



Tools for Asset Repair by PEV

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QuickShadows

This is the third in a short series of tutorials where I describe the use of the tools I have written to bring assets up to date for TS2009/10.

Introduction

The QuickShadows tool is provided to the Trainz community for the generation of shadow meshes without having to use 3DSMax, Gmax or Blender.

Many rolling stock items downloaded into TS2009 show errors caused by missing shadow meshes. In these cases a shadow mesh in the form of a simple rectangular box mesh should be sufficient to give the shadow effect and to satisfy the requirements of the Content Manager program for an error-free asset.

QuickShadows uses the source mesh bounding box as a method to make the rectangular box for shadow mesh. The mesh dimensions are independently scalable in the length, width and height directions. The program reads the source mesh and creates a shadow mesh. The resulting mesh is fully self contained and needs no textures.

Or alternatively, the program can create a full copy of the original mesh with all texture references removed. Again the mesh is fully self contained and needs no textures.

QuickShadows.exe creates a temp.XML file which is then converted to IM by Auran's TrainzMeshImporter program. Auran's policy of having their own software make all game content is thus maintained. The TMI is included in the installer program.

The rectangular box shape should work for the shadows of passenger cars, box cars, gondolas, some diesel or electric locos, steam tenders and so on. Steam locos will usually require a detailed shadow mesh which can also be created by enabling the Full Shadow option.

For the box option, the size of the box is calculated from the main (default) mesh for the rolling stock item. The box created can be scaled and moved independently in all directions (length, width, height) to allow a best-fit result to be achieved. Use the scaling and displacement factors to ensure that no part of the shadow mesh pokes through the skin of the object.

The shadow mesh (shadow.im) is created in the same folder as the parent mesh and requires no textures. It uses the "m.notex" material that takes its colour from the light settings in the material. So no 3D modelling or image manipulation programs are required to make the shadow. The shadow mesh may be moved within the asset folder structure (eg to a shadow folder) and, of course, the shadow mesh will need to be specified in the shadow container in the mesh table of the config.txt file. Refer to the Content Creators' Guide for Trainz Classics for advice on asset folder and file layouts. CCGTC can be downloaded from the Auran web site.

Using the QuickShadows Program

Installation

If you don't have this program, please download its installer program (PEV_QuickShadows_setup.exe) from my PEVSoft Download page.

<http://www.members.optusnet.com.au/~villamp/pevsoft.htm>

Run the installer and the QuickShadows will be loaded on to the Program Files area of your C: drive, along with a desktop icon and an entry in the PEVSoft folder of your All Programs menu.

TrainzMeshImporter.exe is included in the setup program. It may require a further download from MicroSoft (See below)

If you have TS2009 or later, you should create an 'OpenWith' macro in Content Manager to allow you to run QuickShadows directly from the Content Manager.

If you have installed Trainz 2009/10 in the default folder then you should have a folder named 'C:\Program Files\Auran\TS2009\bin\CMPData\tools'

In this folder create a new folder named 'OpenWith' (one word). Use NotePad to create a DOS batch file with the name "QuickShadows.bat" (or similar) with the following commands:-

```
@echo off
"C:\Program Files\PEVSoft\QuickShadows\QuickShadows.exe" -trawl %1
```

To use the program, select one or more items in Content Manager 2, then right click to bring up the menu. Select "Open With", then click on "QuickShadows.bat".

The selected items will open for edit and shadows meshes will be added for all of the meshes found during the trawl.

Opening a File

The program can open .pm and .im files only.

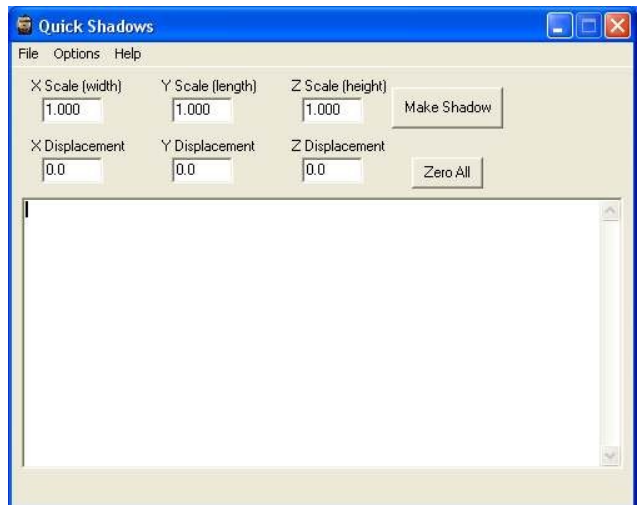
To Open a File, start the program and click on the File menu. Click on Open and the open file dialogue box will be displayed. The file extensions are filtered so only the correct types can be opened.

When opened the mesh file is checked for validity and the program shows a notice suggesting you press the Make Shadow button to proceed.

The Exit option closes the program.

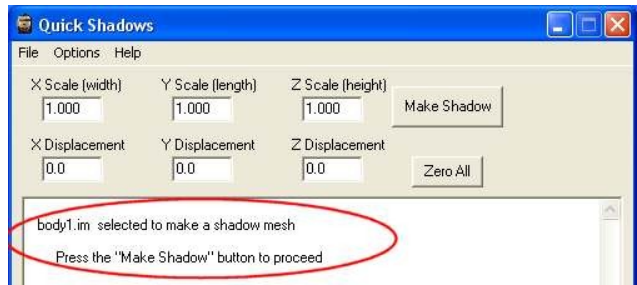
Making a Box Shadow

When opened from a short cut, the program will await a file open instruction from the user.



Click on the File menu. Click on Open and the open file dialogue box will be displayed. The file extensions are filtered so only PM's or IM's will be visible. Select a mesh to make a shadow for.

The program will confirm your mesh choice and show a notice suggesting you press the Make Shadow button to proceed.



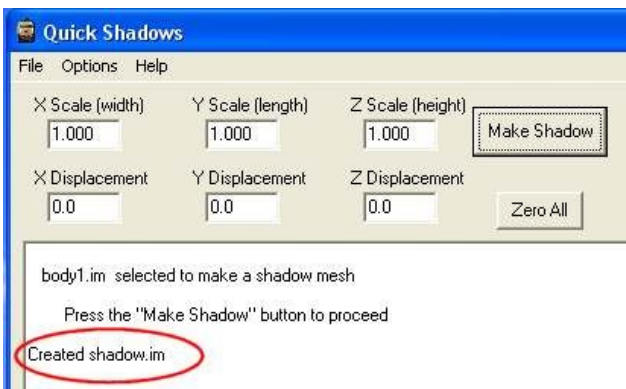
If the "Full Shadow" option is NOT set then the program will make a box shadow mesh.



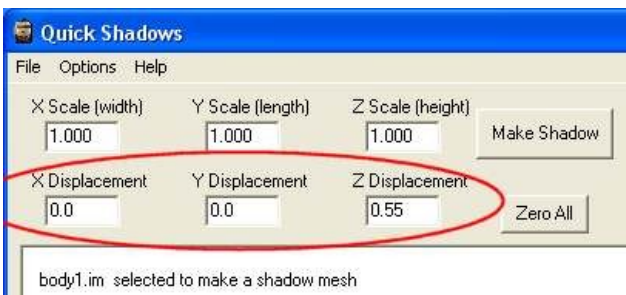
For a shadow mesh to be successful it needs to not protrude through the skin of the parent (or default) mesh. For the box mesh, independent scaling factors are provided for length, width and height. Because the shadow mesh box size is created from a bounding box for the parent mesh it is highly likely that the mesh will be too large. Use the scaling factors to reduce the size. A Scaling factor of 1.0 is full size.. Use decimal fractions (eg 0.8) to reduce size.

A hidden scale factor is included so that the shadow of a rectangular object is slightly smaller than the object, This is intended to prevent any rendering conflicts that can cause the dreaded phasing effect in the game.

Press the "Make Shadow" button and shadow.im mesh will be created. When completed the program will tell you that the shadow.im file has been created.



If the shadow mesh is offset from the main mesh when you view it in Trainz, the box shadow can be moved using the X, Y, and Z Displacement values. These values are in metres.



For example, if the shadow is too low, you can move it up by entering a positive value into the Z Displacement box. This is common where the parent mesh has a small portion that is higher than the remainder of the mesh, eg a post. Note that this feature is only available for the box shadow.

The "Zero All" button can be used to make all displacements zero. Note that the displacements default to zero when ever the program is opened. These values are not stored for later use.

Files opened by double clicking in Windows Explorer can automatically have a shadow mesh created if the "Auto Make" option is SET (checked). The program will close automatically after a short pause if the "Close on Done" option is SET.

The shadow mesh is created in the same folder as the parent mesh. It does not require any textures.

Making a Full Shadow

As in the box shadow option, after opening the program will confirm your mesh choice and show a notice suggesting you press the Make Shadow button to proceed.

If the Full Shadow option is SET, on pressing the Make Shadow button a Shadow mesh will be created using the geometry of the parent mesh, but with all animation and texture details stripped out.



When completed the program will tell you that the shadow.im file has been created.

The full shadow mesh is created in the same folder as the parent mesh. It does not require any textures. It's up to the user to place the shadow mesh in an appropriate folder and make any changes needed in the config.txt file.

Trawling.

Trawling is the process where the program searches a folder and ALL of its sub folders for mesh files that require a shadow mesh to be appended. It is similar to the search function in Windows explorer, except that when it finds a mesh file it processes it without asking any questions.

I added the trawling facility to QuickShadows to assist the team doing asset repairs for TS2009/10. There are many old rollingstock assets that don't have shadows and thus show an error in Content Manager 2.

So if you have faulty content caused by the absence of shadow meshes (as flagged by CM2) you can use the CM2 search filter for faulty content and open it all for editing, then apply the trawling process to the editing folder.

To use Trawling you must launch this program from the command line with the -trawl switch, or launch from the Open With menu (right click) in Content Manager 2.

Select one or more items in Content Manager 2, then right click to bring up the menu. Select Open With, then click on QuickShadows.bat.

The selected items will be opened for edit and a shadow added for every PM, and optionally every IM, found in the search. Please be aware that only one shadow mesh per folder is created. If a folder contains a number of meshes, only one shadow will remain at the completion of processing that folder.

When trawling you can stop the process at any time by pressing the "Stop Trawling" button.

The files processed are listed in the main text box as the conversions progress.

The program keeps a log (named Trawl_Log.txt) of files found and shows the actions taken on each file. The log is accessed from the File menu and clicking on View Log. The log file accumulates data every time trawl is started. The Log should be deleted after large trawl conversions. A delete option is included in the File Menu.

Launching from the Command Line

The program can be launched from the command line to automatically make a shadow mesh based on a .PM or .IM mesh.

If the command line parameter is a mesh file the program will automatically open that mesh and use its dimensions to build the shadow mesh.

If the command line parameter is a folder the program will open in that folder and wait for the user to select a mesh to process to make a shadow. Use the File Open menu to select a mesh.

Refer to the readme.txt file with this program for instructions to use the program as an Open With tool in Content Manager 2.

However because the shadow is a bit hit or miss, I think it's better to run the program from a shortcut and look at the result in the game. You will most probably find that you have to displace the mesh to get the best result, and this cannot be done from the command line.

Program Options

The following options are provided to customise how the program works.

Auto Make

To make the program add shadows to PMs (and IMs) when started from the command line, set the Auto Make Option. The option will be ticked (checked) when set. This option has no influence on trawling.

Close on Done

The program will close on completion of the shadow making tasks if the Close on Done Option is set.

Full Shadow

The program will make a shadow mesh using the geometry of the parent mesh, but with all animation and texture details stripped out. It is a black only version of the parent mesh. When this option is not set the program makes a box shadow.

Trawl for IMs

Setting this option will make the program add shadow meshes to IM files as well as PM files, when trawling.

TrainzMeshImporter

The QuickShadows program will not operate if the TrainzMeshImporter.exe is not in the QuickShadows.exe application folder. A notice to this effect is displayed for a few seconds before the program closes.

Also, TrainzMeshImporter requires some Microsoft C++ 2005 SP1 runtime files, and if these are not present the TMI will not run, or may freeze.

Refer to the program help if the TMI is not working correctly. A link to Microsoft is provided in the help for downloading the runtime files.