An Approach to Content Creation for Trainz

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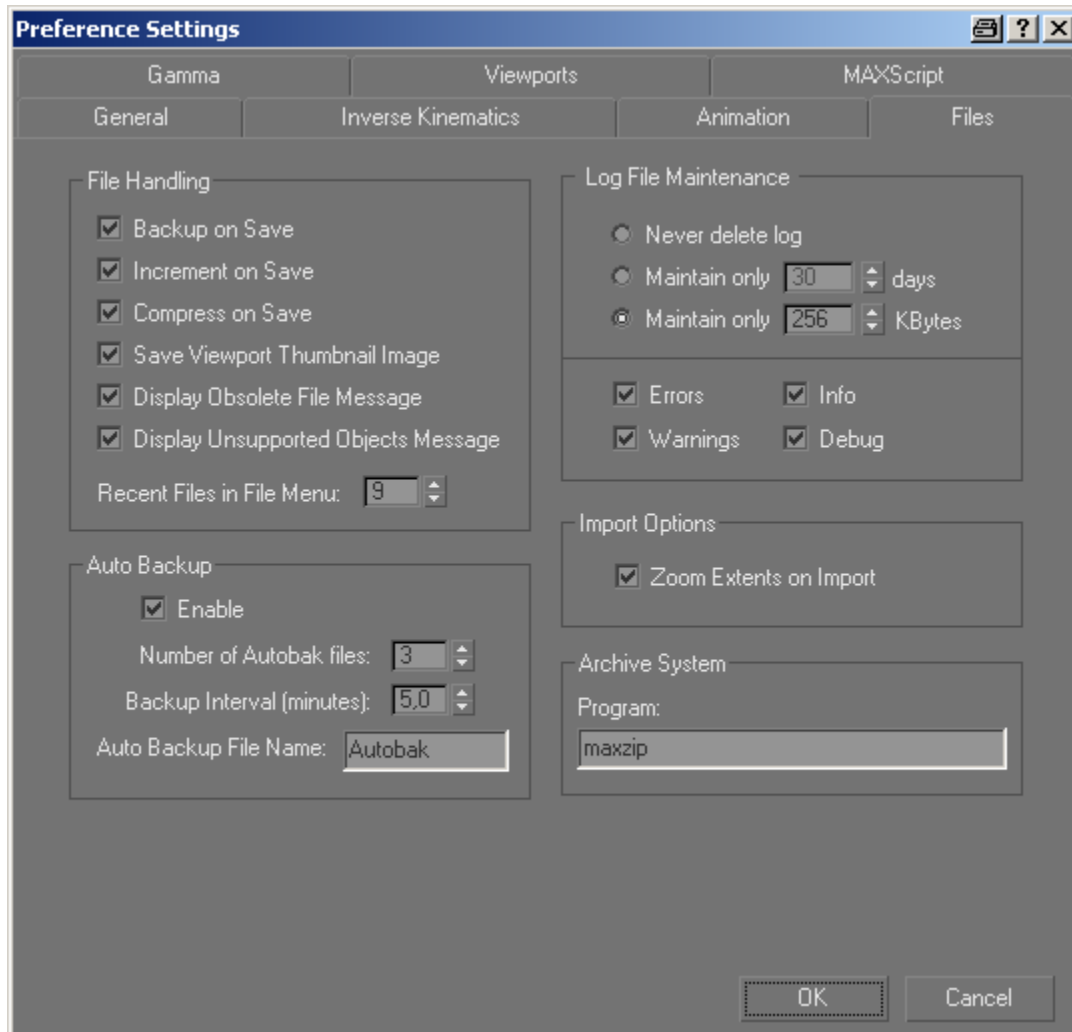
Part 1

Setting Up GMax

(Updates and sample files available from http://www.44090digitalmodels.co.uk)

Installing and Setting Up GMax

Installing [GMax](#) and registering GMax should be straightforward, as should the installation of the [Trainz GamePack](#), which is needed to export the finished models into Trainz. Some settings need to be changed from the defaults though, either to make using GMax easier to use or to avoid problems later on.
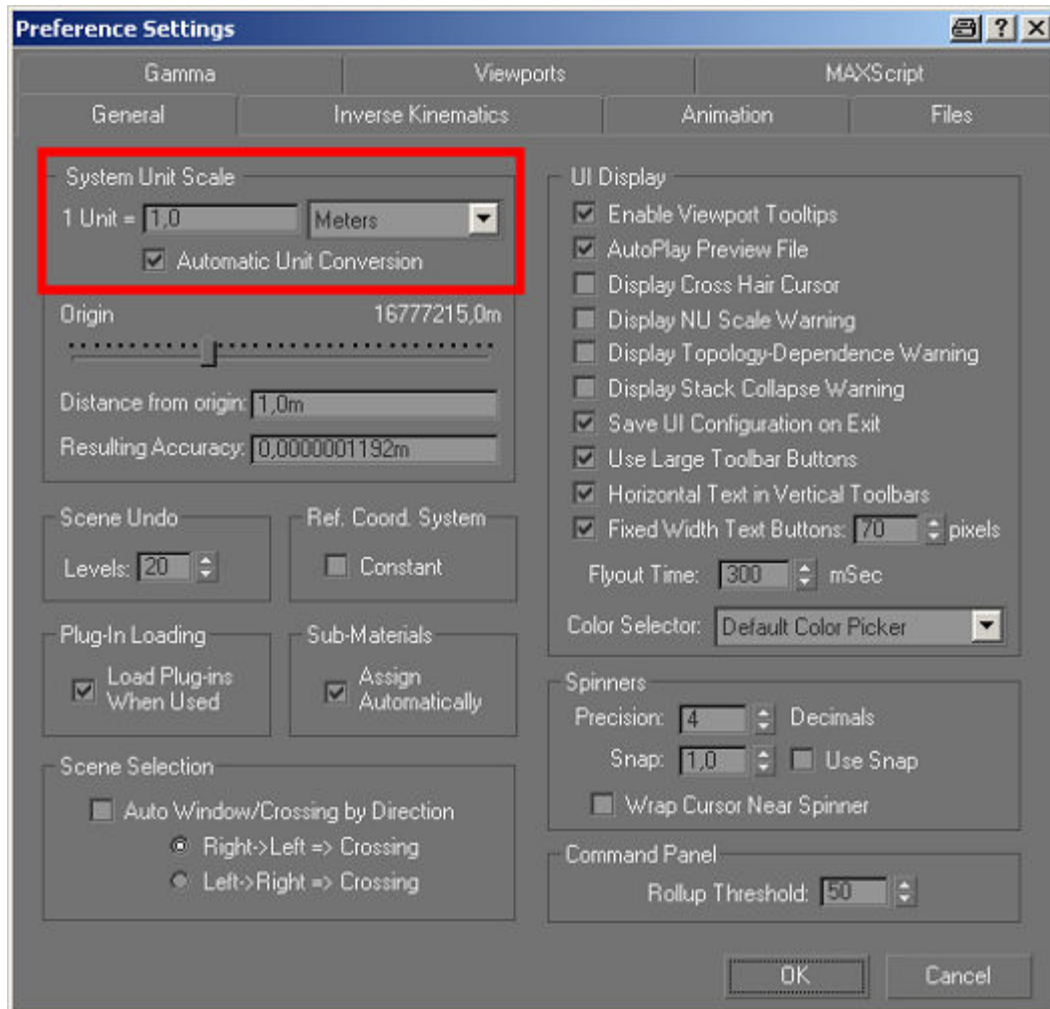

The main Preference settings found under 'Customize -> Preferences' should be as shown here – most important is 'Increment on Save', this adds a incremental number on the end of the GMax filename to ensure that when you save you don't overwrite the old version of your model.

If the first file is called 'myloco0000.gmax' the next will be 'myloco0001.gmax'. This is important because GMax can sometimes corrupt files when saving. I always keep about the last five or six versions, cleaning out the older ones at the end of a GMax session.

Also useful is 'Autobackup -> enable', this stores backups of your work in the GMax directory and can sometimes get you out of trouble. Disk space is cheap and plentiful these days so you might as well use it.
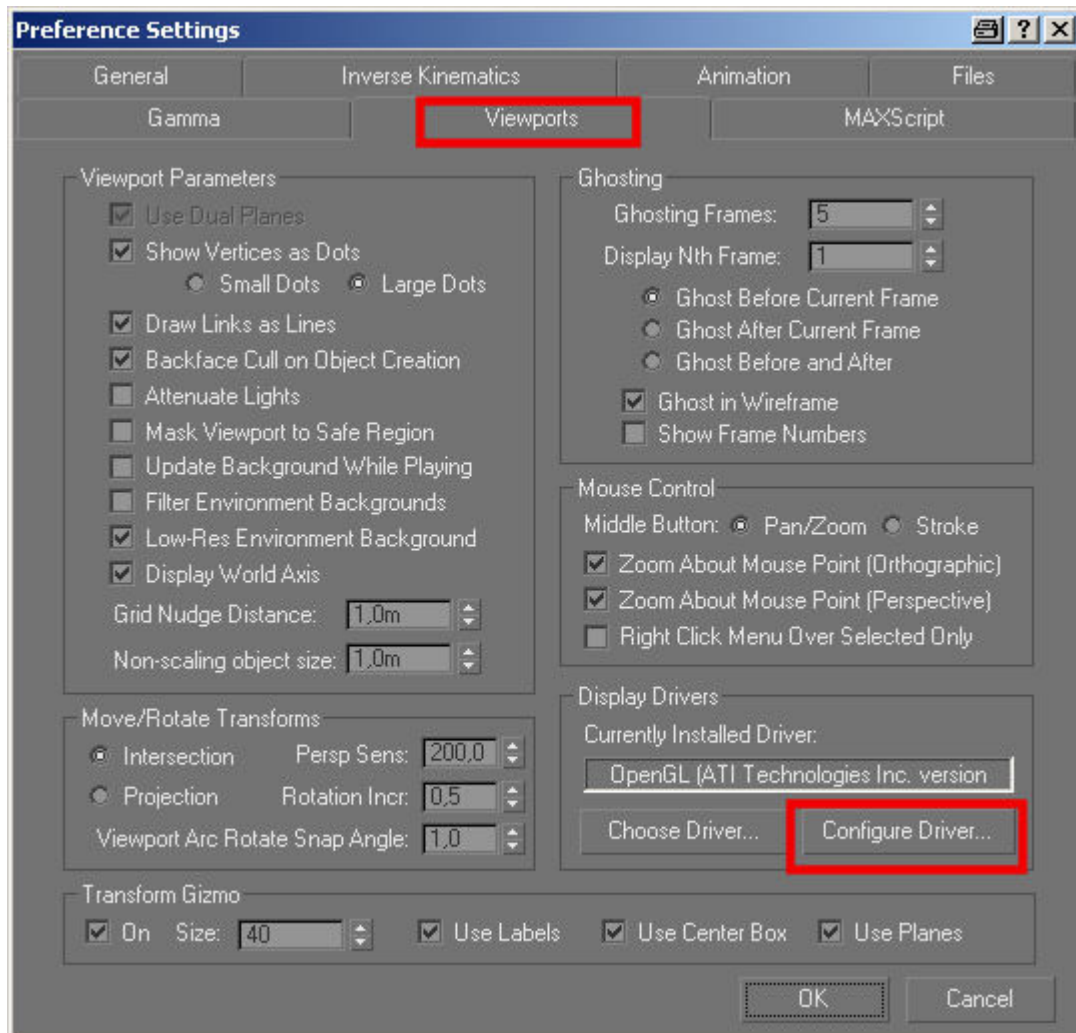
Another important setting is found under 'Customize -> Preferences'**. It is vital to ensure that this is set to meters if you are planning to create objects with animation.** Don't worry if your plans are imperial, you can still type something like 2'6" into an input field and GMax will convert it for you providing the 'Automatic Unit Conversion' option is selected as shown.
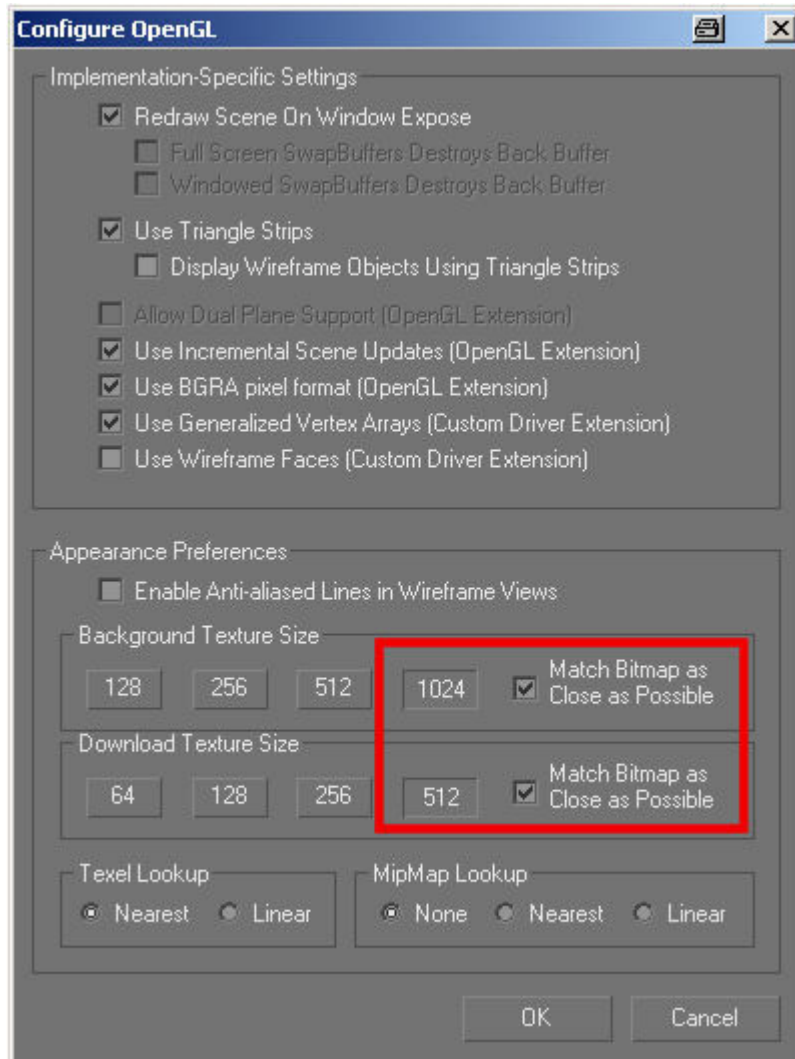

Failure to set the System Units to metric is a common cause of animated objects being scattered all over the landscape in Trainz.

It is also very important to change the maximum resolution that GMax will use when displaying textures, this is rather well hidden under 'Customize -> Preferences -> Viewports -> Configure Driver'.

This is needed to obtain reasonably sharp graphics on planes that you may be using to display scans of the object that you are building. If you don't change this setting it will be almost impossible to construct anything accurately as the plan will be too fuzzy. In fact the resolution all of the textures that GMax displays are affected by this setting.

Preference Settings

General | Inverse Kinematics | Animation | Files
Gamma | Viewports | MAXScript

Viewport Parameters
☑ Use Dual Planes
☑ Show Vertices as Dots
   ○ Small Dots   ◉ Large Dots
☑ Draw Links as Lines
☑ Backface Cull on Object Creation
☐ Attenuate Lights
☐ Mask Viewport to Safe Region
☐ Update Background While Playing
☐ Filter Environment Backgrounds
☑ Low-Res Environment Background
☑ Display World Axis
Grid Nudge Distance: 1.0m
Non-scaling object size: 1.0m

Move/Rotate Transforms
◉ Intersection   Persp Sens: 200,0
○ Projection   Rotation Incr: 0,5
Viewport Arc Rotate Snap Angle: 1,0

Ghosting
Ghosting Frames: 5
Display Nth Frame: 1
   ◉ Ghost Before Current Frame
   ○ Ghost After Current Frame
   ○ Ghost Before and After
☑ Ghost in Wireframe
☐ Show Frame Numbers

Mouse Control
Middle Button: ◉ Pan/Zoom   ○ Stroke
☑ Zoom About Mouse Point (Orthographic)
☑ Zoom About Mouse Point (Perspective)
☐ Right Click Menu Over Selected Only

Display Drivers
Currently Installed Driver:
OpenGL (ATI Technologies Inc. version
Choose Driver...   Configure Driver...

Transform Gizmo
☑ On Size: 40   ☑ Use Labels   ☑ Use Center Box   ☑ Use Planes

OK   Cancel

Set the values to maximum as shown below ('Download texture size' is actually the important one here).
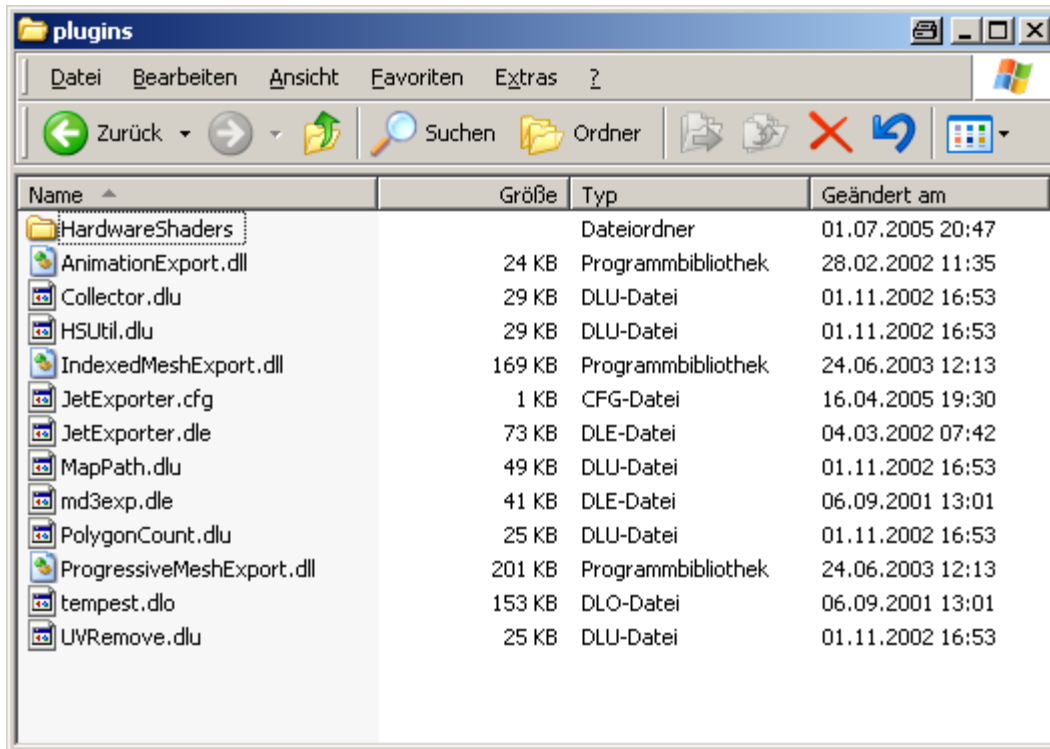
Lastly after installing the Trainz GamePack you will notice that an icon has been added to the desktop, which is used to start GMax with the export options that Trainz needs. Unfortunately it also changes the interface in a way, which is (to me at least) annoying

This is not actually necessary and I simply copy the plugins that the GamePack has installed back into the normal 'Plugins' directory of GMax. This means GMax can be started in the usual way with the Trainz exporters active and with the default user interface.

It also useful to install some extra plugins to make working with GMax easier or to improve the results. I personally don't think it's possible to make a loco model look really good without using a little specular lighting. This adds a certain amount of 'sheen' to the model (dynamic highlights). To activate this it is necessary to replace the Trainz exporters with the ones for Max4/5, available from the link in the Auran Bump Mapping Document or here.

Once the new exporters have been installed (if you don't have Max just install to the Desktop) copy the 'IndexedMeshExport.dll' into the GMAX 'plugins' directory. The other files are not required.

The following picture is the complete 'plugins' directory of my installation of GMax. Note in particular the dates and size of the 'IndexedMeshExport.dll', this is how you can tell that you have the correct one.
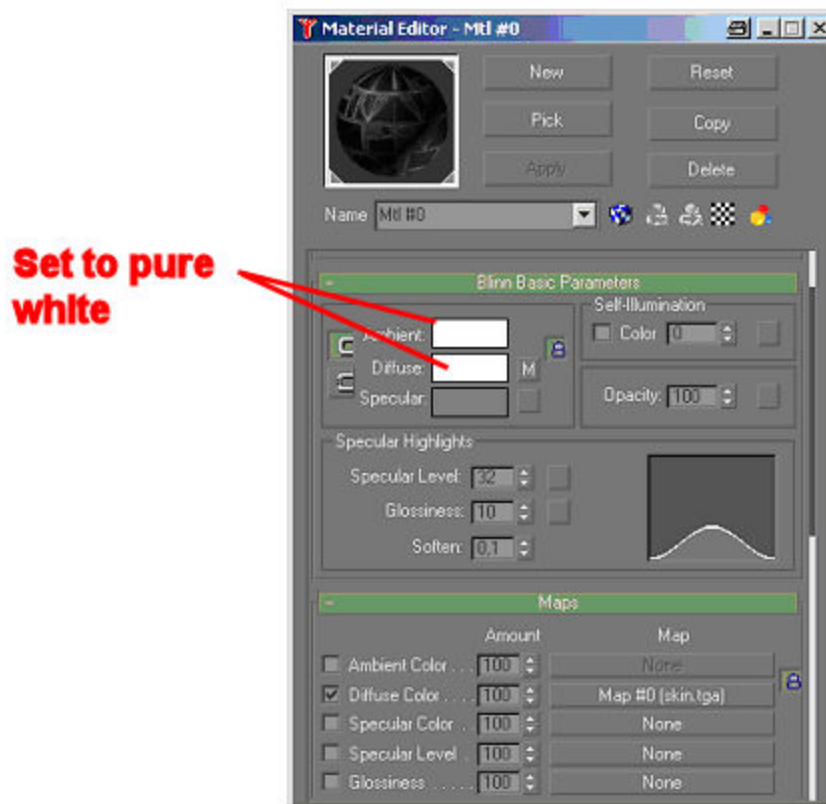

To use the new exporters you also have to make a small change to the 'JetExport.cfg' file (edit the *.cfg file using Notepad or another text editor), the content of which should be as follows:

```
enableWarnings = 1

[plugins\IndexedMeshExport.dll]
{
  buildNeighborArray = 0
  forceTxtOverwrite = 0
  defaultMaterialColor = 0
  disableautobillboard = 1
}
[plugins\ProgressiveMeshExport.dll]
{
  buildNeighborArray = 0
  forceTxtOverwrite = 0
  defaultMaterialColor = 0
  disableautobillboard = 1
}
[plugins\AnimationExport.dll]
{

}
```

Once the new exporters have been installed it will be necessary to change the settings of every material that is exported from GMax. The 'Ambient' and

'Diffuse' settings of the material must be set to pure white as per the following picture. Failure to do this for every material will result in the textures appearing too dark!

Also note the ,md3exp.dle' file in the 'plugins' directory, this is taken from the Tempest GamePack and allows the exporting of Quake (MD3) files. This is needed for mapping using the ChilliSkinner (see Part 2 of this opus) and is also useful for transferring models between GMax and 3DSMax as there is also a MD3 importer available for 3DS Max.

The Tempest GamePack is available from the Discreet website, ignore any messages that you need a version of Quake installed; we are only after one of the files that the GamePack installs. The Installer will find your installation of GMax and add a directory called 'Tempest' to the 'GamePacks' directory. In 'gamepacks\Tempest\Plugins' will be the ,md3exp.dle' file that we need. Copy this file to your 'Gmax\Plugins' directory if you are not using the Trainz Asset Creation Studio method of starting GMax, or 'GMax\gamepacks\Trainz\Plugins' if you are.

The installation of the Tempest GamePack will also add a shortcut to your desktop. This can be safely deleted, as we don't want to start GMax using this GamePack.

Any questions, requests for more explanation or corrections needed – please mail me at paul.hobbs@web.de