Chapter 23
Misc. Render Commands

Raytracing 23.1

Introduction

Ray Tracing is a global illumination based rendering method. It traces rays of light from the eye back through the image plane into the scene. Then the rays are tested against all objects in the scene to determine if they intersect any objects. If the ray misses all objects, then that pixel is shaded the background color. Ray tracing handles shadows, multiple specular reflections, and texture mapping in a very easy straight-forward manner.

Note that ray tracing, like scan-line graphics, is a point sampling algorithm. We sample a continuous image in world coordinates by shooting one or more rays through each pixel. Like all point sampling algorithms, this leads to the potential problem of aliasing, which is manifested in computer graphics by jagged edges or other nasty visual artifacts.

In ray tracing, a ray of light is traced in a backwards direction. That is, we start from the eye or camera and trace the ray through a pixel in the image plane into the scene and determine what it hits. The pixel is then set to the color values returned by the ray.

www.siggraph.org/education/ materials/HyperGraph/raytrace/rtrace0.htm

1. **Choose** View, Render, Render...

   or

2. **Type** RENDER at the command prompt.

   Command: **render**

3. **Choose** PhotoRaytrace as the render type.

Set Antialiasing 23.2

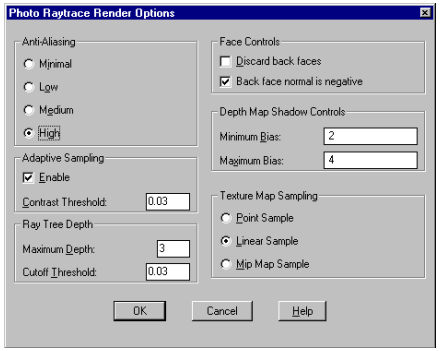
1. **Choose** View, Render, Render...

   or

2. **Type** RENDER at the command prompt.

   Command: **render**

3. **Choose** More Options...under Rendering Options.
4. **Choose** High as the Anti-Aliasing method.
5. **Click** OK.
6. **Render** the viewport.



Adaptive Sampling 23.3

1. **Choose** View, Render, Render...

   or

2. **Type** RENDER at the command prompt.

   Command: **render**

3. **Choose** More Options...under Rendering Options.

Ray Tree Depth 23.4

1. **Choose** View, Render, Render...

   or

2. **Type** RENDER at the command prompt.

   Command: **render**

3. **Choose** More Options...under Rendering Options.

Raytracing & Subsampling Options

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Change Subsampling Options 23.5

1. **Choose** View, Render, Render...

   or

2. **Type** RENDER at the command prompt.

   Command: **render**

3. **Choose** the Sub-sampling dropdown list.
4. **Choose** 3:1
5. **Click** OK.
6. **Render** the viewport.

Rendered Bottle with Sub-Sampling 3:1

Fog 23.6

Provides visual cues for the apparent distance of objects.

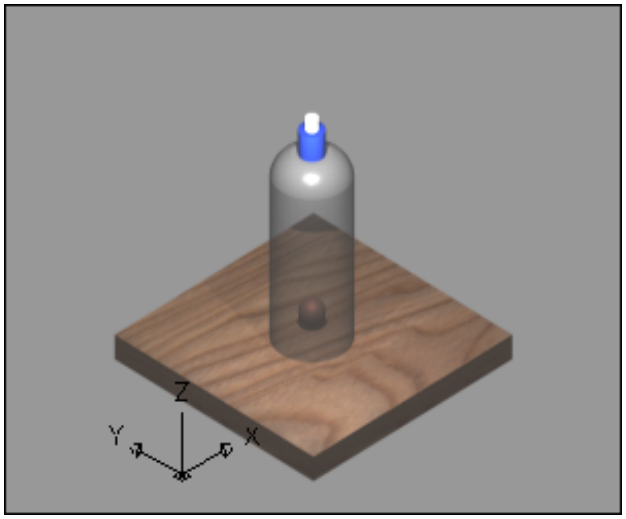
1. **Choose** View, Render, Fog

   or

2. **Type** FOG at the command prompt.

   Command: **fog**

3. **Click** Enable Fog to turn FOG on.
4. **Edit** the remaining dialog options as desired.



Render Statistics 23.6

Provides visual cues for the apparent distance of objects.

1. **Choose** View, Render, Statistics

   or

2. **Type** STATS at the command prompt.

   Command: **stats**

3. **Save** the statistics to a file or choose OK to exit.