Chapter 23 Misc. Render Commands

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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.



Raytracing & Subsampling Options

Set Antialiasing 23.2

1.	Choose	View, Render, Render
		or
2.	Туре	RENDER at the command prompt.
		Command: render
3.	Choose	More Optionsunder Rendering Options.
4.	Choose	High as the Anti-Aliasing method.
5.	Click	OK.

6. **Render** the viewport.

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Adaptive Sampling 23.3

1.	Choose	View, Render, Render
		or
2.	Туре	RENDER at the command prompt.
		Command: render

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

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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.

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Raytracing & Subsampling Options

Change Subsampling Options 23.5

1.	Choose	View, Render, Render
		or
2.	Туре	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 & Render Preferences

Fog 23.6

Provides visual cues for the apparent distance of objects.

1.	Choose	View, Render, Fog
		or
2.	Туре	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

Render	Statistics	23.6
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Provides visual cues for the apparent distance of objects.

1.	Choose	View, Render, Statistics
		or
2.	Туре	STATS at the command prompt.
		Command: stats
3.	Save	the statistics to a file or choose OK to exit.

Statistics	×
Rendering Type:	Photo Real
Scene Name:	*current view*
Total Time:	18 Seconds
Initialization Time:	1 Second
Traversal Time:	11 Seconds
Render + Display Time:	6 Seconds
Cleanup Time:	0 Seconds
Total Faces:	25723
Total Triangles:	49533
Width:	704
Height	496
Colors:	32-bits
Color palette:	Fixed AutoCad Map
Save Statistics to File:	<u></u> ind File
ОК	Cancel <u>H</u> elp