayed as a child of the model. Other nodes are displayed as children of parent nodes.
- **Polygons**
Displayed as children of the node that includes them.
- **Materials**
Displayed as children of the polygons to which they are applied.
- **Textures**
Displayed as children of the model.
- **Palettes**
Displayed as children of the model.

6.2.4 Node List View

This mode gives a list view of nodes only (Figure 6-13). You will only be able to select nodes, because no other objects are displayed. For information on the characteristics of display list modes, and common operations, see "[6.2.9 Display List Mode Characteristics](#)" on page 48.

Figure 6-13 - Object View: Node List View



Node Name	Index	Node Type	View Flag	Numl
locator1	0	Null	On	0
pPlane1	1	Mesh	On	4
pPlane2	2	Mesh	On	4
pPlane3	3	Mesh	On	4
pPlane4	4	Mesh	On	4
pPlane5	5	Mesh	On	4
pPlane6	6	Mesh	On	4
pPlane7	7	Mesh	On	4

Selected Node

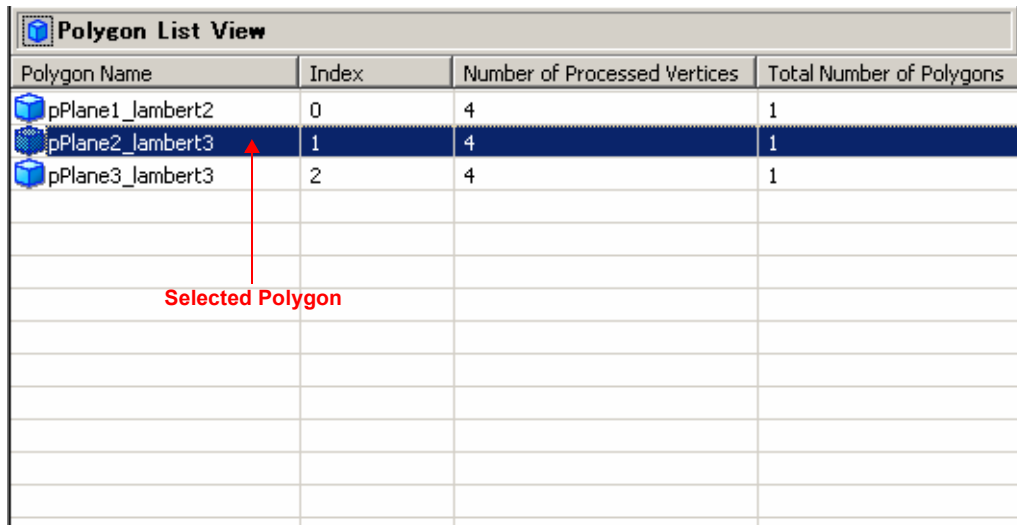
In addition to the node name, the following node properties are displayed as list items. For details on properties, see "[7.5 Node Properties](#)" on page 74.

- Index
- Node type
- Display flag
- Number of Processed Vertices
- Total number of polygons
- Number of triangular polygons
- Number of quadrilateral polygons

6.2.5 Polygon List View

This mode gives a list view of polygons only (Figure 6-14). You will only be able to select polygons, because no other objects are displayed. For information on the characteristics of display list modes, and common operations, see "[6.2.9 Display List Mode Characteristics](#)" on page 48.

Figure 6-14 - Object View: Polygon List View



Polygon Name	Index	Number of Processed Vertices	Total Number of Polygons
pPlane1_lambert2	0	4	1
pPlane2_lambert3	1	4	1
pPlane3_lambert3	2	4	1








In addition to the polygon name, the following polygon properties are displayed as list items. For details on properties, see "[7.6 Polygon Properties](#)" on page 78.

- Index
- Number of Processed Vertices
- Total number of polygons
- Number of triangular polygons
- Number of quadrilateral polygons
- Normal Data Yes/No
- Vertex Color Data Yes/No
- Texture Coordinate Data Yes/No

6.2.6 Material List View

This mode gives a list view of materials only (Figure 6-15). You will only be able to select materials, because no other objects are displayed. For information on the characteristics of display list modes and common operations, see ["6.2.9 Display List Mode Characteristics"](#) on page 48.

Figure 6-15 - Object View: Material List View

Material List View				
Material Name	Index	Polygon ID	Polygon Alp...	Wiret
 lambert1	0	0	31	Off
 lambert2	1	0	31	Off
 lambert3	2	0	31	Off
 lambert4	3	0	31	Off
 lambert5	4	0	31	Off
 lambert6	5	0	31	Off
 lambert8	6	0	31	Off
Selected Material				

In addition to the material name, the following material property is displayed as a list item. For details on properties, see ["7.7 Material Properties"](#) on page 80.

- Index
- Polygon ID
- Polygon alpha
- Wireframe display flag
- Surface to display
- Polygon mode
- Fog flag
- Depth test condition flag
- Flag for updating depth buffer of translucent polygon
- Flag for drawing 1-dot polygon
- Flag for clipping at far plane
- Affected light
- Diffuse
- Ambient
- Specular
- Emission
- Flag for using specular reflection shininess table
- Mapped texture
- Texture coordinate transformation mode

With the specific column items of material list display, the setting contents are shown in special notation as shown below.

- Affected light

The numbers for affected lights are shown as yellow icons () and the numbers for non-affected lights are shown as gray icons ().

- Diffuse, Ambient, Specular, Emission

The square that indicates the color is shown on the left, and the values for each component are shown in the order of RGB. For example, if the settings are R=31, G=16, and B=10, this would be shown as

31,16,10

- Mapped texture

Along with the name of the mapped texture, the way the texture is repeated is shown on the right. With the way texture is repeated, clamp is shown as "C," repeat is "R," and flip is "F," and they will be arranged in the order of S-T directions. For example, if clamp is set for the S direction, and repeat is set for the T direction, [CR] will be displayed on the right side of the texture name.

6.2.7 Texture List View

This mode gives a list view of textures only (Figure 6-16). You will only be able to select textures, because no other objects are displayed. For information on the characteristics of display list modes and common operations, see "[6.2.9 Display List Mode Characteristics](#)" on page 48.

Figure 6-16 - Object View: Texture List View

Texture List View				
Texture Name	Index	Width	Height	Format
ci1_32x32	0	32	32	16-Color Palette Texture
ci2_32x32	1	32	32	16-Color Palette Texture
ci3a5_32x32	2	32	32	A5I3 Translucent Texture
ci4_32x32	3	32	32	16-Color Palette Texture
ci8_32x32	4	32	32	256-Color Palette Texture
direct_64x64	5	64	64	Direct Color Texture
tex4x4_cmp2	6	64	64	4x4 Texel Compressed Tex
Selected Texture				







In addition to the texture name, the following texture properties are displayed as list items. For details on properties, see "[7.8 Texture Properties](#)" on page 89.

- Index
- Width
- Height
- Format
- Data Size
- Palette Color 0 Mode

6.2.8 Palette List View

This mode gives a list view of palettes only (Figure 6-17). You will only be able to select palettes, because no other objects are displayed. For information on the characteristics of display list modes, and common operations, see ["6.2.9 Display List Mode Characteristics"](#) on page 48.

Figure 6-17 - Object View: Palette List View

Palette List View				
Palette Name	Index	Number of Colors	Data Size	
 ci1_32x32_pl	0	8	0.0 KB (16 B)	
 ci2_32x32_pl	1	8	0.0 KB (16 B)	
 ci3a5_32x32_pl	2	8	0.0 KB (16 B)	
 ci4_32x32_pl	3	16	0.0 KB (32 B)	
 ci8_32x32_pl	4	64	0.1 KB (128 B)	
 tex4x4_cmp2_pl	5	464	0.9 KB (928 B)	

Selected Palette

In addition to the palette name, the following palette properties are displayed as list items. For details on properties, see ["7.9 Palette Properties"](#) on page 91.

- Index
- Number of Colors
- Data Size

6.2.9 Display List Mode Characteristics

The display list mode differs from the schematic view and the tree view in that, in addition to the object name, various object information is displayed as list items.

This information is part of the object properties that are displayed in the Property View. For information on object properties, see ["7 Properties"](#) on page 53.

The object properties in the columns are there for the purpose of sorting and comparing property values in multiple same-type objects. The list does not display all of the object's properties. Also, in the Object View, you cannot edit the properties that are displayed as column headings.

The following features and operations are common to the display list modes:

- Using color to differentiate by the number of characters in a name
- Rearrange the order of columns
- Adjust Column Width
- Sort by Column

6.2.9.1 Using Color to Differentiate by the Number of Characters in a Name

When imd files are used by the Nintendo NITRO System library, the names of the following must be no longer than 16 characters: node, polygon, material, texture, and palette.

In Display List Mode, when the number of characters in the name of any object exceeds 16 characters, the name will be displayed in red. (Figure 6-18)

Figure 6-18 - Using Color to Differentiate According to the Number of Characters in a Name

Node List View			
Node Name	Index	Node Type	Number of Processes
locator1	0	Null	0
player_body1	1	Mesh	4
player_body2	2	Mesh	4
player_right_arm1	3	Mesh	4
player_left_arm1	4	Mesh	4
player_upper_chest	5	Mesh	4
player_chest	6	Mesh	4
player_waist	7	Mesh	4

6.2.9.2 Rearrange the Order of Columns

By dragging each column item in the header line, the order of the columns can be rearranged (Figure 6-19).

Figure 6-19 - Rearranging the Order of Columns

Polygon List View				
Polygon Name	Number of Faces	Index	Total Number of Faces	Number of Vertices
polygon0	4	0	1	0
polygon1	4	1	1	0
polygon2	4	2	1	0
polygon3	4	3	1	0
polygon4	4	4	1	0
polygon5	4	5	1	0
polygon6	4	6	1	0

↓

Polygon List View				
Polygon Name	Number of P...	Index	Total Num...	Num...
polygon0	4	0	1	0
polygon1	4	1	1	0
polygon2	4	2	1	0
polygon3	4	3	1	0
polygon4	4	4	1	0
polygon5	4	5	1	0
polygon6	4	6	1	0

Changed order of columns can be set back to the default settings.

Operating Procedure

1. Select "Display List" -> "Reset the order of columns" in the "Display" menu.

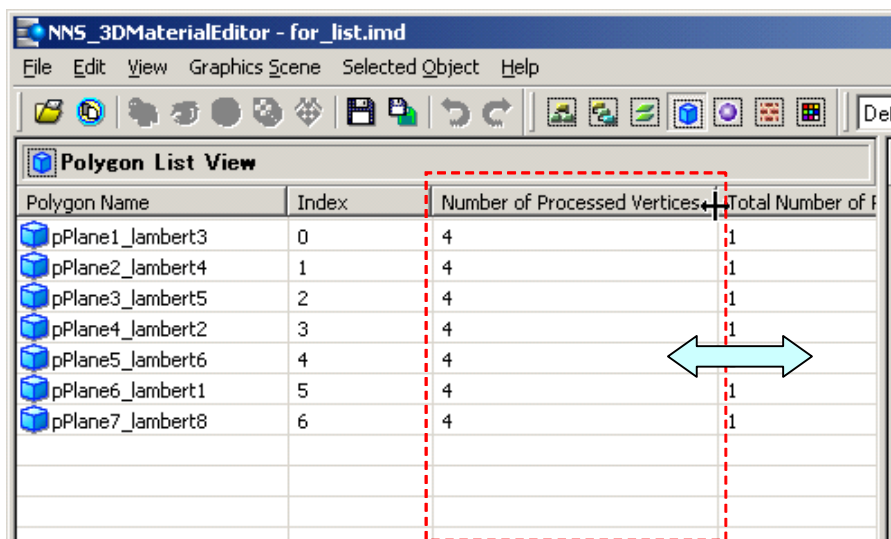
This operation can be also done with the following method:

- From the popup menu that is displayed by right-clicking the mouse button, select "Reset the order of columns".

6.2.9.3 Adjusting the Column Width

When you move the mouse pointer to one of the column border lines in the header row, the cursor changes. Then you can drag the mouse to the left or right to adjust column width (Figure 6-20).

Figure 6-20 - Adjusting Column Width



Changed column width can be set back to the default state.

Operating Procedure

1. Select "Display List" -> "Reset the column width" in the "Display" menu.

This operation can be also done with the following method:

- From the popup menu that is displayed by right-clicking the mouse button, select "Reset the column width".

6.2.9.4 Sorting by Column

If you click on one of the column headings in the header row, the list will be sorted according to the order in that column.

When arranged in ascending order, an upward triangle mark appears on the right side of the item name, and when arranged in descending order, a downward triangle mark appears on the right side of the item name (Figure 6-21).

Figure 6-21 - Sorting by Column

Texture List View

Texture Name	Index	Width	Height	Form
ci1_32x32	0	32	32	16-C
ci2_32x32	1	32	32	16-C
ci3a5_32x32	2	32	32	A5I3
ci4_32x32	3	32	32	16-C
ci8_32x32	4	32	32	256-
direct_64x64	5	64	64	Direc
tex4x4_cmp2	6	64	64	4x4

Texture List View (Ascending Sort by Index)

Texture Name	Index	Width
ci1_32x32	0	32
ci2_32x32	1	32
ci3a5_32x32	2	32
ci4_32x32	3	32
ci8_32x32	4	32
direct_64x64	5	64
tex4x4_cmp2	6	64

Texture List View (Descending Sort by Index)

Texture Name	Index	Width
tex4x4_cmp2	6	64
direct_64x64	5	64
ci8_32x32	4	32
ci4_32x32	3	32
ci3a5_32x32	2	32
ci2_32x32	1	32
ci1_32x32	0	32

7 Properties

This chapter describes the details of the properties that are displayed in the Property View. It also describes the contents that are displayed and how to modify them.

7.1 What Are Properties?

3D Material Editor calls the information, attributes, settings and the like that belong to an object by the generic name, object **properties**.

7.2 Property View

The Property View displays the properties of the object that is selected in the Object View. In the Property View, it is possible to confirm, set, and edit the selected object's properties.

The following property types can be displayed in the Property View. These correspond to each object.

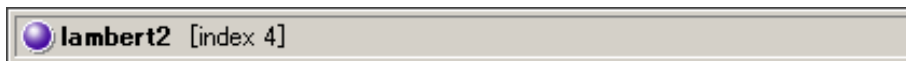
- Graphics Scene properties
- Model properties
- Node properties
- Polygon properties
- Material properties
- Texture properties
- Palette properties

The selected object's icon and name will be displayed at the top of the Property View. If an object is indexed, its index will appear to the right of its name.

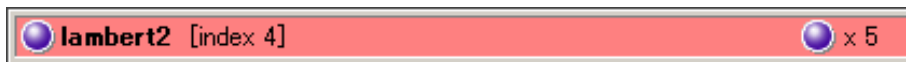
When multiple objects are selected, the background changes to red, and the number of selected objects of the same type is displayed on the right (Figure 7-1). At this time, in the Property View, the properties will be displayed for the object that has been focused with the object view inside the selected object.

Figure 7-1 - Selected Object

When a single object is selected



When multiple objects are selected



The number of selected objects of the same type.

You can switch the property view between hide and display.

If you hide the property view, the object view region will extend over the width of the window.

Operating Procedure

1. Select "Property View" in the "View" menu.

You can also use the following method:

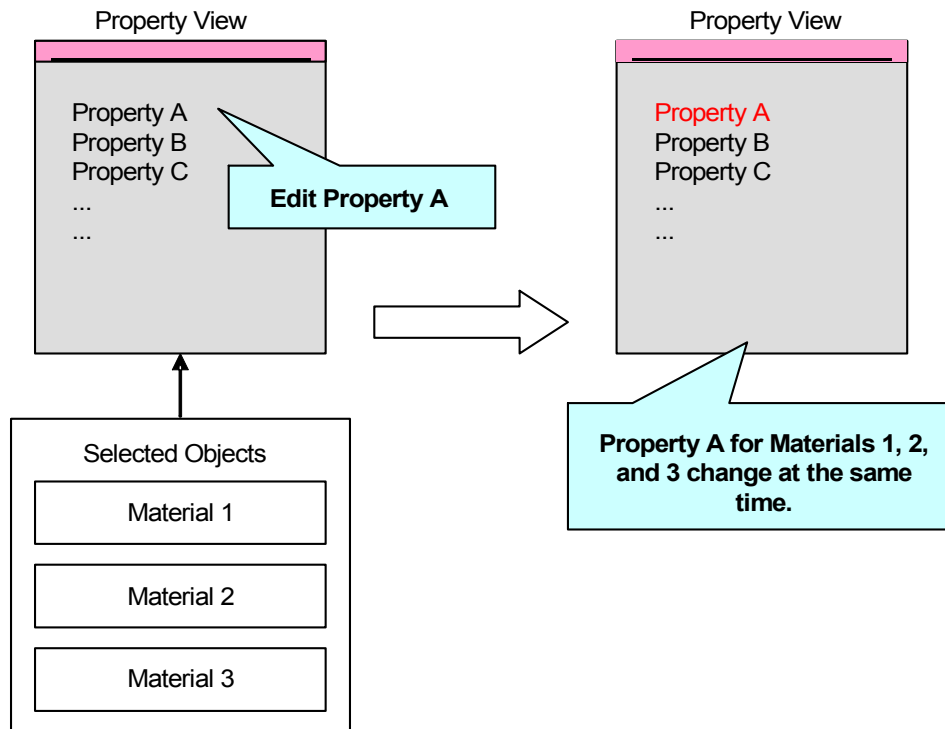
- Press the button on the border between the object view and the property view. (Shortcut Key: **F4**)

7.2.1 Editing Properties

Editing properties in the property view will cause the properties of the corresponding objects to change.

If multiple objects are selected, the corresponding properties for all objects of the same type that are selected will change. (Figure 7-2).

Figure 7-2 - Editing the Properties of Multiple Objects



7.3 Graphics Scene Properties

Graphics Scene properties are divided into the following types:

- Camera properties
- Light properties
- Toon / Highlight properties
- Alpha / Translucent properties
- Fog properties
- Edge Marking properties
- Rendering properties

You can use the tabs at the top of the Property View to switch the properties you set (Figure 7-3). Property selected with the tabs will appear in the Property View.

Figure 7-3 - Graphics Scene Property Selection Tabs



7.3.1 Camera

This is for setting camera, projection conversions, and depth buffering (Figure 7-4).

Figure 7-4 - Graphics Scene Properties: Camera

The screenshot shows the 'Camera' dialog box with the following details:

- Camera Section:**
 - Position:** X: 15.000000, Y: 10.000000, Z: 15.000000.
 - Point of View:** X: 0.000000, Y: 0.000000, Z: 0.000000.
 - Buttons:** 'Apply' (labeled C) and 'Acquire' (labeled D).
- Projective Transformation Section:**
 - Projection Type:** 'Perspective Projection' (selected, labeled E) and 'Orthogonal Projection'.
 - Fovy:** 30.000000 (labeled F), with a slider from 1.0 to 179.0.
 - Aspect:** 1.333333 (labeled G), with a slider from 0.5 to 2.0.
 - Width:** 256.000000 (labeled H), with a slider from 1.0 to 256.0.
 - Height:** 192.000000 (labeled I), with a slider from 1.0 to 192.0.
 - Near:** 0.100000 (labeled J), with a slider from 0.1 to 2048.0.
 - Far:** 2048.000000 (labeled K), with a slider from 0.1 to 2048.0.
- Depth Buffering Section:**
 - Buffering Type:** 'Z Buffering' (selected, labeled L) and 'W Buffering'.
 - ScaleW:** 1.000000 (labeled M), with a slider from 0.1 to 32.0.

- A.** This sets camera position. It corresponds to the isd file <camera> element attribute position.
- B.** This sets the point the camera looks at. It corresponds to the isd file <camera> element attribute lookat.
- C.** This applies the camera position and the focal point position to NITRO-Viewer. This operation is only possible while communicating with NITRO-Viewer. For information on communications with NITRO-Viewer, see "[9 Communications with NITRO-Viewer](#)" on page 121.
- D.** This acquires the camera position and the focal point position from NITRO-Viewer. This operation is only possible while communicating with NITRO-Viewer. For information on communications with NITRO-Viewer, see "[9 Communications with NITRO-Viewer](#)" on page 121.
- E.** This selects from the following two types of projection transformation:

- Perspective projection
- Orthogonal projection

It corresponds to the isd file `<camera>` element attribute `projection`.

- F.** This sets the field of view (`fovy`) for perspective projection. It corresponds to the isd file `<camera>` element attribute `perspective_fovy`.
- G.** This sets the aspect ratio (`aspect`) for perspective projection. It corresponds to the isd file `<camera>` element attribute `perspective_aspect`.
- H.** This sets the projection width for orthogonal projection. It corresponds to the isd file `<camera>` element attribute `ortho_width`.
- I.** This sets the projection height for orthogonal projection. It corresponds to the isd file `<camera>` element attribute `ortho_height`.
- J.** This sets the value for the near clip plane. It corresponds to the isd file `<camera>` element attribute `near`.
- K.** This sets the value for the far clip plane. It corresponds to the isd file `<camera>` element attribute `far`.
- L.** Selects from the following depth buffering methods:
- Z Buffering
 - W Buffering

It corresponds to the isd file `<camera>` element attribute `depth_buffer`.

- M.** Sets the `ScaleW` value that is applied to the projection matrix.

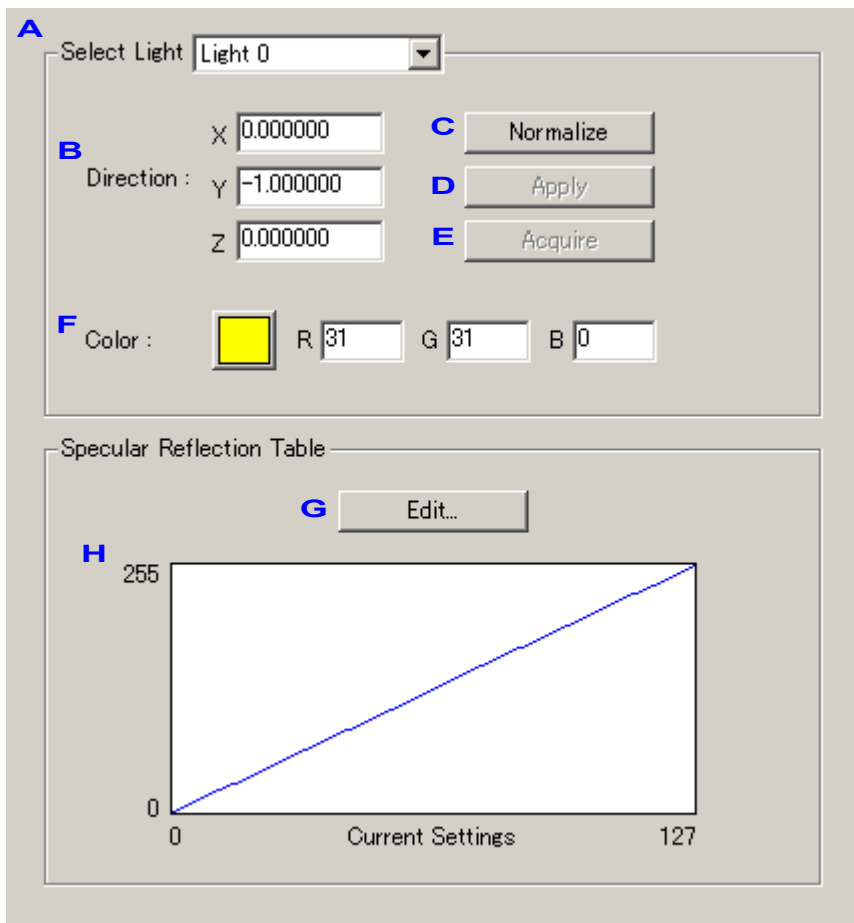
It corresponds to the isd file `<camera>` element attribute `scale_w`.

Note: When the depth buffering method is set to Z buffering, depending on the distance from the camera, when the `ScaleW` value is large, this may not be able to create an appropriate projection matrix, and the view on NITRO-Viewer may be corrupted.

7.3.2 Light

This is for settings related to lights and spectral reflection brightness tables (Figure 7-5).

Figure 7-5 - Graphics Scene Properties: Light

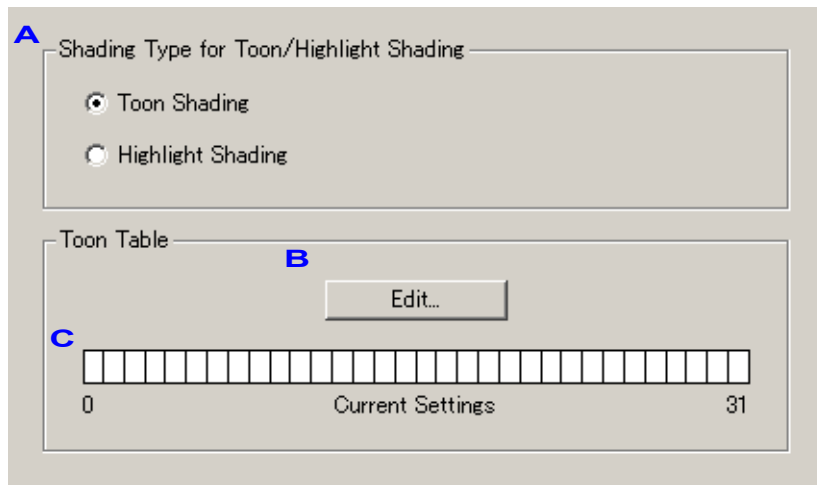


- A. Selects the light you want to set. You can choose from light 0 – light 3. When you change your selection, direction (B in the figure) and color (F in the figure) will change to the values for the selected light.
- B. This sets the selected light's directional vector. The setting range is -1.0 – 1.0 for each of the X, Y, and Z components. It corresponds to the `isd` file `<light0 - 3>` element attribute `direction`.
- C. This normalizes (sets the vector length to 1) the selected light's directional vector.
- D. The directional vector of the selected light is applied to NITRO-Viewer. This operation is only possible while communicating with NITRO-Viewer. For information on communications with NITRO-Viewer, see "[9 Communications with NITRO-Viewer](#)" on page 121.
- E. The directional vector of the selected light is acquired from NITRO-Viewer. This operation is only possible while communicating with NITRO-Viewer. For information on communications with NITRO-Viewer, see "[9 Communications with NITRO-Viewer](#)" on page 121.
- F. This sets the selected light's color. If you click the Color button, you will be able to set a color from the color picker. For details on the color picker, see "[7.10 Changing RGB Values with the Color](#)".

- [Picker](#)" on page 92. This corresponds to the isd file `<light0 - 3>` element attribute `color`.
- G. Press the button to display the specular reflection shininess setting table. For details on the dialog box, see "[7.3.8 Specular Reflection Shininess Table / Fog Density Table Setting Dialog Boxes](#)" on page 64.
 - H. Displays a graph of the current setting of the specular reflection shininess table. The horizontal axis indicates the specular reflection shininess number, and the vertical axis indicates the value of the specular reflection shininess. It corresponds to the isd file `<shininess_table>` element's contents.

7.3.3 Toon / Highlight

Figure 7-6 - Graphics Scene Properties: Toon / Highlight

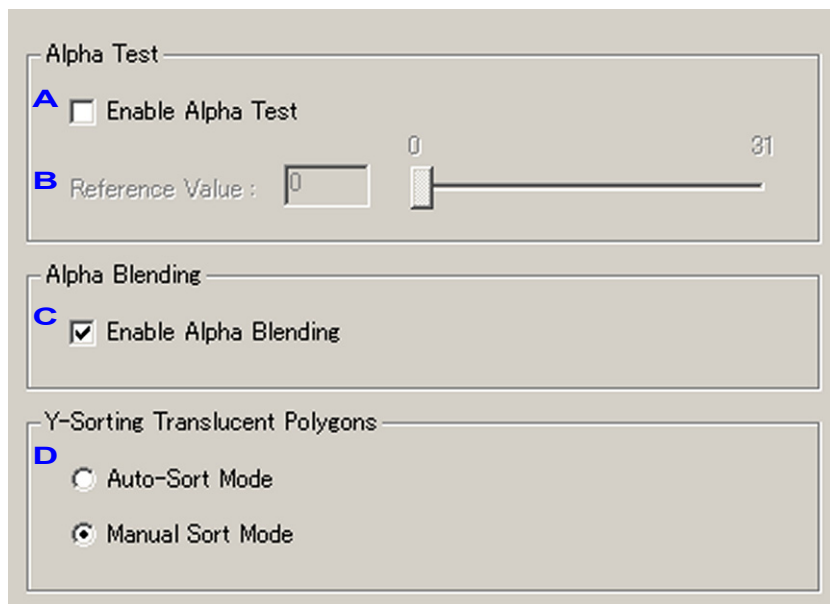


- A. When you are performing toon / highlight shading, you can select from the following two shading types:
 - Toon shading
 - Highlight shading
 This corresponds to the isd file `<toon_highlight>` element attribute `mode`.
- B. Press the button to display the toon table setting dialog box. For details on the dialog box, see "[7.3.9 Toon Table / Edge Color Setting Dialog Box](#)" on page 66.
- C. Displays the current setting of the toon table. Color 0 to Color 31 are arranged from left to right. This corresponds to the isd file `<toon_table>` element's contents.

7.3.4 Alpha/Translucency

This makes settings related to alpha processing and translucency processing (Figure 7-7).

Figure 7-7 - Graphics Scene Properties: Alpha/Translucency



- A.** This selects whether to enable alpha test. It corresponds to the isd file `<alpha_test>` element attribute `enable`.
- B.** This sets a reference value for the alpha test. You can only make this setting if you are doing an alpha test. This corresponds to the isd file `<alpha_test>` element attribute `reference`.
- C.** This selects whether to do alpha-blending.
This corresponds to the isd file `<alpha_blending>` element attribute `enable`.
- D.** Selects a translucent Y polygon sorting mode from the 2 following types.
 - Auto Sort Mode
 - Manual Sort ModeThis corresponds to the isd file `<y_sorting>` element attribute `mode`.

7.3.5 Fog

This makes settings related to fog and fog density tables (Figure 7-8).

Figure 7-8 - Graphics Scene Properties: Fog

- A.** This sets fog color. If you click the color button, you will be able to set colors from the color picker. For details on the color picker, see "[7.10 Changing RGB Values with the Color Picker](#)" on page 92. This corresponds to the isd file <fog> element attribute `color`.
- B.** This sets the fog alpha value. It corresponds to the isd file <fog> element attribute `alpha`.
- C.** This sets the shift value that is used in the calculation to determine fog density. It corresponds to the isd file <fog> element attribute `shift`.
- D.** This sets the offset value that is used in the calculation to determine fog density. It corresponds to the isd file <fog> element attribute `offset`.

- E. You can select from the following fog modes:
- Apply fog to the pixel color and the pixel alpha value
 - Only apply fog to the pixel alpha value

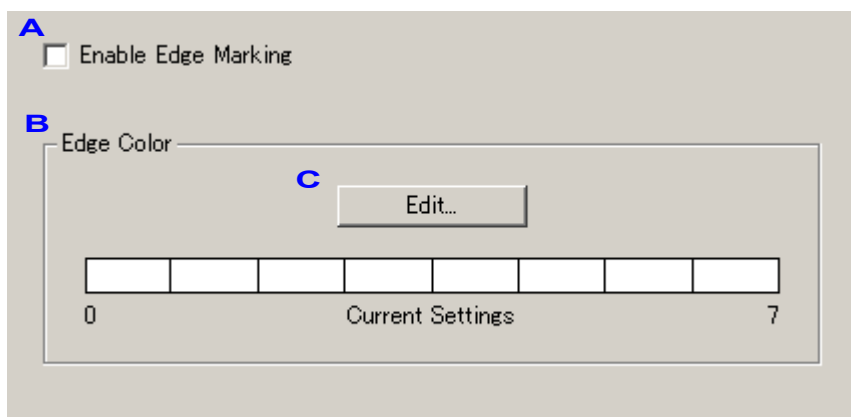
This corresponds to the isd file `<fog>` element attribute `mode`.

- F. Press the button to display the fog density setting dialog box. For details on the dialog box, see "[7.3.9 Toon Table / Edge Color Setting Dialog Box](#)" on page 66.
- G. Displays a graph of the current setting of the fog density table. The horizontal axis represents the fog density number and the vertical axis represents the fog density value. It corresponds to the isd file `<fog_table>` element's contents.

7.3.6 Edge Marking

This makes settings related to edge marking (Figure 7-9).

Figure 7-9 - Graphics Scene Properties: Edge Marking



- A. This selects whether to do edge marking. It corresponds to the isd file `<edge_marking>` element attribute `enable`.
- B. Press the button to display the edge color setting dialog box. For details on the dialog box, see "[7.3.9 Toon Table / Edge Color Setting Dialog Box](#)" on page 66.
- C. Displays the current setting of edge color. Color 0 to Color 7 are arranged from left to right. This corresponds to the isd file `<edge_color>` element's contents.

7.3.7 Rendering

This makes settings related to rendering (Figure 7-10).

Figure 7-10 - Graphics Scene Properties: Rendering Buffer

The screenshot shows the 'Rendering Buffer' settings window. It is organized into five distinct sections, each with a title bar and a set of controls:

- Antialiasing:** Contains a checkbox labeled 'Enable Antialiasing' (marked with a blue 'A').
- Depth Boundary Value for 1-Pixel Polygon Display:** Contains a text input 'W Value' set to '0.000000' (marked with a blue 'B') and a slider ranging from 0.0 to 4096.0.
- Clear Color Buffer:** Contains a color picker button (marked with a blue 'C') showing a black color, and three text inputs for 'R', 'G', and 'B', all set to '0'. Below these is an 'Alpha' slider (marked with a blue 'D') ranging from 0 to 31, with the text input set to '31'.
- Clear Attribute Buffer:** Contains a 'Polygon ID' text input set to '63' (marked with a blue 'E') and a slider ranging from 0 to 63. Below this is a checkbox labeled 'Enable Fog' (marked with a blue 'F').
- Clear Depth Buffer:** Contains a 'Depth Value' text input set to '32767' (marked with a blue 'G') and a slider ranging from 0 to 32767.

- A.** This selects whether to do antialiasing.
It corresponds to the isd file element `<antialias>` attribute `enable`.
- B.** This sets the depth value for the one-dot polygon viewing boundary.
It corresponds to the isd file element `<render_1_pixel_depth>` attribute `w`.
- C.** This sets the color used for color buffer clearing. If you click the color button, you will be able to set colors from the color picker. For details on the color picker, see "[7.10 Changing RGB Values with the Color Picker](#)" on page 92. This corresponds to the isd file `<clear_color>` element attribute `color`.
- D.** This sets the alpha value used for color buffer clearing. It corresponds to the isd file `<clear_color>` element attribute `alpha`.
- E.** This sets the polygon ID used for attribute buffer clearing. It corresponds to the isd file `<clear_color>` element attribute `polygon_id`.
- F.** This sets the fog enable flag used for attribute buffer clearing. It corresponds to the isd file `<clear_color>` element attribute `fog_enable`.

- G.** This sets the depth value used for depth buffer clearing. It corresponds to the `isd` file `<clear_color>` element attribute `depth`.

7.3.8 Specular Reflection Shininess Table / Fog Density Table Setting Dialog Boxes

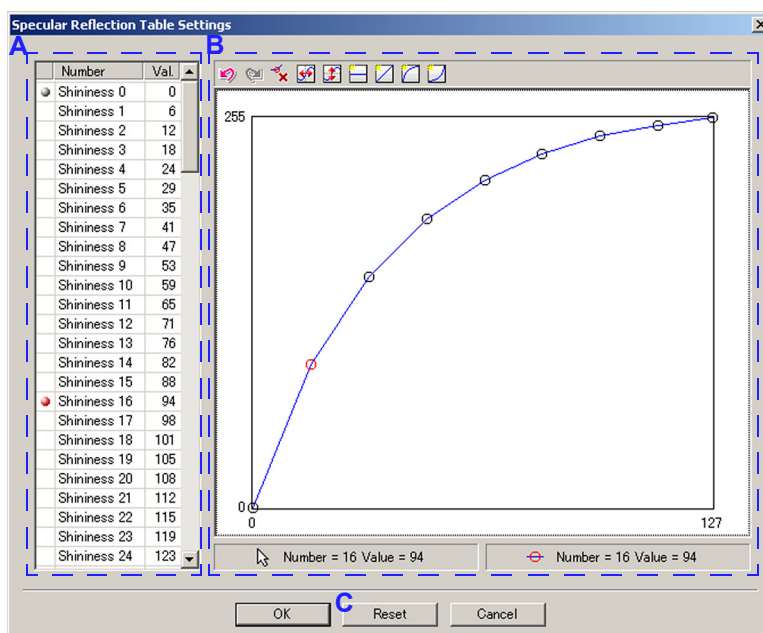
With the specular reflection shininess table / fog density table setting dialog boxes, detailed settings can be made for the specular reflection shininess table and the fog density table.

Between the specular reflection shininess table setting and the fog density table settings, there are difference as shown in the table below (Table 7-1). However, how to use the dialog box and how to use the table are the same. (In the explanation in this chapter, the specular reflection shininess table setting is used as an example.)

Table 7-1 - Differences Between Specular Reflection Shininess Table / Fog Density Table Setting Dialog Boxes

Table	Number of values to be set (horizontal axis)	Setting range of each value (vertical axis)
Specular reflection shininess table	Shininess 0 to 127, 128 values	0 to 255, 256 steps
Fog density table	Density 0 to 31, 32 values	0 to 127, 128 steps

Figure 7-11 - Specular Reflection Shininess Table / Fog Density Table Setting Dialog Box



A. A list of each value in the table.

The values for the control points in graph B are indicated with dots. (Control point is described later.) When a value is selected, a rectangular mark is displayed at a corresponding location in graph B. By selecting a value and pressing Enter, a value can be input directly. When the value is input directly, the location of the control point in graph B is recalculated.

B. Displays a graph of the current table settings.

The horizontal axis of the graph represents the number in the table, and the vertical axis represents the value. Round symbols in the graph are the control point for handling the graph. Control points are created automatically by determining the difference in the angle. In the graph, control points can be added, moved or deleted to change the setting in the table. Each value in the table is set as a value that was calculated by linear interpolating neighboring control points.

Control points are edited with the following operation. (Table 7-2)

Table 7-2 - Specular Reflection Shininess Table / Fog Density Table Setting Dialog Box





Edit	Operation
Adding control point	Left-click the mouse in the graph area. Control point cannot be added if the number that correspond to the cursor location already became a control point.
Moving control point	Move the cursor to the control point and left-drag the mouse. Control point can be moved within the range of the left and right neighboring control points.
Deleting control point	Move the cursor to the control point and right-click the mouse. Control point cannot be deleted if there is only one point.






At the bottom left of the graph, the number and value that correspond to the location of the cursor in the graph are displayed.

At the bottom right of the graph, the number and value of the selected control point are displayed.

By pressing the buttons at the top of the graph, the following operations can be performed. (Table 7-3).

Table 7-3 - Toolbar Buttons

Button	Description
	Changes the setting back to the original state. (Undo) Number of undo actions are not limited.
	Reapplies the change that was set back with Undo. Number of redo actions are not limited.
	Deletes the selected control point.
	Flips the graph horizontally.

Button	Description
	Flips the graph vertically.
	Applies the preset setting 1.
	Applies the preset setting 2.
	Applies the preset setting 3.
	Applies the preset setting 4.

- C. Returns the table setting to the state when the dialog box was opened.

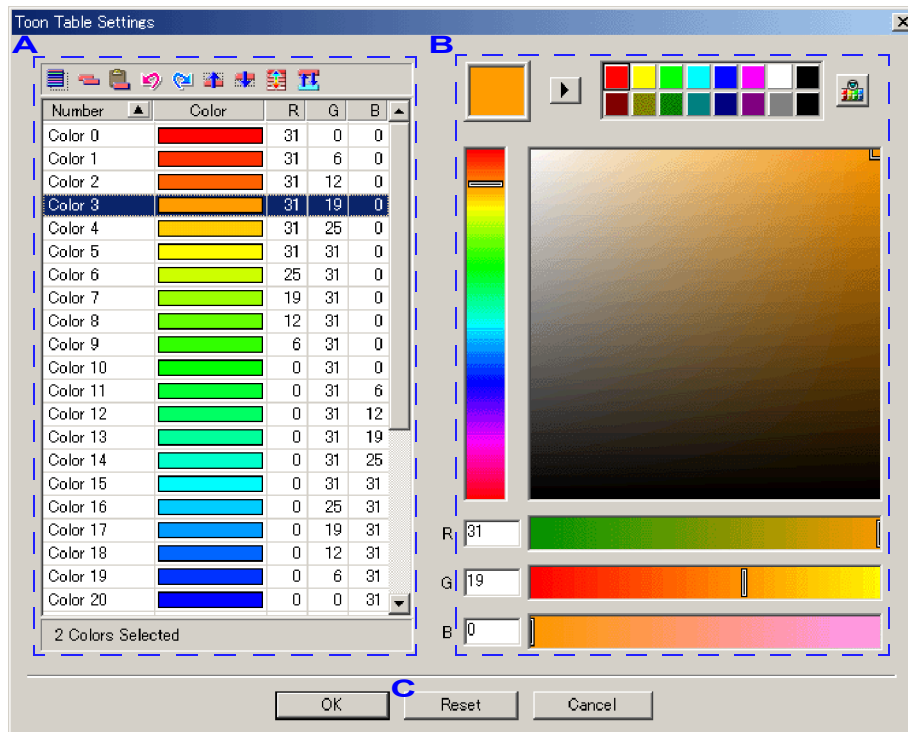
7.3.9 Toon Table / Edge Color Setting Dialog Box

Toon table setting dialog box / edge color setting dialog box allow detailed settings for toon table and edge color.

There are some differences between the toon table settings and the edge color settings, as shown in the table below (Table 7-4). How to use dialog boxes and how to set tables are the same. (The toon table setting dialog box is used as an example in this chapter.)

Table 7-4 - Differences Between Toon Table / Edge Color Setting Dialog Boxes

Table	Number of colors to be set
Toon table	Color 0 - 31, 32 colors
Edge color	Color 0 - 7, 8 colors

Figure 7-12 - Toon Table / Edge Color Setting Dialog Box

- A. List of each color in the table. Select the color you want to change (multiple colors can be selected). The number of selected colors are displayed at the bottom of the list. There are several ways to select colors. (Table 7-5)








Table 7-5 - Operation For Selecting Colors

Procedure	Operation
Left-clicking the mouse	Selects a color.
Ctrl + left-clicking the mouse (or right-clicking the mouse)	Selects multiple colors. Or, deselects selected color(s).
Shift + left-clicking the mouse (or dragging the mouse to the left or right)	Selects multiple colors in a series.

The following operations can be performed by pressing each of the buttons on the upper part of the list. (Table 7-6)

Table 7-6 - Toolbar Buttons

Button	Description
	Selects all colors.
	Copies the selected color. When multiple colors are selected, the same number of copies are made as the number of colors being selected.

Button	Description
	Pastes the copied color to the selected color. When multiple colors are selected, a series of copies starting from the color that is selected at the top is pasted in a downward direction.
	Sets the changed setting back to the original state. (Undo) Number of undo actions are not limited.
	Reapplies the change that was set back. (Redo) Number of redo actions are not limited.
	Moves the selected color up by one line. When multiple colors are selected, they move at once.
	Moves the selected color down by one line. When multiple colors are selected, they move at once.
	Changes two colors that are selected, and creates gradation by using linear interpolation. This operation can be performed only when selected colors are not next to each other.
	Exchanges two selected colors. This operation can be performed only when two colors are selected.

B. The region that changes the selected color.

The color change is applied to the selected colors. For details on how to change colors, see "[7.10 Changing RGB Values with the Color Picker](#)" on page 92.

C. Sets the table setting back to the state when the dialog box was opened.

7.4 Model Properties

There are four types of model properties.

- [General] Properties
- [Data Size] Properties
- [Rendering Priority] Properties
- [File Information] Properties

You can use the tabs on the top of the property view to select which of the properties you want to set.
(Figure 7-13)

Figure 7-13 - Model Property Selection Tabs



7.4.1 General

This displays detailed model information (Figure 7-14).

Figure 7-14 - Model Properties: General

Model Information	
A	Shift Value for Vertex Coordinate Shift : 3
B	Scale Calculation Method : Standard
C	Vertex Coordinates/ Vertex Color Output Method : Direct Format
D	Enlarge Ratio during CG Tool Output : 1.000000
E	StartFrame Set during CG Tool Output : 0
F	Texture Matrix Calculation Method : 3ds max Format
G	Node Compression : No
H	Number of Nodes : 3
I	Material Compression : No
J	Number of Materials : 7
K	Texture Data Output Format : Only Used Textures
L	Use Polygon Strip : On
M	Force Weighted Envelope Data To Full Weighted Output : Off

Number of Polygons	
N	Number of Vertices Processed : 48
O	Total Number of Polygons : 12
P	Number of Triangular Polygons : 0
Q	Number of Quadrilateral Polygons : 12

- A.** This is the shift value that is applied to vertex position coordinates when drawing. It corresponds to the imd file `<model_info>` element attribute `pos_scale`.
- B.** This is the scaling calculation method. Currently it is one of following:
- Standard
 - Maya method
 - Softimage method

This corresponds to the imd file `<model_info>` element attribute `scaling_rule`.

- C.** This is the method of outputting vertex position coordinates and vertex color. You can use one of the following:
- Direct method
 - Index method

This corresponds to the imd file `<model_info>` element attribute `vertex_style`.

- D.** This is the scale factor that is applied to the entire model when outputting an imd file from a 3DCG tool. It corresponds to the imd file `<model_info>` element attribute `magnify`.

- E.** This is the StartFrame that is specified when outputting an imd file from a 3DCG tool. It corresponds to the imd file `<model_info>` element attribute `tool_start_frame`.

- F.** This is the texture matrix calculation method. Currently it will be one of the following:

- Maya method
- SOFTIMAGE|3D method
- SOFTIMAGE|XSL method
- 3ds max method

This corresponds to the imd file `<model_info>` element attribute `tex_matrix_mode`.

- G.** This is the compression status of the nodes that are output. It will be one of the following:

- None
- Cull
- Merge
- Unite
- Unite-Combine

This corresponds to the imd file `<model_info>` element attribute `compress_node`.

- H.** The number of nodes when compressing and when not compressing.

If there is no node compression, only the number of nodes when not compressed will be shown. This corresponds to the imd file `<model_info>` element attribute `node_size`.

- I.** This indicates whether the material has been compressed. This corresponds to the imd file `<model_info>` element attribute `compress_material`.

- J.** The number of nodes when compressing and when not compressing.

If there is no material compression, only the number of nodes when not compressed will be shown. This corresponds to the imd file `<model_info>` element attribute `material_size`.

- K.** This is the method of outputting texture data when outputting an imd file from a 3DCG tool. It will be one of the following:

- Only the textures that are used
- All textures

This corresponds to the imd file `<model_info>` element attribute `output_texture`.

- L.** This indicates whether you are using a polygon strip. It corresponds to the imd file `<model_info>` element attribute `use_primitive_strip`.

- M.** When outputting an imd file from a 3DCG tool, this indicates whether vertices that were set as weighted envelope were forced to full weighted envelope on output. It corresponds to the imd file `<model_info>` element attribute `force_full_weight`.

- N.** This is the total number of processed vertices in polygons that are contained in a model. It corresponds to the imd file `<output_info>` element attribute `vertex_size`.

- O.** This is the total number of polygons that are contained in a model. This corresponds to the imd file

<output_info> element attribute polygon_size.

- P.** This is the number of triangular polygons contained in a model.

It corresponds to the imd file <output_info> element attribute triangle_size.

- Q.** This is the number of quadrilateral polygons contained in a model.

It corresponds to the imd file <output_info> element attribute quad_size.

7.4.2 Data Size

This shows information on the data size of each type of data contained in a model. (Figure 7-15)

Figure 7-15 - Model Properties: Data Size



- A.** This is the total data size of the textures currently used by any material.

When this size is equal to the total texture data size contained in the model, (B in the figure) it is displayed in blue. If it is less, it is displayed in red.

- B.** This is the total data size of all of the textures that are contained in the model.

- C.** This is the total data size of palettes used by any material.

When this size is equal to the total palette data size contained in the model, (D in the figure) it is displayed in blue. If it is less, it is displayed in red.

- D.** This is the total data size of the palettes contained a model.

7.4.3 Rendering Priority

This shows information on the rendering priority information for all polygons in a model. (Figure 7-16)

Figure 7-16 - Model Properties: Rendering Priority

Priority	Material	Polygon	Node
0	01_Default	Box01	Box01
0	Material_25	Box02	Box02
0	Material_26	Box02_1	Box02
0	Material_27	Box02_2	Box02
0	Material_28	Box02_3	Box02
0	Material_29	Box02_4	Box02
0	Material_30	Box02_5	Box02

List rows display the names of materials (applied to polygons), polygons, and nodes (to which polygons belong). Rendering priority values are ordered in ascending order.

For details on rendering priority values and how rendering priority is handled by NITRO-Viewer, see manuals for NITRO Intermediate File Format, NITRO-System libraries, and NITRO Intermediate File Output plug-ins.

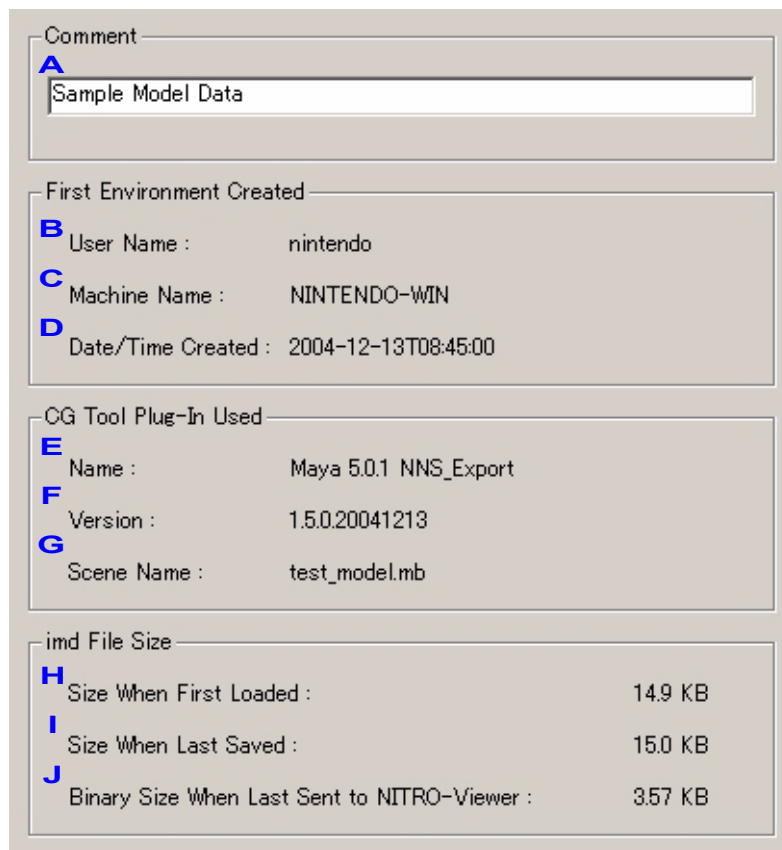
Note: 3D Material Editor cannot change rendering priority values.

Hint: When you select any of the list rows, the polygons that correspond to those on NITRO-Viewer will blink.

7.4.4 File Information

This displays information related to the open imd file. (Figure 7-17)

Figure 7-17 - Model Properties: File Information



Comment
A Sample Model Data

First Environment Created
B User Name : nintendo
C Machine Name : NINTENDO-WIN
D Date/Time Created : 2004-12-13T08:45:00

CG Tool Plug-In Used
E Name : Maya 5.0.1 NNS_Export
F Version : 1.5.0.20041213
G Scene Name : test_model.mb

imd File Size
H Size When First Loaded : 14.9 KB
I Size When Last Saved : 15.0 KB
J Binary Size When Last Sent to NITRO-Viewer : 3.57 KB

A. Sets a comment for a file.

You can use both half-width and full-width characters. There is no limit on the number of characters.

This corresponds to the content of the imd file `<comment>` element.

B. This is the user name of the person who created the imd file.

It corresponds to the imd file `<original_create>` element attribute `user`.

C. This is the name of the machine on which the imd file was created.

It corresponds to the imd file `<original_create>` element attribute `host`.

- D.** This is the date and time that the imd file was created.
It corresponds to the imd file `<original_create>` element attribute `date`.
- E.** This is name of the 3DCG tool plug-in that was used to export the imd file.
It corresponds to the imd file `<original_generator>` element attribute `name`.
- F.** This is the version of the 3DCG tool plug-in that was used to export the imd file.
It corresponds to the imd file `<original_generator>` element attribute `version`.
- G.** This is the name of the scene in the 3DCG tool that was the source of the imd file export.
It corresponds to the imd file `<original_create>` element attribute `source`.
- H.** The file size at the time the imd file was first loaded.
- I.** The file size at the time the imd file was saved at the end.
Because 3D Material Editor adds special extension elements to the imd file to be saved, even when the file is saved without changing contents, the file size may become larger when the file is loaded.
Regarding the extension elements that are added to imd files, see 15.2.4 3D Material Editor Local Extension Elements.
- J.** Binary file size after the binary conversion when transferred to NITRO-Viewer at the end.

7.5 Node Properties

Node properties are divided into the following categories.

- [General] Properties
- [Rendering Priority] Properties

You can use the tabs at the top of the Property View to switch the properties you set (Figure 7-18)

Properties selected with the tabs will appear in the Property View.

Figure 7-18 - Node Property Selection Tabs



7.5.1 General

This displays general node information (Figure 7-19).

Figure 7-19 - Node Properties: General

Node Information

A Node Type : Mesh

B Billboard Display Setting : Off

C Scale calculation Flag that can be set in Maya : ---

D Is the Matrix for This Node Used to Draw Polygons? : On

Display/Hide

E ☒ Display This Node

Scale, Rotate, Translate

	X	Y	Z
F Scale Values :	1.000000	1.000000	1.000000
G Rotate Values :	0.000000	0.000000	0.000000
H Translate Values :	50.000000	0.000000	0.000000

Number of Polygons

I Number of Vertices Processed : 24

J Total Number of Polygons : 6

K Number of Triangular Polygons : 0

L Number of Quadrilateral Polygons : 6

Local Coordinates

	X	Y	Z
M Minimum Coordinates :	-2.500000	0.000000	-2.500000
N Maximum Coordinates :	2.500000	5.000000	2.500000

O Circumscribing Sphere Radius : 4.330078

A. This is the node type. It will be one of the following:

- Null
- Mesh
- Joint
- Chain
- Effector

This corresponds to the imd file `<node>` element attribute `kind`.

B. This is the billboard display setting. It will be one of the following:

- Off
- On
- Y axis only

This corresponds to the imd file `<node>` element attribute `billboard`.

C. This is a flag for scaling calculations that Maya can set. This is enabled only when the model scale calculation method is set to "Maya method." This corresponds to the imd file `<node>` element attribute `scale_compensate`.

D. This indicates whether the node's matrix is being used to draw polygons. It corresponds to the imd file `<node>` element attribute `draw_mtx`.

E. This selects whether to display this node. It corresponds to the imd file `<node>` element attribute `visibility`.

F. This is the node Scale value. It corresponds to the imd file `<node>` element attribute `scale`.

G. This is the node Rotate value. It corresponds to the imd file `<node>` element attribute `rotate`.

H. This is the node Translate value. It corresponds to the imd file `<node>` element attribute `translate`.

I. This is the total number of processed vertices for all of the polygons that belong to this node. It corresponds to the imd file `<node>` element attribute `vertex_size`.

J. This is the total number of polygons that belong to this node. This corresponds to the imd file `<node>` element attribute `polygon_size`.

K. This is the total number of triangular polygons that belong to this node.

It corresponds to the imd file `<node>` element attribute `triangle_size`.

L. This is the total number of quadrilateral polygons that belong to this node.

It corresponds to the imd file `<node>` element attribute `quad_size`.

M. This is the minimum coordinate value of the grid that circumscribes all of the polygons that belong to this node. It corresponds to the imd file `<node>` element attribute `volume_min`.



















N. This is the maximum coordinate value of the grid that circumscribes all of the polygons that belong to this node. It corresponds to the imd file `<node>` element attribute `volume_max`.

O. This is the radius of the sphere that circumscribes all of the polygons that belong to this node. It corresponds to the imd file `<node>` element attribute `volume_r`.

7.5.2 Rendering Priority

Rendering priority information for all polygons that belong to a node is listed here. (Figure 7-20)

Figure 7-20 - Node Properties: Rendering Priority

Priority	Material	Polygon	Node
0	 Material_25	 Box02	 Box02
0	 Material_26	 Box02_1	 Box02
0	 Material_27	 Box02_2	 Box02
0	 Material_28	 Box02_3	 Box02
0	 Material_29	 Box02_4	 Box02
0	 Material_30	 Box02_5	 Box02

List rows display the names of materials (applied to polygons), polygons, and nodes (to which polygons belong). Rendering priority is ordered in ascending order.

For details on rendering priority values and how rendering priority is handled by NITRO-Viewer, see manuals for NITRO Intermediate File Format, NITRO-System libraries, and NITRO Intermediate File Output plug-ins.

Note: 3D Material Editor cannot change rendering priority values.

Hint: When you select any of the list rows, the polygons that correspond to those on NITRO-Viewer will blink.

7.6 Polygon Properties

This displays detailed polygon information (Figure 7-21).

Figure 7-21 - Polygon Properties

Number of Polygons	
A Number of Vertices Processed :	4
B Total Number of Polygons :	1
C Number of Triangular Polygons :	0
D Number of Quadrilateral Polygons :	1

Local Coordinates			
	X	Y	Z
E Minimum Coordinates :	-2.500000	0.000000	-2.500000
F Maximum Coordinates :	2.500000	5.000000	2.500000
G Circumscribing Sphere Radius :	4.330078		

Vertex Data	
H Normal Data :	Yes
I Vertex Color Data :	No
J Texture Coordinate Data :	Yes

- A.** This is the number of processed polygon vertices. It corresponds to the imd file `<polygon>` element attribute `vertex_size`.
- B.** This is the total number of polygons. It corresponds to the imd file `<polygon>` element attribute `polygon_size`.
- C.** This is the total number of triangular polygons. It corresponds to the imd file `<polygon>` element attribute `triangle_size`.
- D.** This is the total number of quadrilateral polygons. It corresponds to the imd file `<polygon>` element attribute `quad_size`.
- E.** This is the minimum coordinate value of the grid that circumscribes this polygon. It corresponds to the imd file `<polygon>` element attribute `volume_min`.
- F.** This is the maximum coordinate value of the grid that circumscribes this polygon. It corresponds to the imd file `<polygon>` element attribute `volume_max`.
- G.** This is the radius of the sphere that circumscribes this polygon. It corresponds to the imd file `<polygon>` element attribute `volume_r`.

- H.** This indicates whether there is normal data in the polygon. It corresponds to the imd file
`<polygon> element attribute nrm_flag.`
- I.** This indicates whether there is vertex color data in the polygon. It corresponds to the imd file
`<polygon> element attribute clr_flag.`
- J.** This indicates whether there is texture coordinate data in the polygon. It corresponds to the imd file
`<polygon> element attribute tex_flag.`

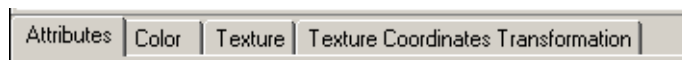
7.7 Material Properties

Material properties are divided into the following four property types:

- “Attribute” properties
- “Color” properties
- “Texture” properties
- “Texture coordinate transformation” properties

You can use the tabs on the top of the Property View to switch the properties you want to set (Figure 7-22). The property selected from the tabs will be displayed in the Property View.

Figure 7-22 - Material Property Selection Tabs



7.7.1 Attributes

This sets material attribute values (Figure 7-23).

Figure 7-23 - Material Properties: Attributes

Polygon ID

0 63

A Polygon ID : 10

Edge Mark Edge Color Number (top 3 bits) : 1

B ☐ Display Wireframe

0 31

C Polygon Alpha : 20

D Surface to Display: Back Face

E Polygon Mode: Modulation Mode

Flags

F ☐ Enable Fog

G ☐ Only render when the depth value equals depth buffer

H ☐ Update the depth buffer when rendering translucent polygons

I ☐ Also render 1-pixel polygons

J ☐ Clip when intersects the Far plane

- A.** This sets the polygon ID. The upper three bits of the polygon ID are also used as the edge color number when edge marking is used. Therefore, the edge color number (0 – 7) that corresponds to the polygon ID value is displayed at the bottom. This corresponds to the imd file `<material>` element attribute `polygon_id`.
- B.** This selects whether to display as a wireframe. It corresponds to the imd file `<material>` element attribute `wire_mode`.
- C.** This sets the polygon alpha value. You can only set this when wireframe is not displayed. It corresponds to the imd file `<material>` element attribute `alpha`.
- D.** You can select from the following polygon surfaces:
- Front face
 - Back face
 - Both faces
- This corresponds to the imd file `<material>` element attribute `face`.
- E.** You can select from the following four polygon draw modes:
- Modulation mode
 - Decal mode
 - Toon / Highlight shading
 - Shadow polygon
- This corresponds to the imd file `<material>` element attribute `polygon_mode`.
- F.** This selects whether to enable fog. It corresponds to the imd file `<material>` element attribute `fog_flag`.
- G.** This selects depth buffer update conditions. It corresponds to the imd file `<material>` element attribute `depth_test_decal`.
- H.** This selects whether to update the depth buffer when rendering translucent polygons. It corresponds to the imd file `<material>` element attribute `translucent_update_depth`.
- I.** This selects whether to render 1-dot polygons. It corresponds to the imd file `<material>` element attribute `render_1_pixel`.
- J.** This selects whether to clip a polygon when it intersects the far plane. It corresponds to the imd file `<material>` element attribute `far_clipping`.


7.7.2 Color


This sets calculations for material color and light (Figure 7-24).


Figure 7-24 - Material Properties: Color


A Select Light

☒ Light 0 ☒ Light 1 ☐ Light 2 ☐ Light 3

B Diffuse :  R G B

C Ambient :  R G B

D Specular :  R G B

E Emission :  R G B

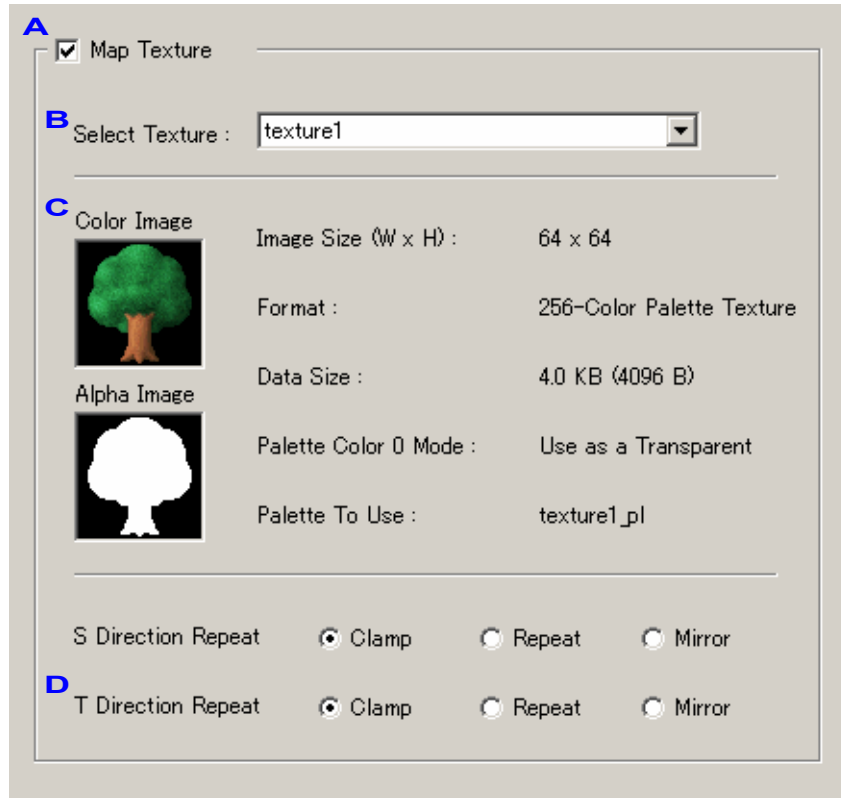
F ☐ Use Specular Reflection Table When Calculating Specular Element

- A.** This selects the lights that will be used when the light calculations are performed. You can specify any combination of the lights 0 – 3. This corresponds to the imd file `<material>` element attributes `light0`, `light1`, `light2`, `light3`.
- B.** This sets the material's diffuse color. If you click the color button, you can set colors from the color picker. For details on the color picker, see "[7.10 Changing RGB Values with the Color Picker](#)" on page 92. This corresponds to the imd file `<material>` element attribute `diffuse`.
- C.** This sets the material's ambient color. If you click the color button, you can set colors from the color picker. For details on the color picker, see "[7.10 Changing RGB Values with the Color Picker](#)" on page 92. This corresponds to the imd file `<material>` element attribute `ambient`.
- D.** This sets the material's specular color. If you click the color button, you can set colors from the color picker. For details on the color picker, see "[7.10 Changing RGB Values with the Color Picker](#)" on page 92. This corresponds to the imd file `<material>` element attribute `specular`.
- E.** This sets the material's emission color. If you click the color button, you can set colors from the color picker. For details on the color picker, see "[7.10 Changing RGB Values with the Color Picker](#)" on page 92. This corresponds to the imd file `<material>` element attribute `emission`.
- F.** This selects whether to use a specular reflection table when calculating the specular component. It corresponds to the imd file `<material>` element attribute `shininess_table_flag`.

7.7.3 Texture

This sets a texture to map onto polygons (Figure 7-25). You can set this property only if there are textures in the model.

Figure 7-25 - Material Properties: Texture



- A.** This selects whether to map a texture onto polygons.
- B.** This selects the texture to map onto the polygons from the textures that are registered in the model. It corresponds to the imd file `<material>` element attribute `tex_image_idx, tex_palette_idx`.
- C.** This displays detailed information for the currently selected texture. For detailed information on textures, see "[7.8 Texture Properties](#)" on page 89.
- D.** This selects texture S, T direction repeats from the following types:
 - Clamp
 - Repeat
 - Mirror

This corresponds to the imd file `<material>` element attribute `tex_tiling`.

7.7.4 Texture Coordinate Transformation

This makes settings related to texture coordinate transformation (Figure 7-26). You can only set this property if a texture is mapped.

Figure 7-26 - Material Properties: Texture Coordinate Transformation

A Texture Coordinate Transformation Type : Input Source: Vertex Coordinates

Set Scale, Rotate, Translate

B Scale S : 1.000000

Scale T : 1.000000

C Rotate : 0.000000

D Translate S : 0.000000

Translate T : 0.000000

Transformation Matrix ST Elements
(For Input Source: Normal Vector or Vertex Coordinate)

E ☐ Use Vertex Texture Coordinates
☒ Use User Settings

F S Element : 0.000000

T Element : 0.000000

- A.** This selects the texture coordinate transformation method from the following four types:
- No texture coordinate transformation
 - Input source: Vertex texture coordinates
 - Input source: Normal vectors
 - Input source: Vertex coordinates

You can only select "Input source: Vertex texture coordinates" if there are vertex texture coordinates in the corresponding polygons. If set to "Input source: Normal Vectors" or "Input source: Vertex Coordinates", the settings cannot be changed. This corresponds to the imd file `<material>` element attribute `tex_gen_mode`.

- B.** This sets the Scale value configured in the texture matrix. It corresponds to the imd file `<material>` element attribute `tex_scale`.

- C.** This sets the Rotate value configured in the the texture matrix. It corresponds to the imd file `<material> element attribute tex_rotate.`
- D.** This sets the Translate value configured in the texture matrix. It corresponds to the imd file `<material> element attribute tex_translate.`
- E.** By entering a check, the S and T components of the Scale can be changed at the same time.
- F.** This resets the Scale, Rotate, and Translate settings.
- G.** When the texture coordinate conversion mode is either "Input Source: Normal Vector" or "Input Source: Vertex Coordinate", this indicates whether or not there is a vertex texture coordinate command in the corresponding polygon. This corresponds to the imd file `<material> element attribute tex_gen_st_src.`
- H.** This configures the texture effect matrix when using the texture environment mapping or projection mapping. This corresponds to each row component in order from the top and each column component in order from the left. This corresponds to the imd file `<material> element attribute tex_effect_mtx.`
- I.** This configures the texture effect matrix to a unit matrix.
- J.** This displays a dialog box used to configure the texture effect matrix for environment mapping. It is only valid when the texture coordinate conversion mode is "Input Source: Normal Vector". For further details about this dialog box, refer to "[7.7.5 The Environment Mapping Configuration Dialog Box](#)" on page 85.
- K.** This displays a dialog box used to configure the texture effect matrix for projection mapping. It is only valid when the texture coordinate conversion mode is "Input Source: Vector Coordinate". For further details about this dialog box, refer to "[7.7.5 The Environment Mapping Configuration Dialog Box](#)" on page 85.

Caution: In order to perform environment and projection mapping for a texture, the texture coordinate conversion mode for the relevant materials must each be set in advance to either "Input Source: Normal Vector" or "Input Source: Vertex Coordinate" via the output of an imd file from one of the 3D CG tools. (For further details, refer to the manual each for 3D CG tool as used on NITRO).

It is impossible to switch to "Input Source: Normal Vector" or "Input Source: Vertex Coordinate" from another texture conversion mode in the 3D material editor.

Caution: The texture effect matrix is a 4x4 matrix in an imd file, but since the 3rd and 4th columns have no influence on the texture coordinate conversion, only the 4x2 components in the 1st and 2nd column can be set with the 3D material editor.

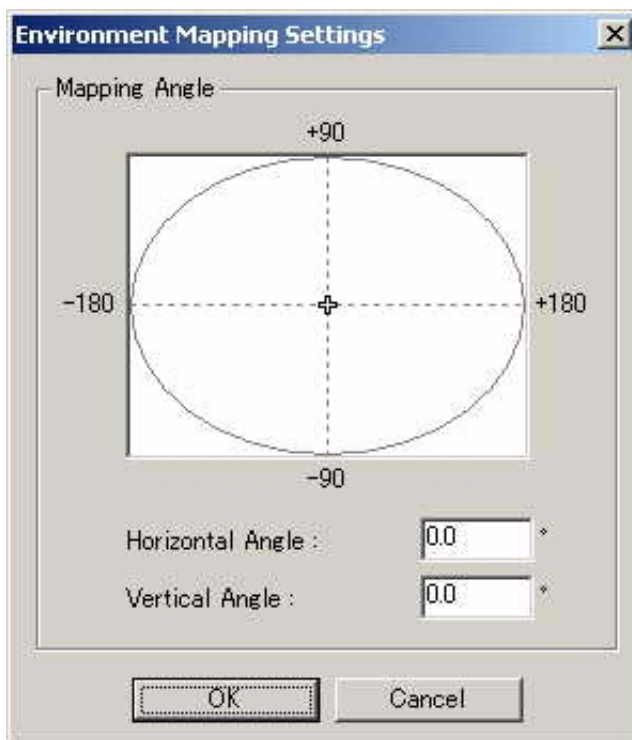
Caution: When the texture coordinate conversion mode is either "Input Source: Normal Vector" or "Input Source: Vertex Coordinate", the settings below will not be used.

[Input Source: Normal Vector] Translate value and the 4th row component of the texture effect matrix

[Input Source: Vertex Coordinate] Scale value, Rotate value, and Translate value

7.7.5 The Environment Mapping Configuration Dialog Box

The environment mapping configuration dialog box can be used to perform simple configurations in order to make the texture effect matrix usable for environment mapping. (Figure 7-27)

Figure 7-27 - Material Properties: Environment Mapping Configuration

- A.** Configures the texture mapping angle (in degrees) for the camera line-of-sight.

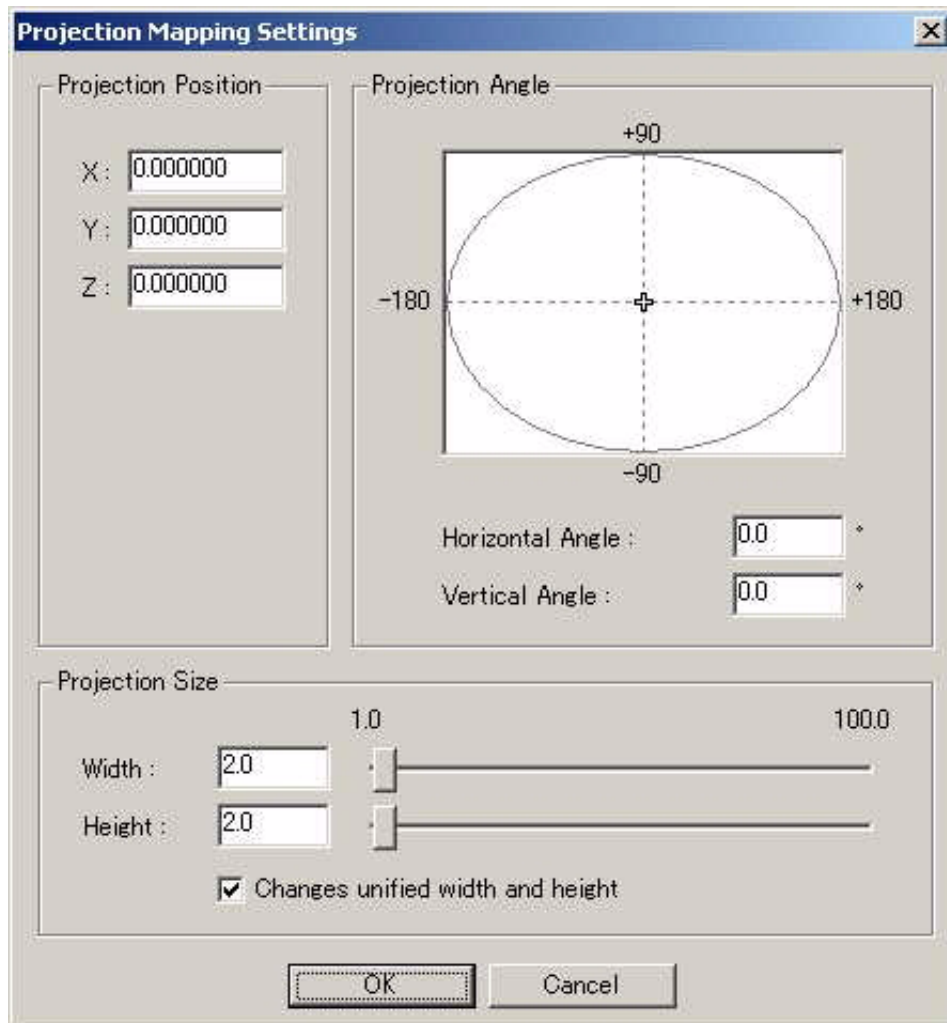
The horizontal axis on the configuration screen shows the degrees in the horizontal direction, while the vertical axis shows the degrees in the vertical direction.

By optionally clicking or dragging a region, the corresponding degrees will display on graph B.

- B.** This section allows for the direct input of the horizontal and vertical mapping degrees.

7.7.6 The Projection Mapping Configuration Dialog Box

The projection mapping configuration dialog box can be used to perform simple configurations in order to make the texture effect matrix usable for projection mapping.(Figure 7-28)

Figure 7-28 - Material Properties: Projection Mapping Configuration

- A.** Configures a virtual target position used to determine the direction in which the texture will be projected.
The texture is projected centered on the direction that passes through this position.
- B.** This configures the texture projection angle (in degrees) for the coordinate-system Z axis direction.
The horizontal axis on the configuration screen shows the degrees in the horizontal direction, while the vertical axis shows the degrees in the vertical direction.
By optionally clicking or dragging a region, the corresponding degrees will display on graph C.
- C.** This section allows for the direct input of the horizontal and vertical projection mapping degrees.
- D.** This configures the projection size (width and height) of the texture.
- E.** By putting a check here, the height and width of the projection size can be changed at the same

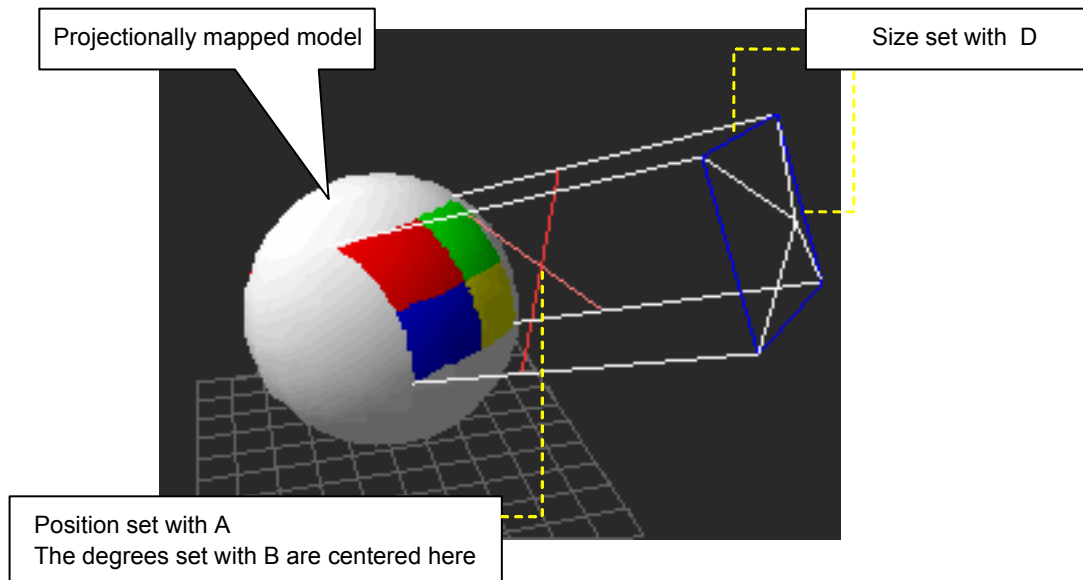
time.

Hint: When communicating with NITRO-Viewer, while the dialog box is being displayed, an additional line displays on the NITRO-Viewer screen that shows the current projection direction and projection size of the projection mapping. The size of this additional line depends on the size of the coordinate system. For further details, refer to the NITRO-Viewer manual.

The schematic meanings of each item that can be set with the projection mapping configuration dialog box are as follows (Figure 7-29).

(The figure is the actual screen as displayed in NITRO-Viewer.)

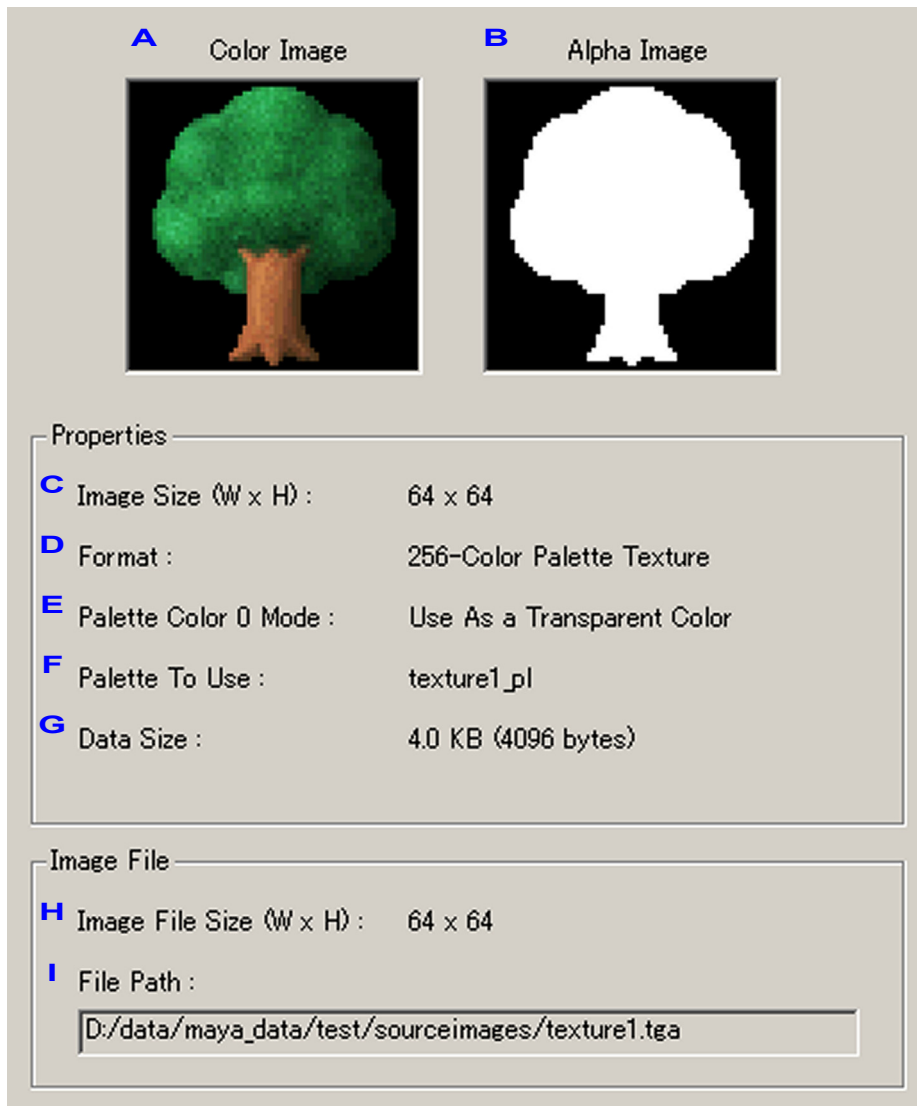
Figure 7-29 - A Projectionally Mapped Model



7.8 Texture Properties

This displays detailed texture information (Figure 7-30).

Figure 7-30 - Texture Properties



- A.** This is the texture's color image.
- B.** This is the texture's alpha image. It displays the texture's transparency level in grayscale (opaque regions are white, transparent regions are black).
- C.** This is the texture's image size (width x height). It corresponds to the imd file `<tex_image>` element attributes `width`, `height`.

D. This is the texture format. It will be one of the following:

- 4-color palette texture
- 16-color palette texture
- 256-color palette texture
- A5I3 translucent texture
- A3I5 translucent texture
- 4x4 texel compressed texture
- Direct color texture

It corresponds to the imd file `<tex_image>` element attribute `format`.

E. In the case of a color index format, this determines how palette color 0 is handled. It will be one of the following:

- Use as a color
- Use as a transparent color

In the case of a format that does not use color indexing (4x4 texel compressed data, direct color texture data), nothing will be displayed. This corresponds to the imd file `<tex_image>` element attribute `color0_mode`.

F. This is the palette name that will be used for a color index type format. In the case of a format that does not use color indexing (4x4 texel compressed data, direct color texture data), nothing will be displayed. This corresponds to the imd file `<tex_image>` element attribute `palette_name`.

G. This is the texture's data size. It displays the texture's data size in kilobytes (KB) and bytes. In the case of 4x4 texel compressed textures, the palette index data size is included.

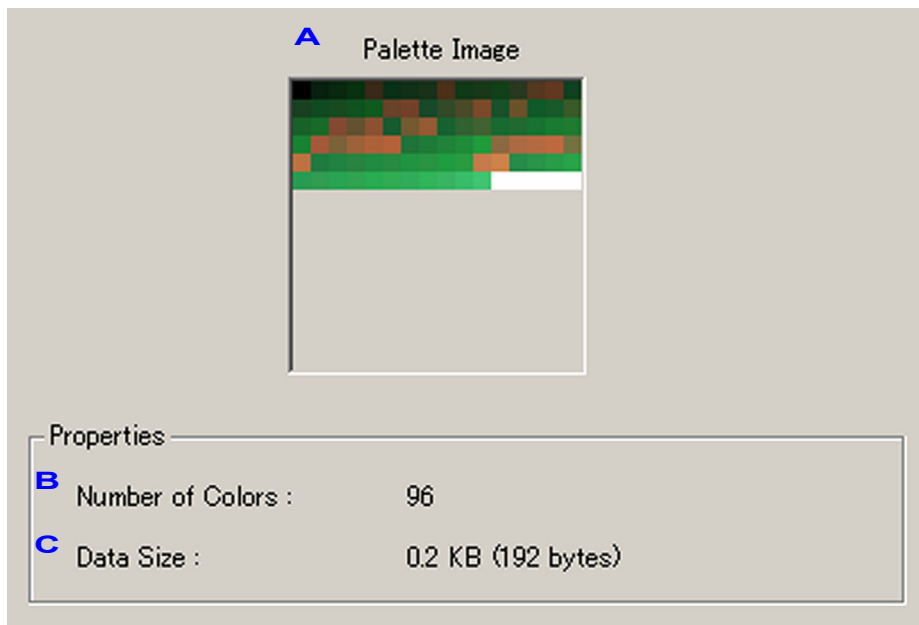
H. This is the image size of the texture image file (width x height). It corresponds to the imd file `<tex_image>` element attribute `original_width,original_height`.

I. This is the path to the texture image file on the computer. If the path character string is longer than the width of the edit box, you can display it by scrolling in the edit box. This corresponds to the imd file `<tex_image>` element attribute `path`.

7.9 Palette Properties

This displays palette information details (Figure 7-31).

Figure 7-31 - Palette Properties

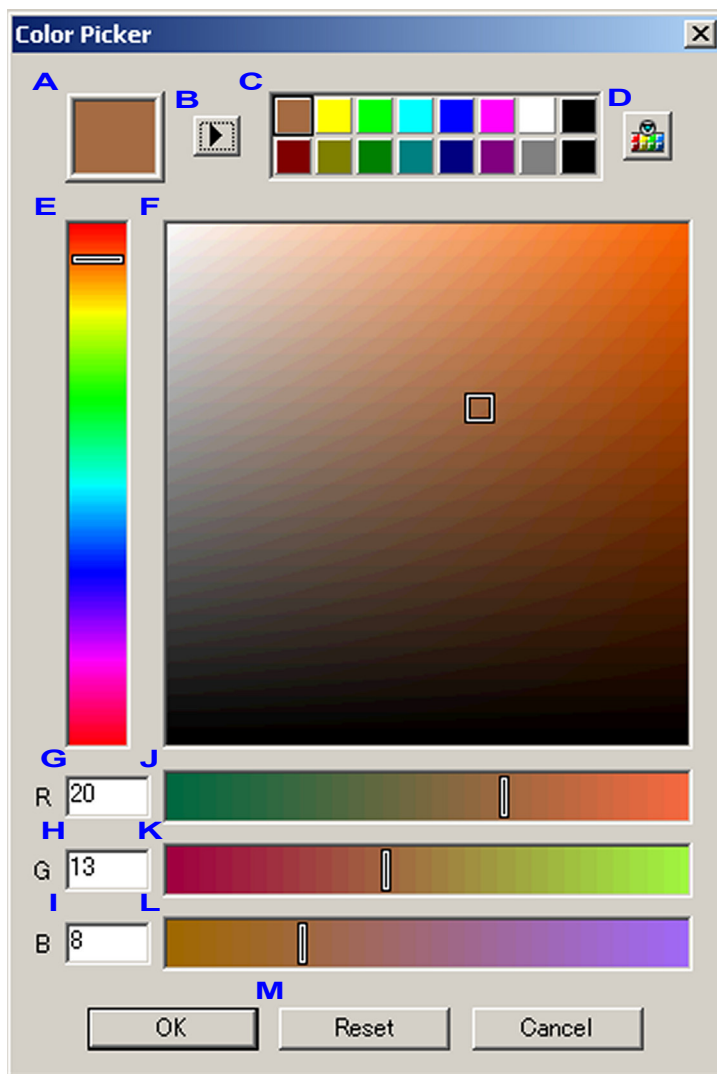


- A.** This is the palette's color image. The colors in the palette are ordered from the top left to the bottom right.
- B.** This is the number of colors in the palette. It corresponds to the imd file `<tex_palette>` element attribute `color_size`.
- C.** This is the palette's data size. It displays the palette's data size in kilobytes (KB) and bytes.

7.10 Changing RGB Values with the Color Picker

You can use the color picker to set RGB values for properties in which RGB values are set. With the color picker you can visually select RGB values (Figure 7-32).

Figure 7-32 - Color Picker



- A. This displays the current color.
- B. If you click this button, the current color will be registered as the color in the selection frame in the color list (C in the figure). Up to 16 colors can be registered in the color list.
- C. This is the registered color list. Left-clicking a color region will change the current color. Right-clicking a color region will switch the position of the selection frame.
- D. Press the button to set the color that is registered in the color list to the initial setting. (When executing it, the confirmation dialog box will appear).
- E. This is the hue change bar. If you change the hue, the current color will change.
- F. This is the saturation, value change plane. This color plane corresponds to the current hue set by the hue change bar (E in the figure). If you click any region the current color will change.

- G.** This sets the R values in the range of 0 – 31. It works in conjunction with the bar on the right (**J** in the figure).
- H.** This sets the G values in the range of 0 – 31. It works in conjunction with the bar on the right (**K** in the figure).
- I.** This sets the B values in the range of 0 – 31. It works in conjunction with the bar on the right (**L** in the figure).
- J.** This is the R value change bar. At the left edge R=0, and at the right edge R=31. The bar's background shows how a change in the R value will change the color.
- K.** This is the G value change bar. At the left edge G=0, and at the right edge G=31. The bar's background shows how a change in the G value will change the color.
- L.** This is the B value change bar. At the left edge B=0, and at the right edge B=31. The bar's background shows how a change in the B value will change the color.
- M.** If you click this button, the current color will be reset to the color before the change.

7.11 Copying/Pasting Material Settings

You can copy the content that you change in Material Properties. You can paste the copied material settings into another material to give it the same settings.

These are the material setting copy/paste operations:

- Copy settings
- Paste all of the settings
- Paste special...

7.11.1 Copying Settings

This copies all of the settings for the selected material.

If multiple materials are selected, the settings cannot be copied.

Operating Procedure

1. In the Object View, select the material whose settings you want to copy.
2. Select "Copy Settings" on the "Object" menu.

(Toolbar button: , Shortcut Keys: **Ctrl + Shift + C**)

You can also use the following method:

- Select a material in the Object View. Right-click with the mouse and select "Copy Settings" from the pop-up menu that appears.

7.11.2 Pasting All Copied Settings

This pastes all of the copied material settings into the selected material.

If multiple materials are selected, the copied settings will be pasted to all selected materials.

Operating Procedure

1. In the Object View select the material into which you want to paste the copied settings.
2. Select "Paste All Copied Settings" on the "Object" menu.

(Toolbar button: , Shortcut Keys: **Ctrl + Shift + V**)

You can also use the following method:

- Select a material in the Object View. Right-click with the mouse and select "Paste All Copied Settings" from the pop-up menu that appears.

Caution: Depending on the condition of the polygon vertex information (the existence of a normal vector or texture coordinates) that the paste-destination material references or the configuration of the paste-destination material, there may be cases where there are configurations cannot be pasted or the display of the pasted results on NITRO-Viewer will not be the same as the paste source.

7.11.3 Pasting Some Copied Settings

In this feature, first, from the copied material settings, select the contents that you want to paste, and then paste into the selected material.

If multiple materials are selected, the copied settings will be pasted to all selected materials.

Operating Procedure


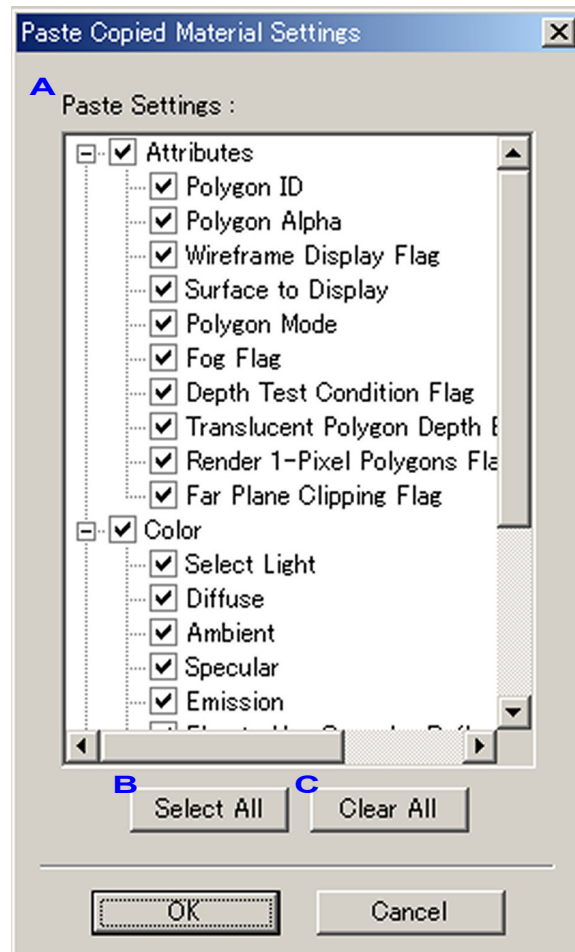
1. In the Object View select the material into which you want to paste the copied settings.
2. Select "Paste Special..." on the "Object" menu.
(Toolbar button: , Shortcut Keys: **Ctrl + Shift + S**)
3. A detail setting dialog box will appear (Figure 7-33). Select the items you want to paste and click the OK button.

Figure 7-33 - Pasting Copied Material Settings

- A.** Selects the content to paste.

Items are classified in each material property group. By switching the check state of parent items, the check state of all child items switches. For details of material properties corresponding to each item, see "[7.7 Material Properties](#)" on page 80.

- B.** This checks all items.
- C.** This removes the checks from all items.

You can also use the following method:

- Select a material in the Object View. Right-click with the mouse and select “Paste Special...” from the pop-up menu that appears.

Caution: Depending on the condition of the polygon vertex information (the existence of a normal vector or texture coordinates) that the paste-destination material references or the configuration of the paste-destination material, there may be cases where there are configurations cannot be pasted or the display of the pasted results on NITRO-Viewer will not be the same as the paste source.

7.12 Displaying Properties in Separate Windows

By displaying the properties of the objects that are displayed in the Property View in separate windows, you can refer to more than one property at the same time (Figure 7-34).

For properties that are displayed in a separate window, even if you change a selected object in the Object View, the target object will not be changed.

Operating Procedure

1. In the Object View select the object whose properties you want to display in a separate window.
2. Select "Display Properties in Separate Window" on the "Object" menu.


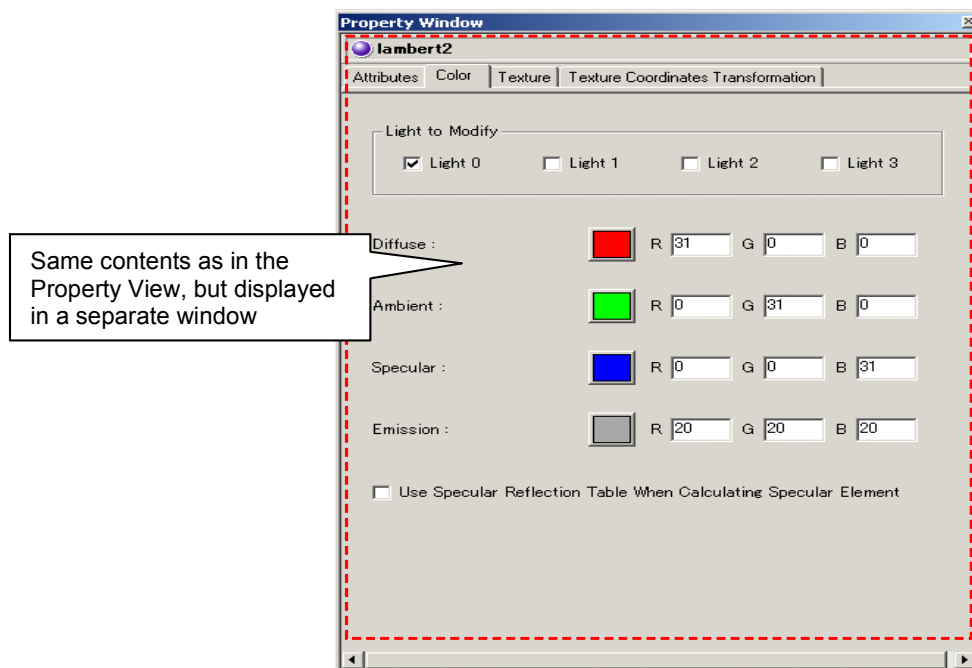
(Toolbar button: , Shortcut Keys: **Ctrl + P**)

Figure 7-34 - Displaying Properties in Separate Windows



You can also use the following method:

- Select a material in the Object View. Right-click with the mouse and select "Display Properties in Separate Window" from the pop-up menu that appears.

Hint: You can display a maximum of ten separate property windows at one time.

8 Animation

8.1 Loading Animation Files

If an imd file has been loaded, it is possible to load the animation files for the imd file. There are five types of animation files. (Table 8-1)

Table 8-1 - Animation Files

Type of File	Description
ica files	Character animation data files
iva files	Visibility animation data files
ima files	Material color animation data files
itp files	Texture pattern animation data files
ita files	Texture SRT animation data files

There are two ways to load animation files:

- Load by selecting files
- Load by dragging and dropping

Note: It is not possible to load animation files if no imd file has been loaded.

Note: Depending on the animation conditions that are set in the 3DCG, ima, itp, and ita files may be exported as files that contain no animation data. When loading this type of animation file, a warning message will appear.

8.1.1 Loading by Selecting File Names

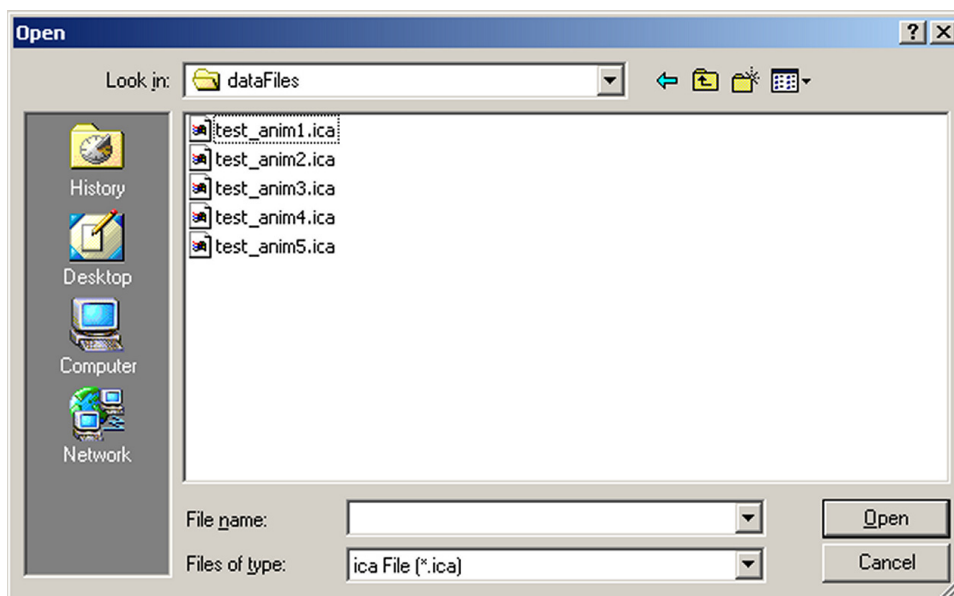
An animation file is loaded by selecting its file name from the file selection dialog box. If the same type of animation file has already been loaded, the previous one will be discarded.

Operating Procedure

1. Select "Load Animation File" on the "File" menu and then "File Type"

(Toolbar Buttons:     )

2. A file selection dialog box will open (Figure 8-1). Select the animation file you want to load and click on the "Open" button.

Figure 8-1 - Loading an Animation File: Selecting a File Name

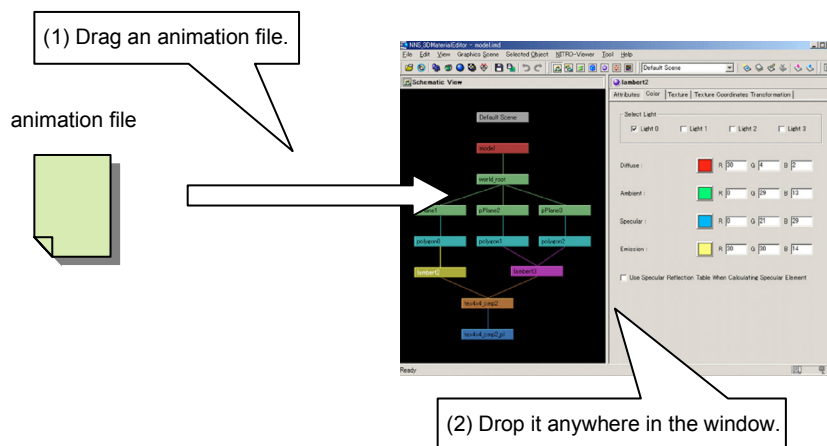
8.1.2 Loading by Dragging and Dropping

Dragging and dropping loads animation files.

It is possible to simultaneously open different types of animation files. If the same type of animation file is already loaded, the loaded file is overwritten.

Operating Procedure

1. Drag animation files and drop them anywhere in the main window.

Figure 8-2 - Loading an Animation File: Dragging and Dropping

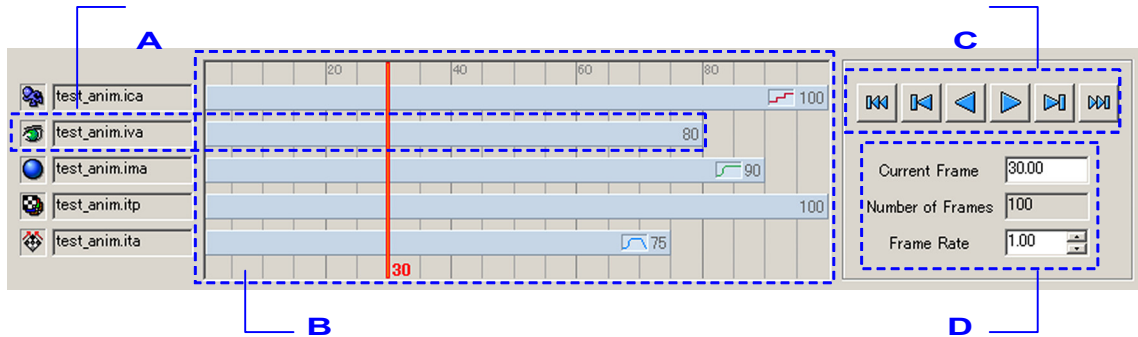
Note: If you drag and drop multiple files of the same type, a dialog box will appear for selecting the animation file to load.

8.2 Animation Operations

When the animation file is loaded, an animation view will appear in the bottom of the main window. (Figure 8-3) In the animation view, it is possible to switch animation between enable and disable, check the properties, and execute frame operations for previewing.

Frame operations in the animation view are possible only while NITRO-Viewer is connected. If NITRO-Viewer is not connected, the frame operation control in the animation view will be disabled. For information on communications with NITRO-Viewer, see "[9 Communications with NITRO-Viewer](#)" on page 121.

Figure 8-3 - Animation View



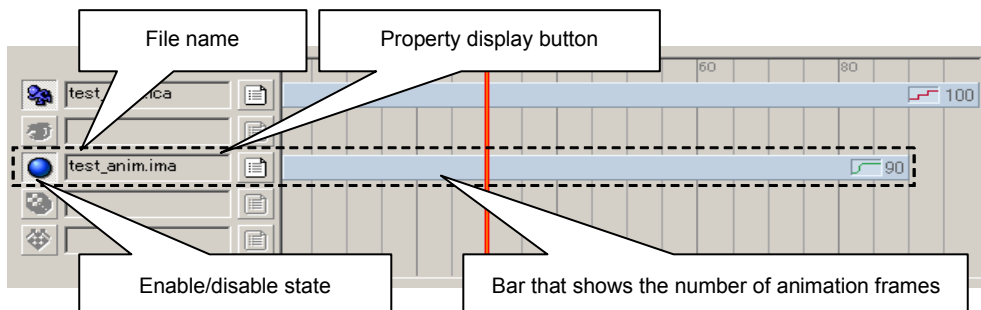
- A.** The following appear: the enable/disable state of the loaded animation, the file name, the property display button, and a bar that indicates the number of frames. (Figure 8-4)

From the top, the sections correspond, in order, to the following animations:

- Character animation (ica files)
- Visibility animation (iva files)
- Material color animation (ima files)
- Texture pattern animation (itp files)
- Texture SRT animation (ita files)

If a corresponding animation file is not loaded, nothing will be displayed.

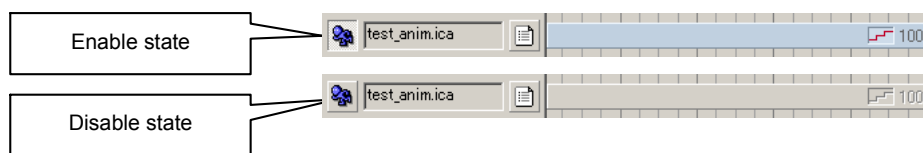
Figure 8-4 - Animation Information



The icon on the left edge displays the enable/disable state of the animation (Figure 8-5).

For animation in disabled state, the bar showing the number of frames is displayed in gray and is not played.




Clicking the icon switches the state.

Figure 8-5 - Animation Enable/Disable State

Press the property display button to display the property dialog box for each animation. For details about property dialog boxes, see ["8.3 Animation Properties"](#) on page 105.

For character animation, material color animation, and animation of the three types of texture SRT animation, information relating to playback with the decimal frame during animation playback is displayed in icon form at the right end of the bar that shows the number of frames (Table 8-2).

Table 8-2 - Information Related to Play Using the Decimal Frame

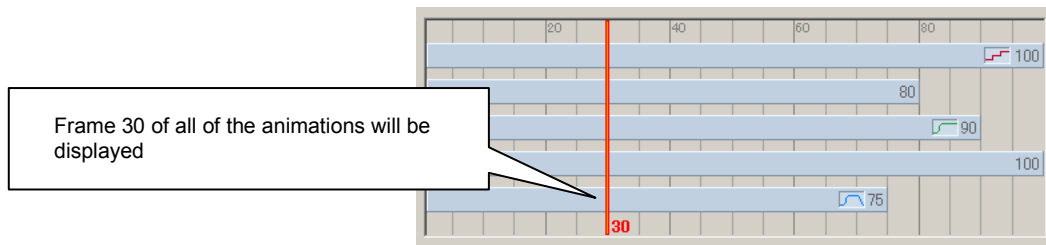
Icon	Description
	Plays by omitting decimal frame and handling as integer frame. Corresponds to the attribute <code>interpolation=frame</code> for the <code><***_info></code> element (*) in each animation file.
	Searches for and plays value in/with decimal frame as is without omitting decimal frame, using line interpolation. Does not interpolate from the last frame to the first frame. Corresponds to the attributes <code>interpolation=linear</code> , <code>interp_end_to_start=off</code> for the <code><***_info></code> element (*) in each animation file.
	Searches for and plays value in/with decimal frame as is without omitting decimal frame, using line interpolation. Interpolates from the last frame to the first frame. Corresponds to the attributes <code>interpolation=linear</code> , <code>interp_end_to_start=on</code> for the <code><***_info></code> element (*) in each animation file.

* For character animation files (ica), `<node_anm_info>`; for material color animation files (ima), `<mat_color_info>`; for texture SRT animation files (ita), `<tex_srt_info>`.

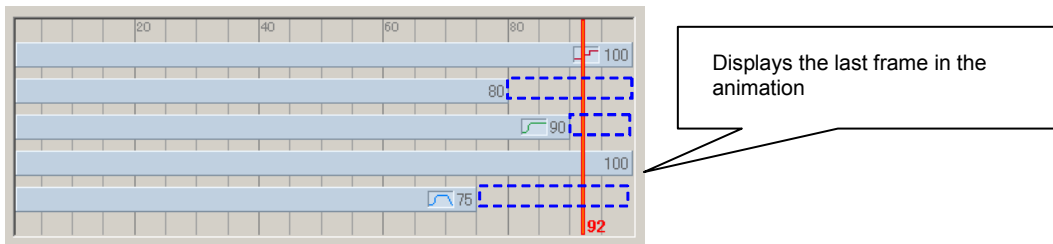
Note: Some versions of NITRO-Viewer do not support linear interpolation play for material color animation, or texture SRT animation sub frames. For details see the NITRO-Viewer manual.

- B.** This region is for operating on animation frames that are displayed in NITRO-Viewer.

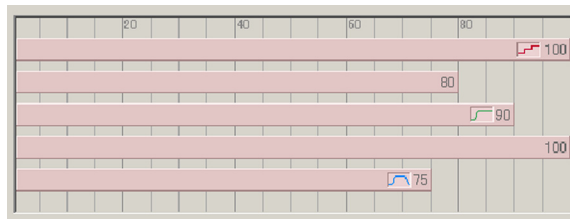
The current frame is indicated by a red line. You can change the value by left-clicking with the mouse or by dragging. You can set this value within the range of the maximum number of frames of all the animations that have been loaded, and apply it in common to all animations. (Figure 8-6)

Figure 8-6 - Current Frame: 1

If each animation has a different number of frames, and if the current frame number exceeds the number in an animation, the last frame of that animation will be displayed. (Figure 8-7)

Figure 8-7 - Current Frame: 2








While animation is playing, each bar is displayed in red (Figure 8-8).

Figure 8-8 - During Animation Play

Note: The 3D Material Editor handles the display frames of all animations together. It is not possible to specify a different display frame for each animation.

- C.** This button is for animation play, stop, etc. Button functions are shown in Table 8-3.

Table 8-3 - Animation Operation Buttons

Button	Description
	Sets the current frame back to the start frame.
	Sets the current frame back by Frame Change Amount (D in Figure 8-6).
	Begins playing the animation in reverse. During reverse animation, it changes to the Stop button. (*).
	Begins playing animation. During play, it changes to the Stop button. (*).
	Advances the current frame by Frame Change Amount (D in Figure 8-6).
	Advances the current frame to the last frame.
	* Stops animation during play or reverse animation.

Hint: The similar operation as pressing the above-mentioned animation operation button can be done with the button operation in NITRO-Viewer. For details on the operation procedure, see the NITRO-Viewer manual.

D. This sets the following:

- Loop Play

Selects whether or not to loop animation and play.

When loop playing, animation that is playing or reverse playing continues to loop until the stop button is pushed. During not loop playing, play stops automatically when the playing animation reaches the final frame, or when the reverse playing animation reaches the starting frame.

- Current Frame

Directly specifies the animation frame to view with NITRO-Viewer. You cannot change this while playing forward or reverse animation.

- Number of Frames

Displays the total number of frames in an animation. This is the largest value of all the animations that have been loaded. It cannot be changed.

- Frame Change Amount

This sets the number of frames that will be added (or reduced) for 1 game frame when an animation is played (or played in reverse). You cannot change this while playing forward or reverse animation.

8.3 Animation Properties

A property dialog box is displayed for each type of animation.

8.3.1 ica Property Dialog Box

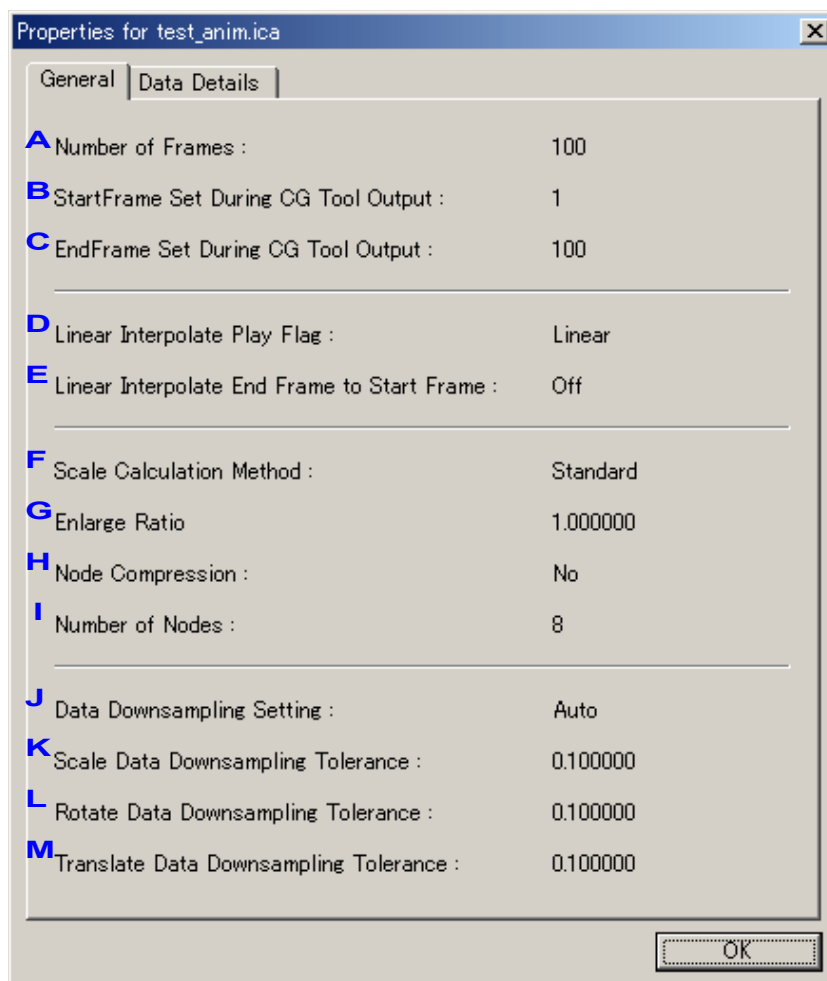
There are two pages in the ica dialog box.

- General page
- Data Details page

8.3.1.1 General

Information on the entire animation is displayed. (Figure 8-9)

Figure 8-9 - ica Property Dialog Box: General



- A.** The animation frame count. It corresponds to the attribute `frame_size` of the ica file `<node_anm_info>` element.
- B.** The StartFrame that was specified when the file was output from 3DCG tool. It corresponds to the attribute `tool_start_frame` of the ica file `<node_anm_info>` element.

- C.** The EndFrame that was specified when the file was output from the 3DCG tool. It corresponds to the attribute `tool_end_frame` of the ica file `<node_anm_info>` element.
- D.** The method when searching for and playing values in the decimal frame when playing animation. One of the following types is selected.
 - Frame
 - Linear

It corresponds to the attribute `interpolation` of the ica file `<node_anm_info>` element.

- E.** The flag that determines whether to use linear interpolation between the last frame and the first frame. The flag D is displayed only when it is set to Linear. It corresponds to the attribute `interp_end_to_start` of the ica file `<node_anm_info>` element.
- F.** How to calculate the scale. At this point, one of these three types is selected.
 - Normal
 - Maya method
 - Softimage method

It corresponds to the attribute `scaling_rule` of the ica file `<node_anm_info>` element.

- G.** The scaling factor that is applied to the entire model when the file is output from the 3DCG tool. It corresponds to the attribute `magnify` of the ica file `<node_anm_info>` element.
- H.** The compressed status of the node that was output. One of these five types is selected.
 - None
 - Cull
 - Merge
 - Unite
 - Unite Combine

It corresponds to the attribute `compress_node` of the ica file `<node_anm_info>` element.

- I.** The number of uncompressed and compressed nodes. If the nodes are not compressed, only the number of uncompressed nodes are displayed. It corresponds to the attribute `node_size` of the ica file `<node_anm_info>` element.
- J.** Specifying data for thinning out. One of these four types is selected.
 - 1
 - 2
 - 4
 - Auto

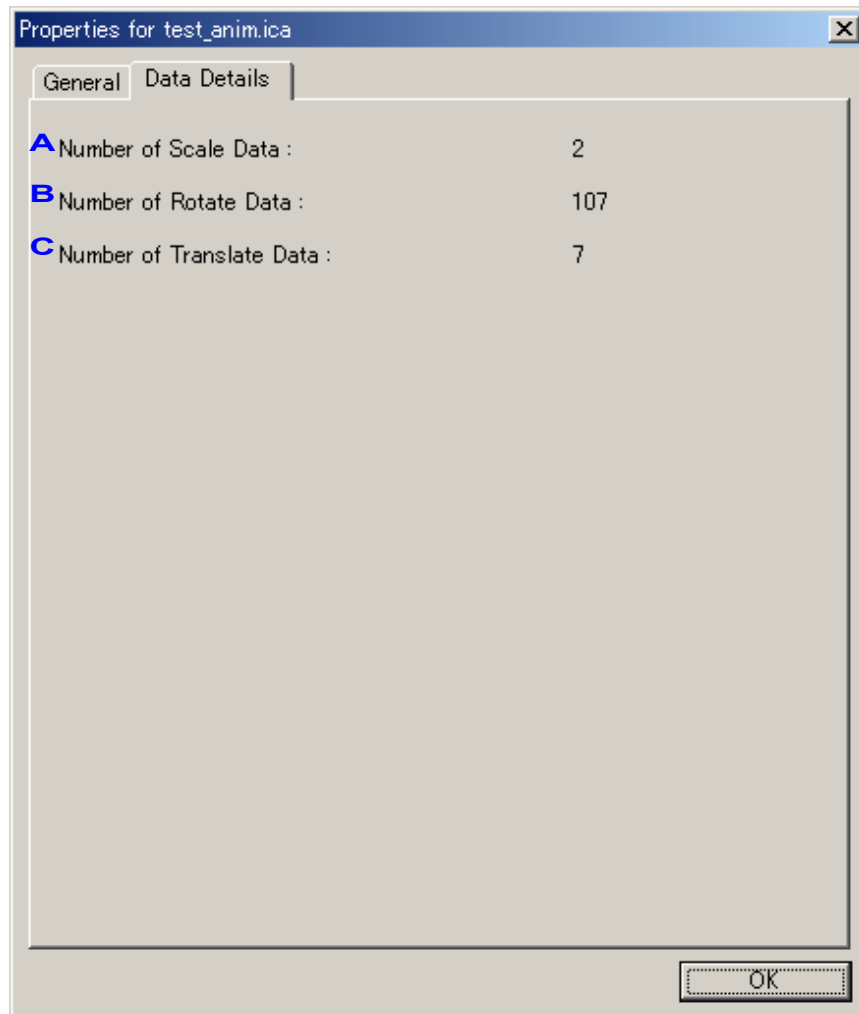
It corresponds to the attribute `frame_step_mode` of the ica file `<node_anm_info>` element.

- K.** The margin of error allowed for thinning out the scale data. It corresponds to the attribute `tolerance_scale` of the ica file `<node_anm_info>` element.
- L.** The margin of error allowed for thinning out the rotate data. It corresponds to the attribute `tolerance_rotate` of the ica file `<node_anm_info>` element.
- M.** The margin of error allowed for thinning out the translate data. It corresponds to the attribute `tolerance_translate` of the ica file `<node_anm_info>` element.

8.3.1.2 Data Details

Information on the animation data is displayed. (Figure 8-10)

Figure 8-10 - ica Property Dialog Box: Data Details



- A.** The amount of scale data. It corresponds to the attribute `size` of the ica file `<node_scale_data>` element.
- B.** The amount of rotate data. It corresponds to the attribute `size` of the ica file `<node_rotate_data>` element.
- C.** The amount of translate data. It corresponds to the attribute `size` of the ica file `<node_translate_data>` element.

8.3.2 iva Property Dialog Box

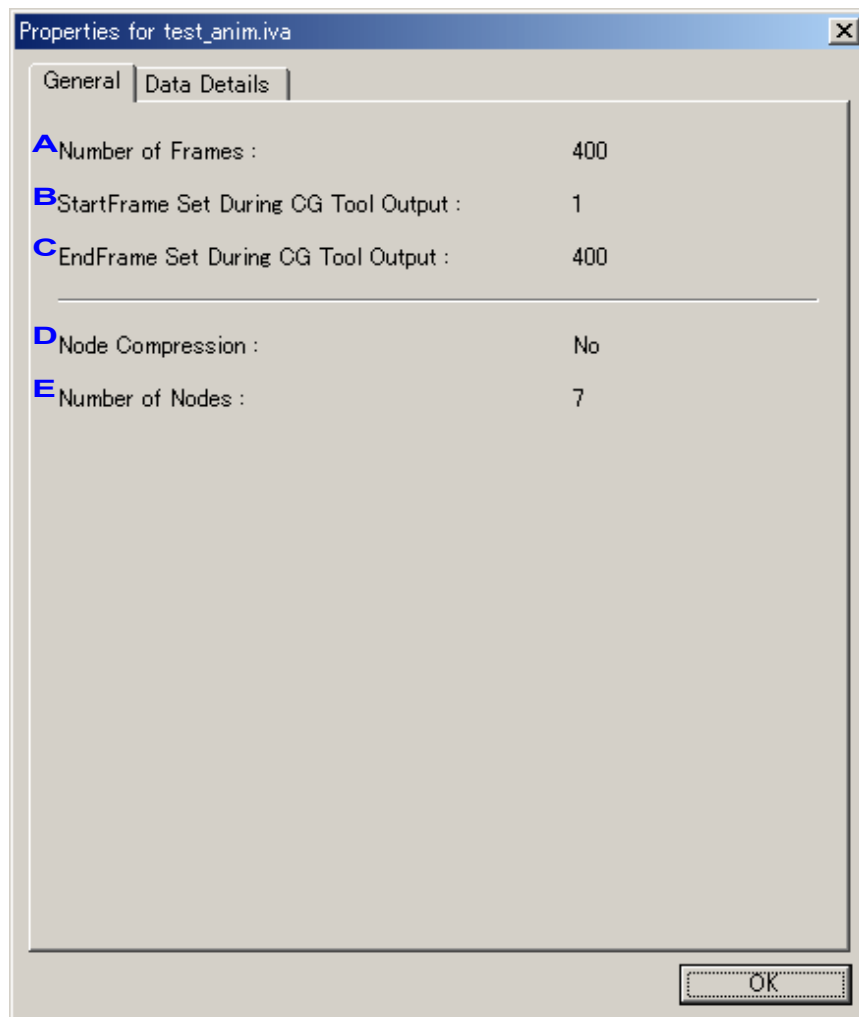
There are two pages in the iva property dialog box.

- General page
- Data Details page

8.3.2.1 General

Information on the entire animation is displayed. (Figure 8-11)

Figure 8-11 - iva Property Dialog Box: General



- A.** The number of animation frames. It corresponds to the attribute `frame_size` of the iva file `<visibility_info>` element.
- B.** The StartFrame specified when a file is output from 3DCG tool. It corresponds to the attribute `tool_start_frame` of the iva file `<visibility_info>` element.
- C.** The EndFrame specified when a file is output from 3DCG tool. It corresponds to the attribute `tool_end_frame` of the iva file `<visibility_info>` element.

D. The compression status of the node that was output. One of these five types is selected.

- None
- Cull
- Merge
- Unite
- Unite Combine

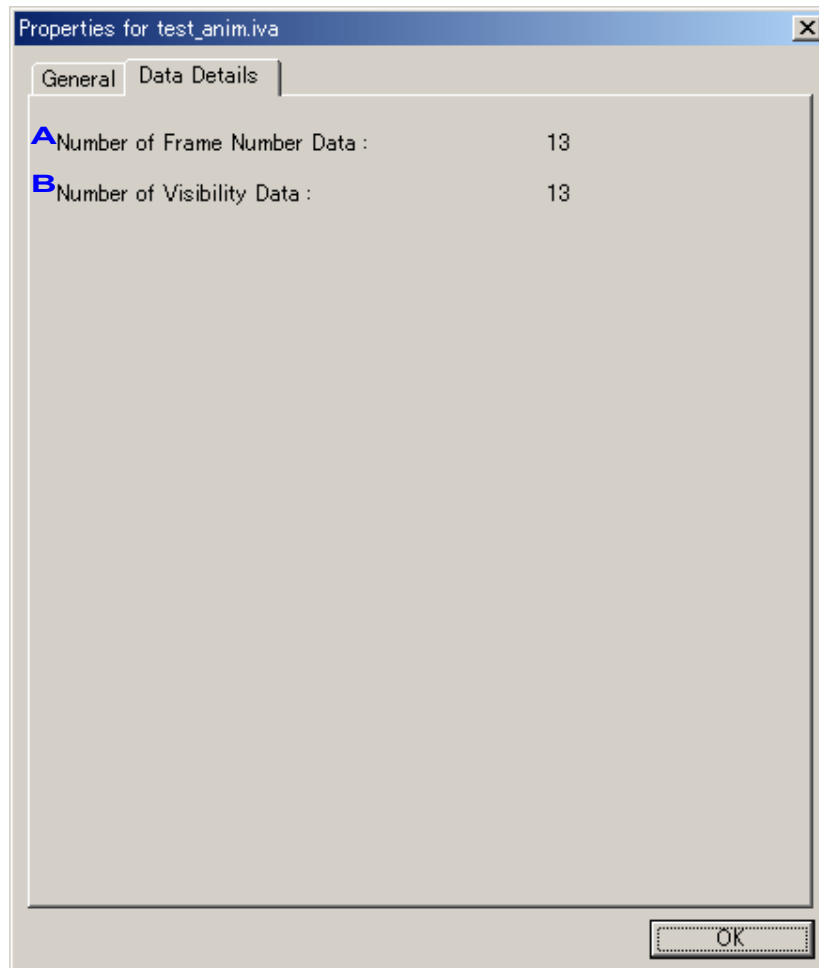
It corresponds to the attribute `compress_node` of the iva file `<visibility_info>` element.

E. The number of uncompressed and compressed nodes. If the nodes are not compressed, only the number of uncompressed nodes are displayed. It corresponds to the attribute `node_size` of the iva file `<visibility_info>` element.

8.3.2.2 Data Details

Detailed information on the entire animation is displayed. (Figure 8-12)

Figure 8-12 - iva Property Dialog Box: Data Details



A. The amount of frame number data. It corresponds to the attribute `size` of the iva file `<frame_idx>` element.

B. The amount of visibility data. It corresponds to the attribute `size` of the iva file `<visibility_data>` element.

8.3.3 ima Property Dialog Box

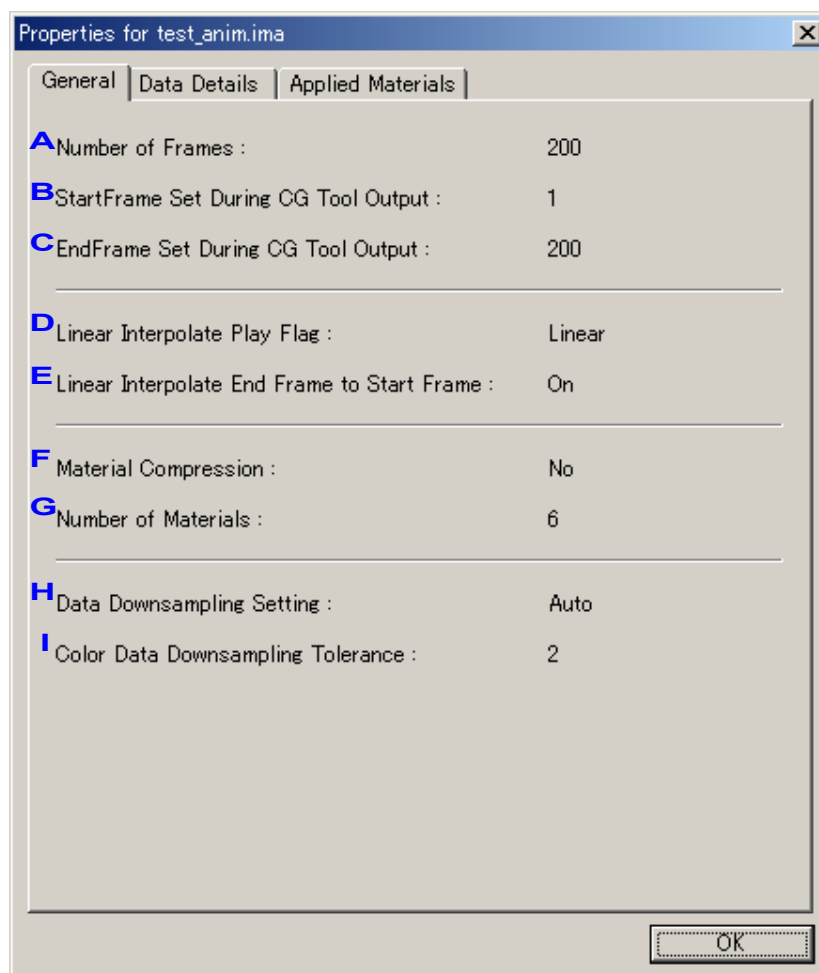
There are three pages in the ima property dialog box.

- General page
- Data Details page
- Applied Materials page

8.3.3.1 General

Information on the entire animation is displayed. (Figure 8-13)

Figure 8-13 - ima Property Dialog: General



- A.** The number of animation frames. It corresponds to the attribute `frame_size` of the ima file `<mat_color_info>` element.
- B.** The StartFrame that was specified when the file was output from the 3DCG tool. It corresponds to the attribute `tool_start_frame` of the ima file `<mat_color_info>` element.
- C.** The EndFrame that was specified when the file was output from the 3DCG tool. It corresponds to the attribute `tool_end_frame` of the ima file `<mat_color_info>` element.

- D.** Method when searching for and playing values in the decimal frame during animation playback. One of these two types is selected.
- Frame
 - Linear

It corresponds to the attribute `interpolation` of the ima file `<mat_color_info>` element.

Depending on the version of NITRO-Viewer, there are cases where line interpolation play for decimal frame of material color animation may not be supported (decimal frame is omitted, and play occurs with it treated as integer frame). For details, see the NITRO-Viewer manual.

- E.** The flag that determines whether to use linear interpolation between the last frame and the first frame. Displayed only when the flag in D is set to Linear. It corresponds to the attribute `interp_end_to_start` of the ima file `<mat_color_info>` element.
- F.** Indicates whether the material is compressed. It corresponds to the attribute `compress_material` of the ima file `<mat_color_info>` element.
- G.** The number of compressed and uncompressed materials. If the materials are not compressed, only the number of uncompressed materials is displayed. It corresponds to the attribute `material_size` of the ima file `<mat_color_info>` element.
- H.** Specifying data for thinning out. One of these four types is selected.
- 1
 - 2
 - 4
 - Auto

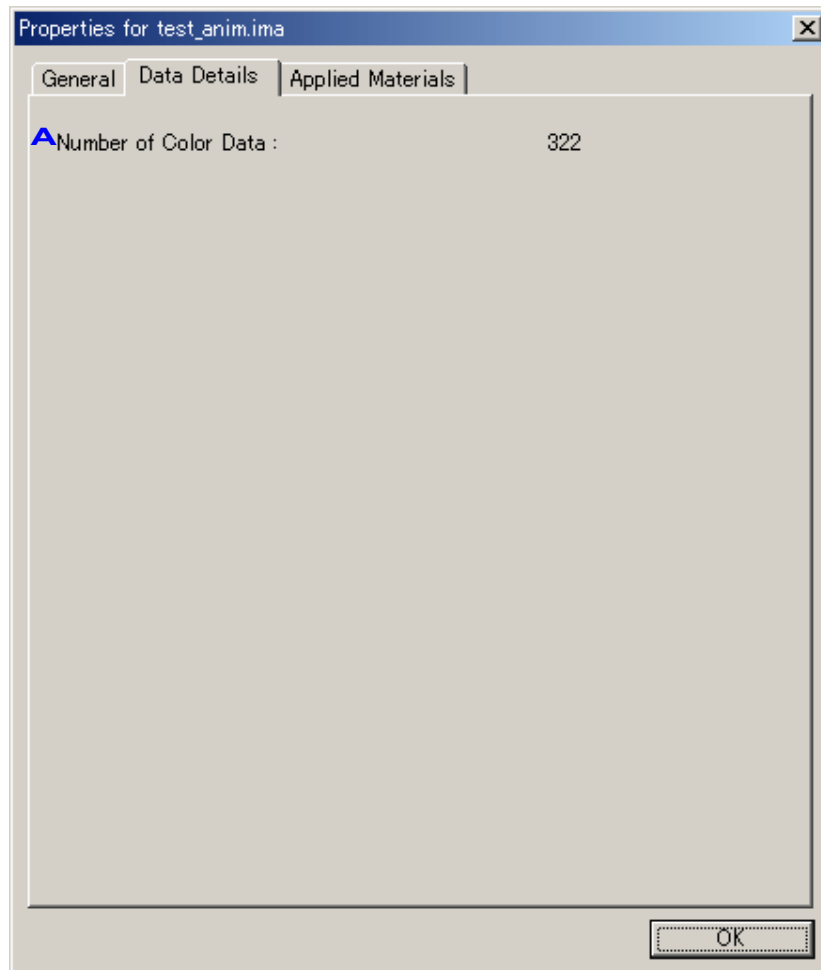
It corresponds to the attribute `tolerance_color` of the ima file `<mat_color_info>` element.

- I.** The margin of error allowed for thinning out the color data. It corresponds to the attribute `tolerance_color` of the ima file `<mat_color_info>` element.

8.3.3.2 Data Details

Information on the animation data is displayed. (Figure 8-14)

Figure 8-14 - ima Property Dialog Box: Data Details

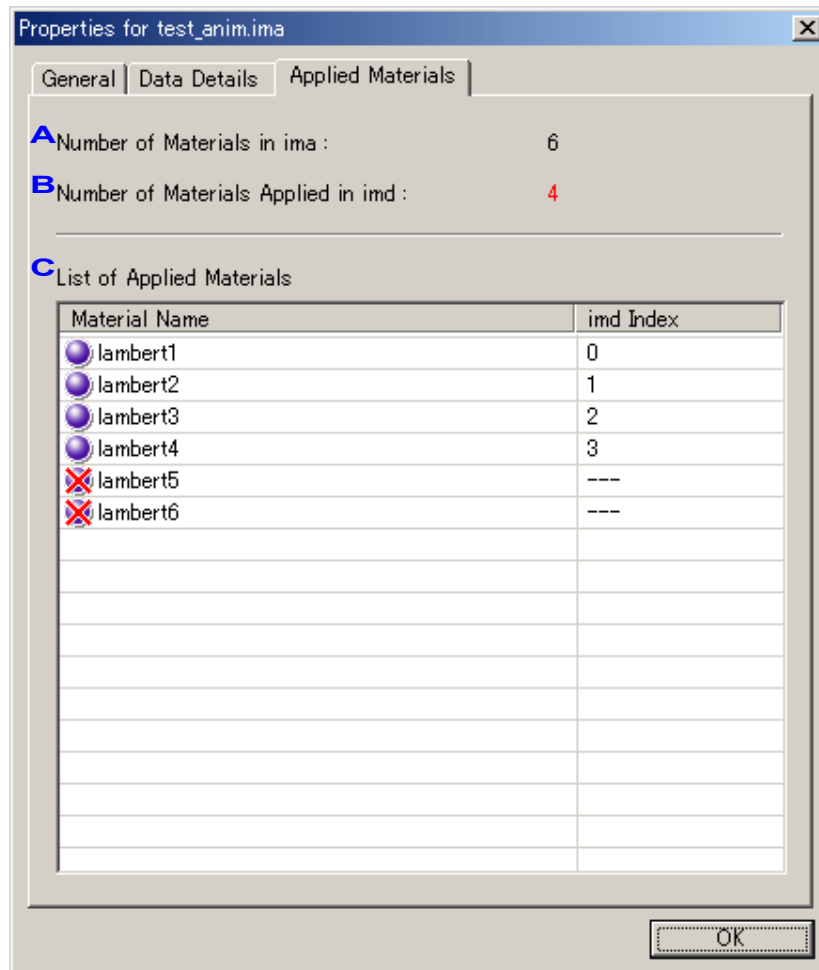


- A. The amount of color data. It corresponds to the attribute size of the ima file `<mat_color_data>` element.

8.3.3.3 Applied Materials

Displays information regarding the material to which the animation is applied. (Figure 8-15)

Figure 8-15 - ima Property Dialog Box: Applied Materials



- A. The number of materials to which the animation is applied, as specified in the ima file. It corresponds to the attribute `size` of the ima file `<mat_color_anm_array>` element.
- B. Of the number of materials shown in A, this is the number of materials that matched the material names and was applied to imd. The materials specified in the ima file that were applied to imd are shown in blue. The materials not applied to imd are shown in red.
- C. A list of materials to be applied to the animation. The materials applied to imd are shown, with the index in imd shown on the right. The icons are crossed out for the materials not applied to imd.

8.3.4 itp Property Dialog Box

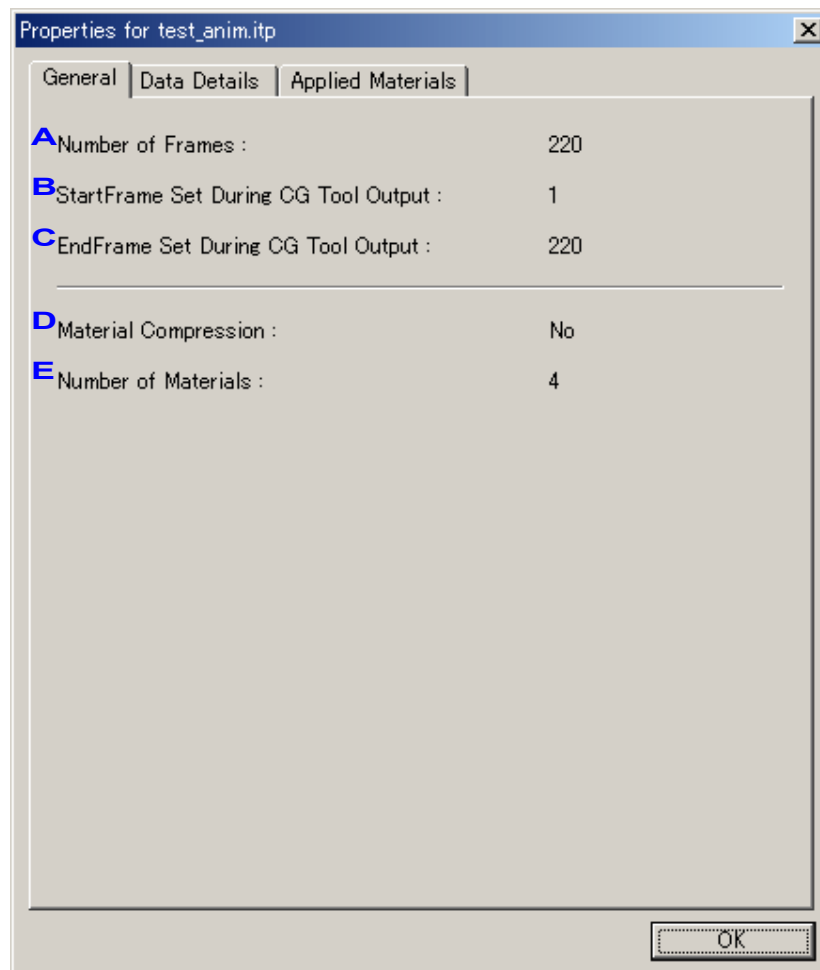
There are three pages in the itp property dialog box.

- General page
- Data Details page
- Applied Materials page

8.3.4.1 General

Information on the entire animation is displayed. (Figure 8-16)

Figure 8-16 - itp Property Dialog Box: General



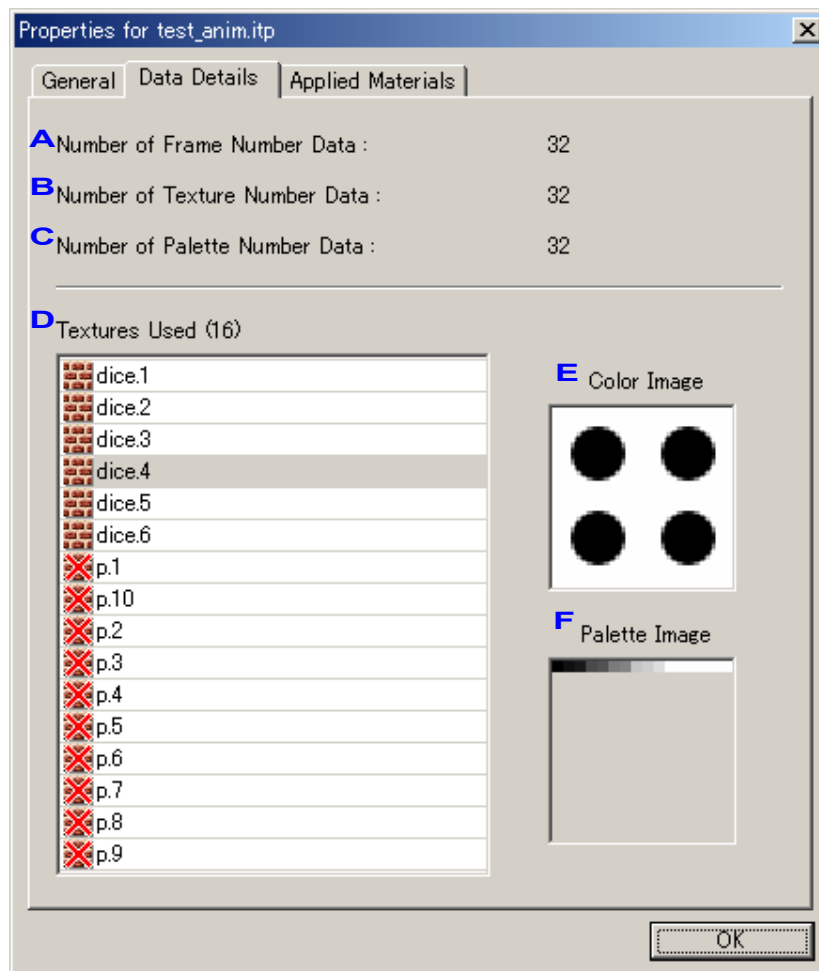
- A. The number of frames in the animation. It corresponds to the attribute `frame_size` of the itp file `<tex_pattern_info>` element.
- B. The StartFrame that was specified when the file was output from the 3DCG tool. It corresponds to the attribute `tool_start_frame` of the itp file `<tex_pattern_info>` element.
- C. The EndFrame that was specified when the file was output from the 3DCG tool. It corresponds to the attribute `tool_end_frame` of the itp file `<tex_pattern_info>` element.
- D. Indicates whether the material is compressed. It corresponds to the attribute `compress_material` of the itp file `<tex_pattern_info>` element.

- E. The number of uncompressed and compressed materials. If the materials are not compressed, only the number of uncompressed materials are displayed. It corresponds to the attribute `material_size` of the itp file `<tex_pattern_info>` element.

8.3.4.2 Data Details

Detailed information on the animation is displayed. (Figure 8-17)

Figure 8-17 - itp Property Dialog Box: Data Details



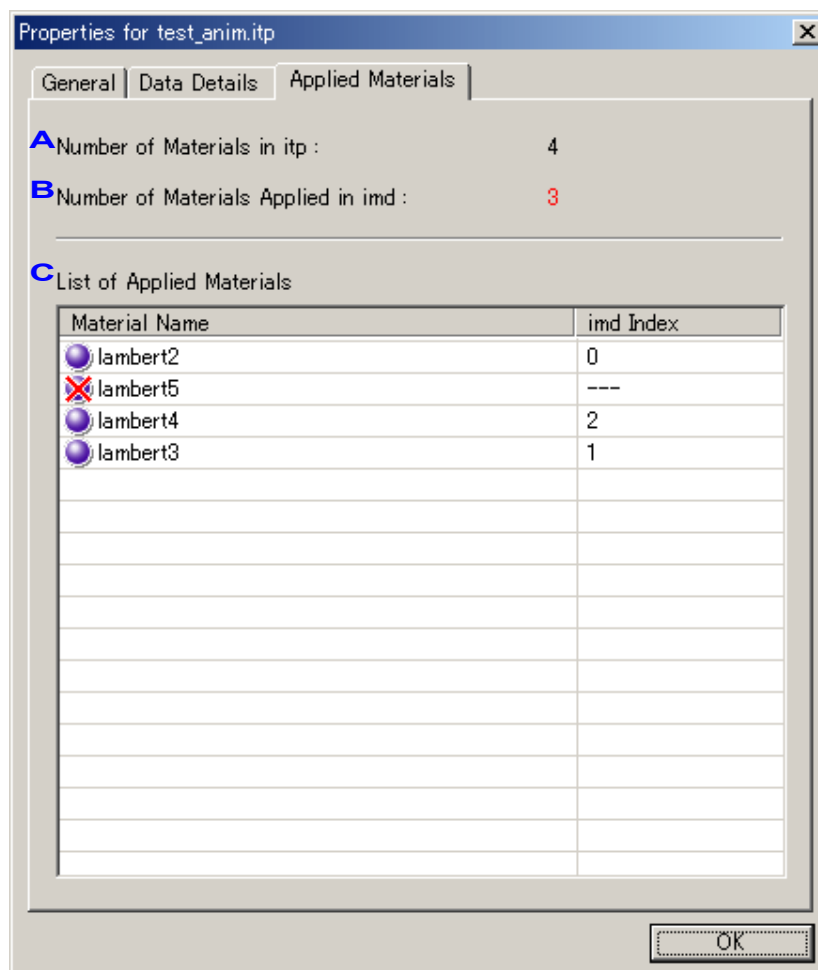
- A. The amount of frame number data. It corresponds to the attribute `size` of the itp file `<frame_idx>` element.
- B. The amount of texture image number data. It corresponds to the attribute `size` of the itp file `<image_idx>` element.
- C. The amount of palette number data. It corresponds to the attribute `size` of the itp file `<palette_idx>` element.
- D. A list of texture that is specified in the itp file to be used for the animation. When there is no corresponding texture in imd, the icon is crossed out. By selecting each texture name, the color image of the texture and palette image (only when the format requires the palette) are displayed on the right.

- E.** The color image of the texture that is selected in D. When there is no corresponding texture in imd, nothing is displayed.
- F.** The palette image of the palette that is referenced by the texture selected in D. Displayed only if the texture is in the format that uses the palette. When there is no corresponding palette in imd, nothing is displayed.

8.3.4.3 Applied Materials

Displays information regarding the material to which the animation is applied. (Figure 8-18)

Figure 8-18 - itp Property Dialog Box: Applied Materials



- A.** The number of materials that are applied to the animation, as specified in the itp file. It corresponds to the attribute `size` of the itp file `<tex_pattern_anm_array>` element.
- B.** Of the number of materials shown in A, this is the number of materials that matched the material names and was applied to imd. The materials in the itp file that were applied to imd are shown in blue. The materials that were not applied to imd are shown in red.
- C.** A list of materials to be applied to the animation. The materials applied to imd are shown, with the index in imd on the right. The icons are crossed out for the materials not applied to imd.

8.3.5 ita Property Dialog Box

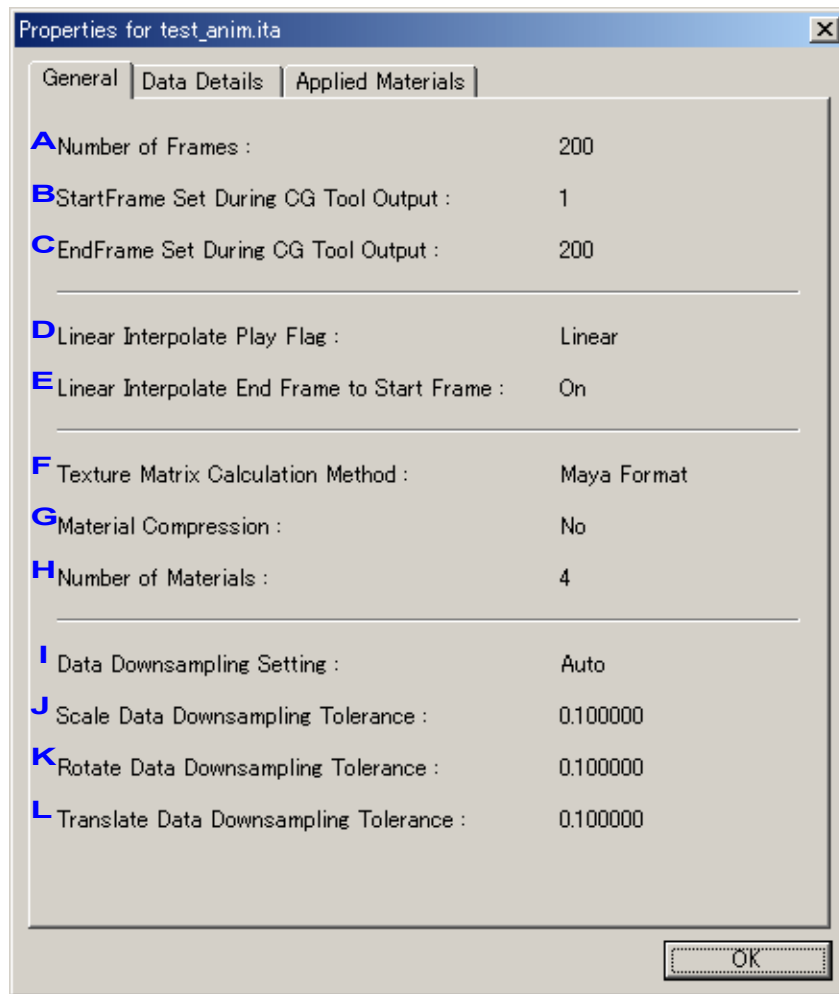
There are three pages in the ita property dialog box.

- General page
- Data Details page
- Applied Materials page

8.3.5.1 General

Information on the entire animation is displayed. (Figure 8-19)

Figure 8-19 - ita Property Dialog Box: General



- A. The number of frames in the animation. It corresponds to the attribute `frame_size` of the ita file `<tex_srt_info>` element.
- B. The StartFrame that was specified when the file was output from the 3DCG tool. It corresponds to the attribute `tool_start_frame` of the ita file `<tex_srt_info>` element.
- C. The EndFrame that was specified when the file was output from the 3DCG tool. It corresponds to the attribute `tool_end_frame` of the ita file `<tex_srt_info>` element.

- D.** When playing animation, this is the method when searching for and playing the value in the decimal frame. One of these two types is selected.
- Frame
 - Linear

It corresponds to the attribute `interpolation` of the ita file `<tex_srt_info>` element.

Depending on the version of NITRO-Viewer, there are cases where line interpolation play for decimal frame of texture SRT animation may not be supported (decimal frame is omitted, and play occurs with it treated as integer frame). For details, see the NITRO-Viewer manual.

- E.** The flag that determines whether to use linear interpolation between the last frame and the first frame. The flag mentioned in D is displayed only when it is set to Linear. It corresponds to the attribute `interp_end_to_start` of the ita file `<tex_srt_info>` element.
- F.** This is the texture matrix calculation method. Currently, it will be one of these four methods:
- Maya method
 - SOFTIMAGE|3D method
 - SOFTIMAGE|XSL method
 - 3ds max method

It corresponds to the attribute `tex_matrix_mode` of the ita file `<tex_srt_info>` element.

- G.** Indicates whether the material is compressed. It corresponds to the attribute `compress_material` of the ita file `<tex_srt_info>` element.
- H.** The number of uncompressed and compressed materials. When there is no compressed material, only the number of uncompressed material is displayed. It corresponds to the attribute `material_size` of the ita file `<tex_srt_info>` element.
- I.** Specifying data for thinning out. One of these four types is selected.
- 1
 - 2
 - 4
 - Auto

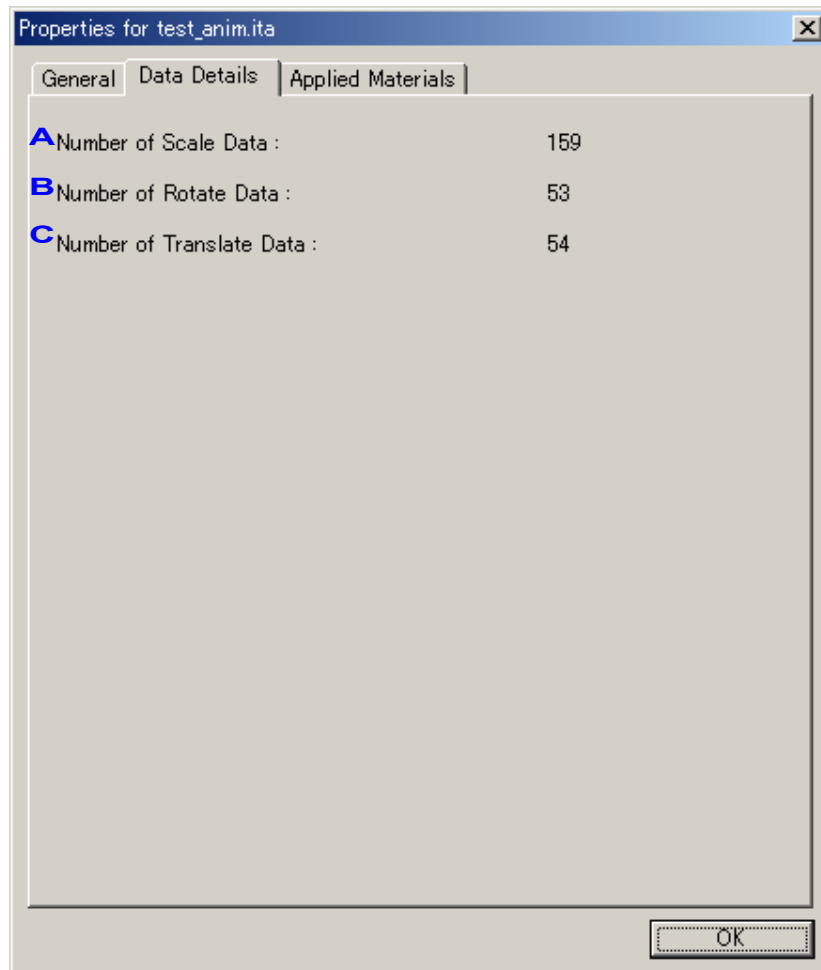
It corresponds to the attribute `frame_step_mode` of the ita file `<tex_srt_info>` element.

- J.** The margin of error allowed for thinning out the scale data. It corresponds to the attribute `tolerance_tex_scale` of the ita file `<tex_srt_info>` element.
- K.** The margin of error allowed for thinning out the rotate data. It corresponds to the attribute `tolerance_tex_rotate` of the ita file `<tex_srt_info>` element.
- L.** The margin of error allowed for thinning out the translate data. It corresponds to the attribute `tolerance_tex_translate` of the ita file `<tex_srt_info>` element.

8.3.5.2 Data Details

Detailed information on the animation data is displayed. (Figure 8-20)

Figure 8-20 - ita Property Dialog Box: Data Details



- A.** The amount of scale data. It corresponds to the attribute `size` of the ita file `<tex_scale_data>` element.
- B.** The amount of rotate data. It corresponds to the attribute `size` of the ita file `<tex_rotate_data>` element.
- C.** The amount of translate data. It corresponds to the attribute `size` of the ita file `<tex_rotate_data>` element.

9 Communications with NITRO-Viewer

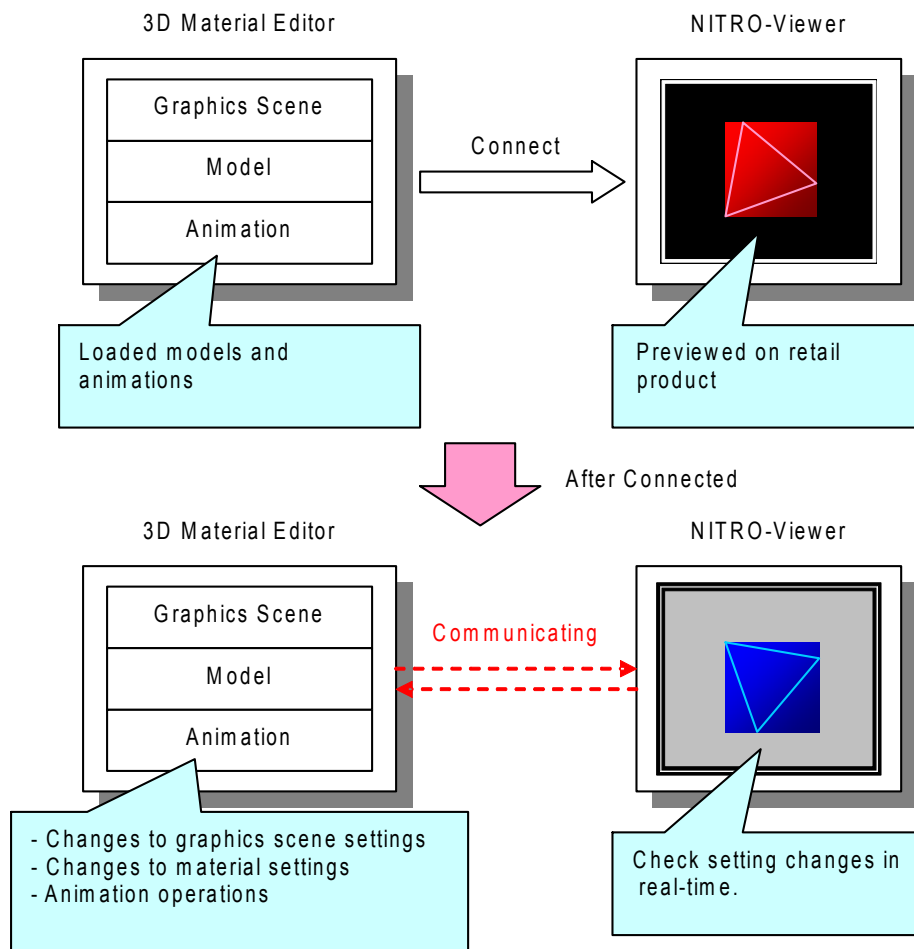
This chapter describes previewing models and animations by communicating with NITRO-Viewer.

9.1 Overview

By connecting the 3D Material Editor to NITRO-Viewer, you can preview models and animations that are loaded into the 3D Material Editor on the production unit.

Once it is connected to NITRO-Viewer, when you use the 3D Material Editor to change a graphics scene or material setting, or operate on animation frames, you will be able to check them on the retail product in real time (Figure 9-1).

Figure 9-1 - Communicating with NITRO-Viewer



Note: In order to communicate with NITRO-Viewer, NITRO-Viewer and NITRO-Viewer controller must have been started properly. For details on using NITRO-Viewer and NITRO-Viewer Controller see their respective manuals.

Note: The models that can be previewed with NITRO-Viewer can contain nodes, materials, and polygons, but no more than 64 of each (due to a limitation in the NITRO-System library). If the nodes, materials, or polygons exceed 64, the model may not be displayed properly.

9.2 Connecting to and Disconnecting from NITRO-Viewer

You can connect to and disconnect from NITRO-Viewer at any time.

9.2.1 Connect to NITRO-Viewer

This connects to NITRO-Viewer and transfers the data required for preview.

Operating Procedure


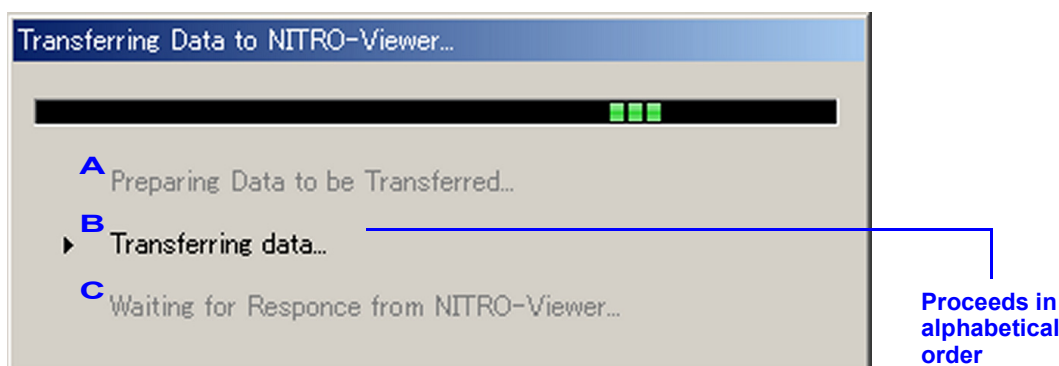
1. Select "Connect" on the "NITRO-Viewer" menu. (Toolbar button: , Shortcut key: **F5**)
2. A dialog box shows the status of the data transfer to NITRO-Viewer (Figure 9-2). If the transfer succeeds, the dialog box will close, and the system will be in connected status.

Figure 9-2 - Transferring Data to NITRO-Viewer



- A.** Creating data to transfer to NITRO-Viewer. Time required for this depends on the size and content of the model and animation data that will be transferred.
- B.** Transferring data to NITRO-Viewer. Time required for this depends on the size and content of the model and animation data that will be transferred.
- C.** Data transfer complete. Waiting for a response from NITRO-Viewer.

Note: If a communications error occurs during data transfer to NITRO-Viewer, an error message will appear, and the connect process will be terminated.


Note: Only one 3D Material Editor can be connected to NITRO-Viewer at one time. To connect from another of multiple, running 3D Material Editors, you must first disconnect the connected 3D Material Editor from NITRO-Viewer.

Hint: If you load imd files or animation files while you are connected to NITRO-Viewer, data will be transferred automatically.

9.2.2 Disconnecting from NITRO-Viewer

This disconnects communications with NITRO-Viewer.

Operating Procedure



1. Select "Disconnect" on the "NITRO-Viewer" menu. (Toolbar: , Shortcut key: **Shift + F5**)

Note: If a communications error occurs during data transfer to NITRO-Viewer, an error message will appear, and disconnection will be automatic.

9.2.3 NITRO-Viewer Connection Status

An icon that indicates the status of the connection to NITRO-Viewer is displayed on the right side of the status bar. This icon will tell you whether the 3D Material Editor is connected to NITRO-Viewer (Table 9-1)

Table 9-1 - NITRO-Viewer Connection Status

Icon	Status
	Connected to NITRO-Viewer.
	Not connected to NITRO-Viewer.

9.3 NITRO-Viewer Settings

You can change NITRO-Viewer display and operation settings from the 3D Material Editor. You can manage NITRO-Viewer settings by preparing multiple types and attaching names. Depending on your use of NITRO-Viewer, you can freely create, delete and switch.

Operating Procedure


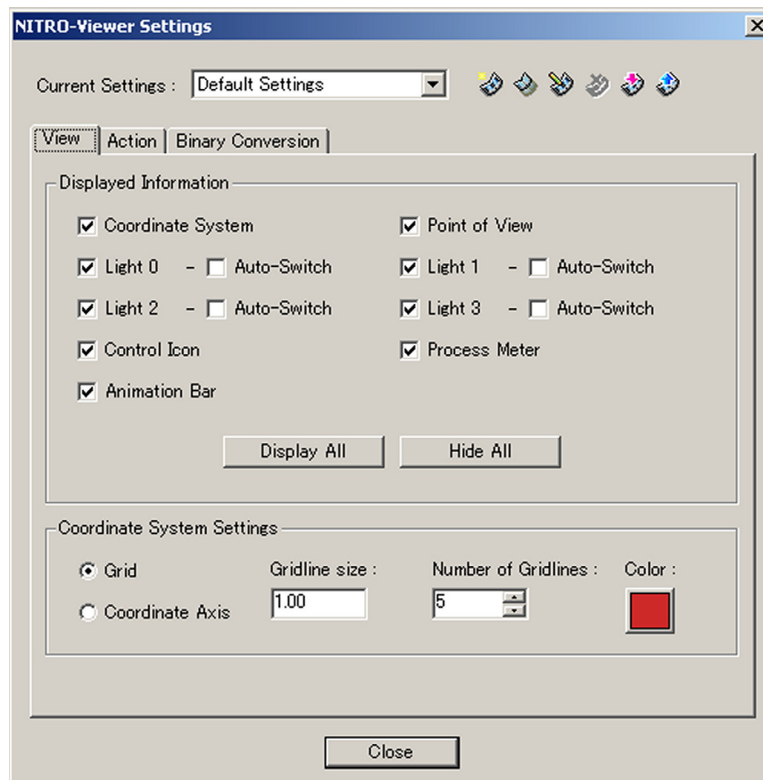
1. Select "Settings" on the "NITRO-Viewer" menu. (Toolbar button: )
2. A NITRO-Viewer setting dialog box will appear (Figure 9-3). Change settings on each dialog page. For details on the dialog boxes, see "NITRO-Viewer Settings Dialog Boxes" on page 124

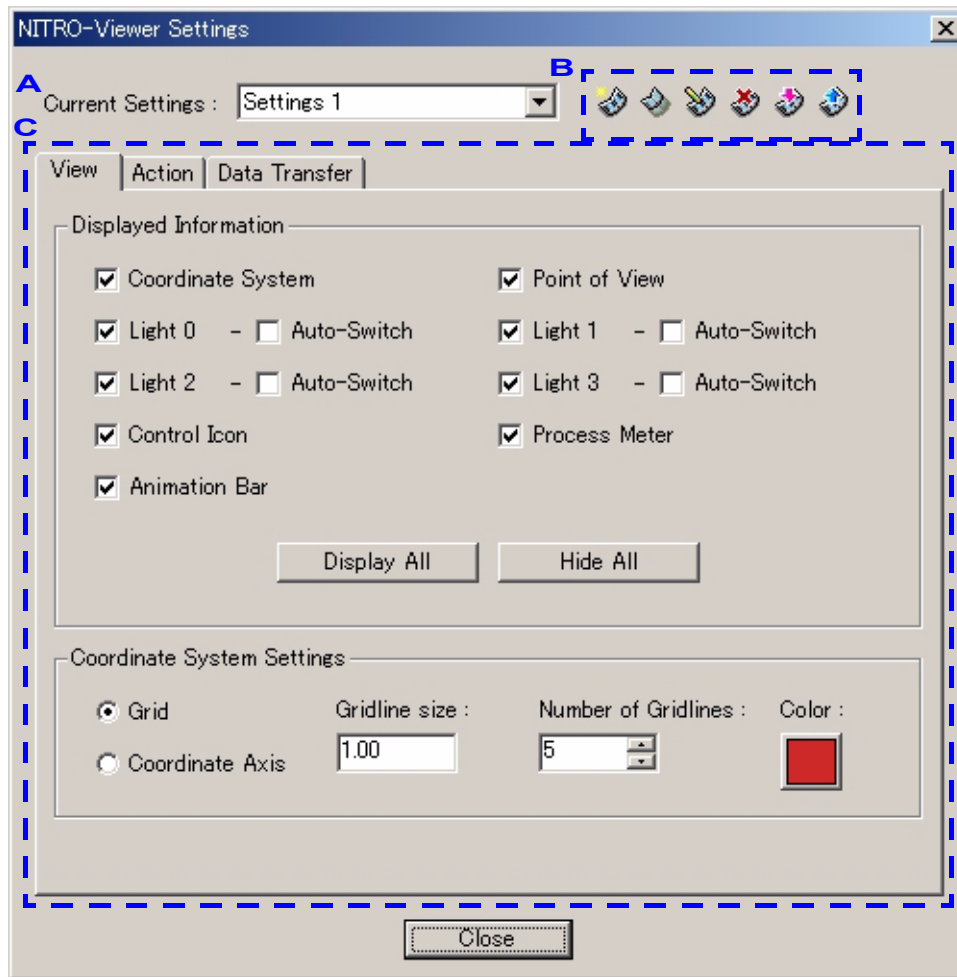
Figure 9-3 - NITRO-Viewer Settings



9.3.1 NITRO-Viewer Settings Dialog Boxes







The NITRO-Viewer Settings dialog box is shown in Figure 9-4.

Figure 9-4 - NITRO-Viewer Settings Dialog Box: Full



- A. Settings currently being used.
Select from among the created settings.
- B. These buttons perform the following operations (Table 9-2).

Table 9-2 - Toolbar Buttons

Button	Description
	Creates new settings. The name input dialog box opens. Input the setting name.
	Makes a copy of the current settings. The name input dialog box opens. Input the setting name.
	Changes name of current setting. The name input dialog box opens. Input the setting name.
	Deletes the current setting. You cannot delete when there is only one setting.
	Imports NITRO-Viewer setting file (.menvs) and adds settings.
	Exports current settings as NITRO-Viewer setting file (.menvs).

Note: NITRO-Viewer setting files (.menvs) used in setting import and export are 3D material editor files. They are not related to NITRO intermediate files or NITRO-System library.

C. The details of the currently used settings are displayed.

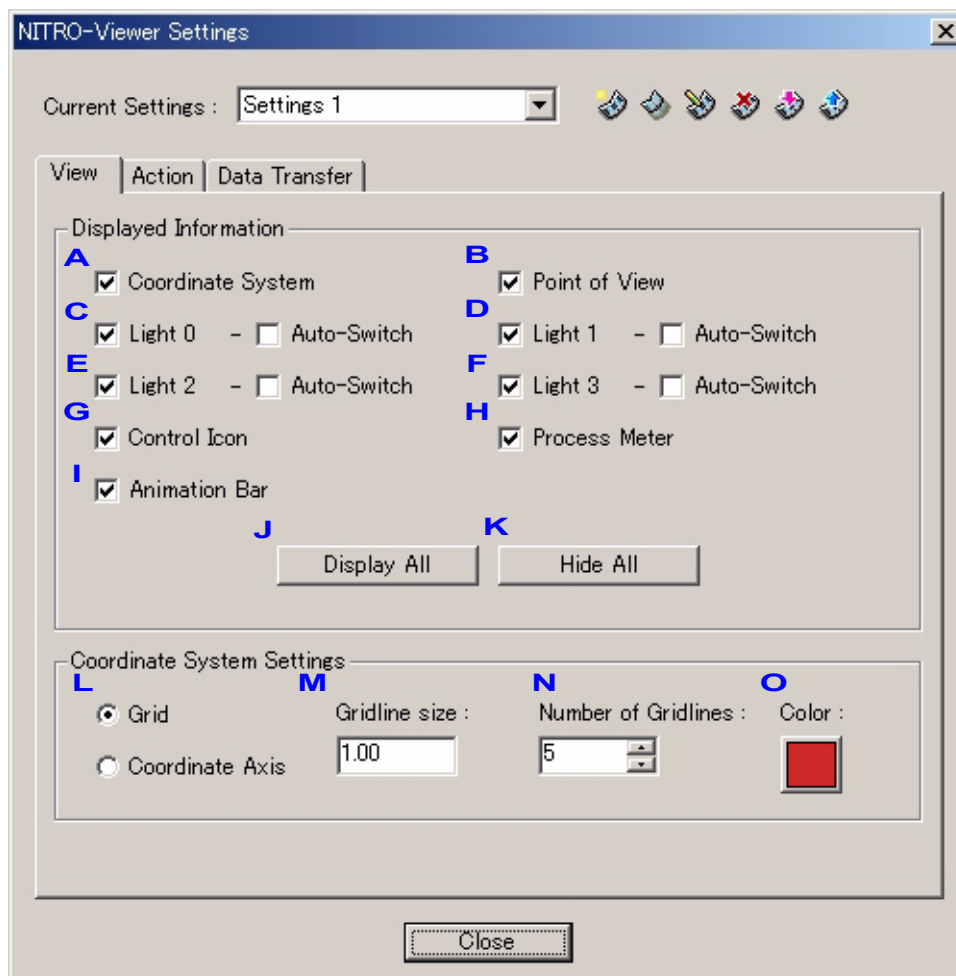
The settings are divided into the following types of pages.

- View page
- Action page
- Data Transfer page

9.3.1.1 View

Creates settings related to NITRO-Viewer display (Figure 9-5).

Figure 9-5 - NITRO-Viewer Settings Dialog Box: View



A. Shows/Hides the coordinate system (grid/axes).

B. Shows/Hides focal point shape.

C. Shows/Hides the shape that represents light 0.

By turning on Auto-Switch on the right side, shape show/hide automatically switches according to the effect flag setting of light 0 of each material.

D. Shows/Hides the shape that represents light 1.

By turning on Auto-Switch on the right side, shape show/hide automatically switches according to the effect flag setting of light 1 of each material.

E. Shows/Hides the shape that represents light 2.

By turning on Auto-Switch on the right side, shape show/hide automatically switches according to the effect flag setting of light 2 of each material.

- F.** Shows/Hides the shape that represents light 3.

By turning on Auto-Switch on the right side, shape show/hide automatically switches according to the effect flag setting of light 3 of each material.

- G.** Shows/Hides the icon at the bottom left of the NITRO-Viewer screen that indicates the target of the controller operation.

- H.** Show/Hide the process meter that appears at the left of the NITRO-Viewer screen.

- I.** Show/Hide the animation bar that appears at the bottom of the NITRO-Viewer screen.

- J.** Shows all information.

No effect on shape showing each light set to Auto-Switch.

- K.** Hides all information.

No effect on shape showing each light set to Auto-Switch.

- L.** Selects which of the following coordinate systems to display:

- Grid (XZ plane)
- Coordinate Axes

- M.** Sets the size of the grid, axis graduations.

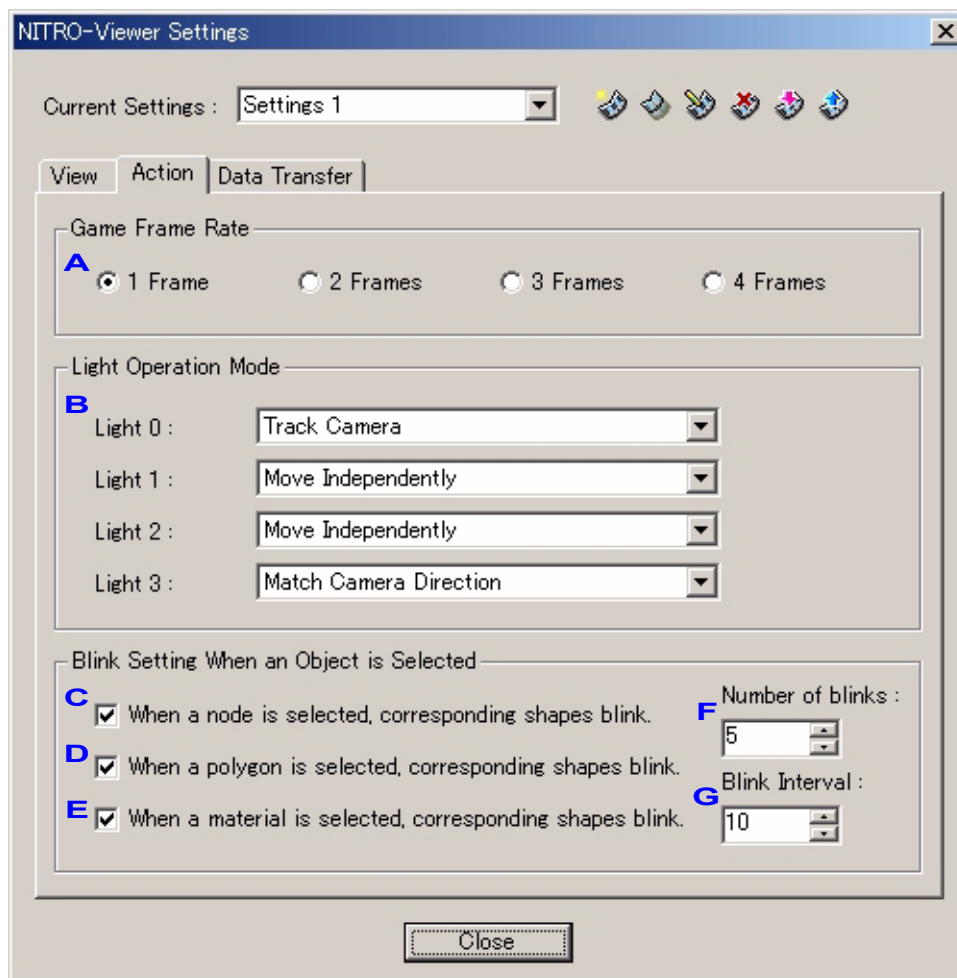
- N.** Sets the number of grid, axis graduations.

- O.** Sets grid color. This is only possible when grid display is specified.

9.3.1.2 Action

Creates settings for NITRO-Viewer operation (Figure 9-6).

Figure 9-6 - NITRO-Viewer Settings Dialog Box: Action



A. Select game frame rate.

B. Select each operation mode of lights 0-3 from the following three types.

Table 9-3 - Light Operation Modes

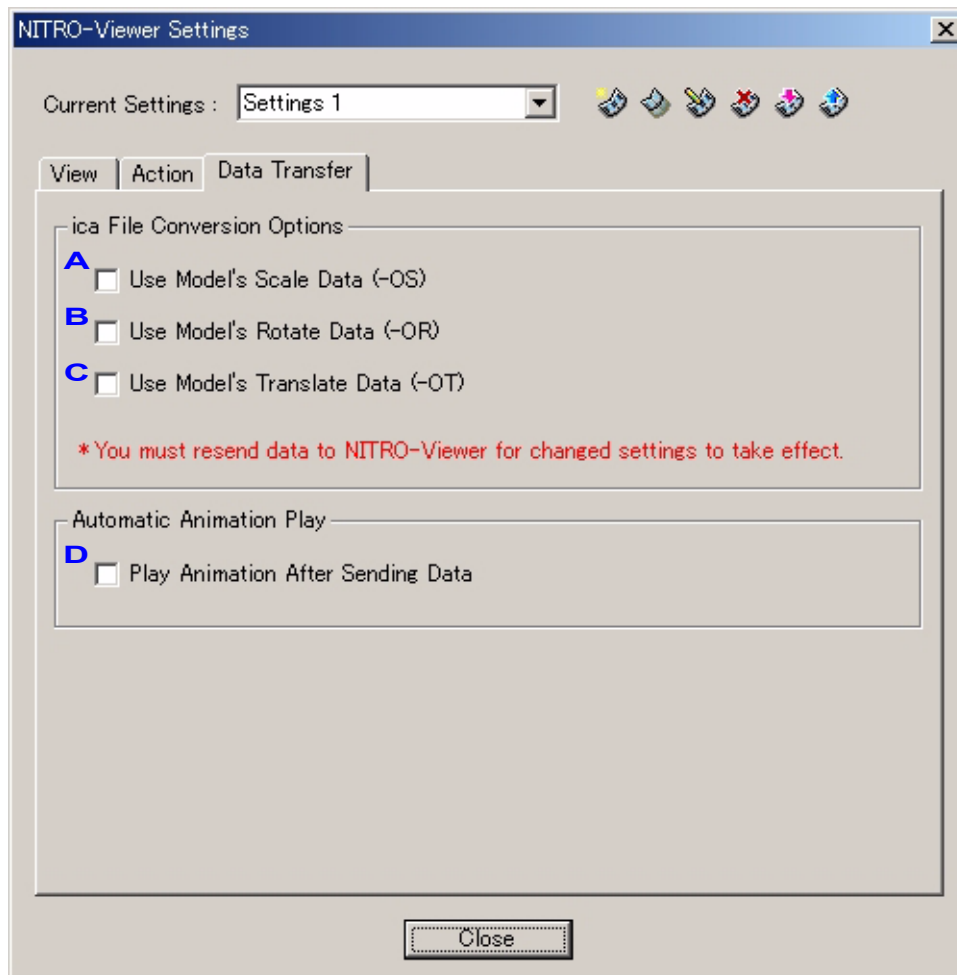
Operation Mode	Description
Move Independently	Moves independently.
Track Camera	When the camera direction changes, the direction of the light moves with it. Enables manipulation of the light itself.
Match Camera Direction	The direction of the light always matches the direction of the camera. Manipulation of the light itself is not possible.

- C. Specifies whether to make the corresponding shape blink when selecting the node in object view.
- D. Specifies whether to make the corresponding shape blink when selecting the polygon in object view.
- E. Specifies whether to make the corresponding shape blink when selecting the material in object view.
- F. Sets the number of times that a shape will blink when an object is selected.
- G. Specifies the number of frames in order to set the blink interval that a shape will have when an object is selected. Does not affect the game frame rate setting.

9.3.1.3 Data Transfer

This makes settings related to the data transfer to NITRO-Viewer. (Figure 9-7)

Figure 9-7 - NITRO-Viewer Settings Dialog Box: Data Transfer



- A. When transforming an ica file, for all nodes other than the root node, the ica file's Scale data is ignored and the model's Scale data is used.
- B. When transforming an ica file, for all nodes other than the root node, the ica file's Rotate data is ignored and the model's Rotate data is used.
- C. When transforming an ica file, for all nodes other than the root node, the ica file's Translate data is ignored and the model's Translate data is used.
- D. Automatically play back the animation after the animation data transfer.

Note: Settings made in the ica file conversion option are used for binary transformations that are performed when transferring data to NITRO-Viewer. Therefore, in order for changes to take effect, you must re-transfer to NITRO-Viewer.

9.4 Static Model Settings

The 3D Material Editor allows you to save and control secondary models that are static and always displayed in NITRO-Viewer. This feature is in addition to the preview of normal models in NITRO-Viewer.

These models are called “static models” in the 3D Material Editor and are used for the following applications.

- When designing a character model, an existing terrain model is positioned for comparison purposes.
- When designing a terrain model, an existing character model is positioned for comparison purposes.
- A model is designed while comparing size and color to an existing model.

Multiple static models can be managed in units of imd files. Once a model is saved, upon connection to NITRO-Viewer, the model data is automatically transferred and the model is displayed with the specified position and size.

A static model differs from a normal model in some ways. **You cannot see the internal structure of a static model, nor make material settings for it.**

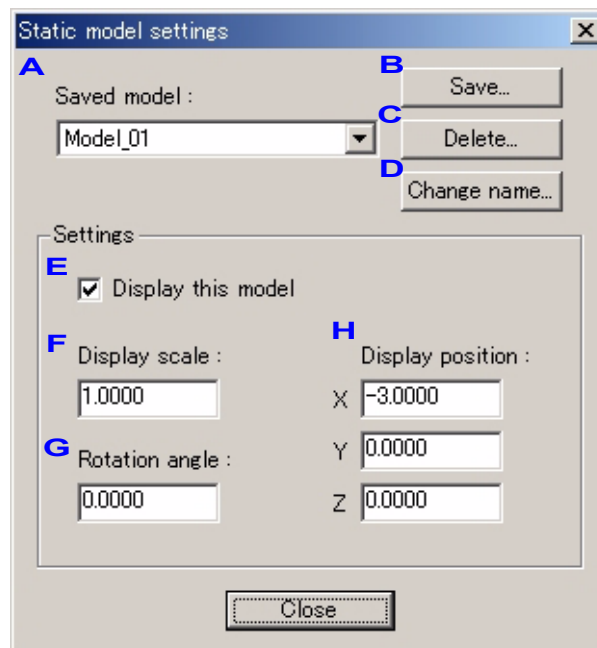
Operating Procedure

1. Select "Static Model Settings" from the "NITRO-Viewer" Menu. (Toolbar button: , Shortcut key: **Shift + F6**)

The Static model setting dialog box appears (Figure 9-8).

2. Save or delete models and make display settings.

Figure 9-8 - Static Model Settings Dialog Box



- A.** Currently saved models.

Selects from the saved models. When the selection is changed, the displayed settings will change.

- B.** Reads an imd file and saves a model. If a model of the same name is already saved, it will be overwritten.
- C.** Deletes the selected model.
- D.** Changes the name of the selected model. The name input dialog box will open. Enter the model name.
- E.** Selects whether to display or hide the model. This is useful for hiding the model temporarily.
- F.** Sets the model display magnification.
- G.** Sets the model's rotation angle around the Y axis.
- H.** Sets the model's display position.

9.5 Output the Snapshot Image

The images that are displayed in NITRO-Viewer can be output as image files. Image files are output with the size of 256 x 192 (screen size of NITRO) in bitmap file format (bmp file).

Operating Procedure


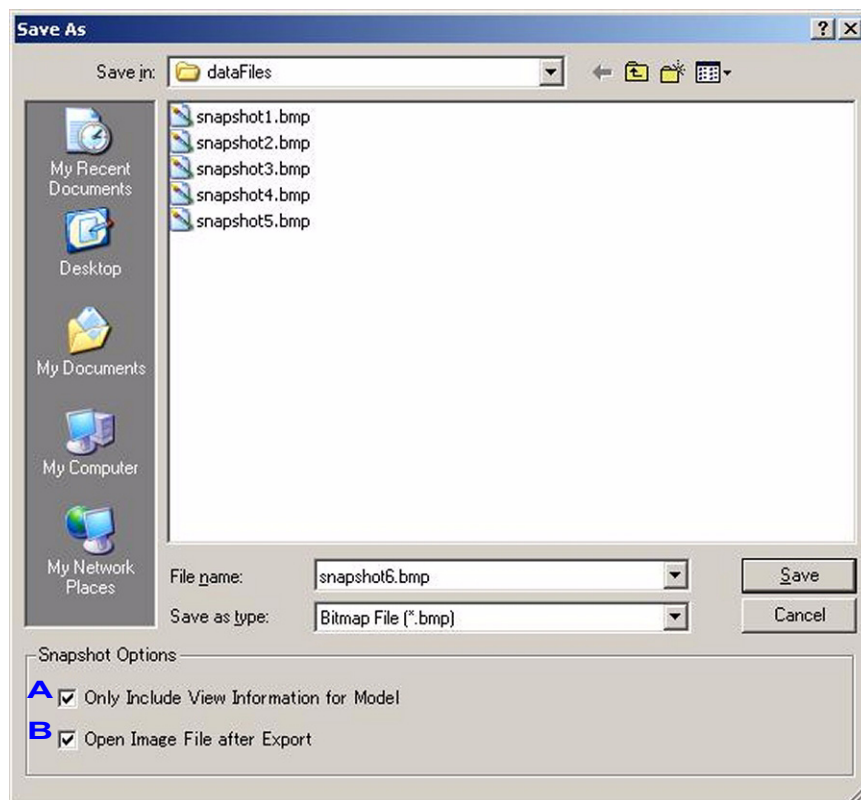
1. Select "Output the snapshot image" from "NITRO-Viewer" menu. (Toolbar button: , Shortcut key: **F7**)
The Image file save dialog box appears. (Figure 9-9)
2. Specify the folder and file name to save, and press the "Save" button.

Figure 9-9 - Output the Snapshot Image



- A. Makes the display information such as coordinate axes, icons, and bars that are other than the model to be excluded from the output image.
- B. Opens the image file in the previously arranged application (the application that is associated with bmp files) after the output of image files.

Note: Snapshot images are created by using NITRO's display capture feature (feature that loads the image to VRAM), so the color precision is different from the image shown in NITRO-Viewer. In addition, the snapshot image may not be generated properly depending on the VRAM allocation condition that is set with NITRO-Viewer controller.

Hint: When displaying 2D screen in NITRO-Viewer simultaneously by using NITRO-CHARACTER, both 3D model and 2D screen are incorporated into the snapshot image.

9.6 Display of VRAM Contents

This function gets the current VRAM usage conditions from NITRO-Viewer, and displays detailed VRAM position conditions for texture and palette data.

By using this function, you can visually check the VRAM usage of models displayed in the NITRO-Viewer.

Operating Procedure


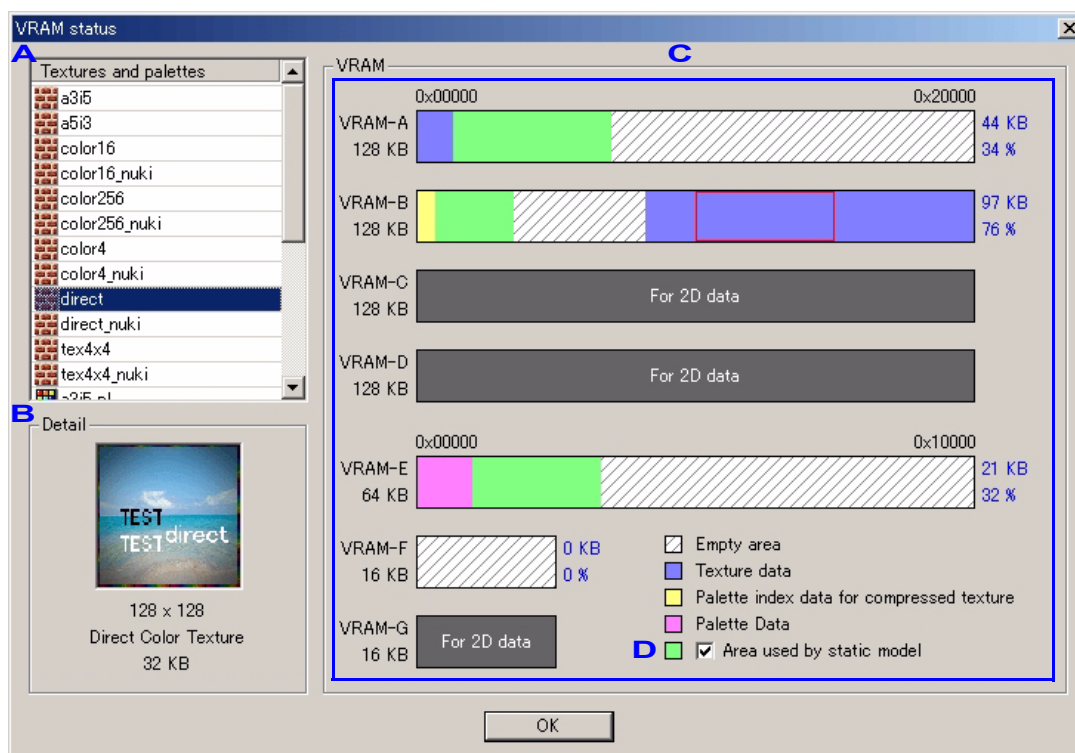
1. Select "Display VRAM contents" from the "NITRO-Viewer" Menu. (Toolbar button: , Shortcut key: **F8**)
The dialog box that shows the current VRAM usage conditions is displayed (Figure 9-10).
2. Confirm the contents and press the OK Button.

Figure 9-10 - VRAM Conditions Dialog Box



A. List of the model's textures and palettes.

When an item is selected, the data details are displayed in B and the area in VRAM is highlighted in the red box in C.

B. The details of the texture or palette selected in A.







Under the thumbnail image, the image size (width x height), format, and data size are displayed if a texture is selected, and the palette color count and data size are displayed if a palette is selected.

C. Usage conditions for VRAM-A through VRAM-G.

To the left of each VRAM, the VRAM name and VRAM size are displayed. To the right, the data size used and utilization ratio are displayed.

The data stored in each VRAM is color-coded according to type and displayed at its address.

Table 9-4 - VRAM Status Color Codes

Color	Description
	Unused area.
	Texture data area.
	4x4 texel compressed texture palette index data area.
	Palette data area.
	Area used for static model texture data and palette data. For information on static models, see "Static Model Settings" on page 130.
	VRAM allocated for 2D data. You can change the VRAM allocation using the NITRO-Viewer Controller.

D. Show or hide the display of static model usage areas.

If you only want to see the utilization ratio of texture data and palette data used by the model, clear this checkbox.

10 Working with 3DCG Tool Plug-ins

This chapter describes how the 3D Material Editor works in conjunction with 3DCG tool plug-ins.

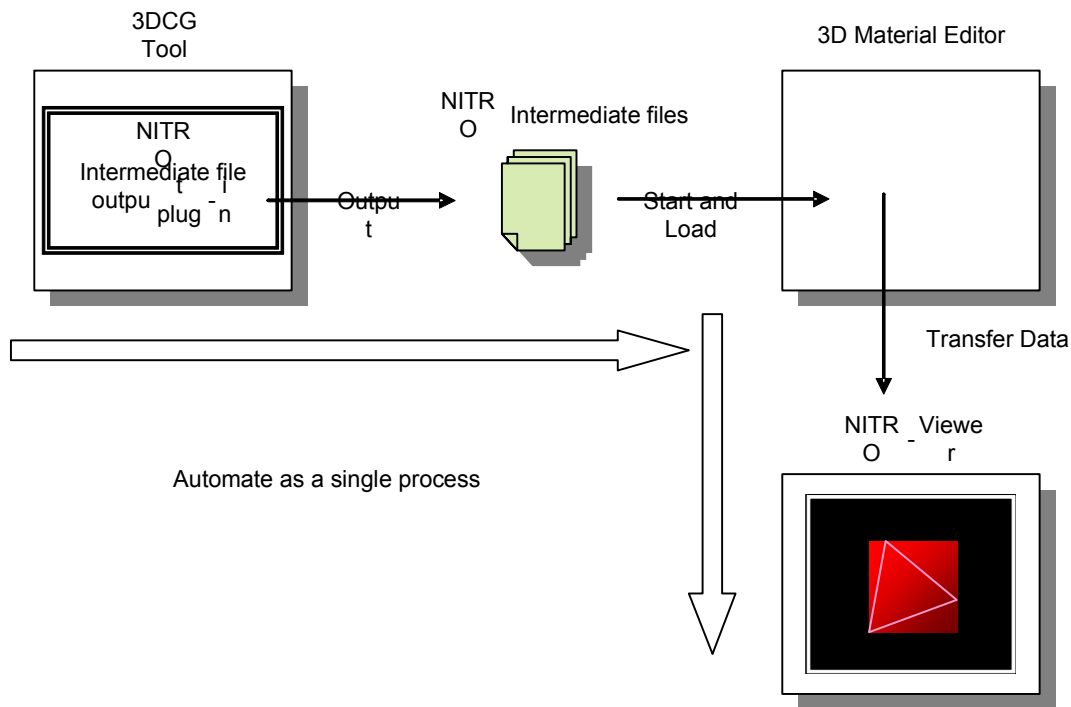
10.1 Overview

To use the 3D Material Editor and NITRO-Viewer to preview models and animation made with a 3DCG tool, use the following procedure:

1. Use the NITRO intermediate file output plug-in for the 3DCG tool to output a NITRO intermediate file.
2. Start the 3D Material Editor.
3. Use the 3D Material Editor to Load the NITRO intermediate file.
4. Transfer data from the 3D Material Editor to NITRO-Viewer, and preview.

The 3D Material Editor works in conjunction with the 3DCG tool's NITRO intermediate file output plug-in to automate these procedures. Using this, from the 3DCG tool you can start the 3D Material Editor, load the NITRO intermediate files, and transfer data to the NITRO-Viewer, all in a single process. (Figure 10-1).

Figure 10-1 - Working in Conjunction with 3DCG Tool Plug-ins



Caution: NITRO Intermediate files transferred from a 3DCG tool to the 3D Material Editor are treated as temporary files, used only for data transfer. Therefore, when you save an imd file after the data transfer, you must explicitly save it from the 3D Material Editor.

Caution: If the 3D Material Editor is already running when you transfer data from a 3DCG tool, **all data content that had been edited on the 3D Material Editor will be discarded**. It will not prompt you to confirm the save.

Caution: In order to automatically preview on NITRO-Viewer, NITRO-Viewer and the NITRO-Viewer Controller must have been started properly.

10.2 Transferring Data to the 3D Material Editor

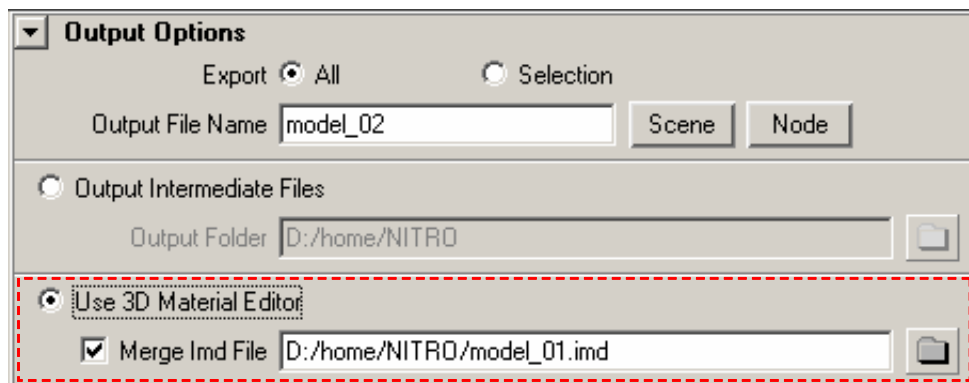
To transfer data from a 3DCG tool to the 3D Material Editor, specify the following items in the 3DCG tool's NITRO intermediate file output plug-in window (dialog box) (Figure 10-2).

In the diagram we are using the Maya plug-in window as an example.

1. Select "Use 3D Material Editor" in "Output Options."
2. When transferring an imd file you can specify an imd file to merge-load. In this case, merge-load with the specified imd file will be performed automatically after the data has been transferred.

If you specify a merge-load imd file, check "Merge Imd File", and specify the path to the imd file. For information on merge loading imd files, see ["5.3 Merge-Loading imd Files"](#) on page 25.

Figure 10-2 - Transferring Data to the 3D Material Editor



Caution: The layout of the NITRO intermediate file output plug-in window is different for each 3DCG tool. For details, see the NITRO intermediate file output plug-in manual for each 3DCG tool.

Caution: When you automatically merge-load imd files after transferring data, you will not be able to set merge-load details. If you want to set details, perform merge-load from the 3D Material Editor. For information on setting the details of a merge-load, see ["5.3.4 The Merge-Load Setting Dialog Box"](#) on page 28.

Hint: If an imd file has already been transferred to the 3D Material Editor, it is possible to send only the animation file. In this case, when you specify file types for transfer, only specify animation files.

11 Other Features

This chapter describes other features in the 3D Material Editor.

11.1 Undoing and Redoing Edit Operations

The 3D Material Editor saves a history of editing operations. It creates a history for the following operations:

- Switching current Graphics Scenes.
- Adding, removing, and renaming Graphics Scenes.
- Editing the properties of each object.
- Pasting copied material settings.


For any of the above you can undo an editing operation (Undo) or do it over (Redo).

Hint: The number of iterations in the operation history is not limited. Only the memory capacity limits it.

11.1.1 Undoing an Edit Operation (Undo)

This undoes an edit operation.


Operating Procedure

1. Select "Undo" on the "Edit" menu.
(Toolbar button: , Shortcut Keys: **Ctrl + Z**)

11.1.2 Redoing an Edit Operation (Redo)

This redoes an operation that you undid.

Operating Procedure

1. Select "Redo" on the "Edit" menu.
(Toolbar button: , Shortcut Keys: **Ctrl + Y**)

11.2 Language Settings

This allows you to select English or Japanese as the display language for the application.

Operating Procedure

1. Select "Language Settings" on the "Tools" menu.
2. This will open a language setting dialog box (Figure 11-1). Select a language and click the OK button.
The selection will be enabled when you restart the 3D Material Editor.

Figure 11-1 - Language Settings

Note: These language settings are not applied to Windows common dialog (file selection dialog boxes, standard message boxes, etc). Windows common dialog uses the language that is set by the operating system.

12 Appendix

12.1 Menu List

The main menu contains the following menu items:

- File menu
- Edit menu
- View menu
- Graphics Scene menu
- Object menu
- Nitro-Viewer menu
- Tools menu
- Help menu

12.1.1 File

This performs operations related to file input and output.

Operation	Description
Open imd file (Ctrl + O)	Opens an imd file.
Merge-Load imd file (Ctrl + M)	Opens an imd file and merges it with the currently open imd file.
Load Animation File -> ica file	Loads an ica file.
Load Animation File -> iva file	Loads an iva file.
Load Animation File -> ima file	Loads an ima file.
Load Animation File -> itp file	Loads an itp file.
Load Animation File -> ita file	Loads an ita file.
Save imd File (Ctrl + S)	Saves an imd file by overwriting.
Save imd File As (Ctrl + A)	Gives an imd file a name and saves it.
Exit	Ends the application.

12.1.2 Edit

This performs operations related to editing.

Operation	Description
Undo (Ctrl + Z)	Undoes an edit operation.
Redo (Ctrl + Y)	Redoes an edit operation.

12.1.3 View

This performs display-related operations.

Operation	Description
Toolbar → Standard	Displays/Hides the Standard toolbar.
Toolbar → View	Displays/Hides the View toolbar.
Toolbar → Graphics Scene	Displays/Hides the Graphics Scenes toolbar.
Toolbar → Object	Displays/Hides the Object toolbar.
Toolbar → NITRO-Viewer	Displays/Hides the NITRO-Viewer toolbar.
Status Bar	Displays/Hides the Status Bar.
View Mode → Schematic View (Ctrl + 1)	Sets the Object View display mode to Schematic View.
View Mode → Tree View (Ctrl + 2)	Sets the Object View display mode to Tree View.
View Mode → Node List View (Ctrl + 3)	Sets the Object View display mode to Node List View.
View Mode → Polygon List View (Ctrl + 4)	Sets the Object View display mode to Polygon List View.
View Mode → Material List View (Ctrl + 5)	Sets the Object View display mode to Material List View.
View Mode → Texture List View (Ctrl + 6)	Sets the Object View display mode to Texture List View.
View Mode → Palette List View (Ctrl + 7)	Sets the Object View display mode to Palette List View.
Property View (F4)	Displays/Hides Property View.
Schematic View → View all in Center	When in Schematic View mode, displays all in the center of the View.
Schematic View → View Selected Object in Center	When in Schematic View mode, displays the selected object in the center of the View.
Schematic View → Align All Objects	When in Schematic View mode, aligns all objects.
Schematic View → Align Below Selected Object	When in Schematic View mode, aligns below the selected object.
Display List → Reset the Order of Columns	When in Display List mode, the order of columns are returned to the default state.
Display List → Reset the Column Width	When in Display List mode, the column width are returned to the default state.

12.1.4 Graphics Scene

This performs operations related to Graphics Scenes.

Operation	Description
Switch Scenes → (Graphics Scene Name)	Switches the Current Graphics Scene.
New	Makes a new Graphics Scene.
Copy (Current Graphics Scene name)	Copies the Current Graphics Scene.
Rename (Current Graphics Scene name)	Renames the Current Graphics Scene.
Delete (Current Graphics Scene name)	Deletes the Current Graphics Scene.
Import isd file	Imports an isd file, adding a Graphics Scene.
Export isd file	Exports the Current Graphics Scene as an isd file.

12.1.5 Object

This performs operations related to selected objects.

Operation	Description
Select → Graphics Scene	Selects a graphics scene.
Select → Model	Selects a model.
Select → All Nodes	Selects all nodes.
Select → All Polygons	Selects all polygons.
Select → All Materials	Selects all materials.
Select → All Textures	Selects all textures.
Select → All Palettes	Selects all palettes.
Select → Deselect	Deselects an object.
View Properties in Separate Window (Ctrl + P)	Displays an object's properties in a separate window.
Material → Copy Settings (Ctrl + Shift + C)	Copies material settings.
Material → Paste All Copied Settings (Ctrl + Shift + V)	Pastes all of the copied material settings.
Material → Paste Special... (Ctrl + Shift + S)	Selects part of the copied material settings and pastes them.

12.1.6 NITRO-Viewer

This performs operations related to communications with NITRO-Viewer.

Operation	Description
Connect (F5)	Connects to NITRO-Viewer.
Disconnect (Shift + F5)	Disconnects from NITRO-Viewer.
Settings (F6)	Changes NITRO-Viewer settings.
Static Model (Shift + F6)	Changes the settings of the model that is statically displayed on NITRO-Viewer.
Output the Snapshot Image (F7)	Outputs the snapshot image of NITRO-Viewer.
VRAM (F8)	Displays the current NITRO-Viewer VRAM content.

12.1.7 Tools

This changes settings for the entire application.

Operation	Description
Language Settings	Switches the display language.

12.1.8 Help

This displays version information.

Operation	Description
Version Information	Displays application version information.

12.2 Toolbar List

The 3D Material Editor has the following Toolbars:

- Standard Toolbar
- View Toolbar
- Graphics Scene Toolbar
- Object Toolbar
- NITRO-Viewer Toolbar












12.2.1 Standard Toolbar

These correspond to the menu items in the “File” menu, and the “Edit” menu (Figure 12-1, Table 12-1).

Figure 12-1 - Standard Toolbar



Table 12-5 - Standard Toolbar

Button	Description
	Opens an imd file.
	Opens an imd file and merges it with the currently open imd file.
	Loads an ica file.
	Loads an iva file.
	Loads an ima file.
	Loads an itp file.
	Loads an ita file.
	Saves an imd file by overwriting.
	Names and saves an imd file.
	Undoes an edit.
	Redoes an edit.








12.2.2 View Toolbar

These correspond to “View Mode” items on the “View” menu (Figure 12-2, Table 12-2).

Figure 12-2 - View Toolbar



Table 12-6 - View Toolbar

Button	Description
	Sets the Object View display mode to Schematic View.
	Sets the Object View display mode to Tree View.
	Sets the Object View display mode to Node List View.
	Sets the Object View display mode to Polygon List View.
	Sets the Object View display mode to Material List View.
	Sets the Object View display mode to Texture List View.
	Sets the Object View display mode to Palette List View.








12.2.3 Graphics Scene Toolbar

These correspond to menu items in the “Graphics Scene” menu (Figure 12-3, Table 12-3).

Figure 12-3 - Graphics Scene Toolbar

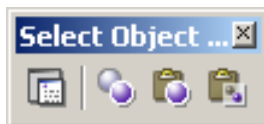








Table 12-7 - Graphics Scene Toolbar







Control	Description
	Switches the Current Graphics Scene.
	Creates a new Graphics Scene.
	Copies the Current Graphics Scene.
	Renames the Current Graphics Scene.
	Deletes the Current Graphics Scene.
	Imports an isd file, adding a Graphics Scene.
	Exports the Current Graphics Scene as an isd file.

12.2.4 Object Toolbar

These correspond to menu items on the “Object” menu (Figure 12-4, Table 12-4).

Figure 12-4 - Selected Object Toolbar**Table 12-8 - Object Toolbar**

Button	Description
	Selects a graphics scene.
	Selects a model.
	Selects all nodes.
	Selects all polygons.
	Selects all materials.
	Selects all textures.

Button	Description
	Selects all palettes.
	Deselects an object.
	Displays an object's properties in a separate window.
	Copies material settings.
	Pastes all of the copied material settings.
	Selects part of the copied material settings and pastes them.

12.2.5 NITRO-Viewer Toolbar

These correspond to menu items on the “NITRO-Viewer” menu (Figure 12-5), (Table 12-5)

Figure 12-5 - NITRO-Viewer Toolbar

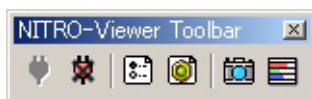








Table 12-9 - NITRO-Viewer Toolbar

Button	Description
	Connects to NITRO-Viewer.
	Disconnects from NITRO-Viewer.
	Changes NITRO-Viewer settings.
	Changes the settings of the model that is statically displayed on NITRO-Viewer.
	Outputs the snapshot image of NITRO-Viewer.
	Displays the current NITRO-Viewer VRAM content.

12.3 Shortcut Key List

The following shortcut keys have been allocated (Table 12-6):

Table 12-10 - Shortcut Keys

Shortcut Key	Description
Ctrl + O	Opens an imd file.
Ctrl + M	Opens an imd file and merges it with the currently open imd file.
Ctrl + S	Saves an imd file by overwriting.
Ctrl + A	Gives an imd file a name and saves it.
Ctrl + Z	Undoes an edit operation.
Ctrl + Y	Redoes an edit operation.
Ctrl + 1	Sets the Object View display mode to Schematic View.
Ctrl + 2	Sets the Object View display mode to Tree View.
Ctrl + 3	Sets the Object View display mode to Node List View.
Ctrl + 4	Sets the Object View display mode to Polygon List View.
Ctrl + 5	Sets the Object View display mode to Material List View.
Ctrl + 6	Sets the Object View display mode to Texture List View.
Ctrl + 7	Sets the Object View display mode to Palette List View.
F4	Displays/Hides Property View.
Ctrl + P	Displays an object's properties in a separate window.
Ctrl + Shift + C	Copies material settings.
Ctrl + Shift + V	Pastes all of the copied material settings.
Ctrl + Shift + S	Selects some of the copied material settings and pastes them.
F5	Connects to NITRO-Viewer.
Shift + F5	Disconnects from NITRO-Viewer.
F6	Changes NITRO-Viewer settings.
Shift + F6	Changes the settings of the model that is statically displayed on NITRO-Viewer.
F7	Outputs the snapshot image of NITRO-Viewer.
F8	Displays the current NITRO-Viewer VRAM content.
Ctrl + Tab	Switches the keyboard focus of the view in the order: object view → property view (tabs) → property view (contents) → animation view.
Ctrl + Shift + Tab	Switches the keyboard focus of the view in the order: object view → animation view → property view (contents) → property view (tabs).

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