



# IT'S A SMALL.WRL

In recent months I've introduced you to some of the possibilities of using 3D Studio MAX to model VRML for the Web. Now it's time to introduce a caveat. Large .wrl files unsurprisingly mean lengthy load times. No attention to this will mean many users will leave your site before it's even loaded into their browser

**T**ake heart, there is an ambient light at the end of the cylinder. Almost every VRML scene you're making right now can be tweaked and improved on. First we have to re-write an animators credo (wherein it's not the size of the animation that matters so much as how imaginatively you use it). When involving the web there are two main considerations: The download time (faster is always better) and the frame rate (faster is always better).

Frame rate is, in turn, affected by to two factors: polygon rendering (less is more) and animation (like lights in your bedroom - only have them on when required. Right kids?)

## Basic VRML rules

As with everything, there are some basic rules that act as a standard towards achieving a memorable and ultimately functional VRML world:

- Minimise the use of lights. More lights equals more time to render the scene.
- Use texture mapping sparingly. Where possible, repeat the maps. Use Level of Detail to reduce the rendering of out-of sight or distant objects.
- Duplicate Models (nodes) where possible.
- Try to break up large models into smaller components (this way there will be something to 'watch' whilst your scene loads).

- Do you really need that model - that big? If so break it up into smaller grouped models.
- Some VRML evangelists are of the opinion that using modelers such as MAX is plainly evil. This is not the case once you have a better grasp of what you're doing. MAX saves hours of typing in coordinates, nodes, and numbers, and allows the non-VRML coder to create good, solid VRML worlds easily.

One of the first things you can do is take out the trash. Load your .wrl (VRML) file into a plain text editor (for example Wordpad or Write on Windows PCs). Straight away you'll be confronted with brackets, numbers, more brackets, some words but mostly numbers. Beyond that you will also notice lots of spaces. Tabulation is great when you're debugging, but also takes up a lot of byte space. Once your world is working, crunching up your spaces can reduce your file-size dramatically.

## Normals & you

MAX can create normals (a 'normal' is a vector that defines which way a face is pointing) with an outrageous number of points. When you're modeling in MAX, try to use anything that creates the least amount of polygons. Meshes for flat surfaces are great for keeping the polygon count low. Also, using the polygon counter to budget

