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Detailing Your Environment Textures

Introduction

At this point, you're probably comfortable either algorithmically generating or hand-painting textures onto your topography. You may have noticed that no matter how nice your textures look in Photoshop, they always appear stretched and blurry in the Torque engine. There's little we can do to improve the way these textures look in-game, but what we can do is assign additional textures onto the environment which add detail and pop to your level.

There are two kinds of textures we can use to augment the look of our ground covering. The first is a detail texture, which is an immediate answer to the problem of stretched and blocky environment mapping. The second is a bump texture, which gives the illusion of variations in height.

Perhaps the only problem with detail and bump textures is that they are a blanketed across the entire environment. Much like the Immortals of *Highlander*, "there can be only one!" While your topography can have multiple, blended environmental textures, detail and bump maps are the same throughout. This means you need to choose your details and bumps wisely.

Detail Textures

Detail textures are blended with the environmental textures to create subtle variations at close range. This helps offset the blurry, patchy nature of the environmental textures. Details exist in a cone around the player, and diminish as they recede into the distance. Detail texture files should be 256 x 256 .png or .jpg files with no transparency. In order to add a detail texture to your map, add the following code into your mission file's TerrainBlock section:

```
detailTexture = "~/data/terrains/details/detail1";
```

Change the path and filename to reflect the position of your detail file. Load Torque, open your mission, and observe the ground.

Bump Textures

Bump textures must be black and white 256 x 256 bitmaps in either .jpg or .png format. Ideally, such a texture will have a high contrast – the higher the contrast, the more dramatic the effect becomes. To add a bump map to your environment, add the following code into your mission file's TerrainBlock section:

```
bumpTexture = "~/data/terrains/details/bump.png";
bumpScale = "10";
bumpOffset = "0.075";
zeroBumpScale = "1";
```

Of course, you should change the bumpTexture property to reflect the proper path and file name for your level.

The bumpScale property affects how stretched the bump texture is on screen. A value of 1 is not stretched at all, which values greater than 1 are stretched, and values less than one are shrunk.

The bumpOffset property indicates how drastic the effect appears on screen. The greater the offset, the greater the effect. In general, subtle offsets look best.

The final property, zeroBumpScale, creates a cone around the player where the effect is present. Any areas outside of the cone will not have the effect applied. This lessens the strain on the CPU, and quite honestly, past a certain point onscreen, the effect is indistinguishable from noise, and should therefore be limited.

Once the bump texture properties have been added to your mission file, save it, and load the mission in Torque. By the way, you can use the World Editor Inspector panel to tweak the bump settings in the engine without having to restart the engine.