Caviar Converter

User Reference

Version 1.0

Contents

Introduction

Caviar Converter is the tool that converts polygon-based 3D objects (such as those created in 3D Studio Max) to a special form. This form is based on a regular 3D grid. Each element of the grid is called a 3D pixel and can be rendered from any point of view in real-time.

The Caviar Converter converts the surface of the objects to a set of 3D pixels and stores the geometrical position, color and surface normal vector of each 3D pixel. The ultimate output of the Caviar Converter is a special CVR file, that can contain palette, geometry and/or animation data. The CVR files can then be played back in real-time using the Caviar Library.

Converter for 3D Studio MAX

Caviar Converter for 3D Studio Max is a plug-in procedure to the 3D Studio MAX program and allows you to convert different 3D models to Caviar files. These models and animation must be created using 3D Studio MAX, in order to create a CVR file.

Installation

Copy the file CAVIATOR.DLU (from the disc) into the appropriate subdirectory of your 3D Studio MAX directory (usually called STDPLUGS or PLUGINS), then start 3D Studio Max. The converter is now ready to use.

What models can be converted?

An object is defined as a named set of vertices and faces. It has the same significance and function regarding the Caviar Converter as a 3D Studio MAX Editor object. An example of an object would be a human model, where the human head, thorax, pelvis, legs, etc. are the objects. The object does not change its form and color during the animation; it changes its position, rotation and scaling only. Objects, that have MORPH keys cannot currently be converted.

The number of faces on an object can be very large because the speed of real-time rendering depends on the size of the object's surface only. The Caviar Converter ignores the smoothing group bits, so we recommend enlarging the number of faces in order to smooth objects.

You can use standard Max flat and texture-mapped materials. The speed of real-time rendering will be the same for both types of materials. The Caviar Converter will use "Ambient", "Diffuse", "Specular", "Shin.Strength", "Shininess" and "Self Illum" controls for flat materials, and "Diffuse" slot for textured materials. Shading parameters for all the textures will be taken from the first texture in the scene. The other fields of the materials structure will be ignored.

(Note, that Caviar Converter will use the rest of the palette for flat materials, so the number of unused colors in the palette must be greater than or equal to the number of the flat materials in the scene.)

The Caviar Converter ignores any light sources in a scene, as the rendering library has its own light source .

The object animation should use the "Position", "Rotation" and "Scale" keys only. The use of "Morph" keys will result in incorrect animation.

The color palette

The Caviar Converter uses an indexed 256-color palette to paint Caviar objects. The palette file needs to be prepared before conversion. The Caviar Converter uses the Adobe Photoshop (ACT) format for its palette file. This file is created using varying components of RGB (Red, Green, Blue). Each component has a range from 0 to 255 and occupies 1 byte, so the palette file size is 256*3 = 768 bytes. The file should have the ".ACT" extension. The Caviar Converter allows the use of both all 256 palette colors and only part of the palette.

The Caviar Converter can also use the color table from another CVR file. This feature allows you to create objects for an application as a set of separate CVR files, that have just one color table for the whole application.

How to use Caviar Converter

Before conversion you will need to run 3D Studio MAX program and load your file with your model and animation. It is recommended that you save your data before conversion. Caviar Converter can convert:

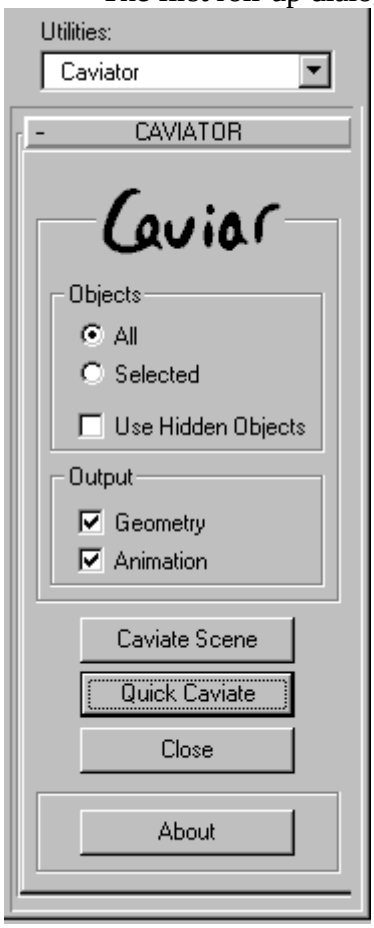
- All visible objects (all objects in a scene except hidden objects)
- All selected objects (all objects, that were selected)
- All objects in a scene

Before running the Caviar Converter make sure that all the necessary objects are selected, unhidden, etc.

To convert objects, run the CAVIATOR plug-in from Utilities menu. The conversion process consists of 3 phases: inputting initial data, the conversion itself, and playing the results.

INPUTTING THE DATA TO BE CONVERTED:

The first roll-up dialog box allows you to define the kind of job .

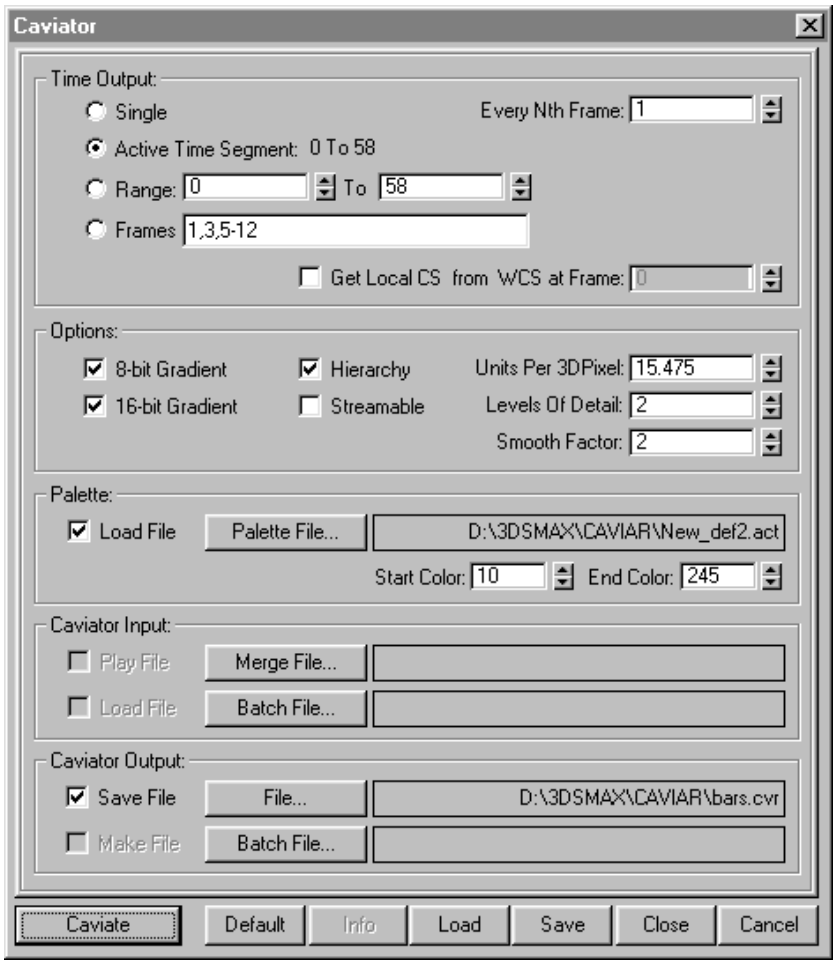


- **"All"** - if this radio button is chosen, the Caviar Converter will convert all objects that are in the scene;
- **"Selected"** - if this radio button is chosen, the Caviar Converter will convert selected objects only;
- **"Use hidden objects"** - if checked, the Caviar Converter will also convert hidden objects;

- **“Geometry”** - if checked, the output file will contain the geometry and the first frame of animation;
- **“Animation”** - if checked, the output file will contain the animation.

Usually CVR files contain both geometry and animation. The options **“Geometry”** and **“Animation”** are useful if you are going to have several animation files for one geometry model.

When you are satisfied with the parameters mentioned above, press the “Caviate Scene” button. The Caviar Converter will ask you to input conversion parameters :



The first group of controls (called “Time Output”) is used to determine what frames should be converted. These controls have the same meaning as those in rendering dialog box.

The checkbox **“Get Local CS from WCS at Frame”** allows the definition of alternative orientation of local coordinate system for body-parts. If the checkbox is checked, then orientation of local coordinate system for each object in the scene will be taken from their orientation in world coordinate system at given time.

- **8-bit Gradient** - if checked, the Caviar Converter will create gradient table for indexed 256-color mode. Use this check button if you are going to use the resulting CVR file in 256-color applications;
- **16-bit Gradient** - if pressed, the Caviar Converter will create gradient table for high-color (32768 colors) mode. Use this check button if you are going to use the resulting CVR file in applications that support high-color mode;
- **Hierarchy** - if pressed, the Caviar Converter will include data about link tree and object's pivot points into output file;
- **Streamable** - if pressed, the output file will have a streamable format. Such files can be played when the file is just partially loaded. This feature can be useful in Internet applications;
- The spinner **Units Per 3D Pixel** is used to set a scale.

The "Units Per 3D Pixel" spinner allows you to define the scale for Caviar objects, i.e. to set the correspondence between the 3D Editor units and your world space units. For example, if one 3D editor unit equals one meter, and you have created a human model that is 1.8 meters in height and want the model to be 180 pixels in height with the best quality of rendering, set the scale to "0.01". By changing this parameter, you can balance the rendering speed and quality - the smaller the scale, the better the rendering quality and the slower the rendering speed. By default, the field is set in such a way, that pixel size of the largest object in the scene is 250.

The "**Levels of Detail**" allows you to define how many different Caviar models are to be converted. For example, if you set 1 unit per pixel and 4 levels, there will be 4 Caviar models with different levels of detail for each mesh object: the biggest model, medium model, small model and smallest model. The Units/pixel ratio for these models will be 1.0, 1.5, 2.25 and 3.375, respectively. The rendering library will automatically choose the best level for rendering.

The "**Smooth Factor**" allows you to define smoothing factor for output object. The greater the factor, the smoother the object will be. Smooth factor 0 means no smoothing. It is recommended to enlarge smoothing factor for small objects to avoid aliasing during real-time rendering.

The button "**Palette File**" is used to set the palette file name.

The two spinners "**Start Color**" and "**End Color**" allow you to choose the start color and the end color of the palette. Colors outside this range will not be used by Caviar Converter. This may be useful when creating models for Windows applications, where one can't use all 256 colors from the palette. You can also use one part of the palette for game characters and another part for backgrounds, etc.

(Note, that Caviar Converter will use the rest of the palette for flat materials, so the number of unused colors in the palette must be greater than or equal to the number of flat materials in the scene.)

You can use the color table from previously created CVR files instead. In this case, the spinners will not work.

If the check box "**Load file**" is not checked, the palette file name will be ignored. All objects will be converted using mesh wire-frame colors.

The "**Caviator Input**" field can be used to set geometry file name (in the case of your converting just animation, but wanting to see the result using previously created geometry) and batch file name. If the check box "**Load file**" for batch file is checked, the Caviar Converter will execute the specified batch file. The dialog setting in this case will be overridden by the batch file settings. See Appendix A for batch file format.

The "**Caviator Output**" field can be used to set output CVR file names or to make templates for batch files using current settings.

The button "**File**" is used to set the name of the output CVR file.

If the check box **"Save file"** is not checked, the output file name will be ignored and the result of the conversion will be placed into a temporary file.

Pressing the "**Reset**" button will set the default parameters.

Pressing the "**Close**" button will store current settings in RAM and terminate the dialog.

Pressing the "**Cancel**" button will terminate the dialog without storing the parameters in RAM.

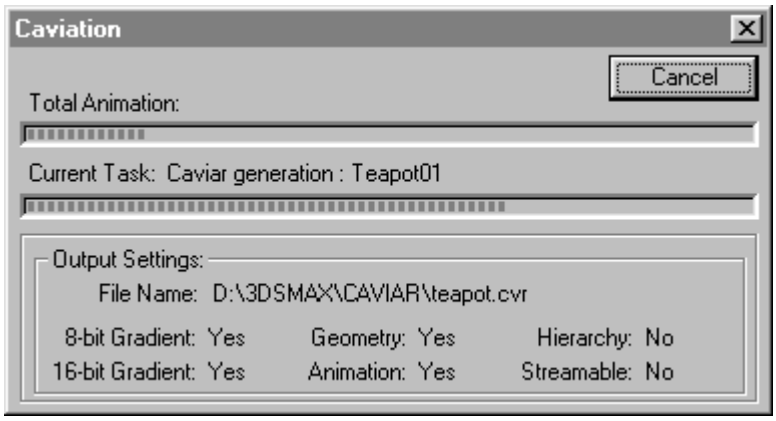
Pressing the "**Save**" button will save the current settings in a special file (with CST extension).

Pressing the "**Load**" button will load settings from a settings file (with CST extension).

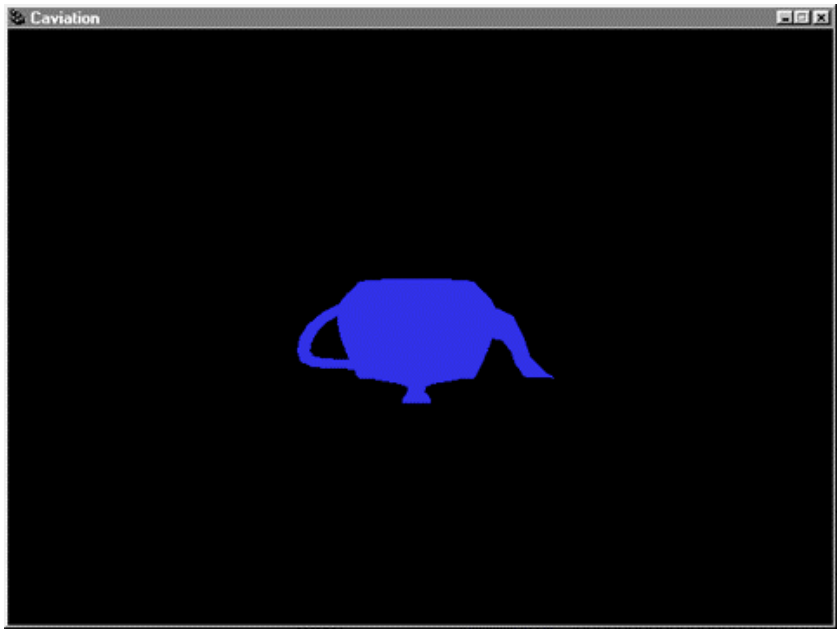
When you are satisfied with parameters, press the "**Caviate**" button and Caviar Converter starts to work.

Two windows will appear on the screen: the progress window and the visualization window.

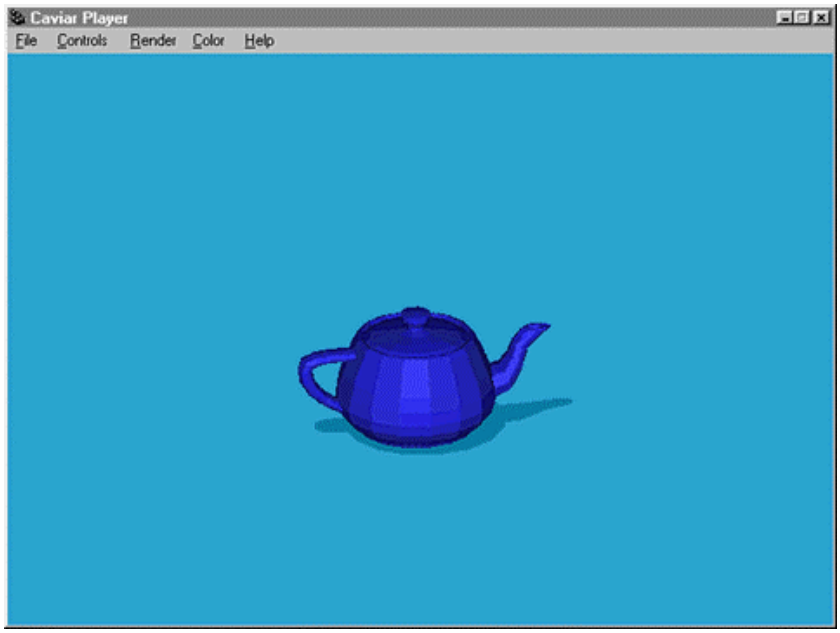
The progress window shows the state of the conversion. You can abort the conversion by pressing the "**Cancel**" button.



The visualization window allows you to evaluate the parameters, such as scale, colors, etc. You can close the window if you don't require visualization.



When the conversion is finished, the player window will appear. The player allows the control of camera position, light direction, rendering type, etc.



The "**Help**" menu item shows the list of control keys.

Troubleshooting/Useful tips

PROBLEM: The animation speed is too slow.

Use “Complex” geometry option instead of “Simple” option. This increases rendering speed for small objects.

Try to enlarge Units/pixel ratio. This decreases the level of detail of the object. When you increase the ratio 2 times, the level of detail will be 2 times lower and the speed will be approximately 4 times faster.

PROBLEM: Objects glitter through each other in joints.

Use similar materials for joints or decrease the internal part of joint connection.

PROBLEM: Object’s edges are lacerated or cut, there are black pixels on edges.

Try changing setting for the material.

Try enlarging smooth factor.

PROBLEM: Object’s surface is faceted.

The Caviar Converter does not use the smoothing group bits, so you can enlarge number of object’s faces. The rendering speed remains the same.

Use textured material instead of flat material.

PROBLEM: Object surface has wrong color.

Make sure that your palette contains all needed colors.

Try changing setting for the material.

Appendix A. Batch file format

The batch file allows advanced users to convert a large number of models without manual operations. It also allows the setting of different parameters for one model (for example, scale factor and level of details can be set individually for each object in scene). To make a template for batch files, you can use a special control field in parameter dialog box.

The batch file consists of commands. Each command should be on a separate line.
Here is the list of commands (keywords are in bold):

PALETTE_PATH <path>
This command is used to set directory for palette files

SCENE_PATH <path>
This command is used to set directory for 3DS MAX scene files

OUTPUT_PATH <path>
This command is used to set directory for 3DS MAX scene files

BEGIN_JOB
This command is used to form a block that creates one CVR file. All commands inside the block will activate until the block ends

END_JOB
This command finishes the currently opened block (and actually closes the CVR file)

OUT_FILE <XXXXX.CVR>
This command is used to set output CVR file name. All blocks should contain this command

PALETTE
This command sets the palette. It can be written in the following forms:

PALETTE <XXXXX.ACT> **START_COL** <number> **END_COL** <number>

This will load ACT-palette and generate color table

PALETTE <XXXXX.CVR>
This will use pre-generated color table

CONTENTS
Defines the contents of output file. The rest of the command string can contain the following keywords:

8BIT_GRAD- if present, the output file will contain the 8-bit gradient table
16BIT_GRAD- if present, the output file will contain the 16-bit gradient table

GEOMETRY-	if present, the output file will contain the geometry data
ANIMATION-	if present, the output file will contain the animation data
HIERARCHY-	if present, the output file will contain the hierarchy data
STREAMABLE-	if present, the output file will have the streamable format

UNIT <number>
This will set the Units/pixel ratio

LEVELS <number>
This will set the number of levels of detail

FACTOR <number>
This will set factor to multiply Units/pixel ratio between levels

SMOOTH <number>
This will set smoothing factor

SMOOTH_STEP <number>
This will define increasing of smooth factor from level to level

LOAD <XXXXX.MAX>
This command will load a new scene into 3DS MAX

OBJECT
This command will include an object into conversion list. This keyword should be inside the block. The command can be written in the following forms (note, that <name> should not contain spaces) :
OBJECT <name >
This will include object with name <name> and previously defined parameters

OBJECT <name > **UNITS** <number_1> <number_2> …. <number_N>
This will include object <name> with N specified resolutions (Units/pixel ratio)

OBJECT <name > **LEVELS** <number_N> **UNITS** <number_U> **FACTOR** <number_F>
This will include object <name> with N levels of detail, starting resolution U and inter-level factor F

OBJ_SMOOTH <number> **SMOOTH_STEP** <number>
or
OBJ_SMOOTH <number1> <number2> …. <number_N>
This will set smooth factor for each level of previous object

ANIMATION
This command specifies the frames of animation to include into CVR file. It can be written in the following forms:

ANIMATION ALL

This will include all frames from 3DS MAX

ANIMATION FRAMES <string>
This will include specified frames from 3DS MAX

ANIMATION FROM <number_F> **TO** < number_T > [**STEP** < number_S >]
This will include block of animation from frame <number_F> to frame < number_T >.
If the keyword **STEP** is present, the frames will be taken using step < number_S >.
By default, the step value is 1.

The batch file can contain comments. The comment starts with a semicolon (;) and ends at the end of line.

Here’s an example of a batch file:

```
PALETTE_PATH   C:\3DSMAX\CAVIAR\PAL
SCENE_PATH      C:\3DSMAX\SCENES
OUTPUT_PATH C:\3DSMAX\CAVIAR\CVR

;----------- First Job ----------------

LOAD HERO.MAX

BEGIN_JOB
OUT_FILE     hero.cvr
PALETTE      Test_pal.act       START_COL      10
END_COL      245
CONTENTS     8BIT_GRAD   16BIT_GRAD   GEOMETRY
ANIMATION   HIERARCHY
UNITS 1.4
LEVELS 2
FACTOR 1.5
SMOOTH 5
SMOOTH_STEP 1.5
OBJECT Hip
OBJECT Chest
; ---------   Make head more detail
OBJECT Head  UNITS 1.0 1.4 2.0
;--------------------------
OBJECT RShoul
OBJECT RArm
OBJECT RHand
OBJECT RWeap
OBJECT LShoul
OBJECT LArm
OBJECT LHand
OBJECT LWeap
OBJECT RThigh
OBJECT RLeg
OBJECT RFoot
OBJECT LThigh
OBJECT LLeg
OBJECT LFoot
ANIMATION ALL
END_JOB

;----------- Second Job -----------------

LOAD BADGUY.MAX

BEGIN_JOB
OUT_FILE     badguy.cvr
PALETTE      Test_pal.act       START_COL      10
END_COL      245
CONTENTS     8BIT_GRAD   16BIT_GRAD   GEOMETRY
ANIMATION   HIERARCHY
```

```
UNITS 1.4
LEVELS 2
FACTOR 1.5
SMOOTH 5
SMOOTH_STEP 1.5
OBJECT Hip
OBJECT Chest
; ---------   Make head more detail
OBJECT Head  UNITS 1.0 1.4 2.0
OBJ_SMOOTH  5  6  8
;--------------------------
OBJECT RShoul
OBJECT RArm
OBJECT RHand
OBJECT RWeap
OBJECT LShoul
OBJECT LArm
OBJECT LHand
OBJECT LWeap
OBJECT RThigh
OBJECT RLeg
OBJECT RFoot
OBJECT LThigh
OBJECT LLeg
OBJECT LFoot
ANIMATION ALL
END_JOB
```

Converter for 3D Studio R4

The Converter is a plug-in IPAS procedure to Autodesk's 3D Studio program and allows you to convert different 3D models. These models must be created by using Autodesk's 3D Editor and animated by using Keyframer, in order to create a CVR file.

Installation

Copy the file CAVIAR_I.PXP (from the disc) into the PROCESS subdirectory of your Autodesk 3D Studio directory (usually called 3ds4). You MUST use version 4 (or later) of Autodesk 3D Studio. The Converter is now ready to use.

You can also copy the example projects. In this case, make sure that the Autodesk 3D Studio MAP PATHS include the directories where the texture files are located.

What models can be converted?

An object is defined as a named set of vertices and faces. It has the same significance and function in regard to the Converter as an Autodesk 3D Editor object. An example of an object would be a human model, where the human head, thorax, pelvis, legs, etc. are the objects. The object does not change its form and color during the animation; it changes its position, rotation and scaling only. The HIDE keys are also supported. Objects that have MORPH keys cannot currently be voxelized.

The number of faces on an object can be very large because the speed of real-time rendering depends on the size of the object's surface only. The Converter ignores the smoothing group bits, so we recommend enlarging the number of faces in order to smooth objects.

You can use both flat and texture-mapped materials. The speed of real-time rendering will be the same for both types of materials. The Converter will use "Ambient", "Diffuse", "Specular", "Shin.Strength", "Shininess" and "Self Illum" controls for flat materials and "Texture 1" fields for textured materials. Shading parameters for all the textures will be taken from the first texture in the scene. The other fields of the materials structure will be ignored. The Converter will not use "procedural" materials for objects.

(Note that the Converter will use the rest of the palette for flat materials, so the number of unused colors in the palette must be greater than or equal to the number of flat materials in the scene.)

The Converter ignores any light sources in a scene, as the rendering library has its own light sourcing .

The object animation should use the "Position", "Rotation", "Scale" and "Hide" keys only. The use of morphing keys will result in incorrect animation.

The color palette

The Converter uses an indexed 256-color palette to paint voxel objects. The palette file needs to be prepared before voxelization. The Converter uses the Adobe Photoshop (ACT) format for its palette file. This file is created using varying components of RGB (Red, Green, Blue). Each component has a range from 0 to 255 and occupies 1 byte, so the palette file size is 256*3 = 768 bytes. The file should have the ".ACT" extension. The Converter allows the use of both all 256 palette colors and only part of the palette (see “SETTING THE LIGHT GRADIENTS” for more details).

How to use Caviar Converter

Before conversion you will need to run Autodesk 3D Studio program. Enter the 3D Editor and load your file with your model and animation. It is recommended that you save your data before conversion. The Converter can convert:

- All visible objects (all objects in a scene except hidden objects)
- All selected objects (all objects that were selected in 3D editor)
- All objects in a scene

Before running the Converter make sure that all the necessary objects are selected, unhidden, etc.

To convert objects, run the CAVIAR procedure from the PXP loader menu of 3D Editor. The conversion process consists of 3 phases: inputting initial data, the conversion itself, and playing the results.

INPUTTING THE DATA TO BE CONVERTED:

The first dialog box allows you to select objects to convert, to define the kind of job and to choose the output geometry complexity.

The "Objects" row of buttons allows you to choose which objects will be converted:

- VISIBLE - if pressed, the Converter will convert all objects that are currently not hidden;
- SELECTED - if pressed, the Converter will convert all objects that are currently selected;
- ALL - if pressed, the Converter will convert all objects that currently are in the scene (including hidden objects).

The "Make" row of buttons defines the kind of job that the Converter will perform:

- GEOMETRY - if pressed, the output file will contain the gradient table, geometry and one frame of animation for the chosen objects (the current position of objects in 3D Editor);
- ANIMATION - if pressed, the output file will contain only the animation for the chosen object. This option is useful when you need several animation files for one geometry model;
- BOTH - if pressed, the output file will contain the gradient table, geometry and animation for the chosen objects. No additional data is needed to play this kind of CVR file.

The “Geometry “ row of buttons allows you to choose complexity of the output geometry:

- SIMPLE - if pressed, the Converter will create only one Caviar model for each object. This allows you to minimize memory size needed to store the geometry, but it can result in waste of time when the model is far away from the camera, because object rendering time remains the same;
- COMPLEX - if pressed, the Converter will create several models for each object. This increases memory size, but improves rendering speed for small objects.

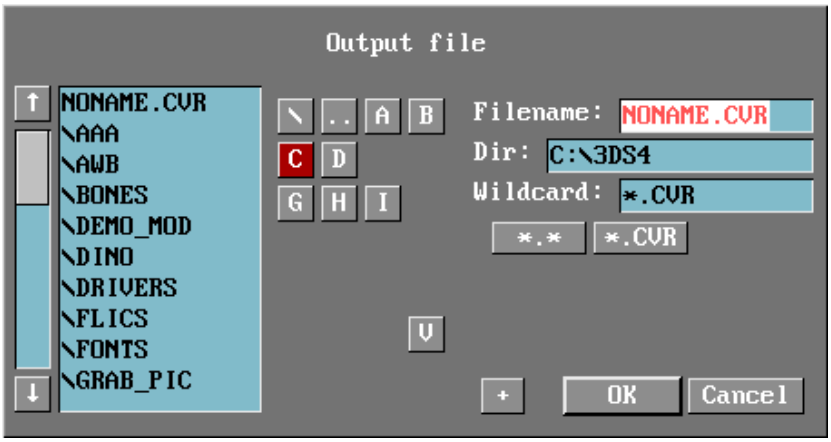
The “Gradient “ row of buttons allows you to choose type of output gradient table:

- INDEX - if pressed, the Converter will create gradient table only for indexed 256-color mode. Use this button only if you are going to use the resulting CVR file in 256-color applications;
- HIGHCOLOR - if pressed, the Converter will create gradient table only for high-color (32768 colors) mode. Use this button only if you are not going to use the resulting CVR file in 256-color applications;
- BOTH - if pressed, the Converter will create gradient table for high-color (32768 colors) mode and for indexed 256-color mode. The resulting CVR file will be universal.

The “LinkTree“ row of buttons allows you to save object’s link tree and pivot points in CVR file:

- NO - if pressed, the Converter will not write the link tree data to CVR file;
- WRITE - if pressed, the Converter will write the link tree data to CVR file.

When you are satisfied with the voxel parameters, (finished inputting data), press the “OK” button. Depending on the kind of job, the Converter will ask you names for input and output files:

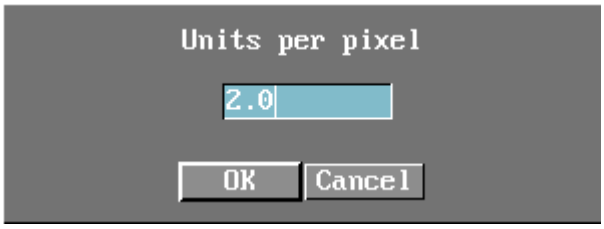


- input palette file and output CVR file: this will happen if you have chosen the “Geometry” or “Both” options;
- input geometry file and output CVR file: this will happen if you have chosen the “Animation” option (it is assumed that the geometry file for such a model already exists).

Select the file and press the “OK” button.

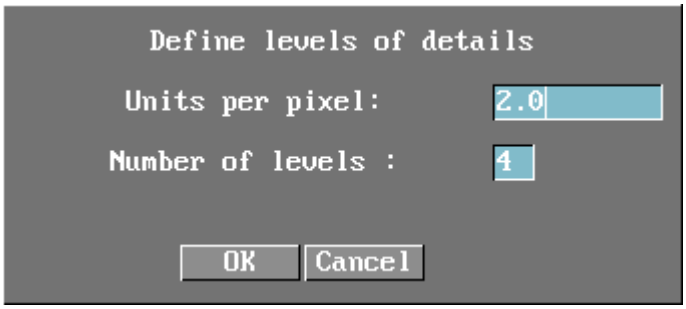
SETTING THE SCALE

If you have chosen “Simple” geometry option, the following dialog box will appear:



The “Units per pixel” editable field allows you to define the scale for voxel objects, i.e. to set the correspondence between the 3D Editor units and your world space units. For example, if one 3D Editor unit equals one meter, and you have created a human model that is 1.8 meters in height and want the model to be 180 pixels in height with the best quality of rendering, set the scale to “0.01”. By changing this parameter, you can balance the rendering speed and quality - the smaller the scale, the better the rendering quality and the slower the rendering speed. By default, the field is set in such a way that object’s pixel size is 256. Input the value and press the “OK” button.

If you have chosen “Complex” geometry option, the following dialog box will appear:

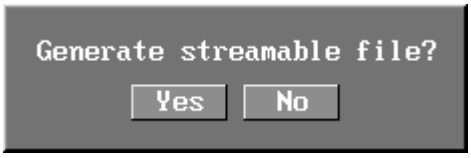


The “Units per pixel” editable field has the same meaning as in “Simple” option. This field defines Units/pixel ratio for the biggest model.

The “Number of levels” editable field allows you to define how many different Caviar models are to be converted. For example, if you set 1 unit per pixel and 4 levels, there will be 4 Caviar models with different levels of detail for each mesh object: the biggest model, medium model, small model and smallest model. The Units/pixel ratio for these models will be 1.0, 1.5, 2.25 and 3.375, respectively. The rendering library will automatically choose the best model for rendering.

When you are satisfied with the parameters, press the “OK” button.

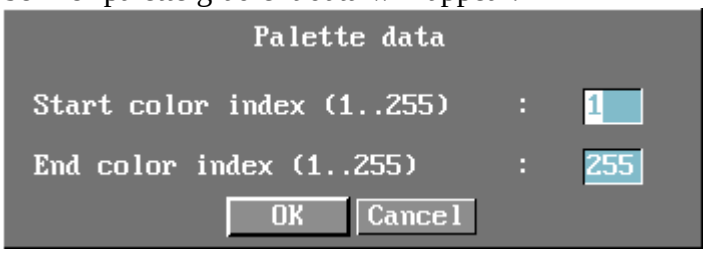
If number of levels is greater than 1, the following dialog box will appear:



If you press “Yes”, the output CVR file will be streamable, i.e. it can be played by API if only part of the file is loaded.

SETTING THE LIGHT GRADIENTS

If you have chosen “Geometry” or “Both” options, the following dialog box for palette gradient data will appear:



The first two editable fields allow you to choose the start color and the end color. Colors outside this range will not be used by the Converter. This may be useful when creating models for Windows applications, where one can’t use all 256 colors from the palette. You can also use one part of the palette for game characters and another part for backgrounds, etc. Color number 0 is reserved and used as a transparent color.

(Note that the Converter will use the rest of the palette for flat materials, so the number of unused colors in the palette must be greater than or equal to the number of flat materials in the scene.)

Press the “OK” button when you are finished inputting the palette data, and the Converter starts to work. You can interrupt this process by pressing the “Esc” key. The interruption will not be immediate, and is dependent on the complexity of the model.

When the conversion is finished, you can play the final data.

The playback is in 256-color mode, so if your model is to be used in high-color application, it’s better to play it with Windows player CVR_PLAY. Use the following keyboard buttons to control playback:

- <Esc> to quit to 3D Editor;
- <Space> to start/stop the animation;
- <F> to step one frame forward;
- Arrow keys to rotate camera;
- <Home> to enlarge the scale;

- <End> to decrease the scale;
- <A>,<S>,<W>,<Z> to change light direction. Because the rendering library uses just an imitation of a real light source, the result may appear strange when light direction makes angle with the view axis more than 45 degrees.

Troubleshooting/Useful tips

PROBLEM: The animation speed is too slow.

Use “Complex” geometry option instead of “Simple” option. This increases rendering speed for small objects.

Try enlarging Units/pixel ratio. This decreases the level of detail of the object. When you increase the ratio 2 times, the level of detail will be 2 times lower and the speed will be approximately 4 times faster.

PROBLEM: Objects glitter through each other in joints.

Use similar materials for joints or decrease the internal part of joint connection.

PROBLEM: Object’s edges are lacerated or cut, there are black pixels on edges.

Try changing setting for the material.

PROBLEM: Object’s surface is faceted.

Caviar Converter does not use the smoothing group bits, so you can enlarge number of object’s faces. The rendering speed remains the same.

Use textured material instead of flat material.

PROBLEM: Object surface has wrong color.

Make sure that your palette contains all needed colors.

Try changing setting for the material.

Examples

The subdirectory “SAMPLES” contains a set of ZIP-files with Autodesk 3D Studio projects and texture files. You can unpack them and create CVR files.

These files are:
BIRDSHOW.ZIP - This contains the project file and textures of a 3D bird model. This model was taken from Autodesk’s 3D Studio 4.0 samples.
VIKING.ZIP - This contains a motion captured project file and the textures of 3D Viking warrior model. This model was designed at AnimaTek for the ONYX project. The example of palette file TEST_PAL.ACT is also included in the SAMPLES subdirectory.

Stand-alone Converter

The Converter is a Windows 95/NT application and allows you to convert 3D models of the following formats:

3ds - Autodesk 3D Studio R4

RTG - Alias Real-time game

LWS/LWO - Lightwave files

Installation

Run file CAV_20.EXE and follow the instructions.

"Import" dialog

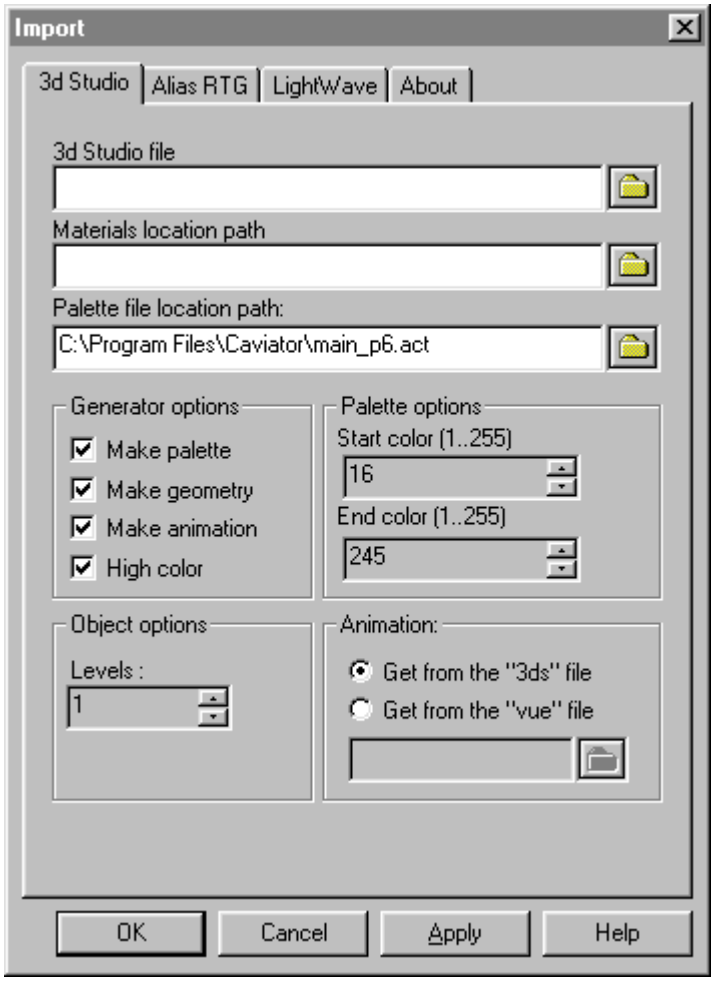
Choose "3D Studio" to perform conversion from a 3D Studio file to a Caviar file.

Choose "Alias RTG" to perform conversion from an Alias RTG file to a Caviar file.

Choose "LightWave" to perform conversion from a LightWave scene file to a Caviar file.

"About" provides short information about the application.

"3D Studio to Caviar conversion" dialog



3D Studio file path editline:

Place the path to the 3D Studio file here. You can simply push the right aligned button to get this path automatically.

Materials location path editline:

Place location path of materials files to the editline. You can simply push the right aligned button to get this path automatically.

Palette file location editline:

Place location path of the file with palette (Adobe PhotoShop's *.act file) to the editline. You can simply push the right aligned button to get this path automatically.

Generator options:

"Make palette" check box is used to mark where palette will be placed in resulting Caviar file.

"Make geometry" check box is used to mark where geometry will be placed in resulting Caviar file.

"Make animation" check box is used to mark where animation data will be placed in resulting Caviar file.

"High color" check box is used to mark where high color data will be placed in resulting Caviar file.

Units per pixel:

The "Units per pixel" dialog allows you to define the scale of Caviar objects, i.e. to set the correspondence between the 3D Editor units and your world space units. For example, if one 3D editor unit equals one meter, and you have created a human model that is 1.8 meters in height and want the model to be 180 pixels in height with the best quality of rendering, set the scale to "0.01". By changing this parameter, you can balance the rendering speed and quality - the smaller the scale, the better the rendering quality and the slower the rendering speed. By default, the field is set in such a way that object's pixel size is 256.

Levels:

The "Levels" editable field allows you to define how many different Caviar models are to be Caviarized. For example, if you set 1 unit per pixel and 4 levels, there will be 4 Caviar models with different levels of detail for each mesh object: the biggest model, medium model, small model and smallest model. The Units/pixel ratio for these models will be 1.0, 1.5, 2.25 and 3.375, respectively. The rendering library will automatically choose the best model for rendering.

Palette options:

The first two editable fields allow you to choose the start color and the end color. Colors outside this range will not be used by Caviar Converter. This may be useful when creating models for Windows applications where one can't use all 256 colors of the palette. You can also use one part of the palette for game characters and another part for backgrounds, etc. Color number 0 is reserved and used as a transparent color.

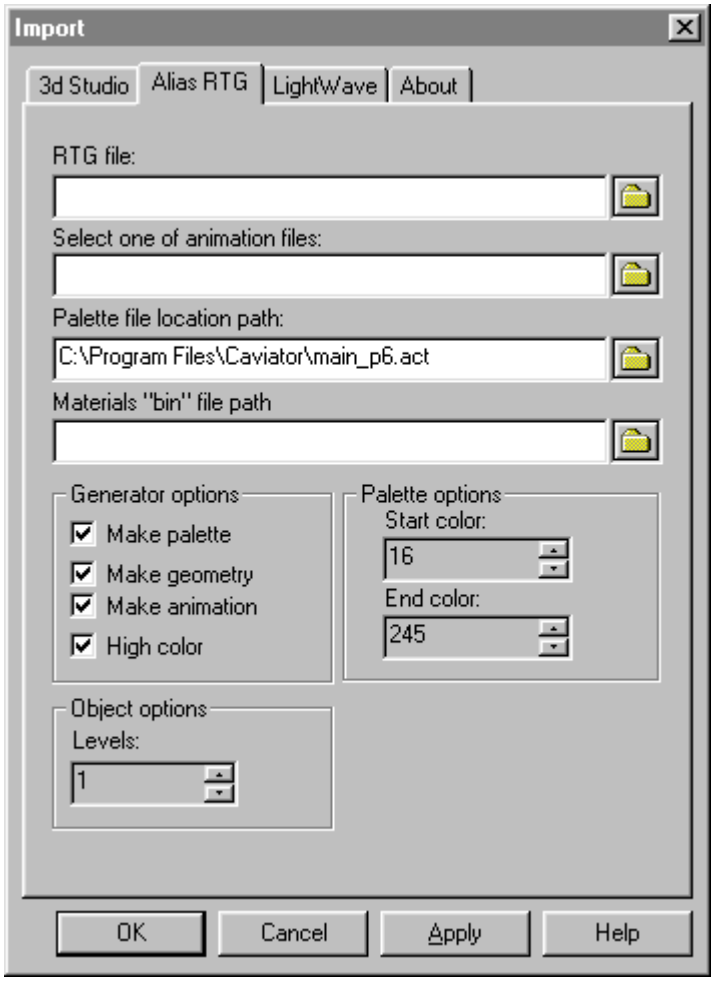
It can take some time to set these values for your palette. You probably will have to experiment a little to find a reasonable quality of rendering. The best way to do this would be to create a palette with good color gradients by hand using Adobe Photoshop.

Animation options:

"Get from the "3ds" file" - animation will be taken from Keyframer keys;
"Get from the "vue" file" - animation will be taken from additional VUE files;

Push the "Apply" or "OK" button to start process of conversion.
Push the "Cancel" button to cease work with Caviar Converter.

"Alias RTG to Caviar conversion" dialog



Alias RTG file path editline:

Place the path to the Alias RTG file here. You can simply push the right aligned button to get this path automatically.

Select one of animation files editline:

Place location path of animation files to the editline. You can simply push the right aligned button to get this path automatically.

Palette file location editline:

Place location path of the file with palette (Adobe PhotoShop's *.act file) to the editline. You can simply push the right aligned button to get this path automatically.

Generator options:

"Make palette" check box is used to mark where palette will be placed in resulting Caviar file.

"Make geometry" check box is used to mark where geometry will be placed in resulting Caviar file.

"Make animation" check box is used to mark where animation data will be placed in resulting Caviar file.

"High color" check box is used to mark where high color data will be placed in resulting Caviar file.

Units per pixel:

The "Units per pixel" dialog allows you to define the scale for Caviar objects, i.e. to set the correspondence between the 3D Editor units and your world space units. For example, if one 3D editor unit equals one meter, and you have created a human model that is 1.8 meters in height and want the model to be 180 pixels in height with the best quality of rendering, set the scale to "0.01". By changing this parameter, you can balance the rendering speed and quality - the smaller the scale, the better the rendering quality and the slower the rendering speed. By default, the field is set in such a way that object's pixel size is 256.

Levels:

The "Levels" editable field allows you to define how many different Caviar models are to be Caviarized. For example, if you set 1 unit per pixel and 4 levels, there will be 4 Caviar models with different levels of detail for each mesh object: the biggest model, medium model, small model and smallest model. The Units/pixel ratio for these models will be 1.0, 1.5, 2.25 and 3.375, respectively. The rendering library will automatically choose the best model for rendering.

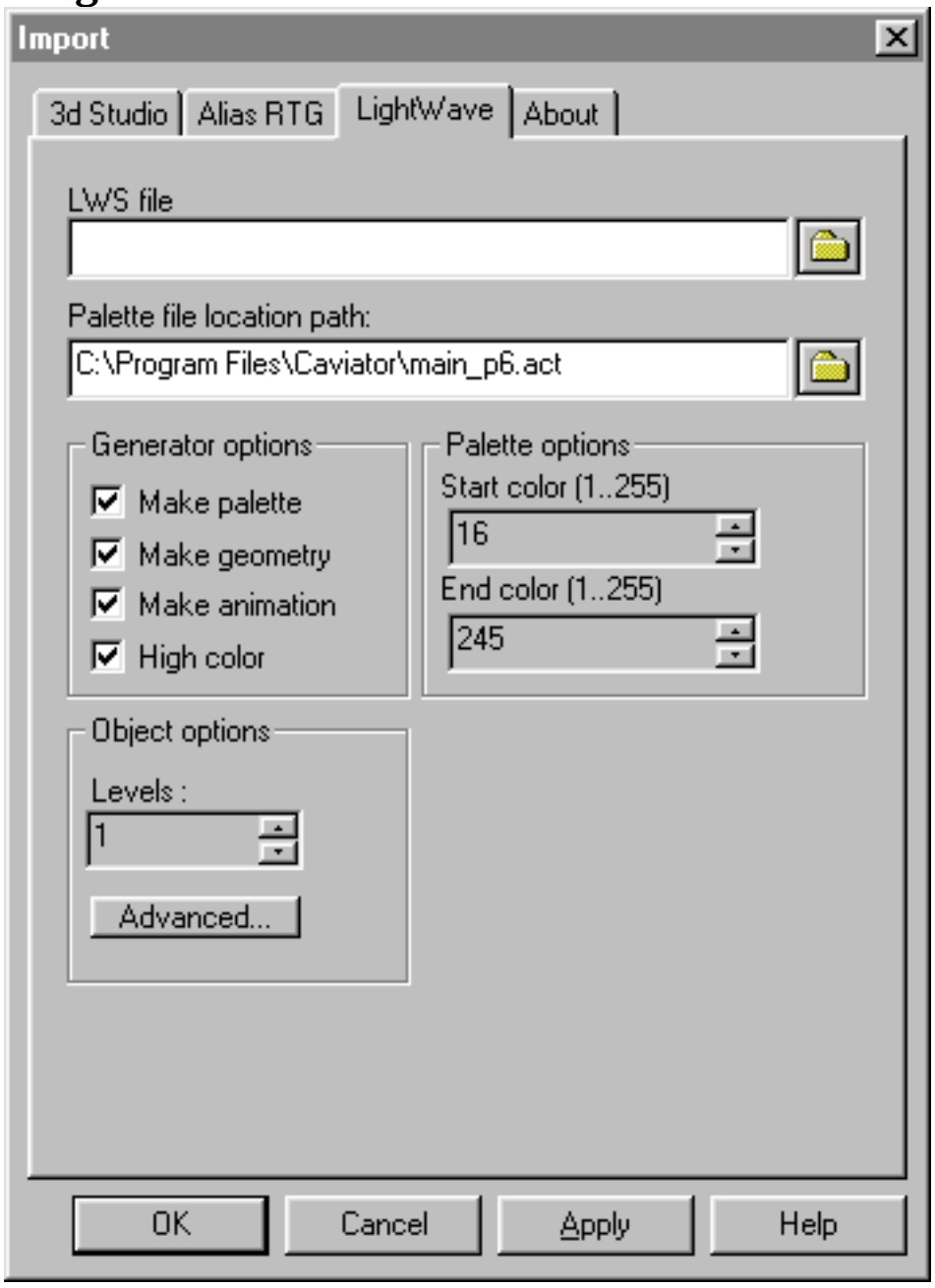
Palette options:

The first two editable fields allow you to choose the start color and the end color. Colors outside this range will not be used by Caviar Converter. This may be useful when creating models for Windows applications where one can't use all 256 colors of the palette. You can also use one part of the palette for game characters and another part for backgrounds, etc. Color number 0 is reserved and used as a transparent color.

It can take some time to set these values for your palette. You probably will have to experiment a little to find a reasonable quality of rendering. The best way to do this would be to create a palette with good color gradients by hand using Adobe Photoshop.

Push the "Apply" or "OK" button to start process of conversion.
Push the "Cancel" button to cease work with Caviar Converter.

"LightWave scene to Caviar conversion" dialog



LWS file path editline:

Place the path to the Alias RTG file here. You can simply push the right aligned button to get this path automatically.

Palette file location editline:

Place location path of the file with palette (Adobe PhotoShop's *.act file) to the editline. You can simply push the right aligned button to get this path automatically.

Generator options:

"Make palette" check box is used to mark where palette will be placed in resulting Caviar file.

"Make geometry" check box is used to mark where geometry will be placed in resulting Caviar file.

"Make animation" check box is used to mark where animation data will be placed in resulting Caviar file.

"High color" check box is used to mark where high color data will be placed in resulting Caviar file.

Units per pixel:

The "Units per pixel" dialog allows you to define the scale of Caviar objects, i.e. to set the correspondence between the 3D Editor units and your world space units. For example, if one 3D Editor unit equals one meter, and you have created a human model that is 1.8 meters in height and want the model to be 180 pixels in height with the best quality of rendering, set the scale to "0.01". By changing this parameter, you can balance the rendering speed and quality - the smaller the scale, the better the rendering quality and the slower the rendering speed. By default, the field is set in such a way that object's pixel size is 256.

Levels:

The "Levels" editable field allows you to define how many different Caviar models are to be Caviarized. For example, if you set 1 unit per pixel and 4 levels, there will be 4 Caviar models with different levels of detail for each mesh object: the biggest model, medium model, small model and smallest model. The Units/pixel ratio for these models will be 1.0, 1.5, 2.25 and 3.375, respectively. The rendering library will automatically choose the best model for rendering.

Advanced button is used to determine initial object's orientation in the scene.

Palette options:

The first two editable fields allow you to choose the start color and the end color. Colors outside this range will not be used by Caviar Converter. This may be useful when creating models for Windows applications where one can't use all 256 colors of the palette. You can also use one part of the palette for game characters and another part for backgrounds, etc. Color number 0 is reserved and used as a transparent color.

It can take some time to set these values for your palette. You probably will have to experiment a little to find a reasonable quality of rendering. The best way to do this would be to create a palette with good color gradients by hand using Adobe Photoshop.

Push the "Apply" or "OK" button to start process of conversion.

Push the "Cancel" button to cease work with Caviar Converter.

Troubleshooting/Useful tips

PROBLEM: The animation speed is too slow.

Try enlarging number of levels. This increases rendering speed for small objects.

Try enlarging Units/pixel ratio. This decreases the level of detail of the object. When you increase the ratio 2 times, the level of detail will be 2 times lower and the speed will be approximately 4 times faster.

PROBLEM: Objects glitter through each other in joints.

Use similar materials for joints or decrease the internal part of joint connection.

PROBLEM: Object's edges are lacerated or cut, there are black pixels on edges.

Try changing setting for the material.

PROBLEM: Object's surface is faceted.

Caviar Converter does not use the smoothing group bits, so you can enlarge number of object's faces. The rendering speed remains the same.

Use textured material instead of flat material.

PROBLEM: Object surface has wrong color.

Make sure that your palette contains all needed colors.

Try changing setting for the material.