he Options Window lets you change any of the multiple options MacRTrace uses to generate the image. The Options Window looks like this:

he options are:

Image Width

This option lets you select the width of the rendered image, in pixels.

Image Height

This option lets you select the height of the rendered image, in pixels.

Aliasing Threshold

This is one of the three major controls of image quality, the other two being shading threshold and ambient threshold. It controls pixel supersampling, and ranges from 0 (best) to 1 (poor). The good range is 0.1 to 0.03 (see Shading Threshold, Ambient Threshold, and Sampling).

Shading Threshold

This is one of the three major controls of image quality, the other two being aliasing threshold and ambient threshold. It controls shading rays propagation, and ranges from 0 (best) to 1 (poor). The good range is 0.01 to 0.001 (see Aliasing Threshold and Ambient Threshold).

Ambient Threshold

This is one of the three major controls of image quality, the other two being aliasing threshold and shading threshold. It controls ambient rays distribution caching, and ranges from 0 (best) to 1 (poor). The good range is 0.01 to 0.00001. A value of 0 means that there is no ambient threshold. (see Aliasing Threshold and Shading Threshold).

Eye Separation

This controls the separation between the right and left eyes when using Right Eye or Left Eye View. It can be either an actual distance, or a percentage of the distance from the Eye Point to the Look Point. It is dimmed when the View is set to Normal. (see View).

Ambient Samples

This option defines the maximum number of distributed rays to be used in ambient lighting calculations. Use low values for this option.

Ambient Levels

This option defines the number of shading levels (shading tree depth) in which ambient lighting calculations will be done through ray distribution. Use low values for this option.

Shading Levels

This option establishes a maximum shading tree depth. When a scene has transparent or reflective objects, it may be important to lower this parameter, or else the tracing never stops. In most cases, there should be no problem allowing it to be large.

Cluster Size

As part of MacRTrace's scene processing, it groups scene objects in clusters. This option lets you specify how many objects there should be in a cluster. Use a low value for sparse scenes, and a high value for dense scenes.

Focal Aperture

This option lets you set the focal aperture of the "camera" which is taking the picture. The default, 0.0, is a pinhole camera. If this is non-zero, there is depth

of field, so adaptive supersampling antialiasing will not work so well (see Antialiasing).

Focal Distance

This option specifies the focal distance of the "camera" which is taking the picture. If the option is not checked, the distance from the Eye Point to the Look Point is used.

Animate

When this option is checked, MacRTrace uses the values in the Animation Window to generate multiple images. When it is not checked, the values in the Animation Window are ignored.

Intersect Adjust

When this option is checked, MacRTrace avoids some problems with invalid self-intersections. Scenes with text objects should be traced with this option checked.

Intersect All Objects

This option chooses, in adaptive supersampling antialiasing mode, between testing all scene objects or only the objects found at the pixel corners and inside. Testing only at corners and inside greatly reduces CPU time, but with very small objects, it sometimes fails (see Antialiasing).

Use Jittered Sampling

When this option is checked, MacRTrace uses jittered sampling. Sometimes checking this produces better images from scenes with small tricky details.

Correct Texture Normals

When this option is checked, MacRTrace corrects texture normals when textures that modify normals are used, as they may sometimes create strange surface effects. This tends to happen if the scale of the normal perturbation is big.

Only Correct Normals Inside

This option lets you control the correction of surface normals, so that it points against the incident ray. With "correct" objects, you should turn this option on.

Sampling

Sampling determines the amount of supersampling that occurs. Supersampling refers to the antialiasing process where a single pixel is sampled many times, at slightly different positions inside the pixel. A greater number of samples results in smoother edges. However, supersampling significantly slows the rendering

process. The choices are none, low, medium, and high. Choosing higher supersampling values improves the image quality, but slows rendering. "Medium" is a good choice for high resolutions, but "High" gives the highest image quality (and takes the longest time). (See Antialiasing, Aliasing Threshold).

Antialiasing

Antialiasing is a method which smoothes out rough edges caused by visible pixels, eliminating the "jaggies." MacRTrace can use any of three antialiasing methods: normal supersampling antialiasing, semi-adaptive supersampling antialiasing, or adaptive supersampling antialiasing. Normal supersampling antialiasing should be used with non-zero focal apertures (see Focal Aperture, Sampling, Intersect).

Shading

This option chooses between shading models. The options are Normal Phong or Strauss. The Strauss model, developed by Paul Strauss of SGI, is default but slower.

Translucence

This option controls the generation of shadow rays through non-opaque objects. There may be either no such shadow rays, partial shadow rays, or full shadow rays. If a scene has translucent objects, full or partial shadow rays should be used for the most realistic image.

Backface

This option controls the removal of backface polygons and triangles from the scene. With No Removal, backface polgons are never removed. With Partial Removal, polygons are removed when finding candidates for ray-object intersection; if there are any objects facing against the ray, they will be skipped. With Full Removal, polygons are removed during the read of the scene; if there are any objects facing against the viewer, they are thrown away completely (this may cause incorrect lighting and shadowing).

Walk Mode

This option controls how pixels are scanned inside the picture. With Serpentine, the image is scanned top to bottom, and alternate lines are scanned left to right or right to left. With Hilbert, pixels are scanned with a fractal walk, which demands more memory, but maximizes the effect of pixel coherency (in scenes with many objects, it can save some time).

View

RTrace supports stereoscopic viewing, where two images are rendered from

slightly different viewpoints, to emulate the separation of human eyes. This option lets you choose to render from the Left eye's view point or from the Right eye's viewpoint. If the view is Normal, no stereoscopic offset takes place (see Eye Separation).

There are also two buttons in the Options dialog

Render

This begins a new render. The name of this button changes depending on the state of the program. If the scene is being read, the button is called Render Next, and clicking on it will cause the scene to be rendered as soon as it is read. Clicking Render Next also changes the button to Don't Render, which allows you to undo a Render Next click. Clicking on Don't Render changes the button back to Render Next, and the scene will no longer be automatically rendered. Finally, if the Animate... checkbox is checked, the button will be called Render & Save, and clicking it will create an animation which will be saved a frame at a time as it is rendered.

Defaults

This resets all options in the Options Window to their default settings.