Creating GTR2 Rain Reflection Objects

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Required Tools:

3dSimEd at least version 1.14

Its is assumed below that your track folder is `GTR2\Gamedata\Locations\MyTrack` and that your gmt objects required for the track are available at this location.

1. Introduction

The tracks included with GTR2 can display a wet track surface which reflects the cars and other objects. 3DSimED can create the objects required for this feature for other tracks. This tutorial covers the steps required to add these wet weather reflection objects to an existing track.

2.Preparation

If the track's objects and textures are packed into GTR files they should be un-packed before starting. 3DSimED has a function `Tools->Expand->GTR2/GTL/GTR` which allows GTR files to be expanded.

3.Create rain objects

The first stage is to create some duplicates of objects used in a track which are expected to generate reflections. These will include any objects defining road surfaces.

Typically, these objects have a common prefix such as "track" or "trk" and the convention is for these object names to have a number sequence, for example trk001gmt to trk067.gmt.

A copy of these is required and this is probably most easily accomplished by using a command window and then using the copy command. Choose a new prefix with the same number of letters and make sure it will not clash with any existing .gmts. For example, with objects trk001.gmt to trk067.gmt you could use the command line `copy trk???.gmt ref???.gmt` .

The next small step is very important; GTR2 requires one of the objects to be named rreflect01.gmt so rename one of your duplicate objects to rreflect01.gmt (e.g `ren ref001.gmt rreflect01.gmt`).

4. Deleting geometry

Within 3DSimED use the `File->Import As Objects` to open all the new objects copied above. Note that it's the Import As Objects function as this allows multiple selection of objects. We now must delete all the geometry for materials which do not collect water. These will be grass, sand, gravel, curbs etc. and all the walls. Select `Edit->Material Operations->Erase Material Geometry`. From the list of materials select the materials to delete (you can multi-select materials in this dialog). You may find it useful while deleting some materials to use `Edit->Purge->Unused Materials` which will remove materials from the list that have no geometry. When you have finished deleting make sure you Purge Unused Materials otherwise the next stages could get confusing.

5. RREFLECT material

The next stage is to create a special material to mimic the reflection of water. Use Edit->Material Editing to create a new material. Name the material rreflect and then in the select the texture button, entering the name rreflect00.dds in the texture browser. Don't worry that this texture does not exist in your track folders because it will be found by GTR2 in the MISC.GTR included at the top of your .TRK file. There are three more textures to add to the material. Click the Enabled check box for the Specular Map, to switch it on, and then select the Add Map button setting the texture map name also to rreflect00.dds. Enable the Bump Map, and set the Mult. Map to dryingline.dds, set the Cube Map to enabled, the Mult. Map to reflectnoise.dds, and the Blend to Multiply.

Now `using Edit->Material Operations->Replace Material` you should replace each of your remaining materials with rreflect. The geometry will turn magenta as you do this as we do not have the textures but do not worry. When finished the `Edit->Purge->Unused Materials` should be used again and when the only material you have left is rreflect this stage is completed.

6. Correcting lighting properties

The lighting properties of these objects need to set to make sure they act correctly within the GTR2 light model. Use `Edit->Select All Display` and from the sub-menu select Objects, then Tags and NOT Lit at Night.

7. Move geometry

It is almost time to save these objects but first the geometry has to be raised a little so that these objects appear over the track surface. Use Edit->Translate Model and set the Z value to 0.01 when you click OK all the objects will be lifted by 1cm which you probably will not see. Now with `File->Save As GTR2->Save Objects` select the `GTR2\Gamedata\Locations\MyTrack` folder to save the objects.

8. Adding objects to MyTrack.trk

The last stage is to open the new _output.trk in the track folder and copy all its contents to the bottom of MyTrack.Trk. Then make sure you have the following lines near the top of the .trk file:-

```
SearchPath=GAMEDATA\LOCATIONS\SHARED

MASFile=Misc.gtr
```

9. Testing and troubleshooting

In GTR2, set the rainfall to 100% and drive the track. You should see some reflections of objects in water lying on the track. In a replay you should see reflections of the car.

If the track did not load it's probable that you have an incorrect texture name for one of the texture maps of the rreflect material. A failure to load will also happen if there is no entry for MISC.GTR and/or the SearchPath for the shared location has not been set (see the previous section).

If there are no reflections it could be that the material name is incorrectly spelt or you have not named one of the .gmt files as rreflect01.gmt. Strange lighting as you enter or leave each section of the track will be due to having not set the tags correctly for the lighting model.

10.Packing the objects

If the GTR2 track objects were packed in .GTR files the new objects can be added to the GTR by using `Tools->Pack Files->GTR2 .GTR` and the objects can then be deleted.