Rendering with SketchUp using
IRender nXt

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RenderPlus

Rendering with SketchUp using IRender nXt

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- Getting Started

IRender nXt is an easy to learn plugin for creating photorealistic renderings right inside SketchUp. Watch our getting started with IRender nXt video.

Get started with an overview of Rendering, Installation, Licensing and some video tutorials.

Sala 020612 by Jorge Javier Lara Dominquez

IRender nXt is an easy to learn, yet powerful plugin for creating photorealistic renderings from right inside SketchUp. If you can draw it in SketchUp, you can render it with IRender nXt.

Downloading & installing.

See: How to Download and Install

If you have any problems downloading or installing your IRender trial software, we're here to help. Contact us at support@renderplus.com

Trial Version

The IRender nXt trial is a fully functional version with no watermarks or limitations. You may use it free for 30 days.

See: Purchase a full license at any time.

[[Image:Lets get started.gif]]

Videos and Tutorials

The Videos and Tutorials Page has videos for you to use to get started and on-line documentation to accompany many of the videos.

- First Exterior Rendering
- Simple Rendering of an Object
- IRender nXt Features
- Advanced IRender nXt Features
- Interior Lighting Basics
- Lighting Channels
- Rendering with Edge Lines
- Reflection Settings
- Glass Transparency
- Multipass Rendering
- How to choose a renderer

Purchase

Purchase at any time.
No need to wait until your trial is over, you can purchase an IRender nXt full user license at anytime. Multi-seat and network licenses are also available. Contact sales@renderplus.com with questions.

Problems - Contact Us - Don't Give Up

If you are trying IRender nXt for the first time, and have problems, **Don't Give Up**.

- Between the combinations of SketchUp versions, Windows versions, and machine types, sometimes somethings goes wrong. It anything is not working, don't give up. Let us know.

- If you have problems with downloads or installation, contact us right away at support@renderplus.com.
- If you have other problems, or questions on how to use IRender nXt, place them on our **Forum**.

- **Download Problems** - If the download doesn't start, try again. Sometimes our download service gets messed up, If is still doesn't start email us and we will send you a direct link to try.
- **Installation** - During installation, you need to select the proper version of SketchUp. If you have problems contact us right away.
- **SketchUp Toolbar** - If the application does not appear on the SketchUp tool bar - look under plugins. If there is an entry called **IRender Load'**, click it.
- **Other Problems** - - Contact Us - Don't Give Up.

|}

Other Tutorials

- IRender nXt Getting Started Tutorial
- [[IRender Tutorial - Getting Started

Drawing a simple room]]

How to Download and Install
Step 1: Download

Download from Site	
Go to www.renderplus.com. Then click on the 'Downloads' tab. Or click on this URL: **Downloads Page**	 click on either the 'Try it', 'Buy it' or on the 'Downloads' tab.
Fill out Form	
Fill out the form and select the download desired.	 click on the 'Request Download Link'.
Select desired product	
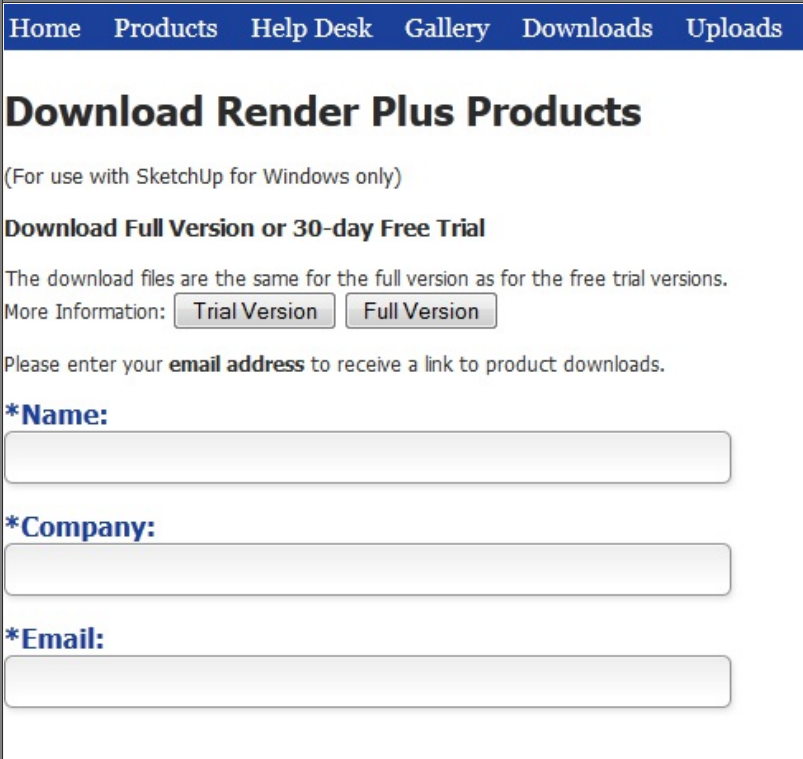
Downloads - Select product to download

IRender nXt for SketchUp (Windows only)
Mid-priced, full featured integrated renderer for SketchUp.

Download	IRender nXt - Version: LB22	Forum --- Information
Download	IRender nXt Libraries - Version: JB05	Forum --- Information

nXtRender for SketchUp (Windows only)
Low cost, high quality, easy to use renderer for SketchUp.

Download	nXtRender - Version: LB22	Forum --- Information

AccuRender nXt for Revit
Works with Revit 2009 through 2012 - 32-bit and 64-bit versions.
Click **Information** for more on AccuRender nXt for Revit.

Download	AccuRender nXt for Revit - Version: LB09	Forum --- Information

SketchUp Add-ons (Windows only)

Download	SpaceDesign - Version: KK03	Forum --- Information
Download	RpTools & NprTools - Version: KK28	Forum --- Information

Just click on 'Download' under the name of the software you want.

Download the file to some place on your computer you know and is easy you get to, like your desktop.

Select tje product to download.

Step 2: Locate the Downloaded File

When you download a product your browser prompts you to choose a location to save the software. If you cannot remember where you saved the files, try the following solutions.

Check the browser's download location

Check the location where your browser automatically saves downloaded files:

- Internet Explorer (Windows): C:\...[user name]\My Documents\Downloads
- Firefox: Choose Firefox > Preferences (Mac OS) or Tools > Options (Windows). In the General tab, look in the Downloads area. Check the setting Save Files To to see the download location.
- Safari (Mac OS): Choose Safari > Preferences. In the General tab, check the setting Save Downloaded Files To.
- Google Chrome: Choose Customize and Control Google Chrome>Options. In the Under The Hood tab, look under the Downloads heading. Check the Download location setting.

Check the Downloads window (Firefox, Safari, Chrome)

Firefox and Safari track the progress of files they download. If Firefox or Safari managed the download (not Akami or Adobe Download Assistant), check the Downloads window for the location of your downloaded files.

- Firefox: Choose Tools > Downloads or press Ctrl+J (Windows) or Command+J (Mac OS). Right-click (Windows) or Control-click (Mac OS) the downloaded file and choose Open Containing Folder (Windows) or Show In Finder (Mac OS).
- Safari (Mac OS): Choose Window > Downloads or press Option+Command+L. Control-click the downloaded file and choose Show In Finder.
- Google Chrome: Choose Customize and Control Google Chrome>Downloads or press Ctrl+J. Click the Show in folder link under the downloaded file.

Step 3: Install

Open Downloaded File

5. Then double click on the file to open it. Then click on the only file there called 'Click here to install"
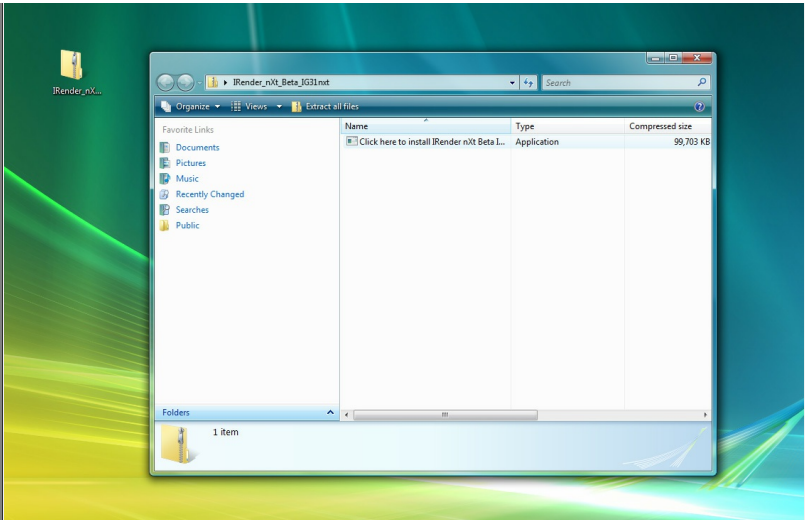
click on 'Click here to install".

Follow Steps to Install

6.Next, just follow the steps to install the software on your computer.
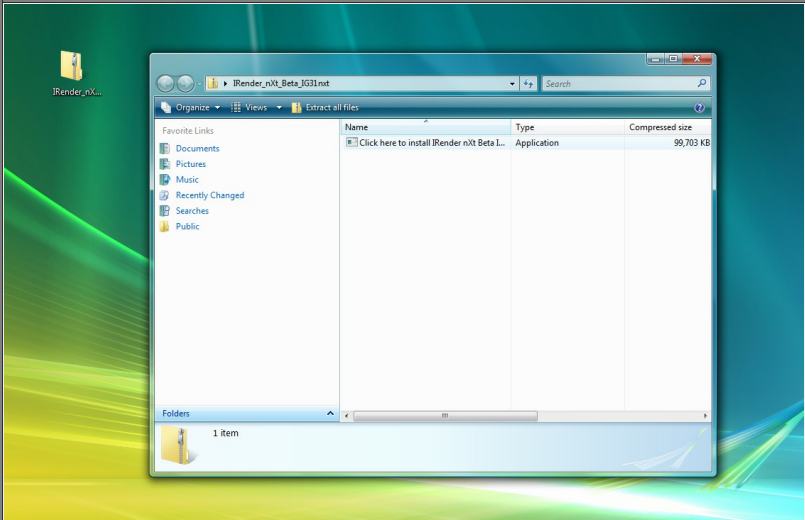
Install software.

Step 4: Load Plugin in SketchUp

Start Product from Plugins Tab

Open SketchUp.

After you download and install the software, you are ready to use it.

Most products will automatically load into SketchUp. If the product does not appear, check to see if it is available on the Plugins Tab.

If it does not appear, check the SketchUp Preferences/Extensions WIzard. See: Enabling SketchUp Extensions

Also, check that the Toolbar is enabled undef View/Toolbars.

If you don't still don't see the product, reinstall it.
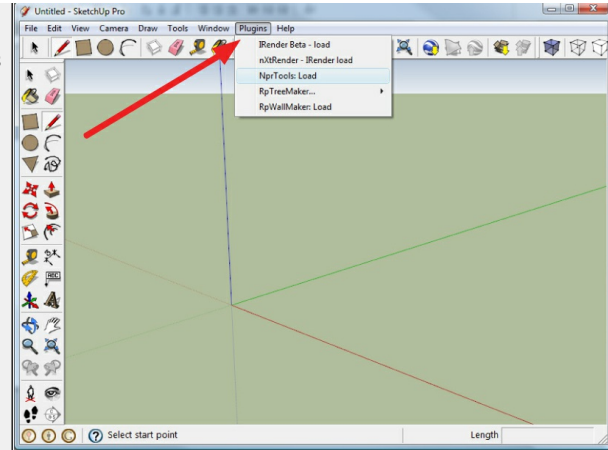
click on 'plugins' to open software.

SketchUp Extensions and Toolbar Visibility
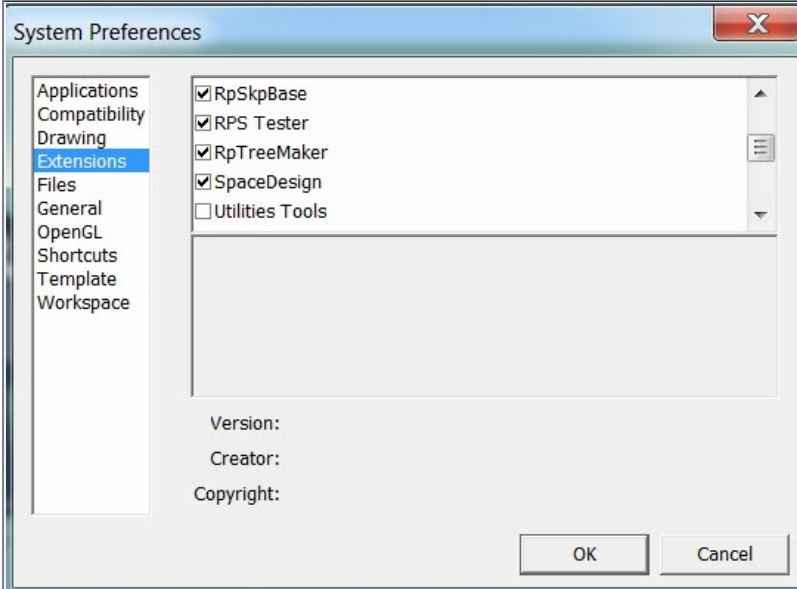
SketchUp Extensions Wizard.
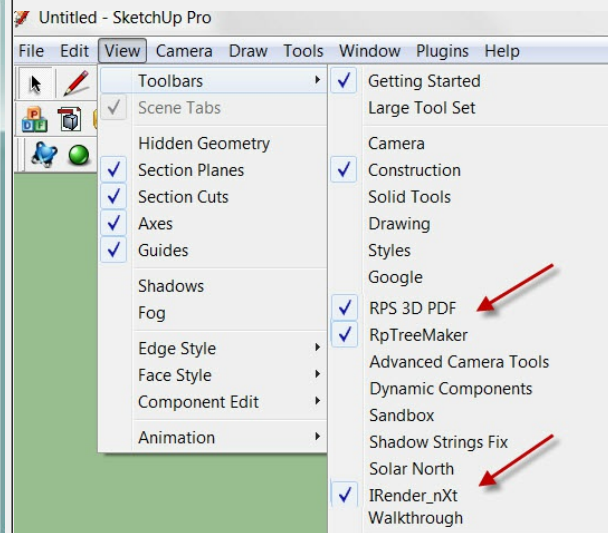
SketchUp Toolbars.

Problems

If the application does not show up in SketchUp, or in the SketchUp Plugins menu, try these steps:

- Create and Render a Basic Room

This **IRender Tutorial** will take you through the basic steps of Render nXt 's IRender rendering engine.

Downloads and Installation

There is a 30 day Trial Version for RPS products. This is a fully functional version, with watermarks or other text added to indicate that it is a trial version.

Follow the links on the **Downloads Page** to download the latest version.

- See: How to Download and Install

Start SketchUp

When SketchUp starts,

- Click "IRender_nXt load" from the Plugins menu.

The IRender_nXt should appear:

If it does not appear, go to the menu "Window/Preference/Extensions" and make sure the IRender_nXt is checked.

Do a test rendering

With a very small drawing, or just "Bryce" in the empty drawing, click the "Render" icon.

-

  Render - starts a new ray trace of your current model and settings.

This will load the Rendering Settings dialog.

IRender nXt V: 4.0 [Beta] [debug] LA29nxt Rendering Settings

Lighting Presets (click to set and re-render)

○ High Dynamic ○ Exterior ○ Int. w/sun ○ Int. no sun ○ HDRi sky

Render Image Size

○ Sm. ● Med. ○ Lg.

○ SketchUp ○ Custom

X: 480 Y: 320

☑ Use SketchUp aspect ratio

Stop rendering after

☐ No limit - render until stopped

Passes 20

Seconds 0

Rendering Quality

● High ○ Quick Draft

☑ Show this dialog before rendering

Load Options   Defaults   Start Rendering

For now, ignore the settings and click **Start Rendering**

This should create a rendering of your drawing.

(It will not be very exciting because there are no lights or reflections.

Step 1 - Get Basic Room

Either create a simple room, or

Click **Open Sample Models** ( ) to bring up the 'Load Sample Drawing' dialog and Pick 'Sample Room for Tutorial'

This model is also stored in the 3D Warehouse: Sample Room for Tutorial http://sketchup.google.com/3dwarehouse/details?mid=ffd2c17f6a24c1c6620e7aea3bf2af5e

.

Click **Render** ( ) to render the room.

Step 2: Make the floor reflective
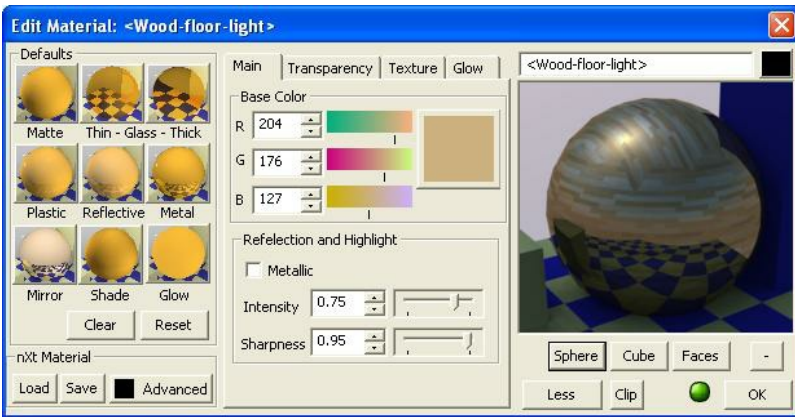
1. Right click on the floor and select **Edit Material** .
2. In the 'Reflection and Highlight' box, slide the 'Intensity' slider to 0.75.
3. Click OK

4. Render again. ( )

Step 3 - Adding a mirror
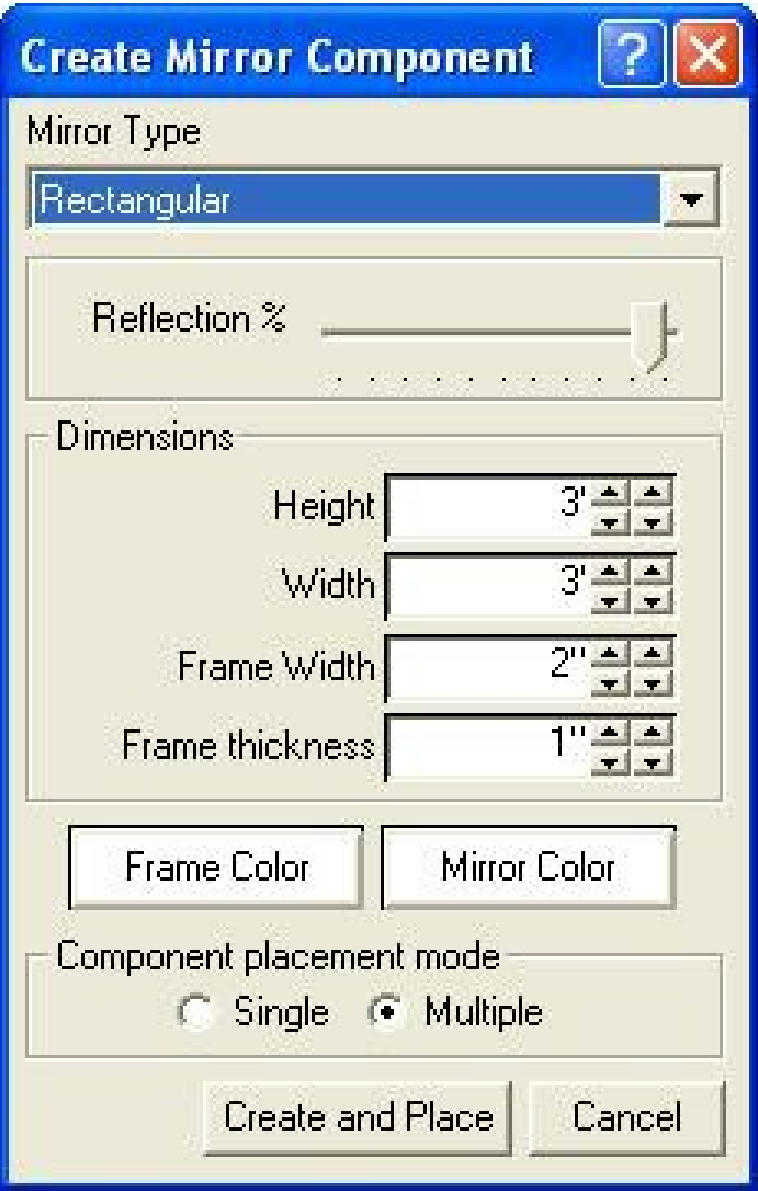
Create Mirror Component

Mirror Type

Rectangular ▼

Reflection % _____⌐

Dimensions

Height | 3' ▲▼ ▲▼
Width | 3' ▲▼ ▲▼
Frame Width | 2" ▲▼ ▲▼
Frame thickness | 1" ▲▼ ▲▼

| Frame Color | Mirror Color |

Component placement mode

○ Single ● Multiple

| Create and Place | Cancel |

Create Mirror will create a mirror component for you to place in the drawing.

1. Select the Create Mirror Component icon: ( )
2. Set the 'Reflection' slider to 95%.
3. Click **Create and Place** to place the mirror in your drawing.
4. Render the model.

Add mirrors to the drawing

Ray Trace image with mirrors

For more information on reflective materials, see the <u>Reflection Tutorial</u> .

Adding lights

Rendering with SketchUp using IRender nXt
IRender works with

- Standard SketchUp lights.
- Custom light fixtures created with the Light Fixture Wizard
- In addition, you can make your own lights by placing lamps in these or other components.

Step 4 - Create table & floor lamps
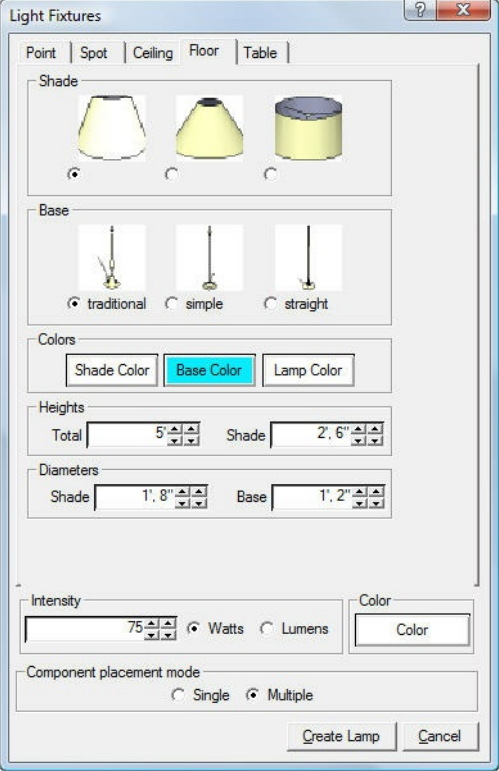
First, add a table lamp:

1. Click the **Create Light Fixture** icon ( ). The 'Light Fixtures' dialog will appear.
2. Select the 'Table' tab to create a table lamp.
3. On this tab, you can set the type and color of the shade and base, the physical dimensions of your lamp and its parts, and the intensity and color of the light emitted.

4. In the 'Component Placement Mode' box, select 'Single'.
5. Click **Create Lamp** to create the lamp component and place it in your model.

Now to add a floor lamp:

1. Open the 'Light Fixtures' dialog again and select the 'Floor' tab.
2. Here you can customize the lamp, as with the table lamp.
3. Select single placement mode, click **Create Lamp**, and place a floor lamp.

4. Render again. (   )

Rendering with Lights

Step 5 - Create Spot and Point lights

To make it easier to see the spotlight and point light we are about to place, delete the lamps from step 4. First, we will create a spotlight:

1. Open the 'Light Fixtures' dialog again and select the 'Spot' tab.
2. Set 'Lamp Length' to 60 degrees. This will make it easier to see where the spotlight is pointed.
3. Click **Color** and change the color to yellow. This will distinguish light cast by the spotlight from the point light.
4. Click **Create Lamp** and place the spotlight on the side wall.

Next, make a point light:

1. Open the 'Light Fixtures' dialog again and select the 'Point' tab.
2. Click **Color** and change the color to white.
3. Click **Create Lamp** and place the point light on the side wall, away from the spotlight.

4. Render again. (   )

Spotlight and point light

Spotlight and point light effect

Step 6 - Aim the spotlight

Aiming the lamp.

1. To aim a lamp, right click on a lamp, and select **IRender:: Aim Lamp**
2. The lamp will automatically point at the cursor position.
3. Snap the cursor to a face, edge, etc. at which you want to point the lamp.
4. Click the left mouse button to point the lamp, or click escape to stop the operation.
5. Render to see the effect of the aimed lamp.

Step 7. - Create a ceiling light

1. Add a ceiling and a left hand wall.
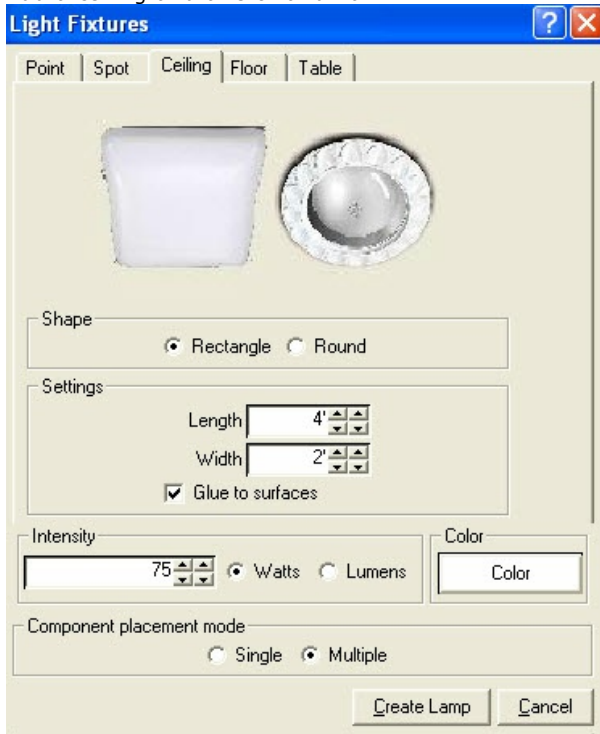
2. Open the 'Light Fixtures' dialog again and select the 'Ceiling' tab.
3. Click **Create Lamp** and place the rectangular light on the ceiling.

4. Render again. (🟢)
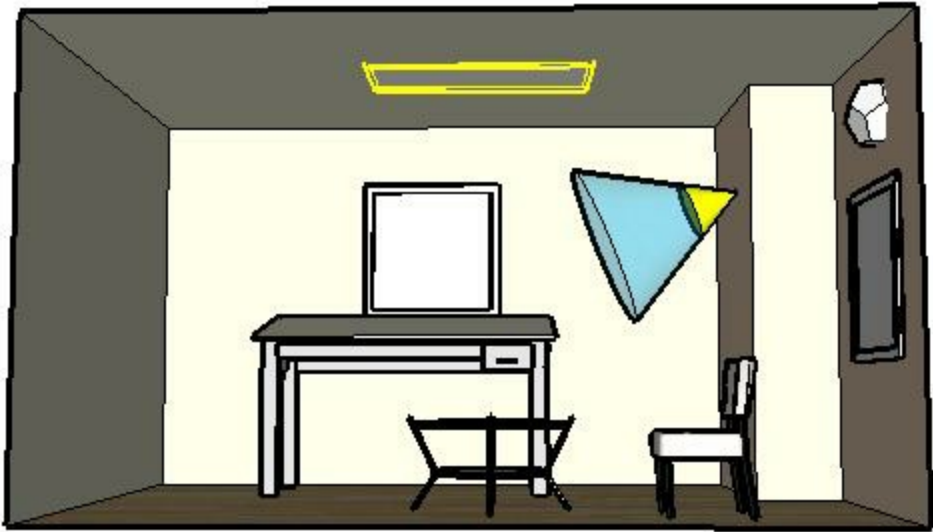
Adding a ceiling light

Raytrace of ceiling light

Summary

This tutorial showed you how to add reflection and lights to a SketchUp model.

You can improve the final result by adding additional lights, placing a material on the walls, etc.

See the other tutorials for more information on reflection and lights.

- [Room for Tutorial on 3D Warehouse](#)
- [Completed room on 3D Warehouse](#)

Rendering Overview

IRender nXt creates stunning life-like images from SketchUp models. IRender nXt uses Ray Tracing and photometric rendering technologies from inside SketchUp to create high-quality photo-realistic images from 3D Models.

Rendering by Surya Murali using nXt Engine

With IRender nXt, creating presentation quality images from SketchUp models is easy. Simply add materials, lights, sun, sky and then render the model.

General Features

Easy to use, works seamlessly inside SketchUp, and provides a host of features that speed and simplify image rendering.

Uses both raytracing and Indirect Lighting to create sophisticated single-frame images and animations.

Automatically calculates indirect light, hard and soft shadows, color bleeding, reflections, translucency, transparency, refraction, highlight, depth of field, and depth attenuation.

Supports multiprocessors and background processing.

Includes mathematically generated 3-D plants with seasonal variation, giving realistic plants, shadows, and reflections.

Works inside SketchUp. Render changes to the model immediately. You never need to export or start over.

Progressive-refinement rendering algorithms with on-screen preview.

Save and restore plant, exposure, sun and sky, and environment settings.

Graphical library browsers for materials and plants.

RPC 3D Object support.

Post-processing for quick adjustment of brightness, Lighting Channels, fog, glare, and depth of field.

Basic Lighting and Reflection

A user asked for some ideas on how to improve renderings.

Here a some tips which will be helpful when you are just starting out.

Overview

We would all like a solution where we just take our SketchUp model, click Render and get a great result.

IRender nXt does a surprisingly good hob of this for basic exteriors, using the High Dynamic, or Exterior lighting presets.

However, especially for interiors, you need to add lights and set special material parameters - such as reflection in order to get a good rendering. This article will help you learn how to do this.

Basic Model

For these samples, we downloaded a Vanity and a Shower from the 3D Warehouse

Double Sink Vanity

Shower Stall

I placed the vanity in a room in SketchUp and Rendered it.

SketchUp Model
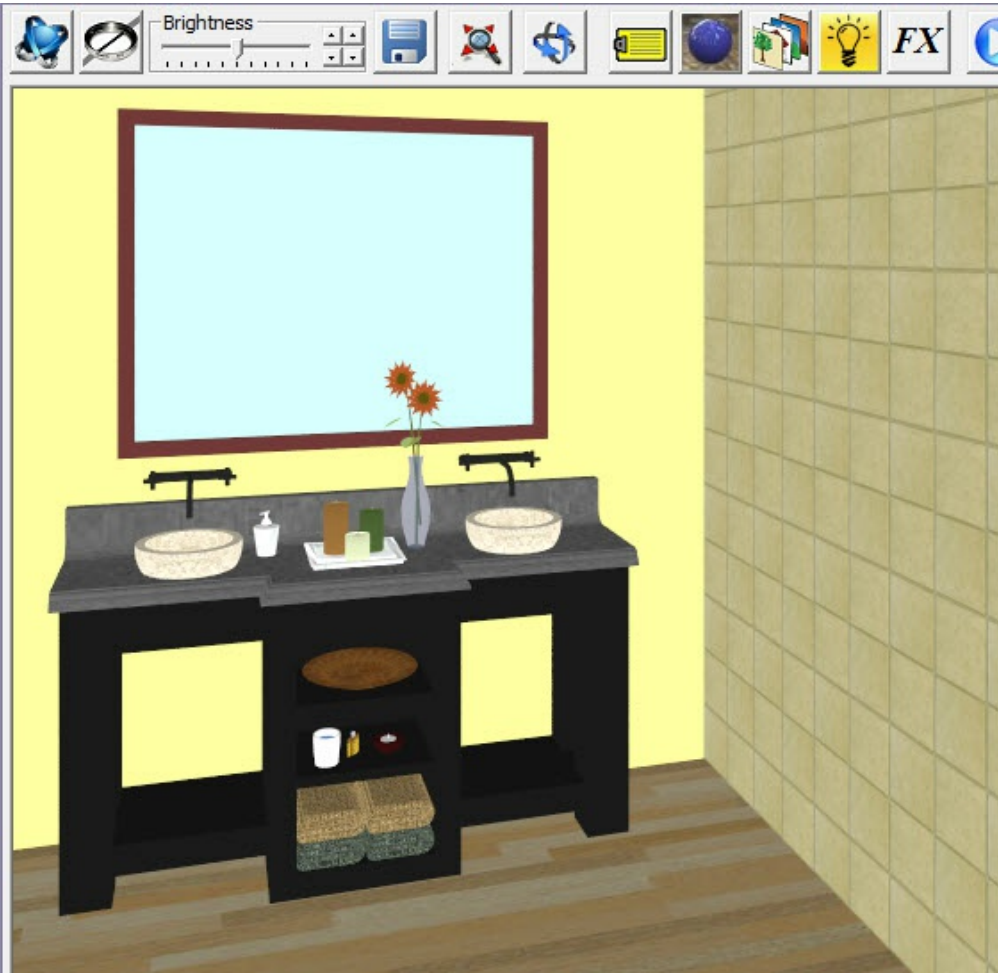
Rendered Model
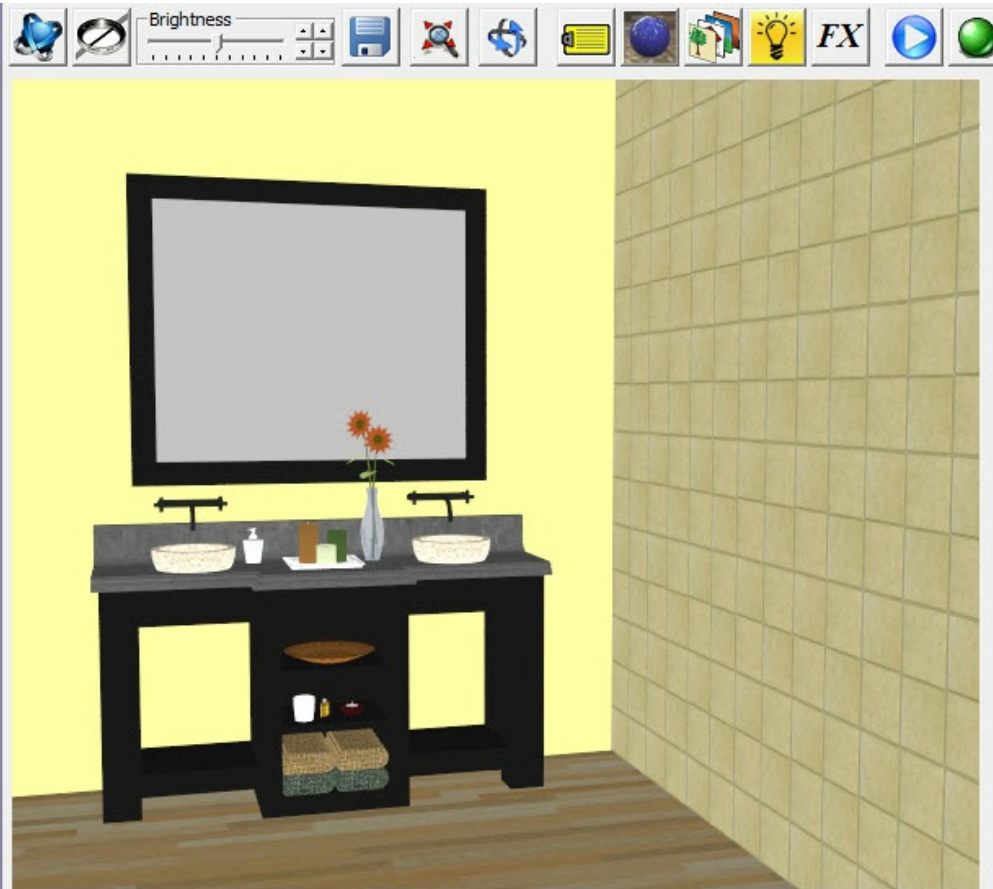
Adding Lights

The rendered images isn't much better than the SketchUp image.

That is because, especially for interior scenes, you need to add lights and reflections in order to get a realistic image.

First I added some ceiling lights using the IRender nXt Lighting Wizard.

Placing Ceiling Lights
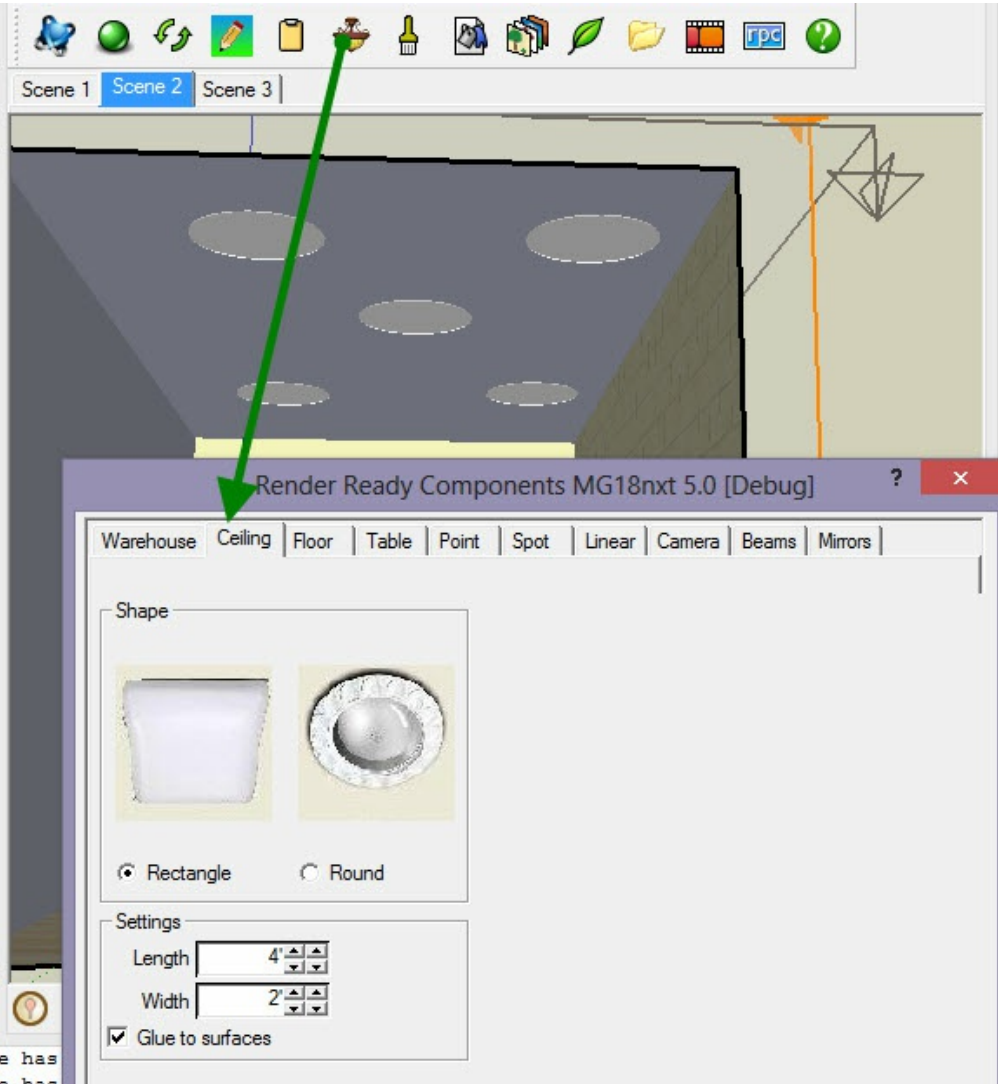
Just these lights improved the rendering significantly.

Vanity with overhead lighting

Adding Reflections

Of course we need to make the mirror reflective. But making the walls reflective will add realistic detail as well.

To make a surface reflective, right click on the material and load the Material Editor:

Making the floor reflective

Edit Material: Wood_Floor_Light

Model Materials

Wood_Floor_Light

Main | Trans | Texture | Glow | Default

Defaults

Matte   Thin - Glass - Thick

Plastic   Reflec   Metal

Mirror   Shade   Glow

Load | Save | Clear

Help | OK

Advanced | Remake SketchUp Material
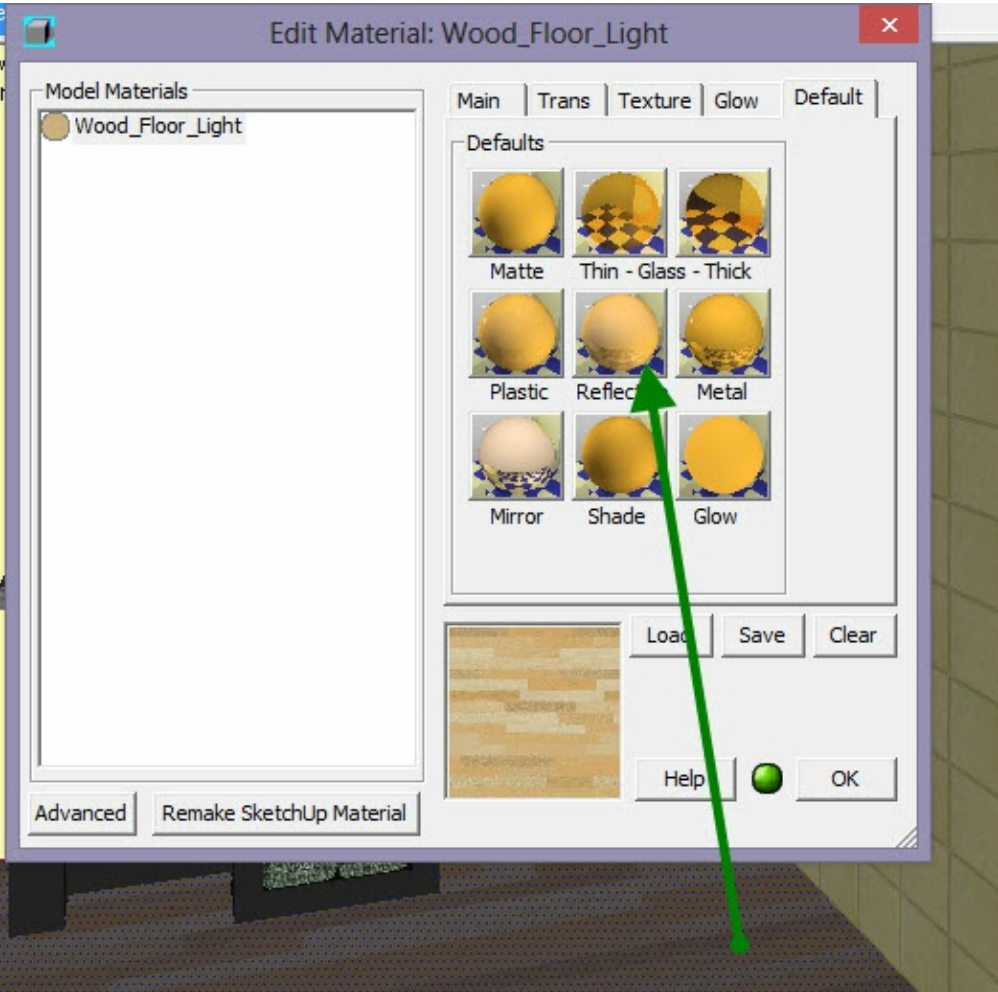
Rendering with floor, walls and mirror reflective

I used default reflection for the right hand wall the first time. But it was too reflective, so I cut the intensity down from 60% to 40% to make it more subtle.

Highlights

Reflection and Highlights are similar. Highlights are reflections directly from lights, rather than reflection of other objects. They add to the realism of a scene.

Here I added reflection to everything which might reflect or create highlights.
(See the highlight in the faucet, even though there is not much reflection.)

Reflection and Highlights on Counter

Something to Reflect

Another important consideration is having something to reflect.

In the scenes above with have a reflective mirror, but nothing interesting to reflect.

I added the shower from the 3D warehouse to the part of the room behind the camera, to make the scene more interesting.

Mirror with reflection of shower

Additional Texture Features

The images above all used standard SketchUp materials.

Arroway Textures

You can get more realistic results by using better materials. For example, Arroway provides a library of textures, (not for free), which have special shading features for more realistic highlights and reflections.

A Wood Floor rendered from an Arroway Texture

These textures can be imported into SketchUp and used with IRender nXt.

Shiny, Blurry and Glossy Reflections

In addition to the amount of reflection on surface, you can also adjust its shininess.

In this example, I made the faucets white ao you could see more detailed reflection.

Faucet with shiny reflection

For certain surfaces, like brushed metal, tile floors or wood, the reflection is often blurry rather than shiny. Here I lowered the shininess to 25% (from 100%) to get a blurry reflection.

Blurry reflections require more rendering passes because the blurriness is achieved by using different, random, angles for reflection on each pass.
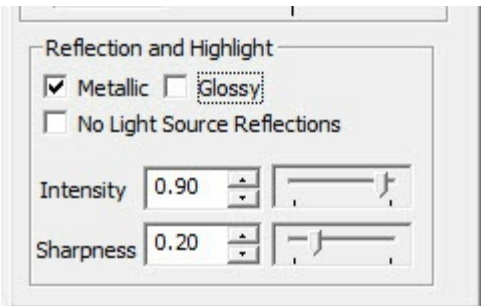
Faucet with Blurry reflection

Glossy reflection allows the highlights, but no specific reflection of other objects. It is done quickly and does not require additional passes.
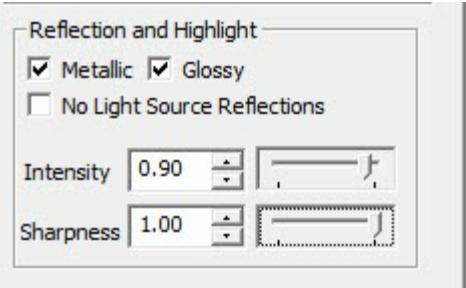
Faucet with Glossy Reflection

Lighting channels

Another feature which can save time, and make it easy to balance various lights in Lighting Channels.

Here I have added some sconces above the Vanity, and re-rendered the scene

Default Balanced Lighting

Here I have slid the intensity of the Ceiling Lights down to 10%, which makes the sconces much brighter.

Ceiling Lights turned down to 10%
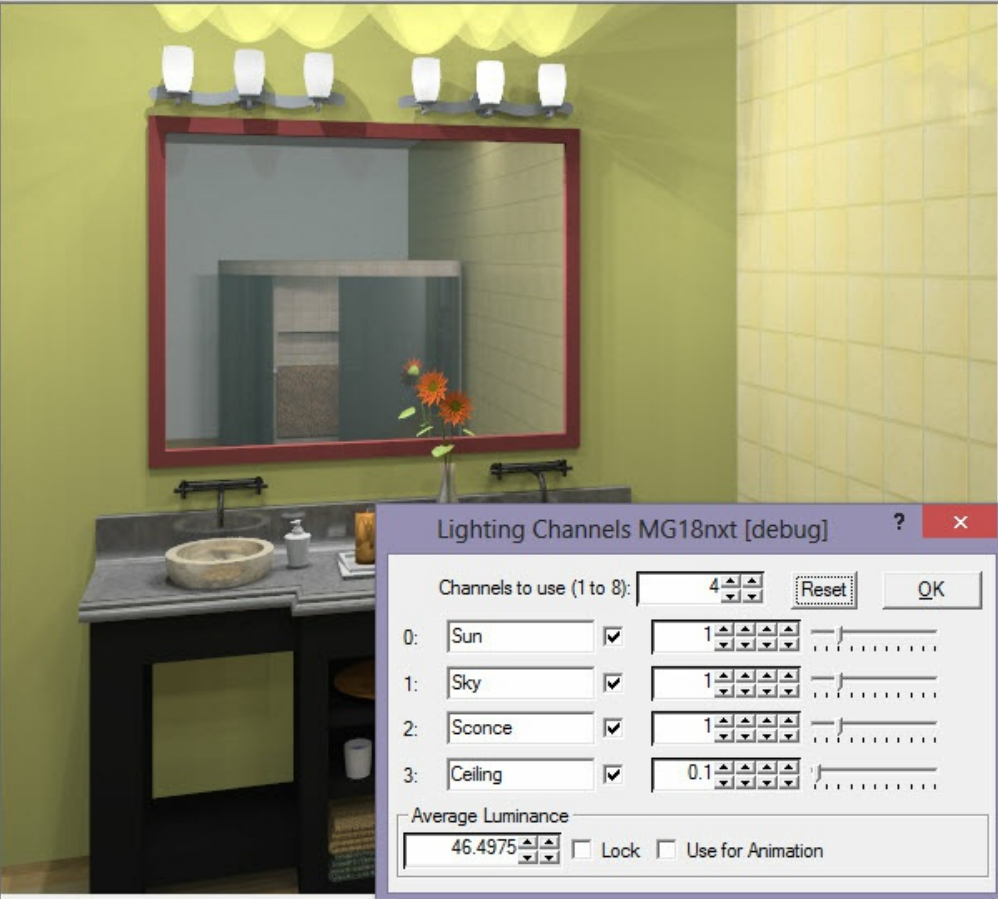
Here I have restored the ceiling lights, but lowered the intensity of the sconces to 10%

Sconces at 10%

You can't appreciate from just viewing this on line how fast and easy it is to balance lighting with slider bars as the light intensities change immediately on your screen.

Summary

You can get get good results easily, just by adding some ceiling ligtts and basic reflection to materials. But for even better results, you need to render the model, take a look, and adjust the material parameters and lights to get the effect you want.

Check out our Videos and Tutorials for more information in how to do this.

Tutorials and Videos
First Exterior Rendering Video

First Exterior Rendering

Watch Video

This Video Tutorial explains how to use IRender nXt to create a high-quality, photo-realistic rendering from your SketchUp model, with out making any changes to the model, or adjusting any rendering settings.

Simple Rendering of an Object Video

Simple Rendering of an Object

Watch Video

Make great renderings with out making any changes to the model, or adjusting any rendering settings.

Basic Room

- Create and Render a Basic Room

Features Video

IRender nXt Features Video

Watch Video

This video Tutorial, **IRender nXt Features**, explains some Basic Features of IRender nXt.

Advanced Features Video
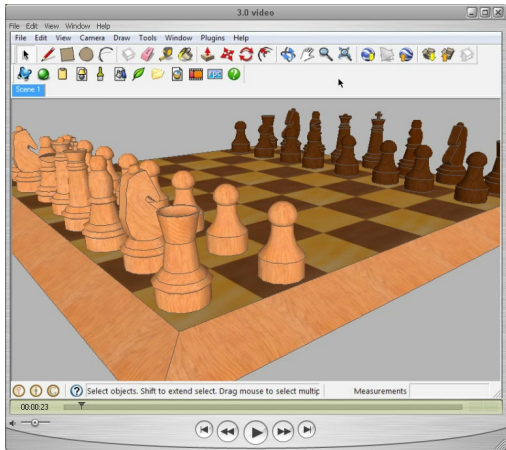
Advanced IRender nXt Features Video

Watch Video

www.youtube.com/watch?v=n7wj6y90xe8
This video Tutorial explains some Advanced Features of IRender nXt.

Interior Lighting Basics

Interior Lighting Basics Video

Watch Video

www.youtube.com/watch?v=wWHOp9FXDK8
Fine-tuned lighting is the key to creating great-looking interior and nighttime scenes. In this video tutorial we show you how to quickly add lights to a room and adjust their render settings for a beautiful final image

LIghting Channels Video

Lighting Channels Video

Watch Video

www.youtube.com/watch?v=xODKAYo88_o
Lighting Channels are used to adjust the brightness of light sources - such as the sun and sky and interior lights.

This video shows you how to quickly adjust the lights while rendering your SketchUp model with IRender

nXt.

Rendering with Edge Lines Video

Rendering with Edge Lines Video

Watch Video

www.youtube.com/watch?v=U9qHRTGih4w
This video Tutorial explains how to render a scene with edge lines visible. Sometimes, details can be washed out in some renderings. Rendering with edge lines turned on in IRender nXt can bring back many of those lost details.

Reflection Settings Video

Reflection Settings Video

Watch Video

www.youtube.com/watch?v=ofMWqVOhdNc
Highlights and surface reflections are the best way to add realism to your renderings and they're easy to create in IRender nXt.

In this video tutorial we show you how to add reflection to objects and materials and fine-tune their settings for a beautiful, and realistic, result.

Glass Transparency Video

Glass Transparency Video

Watch Video

www.youtube.com/watch?v=GaaHhUq7qcQ
Realistic transparencies are easy to create in IRender nXt and can be fined tuned for great results. In this video tutorial we explain how transparency, refraction and intensity settings effect the transparent objects in your model.

Rendering with SketchUp using IRender nXt

How to choose a renderer Video

How to choose a renderer Video

Watch Video

www.youtube.com/watch?v=91-oT0UhWCQ
This video highlights SketchUp features which some renderers may not be able to handle.

Multipass rendering Video

Mutli Pass Rendering Technology Video

Watch Video

www.youtube.com/watch?v=3o1oJv5l9Do
This video, taken from a Webinar for the nXtRender/IRender/AccuRender nXt Engine explains some of the advantages of multi-pass rendering.

First Exterior Rendering

This First Exterior Rendering Video explains how to use IRender nXt to create a high-quality, photo-realistic rendering from your SketchUp model.

First Exterior Rendering Video

First Exterior Rendering

Watch Video
www.youtube.com/watch?v=IEBoFKvZ-ng

This Video Tutorial explains how to use IRender nXt to create a high-quality, photo-realistic rendering from your SketchUp model, with out making any changes to the model, or adjusting any rendering settings.
*Select model from 3D warehouse

- Select desired view
- One Click to Renderer button
- Explains rendering passes
- Compares final image to original SketchUp rendering.
- No changes made to model or settings

Later tutorials will explain how to improve the output by making alterations to the model and changing rendering settings. However, this video shows how you can get great results with minimal effort.

If you want to try a rendering with this same model, search for "Porch for our Home" on the 3D Warehouse, or use this link directly: Porch for our Home by Ed & Jeanne.

Tutorial
Step 1 - Download and Install IRender nXt

1. Download IRender nXt from our **Downloads Page**
2. Install it

Step 2 - Download model from the 3D Warehouse

Download Ranch House

You can download it directly from the 3D Warehouse, before starting SketchUp, or download it directly into SketchUp from the **File/3D Warehouse** menu.

Ranch House

uploaded by: <u>Paulwall</u> or

| Image | 3D View |

Views: 1720
Downloads: 605

Download Model ▼

Ranch House in 3D Warehouse

This is just a model from the Warehouse which we found. It has no special settings in for rendering.

We chose it because it has a porch which will show some of the subtle shadow effects of IRender nXt.

Step 3 - Start SketchUp and load the model

Rotate and Zoom to a view similar to this, so we can see the shading in the porch.
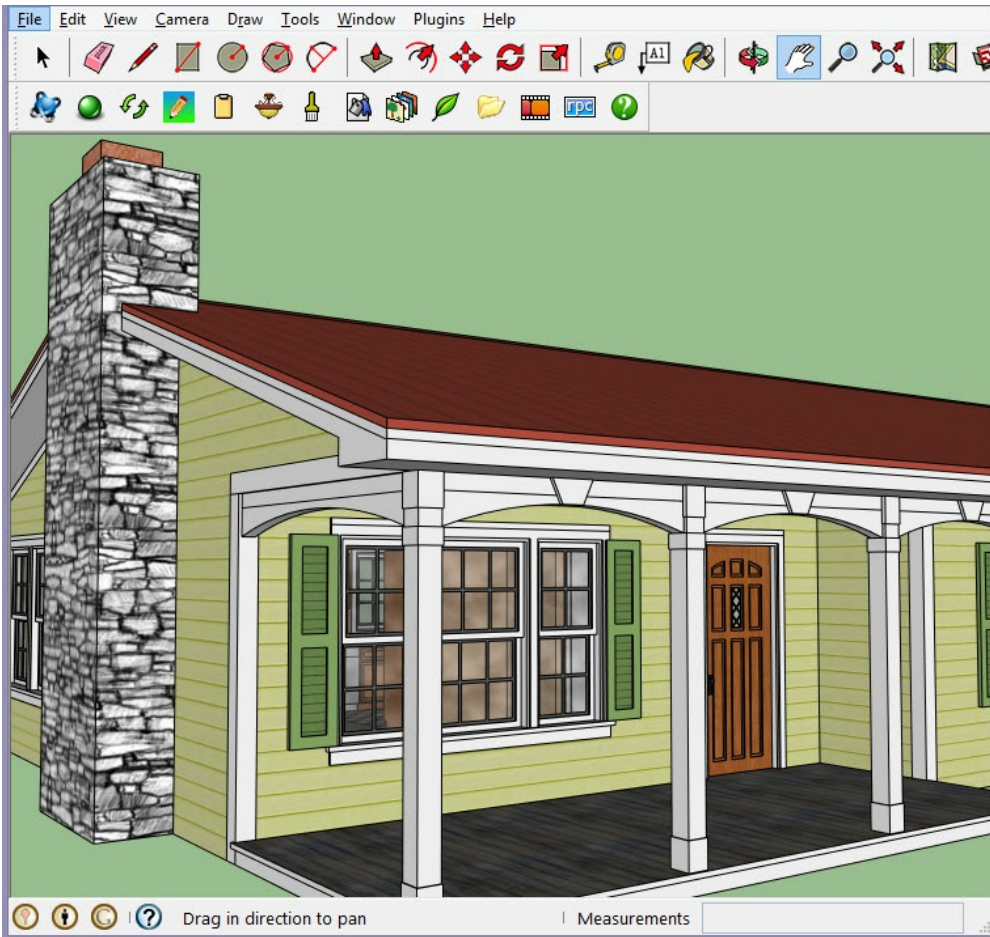
Porch View

Click the Green Rendering Button to start the rendering.

For your first rendering, a dialog will come up with some rendering parameters.
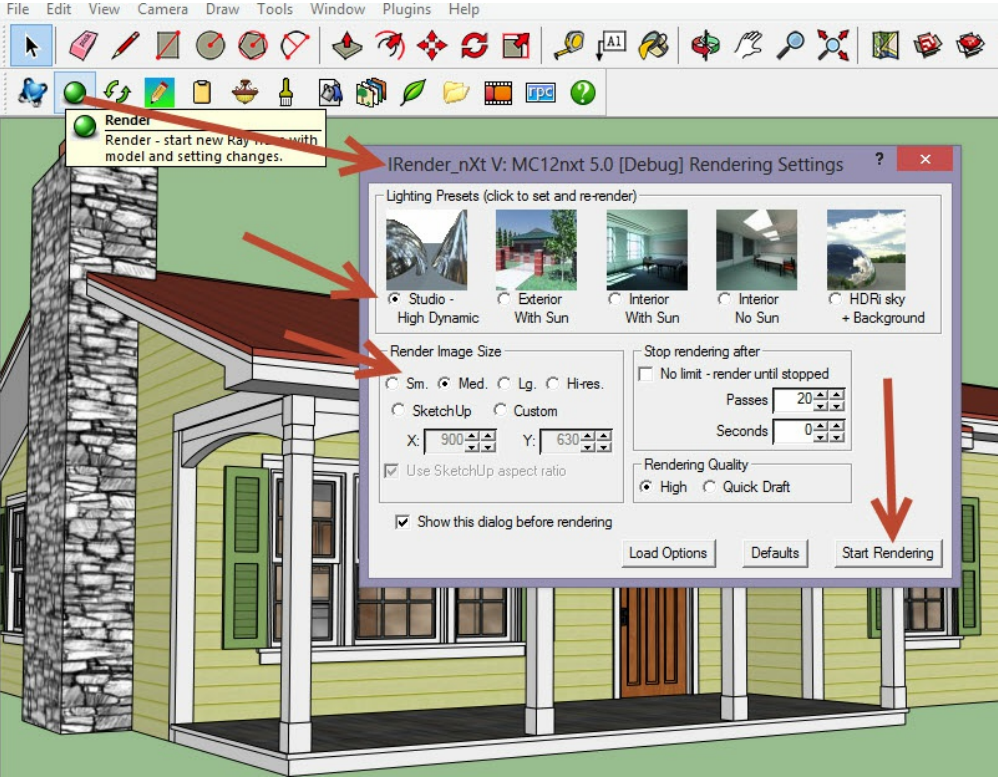
Rendering Parameters

Select *Studio - High Dynamic* Lighting.
This produces a subtle shadow effect of sunlight filtering through a forest which is good for a lot of exterior scenes.

Select a rendering size - small or medium is good when first working with a model.

And, click the *Start Rendering* button.

Step 4 - Examine your first rendering

It will take a short time to extract your geometry from the SketchUp model.
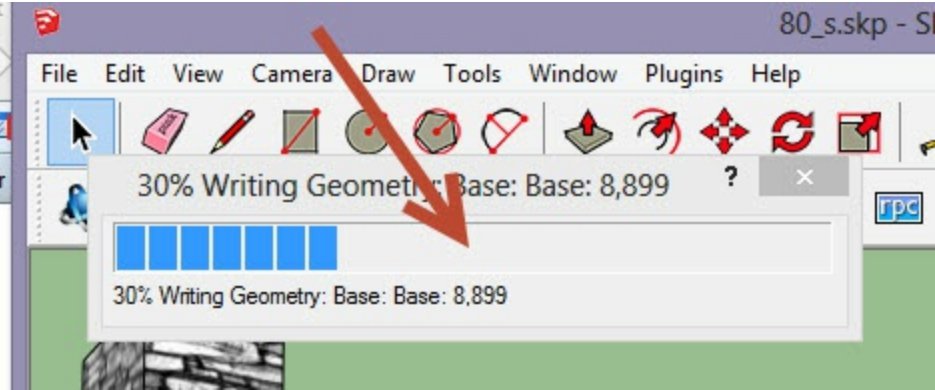
Rendering Passes

Your first model will render for the default number of 20 passes. The more passes you use, the better the rendering will get.

During those passes, random light is brought in from the Sun and Sky.

After just 5 passes, the rendering is rough - because you can see individual shadows from random points in the sky.
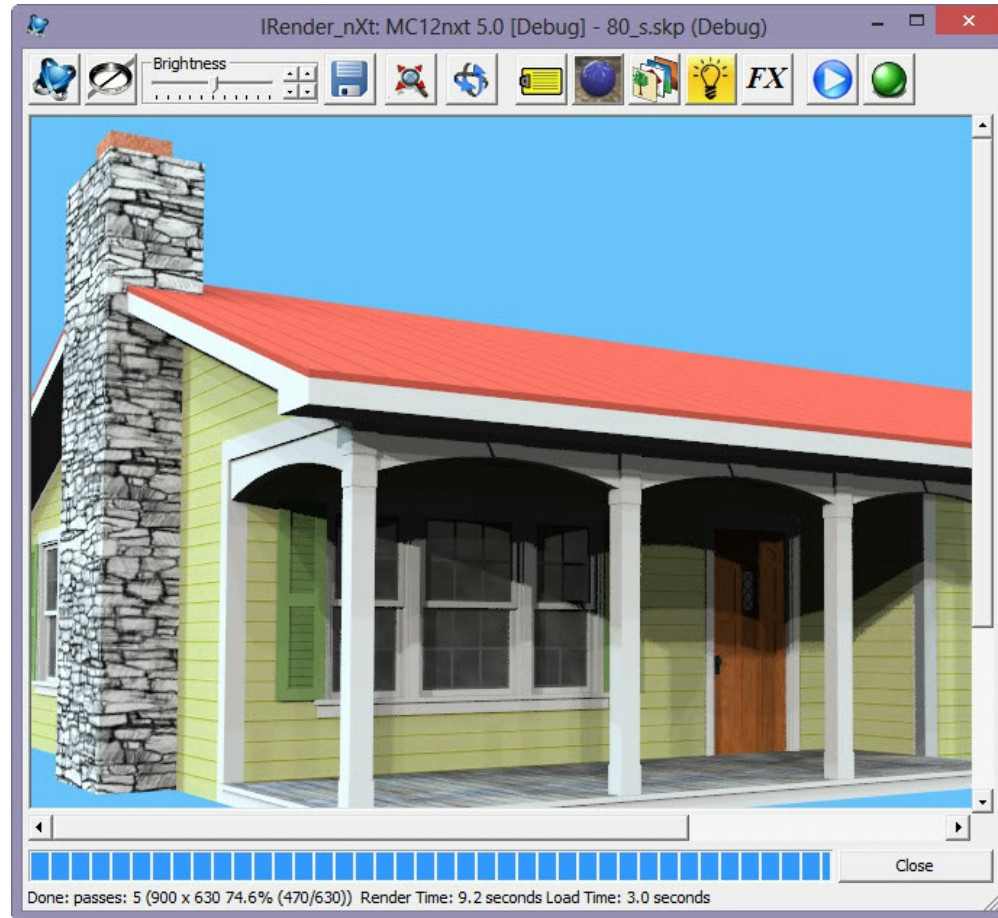
Rendering after 5 passes

After 20 passes you get a pretty good image as the lighting converges.
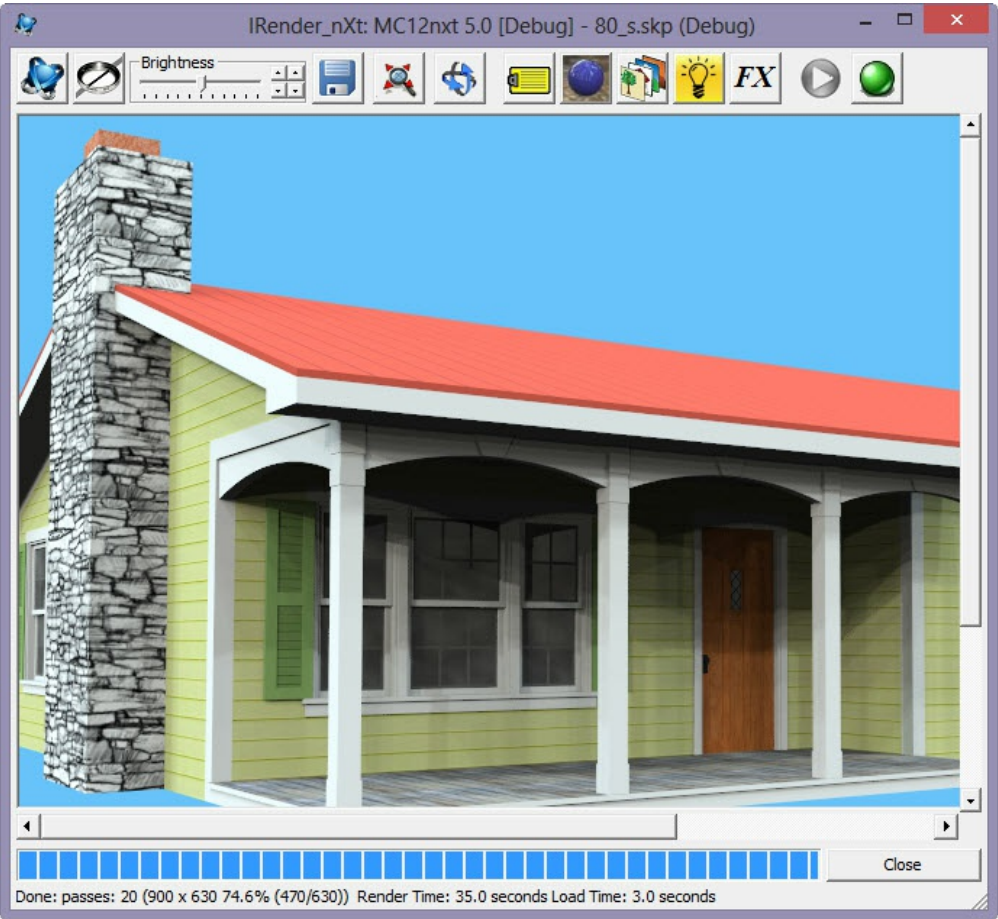
Rendering after 20 passes

After 100 or 200 passes the lighting will smooth out and you will get an even better rendering.
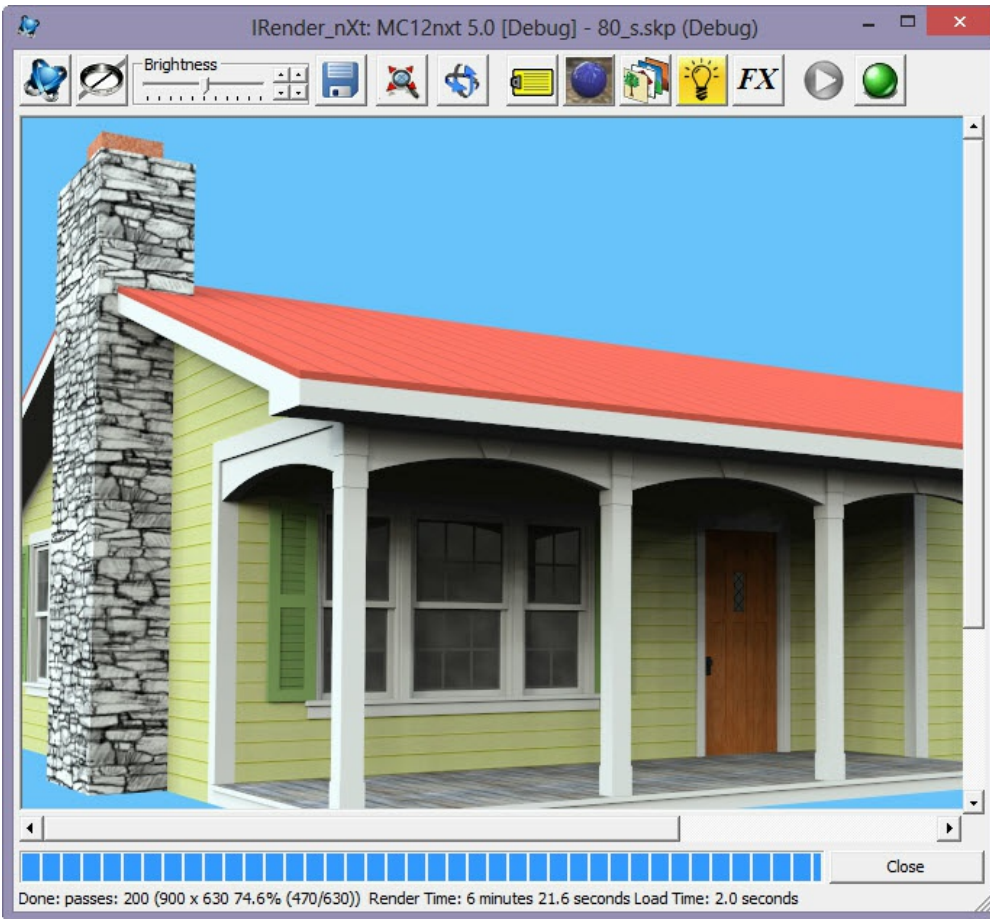
Rendering after 200 passes

This 200 pass took only about 6 minutes, with a fairly simple model.

You should just use about 5 passes for exterior models until you are happy with your model and your rendering settings. Then you may want to let them render longer - even overnight - for really great results.

Simple Rendering of an Object Video

This video Tutorial, Simple Rendering of an Object, explains how to create a high-quality, photo-realistic renderings from a SketchUp model using IRender nXt.

Simple Rendering of an Object
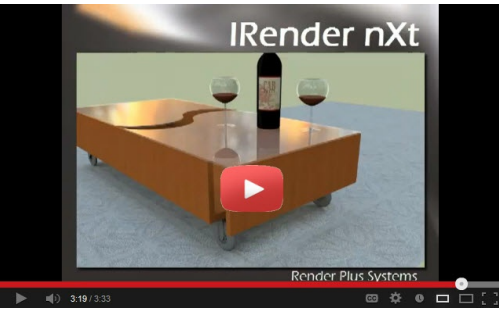
Watch Video
www.youtube.com/watch?v=eeSTovEKgg8

Make great renderings with out making any changes to the model, or adjusting any rendering settings. Learn how to:

Download a model from the 3D Warehouse, (not a model uploaded specially for this video)
Render it with no changes to the model
No special rendering settings.
This shows how easy it is to use IRender nXt, even with no changes to your model.
(Of course, you can make even better renderings by adding lights, material settings, etc.
(You will learn how to do that in later videos.)

One Click Render Button
Rendering Passes
Compare final image to original SketchUp image

Later tutorials will explain how to improve the output by making alterations to the model and changing rendering settings. However, this video shows how you can get great results with minimal effort.

Features Video

In this IRender nXt Features Video Dennis explains the value of each of these features and shows you how to use them.IRender nXt seamless SketchUp integration, lighting and material settings makes it easy to render photorealistic images.

IRender nXt Features Video

Watch Video
www.youtube.com/watch?v=ytjDO8Y06_s

This video Tutorial, **IRender nXt Features**, explains some Basic Features of IRender nXt.
* Reflections

- Placing Lights
- Lighting Presets
- Bump Maps
- Section Planes
- Edge Lines

Advanced IRender nXt Features Video

Advanced IRender nXt Features Video
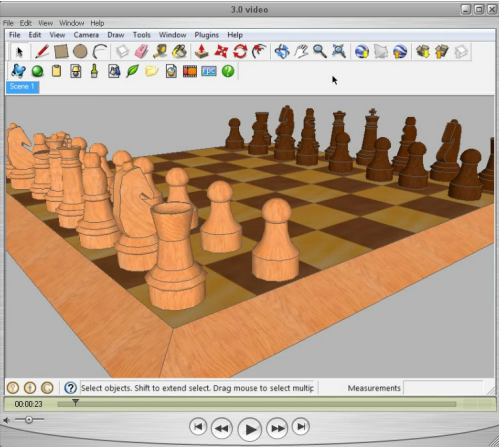
Watch Video
www.youtube.com/watch?v=n7wj6y90xe8

This video Tutorial explains some Advanced Features of IRender nXt.
*Depth of Field

- Lighting Channels
- Material Editor
- Material Libraries
- Indirect Lighting
- Panoramas

In this video Dennis explains the value of each of these features and shows you how to use them.

Depth of Field, Lighting Channels, Material Editor, Material Libraries, Indirect Lighting, Panoramas .

- See: Advanced IRender nXt Features

Interior Lighting Basics

The Interior Lighting Basics Video sets up basic lights for SketchUp Rendering.

Interior Lighting Basics Video

Watch Video
www.youtube.com/watch?v=wWHOp9FXDK8

Fine-tuned lighting is the key to creating great-looking interior and nighttime scenes. In this video tutorial we show you how to quickly add lights to a room and adjust their render settings for a beautiful final image
This video Tutorial, **Interior Lighting Basics**, explains how to quickly render a room setting with a basic lighting set up. It goes over how to place a ceiling light, a floor lamp as well as making your own lights. Also, covers how to adjust a few settings to improve the final image. This shows how quickly you can put IRender nXt to work.'

- **Ceiling Lights**
- **Floor Lamp**
- **Create your own lamp**

Later tutorials will explain how to add additional lighting types.

Lighting Channels Video

.

Watch our video tutorial, Lighting Channels, to learn how to adjust the lighting in your Sketch Up rendering using IRender nXt.

Lighting Channels Video

Watch Video
www.youtube.com/watch?v=xODKAYo88_o

Lighting Channels are used to adjust the brightness of light sources - such as the sun and sky and interior lights.

This video shows you how to quickly adjust the lights while rendering your SketchUp model with IRender nXt.
***Create Nighttime scene by switching off the sun, and lowering the intensity of the sky**

- **Adjust intensity of other groups of lights**
- **Set intensity of "self-glow" panels on the wall**
- **Quickly get the desired lighting effects without having to change and re-render the model**

- See also: Lighting Channels

Rendering with Edge Lines

Rendering with Edge Lines Video

This video Tutorial explains how to render a scene with edge lines visible. Sometimes, details can be washed out in some renderings. Rendering with edge lines turned on in IRender nXt can bring back many of those lost details.
Later tutorials will explain how to add additional advanced features.

Reflection Settings

Reflection Settings will add Highlights and Surface Reflections to create more realistic renderings.

Reflection Settings Video

Watch Video
www.youtube.com/watch?v=ofMWgVOhdNc

Highlights and surface reflections are the best way to add realism to your renderings and they're easy to create in IRender nXt.

In this video tutorial we show you how to add reflection to objects and materials and fine-tune their settings for a beautiful, and realistic, result.
This video Tutorial, **Reflection**, shows how to use reflection to add realism to your SketchUp model.

- **Create and place a mirror**
- **Set reflection setting on materials**
- **Intensity, Metallic, Glossy, etc.**

Later tutorials will explain how to add additional rendering features.

Glass Transparency

This Glass Transparency Video explains how transparency, refraction and intensity settings effect the transparent objects in your model.

Glass Transparency Video

Watch Video
www.youtube.com/watch?v=GaaHhUq7qcQ

Realistic transparencies are easy to create in IRender nXt and can be fined tuned for great results. In this video tutorial we explain how transparency, refraction and intensity settings effect the transparent objects in your model.
Fine tuning your transparencies adds that next level of realism to your designs

Also covers Thick and thin glass settings that the user can use to get the most realistic object.

This video also shows how easy it is to adjust such settings as:

- Transparency
- Thick and thin glass
- Refraction
- Caustic Illumination
- Highlighting .

Multipass rendering Video

Mutli Pass Rendering Technology Video

Watch Video
www.youtube.com/watch?v=3o1oJv5l9Do

This video, taken from a Webinar for the nXtRender/IRender/AccuRender nXt Engine explains some of the advantages of multi-pass rendering.
Multi Pass rendering lets you quickly see what your rendering is going to look like – after the first few passes – and the either change settings, or let the rendering continue go get better.

In this video Scott Davidson shows you how multi-pass rendering works for nXtRender for AutoCAD, Revit or SketchUp.

How to choose a renderer

How to Choose a Renderer highlights SketchUp features which some renderers may not be able to handle.

How to choose a renderer Video

Watch Video
www.youtube.com/watch?v=91-oT0UhWCQ

This video highlights SketchUp features which some renderers may not be able to handle.
It does not get into artificial lighting, reflection and other special rendering features which are also important, but concentrates on the importance that the renderer be able to handle SketchUp features - materials, images, transparency, sun and sky, etc. which make it easier to start adding advanced features to your model for rendering without having to modify the model to render the items which are already there.

The model used for this tutorial can be downloaded from the 3D Warehouse so you can test it with renderers you are evaluation. 3D Warehouse Model

How to choose a renderer

- Ability to process SketchUp geometry.
- Ability to process SketchUp sun and other settings

Start Rendering

Start Rendering

- **Start Rendering**

- **Resume Rendering - add more passes with not changes**

- **Restart Rendering** - do not load geometry - re-render with other changes only.

Start Rendering

Starts a new rendering of your current model and settings.

The entire model and settings are extracted from the SketchUp model and sent to the IRender Ray Trace engine.

Resume Rendering

Resume Rendering

Resume Rendering lets you continue a rendering which has been completed - either because the number of passes or rendering time limit has been exceeded, or because you clicked the Stop Rendering button - and add more passes.

IRender nXt is a multi-pass rendering system. The early passes allow you to quickly check settings - such as lighting and materials. With **Resume Rendering** you can render for just 20 passes or os, see how it looks, and if you like it add more passes, or a time limit, and continue without having to start over.

After rendering, you can either make changes and restart the rendering, or use **Resume Rendering** to add more passes for better results.

Resume Rendering lets you continue a rendering which has been completed - either because the number of passes or rendering time limit has been exceeded, or because you clicked the **Stop Rendering** button.

IRender nXt improves its image with each rendering pass. Resume Rendering lets you render for more passes without having to restart the rendering from the beginning.

You can enter more passes, or more time to let it render longer. (Enter 0 for no limit)

Double Up - click this button to double the current settings.

Note: *If the rendering was not stopped properly - at the end of a pass - then the Resume Rendering icon will be grayed out.*

Restart Rendering

 The **Restart Rendering** feature restarts the rendering without extracting or reloading the geometry.

It will apply view or setting changes. This can be a real time saver when you want to make your changes, especially view changes, directly in SketchUp and then restart rendering without having to take time to re-extract the geometry from the model.

Most settings can be applied - such as view, sun position, and colors of materials. (Texture changes or geometry changes will require a full rendering.)

Presets Tab

The **Presets tab** is used to select redefined lighting settings and make adjustments to them.

nXt is designed to simulate real-world lighting. Use the following guidelines when lighting your model:

- Provide accurate information whenever possible. Avoid using unrealistic intensity levels for light sources.
- Adjust the overall brightness of your rendering by using the Brightness control on the rendering display. Do not attempt to adjust the overall scene brightness by changing the intensity of all of the light sources. nXt's automatic exposure adjustment will be working against you if you attempt to do this.

Lighting Presets

Lighting Presets

Presets

Lighting Presets (click to set and re-render)

| ○ High Dynamic | ○ Exterior | ○ Int. w/sun | ○ Int. no sun | ● HDRi sky |

{{{topimage_text}}}

The **Presets** lets you choose predefined settings for the most common lighting situations.

There are a lot of settings to create special lighting effects. The presets make it easier to get a good rendering without having to make all the setting manually.

Standard Presets

- **Studio or High Dynamic** for subtle shadows for exterior scenes.
- **Exterior** - for exterior scenes with sun and sky.
- **Interior with Sun** - Interior scenes with lighting through doors and windows.
- **Interior no Sun** - Interior scenes with no external lighting.
- **HDRi Sky** - Exterior scene with a sky full of clouds.

nXt provides four lighting presets which can help get you started when deciding how to light your model. There are many more lighting options available, but the presets are often sufficient for many different renderings. The Presets icons are available on the Presets Setup Tab. Choose the Preset which most closely resembles your scene:

High Dynamic

mimics the lighting which might be found in a photographer's studio. It is most useful for rendering small to medium sized objects in isolation.

The primary lighting is provided by an high dynamic range image file (HDRi). The light from the HDRi has been artificially dimmed, to resemble the interior lighting levels of the studio. You can modify the HDRi settings and file on the HDRi Setup Tab . You can add artificial lights to your scene using the Lights tab.

Exterior

is used for daylight simulations of architectural exteriors. A sun and natural sky are simulated.

The sun and sky settings can be modified on the Sky Setup Tab . You can specify sun angles directly or you can use geographical location and date and time. The default visible background for this preset is the simulated sky.

Interior with Sun

Interior Daylight allows you to simulate an architectural interior during the day, lit by natural light.

For an interior daylight simulation to work properly, you must use a transparent material to represent the glass in your windows. Sun and sky settings are similar to the Exterior preset. Interior Lighting.

Interior - no Sun

provides a simulation of an architectural interior at night, lit by artificial luminares.

For this simulation to work properly, you must add artificial lights to your model.

HDRi Sky

The HDRi Sky preset loads a HDRi background and sky - Bear Mountain - and make other settings to make the sky visible.

After selecting this preset, you can easily use the HDRi tab to select other skies.

Additional Notes on Presets

Image by by Christopher Alan Krupp on the IRender nXt forum. Lighting balanced with Lighting Channels. Click to view full size.

- **Indirect lighting** - the lighting reflected off of surfaces, is on when one of the two interior presets are selected and off for studio and exterior. This type of lighting is a very significant component of an interior simulation. For exteriors and studio models the effects of indirect lighting is more subtle. You can turn on indirect lighting for exteriors and studio models if you want this additional realism (at a substantial performance cost.)
- **Interior daylight mode** and **exterior mode** do not have artificial lights enabled. You can add artificial lights to these presets if you wish by following the procedure here.

- Night time renderings can be a little tricky. The Brightness slider, and Lighting Channels can make it much easier to balance the lighting.

Create Material

Using IRender nXt you can create SketchUp materials, which look like, and are automatically mapped to nXtRender materials when you render the drawing.

Creating AccuRender materials
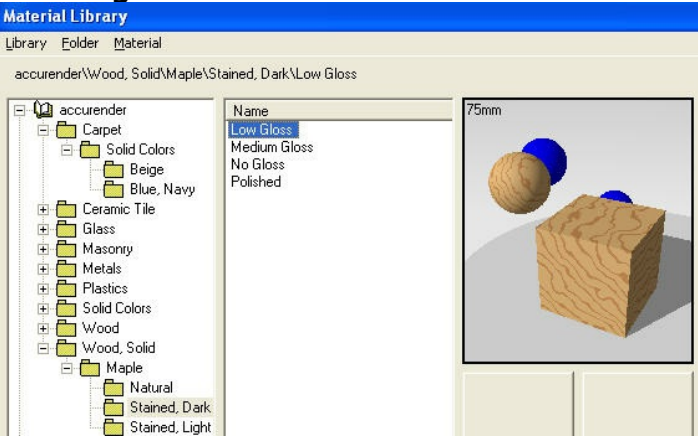
AccuRender material selection wizard

Material definition dialog

With IRender nXt you can select materials from the AccuRender Material Library, and place them as materials in SketchUp.

The SketchUp materials are created with a raster image of the AccuRender material.

When you render with IRender nXt the will automatically be rendered as AccuRender Solid materials.

Selecting materials

Click the **Create Material** icon on the toolbar.

This will load the AccuRender material selection wizard.

Choose the material desired from more than 5,000 materials included in the AccuRender library.

Defining materials

After you select a material, a dialog will display the material parameters.

- Select the desired size for the material.

Click **Add and Place** to create and place the material.
Click **Add and Make Another** to create this material, and return to the selection wizard.

Rendering Complete

The **Rendering Complete** dialog is loaded when the rendering has completed - either because the number of passes limit, or time limit has been reached, or because the user clicked the "end render" icon.

When the rendering is complete you can choose to save or view the rendering image, or to add additional passes and continue the rendering.
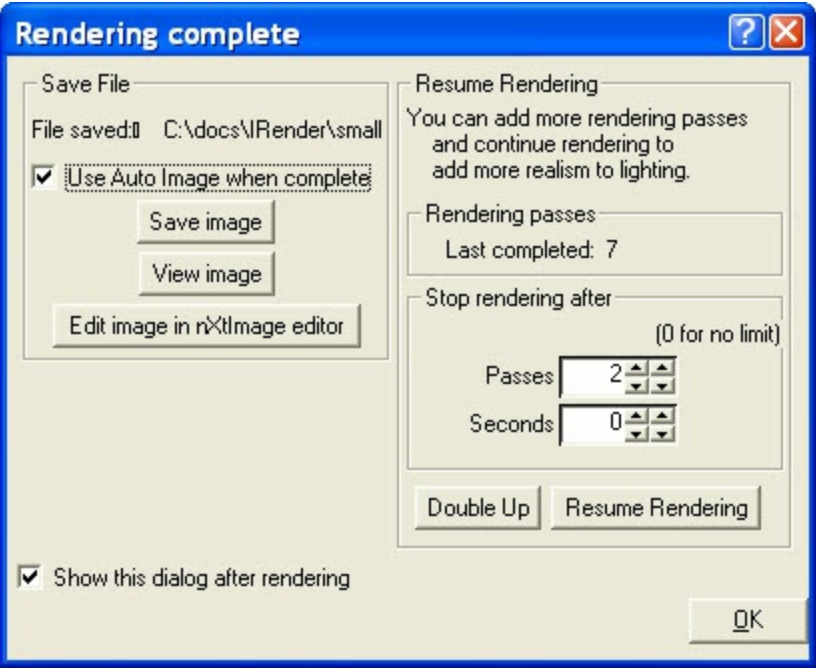
Save file

If **Auto Image** is selected, then the rendered image will already have been saved and the name will be displayed.

- **Use Auto image when complete** - If checked, then a rendered image will automatically be saved to the disk when the rendering is completed.
- **Save Image** - save the current rendered image to the disk.
- **View Image** - view the rendered image if it has already been saved.
- **Edit image in nXtImage Editor** - adjust the image with lighting channels, etc.
  (Only available in IRender nXt or ProjectRender Pro)

Resume Rendering

You can add additional rendering passes and continue rendering to add more realism to the lighting.

This functions is also available with the Resume Rendering icon.

- **Rendered passes** - displays how many passes have been rendered already.
- **Stop rendering after** - increase the limits on time or number of passes.
- **Double Up** - will double the number of passes.
- **Resume rendering** - will continue rendering until the new pass limit is reached.

Other

- **Show this dialog after rendering** - uncheck to not display this dialog.
  (You can re-enable it by right clicking in the title bar at the top of the render window and selecting "Support".)
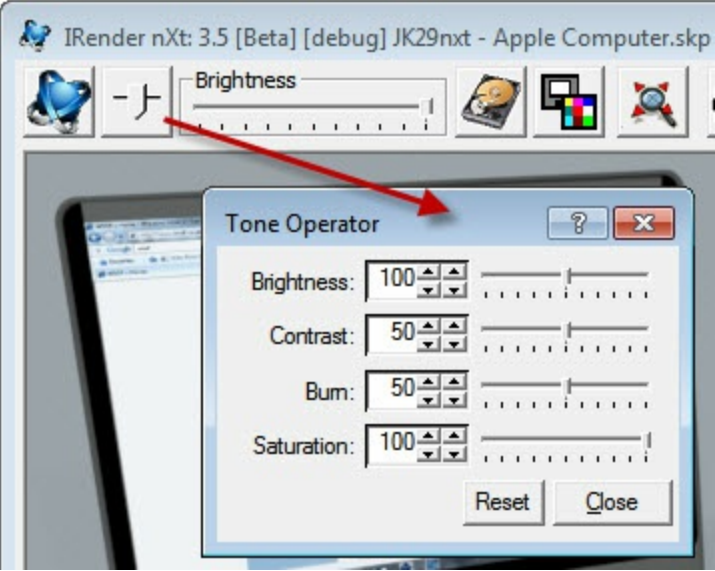- **Done** - Close the dialog.

Brightness Slider
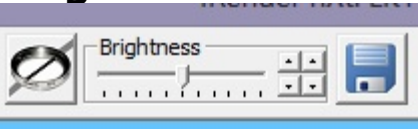
The **Brightness Slider** at the top of the renderer window can be used to adjust the overall brightness of the image.

- Use the up and down arrows to fin tune the brightness setting.

Tone Operator

The **Tone Operator** is used to modify your rendered image after it is created:

Tone mapping is the process of converting the luminance data used by nXt into displayable or printable RGB pixels.

The tone-mapping controls are located in the upper left corner of the render screen. The Brightness control is the most important. In nXt, you cannot control the overall scene brightness by boosting the intensity all of the light sources. The automatic exposure adjustment built into the tone-mapping process will defeat this attempt. Adjust overall scene brightness by using the Brightness control.

Tone Operator

The tone operator controls the mapping from luminance data to RGB image data. It is the sophisticated set of rules AccuRender uses to create a displayable picture from the lighting values collected during a raytracing or radiosity process..

Settings

The Brightness control is the most important. In IRender nXt, you cannot control the overall scene brightness by boosting the intensity all of the light sources. The automatic exposure adjustment built into the tone-mapping process will defeat this attempt. Adjust overall scene brightness by using the Brightness control.

- **Brightness** - The Brightness control is the most important.

  Adjusts the overall brightness. For example, if a white surface in your model is rendering gray, you can increase the brightness until the surface appears white. Or, if your exterior scene seems overexposed, you can decrease the brightness until the scene appears more correct.

  The default setting is 100 — smaller numbers produce darker images. For most renderings, small changes produce noticeable effects.

- **Contrast** - Adjust the contrast of the image.

Lowering the contrast makes the image more gray.

Raising the contrast make light area lighter and dark areas darker.

- **Burn** - Burn changes the white point of the image so that less than max brightness objects will map to white.

  See: [Using Burn](#)

- **Saturation** - Controls the amount of color included in the rendering.

  Slide it to the left to create a gray image.

Defaults

Restore the default settings.

nXt

IRender nXt (nXtRender for SketchUp) seamless SketchUp integration, lighting and material settings makes it easy to render photorealistic images.

IRender nXt - **nXtRender for SketchUp**

Quick and Easy to use Whether designing for work or fun, nXtRender's seamless integration into SketchUp, AutoCAD or Revit makes it quick and easy to create photo-realistic renderings that show your designs at their best.	 Image by Gary Giacci
Time-Saving Features nXtRender optimizes your design-time by saving your settings together with the 3D model and allowing post-render processing. Update your design and update your render, without starting over again.	 Image by Mark Bauer

Great Results
With the nXtRender Engine you can create great results. Save time with an efficient workflow that makes changes easy. Create stunning images that wow your client and help you win business.

Image by Nick Norman

IRender nXt for SketchUp is based on completely new technology developed by Roy Hirshkowitz Enterprises .

IRender nXt is a delicate balance of exceptional image realism, easy setup, and quick results for designers that don't have time to be rendering geeks.

Realism

Exceptional realism is key to clear communication of your designs from concept through to the details.

IRender nXt's new technology brings a new level of realism to your design presentations and marketing materials.

See for yourself. Browse the gallery of user generated images.

Easy to use

You don't need to be a rendering geek to generate impressive images with IRender nXt.

IRender nXt includes everything you need to get started quickly; lighting scenarios, an extensive material library, and plant library.

Rendering with SketchUp using IRender nXt

We do a have few buttons for the more advanced users, but we recommend that you shouldn't touch them unless you are a very serious rendering geek.

Speed

There are two measures of speed, how long did it takes you and how long did it takes the computer. Since your computer doesn't care about what time it is, spending time with kids or grandkids, getting out to the beach or ski slopes, or maybe even drinking beer, our primary focus is on saving you time.

IRender nXt gives you an early image very quickly, so you can decide immediately if you need to make a change to the view, lighting or a material.

Once you are happy with the setup, then you get to decide how long you want the computer to spend refining the image. Often that is only a few minutes but in some cases you might want to let the computer work over night just to see if you can tell much difference in the morning.

You can even hand the processing off to the nXt render farm on other computers while you use your computer for other things.

Try it out

Download and install IRender nXt: Downloads

Load "IRender nXt" from the plugins menu to open the IRender nXt tool bar and press the Render icon.

Within a few seconds you will see the image, but nXt continues to refine the image until you ask it to stop. After a minute or two, stop and try some of the different materials and light setups. Have fun!

Integrated into SketchUp

IRender nXt is fully integrated into SketchUp 7 and SketchUp 8 for Windows.

The SketchUp model that you see on your screen is what will be rendered - with the same view, colors, materials, etc. You can render at the SketchUp image size, or at any other image size desired.

IRender nXt runs inside of SketchUp and uses SketchUp's geometry, material, textures and sun-position to produce a photo-realistic image. In addition, you can add other rendering features - such as reflection, glow, plants and trees to make spectacular images.

The final, rendered image can be saved as a JPEG or PNG file. You can also use IRender nXt to produce high quality animations.

Versions

IRender Overview
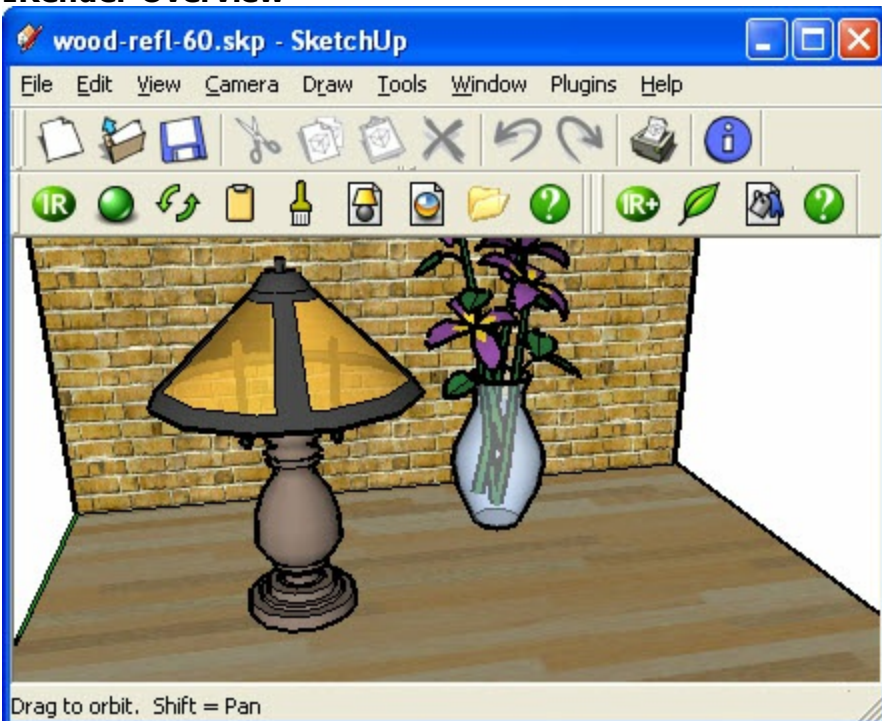
SketchUp with IRender toolbars

Rendering with SketchUp using IRender nXt

Created by Render nXt , IRender uses the nXtRender rendering engine - a fast, modern rendering engine which produces professional results with a minimum of effort.

ArielVision contains all the features you need for photorealistic renderings from you SketchUp model - lights, reflections, materials and more.

IRender nXt adds additional features for even better renderings - 500 fractal plants, 5,000 high quality materials, advanced material settings, and more.

IRender Features

IRender nXt includes a large number of features which can be used to fine tune rendering for special situations.

- See: **IRender nXt Features** - All features included in IRender nXt
- See: **IRender Feature Comparison** Comparison of ArielVision and IRender nXt features.

Tutorials

The tutorials are a good place to start. Learn how to use the basics of Ray Trace rendering - lights and reflections.
Then learn how to use more advanced features.

- See Video Tutorials below
- See other: IRender nXt Tutorials
- See: IRender nXt - Getting Started

Downloads and Installation

There is a 30 day Trial Version for RPS products. This is a fully functional version, with watermarks or other text added to indicate that it is a trial version.

Follow the links on the **Downloads Page** to download the latest version.

- See: How to Download and Install

Purchase and Other Choices

To purchase IRender, visit: IRender Purchase

IRender nXt is the perfect solution for high quality rendering, and all the advanced features you need at an affordable price.

If you are looking for a lower cost, easier to use product - with fewer features, but which can still produce high quality renderings - check out **ArielVision**

IRender nXt is included in the Render Plus Combo Pack

- See Purchase FAQ if you have problems ordering or authorizing the software.

Image Gallery

See: Image Gallery for samples of user renderings with IRender.
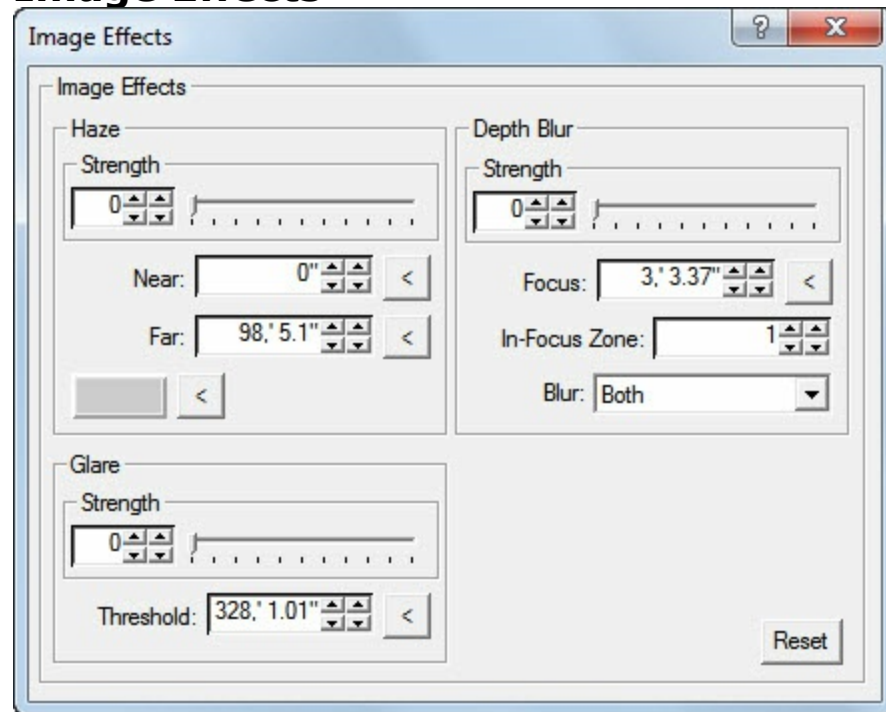
Image Effects

Image Effects

Haze

- **Strength** - set the Strength of the Haze
- **Near** defines a distance in Meters in front of which no haze will appear. Use the **<** button to select the distance of a point in the rendering.
- **Far** defines a distance in Meters behind which full strength haze will appear. Use the **<** button to select the distance of a point in the rendering.
- **Color** use the **<** button to select a color for the haze.

Depth Blur

- **Strength** - amount of Blur to apply
- **Focus** - the distance in meters of objects in focus. Use the **<** button to select a point in the image to be in focus.
- **In Focus Zone** - measured in meters-- it controls the transition zone as well.
- **Blur** - you can blur the foreground (rendered image), background, or both.

Glare

- **Strength**
- **Threshold**

Options

The **Setup Options** dialog is used for setting in IRender nXt

Setup Options Tab Dialog

The **Setup Options** dialog is used for rendering settings in nXt for Revit. Settings are grouped in the following tabs:

Presets   Lighting Presets and the settings they affect

Render   Render window size, lights per pass, bounces, etc.

Lights   Overrides for Lighting Defaults

Sky   Sun and Sky modes, colors, and intensity

HDRi   HDRi Sky Settings

Background Background Image and Ground Plane settings

Foreground Foreground Image, watermark, or logo

Special   Edge Lines and Components

Image   Auto Image, Image Comments, Watermarks

More　　　　Load and Save settings, Licensing

nXt　　　　Plants, Section Planes

Ready
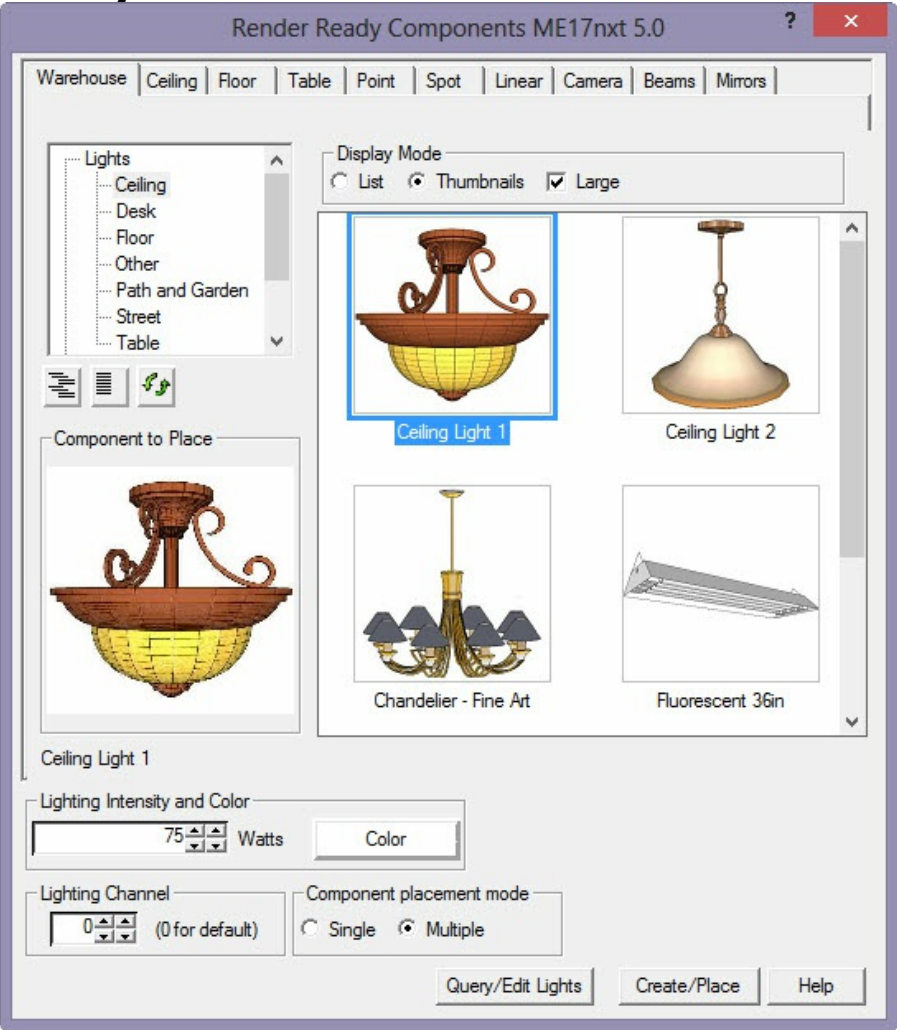
Some IRender Ready models in the 3D Warehouse.

IRender Ready Content

Special collection on the Trimble **3D Warehouse** for lights, mirrors and other components which are ready for use with IRender.

Lighting, Reflection and other rendering settings are already stored int he the Components.

- See: **IRender Ready Content**

IRender Ready is a collection on the Trimble 3D Warehouse of object, such as light fixtures, which have lights placed in them so they can be used directly with IRender

- Light Fixtures
- Mirrors
- Trees

To view and download IRender Ready models, visit: <u>IRender Ready Collection</u> on the 3D Warehouse, or use the new IRender

Ready Wizard:

There is also a Google Group for discussion of the IRender Ready models. <u>IRender Ready Group</u>. Visit it if you would like to make comments or suggestions for models for us to make IRender Ready.

Lights
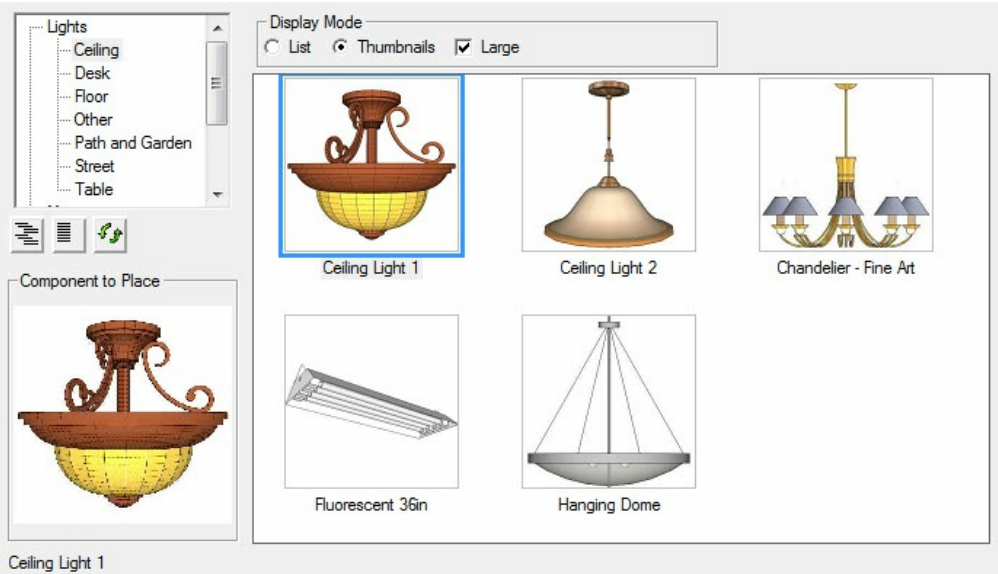
Mirrors
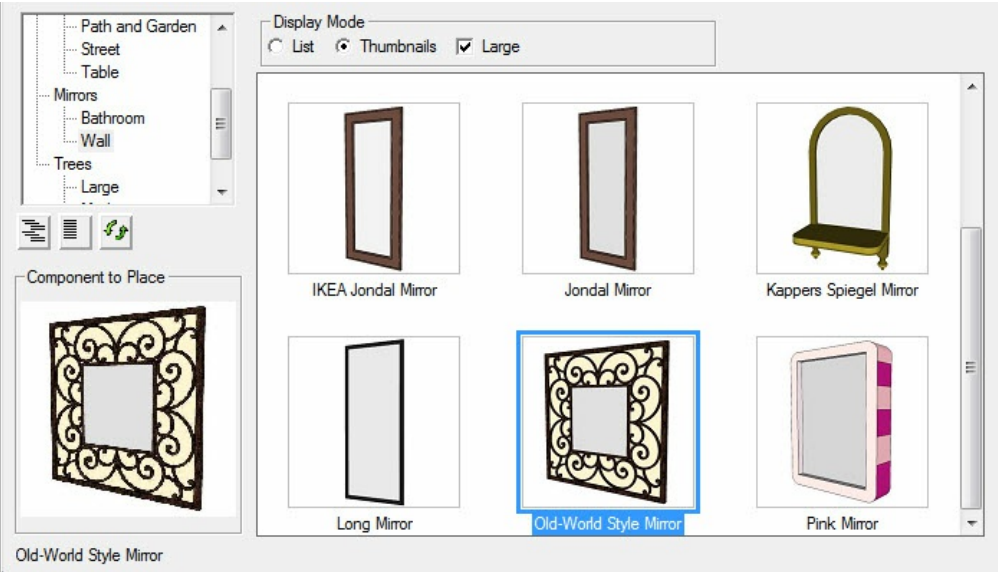
Custom Mirrors can also be created with the Mirror Wizard from the Render Ready Wizard.

- <u>Create Mirror</u>

Trees

Large Trees
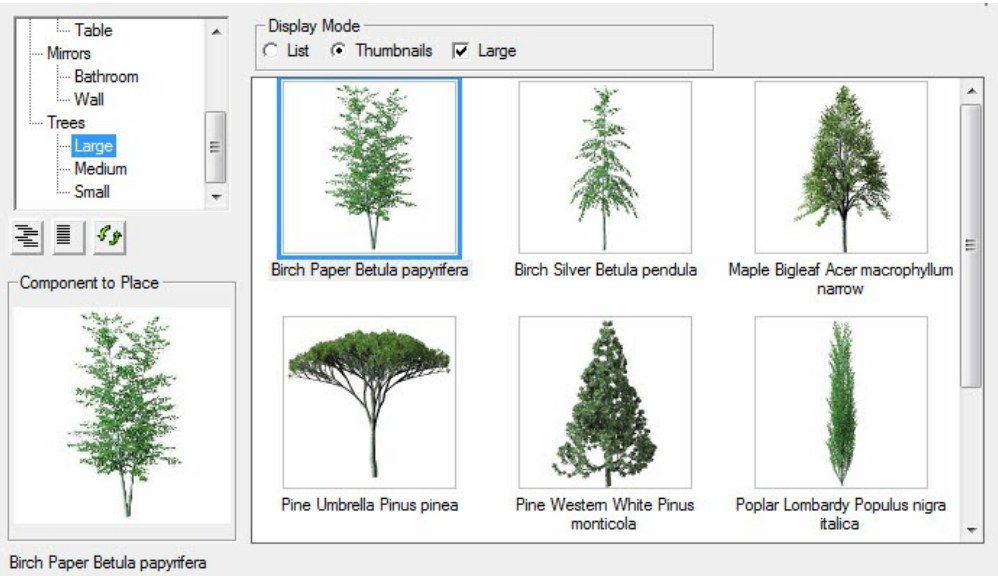
Create Mirror

Create Mirror Component dialog box

Mirror Type

Rectangular

Reflection %

Dimensions

Height	3'
Width	3'
Frame Width	2"
Frame thickness	1"

Frame Color   Mirror Color

Component placement mode
○ Single   ● Multiple

Create and Place   Cancel

Create Mirror ( ) will create a mirror component for you to place in the drawing.

1. Select the Create Mirror icon: (Image:Ref24.PNG)
2. Set the mirror parameters
3. Click **Create and Place** to place the mirror in your drawing

Settings

- Mirror type - only rectangular is available at this time.
- Reflection Percentage - 95% or 100% is usually good.
- Height, Width - outside dimensions of frame.
- Frame Width - width between the outside of the frame and the mirror itself.

Rendering with SketchUp using IRender nXt

- Frame Thickness. The frame will extend in front of the mirror by this amount/
- Frame Color - color of frame
- Mirror Color - any special color for the mirror - default white.
- Lighting Settings - ignore these for mirrors.

- Create/Place - create a component for your mirror and place it in the model.

Mirror created with these settings

Material Wizard

The IRender Material Wizard makes it easy to create and edit materials.
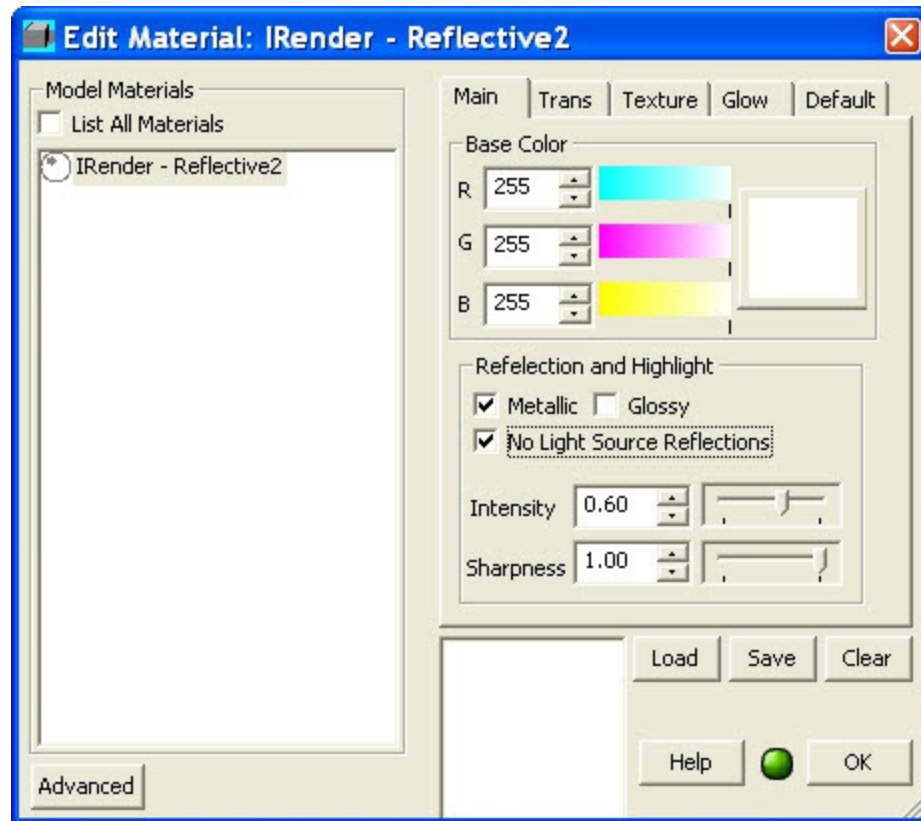
IRender nXt Material Wizard

Material Wizard

Applies reflection and transparency directly to SketchUp materials. Changes are made easily with a slider bar.

IRender nXt sets multiple settings for a single material - such a setting both transparency and index of refraction for glass materials.

Most common rendering settings for materials can be made quickly in the Material Wizard.

For more advanced settings, or to see a preview of your settings, use the Advanced Material Editor .

The Material Wizard is invoked by right clicking on a SketchUp entity which can have a material, and selecting: IRender: Create or Edit Material. (If it does not have a material yet, a new one will be created.)

It is also invoked from the [Select Material](#) wizard which allows you to select SketchUp materials, add them to you model, and edit their rendering properties - All before placing the materials on faces.

Defaults
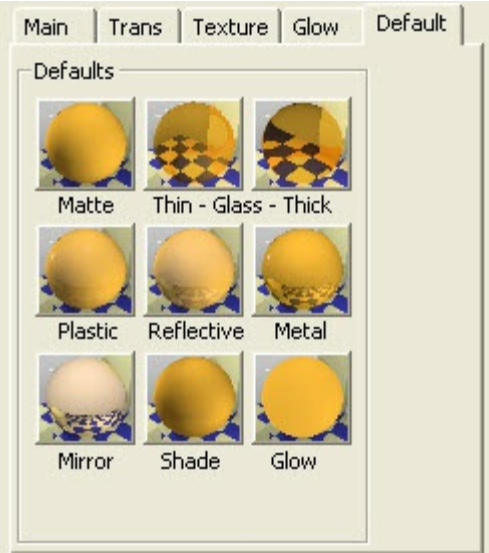
Material Defaults

For many standard materials, you can use one of the Material Defaults on the left of the Material Wizard:

- **Matte**
  - no reflection, transparency or special properties
- **Thin or Thick Glass** - 90% transparent.

    Thin should be used for glass created with a single face.
    Thick should be used for glass with two faces - one for each side.

- **Plastic** - low transparency, and somewhat blurry
- **Reflective** - medium reflection
- **Metal** - highly reflective, with [Metallic](#) highlights.
- **Mirror** - 100% reflective
- **Shade** - creates a Translucent lamp shade
- **Glow** - creates a material which glows like a light

Main Tab
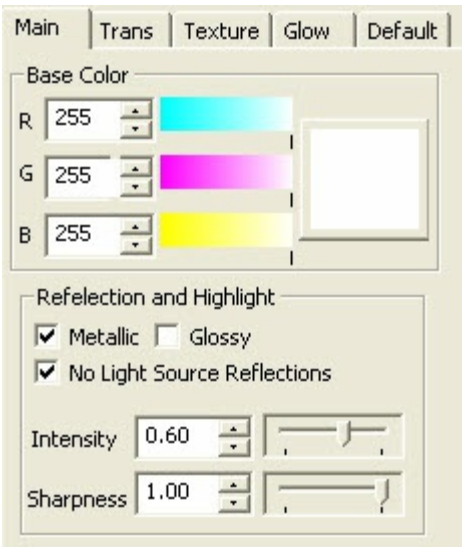
Base Color - set the color or materials without a texture.

Reflection and Highlight' The two sliders combine to define the amount of reflection and the sharpness of reflection.

Metallic - highlight are reflected in the color of the reflective material.

> (Otherwise highlights are reflected in white)
> See: Metallic Reflection

Glossy - highlights are other reflections are blurry.

> See: * Glossy Reflection

No Light Source Reflections - does not show reflections of lights.

> See: No Light Source Reflections

Intensity of the reflection. 1.000 is fully reflective.

Sharpness - values less than 1.000 create blurry reflections

See also

- Material Settings - Reflection
- Highlighting

Transparency Tab
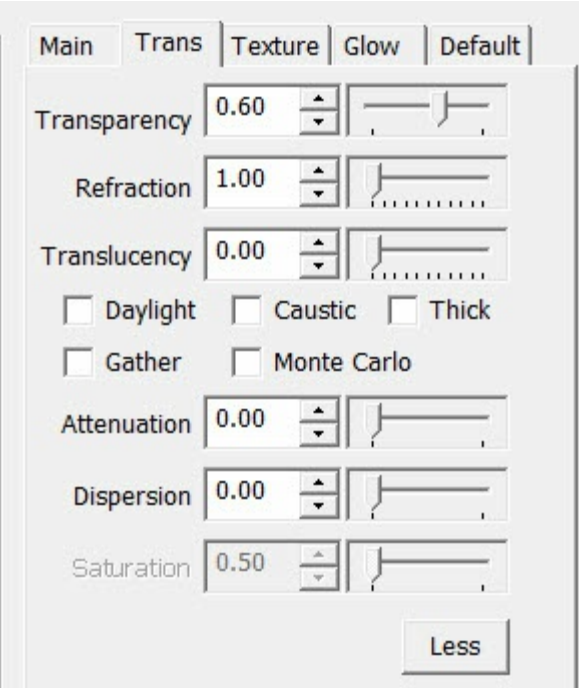
- **Transparency** - this will be used to set the transparency in SketchUp as well.
- **Refraction** this is the amount that light is distorted as it passes through thick glass.
- **Translucency** allows light to pass through the material, but not visibility - as with a lamp shade.

Special Properties

- **Daylight** defines any face containing this material as a Daylight Portal - which does a much better job of rendering sunlight and sky which illuminates interior scenes.
- **Caustic** - defines the material as caustic which produces prism like effects when light passes through the material.
- **Thick** defines the faces containing the material as thick. This should be used whenever more than a single face is used to define glass - separated by a distance to represent the thickness of the glass. See: Thin - Thick
- **Monte Carlo** - sets a special light dispersion mode. (We haven't seen a good example of this working yet.)
- **Gather** - sets a special light dispersion mode. (We haven't seen a good example of this working yet.)

More Sliders

Click the **More** button to display additional special transparency settings:

- **Attenuation**
- **Dispersion**
- **Saturation**

Texture Tab
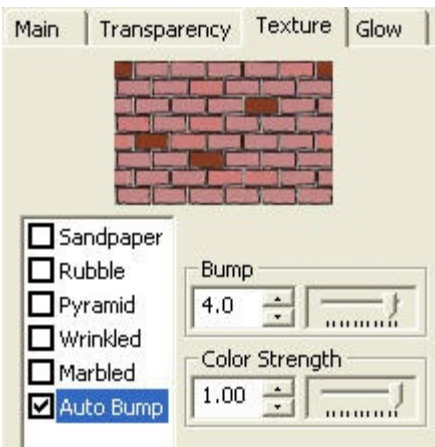
Sets special bump effects.

Each bump effect has special settings which define it.

- **Auto Bump**

   the Bump strength should be between -5.0 and 5.0
    The Color strength defines how much of the color of the bump texture is used as part of the material definition. For pure bump maps, (which define the depth of the material, but not the pattern), this should be 0. If you are using a texture - such as stucco - as both a texture and a bump map, you should set this to 1.

    - See: Automatic Bump Maps

- **Procedural Bumps** There are 5 procedural bumps which can be used to give your material (with or without textures) a different appearance.

    Each Bump type has parameters to change its size, etc.
    - See: Procedural Bump Maps
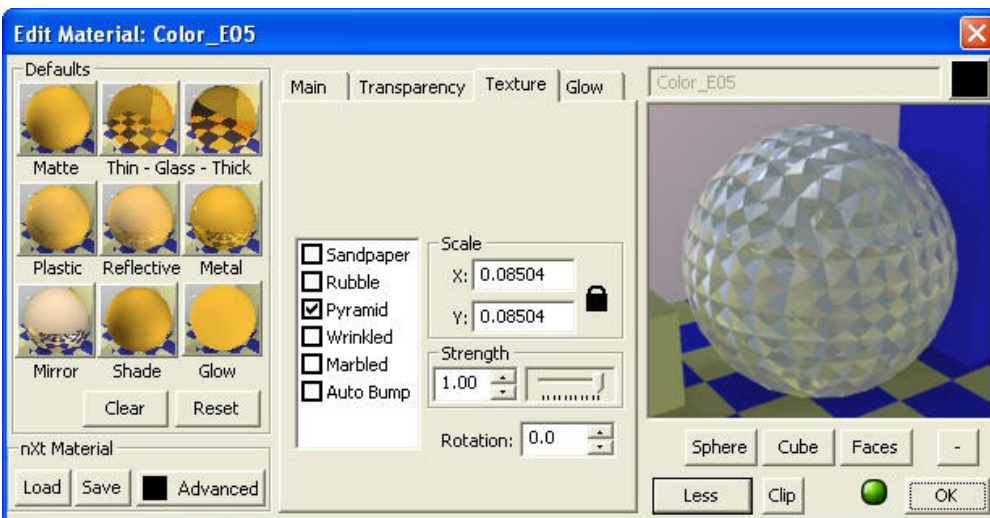
A Pyramid bump was applied to the salt shaker, and a sandpaper bump was
applied to the pepper shaker.

Glow Tab

[Self Glow]

Self Glow illuminates a surface as if it had light shining on it, without actually making it a light. For objects
which you want to appear bright, but which don't need to illuminate other objects, this is much faster than
making lights out of them.
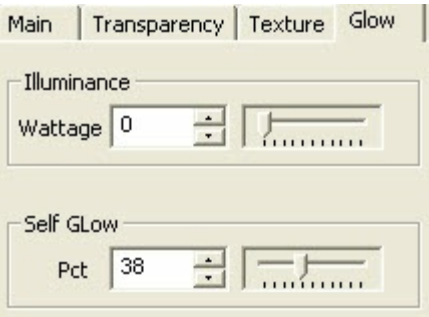
Defines a material which glows with **Self Glow**, or acts as a light with **Illumination**.

- **Illuminance** - the faces which contain this texture will act as lights.

    Set the desired Wattage

- **Self Glow** - the face glows, but does not illuminate other surfaces. This is the best setting or Neon lights.

    Set the glow percentage - 0 to 100%

See also: <u>Glow</u>

Advanced

<u>Material Wizard - Advanced</u>

Sets multiple settings for a single material - such a setting both transparency and index of refraction for glass materials.

The **Advanced** button loads the nXt **Advanced Material Editor** which allows you to place additional, advanced settings on your material.

Some of the tabs are the same as the **Tab** section of the Material Wizard. Some of the tabs have additional features.

See: <u>Advanced Material Editor</u>

Background Wizard

The **Background Wizard** is the part of the Image Layer Wizard which is used to position and adjust background images.

Background Wizard

The **Background Wizard** makes it easy to position your rendered model in a background, and to remember the settings for future renderings.

To invoke the Background Wizard, select **Preview/Position** from the Background Tab.

+ - and **Zoom All**

> zoom in and zoom out on the image

Video

Check out the Background Wizard Video

Background Positioning

The **Background Wizard** makes it easy to position your rendered model in a background, and to remember the settings for future renderings.

- **Show Full Background**

  When checked you can see the full background image, outside of the rendered image, and use the handles to stretch or scale the background.

- **Background Positioning**

  These vales show the offsets and scales which are applied to the rendering engine when positioning the background.

- **Maintain Aspect Ratio**

  if this is checked, then the when stretching the image, the original aspect ration will be maintained.

- **Adjust Center Line to Horizon**

  If checked then the image will be scaled and offset so that the horizontal center line of the image matches the horizon of the current perspective view.
  The image is scaled and positioned so that it still fills the entire background of the rendered image.
  See: Horizon

- **Distortion**
- Off - Background is always rectangular
- Perspective - Right and Left side can be expanded or reduced to product a perspective effect.
- Full - all four corner points can be changed independently

- **Reset**

  Resets to the default values

Distortion and Perspective

Distortion allows you to alter the background image to better match the perspective in your model.
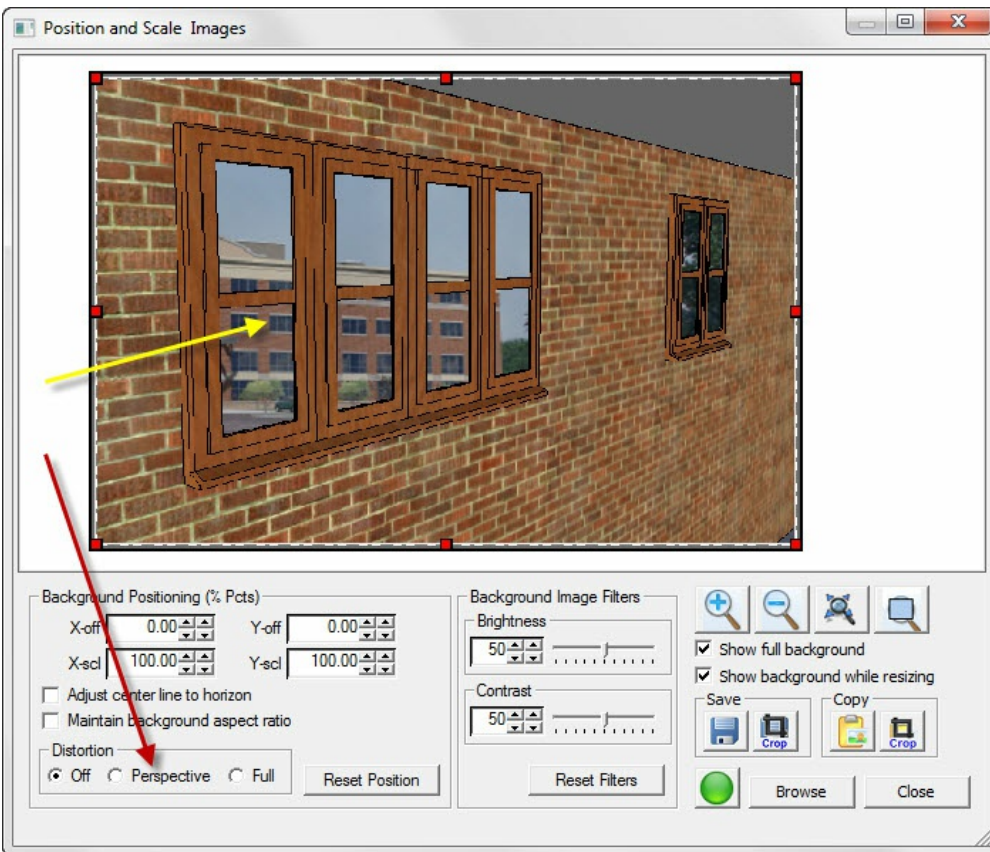
In Perspective Distortion, the left and rights sides of the image are always kept vertical, and when you move one corner up or down, the other corner on the same side is moved by the same amount.

This often make it easy to match the background image to a perspective view. If you want more control select Full Distortion which lets you move all 4 corners independently.

**Background Image placed behind perspective wall and windows.**
The lack of perspective in the background clashes with the perspective of the windows.
Select Perspective Distortion to let you distort the background to match the perspective view.

Adjust right hand corners to add perspective to background
As you move one corner up or down, the other corner is automatically moved to match.

By dragging the right hand center handle, all three right hand handles are moved together.
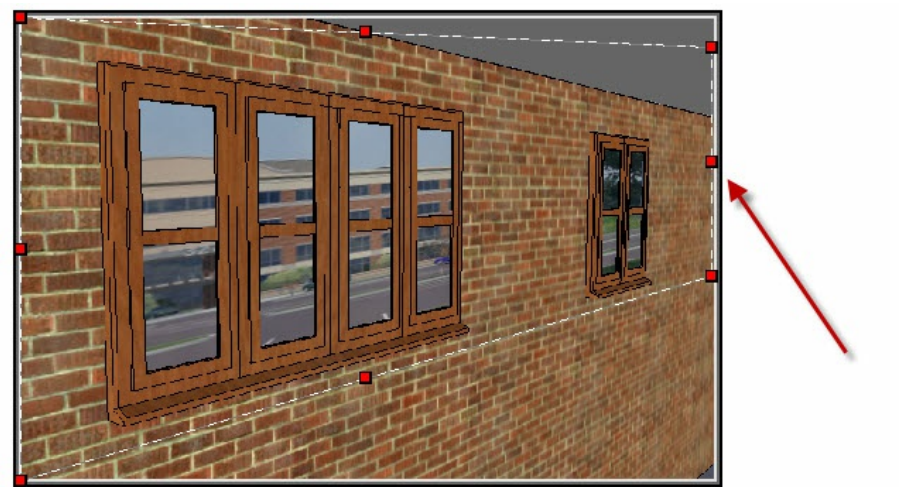
In three easy steps, the background now matched the perspective view.

Load Sample
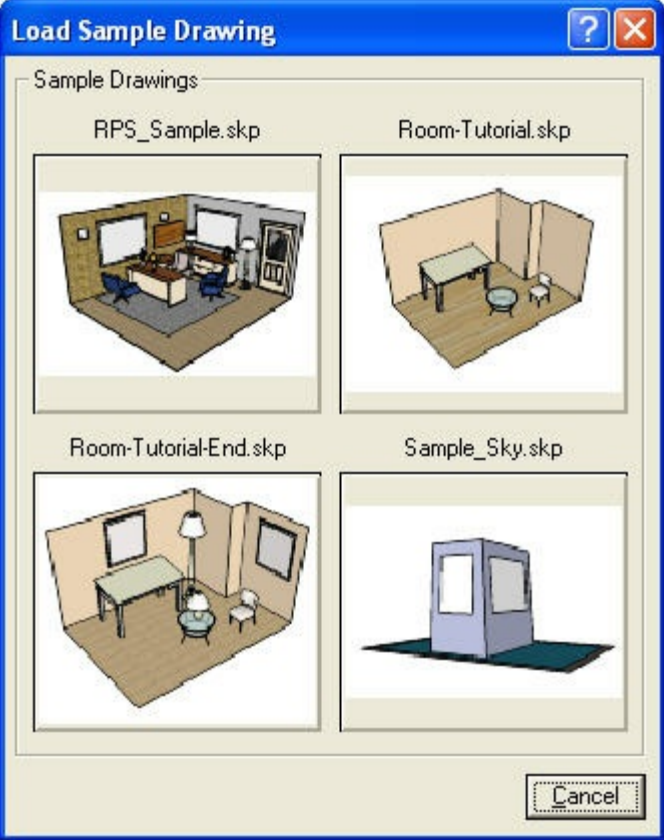
Click the **Load Sample** icon ( ) to load a sample drawing.

SketchUp Animation

Animation

Animation or your IRender nXt image is created by rendering scenes, moving the camera, and rendering the next frame.

- See: *Animation*

Animation is the filming a sequence of drawings or positions of models to create an illusion of movement. It is an optical illusion of motion due to the phenomenon of persistence of vision.

High quality animations of SketchUp models can be made with **IRender nXt** . In IRender nXt animation is created by rendering scenes, moving the camera, and rendering the next frame. We pass the rendered scenes to QuickTime to create a .AVI movie. (Or as an option, you can create a .JPG image for each frame and assemble them into a movie later.)

See: IRender nXt Tutorial - Animation

Render Toolbar Functions
IRender nXt Toolbar Functions

These are the functions for each of the buttons on the Render Dialog Toolbar:

- Load the **About** dialog

- [Image Filters](#) and [Tone Operator](#) - Adjust Image Brightness, Contrast, Burn, and Saturation or apply other filters.

- **Brightness Control** - Adjust the brightness without loading the Tone Operator dialog

- Save the rendered image to a JPEG or PNG file. See: [Saving Rendered Image](#)

- Copy rendered image to clipboard

- Zoom All - This button will toggle the render display between showing the actual pixels and filling the current window.

- [View Rotate](#) - Change View and re-render.

- [Render Setup Dialog](#) - Change Setup Options before restarting the renderer.

- [Render Material Dialog](#) - Change Materials before restarting the renderer.

After changing Setup Options or Materials, use the Start Render button to see the changes.

 - <u>Lighting Channels</u> - adjust the intensity of sun, sky or groups of lights directly.

 - <u>Image Effects</u> - Switch to nXtImage Format for special effects - <u>Real Time Haze</u> , <u>Depth Blur</u> and Glare

 - <u>Resume Rendering</u> - Use the Resume button to add more passes to a rendering which has been completed. See: <u>Resume Rendering</u> .

 - <u>Start Rendering</u> - This button is red while the renderer is processing. It will turn green when the rendering in finished. Click on the red button to stop the rendering. Click on the green button to restart the rendering.

 - <u>Render Farm</u> - see the status of the Render Farm - or restart it.

Image Filters

Image Filters

Image Filters can be used to sharpen your rendered image or apply other standard filters.

Image Filters are used to sharpen up your rendered image or apply other filters after rendering with nXtRender Batch .

Use the Tone Operator /Filters icon to launch the filters wizard after the rendering has started, (or is complete.)

Settings:

- See: Tone Operator for Tone Operation sliders.
- **Undo / Redo** - remove or restore filters you have applied.
- **Remember Filters** - if this is checked, then the filters will
  be remembered and reapplied the next time you render this model.
- **Reset** - reset Tone Operator or Filters to the default values.
- **Reset All** - reset both Tone Operator or Filter settings.

Original Image
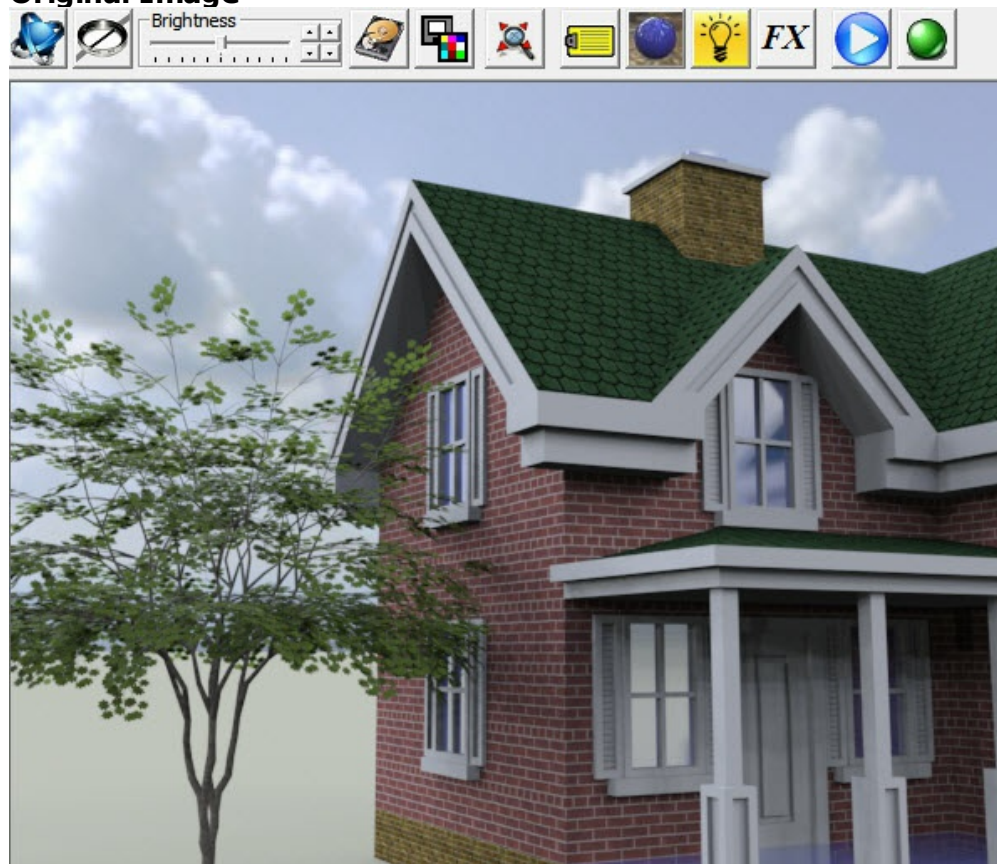
Original Image

Rendering with SketchUp using IRender nXt
A Brick House downloaded from the 3D warehouse - with an nXtRender tree and an HDRi background sky.

Original rendering - 32 passes.
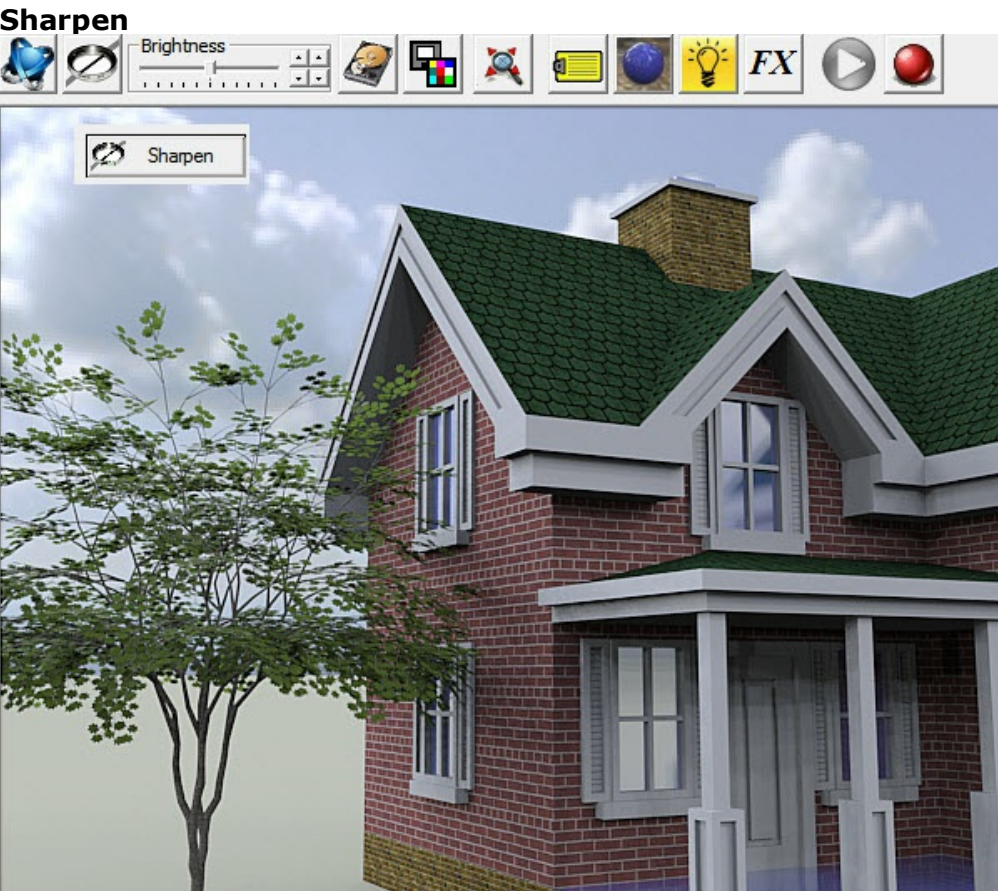
Sharpen

Sharpen Filter

Software sharpening creates enhanced sharpness by making the edges more contrasty. The algorithm notices when colors or intensities change in the image and sharpens up the transitions.

Just a little sharpening can add detail to a rendering.

Soften
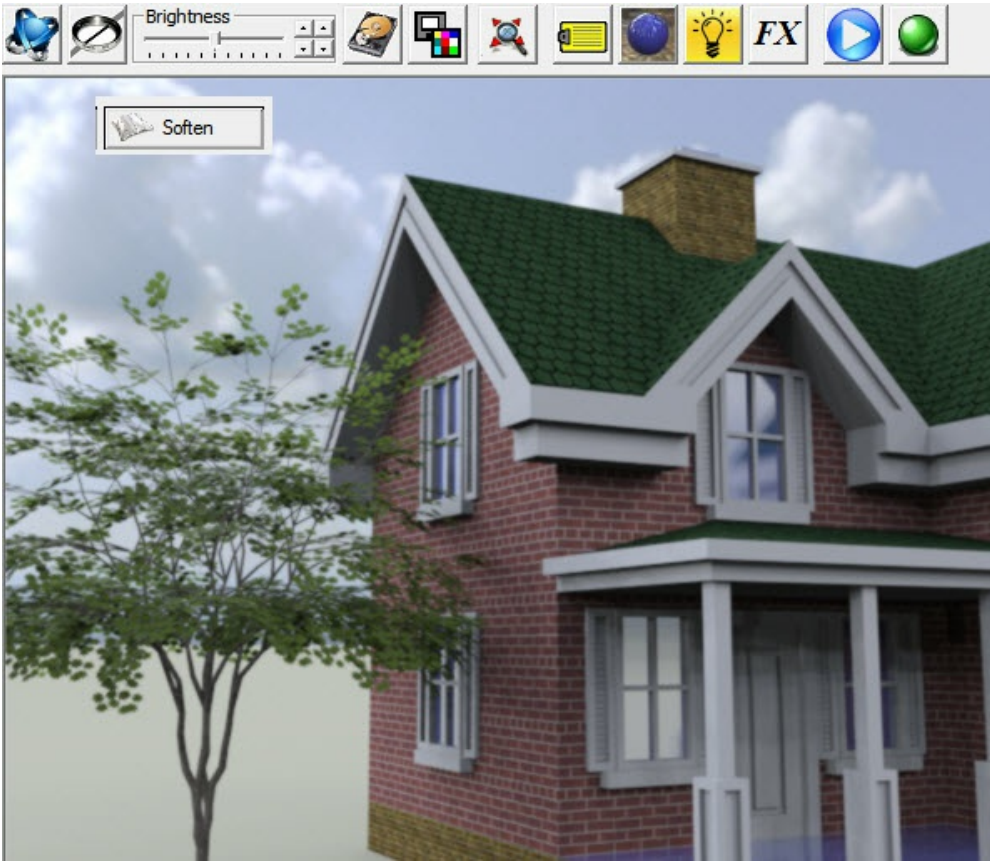
Soften Filter

Softening smooths out the transitions at "edges" - where the color or the intensity changes.

Smooth

The Smooth Filter blends pixels together to create a smoother image.

One good application is when there are unresolved pixels from the Path Tracer. These will resolve better with more passes. However, sometime, the Smooth filter can help smooth out the image.
(This rendering has Volumetric Fog applied.)

Rendering with SketchUp using IRender nXt

Fog scene after 42 passes with Path Tracer - no Filters.

Same scene after applying Smooth Filter. Notice that many of the unresolved pixels are smoothed out.

Gamma
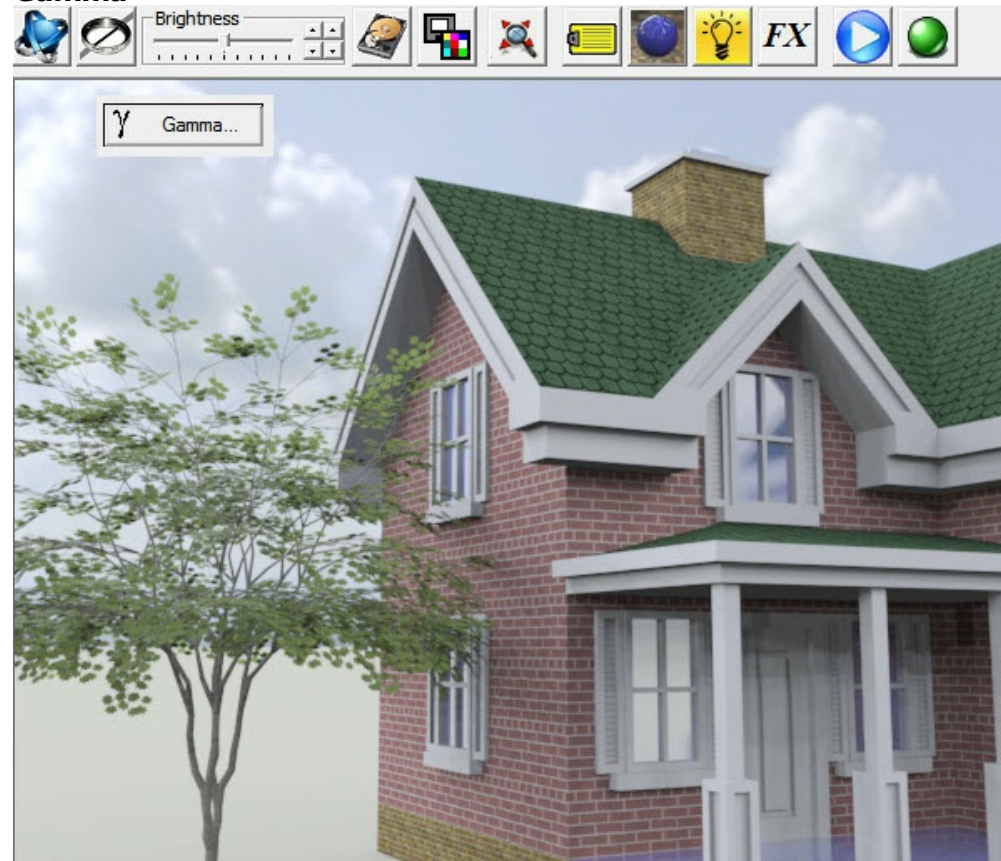
Gamma Filter

Gamma filtering changes the intensities of colors to work better when displayed on a CRT screen.

In the early days of television it was discovered that CRT's do not produce a light intensity that is proportional to the input voltage. Instead, the intensity produced by a CRT is proportional to the input voltage raised to the power **gamma**. The value of gamma varies depending on the CRT, but is usually close to 2.5. In other words, the blue on one screen might well not be the same as the blue on another screen. A gamma filter attempts to correct for this.

For images which will be displayed on the web, you may want to add a gamma filter of about 2.5.

Gaussian
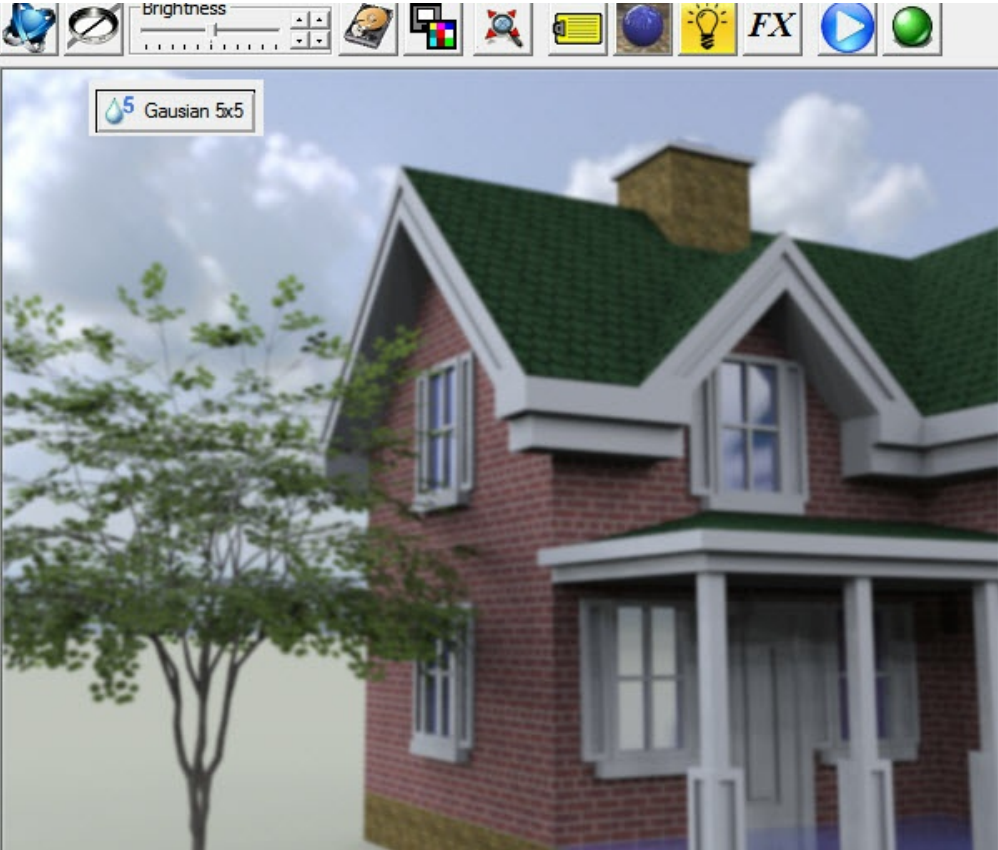
Gaussian 5x 5 Filter

A Gaussian Filter provides smoothing over a wider range (3 x 3 or 5 x 5) of pixels.

Emboss
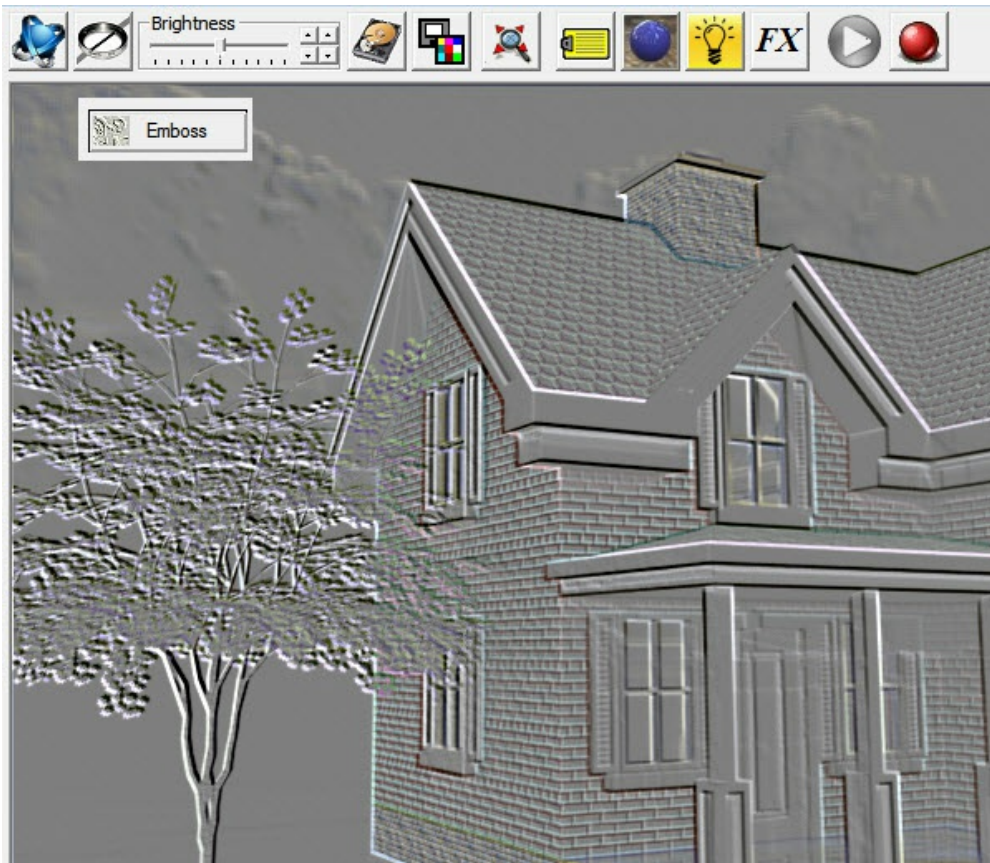
Emboss Filter

The Emboss filter creates the effect that an image is embossed into a thin metal plate

Edge
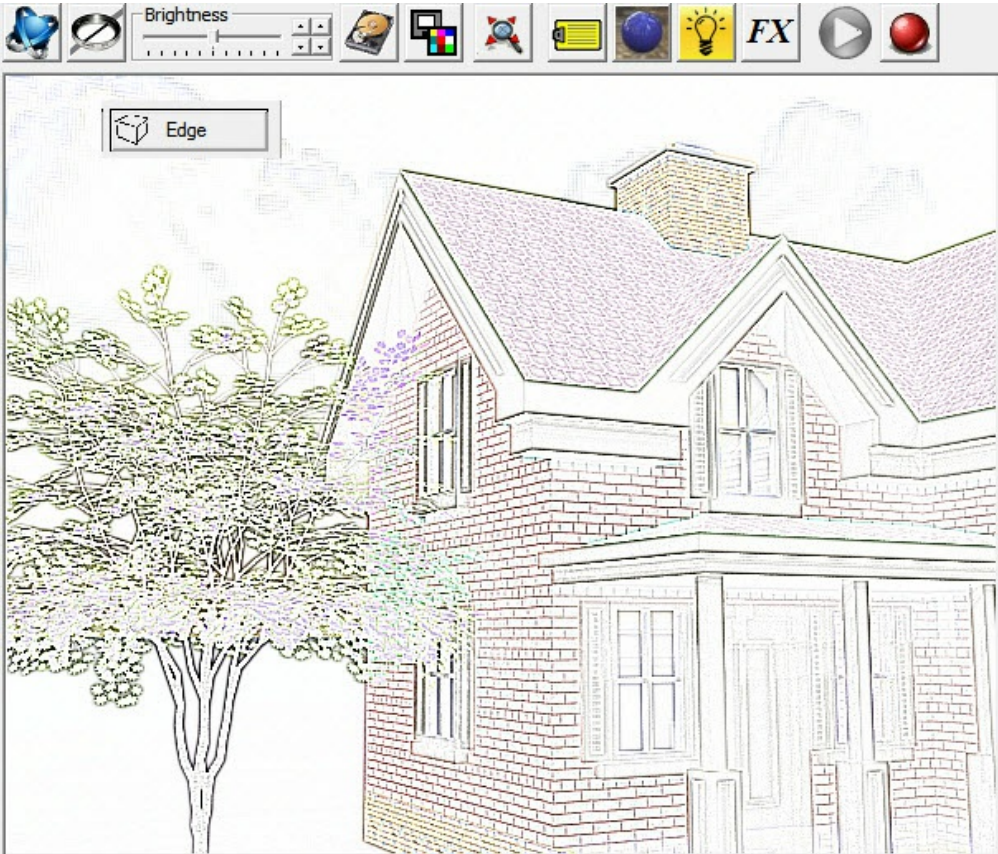
Edge Filter

The Edge Filter recognizes edge lines and displays only the edge lines.

Saving Rendered Image
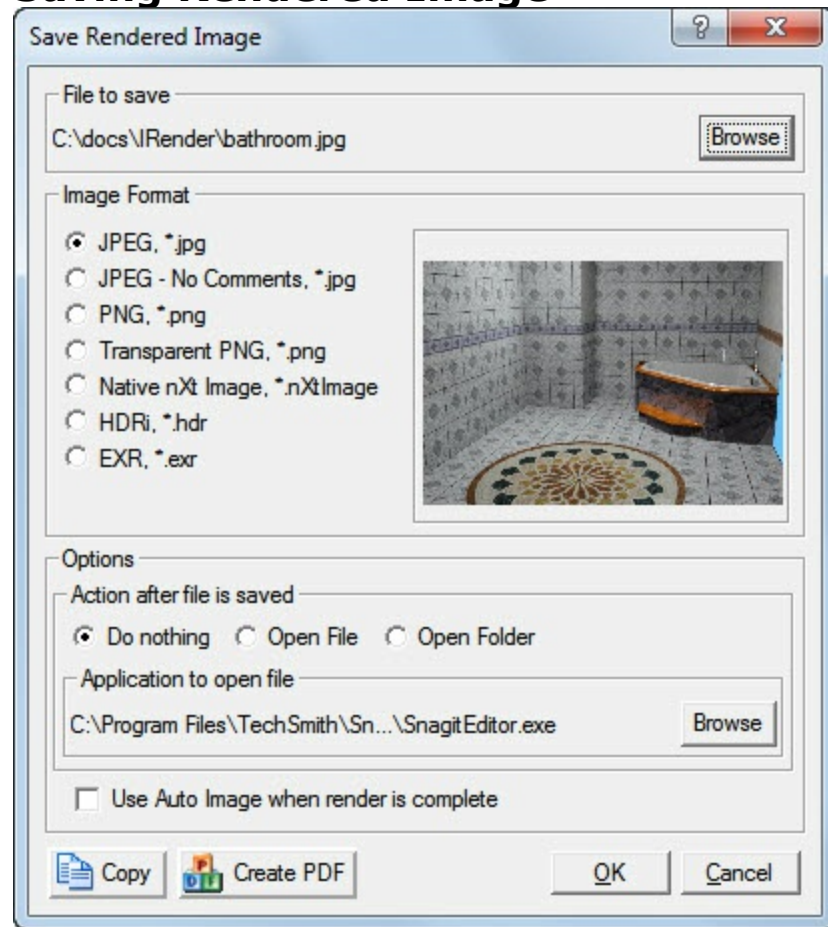
Saving Rendered Image Click the Save button on the <u>IRender Toolbar</u> to **Save your Rendered Image**

Image Formats

You can save the Rendered Image in many different formats:

- JPEG - with and without comments - JPG format compresses to the smallest disk file - with some loss of quality due to compression.

    When you save to standard JPG format - the settings you used to create your rendering are saved in the image file. This can be useful if you want to create other images later with the same settings and cannot remember what they were. See: <u>IRender More Tab</u>

- PNG files - compressed and no loss of quality.

    The Transparent PNG option saves the image with the background transparent. It can the be pasted on top of other backgrounds to create special effects.

- Native nXt Image - nXtImage format contains the intensities, depths and materials of each pixel and can be used with the <u>nXt Image Editor</u> for special effects.
- HDRi - saves the rendering image with an intensity channel which can be used in high-end paint programs, or used as

a HDRi background or HDRi sky.

- EXR - another format with intensity information.

Action after image is saved

- Do nothing
- Open File - using application defined below these choices
- Open Folder - open image folder in Windows Explorer

Application to open file

Navigate the the folder containing the .EXE you want to use to view the image.

Other Functions
Auto Image

- Use check box to enable auto image - which automatically saves the rendered image after rendering.

Copy

- Copy image to the clipboard.

Create PDF

- Use the image to create a PDF presentation with a rendered image and an interactive 3D viewport.

  This is a sub-set of the functions in RPS 3D PDF.

- See: Create PDF for details on how to define and create the PDF file.

Rotate View While Rendering

Rotate View While Rendering

- The **View Rotate** rendering toolbar button lets you change the view and zoom after rendering, and re-render without having to change the view in SketchUp, re-extract and re-render the model.

While changing views, the original model from SketchUp is shown with its SketchUp colors and textures.

Change the view as desired and re-render when done.

- See: **Rotate View While Rendering**

Functions

- Orbit view

- Pan with mouse drag

- Zoom with mouse drag

- Zoom All

- Zoom WIndow

- Restore previous view.

- Re-render with current view

- Save current view as style for loading later.

- Load saved view

Sample Usage

In this sequence we are using the View Rotate function to zoom in on an area of the rendered view and re-render it at a smaller resolution.

1. After Rendering, Select the View/Rotate icon to load the View/Rotate window.
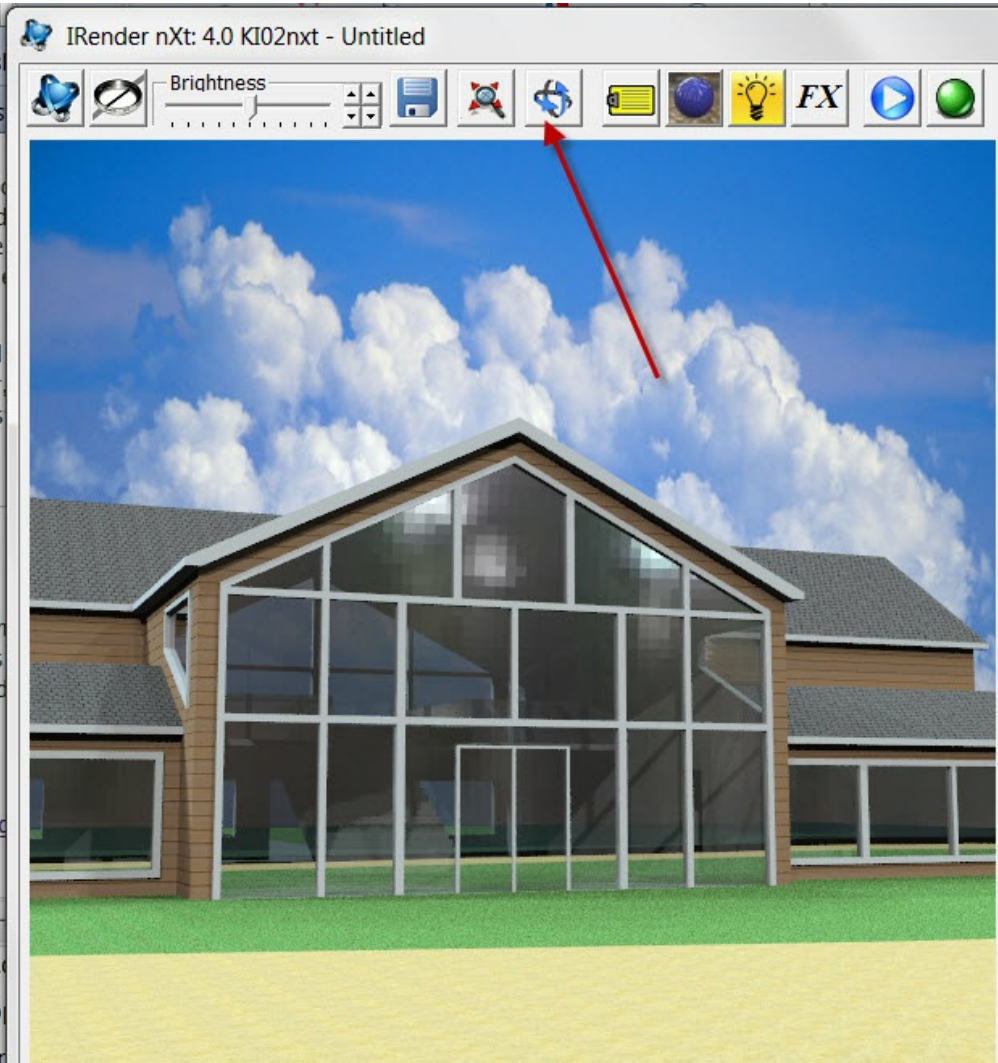
2. Change the view as desired - here we are using the Zoom-Window function to zoom in on an area of the original rendering.
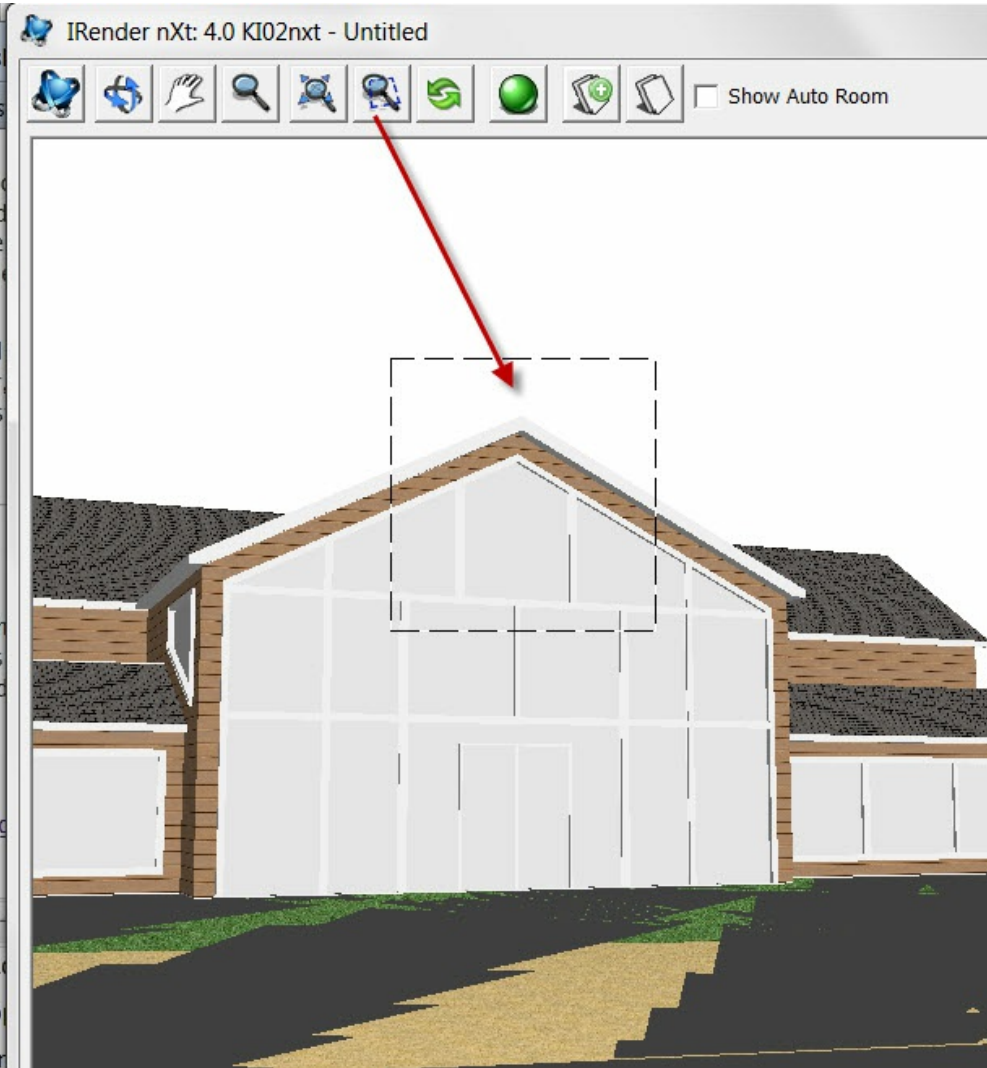
3. We could select **Render** to re-render with the new view, but we want to change the screen size, so we will select Close to return to the rendering window.
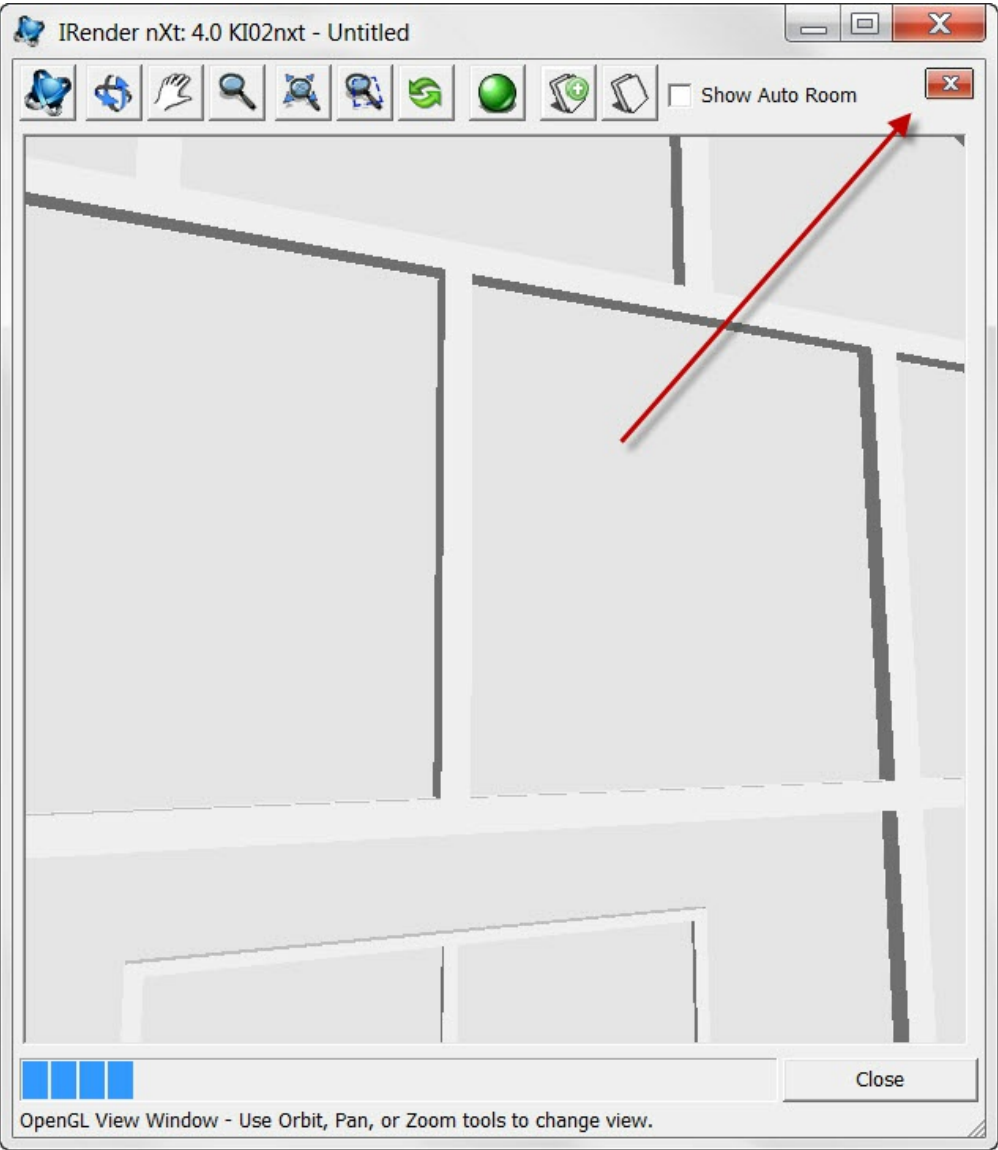
4. Here we are setting a custom rendering size of 400 x 400

IRender nXt: 4.0 KI02nxt - Untitled

Brightness

IRender nXt V: KI02nxt Setup Options

- Presets
- **Render**
- Lights
- Sky
- HDRi
- Bgnd

Render

Render Image Size

○ Sm.   ○ Med.   ○ Lg.

○ SketchUp   ● Custom

X: 300   Y: 300

☐ Use SketchUp aspect ratio

☐ Make Panoramic Image
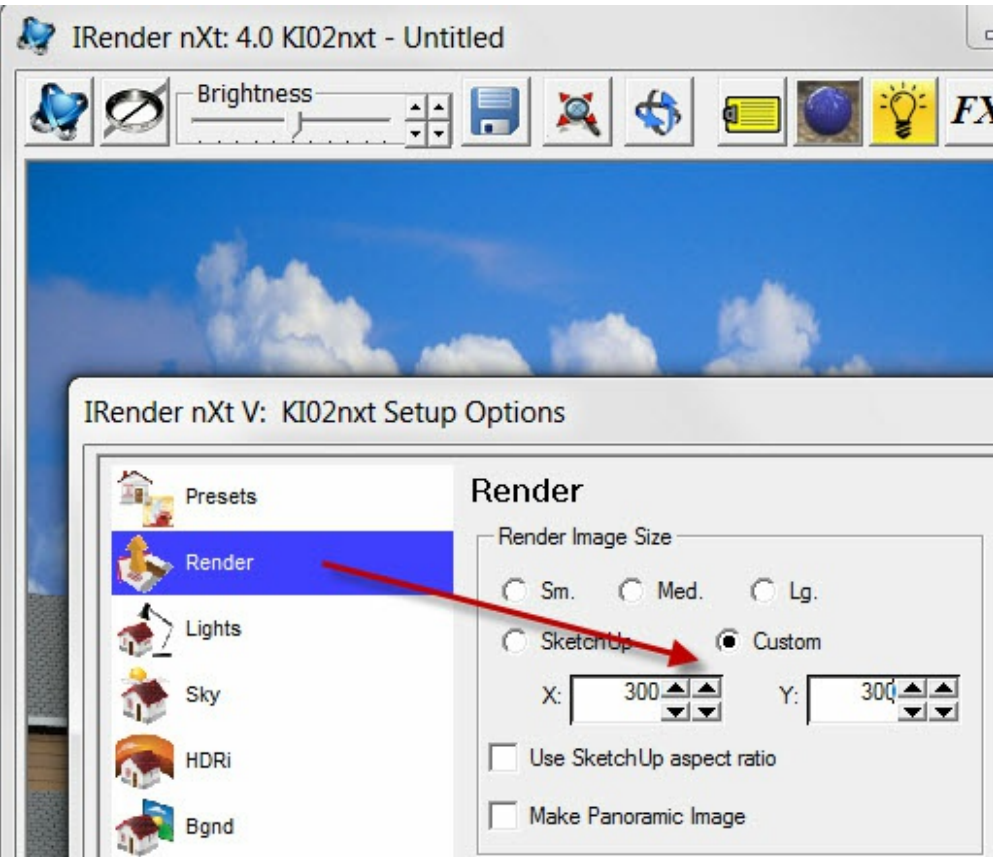
5. This is the new smaller rendering of the clipped area.
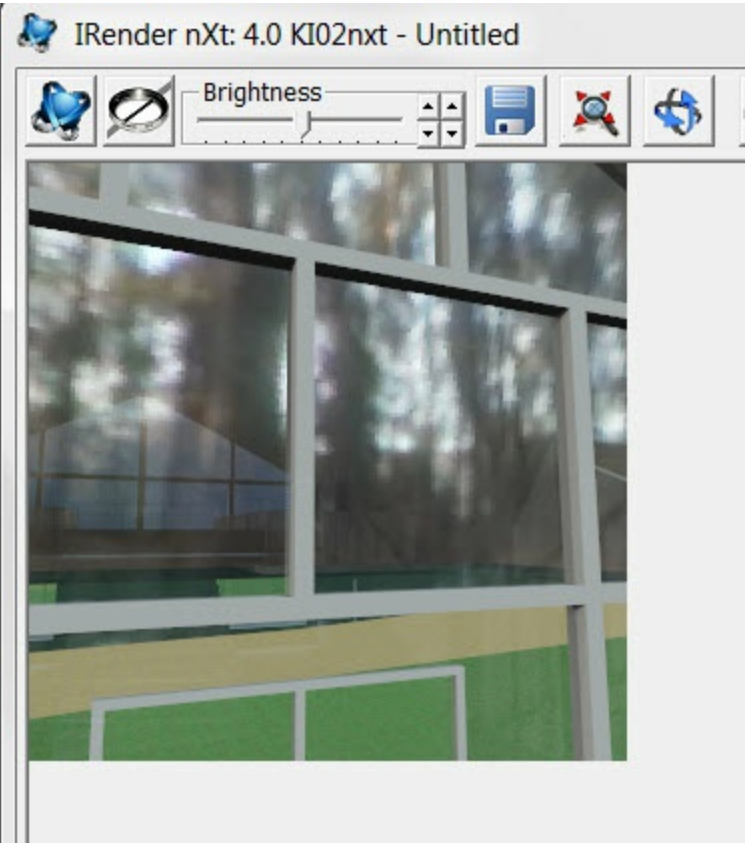
Lighting Channels

Lighting Channels

Lighting Channels is an important new feature of IRender nXt which lets you quickly adjust light sources. By assigning channels to sun, sky, and groups of lights, you can quickly adjust the intensity of each channel with a slidebar and immediately see the effect on the final rendering.

You can quickly adjust the intensity of each channel with a slide bar and immediately see the effect on the final rendering. This will saves time both in determining the relative intensities to use for light sources and in fine tuning the final image before publication.

In Version 3.5, Lighting Channels are integrated into the Batch Renderer, as well as used separately with the nXt Image Editor.

Videos and Tutorials

- Lighting Channels Video
- Balanced Lighting Tutorial

Lighting Channels is an important new feature of IRender nXt which lets you quickly adjust light sources - sun, sky and/or artificial lighting - individually quickly to balance the brightness and light balance of your rendering.

- Now: **Fully Integrated** into the Batch Renderer

You can quickly adjust the intensity of each channel with a slide bar and immediately see the effect on the final rendering. This will saves time both in determining the relative intensities to use for light sources and in fine tuning the final image before publication.

While rendering, or after the rendering is completed, you can use the Lighting Channel Wizard to modify the rendered image by changing the intensities of the lighting channels. You can then adjust the intensity of the light sources, or save the Lighting Channel sttings to reuse the same channels in future renderings.

- Quickly adjust the final rendering to get the lighting effects desired.
- Adjust both the sun and sky to create dusk, or nighttime renderings.
- Add 'self glow' to objects - such as TV monitors, or illuminates signs, and adjust them the balance with the rest of the scene.
- Save time by not having to re-render after lighting intensity changes.

To learn more about Lighting Channels, see the Render Plus **Videos and Tutorials|Videos and Tutorials**.

Videos and Tutorials

- Lighting Channels Video
- Balanced Lighting Tutorial

Settings
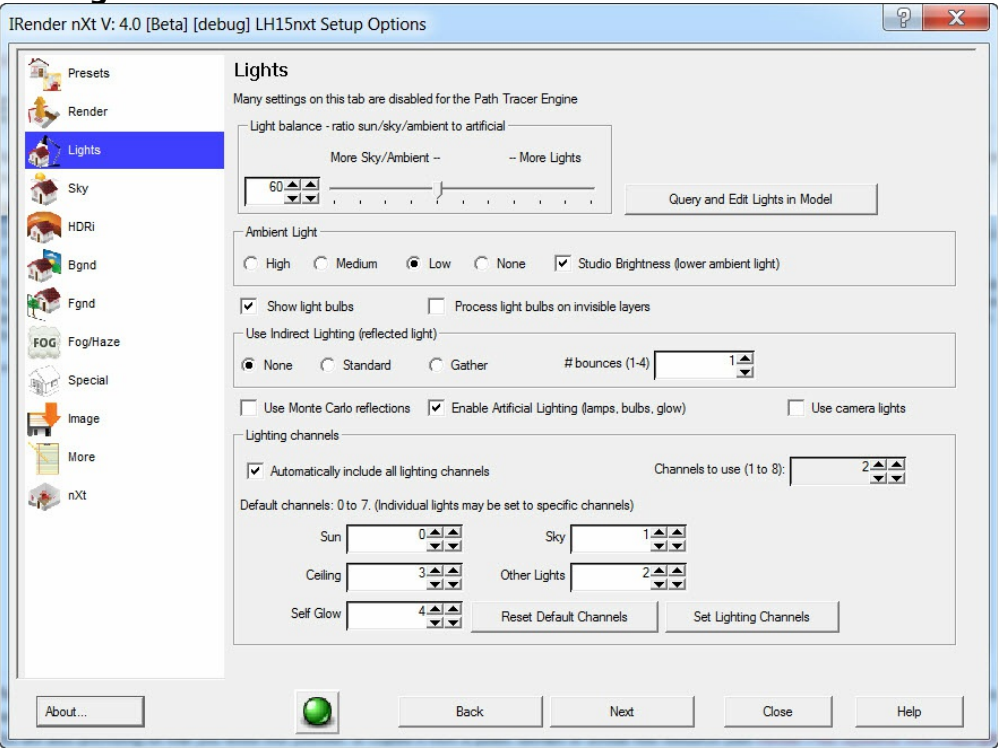
Channels to use

For normal renderings, things will go faster if you use just one channel. (If individual lights are set to values larger than this number, they will be rendered in channel 0)

Default Channels

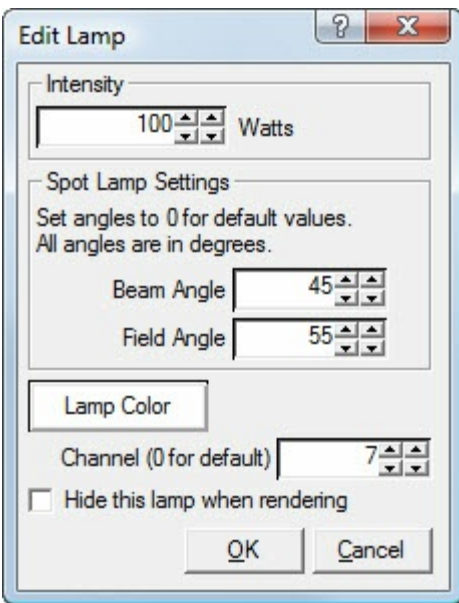Default channels are set on the Light Setup tab.

The defaults are:

- Sun: 0
- Sky: 1
- Ceiling Lights: 2
- Other Lights: 3
- Self Glow materials 4

You can changes these default value and/or use the same channels for other lights.

For example, if you are not using Self Glow, you can leave it set to channel 4, but also use channel 4 for other lights.

Individual Lights

There are up to 8 channels available (0 to 7).

You can set specific channels for individual lights.

This can be done when creating the lamp, or as a right click edit once a lamp is placed.

Changing Lighting Channel Intensities

Lock Automatic Luminance to keep other intensities the same while you adjust Lighting Channels

Rendering with SketchUp using IRender nXt

IRender nXt: 3.5 [debug] KD18nxt - Block A Entrance Lobby MA-AI.skp (Debug)

Brightness
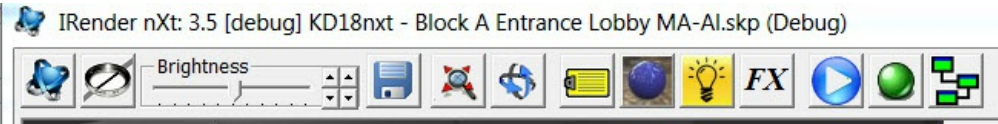
1. Click the Lighting Channel Icon at the top of the rendering window.( )
2. Name the channels if desired on the dialog.
3. Use the sliders to adjust the intensity of various lighting channels.

Normally, when you change the intensity of one Lighting Channel, all other illumination will change to compensate.

Automatic Luminance or **Photometrics** automatically adjusts the overall intensity of your rendering, much like the automatic exposure on a camera.

If you want to adjust **Lighting Channels** or other items without having Photometrics apply, you can lock the **Average Luminance** on the Tone Operator or Filters Wizard.

See: Automatic Luminance

Samples
Nighttime Scene

Image by by Christopher Alan Krupp on the IRender nXt forum. Lighting balanced with Lighting Channels.
Click to view full size.

Interior example

This is a model provided by Boothy for use in our documentation and tutorials

Here are 4 scenes from the model using lighting channels:

- The original rendering with default channel intensities
- An exterior, sun/sky only rendering
- An nighttime - no sun, dim sky - rendering
- A balanced rendering adjusting various channels.

For more examples of this model, see: [Balanced Lighting Tutorial](#)

Nighttime - Sun and Sky turned off. For an e
leave the sun off, but add just a little sky.

Original Rendering - all channels set to the default intensity of 1.0

Rendering with SketchUp using IRender nXt

Balanced Lighting. Other - (lights outside do
on the wall) - made very intense (40.0) for e
adjusted to achieve desired effect.
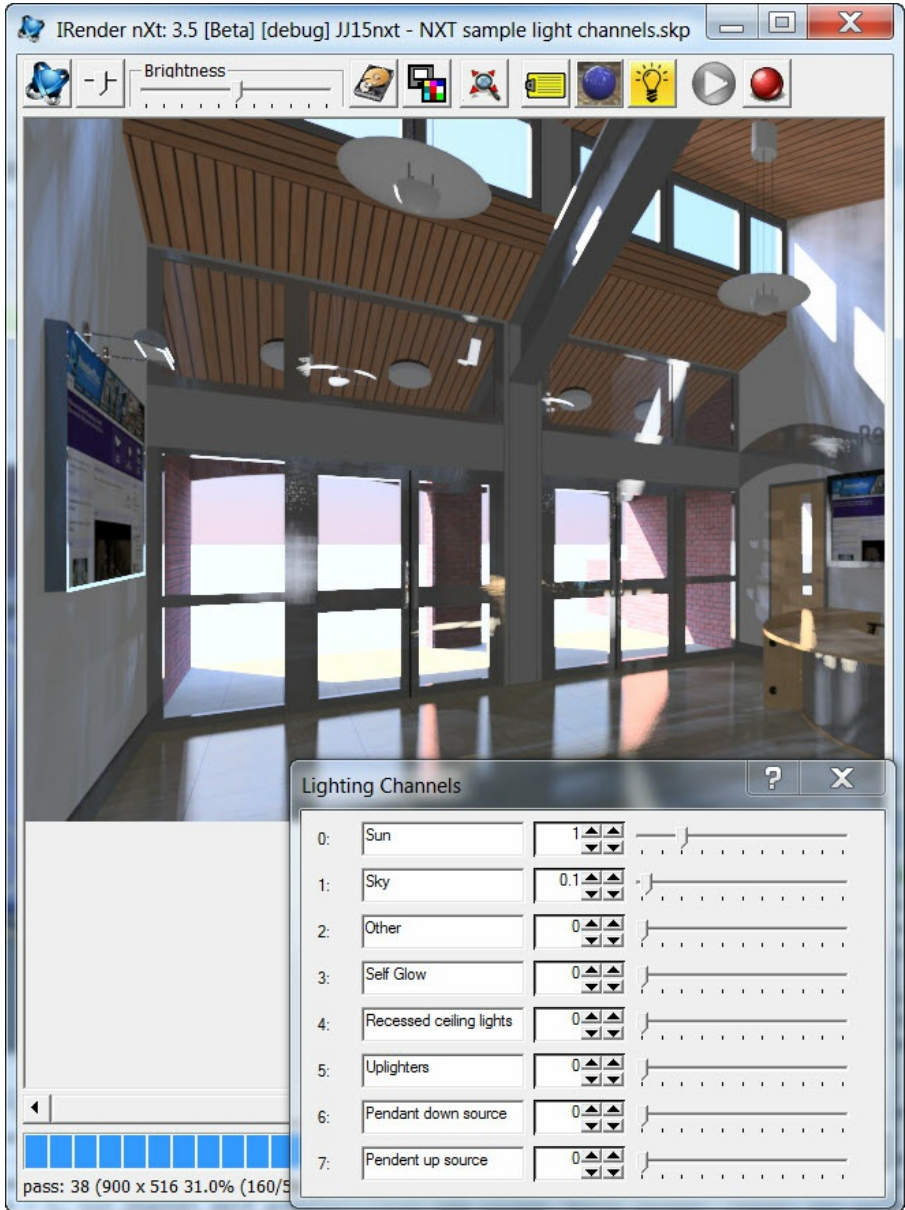
Daytime - no interior lights. Sky adjusted down, because at 1.0 it was too bright.

Guidelines

This powerful feature allows you to adjust many aspects of the lighting in your rendered image in real-time, after the rendering has been produced. This is accomplished by allowing you to create up to 8 lighting "channels" in the image. Each light source in the drawing, including the sun and sky, can be assigned to a channel. Once this image is rendered and saved, each channel can be individually scaled in the nXt Image Editor. For example, using this capability, you can produce day and night interiors with a single rendering. The following five steps are necessary to produce and manipulate a multi-channel image:

1. You must tell nXt how many channels you want. Go to Lights Setup Tab and set the number desired from 1 to 8, or check the "Use all Channels" checkbox.

(Each additional channel you add requires an additional 12 bytes per pixel internally. This is a lot of memory, particularly for high resolution renderings. It may not be possible to complete your rendering on a 32 bit system.)

2. You must turn on all of the participating lights. Lights which are off will not contribute to the image and will not be scalable. Because you are rendering with more lights, it may take a little longer.
3. You must tell each light source which channel it belongs to. By default, Sun and Sky are set to channels 0 and 1, artificial lights to channels 2 and 3. You can changes these defaults on the Lights Setup Tab. You can also set channels individually for each light. Valid channels are 0-7.

Automatic Luminance

- As you adjust the channels, Automatic Luminance will compensate to keep the overall brightness of the scene constant. All of the tone mapping controls and rules still apply. For example, if you're trying to do a night and day exterior using the same rendering, you will almost certainly need to adjust the tone-op brightness down for the night time scene. Or Lock the Automatic Luminance while adjusting the lighting channels to keep the brightness the same.

Render Farm
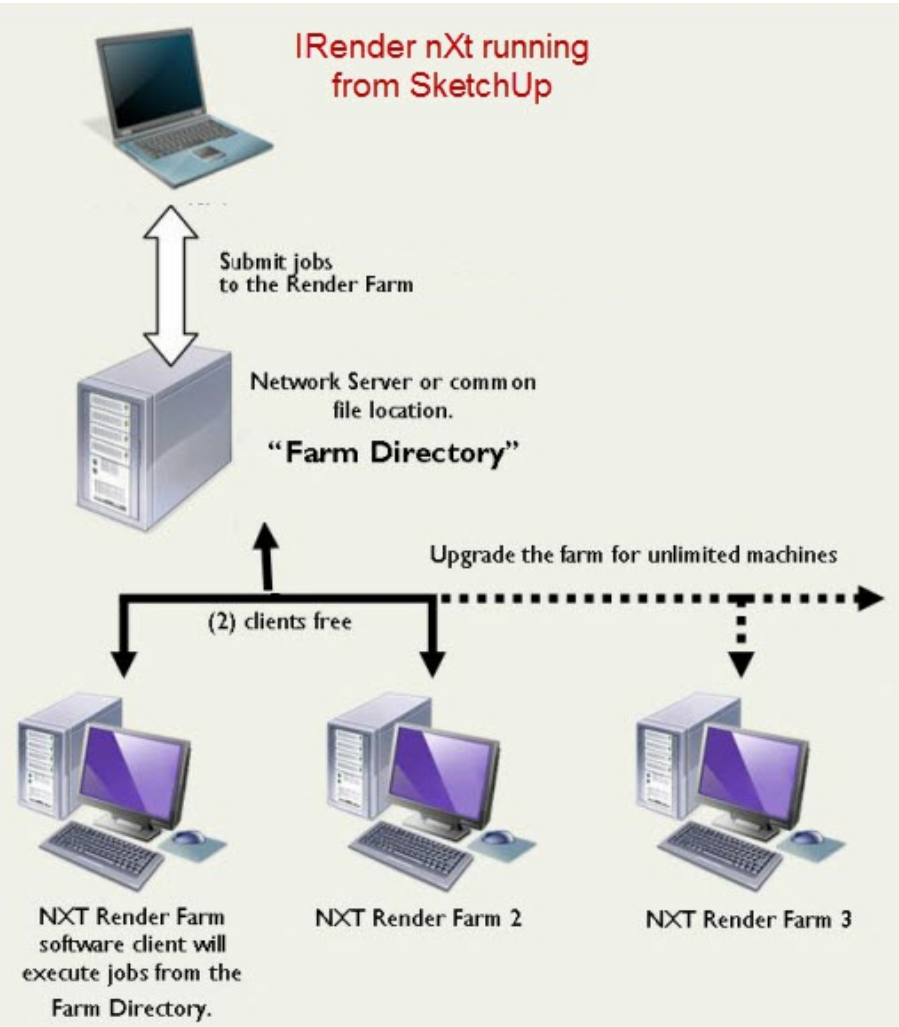
Overview of Rendering Farm logic.

The IRender nXt **Render Farm**

A Render Farm consists of a group of networked computers working together to complete large rendering tasks. Render farms proceed silently, without graphically displaying the renderings as they progress, or you can run the Render Farm Display tool to display parts of the image as they are completed. Using the Render Farm allows you to use more compute power for lengthy tasks at the expense of some interactivity.

The IRender nXt Render Farm Software is sold separately from IRender nXt itself. (Hhowever a 2-CPU Render Farm is included with the Combo Pack). Also A 30-day 2-CPU trial is available for testing.

Neither SketchUp nor IRender nXt itself are required on computers which will only be used for rendering farming.

Technology

The nXt Render Farm includes four pieces of software:

1. IRender nXt is used to define the model to render. The Render Farm can be started directly from IRender nXt, or if you prefer to preview the rendering first you can start a preview rendering (with smaller resolution and fewer passes), and then start the Farm from IRender Batch.
2. The Farm itself, (nXt.exe ornXt64.exe, running on each Farm CPU). This is a version of the nXt rendering engine which

renders nearly silently, in the background, with very little user interface. This portion of the nXt Render Farm Software can be used by itself, in conjunction with commercial render farm software, for a more sophisticated render farm solution.

3. nXtFarmer.exe (nXtFarmer64.exe) is a small executable that runs on each network rendering station, waits for jobs to be generated, and starts the Farm Processor.
4. IRenderBatch.exe is a utility program to display renderings as they are completed and save them as .JPG, .PNG or .ArImage files.

Downloads

You can download the IRender nXt Render Farm software from the McNeel nXt Forum:

- Render Farm Downloads

Be sure to download the version to match your operating system (32 bit or 64 bit)

Note: Do not purchase a Render Farm directly from McNeel. To use the Render Farm with IRender nXt, you need to purchase the Render Farm and interface software from Render Plus. See: Render Farm Purchase

License and Purchase

You can use a 2-CPU Render Farm in trial mode for 30 days.

After 30 days, you will need to purchase a 2-CPU License, or an unlimited CPU license, from Render Plus.

The 2-CPU License for the Render Farm is also included in the Render Plus Combo Pack.

- See: Render Farm Purchase

Installing and Configuring the Render Farm

Create a shared folder for use by the render farm. (Create a folder on a machine which is accessable by all the other machines which will process or use the Render Farm)

All of the network rendering computers must have read/write access to this folder. The shared folder should have a lot of available disk space to store both data (input) and images (output.) 20 - 200 GB of available storage are recommended. You must perform the following four steps on each computer you plan to use in the render farm, including any nXt workstations which will submit jobs to the render farm:

1. Install the nXt Render Farm Software.
2. From the Start menu, run the Render Farmer on each machine. The Render Farmer will appear as an icon in the system tray.
3. Right click on the icon and select Restore. A window title nXt Farmer should appear.
4. Select Options→Path… from the menu and select the path to the render farm. The Farmer window can now be minimized to the tray.

The Render Farm is now configured. To verify that the farmer machines are responding run the Render Farm Monitor from the Start menu on any of the workstations. The machines should appear in the **Configure Machines** window. If you wish to exclude a machine from participating in the render farm, you can select it, right click, and choose Suspend.

Submitting a Job to the Render Farm

There are two modes to start a Render Farm job:

1. Start the Farm directly from SketchUp, or
2. Do a preview render first, and start the Farm from IRenderBatch.

Submitting a Farm job directly from SketchUp

Perform the following steps to submit a job to the render farm:

1. Configure your model and rendering parameters in the usual way.
2. Press the Farm button on the toolbar to show Render Farm parameters.
3. Choose to either run the job **Start Now**, **Manual**, or **Start at Specified Time**. If you choose "Manual" you will need to use the nXt Render Farm Monitor to manually start the job. See: Setup below.
4. **Maximum Tasks to Farm Out** determines how many sub-tasks to slice the job into. See: [#Setup|Setup]] below.

After the job is complete, output can be found in the job's Output folder.

Rendering with SketchUp using IRender nXt

Preview the rendering first

1. Start your rendering normally from SketchUp. (Perhaps at a smaller resolution or with fewer passes)
2. Examine the rendering. Make changes to materials, settings, etc. if desired
3. Use Farm Icon to start the Farm from IRender Batch.

Submitting a Render Farm Job
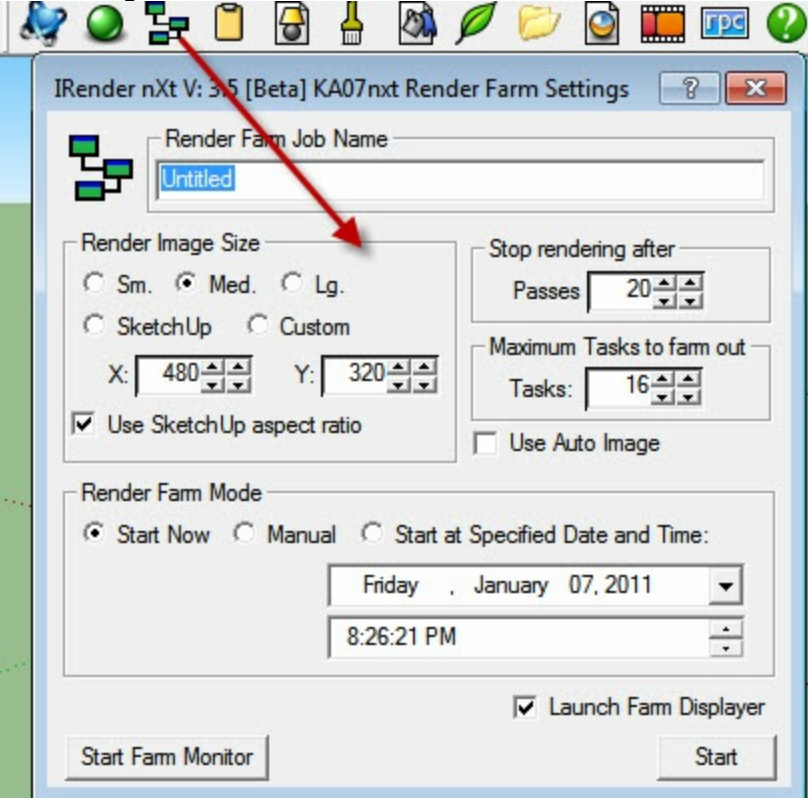
The Render Farm Settings Wizard used to define settings for the **Render Farm** and to start rendering a model with the Farm.

Render Farm Job Name

- Name the job or accept the default. The date and time is automatically pre-pended to the name you choose. A sub-folder for the job is created in the Render Farm shared folder. An Output folder is also created in the new job folder.

Render Image Size

- This is the size which will be used for the Render Farm rendering.

Stop rendering after

- You must specify how many passes to use before stopping the rendering.
- There is corresponding setting for a time limit.

Maximum tasks to farm out

- Your job will be sliced up into this many tasks.
- Typically a number equal to 1X, 2X or 2.5X the number of Farm machines available will be a good choice.

    That way the faster processors can process more tasks and the slower processors will not process as many.

(If you have 4 Render farm Processors, set this to 10)

Use Auto Image

The .nXtImage and .JPG (or .PNG) file will automatically be created when the task is complete.

(This is probably not working yet)

Render Farm Mode

- **Start Now** - the Render Farm will be started immediately (after extracting and preparing the model.)
- **Manual** - The model will be extracted and processed, but you will have to activate it later in the Farm Monitor.

Start at Specified Time - enter a date and time for starting the job.

Start Farm Monitor

Starts the Farm Monitor, or gives it focus if it is already running.
The Farm Monitor shows the status of current Farm renderings.

Launch Farm Displayer

If this is set, the Render Farm Display window will stay up after the job is started. This window will display each slice of the rendering as it completes.

If this is unchecked, you will have to use the **Start Farm Monitor** button to track progress of the Render Farm and display partial, or completed images.

Start

Click **Start** after you have made any changes to the settings to start the Render Farm process.

- See: Render Farm Monitor

Fequently Asked Questions

- I am not seeing the farm icon in my toolbar. It is ticked in the toolbar config area and I have the farm software installed. What else do I need to do?

    Have you installed the Render Farm on the machine where you are running SketchUp.
    Even if the machine running SketchUp is not gong to be used as an active farm, the farm needs to be installed.

Render Tab

Render tab

The **Render Tab** lets you set rendering size and quality.
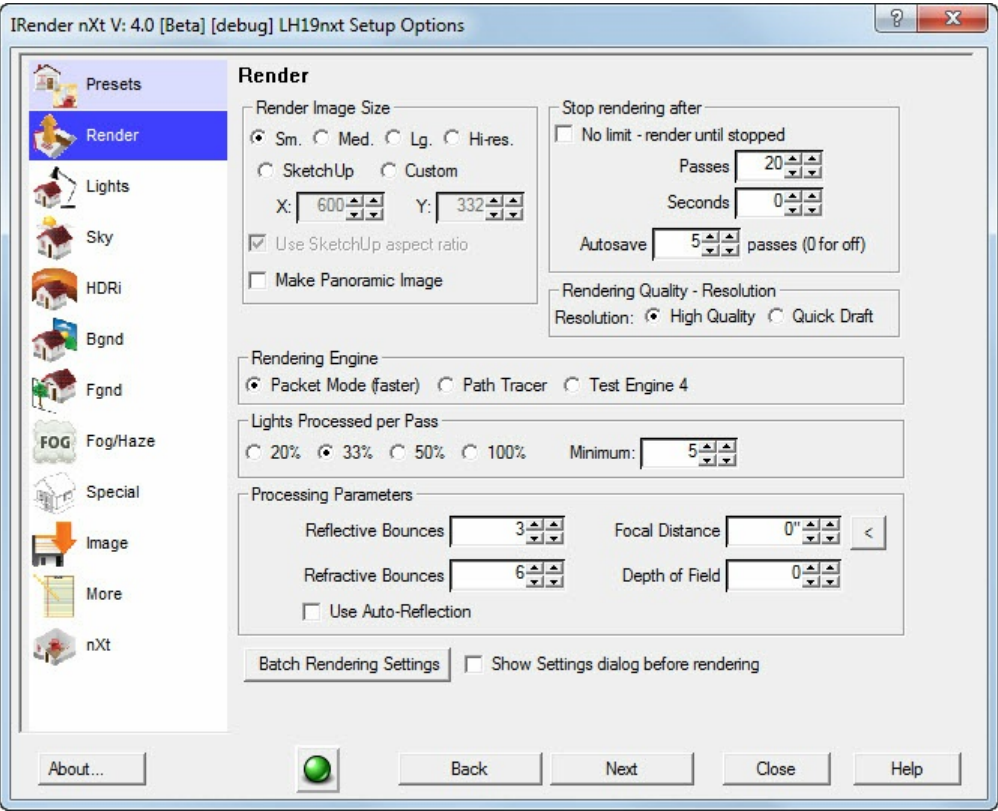
Render Image Size

- Use Medium for sample renderings until you get lighting and other things set for your model.

    Processing time and memory usage are directly (linearly) related to the total number of pixels in your
    rendering. The higher the resolution, the longer the rendering will take and the more memory it will require.

Stop Rendering After

- **No Limit** - check to render indefinitely (until you stop the rendering)
- Set passes to 40 (default), 20, or less while testing lighting and appearance.

    Set either setting to 0 to disable that limit.
    Scenes with reflected light and/or area lights will improve the longer you let them render.

- **Autosave** - if not 0, then an image of your rendering is saved after every N passes.

Lights per Pass

- Using all lights (100%) in every pass, will let you see the effects of all lights in the first pass, but will take a long time.
- Using about 33% (1/3rd) of the lights per pass seems to work best - adjust as needed.

Engine

Select the rendering engine for rendering.

- Packets
- Path Tracer

- See: nXt Path Tracer

Render Quality

- **Quick Draft** is about 4 times faster and should be used, along with a smaller rendering size while you are working on your model.
- **High** products a full, high quality rendering.

Refractive Bounces

- This specifies how many time light is process when refracting through click glass.

  3 is usually OK. However, if you have scenes with glass cases, or thick glazed windows, you may need to increase it to 8 or more.

Reflective Bounces

- Determines how many time reflection is processed.

  6 is a good default.
  Use higher numbers for special situations, or lower values to speed up rendering when only 1 or 2 levels of reflection are required.

nXtRender Batch Settings

Sets folders and options for nXtRender Batch.
Will also allow you to complete the rendering process on other computers.

- See: nXtRender Batch

- **Show Settings before rendering** - loads a dialog of rendering setting before rendering so you can check your settings.

Lights Tab
Lights Tab

Light Balance

Sets the balance between Ambient light and light from lamps and light fixtures,

After changing this value, you must perform a full render - not just a refresh rendering.

See: Ambient Light

Lights Query and **Edit Lights in Model** Loads the Lights Query & Edit Wizard to find and edit lights in the model.

Settings

- **Show Light Bulbs**
- **Process light bulbs on invisible layers**
- **Use Indirect Lighting** and **Bounces** - See: Indirect Lighting
- **Artificial Lighting** - Turn this off to not use the illumination of lamps in the model.
- **Use camera lights when rendering**

> The camera_light component will be aligned to the camera while rendering, and then hidden again after the rendering is complete.
> See: Camera Light

Lighting Channels

Sets the number of channels to use and default channels for groups of lights. See: <u>Lighting Channels</u>

Set Lighting Channels

Sets the names of the lighting channels.

HDRi Tab

HDRi Tab

HDRI Sky Image

Select an image to use for an HDRI Sky - either as an actual sky, or for illumination and reflections.

HDRi Rotation - enter the degrees of rotation for the sky.

HDRi Intensity - enter the intensity for the sky. (0.0 to 1.0)

Background Tab

Background Tab

The Background Tab is used to define background image and also for Ground Plane materials.

Background Image

- Click **Browse** to select an image to use for the background.
- Click **Clear** to clear the background image.

Background Visibility

- **Visible** - image is visible (will override any sky settings)
- **Reflected** - image is reflected in windows.

Background Projection

This determines how the image is projected onto the sky of background.

- **Flat**
- **Cylindrical**
- **Spherical**

Create Planar HDRi **Image**

Converts a normal image to a HDRi background image.
See: Planar HDRi Backgrounds

Clear

Clear out Background Image

Browse

Select HDRi Image from disk

Positioning

Offsets and **Scales**

Use the Image Layer Wizard to size and position the background image and set these values.

Rotation

for Cylindrical and Spherical Projections.

Maintain Aspect Ratio

if this is not checked, the background image is stretched to fill the screen.

Adjust Center Line to Horizon

If checked then the image will be scaled and offset so that the horizontal center line of the image matches the horizon of the current perspective view.
The image is scaled and positioned so that it still fills the entire background of the rendered image.
See: Horizon

Reset

> Resets Offsets, Scales and Rotation.

Preview/Position

> Loads the Background Wizard to easily position and scale the background image.

> See: Background Image for examples.

Ground Plane Settings

- **On** - turns on the Ground Plane
- **Alpha Channel** - makes the ground plane transparent, but shows the shadows on the ground.
  See: Alpha Channel
- **Elevation** - set the elevation of the ground plane.
- See: Ground Plane

Ground Plane Material

- From the **Background Tab** you can define and edit materials for the Ground Plane.

This lets you apply a grass texture for land, or a Procedural Bump Map and reflection to emulate water.

- See: **Background Tab**

Alpha Transparent Ground Plane

> With an Alpha Transparent Ground Plane, you can save the rendering as an Alpha Transparent image, and the ground plane will be transparent. However, shadows on the ground will be visible. This can be used to place the ground plane image on top of a background image and still see where the shadows would appear. (Of course this works best if you are placing he image on a flat surface.)

Special Tab
Special Options Tab
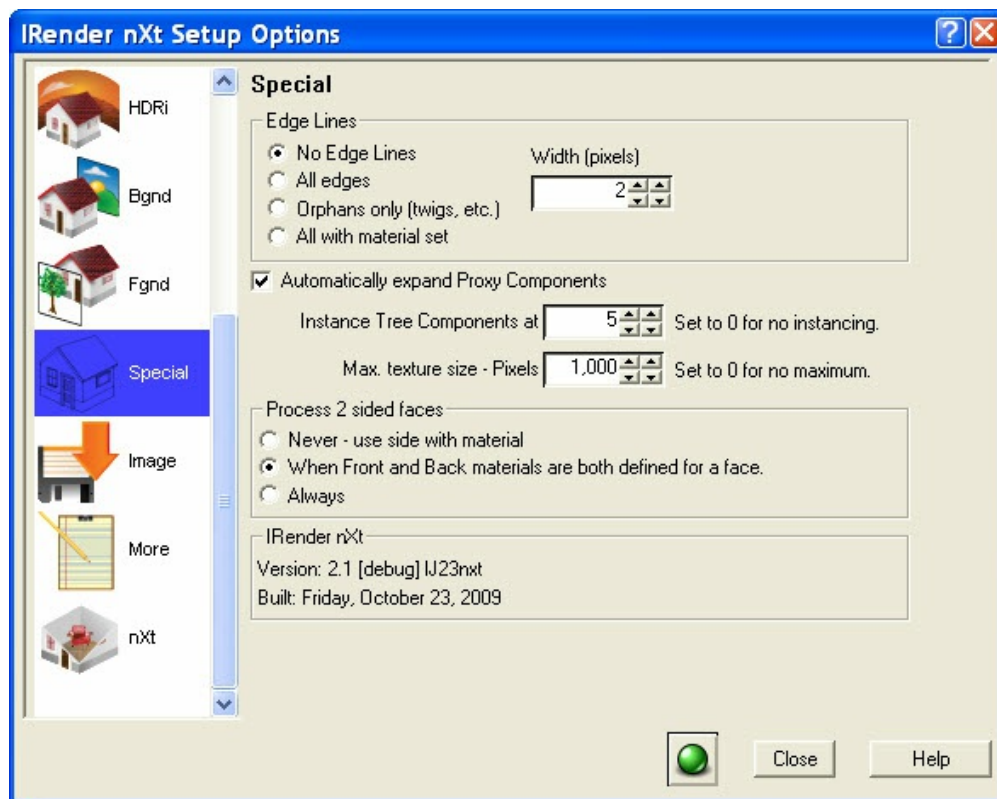
- **Edge Lines**

  Normally edge lines are not displayed as part of the Ray Trace rendering.
  No Edge Lines - Do not include edge lines
  All Edges - include all edge lines
  Orphans Only - this displays only edges which are not attached to faces. (Some plant components use edge lines, which are not connected to faces, to represent branches and twigs. If you are using these type of plant components (not AccuRender plants), then set **Edge lines** to display **Orphans only**.)
  All with material set - will only include edges with a material set. This can be used when you want only some edges - such as a ceiling grid - to render. Put a material on the edge in SketchUp and check this option.

- **Pixel Width** - sets the approximate width of the edges in pixels.

  Note: SketchUp has additional edge settings for Profile, Depth Cue and Extension edges. IRender does not emulate these special edge line settings.

- **Automatically Expand Proxy Components**

  Proxy Components contain a HI-POLY and a LOW-POLY layer. The LOW-POLY layer can be used for display in SketchUp, and IRender nXt will automatically render using the HI-POLY layer.

See: Proxy Components

- **Process 2 sided faces**

  Never - One material per face. This is the fastest mode for rendering. We will use the material assigned to the front face, if materials are assigned to both the front and back faces. This requires that the model has been created so that the materials that you see are on the front sides of the faces.
  When Front and Back materials are both defined for a face - Two materials per face, only if these is a material, other than the default material, assigned to both sides.
  Always - This mode will always use the materials shown in SketchUp for both sides of a face, even if one of the materials is the default material. This mode will require the most processing time, but will ensure that you will see the exact same materials that you see in SketchUp.

- **Image Processing**

  Lights per pass - this determines how many lights will be processed per rendering pass. The default is 33%. You can change the percentage or enter a specific number so that more (or fewer) lights are processed per pass. (Of course, each rendering pass will take longer with more lights, and you will need more rendering passes with fewer lights.)
  See: Lights Per Pass
  Reflective Bounces - determines how many time reflections are processed. For example when a mirror reflects another mirror or a reflective surface.
  The default is 3. More bounces can take appreciably more time to render if you have a lot of reflective surfaces.
  No Blurry reflections - normally reflections are a little blurry to emulate actual surface reflection.
  This setting eliminates the blurriness applied to reflections - which was implemented to make them see more realistic.
  Refractive Bounces - determines how many time refractions are processed. For example when a transparent surface views another transparent surface.
  The default is 3.

- **Max. Texture Size**

  If you specify a maximum resolution for images, then any images which are larger than this will be reduced to this size.
  If you find that the model is too large to render, you might lower the default value from 1,000 pixels in width.
  Or if you find that an image you place on a plane is losing resolution, you can increase the number
  See: Texture Resolution

Image Tab
Image Tab

Auto Image

Auto Image is a feature in <u>IRender nXt</u> which will automatically save an image of your rendering when it is complete. This is useful, because it you start a rendering in the background, and inadvertently close SketchUp without realizing that the rendering is complete, then the rendering will be lost. **Auto Image** can be used to automatically save the image on disk when it is completed.

Settings

- **Use Auto Image** - turns on the use of Auto Image
- **Prompt before Rendering** - loads a dialog before rendering to review and change settings
- **Autosave Image** every XXX passes - if XXX is greater than 0, then a copy of your rendering will be saved after each XXX passes. (The image is saved in the folder used in the Image name below. The default is "My Docments\IRender")
- **Image name** - Specifies the name to use for the image.

If you check Auto Image, then an image is automatically saved whenever you complete a rendering.

You can choose to:

- always use (and overwrite) the same image name,
- always use (and overwrite) a name based on the name of your model
- create a unique name each time you render.

Rendering with SketchUp using IRender nXt

- **Automatically name image by drawing** - Uses the current drawing name for the image name.
- **Make Unique** - If the image name already exists, this setting will create a new unique name for the image. This allows you to enable auto-image and have copies of all your renderings automatically saved on the disk.

IRender Image Saved

Image saved as:

C:\docs\IRender\Untitled.jpg

Click OK to to launch image.

OK   Cancel

- **Notify when done** - Loads a dialog when the rendering is complete.
- **Launch when done** - Launches the image in a paint program when done.
- **Close Window** - Close the rendering application when done.

JPEG images

    Quality - set quality for JPEG images (vs compression)
        Move very close to the right for best results.
        Recommend the highest quality setting (default).
- See: JPEG Quality

    Always add comments after saving image
        You will be prompted for comments to save with the JPEG image.
    Edit/Query - load a JPEG image to view or edit precious comments.

More Tab
More Tab

Save Options Values

Saves the defaults from the Setup Wizard as **User Defaults** - to be used for new models, or in a **File** which you can manually load into other models.

Load Options Values

- **User Defaults** - reload the last user default you saved.
- **File** - reload saved defaults from a file
- **JPG File** - load defaults from a JPG file of a previous rendering
- **Batch** - load defaults from a Batch Folder
- **Load Factory Defaults** - reloads all defaults and other values to their original setting.
- **Change Default Settings** - changes to defaults for small, medium and large rendering size.

Other Functions

- **Check for Updates** - load the download page to see if a new version is available.
- **Customize Toolbar** - define the icons you want to display on the Toolbar. See: IRender Toolbar Setup
- **License** - load the License and Authorization dialog.
- **Support** - load a special dialog of additional settings. - Use if you have been requested to try special settings by Customer Support.
- **About** - load the About dialog. - information about the IRender version

Other Settings

Rendering with SketchUp using IRender nXt

- **Automatically load IRender toolbar and function** to automatically load the IRender toolbar and application whenever you start a SketchUp session.

    - If you do not automatically load the application, then you need to select **IRender: Load** from the SketchUp plugins menu.
    - If you have turned off the toolbars during a previous, you need to turn them back on from the SketchUp **View/Toolbars** menu.

- **Number of Threads**

    You can set the maximum number of threads to be used for rendering.
    - The default is to set the number of threads to match the number of cores available.
    - Setting a number greater than the number of cores may provide faster renderings.
    - Setting a number less than the number of cores will render slower, but may speed up other functions on your computer.

nXt Tab

nXt Tab
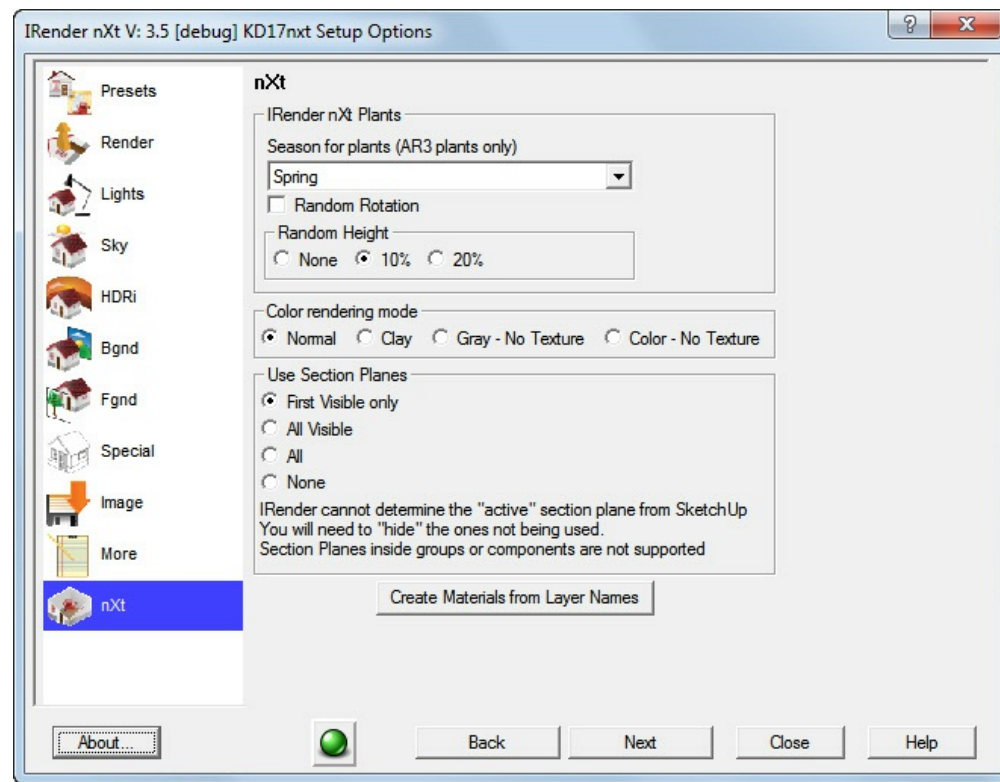
Special Options for IRender nXt .

nXtRender plants

- **Season** - sets the default season for all plants.

- **Random Rotation** - randomly rotates plants.
- **Random Height** - randomly scales plants.
  See: Create Plant

- **Color Render Mode** - renders scene without colors or textures
  Normal - use normal rendering mode.
  Clay - no textures, all colors are white
  Gray - No Texture - no textures, all color are grey
  Color - No Texture - no textures, normal but use material colors.
  See: **Color Render Mode** for more examples.

Rendering with SketchUp using IRender nXt
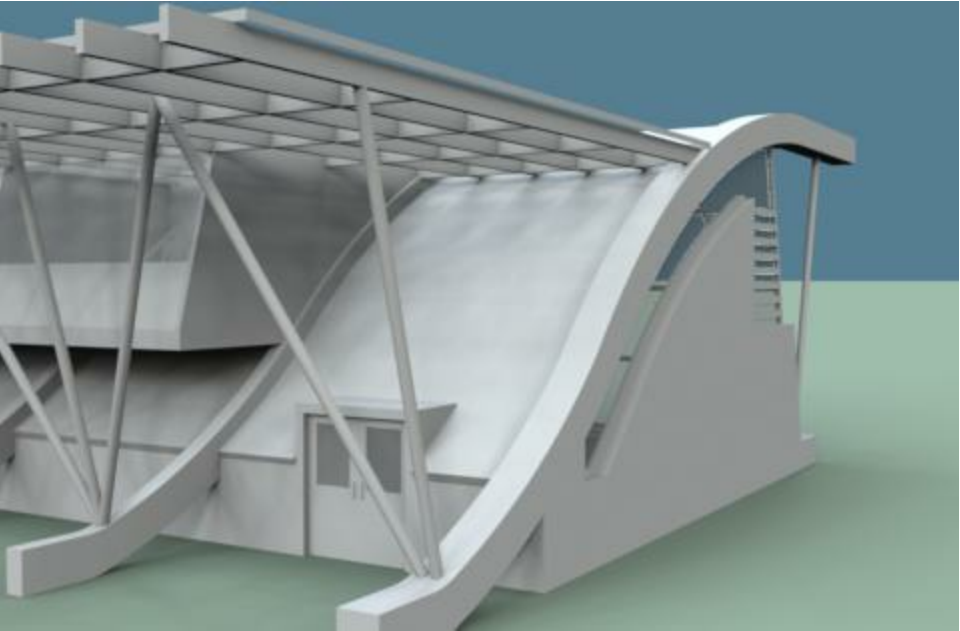
Example of clay render mode

Section Planes
You can use SketchUp Section Planes to cut sections through your IRender nXt model.
IRender nXt cannot tell which section planes are enabled or disabled. Ordinarily, all section planes which are visible are used to clip the rendering.
You can override this with:
Visible Only
All
None

Create Materials from Layer Names
Create new Materials to match layer names, and assign them to faces in layers.
See: Create Materials from Layer Names

See also

- Section Planes
- IRender nXt Plants

- Create Materials from Layer Names

Materials

Materials are an important aspect of a Photorealistic rendering.

IRender nXt automatically uses textures, color and images from the SketchUp model. You can add additional effects, such as reflection or bump maps effects for more realistic effects.

You can also create new SketchUp materials from the IRender nXt Libraries .

Material Types

There are three types of materials based on how the IRender nXt material was created:

- **SketchUp Materials** - meaning the nXt material was originally created from an existing SketchUp material
- **Library Materials** - meaning a new SketchUp material was created from an existing nXt .ArMaterial are handled in different ways.
- **User Materials** - this is a SketchUp material where the first texture has been modified by the user using the Advanced Material Editor.

SketchUp Materials

The nXt material was originally created from an existing SketchUp material

Changes to the texture made with the SketchUp material editor are applied to the IRender nXt material when it is next rendered or edited.

If you change the first texture in the IRender nXt material, using the Advanced Material Editor, then the material type is changed to **User**. No changes are made automatically to the SketchUp texture and future changes made to the SketchUp texture are not applied to the IRender nXt material.

Color changes will be synchronized between the nXt material and the SketchUp materiel.

Color changes made in the Material Wizard are used to alter the color in SketchUp. However you will not see the colors change dynamically on the texture as you change them.

Transparency is synchronized between the nXt material and the SketchUp materiel.

Other settings are stored on the SketchUp texture and used for rendering and later edits..

Library Materials

A new SketchUp material was created from an existing nXt .ArMaterial.

When the SketchUp texture was first create from the .ArMaterial material, a texture was created for the SketchUp material.

Future changes to the SketchUp texture are not applies to the IRender nXt material, and future changes made to the textures in the IRender nXt material are not used to alter the SketchUp material.

You can update the SketchUp texture to match changes in the .ArMaterial by re-saving the .ArMaterial and reloading it into SketchUp.

If there is no texture on the material, then color changes will be synchronized between the nXt material and the SketchUp materiel.

Color changes made in SketchUp have no effect on the nXt texture.

Color changes made in the nXt editor will not be transferred to the SketchUp texture.

Transparency is synchronized between the nXt material and the SketchUp materiel.

Other settings are stored on the SketchUp texture and used for rendering and later edits..

Custom User Materials

A material is marked as User if it was originally created from a SketchUp material, and then the user altered the first texture using the nXt Advanced Material Editor.

Future changes to the SketchUp texture are not applies to the IRender nXt material, and future changes made to the textures in the IRender nXt material are not used to alter the SketchUp material.

If there is no texture on the material, then color changes will be synchronized between the nXt material and the SketchUp materiel.

Color changes made in SketchUp have no effect on the nXt texture.

Color changes made in the nXt editor will not be transferred to the SketchUp texture.

Transparency is synchronized between the nXt texture and the SketchUp texture.

Other settings are stored on the SketchUp texture and used for rendering and later edits..

Edit Material
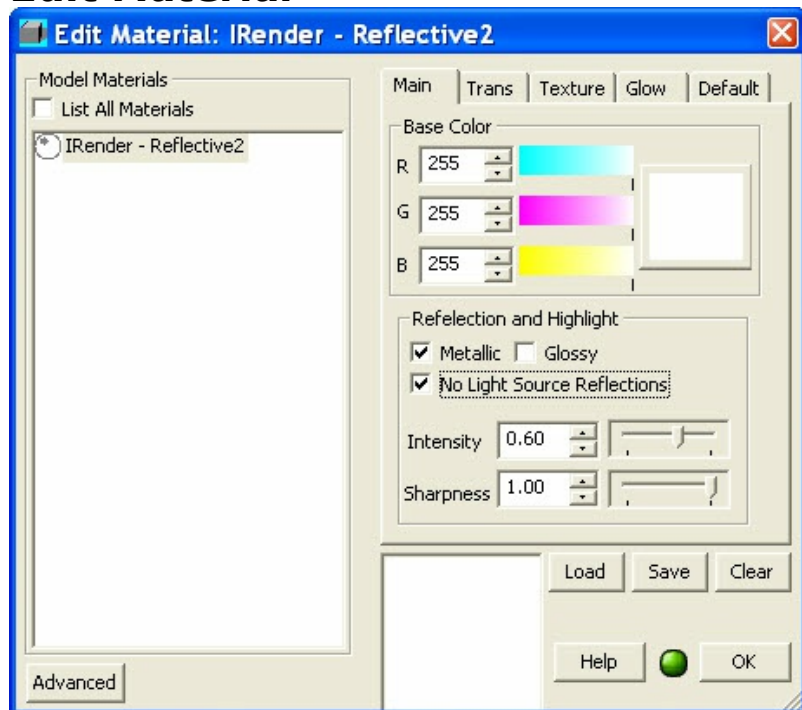
Edit Material is a right-click edit which sets the reflection or glow of a face.

To set the reflection or glow of a face, select it, right click on it and select **IRender: Edit Material**.

This will load the **Material Wizard** .

- Select the material type desired.
- Enter the amount of reflection or other parameters desired.

Reflection

- Use numbers around 70% to 80* for reflective floors, etc.
- Use numbers very close to 100% for a mirror.

Metallic

A metallic refection is more reflective and keeps more of the existing material visible.

For an example, see: Metallic Reflection

Glossy

Glossy Reflection does not reflect images precisely.

For an example, see: Glossy Reflection

Fresnel

Fresnel Reflection increases the reflectivity of surfaces at glancing angles, but not at perpendicular angles.

For an example, see: Fresnel Reflection

Glow

- You cannot set both reflection and glow on a face. If you do only glow will be used.
- Self **glow** does not create a light. Instead, it makes the object glow as if it was illuminated. This is useful for neon lights, or images in windows which would have been illuminated from an interior light.

Translucency

Sets a translucent effect which allows light to pass through the material (such as a lampshade), but does not let the eye see through the material.

Select **Shade** to create a translucent material.

Select Material

Select Material is a wizard to let you select materials and place them on SketchUp faces.
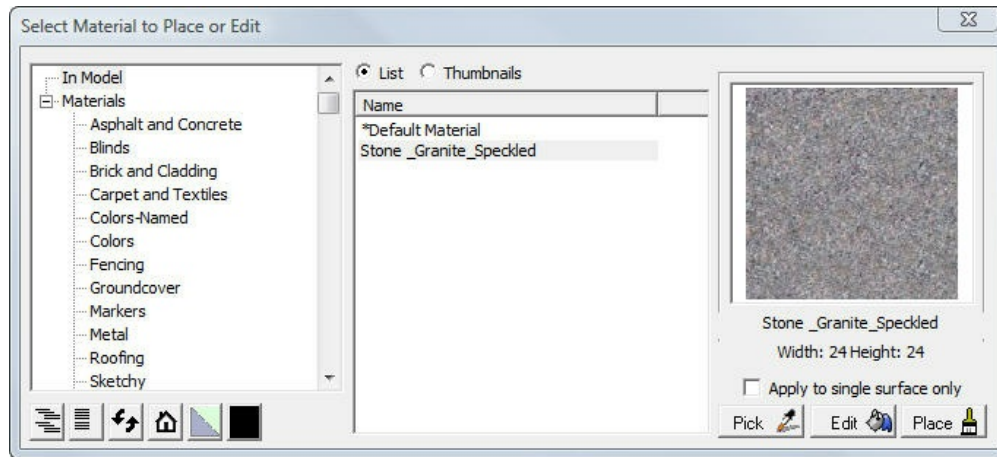
Select Material will place the material on the selected face without the need to open components and groups for edit.

In [IRender nXt](#) Select Material can edit the material by adding reflection and other rendering settings before placing the material on faces.

Place Material

Place Material uses an Explorer type tree to select materials and place them directly on faces without having to open components and groups for edit.
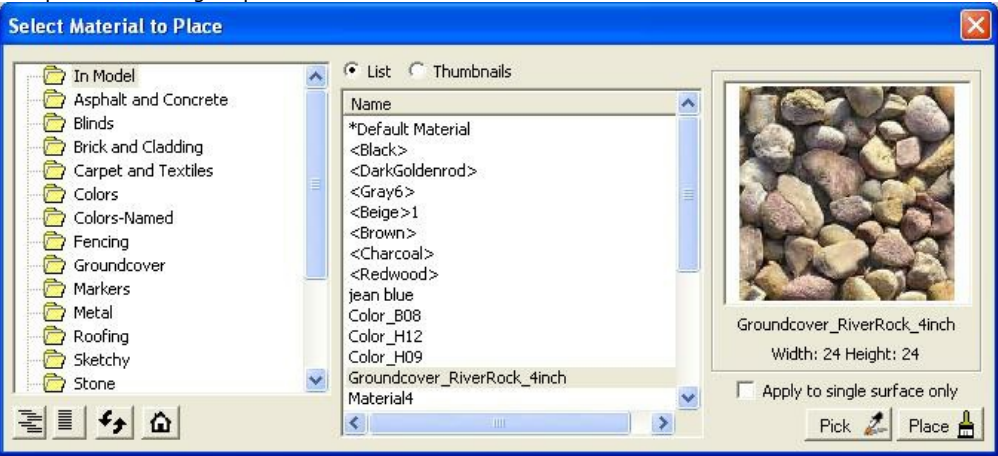
- **Expand:** Expands all the folders in the library tree.

- **Collapse:** Collapses all the folders in the library tree.

- **Refresh:** Reloads the material libraries from disk.

- **Model:** Returns to the root of the library tree.
- **Apply to single surface only:** If checked, when placing a material, only the surface directly clicked on will receive the new material. Otherwise, all surfaces in the same component or group that had the same material beforehand will be changed as well.
- **Pick:** Click to start a material picking tool, which lets you choose a material from an existing surface in to model to apply to other surfaces.
- **Place:** Click to start the material placing tool, which applies the material currently selected in this dialog to surfaces in the model.

Advanced Material Editor
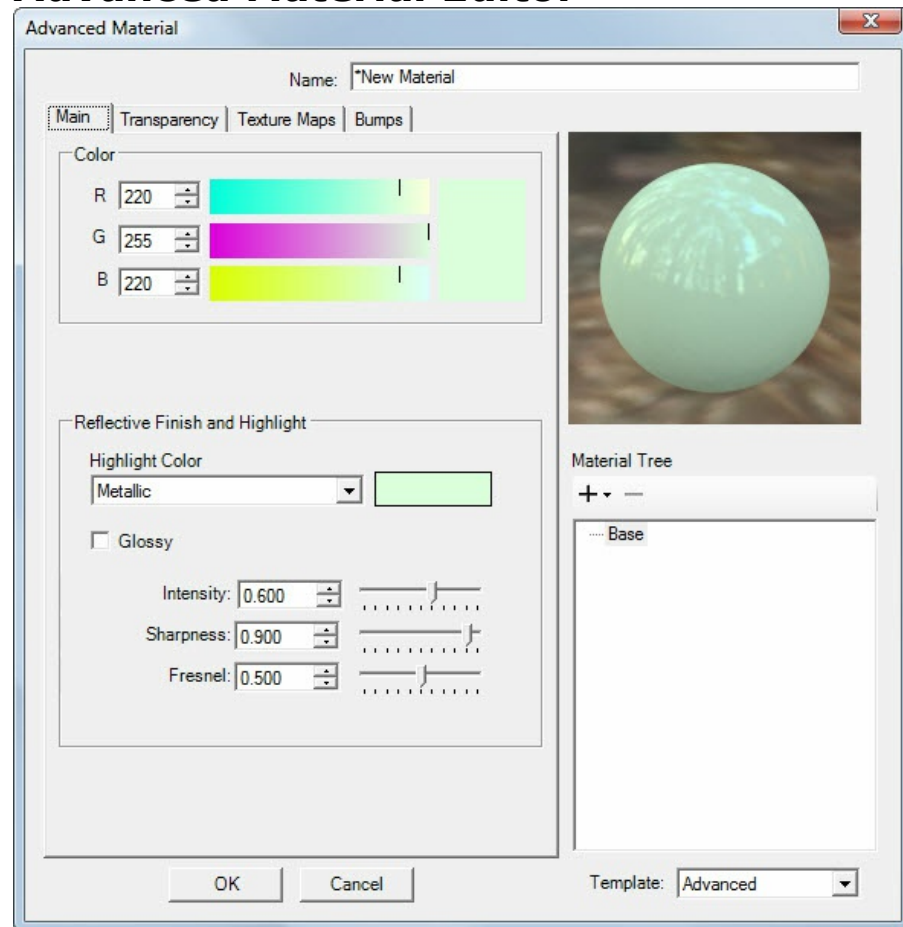
The **Advanced Material Editor** allows the user to control many specific characteristics of their material. It is organized into four tabs.

Main Tab

Color - set the color or materials without a texture.

Reflective Finish and Highlight' The two sliders combine to define the amount of reflection and the sharpness of reflection.

Highlight Color

> **Metallic** - highlight are reflected in the color of the reflective material.
> **White** - highlights are in White
> **Custom** - highlights are in a custom color.
> See: <u>Metallic Reflection</u>

Glossy - highlights are other reflections are blurry.

> See: * <u>Glossy Reflection</u>

Intensity of the reflection. 1.000 is fully reflective.

Sharpness - values less than 1.000 create blurry reflections

Fresnel - sets the amount of <u>Fresnel Reflection</u> .

The Fresnel setting is useful for glossy materials, not transparent ones.

The Fresnel setting affects only reflective materials. It controls an effect known as fresnel reflection of conductors. If your material is not 100% transparent, then this setting may come into play

Fresnel reflectivity of conductors models the tendency of many materials to become more specular (mirror-like) at glancing angles, while retaining more matte properties at perpendicular viewing angles.

See also

- Material Settings - Reflection
- Highlighting
- Fresnel Reflection

Transparency Tab
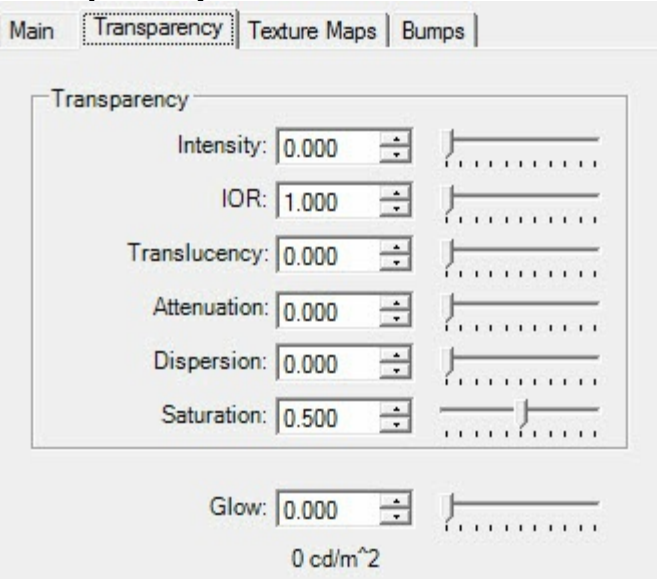
The Transparency tab of the Advanced Material Editor controls a number of different properties associated with light passing through a material.

- **Intensity.** This affects how transparent the material is.
- **IOR.** Index Of Refraction determines both the reflectivity of the material and how refractive it is. Controls the amount that light is distorted as it passes through thick glass.

  The higher the IOR, the less transparent and the more reflective the glass is. Lower values of IOR will result in more light on the inside.

- **Translucency.** This is a measure of diffusion. High translucency produces a "sandblasted" effect, since more light is scattered randomly through the material. Allows light to pass through the material, but not visibility - as with a lamp shade.
- **Attenuation.** This is a measure of the loss of intensity of light as it passes through the material. Sunglasses, for example, have a high attenuation.
- **Dispersion.** This controls how much light is split into its component wavelengths.
- **Saturation.** This determines the amount of dispersion.
- **No Daylight Portal.** This checkbox prevents the material from becoming a source of sunlight for an interior rendering.
- **Glow.** This creates the illusion of illumination. Sets Self Glow - the face glows, but does not illuminate other surfaces.

Texture Tab
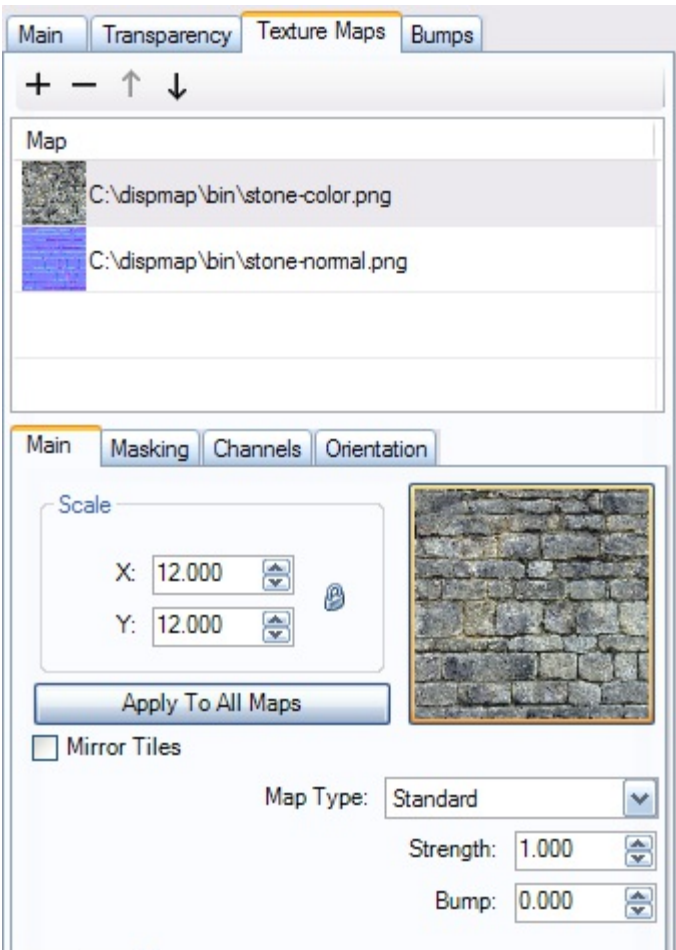
The Texture Maps tab contains a number of options for altering textures as well as an ordered list of the maps being used. The controls for adding and removing maps, as well as re-ordering them, are at the top of this list.

The four tabs below the map list are:

- **Main.** Controls for the scale of the tiling, replacing the current map, and changing the map type, are located here. Depending on the choice of map type, there are additional controls. For standard maps, the user is able to set Strength (how clear the texture is) and Bump, which uses the map's gradient to create the appearance of depth. Normal maps only have a bump control. For displacement maps, the user can alter height, facet size, and z-offset.
- **Masking.** By default, the alpha channel will be masked. By selecting "Color" instead of "Alpha," it is possible to mask any RGB value. The Transparent checkbox sets the masked color to transparent. The Reverse checkbox masks everything but the masked color. Blur determines the magnitude of partial masking around the masked color, and Sensitivity measures the size of the area around the color that is also masked.
- **Channels.** The controls for channel manipulation are located here. Invert Channels switches RGB values, so dark becomes light, blue becomes orange, etc. The Color checkbox turns all colors on and off. Specular Intensity makes the material more reflective and mirror-like. Specular Color blends the highlight color (under the Main tab of the material editor) and the texture map's color for specular reflections.
- **Orientation.** Rotation rotates the tiles, Offset X and Y move the tiles around on the surface of the material.:

You can place up to 4 texture images on your material.

You can specify special effects for additional textures - such as blending materials, or using the second material as a [Bump Map](#)

Bumps Tab
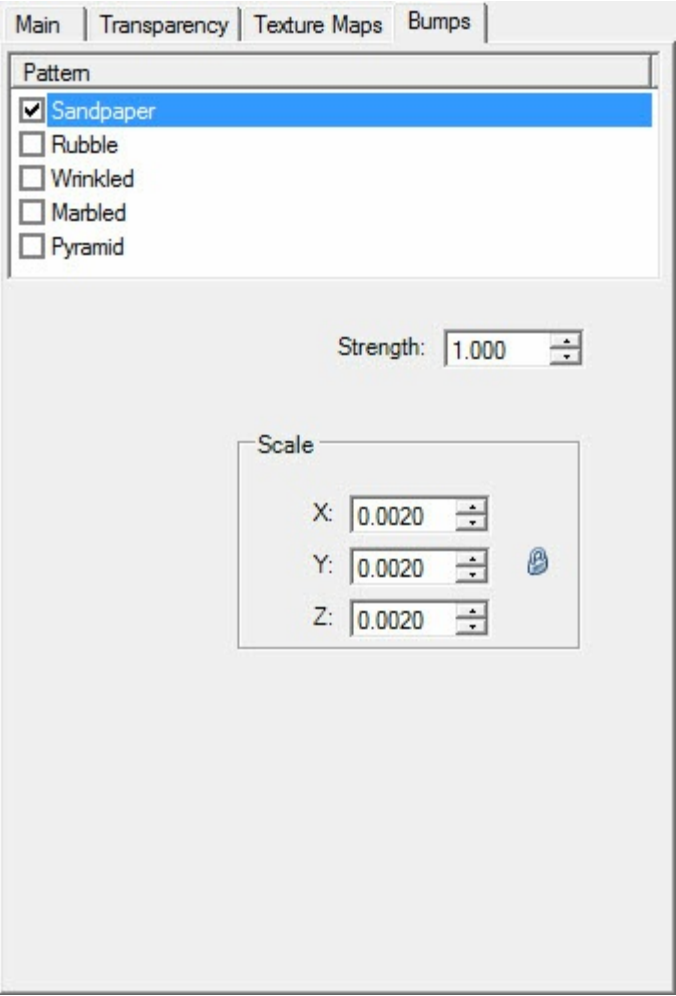
Sets special procedural bump types. Each bump type has its own parameters.

The Bumps tab provides options for creating the appearance of a specific kind of surface without using displacement maps or requiring the user to provide any additional maps. The patterns offered are: Sandpaper, Rubble, Wrinkled, Marbled, and Pyramid. When one of the bump maps is checked, additional controls become available. Strength controls the appearance of depth. Scale controls the proportional size of the bumps.

See: Procedural Bump Maps

Special Blends
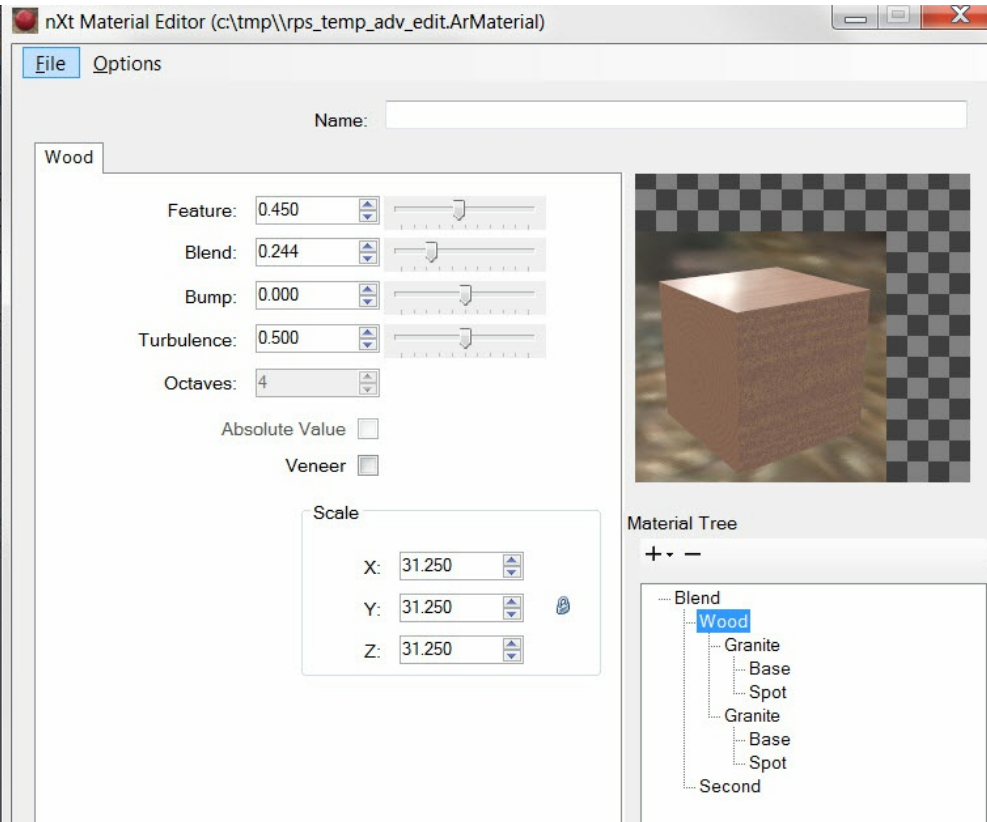
Some materials, such as <u>Solid Wood</u> are created by blending several sub-textures.

This feature is mostly undocumented. The best way to use it is to choose an existing material and to try to change the settings to achieve the desired effect.

Material Placement

The **Material Placement** tool is used to select and place materials in your model. This lets you place a material on a face in a component or group (without having to open the component for edit first).

The tool locates the face under the cursor, backs up until it finds where the current material is defined for the face (if it is in the default material), and fixes everything so that the face appear with the proper material - all in one step.
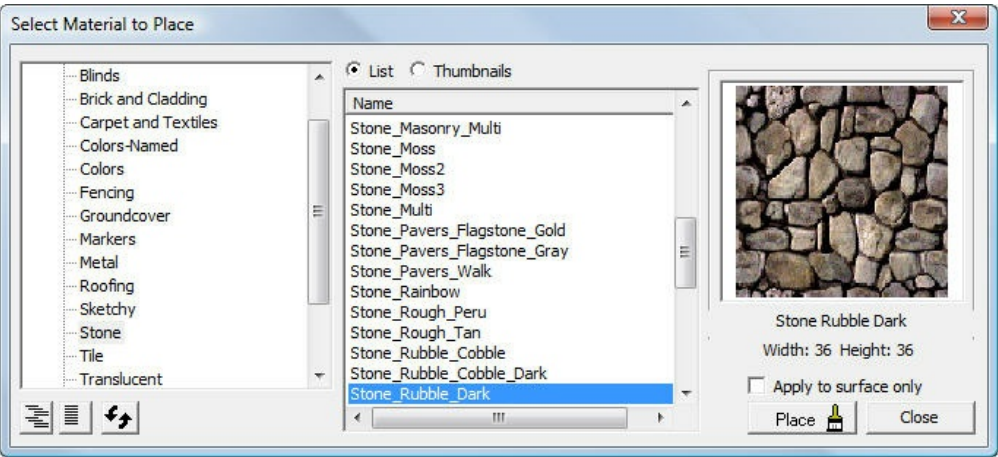
Select the Material Placement tool from the Paintbrush icon on the IRender nXt toolbar. (   )

Glow
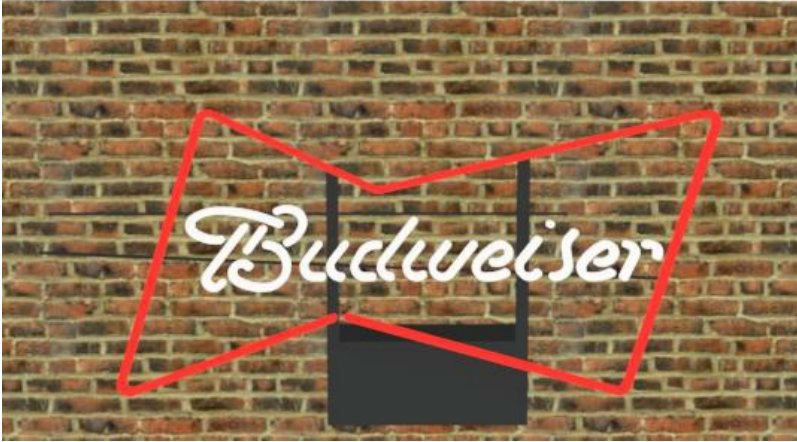
Bud Sign with glow in IRender nXt

Glow is a rendering term which means to define a material which appears to be illuminated by lights, even if it is in a shadow, or the lights are dim, as in a night scene.

Uses of Glow

Glow can be applied to windows which are illuminated from the inside of a building, neon lights, or other lights, such as a car tail light, which would look Photorealistic if they were self-illuminating, but do not need to cast light on nearby objects.

Sometimes a headlight or a taillight needs to have a lamp in it, so that it can illuminate the road, or other objects, but sometimes it is sufficient to apply a glow material instead.

Glow vs Using Lights

To be completely realistic, the user should place light sources inside each segment of the neon tubing, or inside every light of a car, and then use transparent materials for the tubing itself or the lens of the light, but the is sometimes excessive and unnecessary for most renderings.

Model with 75% glow assigned to the neon letters. SketchUp 3D Model

Rendering with SketchUp using IRender nXt
courtesy of [Omega Signs Limited](). Rendering performed with [IRender]() .

Same model with no special glow.

Making an image glow

Television with 10% self-glow

Television with no glow

You may have an object in your model which is backlit, or produces its own illumination, such as a television set. You can make it glow brighter or look more realistic by adding self-glow from the material editor.

Note: Items with self-glow will seem brighter, but will not illuminate other items in the room. If you wanted the television to illuminate a dark room, you would set it to be a light instead.

See: [Glow Tab]()

Convert Material

How to **Convert** an AR3 **Material** to nXt.

IRender Plus] contains a large library of predefined materials. These can be used directly in IRender nXt] by assigning an AR3 Library material to a SketchUp material.

You can also convert an AR3 material to a nXt material and save it in nXt format. This article explains how to perform the conversion.

Step 1 - select an AR3 material
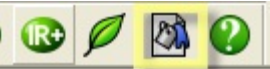
After starting SketchUp and loading IRender nXt, select a material icon from the toolbar.
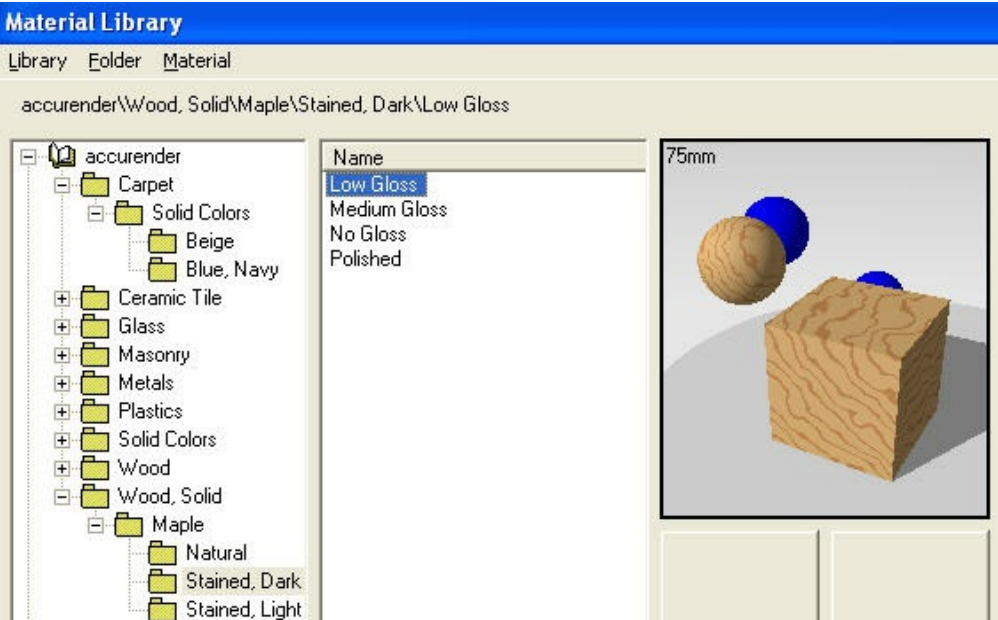
Select a material from the library and click OK.

This will load the **AR3 Material Dialog**.

Step 2 - Convert to nXt

Click **Convert to nXt**

Step 3 - make desired changes in nXt material editor
Step 4 - save as nXt material
How to load and use nXt material

Solid Materials
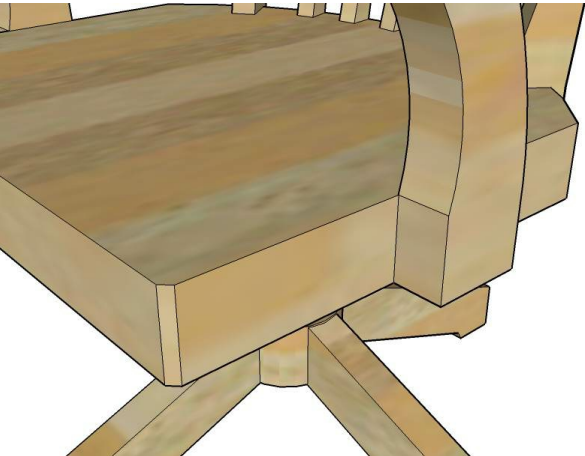
Wood Chair in SketchUp - Click for full size image.

Wood Chair with Solid Material - Click for full size
image.

Solid Materials refers to materials which appear to be carved out of a solid block, rather than just applied to faces of a sculpted object.

SketchUp places materials on faces, and does allow for some mapping which wraps onto surfaces. However, if you want a realistic rendering from an object sculpted from wood, you will need to use a Photorealistic Ray Trace program, such as IRender nXt to create the rendering.

Here is a sculpted SketchUp model with a solid wood grain material applied:

Here is a closeup of some of the solid material detail:

Arroway Textures

Arroway Textures

Arroway Textures is a manufacturer of high-res textures, which are used in many areas of digital visualization, e.g. architecture, design and art.

Arroway has made about 100 low-res versions of their textures available to IRender nXt users.

- See: **Arroway Textures**

Arroway Textures is a manufacturer of high-res textures, which are used in many areas of digital visualization, e.g. architecture, design and art.

Arroway has made about 100 low-res versions of their textures available to IRender nXt users.

We have converted these into .Armaterial materials in the IRender nXt Libraries . Arroway is providing these sample textures in the hopes that you will like them well enough to purchase the hi-res versions.

You can create .ArMaterial files for IRender nXt using Arroway Textures. Each Texture set contains diffuse (normal color), bump, specular and opacity Iimage Maps which can be combined while rendering.

See: Arroway Web Site

Using Arroway Textures
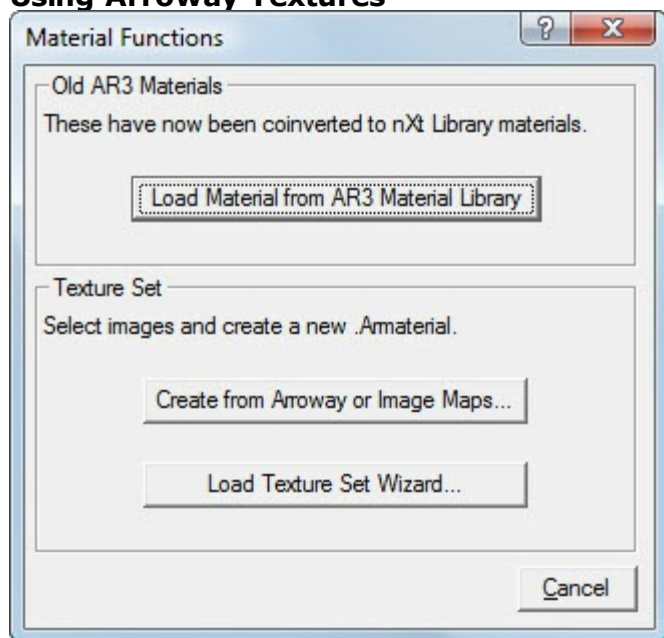
Selecting the Image Maps

1. Load the **Material Functions** dialog from the toolbar. (　)

> Note this icon is not normally placed on the tool bar. You can use Customize Toolbar to put it on the toolbar, or else select Material Library from the Plugins/IRender nXt/IRender nXt menu in SketchUp.

2. Click *Load from Library'*

3. Navigate to the Arroway Samples page, select a texture and place it.

Load .ArMaterial

Material to place

Marble- Green- Coarse- Rough.ArMaterial

Browse for .ArMaterial

Load from User area...

Load from Library...

Reset Paths   More Functions...

☐ Apply to single surface only

Create and Place
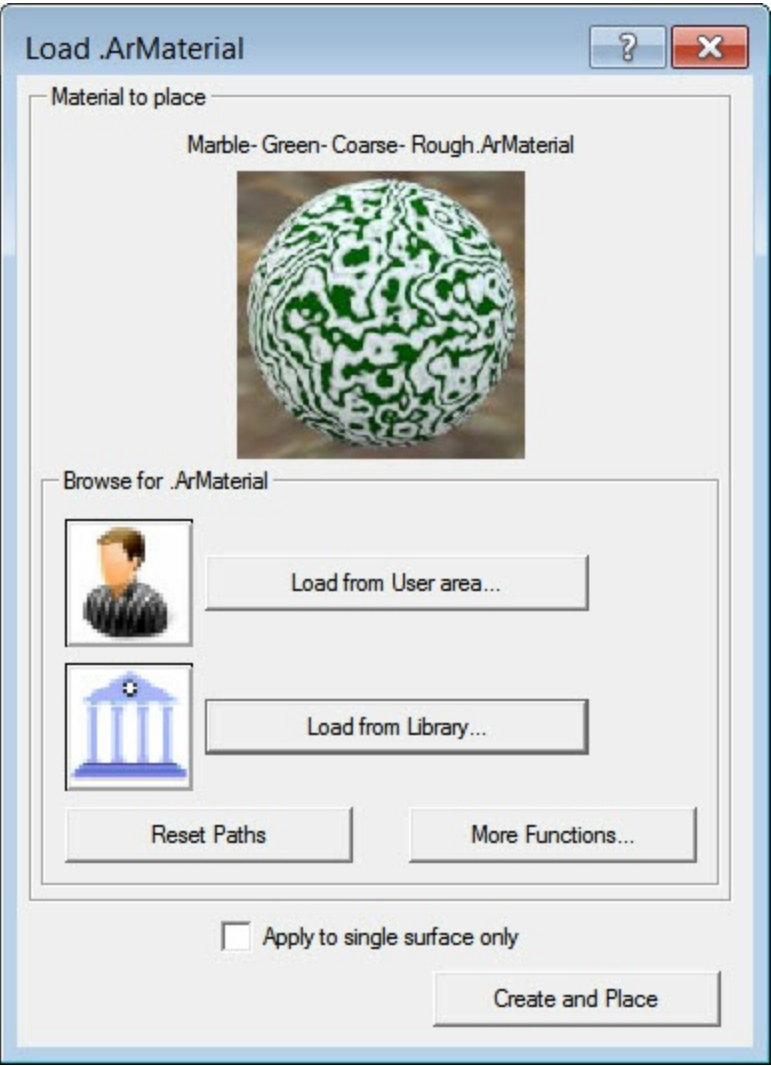
Sample Low-Res Arroway Textures
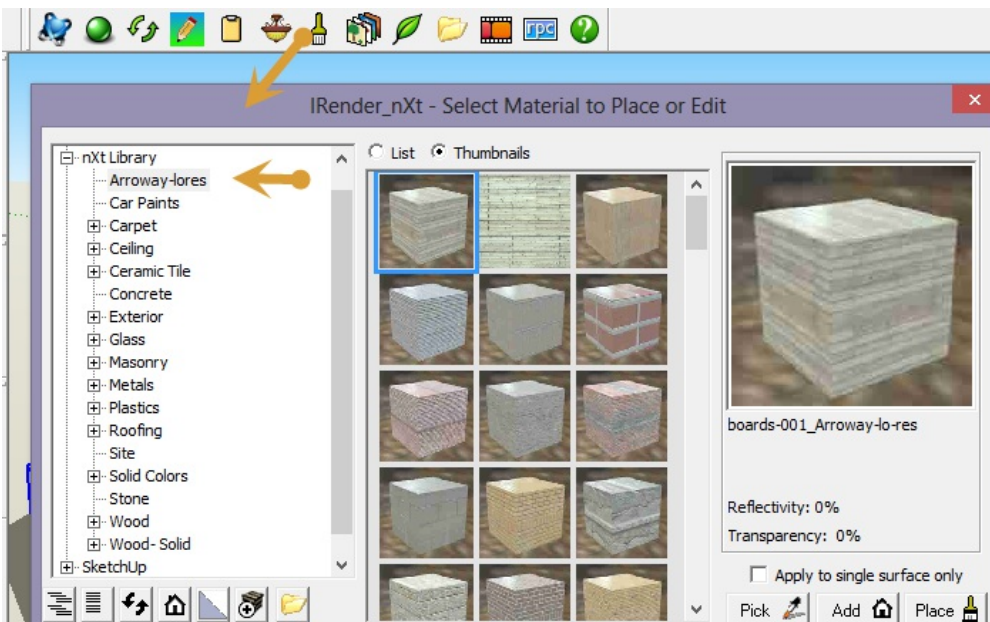
A sample set of low-res Arroway textures is also include in the IRender nXt.

These can be used to experiment with Arroway Textures until you are ready to purchase the full resolution versions.

Making Arroway Texture look better

Recently, we had this query on our forum:

> *I recently bought all the Arroway materials. Some of the materials look good, and others look just OK. The interesting thing I noticed is that none of the renderings look anything like their demo scenes. I'm not sure if it's something in the settings or something they are doing in another program. But thought i would pose the question to you all at IRender. Is it possible to get a tutorial or YouTube video? I go through the create texture setup no prob and it assign settings...the finished rendered product just doesn't come out as photorealistic as advertised on their site.*

Here is some information we provided:

Since you did not include any images, it is hard to know whether you are having a problem with resolution, or other aspects of the rendering such as reflections. Here are some guidelines.

Here is a rendering using a sample, low-res Arroway Wood texture, (Boards 002), from our library:

This image is fairly flat. So we will show some ways to improve it by adding lights and objects to the model to reflect.

Here is the Arroway sample image for this texture:

Here I zoomed in to get a view angle more like the Arroway sample. I also lowered the intensity of the sun, so that I would get more reflection from the sky.

We do not have the same high-resolution as in the Arroway sample image. But this is because I am using a low-resolution sample of the original Arroway texture.

If you are using the hi-res Arroway textures and not getting full resolution, make sure you have turned off the texture resolution on the Setup Wizard:
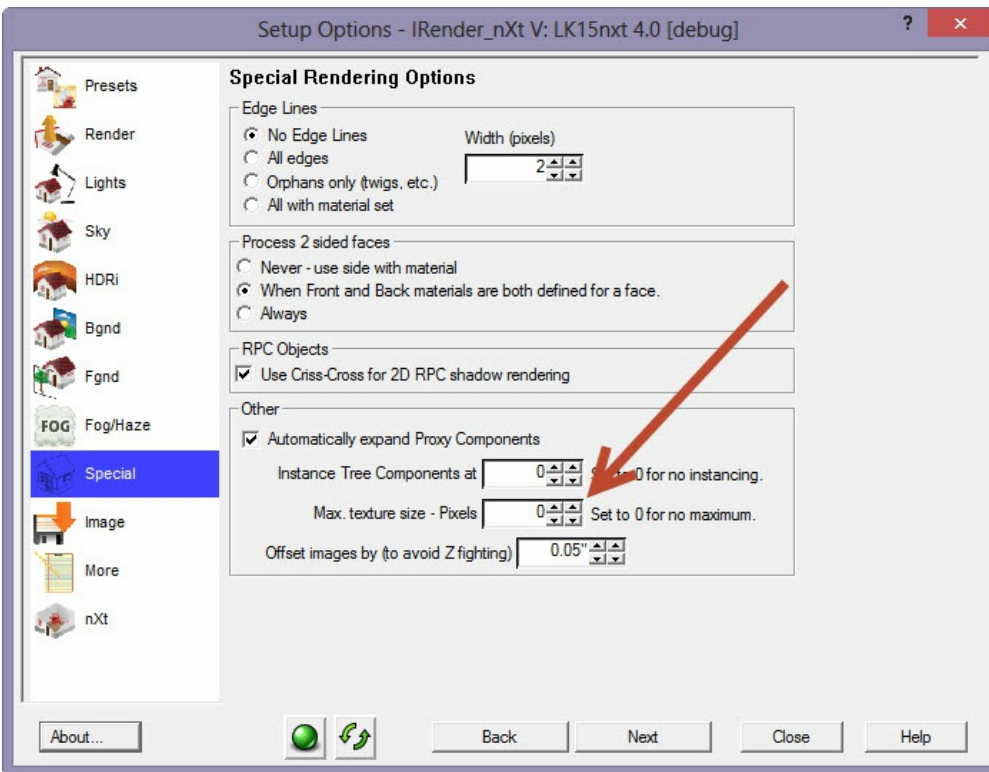
For this next image I used an HDRi sky, rather than just the sun and standard sky. This provides better reflections from the sky itself.
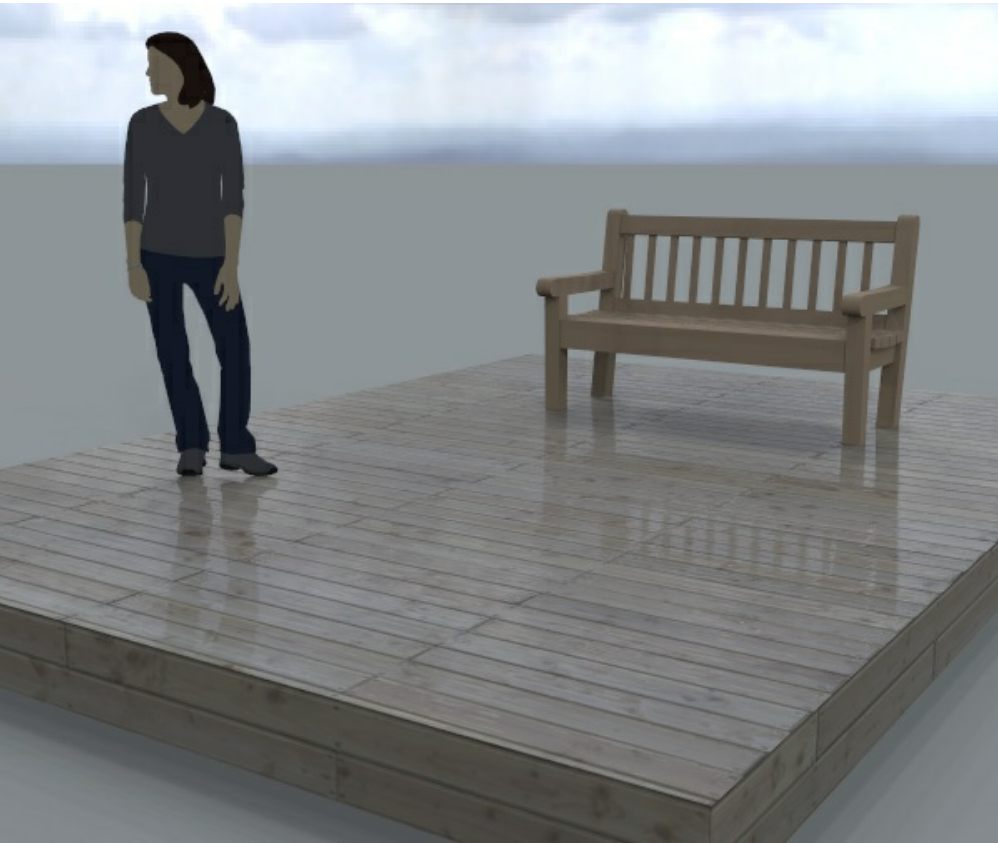
In this next scene, I kept the sun and sky, but rotated the entire scene so that there was more direct reflection from the sun.
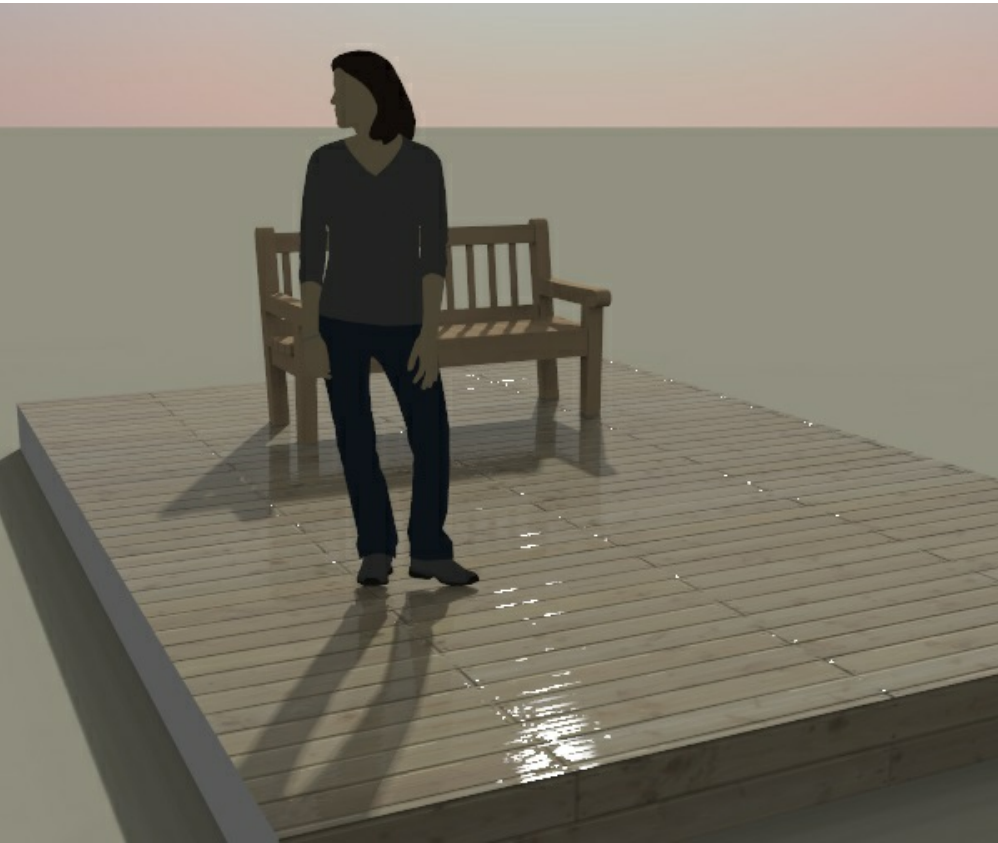
Water Materials

> **Water Materials**
>
> can be used to give your material (with or without textures) a look and feel which emulates water.
>
> - See: **Water Materials**

[IRender nXt](#) has some [Procedural Bump Maps](#) which work very well for water.

Adding bump maps to water will increase realism by adding ripples to the surface of the water. Review the images to the right for examples of bump maps

Here are some examples using Wrinkled or Rubble procedural maps.

Image of a pool with 'Wrinkled' bump map applied. Image of a pool with 'Wrinkled' bump map applied. Scale = 2.00 Strength = .50

Image of a pool with 'Wrinkled' bump map applied. Image of a pool with no bump map applied.

Bump Map Settings
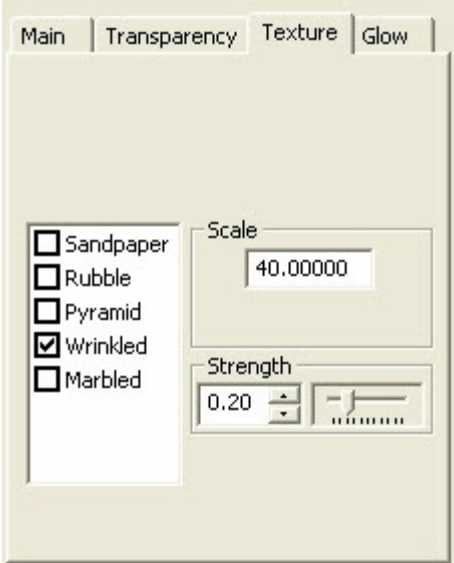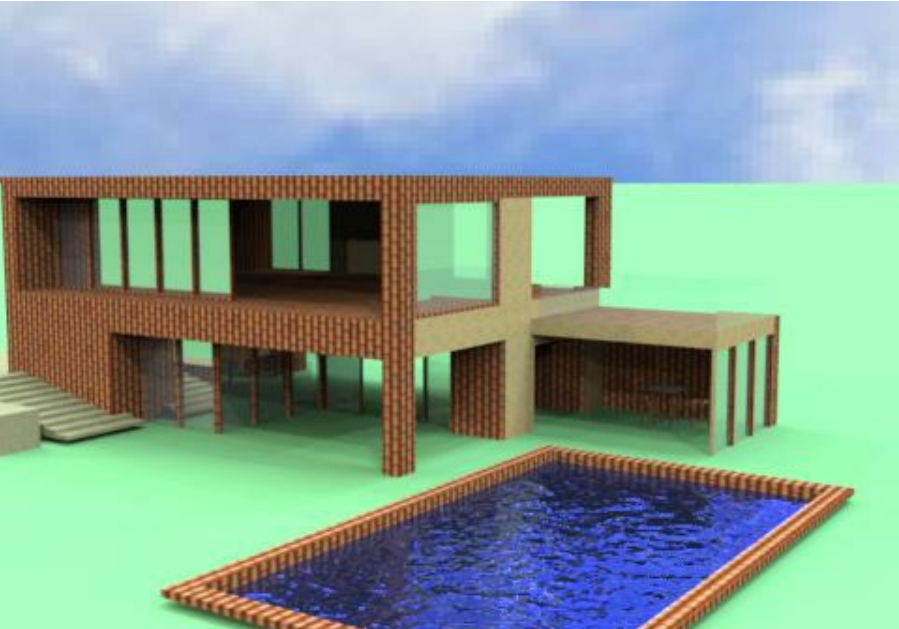
The image above used a scale of 40 inches and an intensity of 0.20

These are examples of different settings of bump maps using the Wrinkled Procedural Bump Map to create a water effect.
Notice how the sky and building are reflected in the water.
The larger scale would make more sense for larger bodies of water.
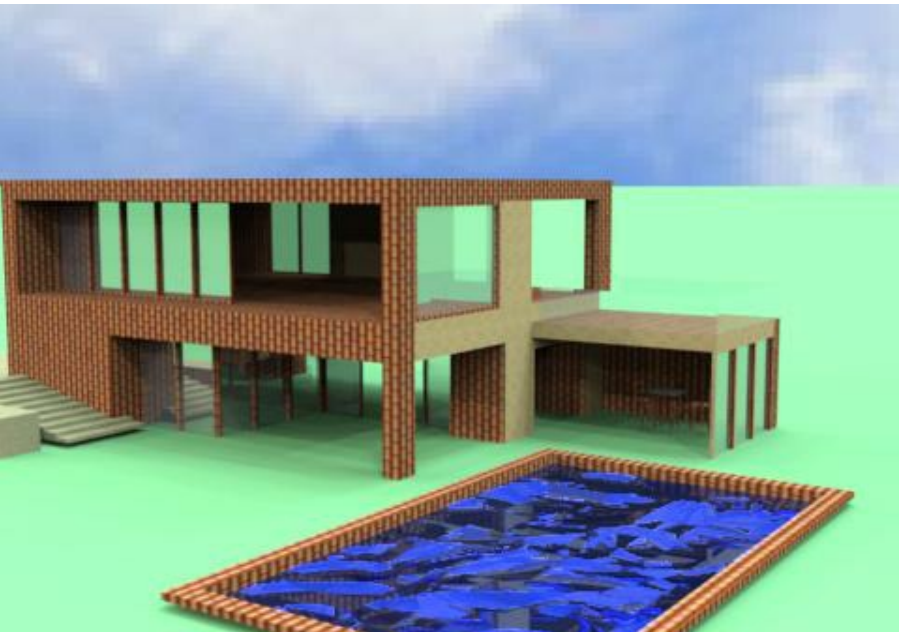
This image uses a scale of 200 and intensity of 0.50.

Texture Mapping

Texture Mapping refers to assign a texture (raster image) to a material.

Texture Position

Texture Position push-buttons in
SketchUp

SketchUp can align, rotate, scale and/or distort texture mappings to achieve special effects.

IRender processed most of these texture positions properly.

- The **red** push button is used to move the texture.
- The **green** push button is used to scale and rotate the texture.
- The **blue** push button is used to shear or skew the texture.
- The **yellow** push button is used to distort the texture.

Skewed Textures

The nXtRender engine, used by IRender, does not process skewed textures properly. We create a new texture which is already skewed and then map it without skewing.

Sometimes this can cause a problem rendering the model. If it does, try using a pre-skewed texture - which can be scaled and rotated, or try to distort the texture a little bit using the yellow push button. (Distorted textures are processed in a different manner and do not have this problem.)

Texture Resolution
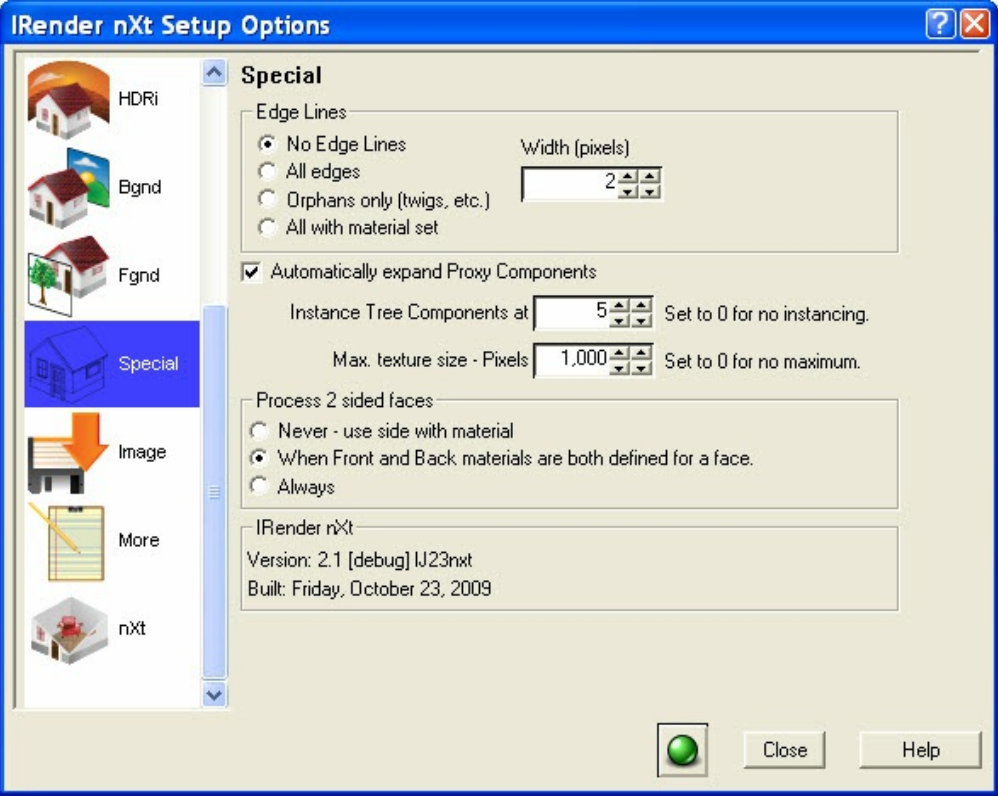
Special Options - Texture Resolution is at bottom.

Texture Resolution is a new feature in IRender nXt which allows you to render larger models by re-sampling large images in you SketchUp model.

Sometimes users add images to a SketchUp model - as an Image or as a Material Texture - which are much larger than necessary for display of the SketchUp model.

When these images are sent to the IRender engine, they can cause excess memory usage and excess processing time during rendering.

If you specify a maximum resolution for images, then any images which are larger than this will be reduced to this size.

- 1,000 pixels is a good maximum for most uses. However, if you are having problems because your model is too large, try setting this to 500 or 250 end re-rendering the model. This will often fix problems which prevent large models from rendering.
- If you find that the model is too large to render, you might lower the default value from 1,000 pixels in width. Or if you find that an image you place on a plane is losing resolution, you can increase the number

Automatic Bump Maps

Automatic Bump Maps

AutoBump - using SketchUp materials as bump maps as well as color images.

This is not quite correct, but can often create an interesting 3D effect.

- See: **Automatic Bump Maps**

Auto Bump - Automatic Bump Maps are created automatically from SketchUp materials using IRender nXt .

Right click on an entity containing a material to load the Material Wizard , load the **Plus** tab, and check *Auto Bump* and the texture in the material is treated as a bump map as well as than a texture.
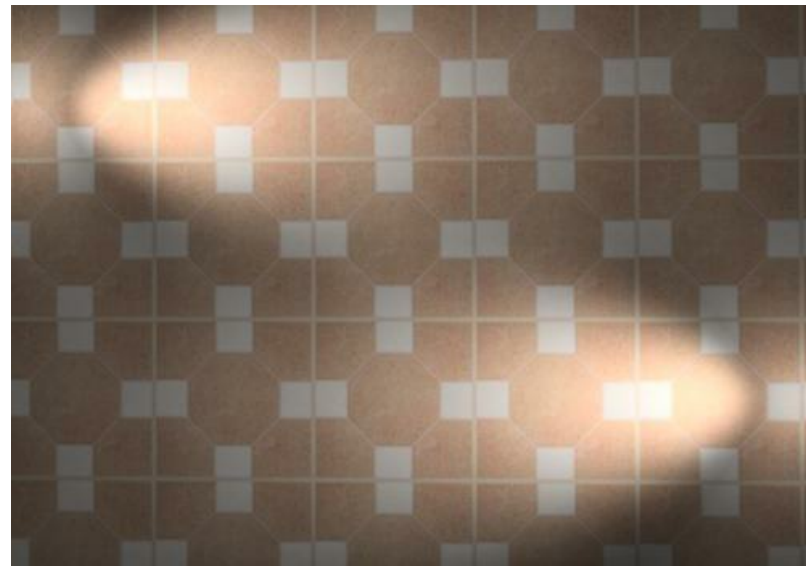
Auto Bump Map

Auto Bump in Material Wizard

The Auto Bump Map option on the Material Wizard creates a bump map (automatically) from the SketchUp image on a material.

Slider bars are provided to set the intensity of the Bump Map (-5.0 to 5.0) and the how much of the color of the texture is included in the material. (0.0 to 1.0)

Here is an **Auto Bump** example of a wall with SketchUp's stone material, and two spot light shining on the the material: *(Bump maps have their best effect when there is lighting at an angle to the material, because the bump map 3D effect is more pronounced when there is light shining on the material.)*

Rendering with SketchUp using IRender nXt
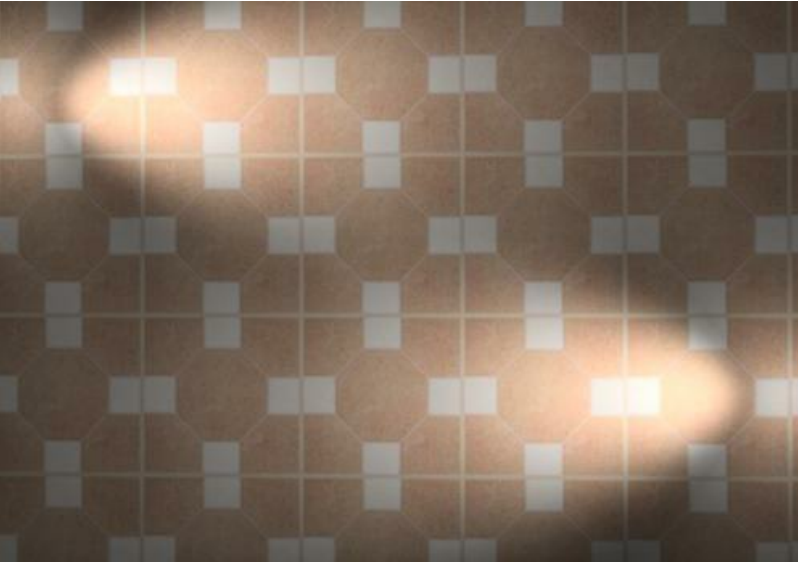
No Auto Bump Map
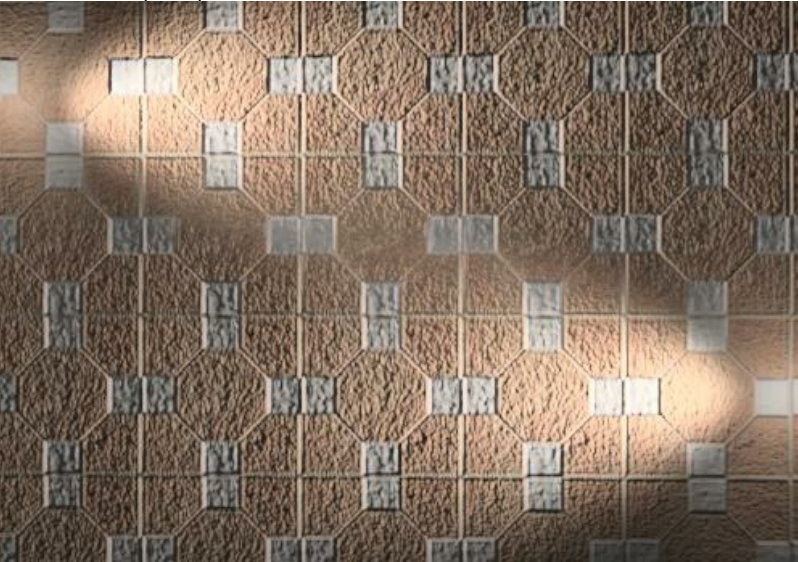
With Auto Bump Map and 100% color strength

Color Intensity

The image above uses the texture to provide both color and the bump map. You can adjust **Color Strength** to use the bump map as a pure bump map (no color), or any setting in between.
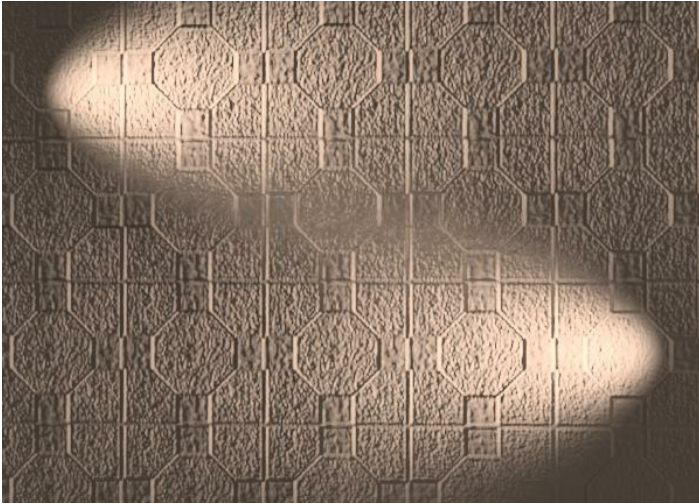
Auto Bump with 0% color strength
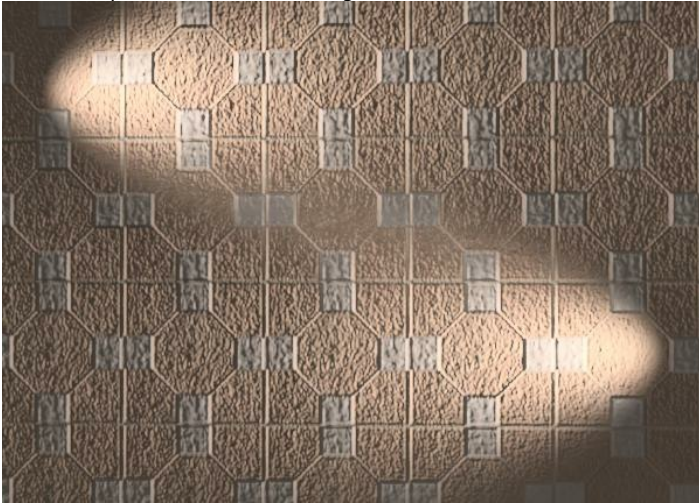
Auto Bump with 50% color strength

Reversal

Auto Bump assumes that the bump map image extrudes from the surface where it is darker, and goes into the surface where it is lighter. If this is incorrect you need to reverse the image.

The image on the right is lighter where it extrudes from the surface, so it needs to be reversed to render properly.

Rendering with SketchUp using IRender nXt
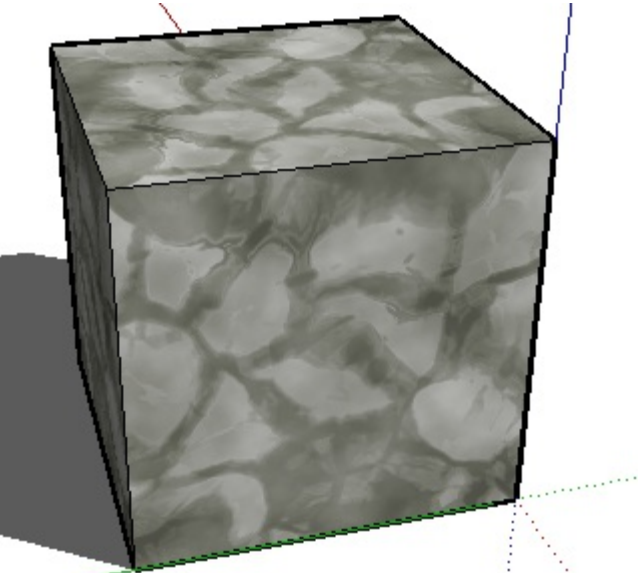
Auto Bump image as material in SketchUp. (No bump effects in SketchUp)
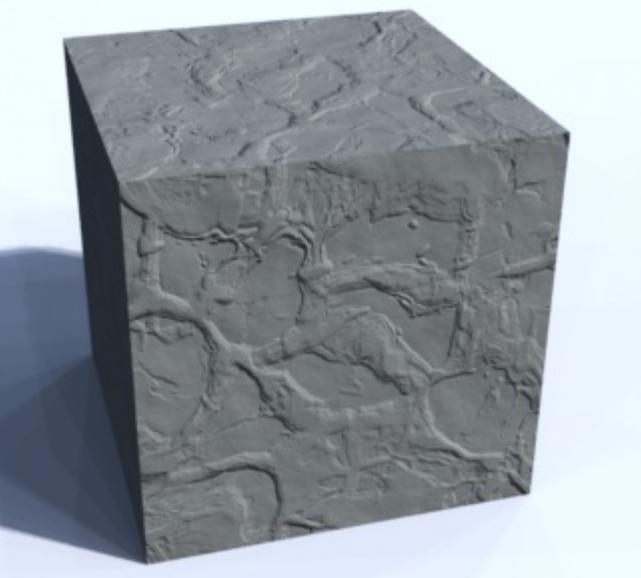
Auto Bump - normal. The lighter ares seem to recess into the surface.
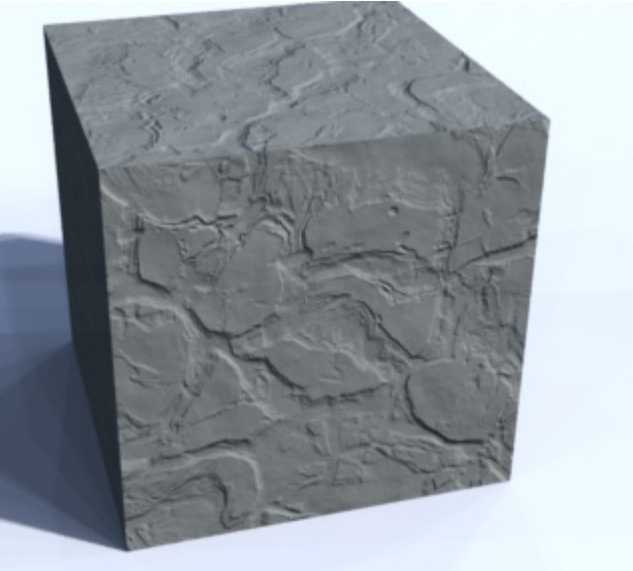
Auto Bump - reversed. - The lighter areas protrude out of the surface.

Auto Bump

Template:Auto Bump2 **Auto Bump** - Automatic Bump Maps are created automatically from SketchUp materials using IRender nXt .

Right click on an entity containing a material to load the Material Wizard , load the **Plus** tab, and check *Auto Bump* and the texture in the material is treated as a bump map as well as than a texture.

Auto Bump Map

Auto Bump in Material Wizard

The Auto Bump Map option on the Material Wizard creates a bump map (automatically) from the SketchUp image on a material.

Slider bars are provided to set the intensity of the Bump Map (-5.0 to 5.0) and the how much of the color of the texture is included in the material. (0.0 to 1.0)

Here is an **Auto Bump** example of a wall with SketchUp's stone material, and two spot light shining on the the material:
(Bump maps have their best effect when there is lighting at an angle to the material, because the bump map 3D effect is more pronounced when there is light shining on the material.)

No Auto Bump Map

With Auto Bump Map and 100% color strength

Color Intensity

The image above uses the texture to provide both color and the bump map. You can adjust **Color Strength** to use the bump map as a pure bump map (no color), or any setting in between.

Auto Bump with 0% color strength

Rendering with SketchUp using IRender nXt

Auto Bump with 50% color strength

Reversal

Auto Bump assumes that the bump map image extrudes from the surface where it is darker, and goes into the surface where it is lighter. If this is incorrect you need to reverse the image.

The image on the right is lighter where it extrudes from the surface, so it needs to be reversed to render properly.

Auto Bump image as material in SketchUp. (No bump effects in SketchUp)

Auto Bump - normal. The lighter ares seem to recess into the surface.

Auto Bump - reversed. - The lighter areas protrude out of the surface.

Standard Bump Maps
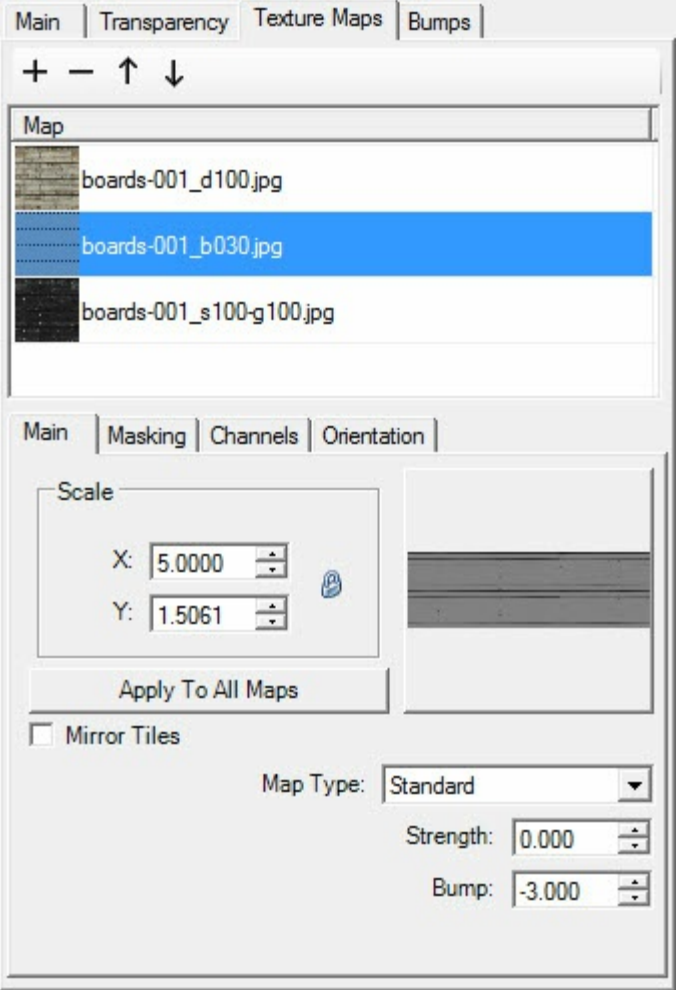
Bump Map editor for nXt materials

Standard Bump Maps are created by using one image to represent the height of the bumps, and a base color, or another image is used to represent the underlying material.

The **IRender nXt** Material editor can create **Bump Maps** with underlying textures (beside the bump map) and other special features.

Bump map editor

There are two ways to do bump maps.

1. You can use the original texture as a bump map (See: Automatic Bump Maps) or
2. You can provide a separate image to use a bump map.

With IRender nXt, you can use the nXt material editor to create your own materials, with many additional material features, including bump mapping.

After creating an nXt material, the user can automatically create a material for SketchUp which appears similar, (but of course with no bump mapping or reflective properties). This SketchUp material will automatically render using the nXt material with IRender.
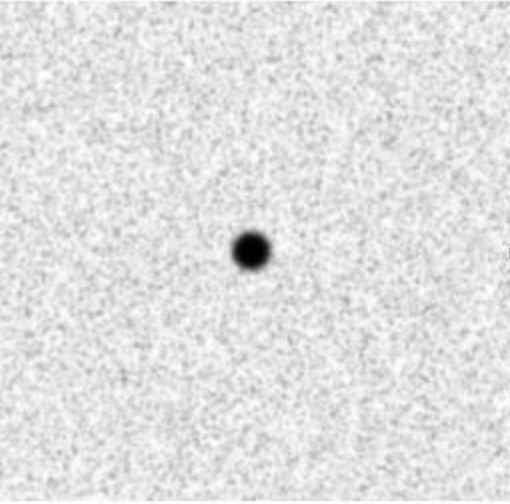
The bump map applied. The black dot was
added to demonstrate a large bump effect.
(The darker the bump image, the more the
bump)
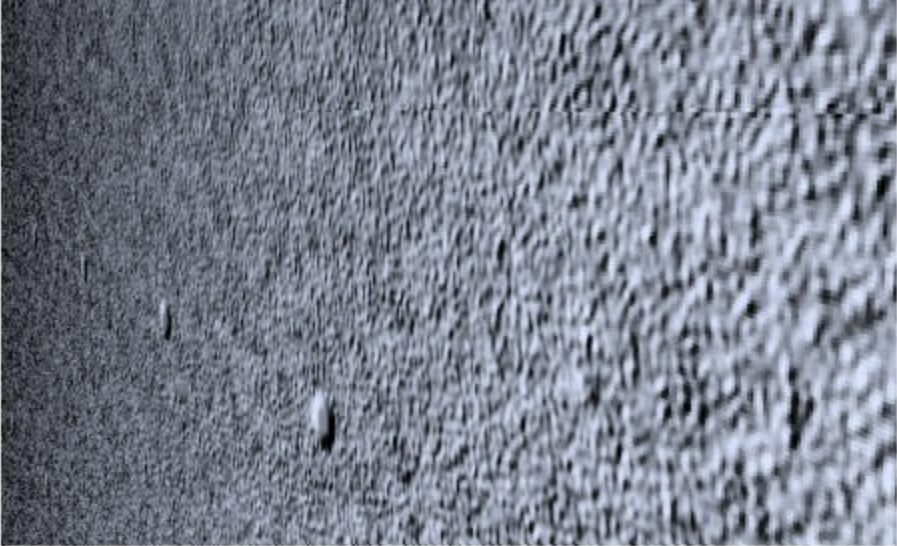
A close up rendering of the bump-map wall. You can see the bump effect more
dramatically. Bumps do not create new geometry which sticks out of the wall. But
they do effect lighting by creating a shadow effect around the bumps.

Procedural Bump Maps

Procedural Bump Maps

can be used to give your material (with or without textures) a different appearance.

- See: **Procedural Bump Maps**

Procedural Bump Maps can add special effects to a material.

There are 5 procedural bump maps which can be used to give your material (with or without textures) a different appearance.

Each Bump type has parameters to change its size, etc.

SandPaper
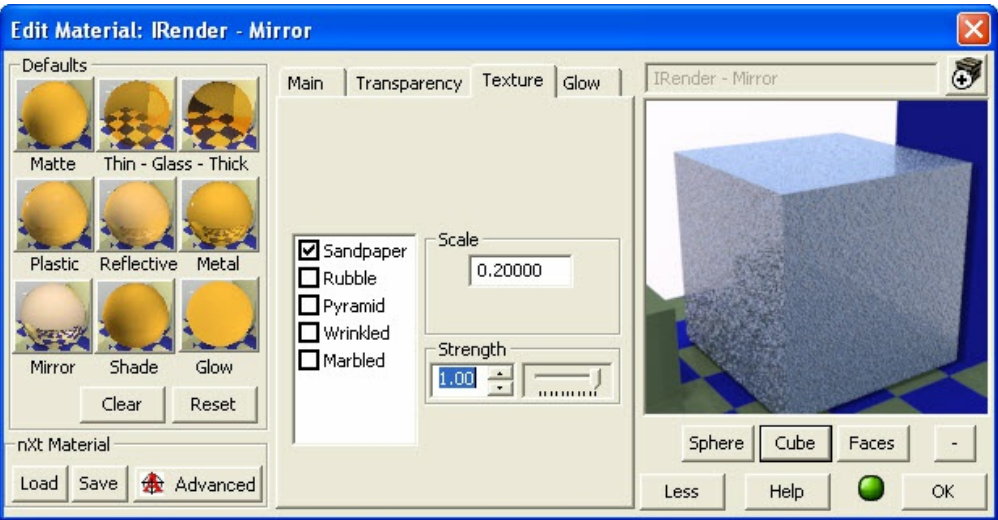
Rubble
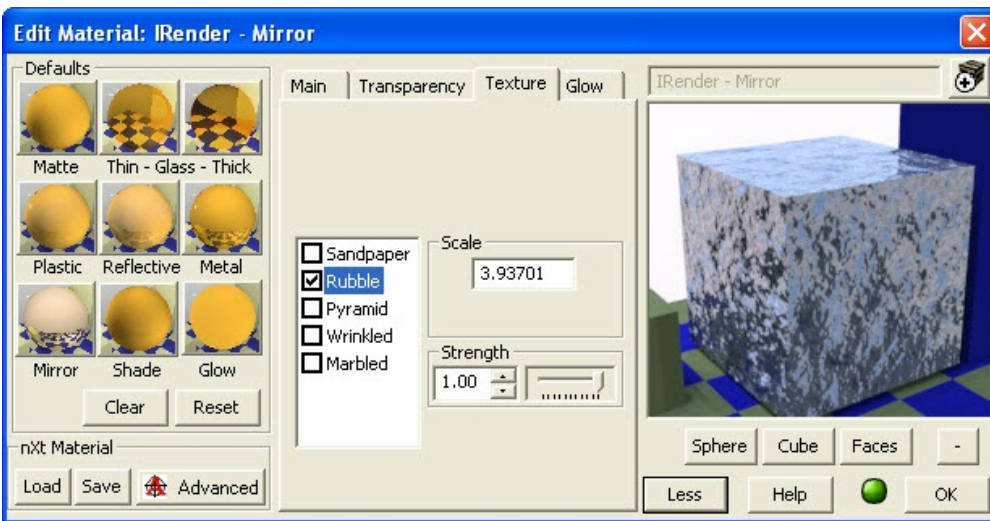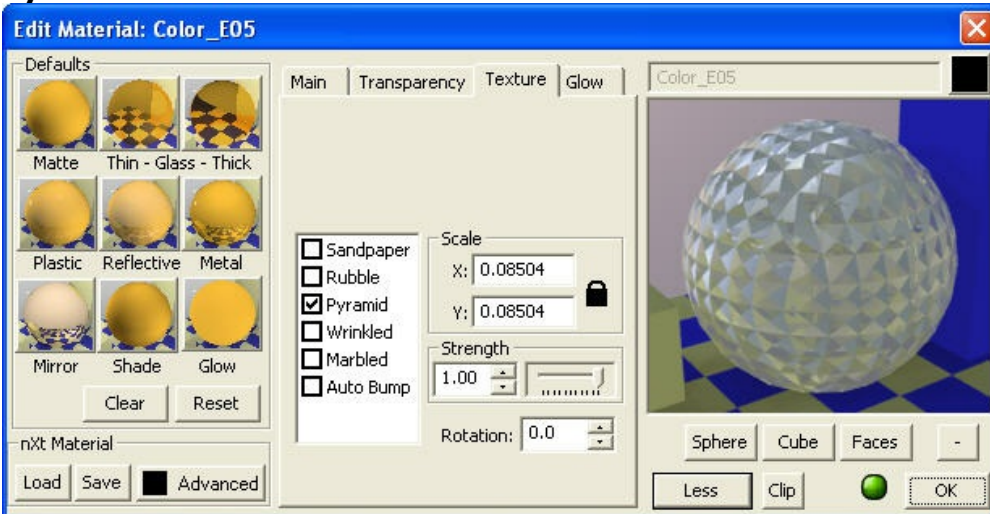
Pyramid

A Pyramid bump was applied to the salt shaker, and a sandpaper bump was applied to the pepper shaker.

Wrinkled

| Main | Transparency | Texture | Glow |

Sandpaper
Rubble
Pyramid
☑ Wrinkled
Marbled

Scale

40.00000

Strength

0.20
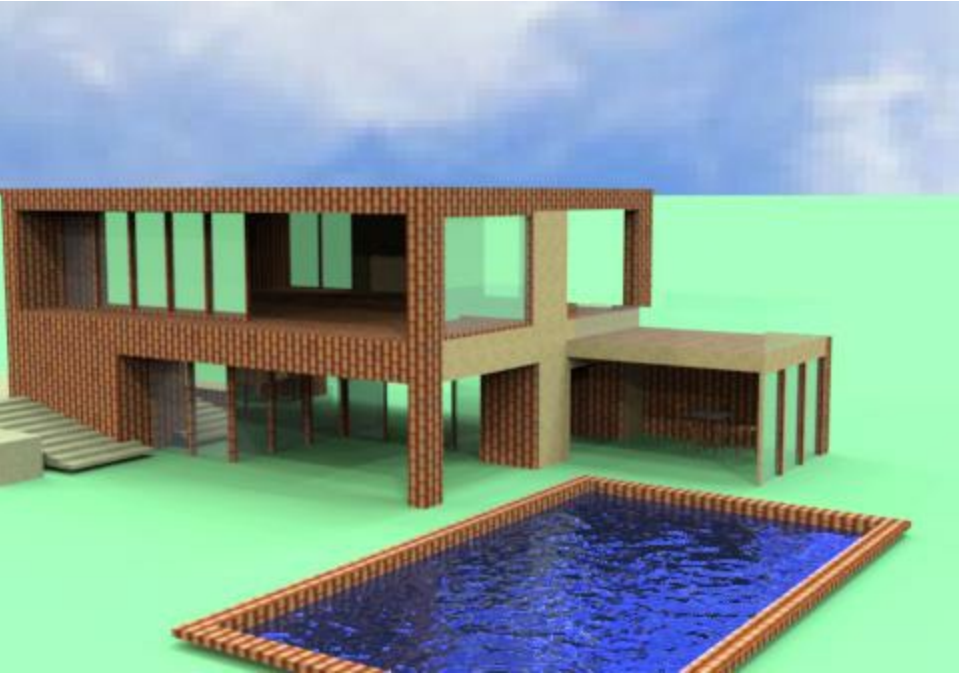
Water effect with Wrinkled Bump Map

Marbled
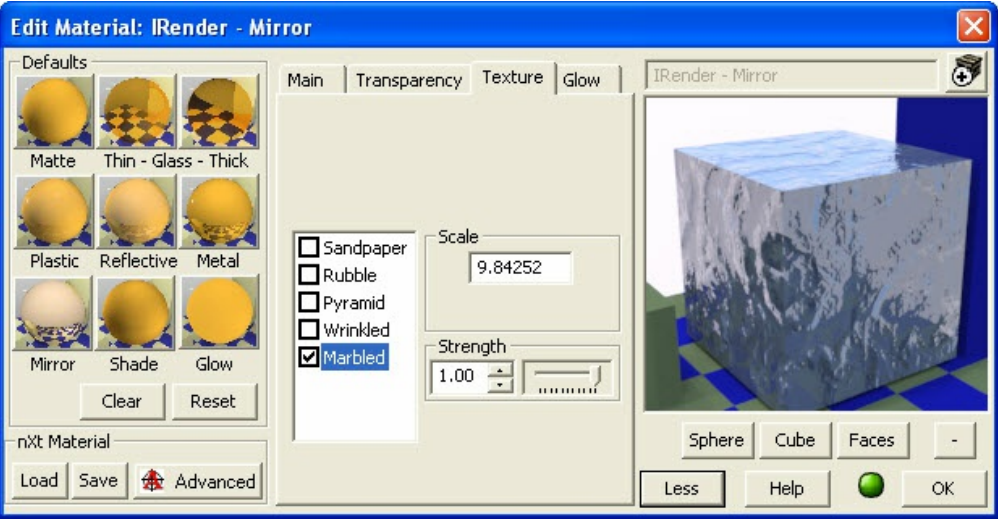
Bump Maps - Additional Information
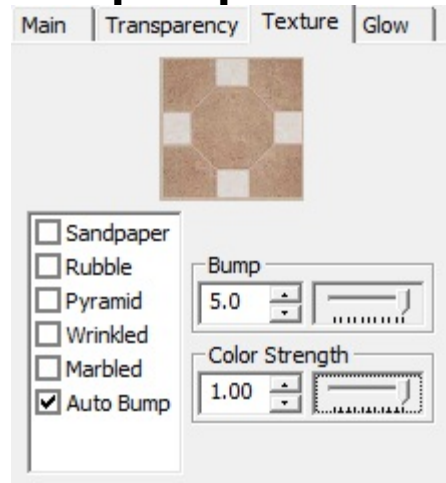
Auto Bump in Material Wizard

The Auto Bump Map option on the Material Wizard creates a bump map (automatically) from the SketchUp image on a material.

Auto Bump Map Sample

Here is an **Auto Bump** example of a wall with SketchUp's stone material, and two spot light shining on the the material: *(Bump maps have their best effect when there is lighting at an angle to the material, because the bump map 3D effect is more pronounced when there is light shining on the material.)*
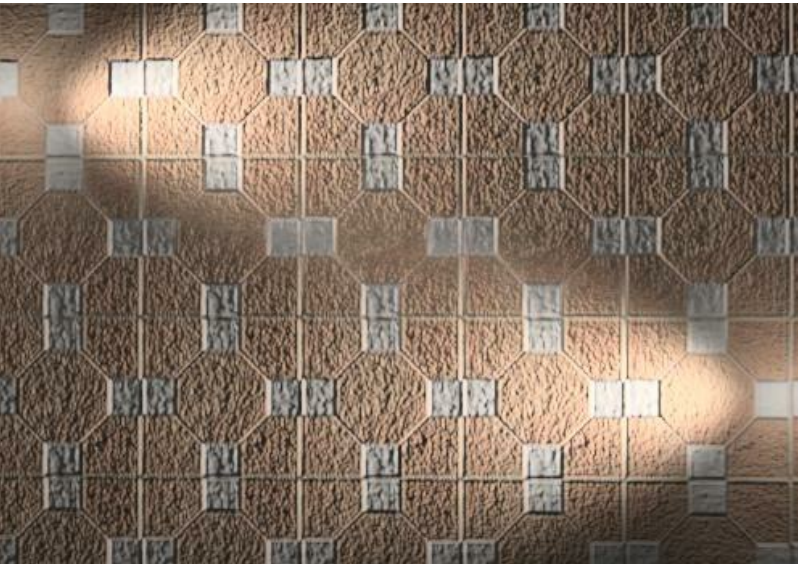
No Auto Bump Map

With Auto Bump Map and 100% color strength

Bump map guidelines

A bump map uses the intensity of the raster image to determine a height offset from the base face on which the bump map is placed. (Black is the lowest elevation and white is the highest.) The bump map is used to alter the effects of lighting on the surface, which gives it an enhanced 3D effect, without having to model the geometry in 3d.

Basic bump map

This is a simple bump map, with a flat area in white, and a hole in black. There are several gray transition lines between the white and black areas.

bump1.png
raster image
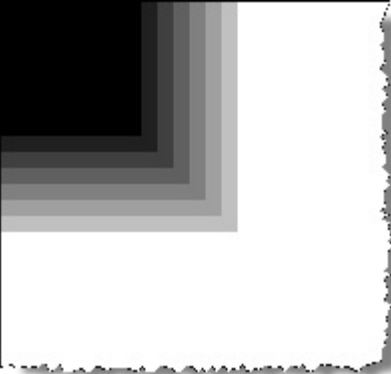
enlarged corner of bump image - to

see depth transition lines (in gray).
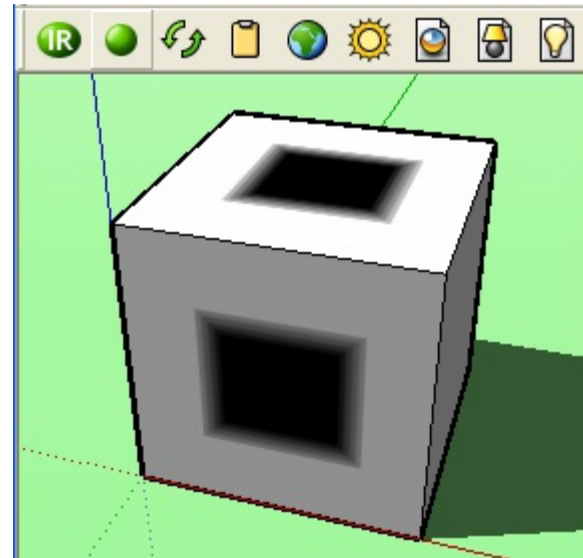
Bump map material applied and rendered in
SketchUp.
"Flat" rendering in SketchUp.
Bump map material has been applied to two faces.
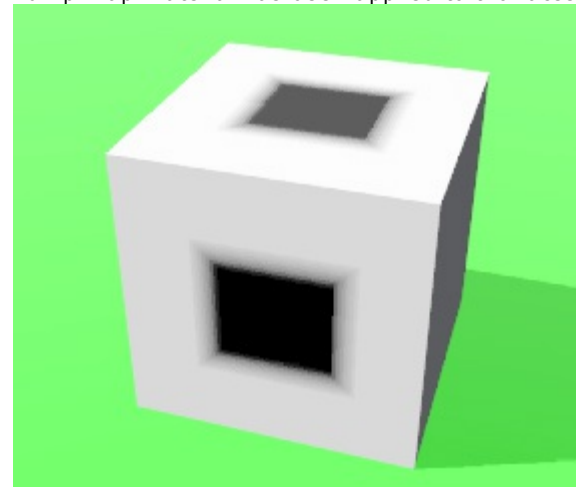
Bump image rendered with IRender as "flat"
image (no "bump" effect").

Rendering with SketchUp using IRender nXt
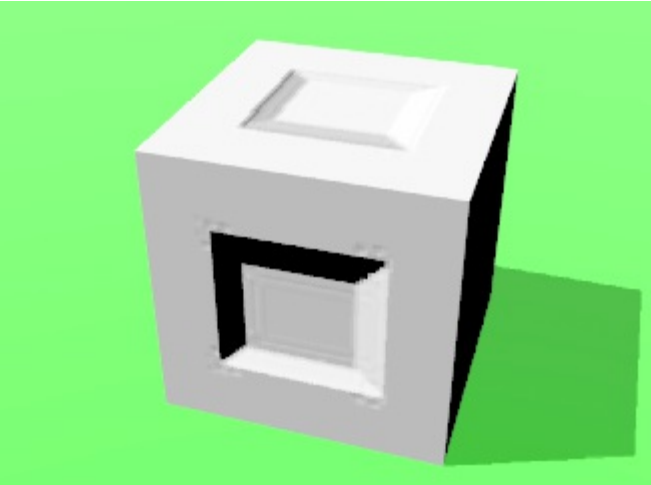
Bump rendering from IRender.
_bump was added to the material name in SketchUp.
(The name of the material, not the name of the texture image file.)

Rendered as normal bump map. Note the effects of light with make the black area appear as a hole.
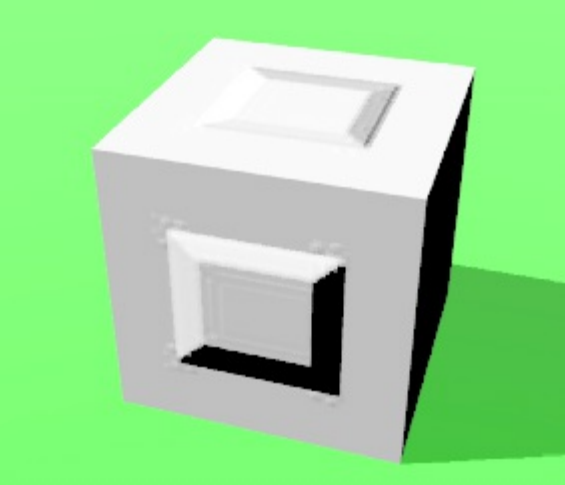
Rendered as reverse bump map, by changing the material name to include *_bumprev*.
Note the gray and black areas create a rise from the base plane..

See: No transitions for an example with no transition lines.

Brick example

Bump map for brick

This is a bump map used for a brick effect. (The color will be added when the texture is created in SketchUp.)
(Note: This image, which was downloaded from the internet does not have any transition gray. It jumps from light to dark. The Renderer will add some transition if not is provided in the raster image.)

Flat brick rendering

This is the "flat" rendering in IRender.
(No bump effect)

Rendering with SketchUp using IRender nXt

Bump effect on brick rendering

This rendering is made with the same SketchUp material, and the bump effect enabled ("_bump" added to the material name.)
This gives more of a 3D effect. (The light and dark shades at the edges of the bricks are determined by the angle to the sun in the actual model.)

No gray transitions
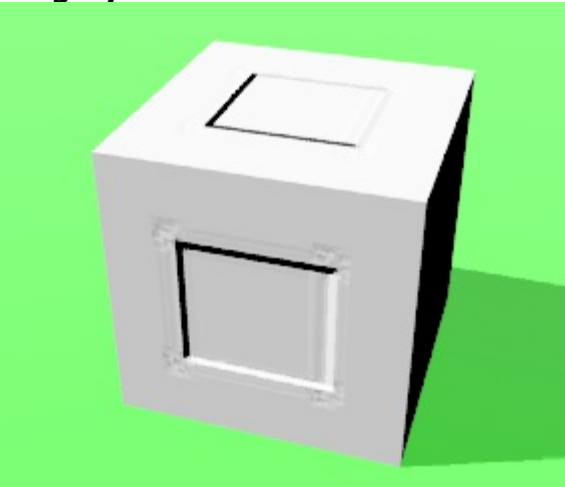
Bump map with no gray transition lines.

This is the same image with the gray transition lines removed. The only colors are black an white.

The IRender engine adds some transition, but does not do it as smoothly as when transition lines are included in the raster image. But notice, there is some distortion on the corners.
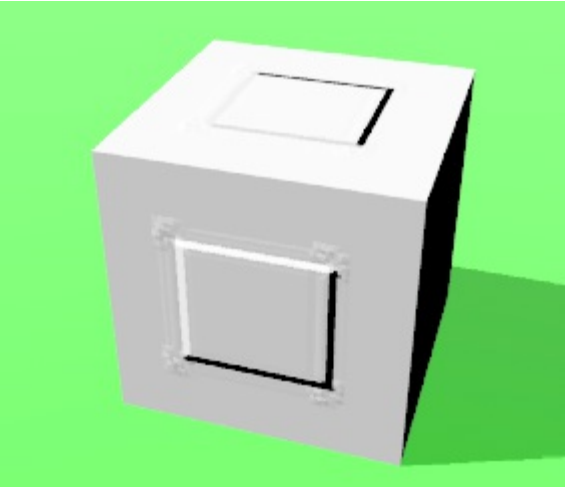
Reversed bump map with no gray transition lines

Reversed bump map with no transition lines. The black area in the image appears to extrude out from the surface.

Shaded bump maps
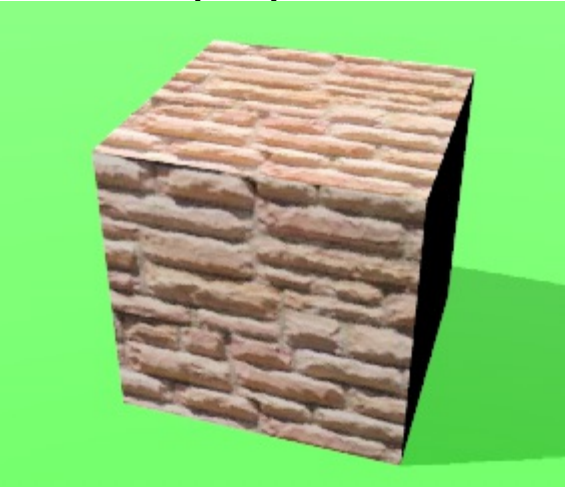
Bump maps should not contain shading from the light. (For instance, a photo of a stone wall will have dark areas because of lighting, rather than because of the depth of the surface.

This rendering on the right is a "flat" rendering of a SketchUp stone material.

Rendering with SketchUp using IRender nXt
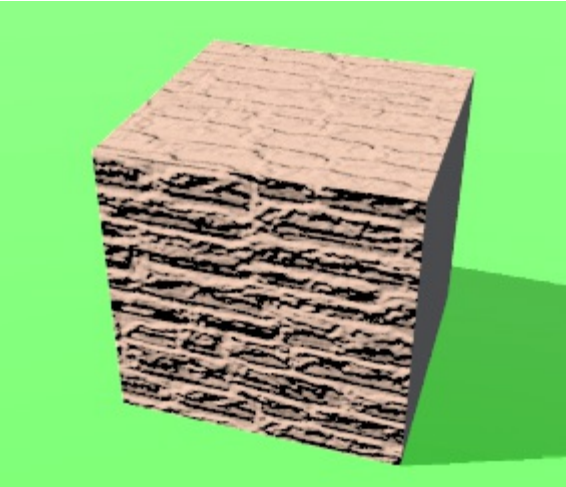
rightBump map rendering of same texture.

However, because images such as this stone image tend to be darker between the rocks, they do make good, (even if not technically correct) bump maps.

Better stone example
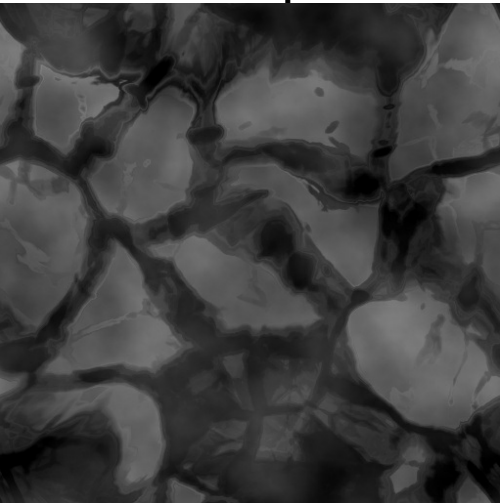
Stone bump map image. A stone bump map downloaded from the internet: (Filter Forge Bump Map) Note: It does not look like a photo of stone, because the light and dark areas represent depth and not illumination.
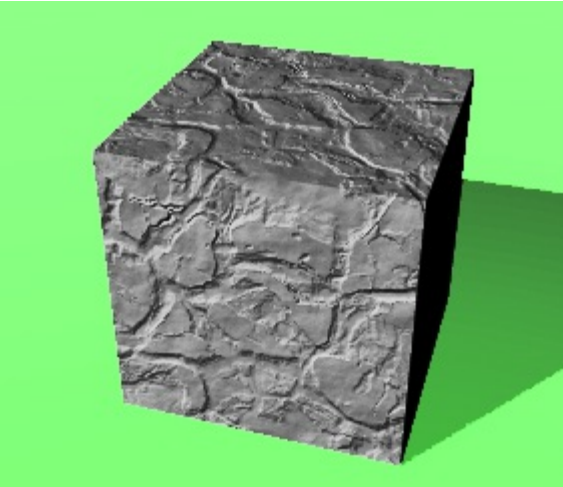
Stone bump rendering in IRender it produces a very realistic stone effect.
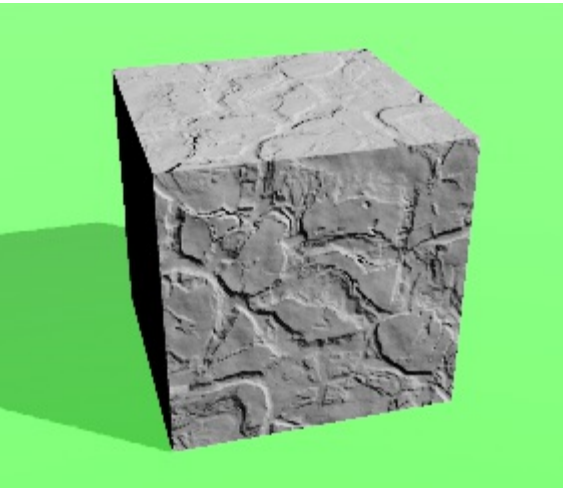
Rendering with light from right. Note in the previous image that with the lighting from the left, the bum effect produces lighter shades on the left of each stone, and darker shades on the right. When we move the sun to the right, the effect is reversed. This is the advantage of bump maps over photographs - the effect of lighting is based on the angle of the light in your model, and not the angle of the light when the original photograph of a stone surface was created.

Bump map rendered as a displacement map. A Displacement Map creates geometry based on the intensities in the bump map image.

Realistic expectations

Bump maps can be used to provide some 3D effect to renderings without having to complicate your model with lots of 3D geometry.

However, the bump maps do not produce true 3D. They are used for lighting, but not used to obscure other geometry.

Also, bump maps work best when there is good angled light to bring out the bump effect.

Note. This concept - using an image to create a bump map of itself is not really correct. It make the dark parts of the image seem depressed and the light parts raised up. However, many people and many rendering systems use it because it create a 3D effect for some materials.

Here is a better example, using a depth oriented bump map, rather than just an image to create the bump effect.
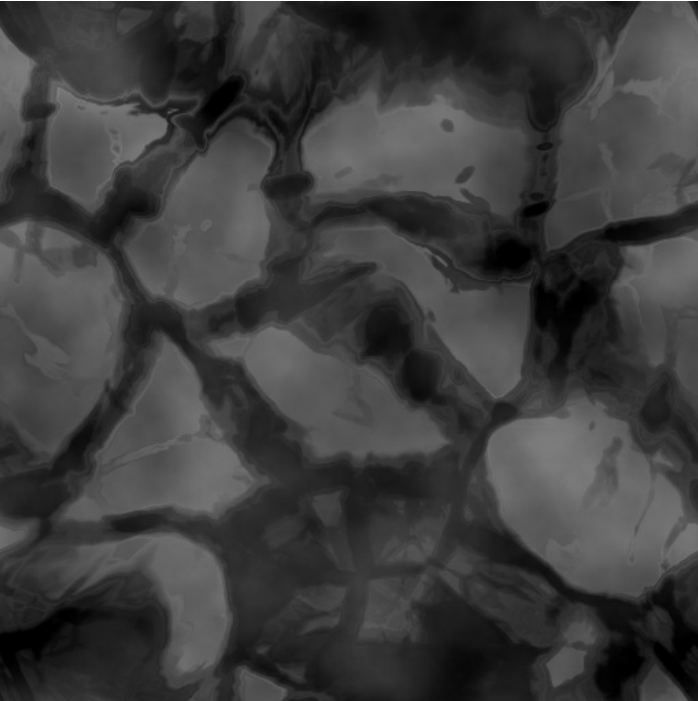
Stone bump map image.
Note: It does not look like a photo of stone, because the light and dark areas represent depth and not illumination.
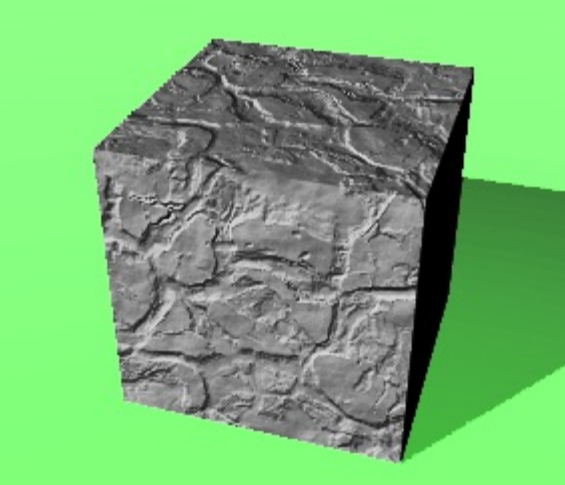
Stone bump rendering in IRender.
It produces a very realistic stone effect. Notice the subtle difference in shading between the front and the top.
(Based on the angle of the light.)

Advanced effects
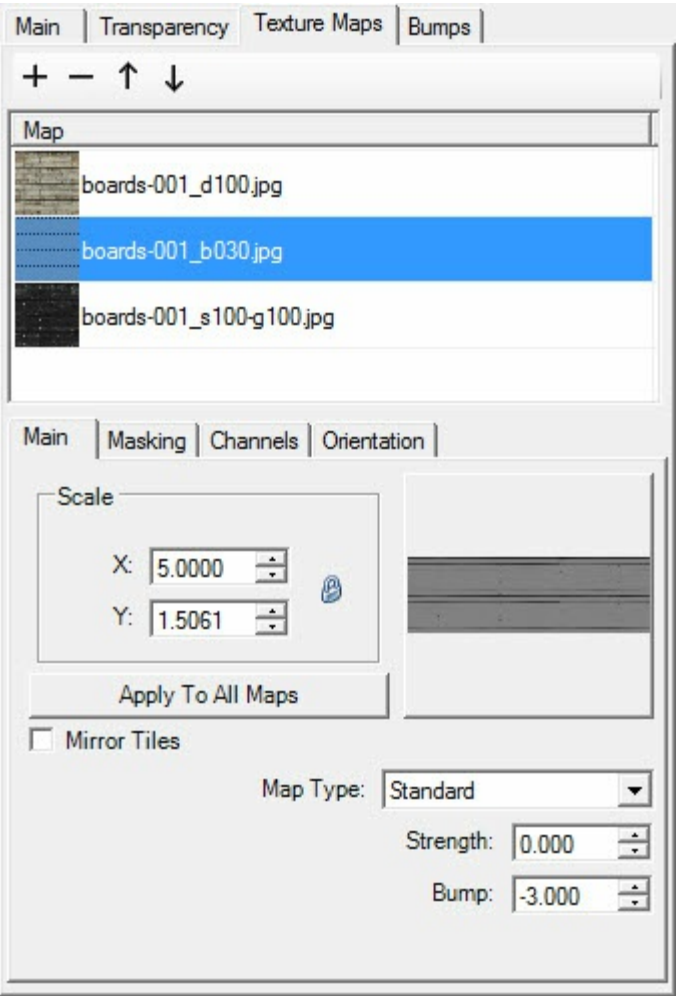
Bump Map editor for nXt materials

IRender Plus users can create more advanced effects by applying bump maps to nXt materials. (For example, using one raster image for a bump map and another raster image for a texture.) See: IRender nXt Bump Maps

Transparency

Transparency

IRender nXt automatically uses SketchUp transparency settings. It includes refraction, reflection and illumination through the transparent surface.

You can edit the transparency settings with a slider-bar, change the <u>Index of Refraction</u> , or add other special effects such as <u>Translucency</u> and <u>Caustics</u>

- Video: **Transparency Video**
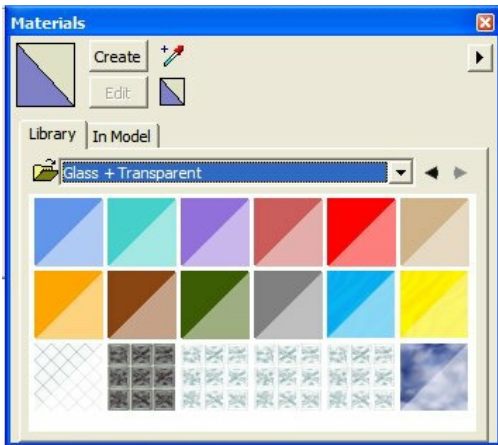
Glass and Transparent Materials

Transparency in computer graphics refers to the ability so see through an item - either partially of fully. The term **Translucency** is used when light can pass through, but you cannot see throught clearly.

Overview

There is "full transparency" i.e. something that is completely invisible. Of course, only part of a graphic could be fully transparent, or there would be nothing to see. And there is "partial transparency" or " <u>translucency</u> " where the effect is like colored or frosted glass.

Videos and Tutorials

Glass Transparency Video

Alpha Channel

Transparency may be stored in a raster image in an **Alpha-Channel** (**α-channel**). This is an additional channel in digital pictures, which contains, beside color information, the transparency (how much you can see through an object) of each pixel in an image.

Transparent Materials

You can also make an object of face transparent by giving it a transparent material.

You can select a predefined SketchUp transparent material from the SketchUp Material Browser, such as this glass: , or you can create a new transparent material, (or edit an existing one), by defining its opacity.
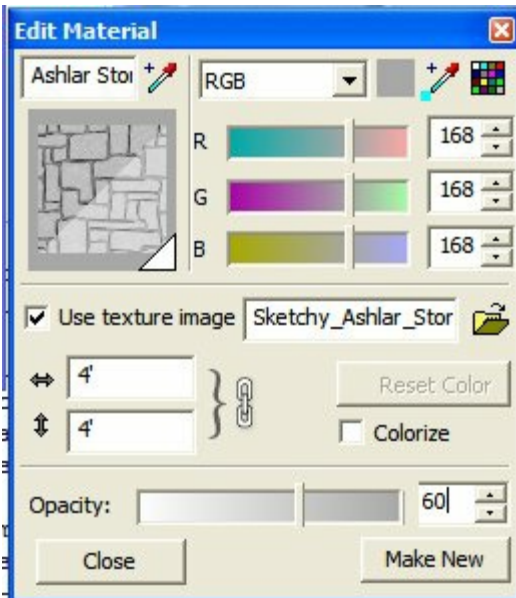
Set Opacity
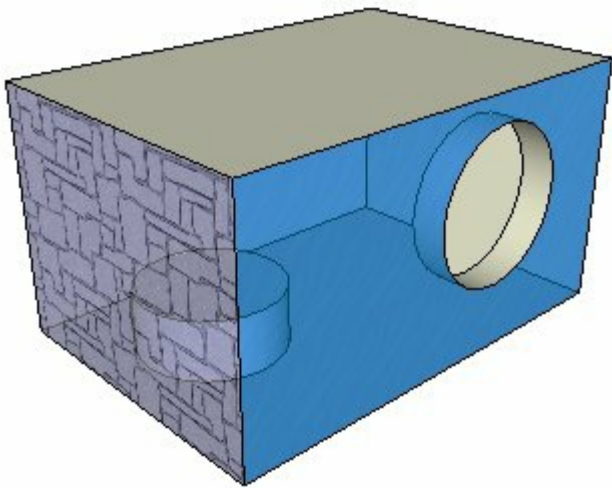
Object with glass on one face, and translucent stone on another

IRender nXt Transparency Adjustments

IRender nXt makes some adjustments to SketchUp transparency to try to make the transparent faces appear more like they do in SketchUp.

See: Transparency Adjustments

Translucency

Translucency

Allows light to pass through non-transparent materials.

Translucency is a form of [Transparency](#) where the light passes through a material, but you cannot see through the material. Note in the image that light from the lamp inside the translucent shade illuminates the wall. But the shade itself is not transparent.

Settings

In IRender nXt translucency is set on the Transparency Tab of the [Material Wizard](#) . Translucency can only be set if transparency is also set.
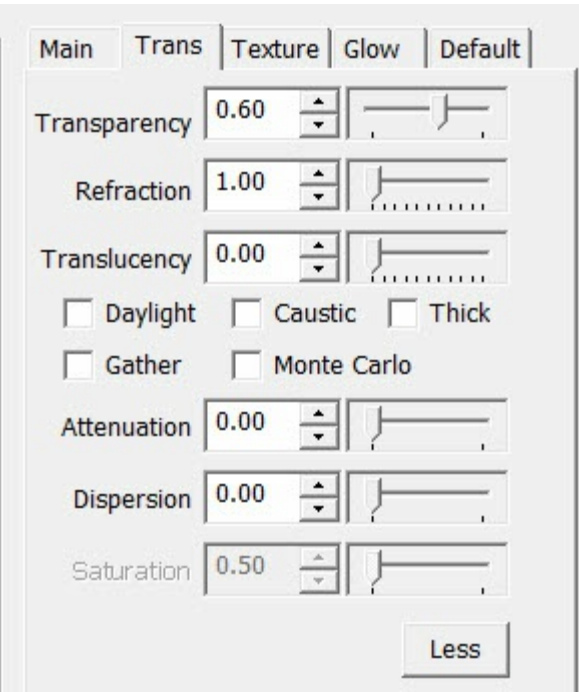
These settings are hard to describe.

The **Translucency** slider defines how well you can see through the translucent surface. 100% means that you can not see through it, but light can pass through it.

The **Transparency** slider effects how much light passes through. Some light will always pass through, but if you set Transparency higher, more light will pass through.
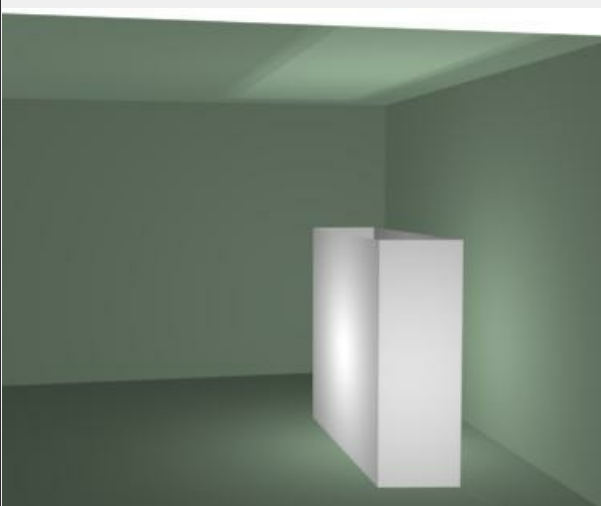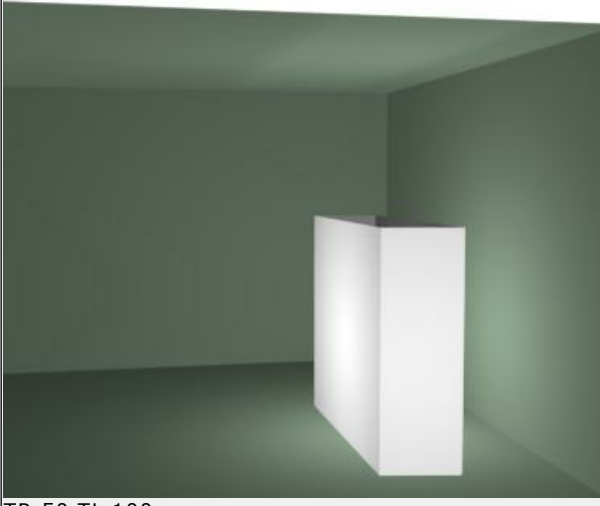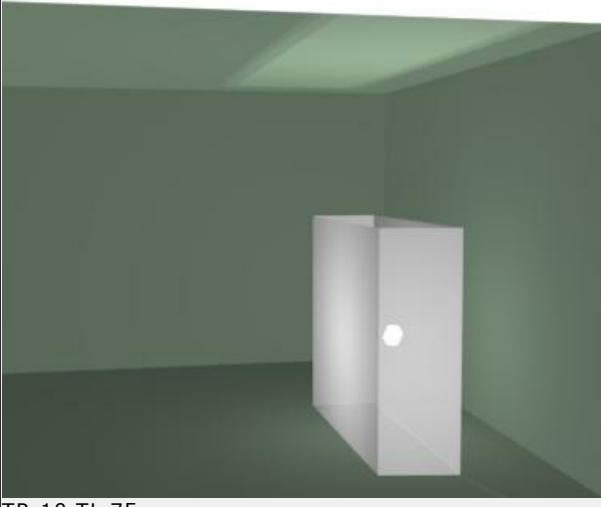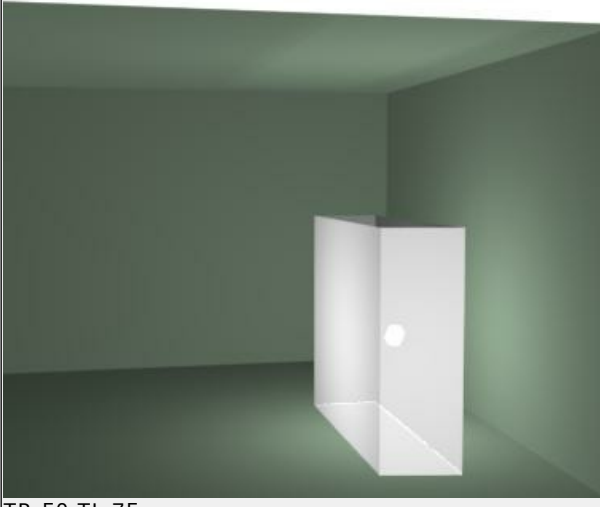
Samples

This chart will show you some of the typical results.

Translucency 100, Transparency 50 is the default if you select the **Shade Defaults**

The box has translucent sides, but an open top. The light on the ceiling comes directly from the light bulb in the box. The

light on the wall has passed through the translucent surface.

	Transparency = 10	Transparency = 50	
Translucency = 100 Translucent shade is opaque.	TR 10 TL 100	TR 50 TL 100 Default for Shade	TR
Translucency = 75 Some light passes through shade.	TR 10 TL 75	TR 50 TL 75	TR

Transparent Settings

IRender nXt has two settings for Transparency. **Thin - Thick** and **Caustic** . These settings are available on the Edit Material Wizard - in IRender nXt mode and/or as Object Properties

Thin / Thick
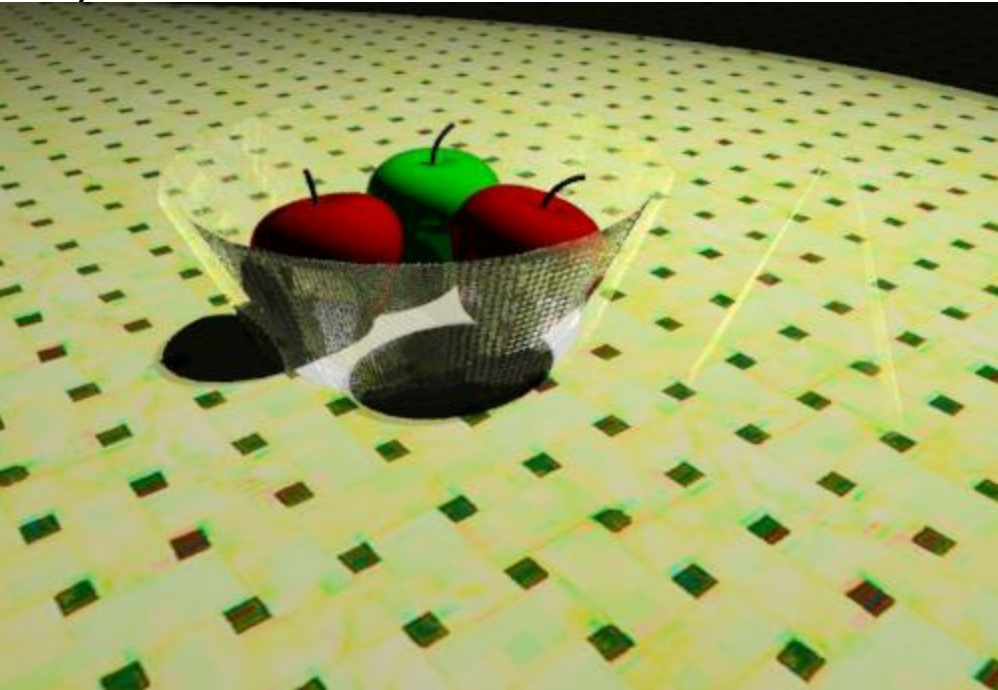
Bowl and Pyramid maked as thin (default). (They wil work better if marked as thick)

Bowl and Pyrmid maked as Thick

There is a **Thin/Thick** setting for glass. **Thin** turns of the refractive effects of transparency. It should be used with planes of window glass made with a single face rather than two faces to indicate thickness.

Thick is used for thick panes of glass made from two faces and solid objects like this bowl or cone. Thick processes reflection and refraction better.

SketchUp transparent glass will be rendered as **Thin**, as the default, unless the transparent material is marked as thick in the Material Wizard , or the face or object containing the glass is marked **Thick** as an Object Property .

These scene is illuminated with a spotlight. Note that without the Caustic setting, objects which are highly transparent do not cast appreciable shadows.

- See also: Thin - Thick

Caustic
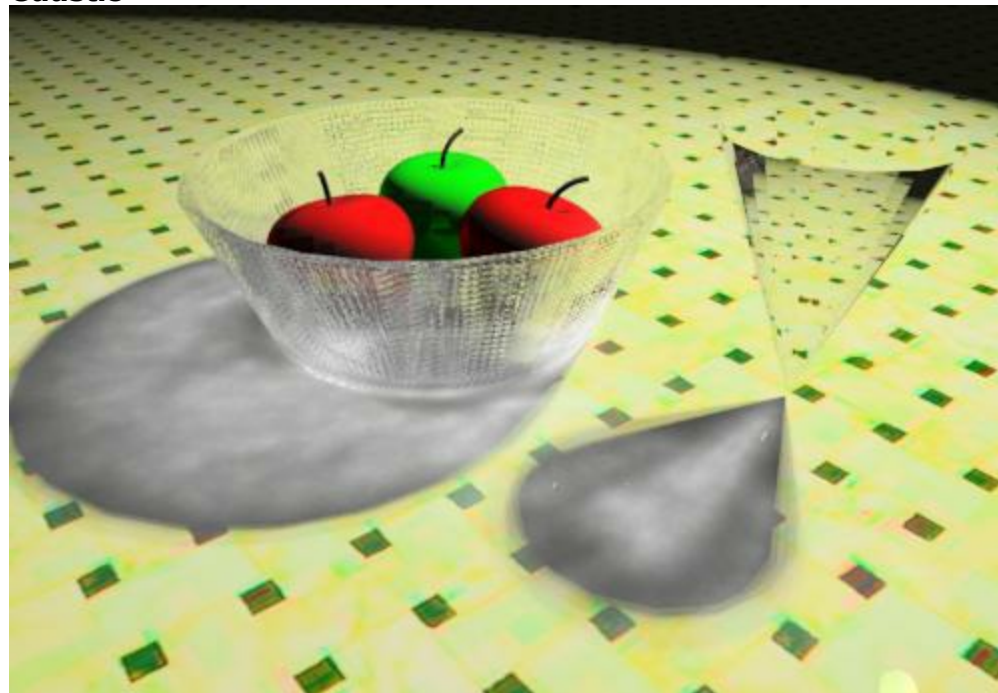
A caustic is the envelope of light rays reflected or refracted by a curved surface or object, or the projection of that envelope of rays on another surface.

The Caustic effect produces focused light and shadow effects from a point light.

Note: Caustic does not currently work with the Sun for illimination.

Wine Glass Example
Thin Glass (default)
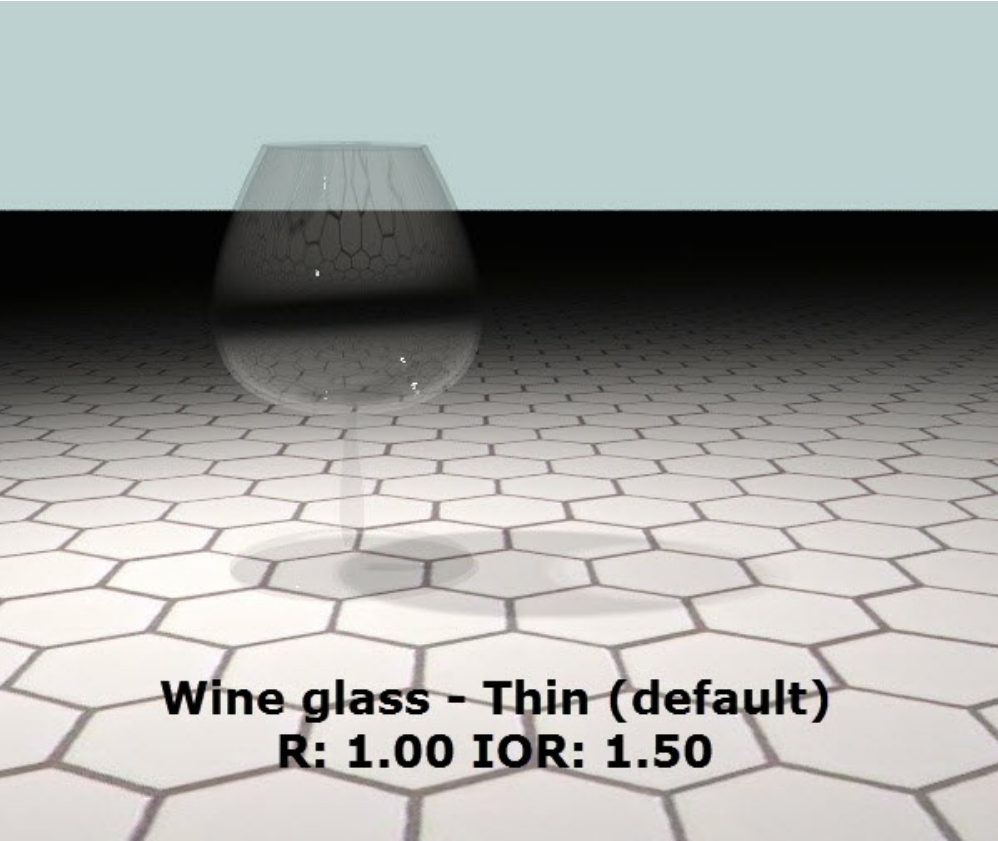
Wine glass - Thin (default)
R: 1.00 IOR: 1.50

Wine Glass from 3D Warehouse, rendered with default transparency properties.
Thin Glass - Transparency 1.00 - Index of Refraction 1.50

Thick Glass

**Wine glass - Thick
R: 1.00 IOR: 1.50**

Wine Glass with Thick Glass.
Note: More realistic reflections and distortion of objects behind the glass.
Thick Glass - Transparency 1.00 - Index of Refraction 1.50

Thick Glass with Caustics

Wine glass - Thick + Caustic
R: 1.00 IOR: 1.50

Wine Glass with Thick Glass and Caustics enabled.
Note: Interesting Shadows.
Thick Glass with Caustics - Transparency 1.00 - Index of Refraction 1.50

Sketchup Model

Wine glass - Thin (default)
R: 1.00 IOR: 1.50

Wine glass - Thick
R: 1.00 IOR: 1.50

Wine glass - Thick + Caustic
R: 1.00 IOR: 1.50
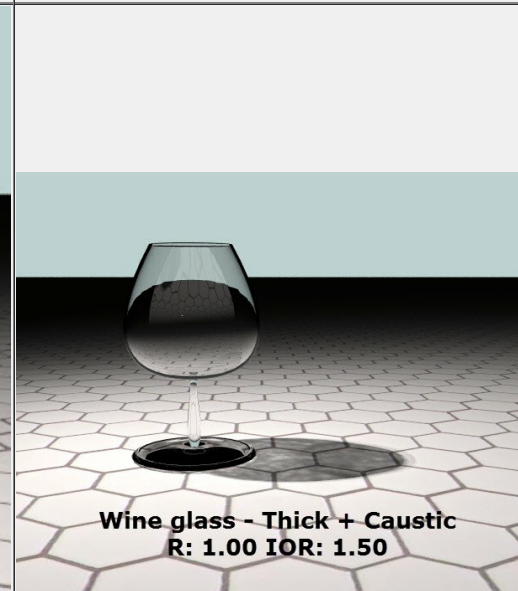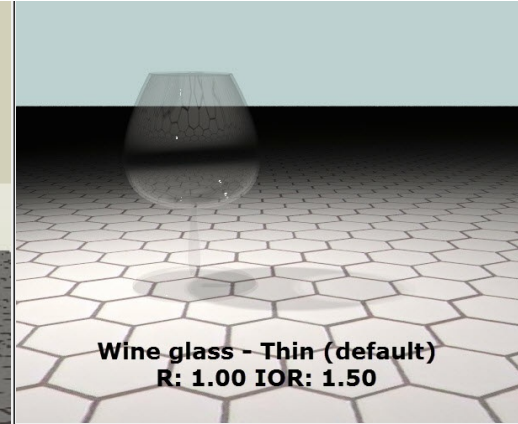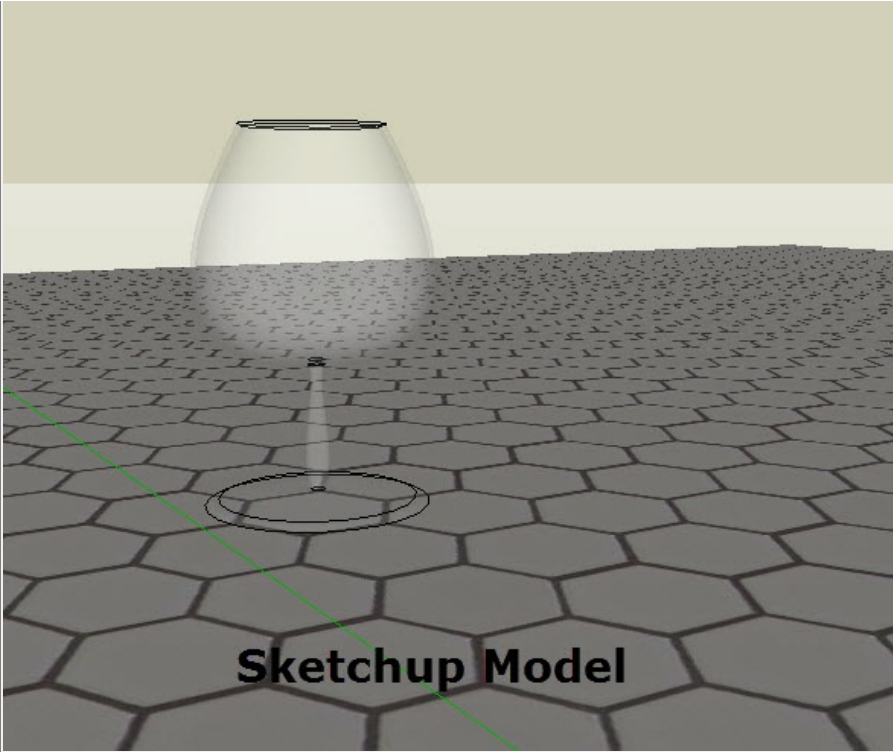
Refraction

Refraction refers to the bending of light as it passes through a transparent surface in a Ray Trace renderer such as IRender nXt .

The image on the left shows the effects of Refraction on a thick piece of glass. (The glass on the right was marked, incorrectly, as Thin, and does not product much refraction)
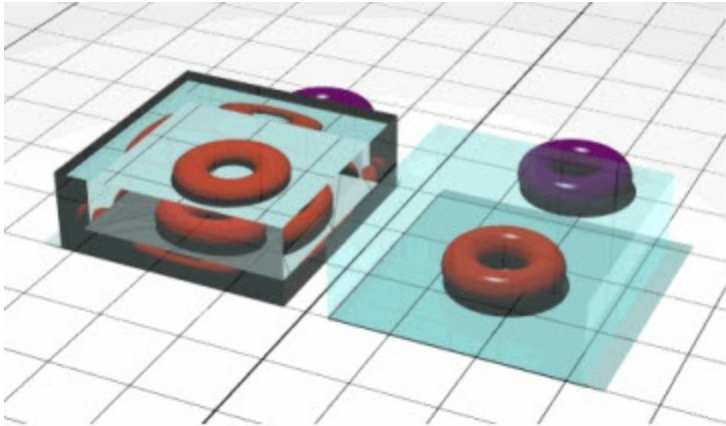
- **Index of Refraction**

  The Index of Refraction determines how much the light and appearance of objects behind the glass is distorted when passing through the glass.
  A vacuum is defined as having an Index of Refraction of 1.00
  Here are some standard values you can use for other materials:
    - Ice - 1.31
    - Water - 1.33
    - Acrylic glass - 1.49
    - Flint glass (pure) - 1.60
    - Sapphire - 1.76
    - Diamond - 2.42
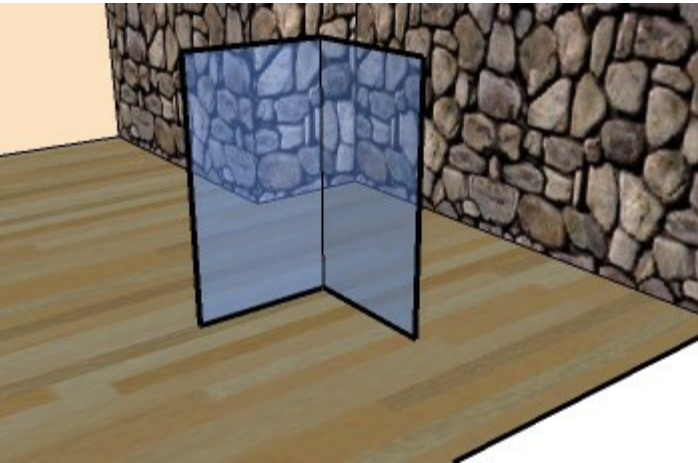
This model is rendered in SketchUp, with no refraction from the transparent glass.
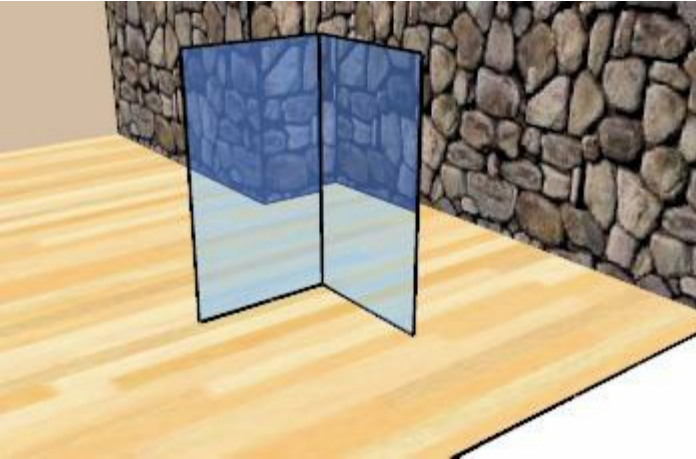
This is the same model run through IRender . Notice how the stone wall is refracted as it passes through the thick glass.

The Index of Refraction is set in the Material Wizard

Stained Glass

This article demonstrates some methods to work with **Stained Glass** in <u>IRender</u> .

Sample

This is an image from a SketchUp model posted to SketchUcation by WIP.

There are lots of things to play with when making a nice image from stained glass - like the amount of transparency, translucency, refraction, and daylight processing for the glass. And the lighting outside.

Rather than direct sun, this image was created with a sunset sky HDRi for the sky. It gives an interesting, different effect.

Stained Glass Texture

We created a simple room and placed a stained glass texture on the back wall.

Rendering
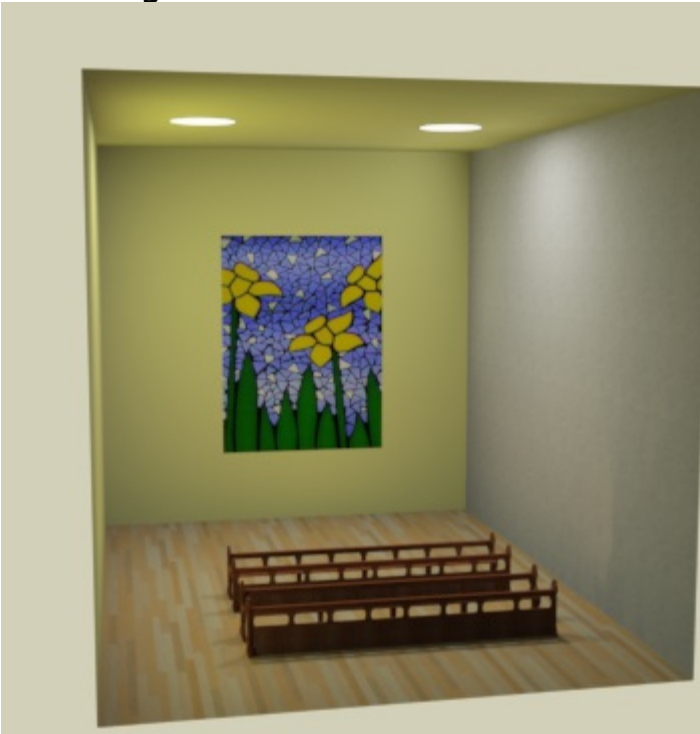
This is a rendering with two ceiling lights, but no special illumination on the stained glass.

Glow

We then placed a glow on the stained glass.

This lets the glass glow brightly. The glass will also illuminate the room, if you balance the intensity of th e glow and the intensity of the ceiling lights.
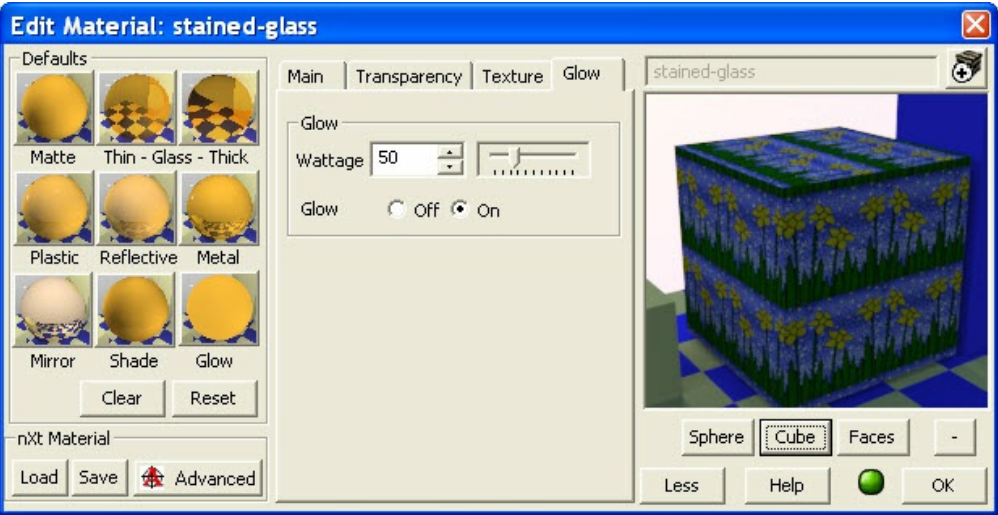
Sunlight
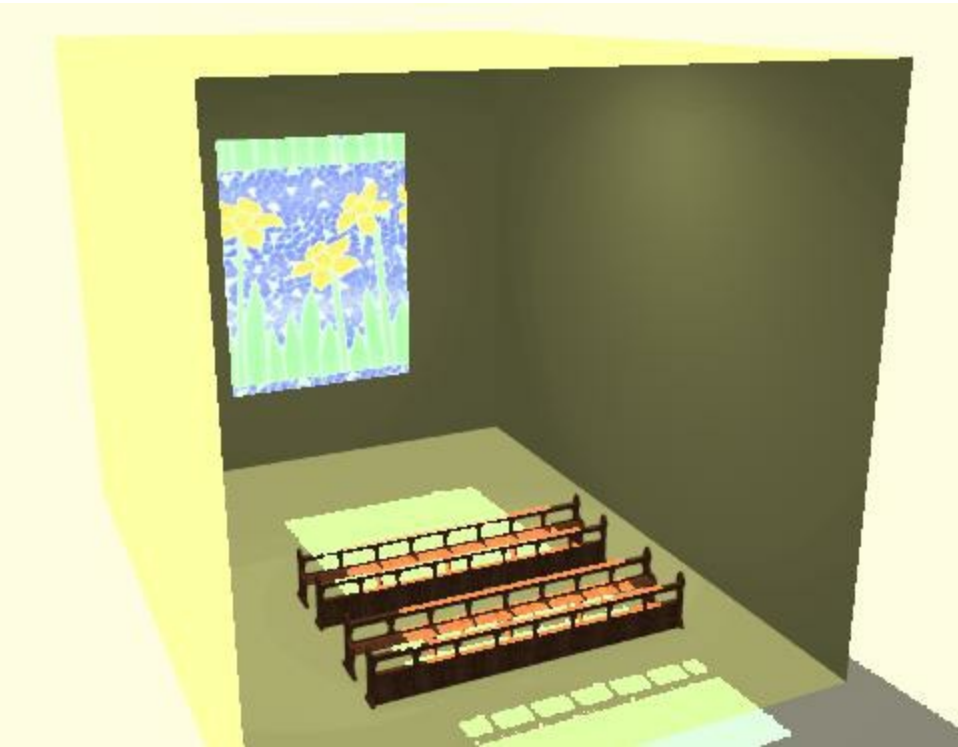
And, in many cases, you can make the glass transparent, and let sunlight pass through the stained glass.

(We should have made the glass more opaque, so less light passed through it.)

Be sure to specify "Interior daylight" on the options dialog to get the effect you want.

And you will also want to use the Tone Operator to adjust the overall brightness.

Daylight Portal

Daylight Portals

a special transparent face placed over an exterior opening or window which causes exterior light to be processed better.

The left half image on the left has a normal (non-Daylight Portal) opening. It took hundreds of passes to resolve properly. The right half has openings marked as Daylight Portals. The lighting looked this good after just a few passes.

A **Daylight Portal** is a special transparent face placed over an exterior opening or window which causes exterior light to be processed better. In IRender nXt, Daylight is a set using the Material Wizard

Daylight Tips

Use accurate values for your lights, daylight settings, and window glass if possible. Because the sun and sky are very much brighter than most lights, you may not see a lot of effect from adding artificial lighting to your daylit scene. This is normal.

Avoid the temptation to artificially boost the power of your light sources. It is legitimate to turn the sun and sky down somewhat, as these are based on a clear, unimpeded sky.

A multi-channel rendering may help you get the picture you want, while still preserving accurate data. See: Lighting Channels

Sky only

This image was rendered for just 1 pass with ordinary openings on the left and Daylight Portals used on the right. You can see that the light coming in through the daylight portal is effective starting with the first pass.

This is the same drawing after just 63 rendering pass. (The improved lighting after the first pass is also a result of Indirect

Lighting which adds the effect of light reflecting off of other surfaces during multiple passes.

It would take hundreds of passes for the ordinary opening to process the light from the sky properly.

Sunlight

The images above were made with no sun shining into the window. This image had sunlight, as well as sky and cloudiness.

After 5 passes, the Daylight Portal(on the right) is working fairly well)
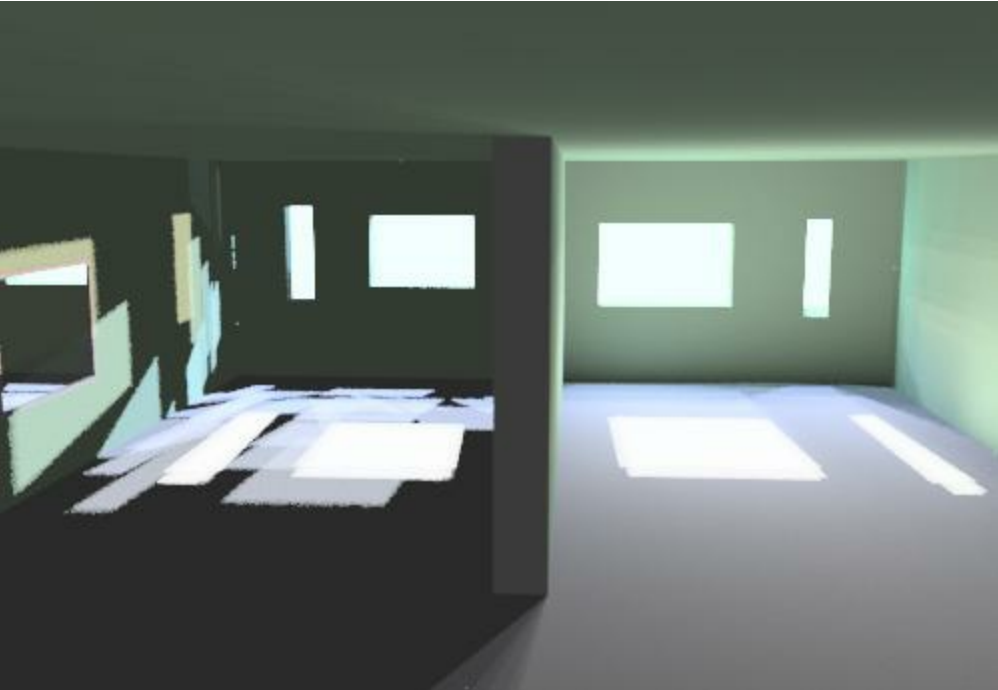
Here is the result after 2900 passes. (After lots of passes, the non-daylight-portal opening on the left converges to match the daylight-portal openings on the right.

The Daylight Portal on the right has improved as well, but mostly because of the Indirect Lighting effect.
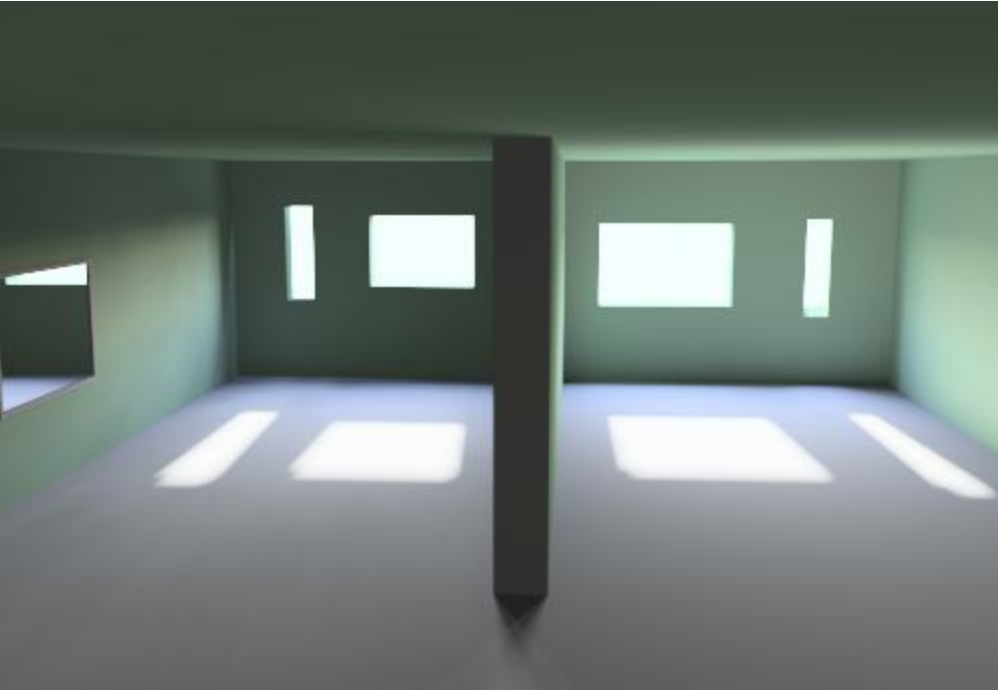
Setting up a Daylight Portal

Transparency	0.88
Refraction	1.15
Attenuation	0.00
Translucency	0.00

☑ Daylight ☐ Caustic ☑ Thin
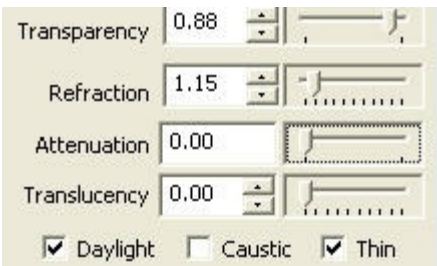
Daylight Portals can be set using the Material Wizard to assign the property to a material, or using Object Properties .

Material Wizard

1. Place a transparent Material in, or behind the opening.
2. Load the Material Wizard
3. Click **More** to load the IRender nXt settings.
4. Check **Daylight** from the **Transparency** section.

Object Properties

1. Right click on window.
2. Select **Object Properties**
3. Check **Daylight**

Thin - Thick
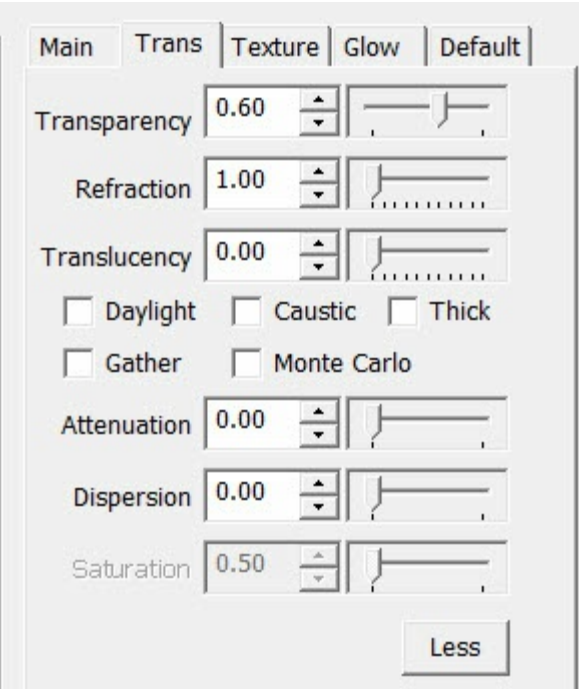
Thin is a setting for transparent materials, or transparent objects, which causes them to be rendered as a thin piece of glass.

Thin If the object is not space-enclosing and is transparent (for example, a pane of glass modeled with a single surface), select Thin. Thin means that the surface will be treated as a two-sided object for refraction purposes (like a sheet of glass). This is important if you are modeling a sheet of glass with a single surface. Thick If the surfaces are part of a solid object whose surface normals consistently point outward, select Thick. This means that each surface will be treated as single sided.
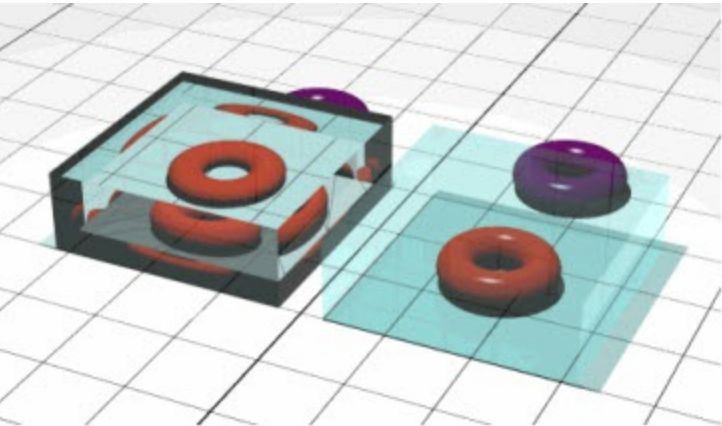
thick and thin glass settings

In the example on the right, the orange "bagels" are inside the boxes, the purple ones are behind, the left box is set to Thick, and the right box is set to Thin. The box on the left refracts as if it were a solid piece of glass.

Transparent materials and glass will be rendered as **Thin**, as the default, unless the transparent material is marked as thick in the Material Wizard , or the face or object containing the glass is marked **Thick** as an Object Property .

Thick should be used when you use two faces for a pane of glass (or 2 or 4 faces for a double glazed windows), you will have

to mark the faces as "Thick". You can do this when making the transparent material, or using "Object Properties" on the glass.

Reflection

Reflections and Mirrors

Make any SketchUp material reflective with a simple right click edit.

You can start with a default **Reflective Material** and use a slider bar th change the amount of reflection.

You can also add other special features - such as **Sharpness/(blurriness)**, **glossiness** or **metallic reflection**.

Reflection is a property you add to a material to emulate reflective objects like mirrors and shiny surfaces.

Reflection is accomplished in a ray trace renderer by following a ray from the eye to the mirror and then calculating where it bounces from, and continuing the process until no surface is found, or a non-reflective surface is found. Reflection on a shiny surface like wood or tile can add to the photorealistic effects of a 3D rendering.

- **Polished** - A Polished Reflection is an undisturbed reflection, like a mirror or chrome.
- **Blurry** - A Blurry Reflection means that tiny random bumps on the surface of the material cause the reflection to be blurry.
- **Metallic** - A reflection is Metallic if the highlights and reflections retain the color of the reflective object.
- **Glossy** - This term can be misused. Sometimes it is a setting which is the opposite of Blurry. (When "Glossiness has a low value, the reflection is blurry.) However, some people use the term "Glossy Reflection" as a synonym for "Blurred Reflection".Glossy used in this meaning means that the reflection is actually blurred.

Reflection Overview

The reflections help to add realism to this model.

This is boring and flat without reflections.

One of the best things that you can do to improve a rendering is to focus on the details. It's the details that can increase realism of a rendering and one detail that many users over look is adding reflection to all the materials in a model that need it. Not only that, but you must also apply the correct kind and the correct intensity of a reflection to a material.

Users normally apply reflections to the noticeable objects in a rendered scene such as a mirror but often forget about the small objects like a table top, or a door knob or other accessories. Spending time on these details can make the difference between a boring, flat image and an engaging, realistic one.

Examples
Polished or Mirror reflection

Mirror on wall rendered with 100% reflection.

Mirrors are usually almost 100% reflective.

Metallic Reflection
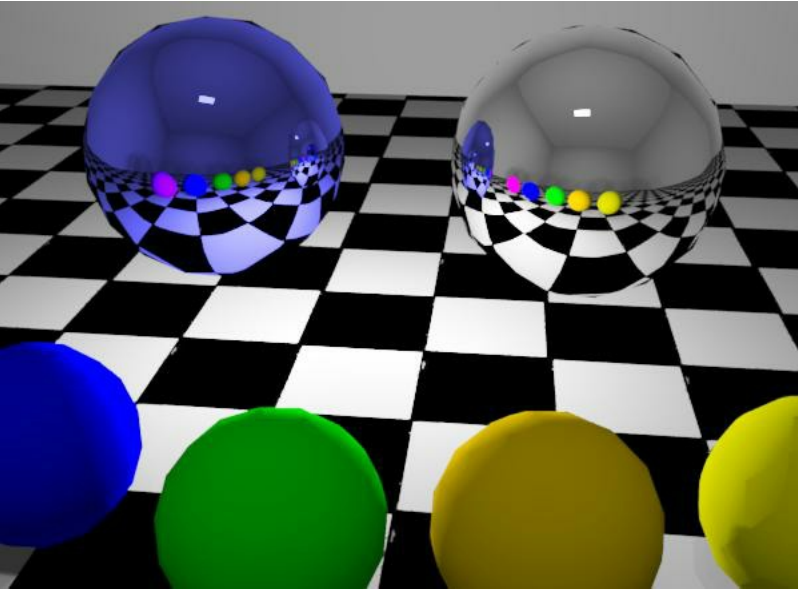
The large sphere on the left is blue with its reflection marked as
metallic. The large sphere on the right is the same color but does not
have the metallic property selected.

Normal, (non metallic), objects reflect light and colors in the original color of the object being reflected.

Metallic objects reflect lights and colors altered by the color of the metallic object itself.

- See: Metallic Reflection

Blurry Reflection
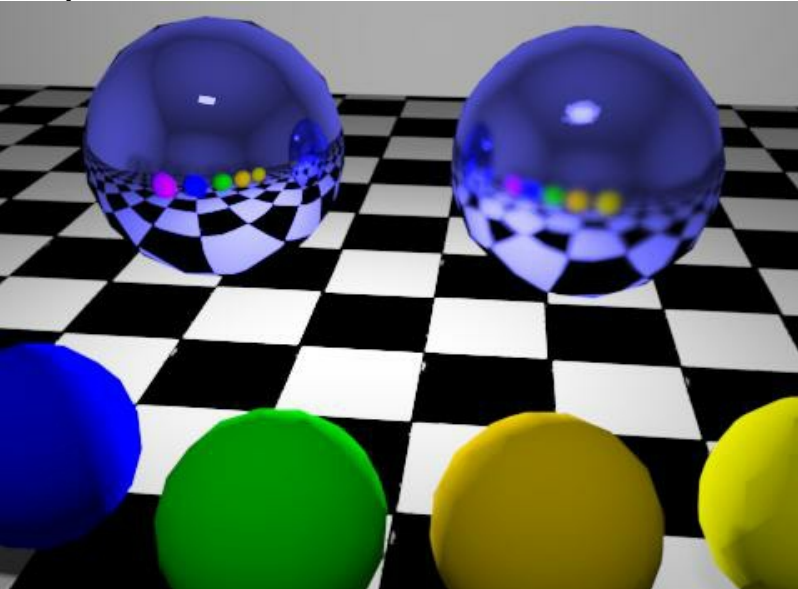
The large sphere on the left has shapness set to 100%. The sphere on
the right has sharpness set to 50% which creates a blurry reflection.

Many materials are imperfect reflectors, where the reflections are blurred to various degrees due to surface roughness that

scatters the rays of the reflections.

See: Blurry Reflection
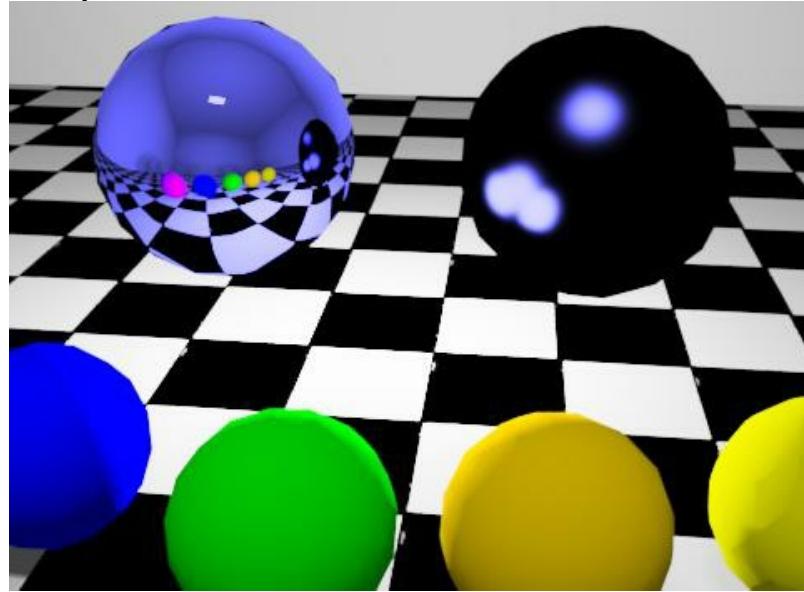
Glossy Reflection

The sphere on the left has normal, metallic reflection. The sphere on the right has the same parameters, except that the reflection is marked as "glossy".

Fully glossy reflection, shows highlights from light sources, but does not show a cleat reflection from objects.

- See: Glossy Reflection

Setting reflection values

To define reflective materials in IRender or AccuRender nXt for Revit , use the Material Wizard to make a material reflective.

It will take some experimentation to determine the amount of reflection desired. For example, these two images have wood reflection set to 50% and 80%

50% reflection for wood counter.

80% reflection for wood counter.

Creating Reflective Materials
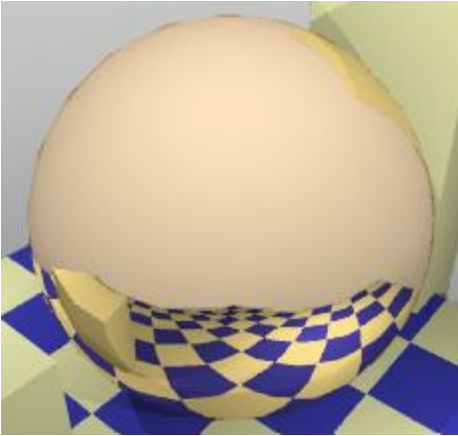
To make a material reflective:

1. Right click on a face which use the material, and select **IRender: Edit Material**
2. This will load the Material Wizard .
3. Select the **Reflective** material type from the defaults on the left.
4. Use the slider bar to select the reflection desired.

Then whenever you use this material, it will be reflective.

For instance, the material applied to the mirror in these models has been set to 90% reflective.

Material Settings - Reflection

This **Editing Material Settings - Reflection** article will explain some material settings.

- Reflection Overview
- Material Settings
- Default Settings
- Metallic
- Non-Metallic Reflection
- Sharpness
- Glossy

Reflection Overview

The reflections help to add realism to this model.

This is boring and flat without reflections.

One of the best things that you can do to improve a rendering is to focus on the details. It's the details that can increase realism of a rendering and one detail that many users over look is adding reflection to all the materials in a model that need it. Not only that, but you must also apply the correct kind and the correct intensity of a reflection to a material.

Users normally apply reflections to the noticeable objects in a rendered scene such as a mirror but often forget about the small objects like a table top, or a door knob or other accessories. Spending time on these details can make the difference between a boring, flat image and an engaging, realistic one.

Material Settings

The ability to precisely control the material settings is a very powerful and unique feature to IRender nXt. Below, are some images that explain many of the differences between some of the customizable material settings.

'Edit Material' Box

Inside the 'Edit Material' Box, under 'Defaults' and 'Reflecations and Highlights', is where the changes to the material settings are made.
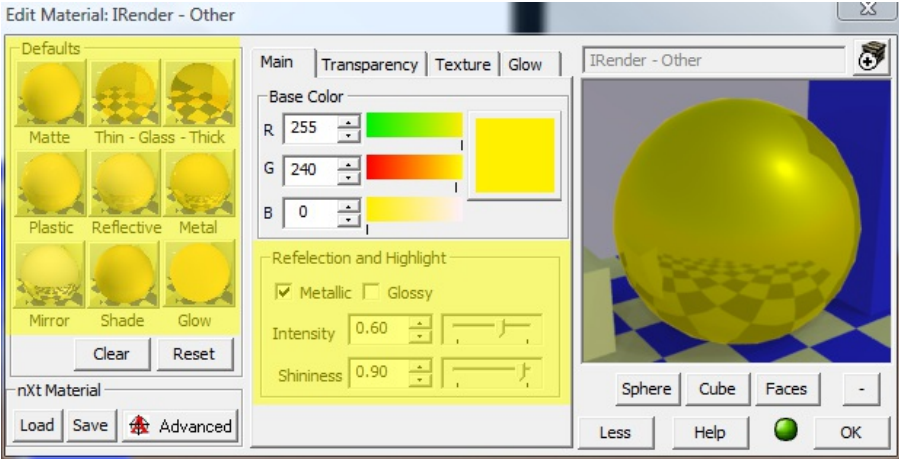
Default Settings

The Material Wizard makes it easy to create and edit materials. The Wizard contains many predefined settings for a variety for materials.

Matte Default Setting

Plastic Default Setting

Only used 'Matte' default settings

Only used 'Plastic' default setting - Can see slight hig[...]
egdes of the tea pot.

Reflective Default Setting

Only used 'Reflective' default setting - Can start to see the reflections
of the boxes in the tea pot - Highlights are starting to appear

Metal Default Setting

Only used 'Metal' default setting - The relfections on
very clear and sharp now - The highlights are very str[...]

Metallic

'Metallic' changes the color of a reflected object based on the color of the reflective object and the objects being reflected.

Metal - Metallic - Yellow Tea Pot

Metal - Metallic - Blue Tea Pot

Used 'Metal' default setting - In this example the blu
reflecting the color red from the checker pattern as bl
because the color blue has no red in it therefore red
black.

Used 'Metal' default setting - In the reflections on the tea pot, the blue
checker pattern is shown as black. That is because the color yellow has
no blue in it therefore blue is reflected as black.

Another Example
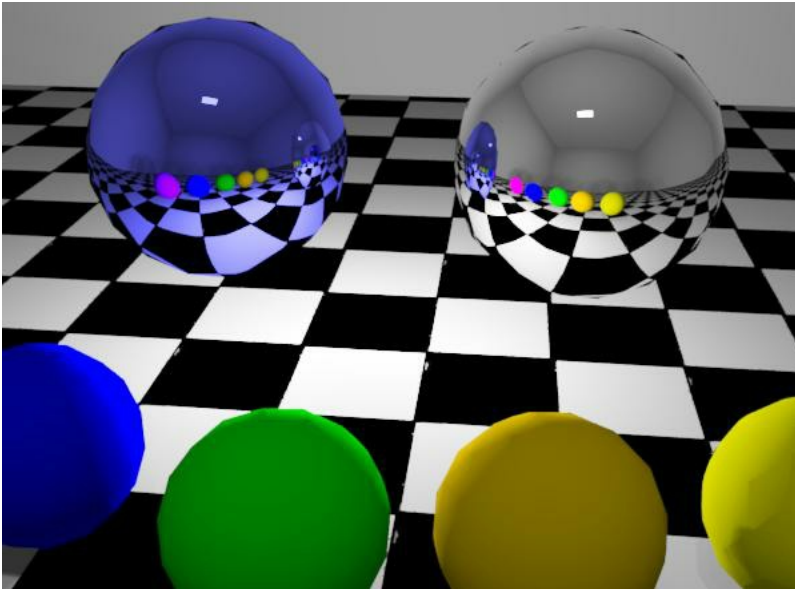
Here is another example. Both large spheres are a light blue metal
(the same color). The sphere on the left is marked metallic and reflects
lights and other objects in the color of the sphere itself. The sphere on
the right is not marked metallic, so the underlying color of the sphere
does not effect the reflection at all. (Both spheres are 100% reflective.
If they were less reflective, then underlying color would effect the final
appearance.)

Non-Metallic Reflection

Metal - NON Metallic - Yellow Tea Pot

Metal - NON Metallic - Blue Tea Pot

Used 'Metal' default setting - With the 'metallic' settin
are accurately relfected.

Used 'Metal' default setting - With the 'metallic' setting off, all colors
are accurately relfected.

Sharpness

'Sharpness' controls how clearly objects can be seen reflecting off of an object.

Metal - Sharpness 1.0

Metal - Sharpness 0.2

Used 'Metal' default setting - With a Sharpness of 0.
very unclear.

Used 'Metal' default setting - With a Sharpness of 1.0, reflections are
maximally clear.

Glossy

'Glossy' turns off the mirror like relfections and only leaves the highlights.

Glossy - Metallic

Glossy - NON Metallic

Used 'Metal' default setting - This time glossy is turn
turned off, the highlights are now white.

Used 'Metal' default setting - With glossy turned on, you can see that
there are now no reflections on the tea pot, only highlights.

Reflection Guidelines
Bright sun and Highlighting

This is a model where the bright sun shining on the floor was making highlight in the cabinets which were too intense.

Although the highlights are too intense, the image may be fairly realistic.
(Bright sun can produce a lot of glare - especially here in Colorado in the Winter)

1. This is the Walnut-medium gloss nXt .ArMaterial. If we were to use the low gloss version from the library, there would be less highlighting of the light on the cabinet.
2. The sun is reflecting from the floor. If we made the floor less reflective, then less sun would reflect from it.
3. The sun may be too bright and it is shining directly onto the floor. We could lower the intensity of the sun.
4. The ambient light is set to the default of medium, if we were to raise the ambient light to high, it may cause less reflection from the sun.
5. You could set the reflective bounces to 1 rather tha 3. This might eliminate the bounces from the floor to the cabinet.
6. You could set the cabinet to be glossy.

For this next image I:

1. Use the low gloss material
2. Made the floor 25% rather than 50% refelctive
3. Lowered the intensity of the sun. (Sin, sky and cloudiness all at .33)
4. Set ambient light to High

Here is the result after 20 passes:

The problem with trying 4 ideas at once, is that you are not sure which one worked best. The result of all 4 changes may be a bit too subdued.

This next image was created with all the original settings, except for the use of the low gloss material.

Here is the effect, with the original settings, of making the material use glossy reflection whic spreads out the highlighting.

Reflection Settings

Reflection Settings are used by nXt when it calculates reflections. The default settings are the best choice for most materials. However there are times when another choice might offer better performance, converge faster, or produce fewer artifacts in the process.

Many of the settings deal specifically with how artificial light sources are reflected in a material. There are two fundamental algorithms used by nXt to calculate these reflections. The first is a "ray casting" algorithm and the second is a "highlight" algorithm. These two algorithms are mathematically equivalent and will eventually produce identical results.

Reflection Settings used in IRender nXt are:

- **Balanced**. (default) This is the default shader and is the correct choice for most situations. nXt automatically balances the two algorithms based on the Sharpness of the reflection.
- **Glossy**. This shader increases the blurriness of the reflection and prevents ray-casting entirely. No object or light reflections are calculated. Use this shader to increase performance and prevent artifacts for materials with very blurry reflections. Some reflective subtlety may be lost.
- **No Light Source Reflections**. This shader excludes ray-casted reflections of light sources. This is sometimes useful in preventing "speckle" artifacts if your material is blurry and your scene contains small, bright, light sources.
- **Monte Carlo**. Only raycasting is used to calculate reflections of light sources. The raycasting occurs in an initially very noisy way, and gradually converges to the correct solution. It is most useful when the surface is not too blurry. Both convergence and frame rate may slow when using this option.

See also: Blurry Reflection

Percentage reflection

A user sent me a model in which he couldn't see any reflection in the swimming pool. He had clouds turned on and was also using a water material.

I discovered that you need to set reflection higher on a surface which has a material.

Here is an image of reflection with just colored water.
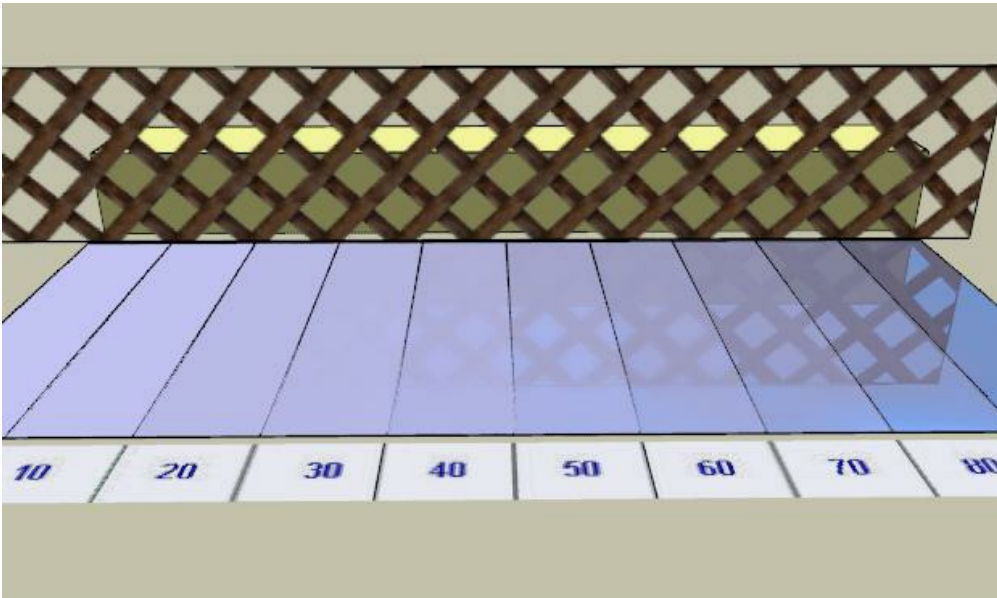
(The reflection is 0%, 10%, 20%, ..., 90% as you move from left to right)

As you can see the reflection becomes visible at about 40%

I then added the SketchUp "sparkling water" material to the water. You can see that you need higher reflection settings to see the reflection of the fence in the water.
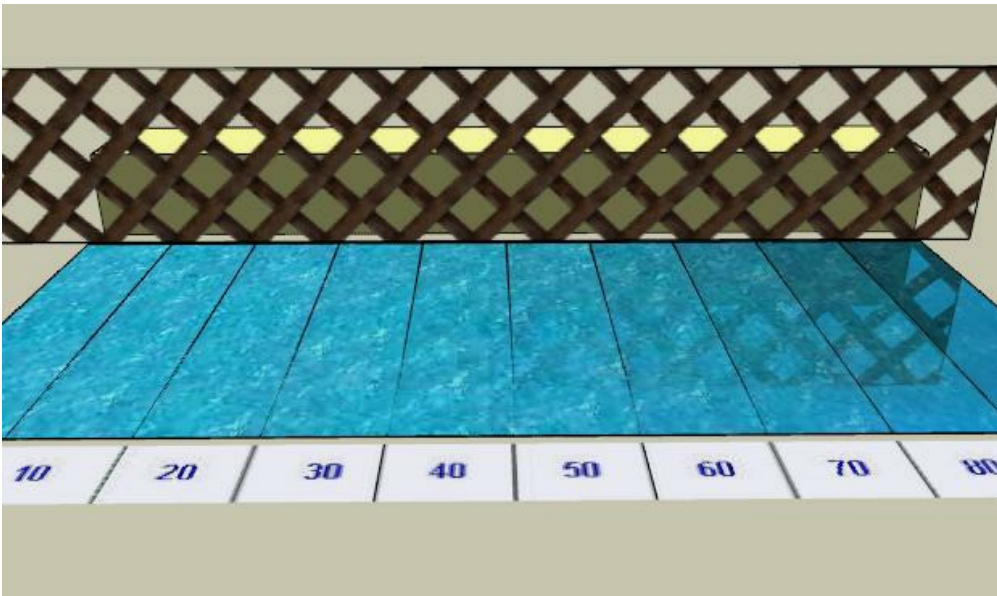
Now the reflection is visible at 50%, but not really what you would expect until you get to 60% or 70%

So: Plan to set reflection higher on textured surfaces.

Fresnel Reflection

There is a **Fresnel Reflection** (pronounced fray-NELL) slider in the reflectivity section of the Advanced Material Editor. This setting increases the reflectivity of surfaces at glancing angles. It does not alter the reflectivity of materials at perpendicular viewing angles. Turning this setting down may offer more control when only slight reflectivity is desired.

The Fresnel slider is on the Advanced material editor. It will have more effect on objects which are less reflective, than on objects which are more reflective.

This is a teapot with ordinary reflection set to 0.23 and no Fresnel reflection. There is a light on the back wall, above the teapot, creating the reflection on the top of the teapot, and a light in front of the teapot on the right creating the reflection on the front.

This is the same scene, with reflection set down very low - 0.02 and Fresnel reflection set to 1.00. This causes the reflection at sharp angles to appear - on the top of the

teapot, but not the reflection at normal angles - on the front.

Glossy Reflection

Glossy Reflection does not reflect actual objects, but does have highlighting from lights.
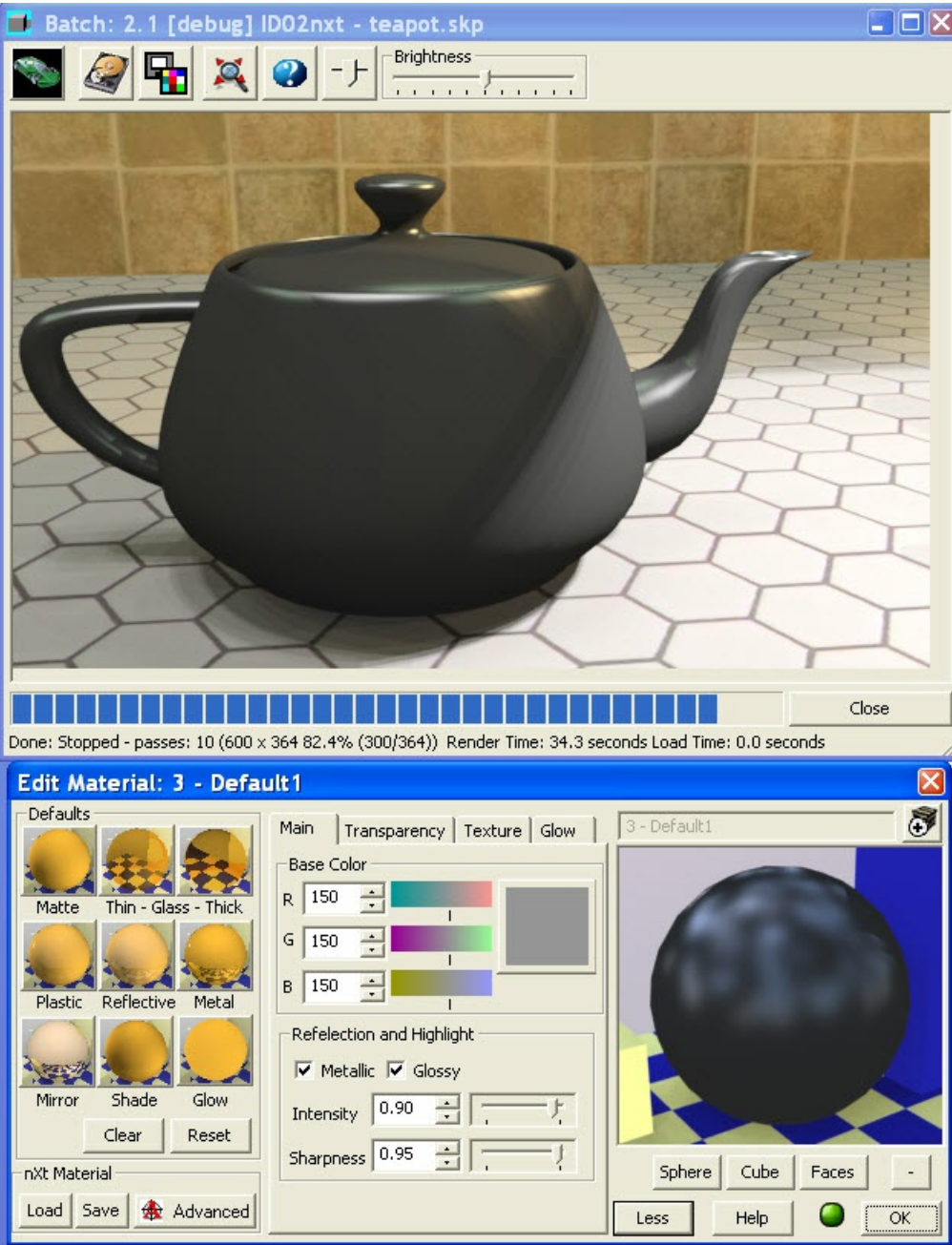
Teapot with Metallic refection and Glossy enabled.
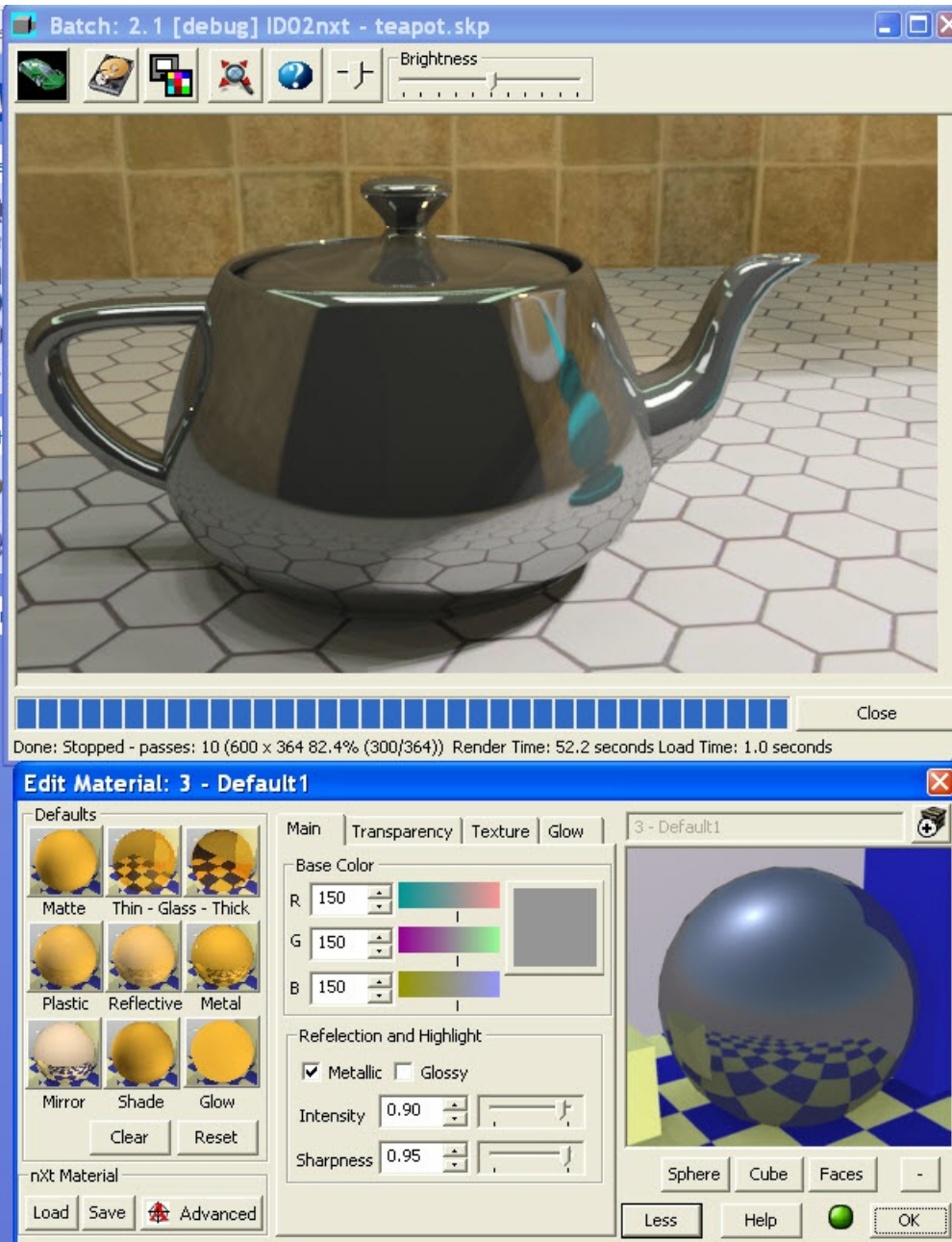
Teapot with Metallic refection enabled.

Metallic Reflection
Reflections won a sculpted model

A reflective model reflecting light from an Automatic Sky
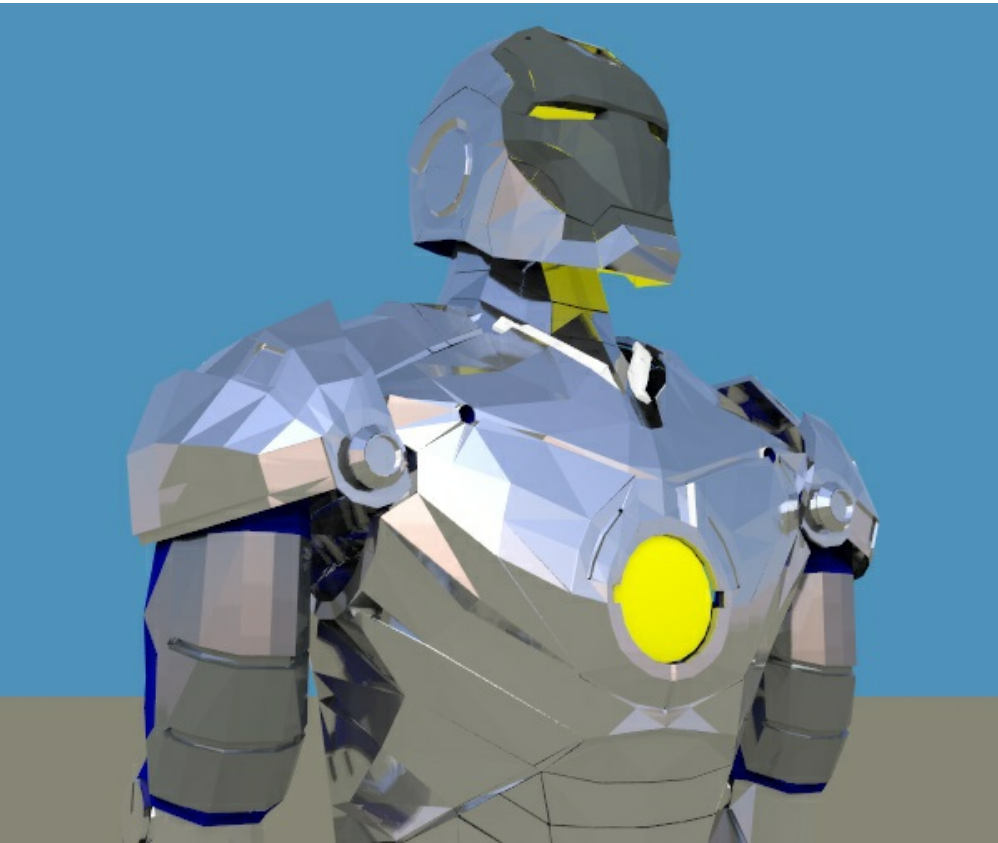
A reflective model reflecting light from an [HDRi Sky](#) with sun and clouds.
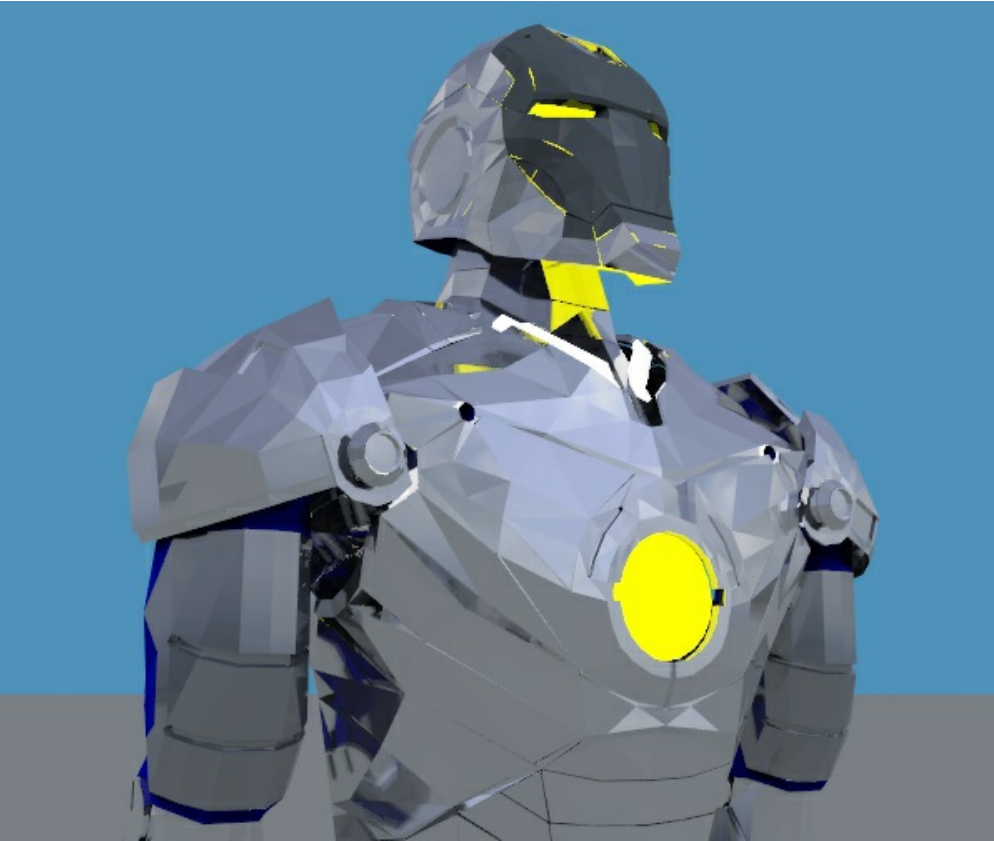
A reflective model reflecting light from an HDRi image of a city scene.

Reflections on an Airstream Camper

Image of an Airstream rendered with an HDRi sky. The HDRi image provides a background as well as the correct illumination, shadows and full 360-degree reflections.

One of the benefits of HDRi skies is the fact that the background image is in the shape of a dome, providing a full 360 degree background. This means that no matter what angle you are viewing your model from, there will always be a high quality background image. This also makes them valuable for scenes which contain reflection - reflective surfaces like this Camper, or windows.

Comparison to non-HDRi rendering

This second image was rendered using the default SketchUp Sun. Compare this to the image above which uses HDRi skies.

There are a number of notable improvements in the HDRi image including softer shadows, softer lighting and reflections that match the background image.All of these improvements help to add to the realism of the model.

Same model with reflection from an normal, "Automatic", sky.

Window Reflections
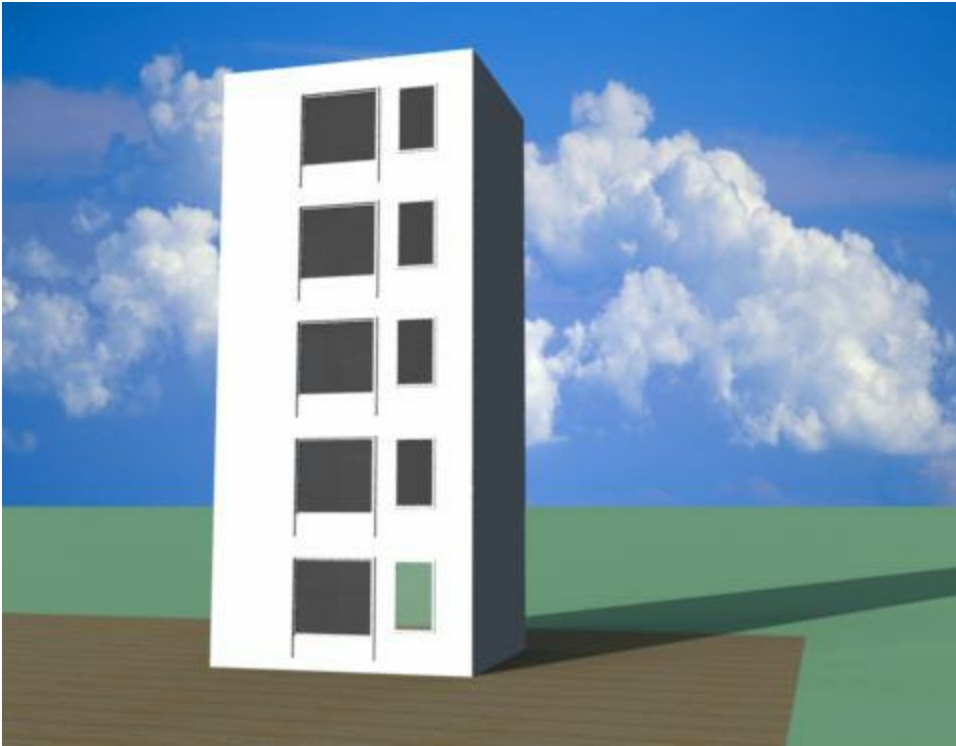
model with background sky, windows, and mirrors to help with settings.

It can a little effort to get good **Window Reflections**.

1. You need to make sure you have something to reflect,
2. You need to balance to transparency and reflection of the windows to get the effect you want.
3. You need to position the camera so that the windows reflect the Sky rather than the ground.

Original Model

Here is a model a user sent in to try to get help with window reflections.

We added a mirror next to the window. This will help as we are trying to get the transparent/reflective settings adjusted.

We also made the building 5 times taller and repeated the window, because sometimes you expect a sky reflection when you are really reflecting the ground.

We also added a ground plane, to make it easier to see the horizon.

Backgrounds, such as this background sky are truly backgrounds - they are placed behind the rendered image, and do not effect lighting or reflections.

In this first image, the background is not reflected, and there is very little to reflect even in the mirror. (More on windows later.)

Use an HDRi Sky

model with HDRi sky

We replaced the background with an HDRi sky - the Bear Mountain sky included with IRender.

We also turned off the sun, because with the sun on and an HDRi sky, the sun is too bright and often not in the same position as the sun in the HDRi sky.

The HDRi sky is reflected. However, in this case the model and view are positioned so that the stunning part of the HDRi sky is behind the building, and visible in our view. So the mirrors are reflecting the less-stunning part of the sky. (This particular HDRi has a great sky - but also has a mountain - se we are seeing the mountain reflected in the windows.
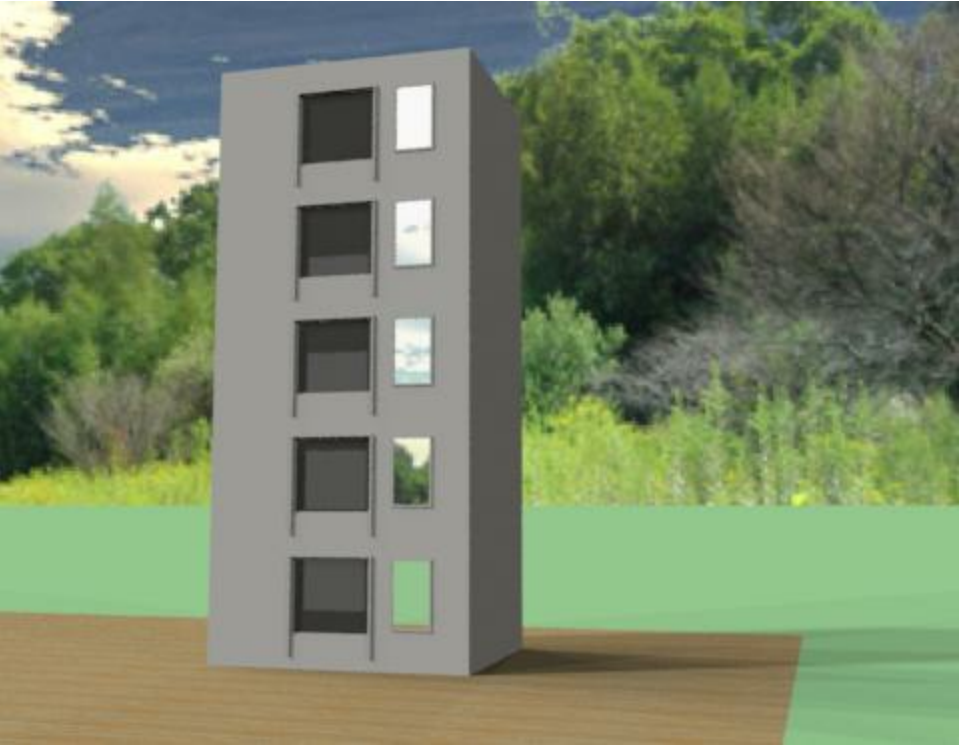
model with HDRi sky rotated 180 degrees

So we rotated the HDRi sky 180 degrees. This puts the mountain behind the building and the sky behind us, so that if reflects in the windows.

model with HDRi sky rotated 270 degrees

By rotating the sky 270 degrees instead of 180, I was able to put the mountains to the side, so we see more sky and still reflect some sky.

(If you look around on the internet, you can find some skys which will work well for both background images and reflections. But remember you get better reflections when the sun is behind you, not behind the building.

Window Settings
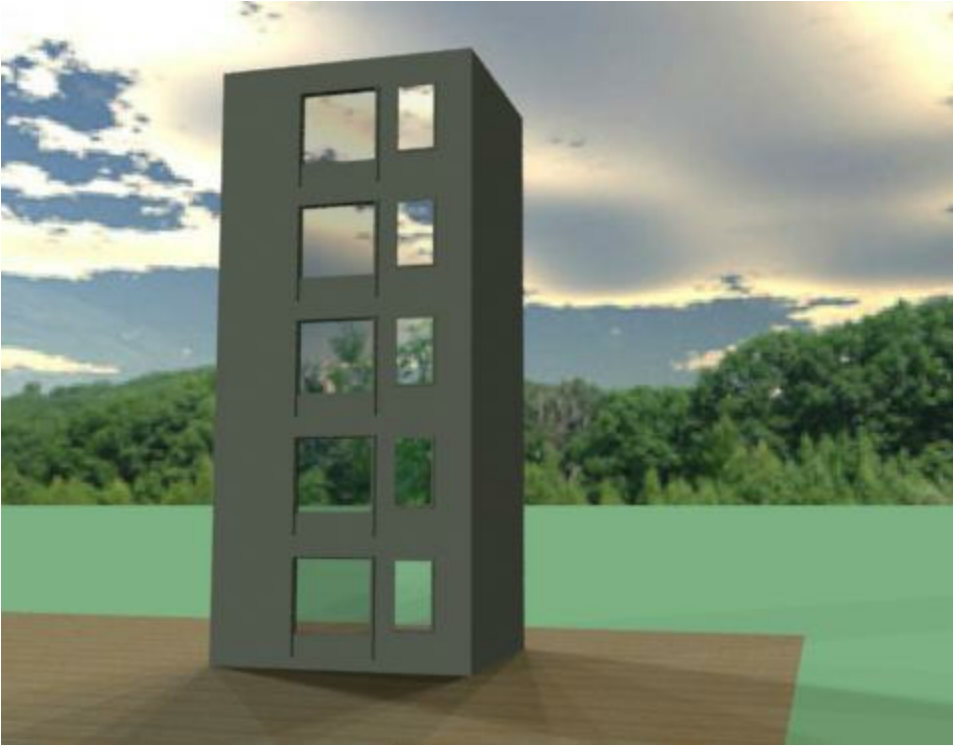
100% reflective, 50% transparent window

When working with rendering engine developers we often have discussions like "Can a 100% transparent object have reflections?". The problem here is what "100% transparent" means. If it means that 100% of the light passes through the window, then there is no light left to reflect back to the eye. No matter who wins the argument, you need to balance transparency and reflection to get the desired effect.

Also, if you look at a piece of glass which is reflecting light, you will notice that the glass is more opaque where the light is reflected, and more transparent where no light is reflected.

Instead of starting with glass for the window and adding reflection, we are now going to start with a mirror and add transparency. For this image, I made a mirror material 50% transparent.

You can adjust the reflection and transparency to get the effect you want.

Camera Position
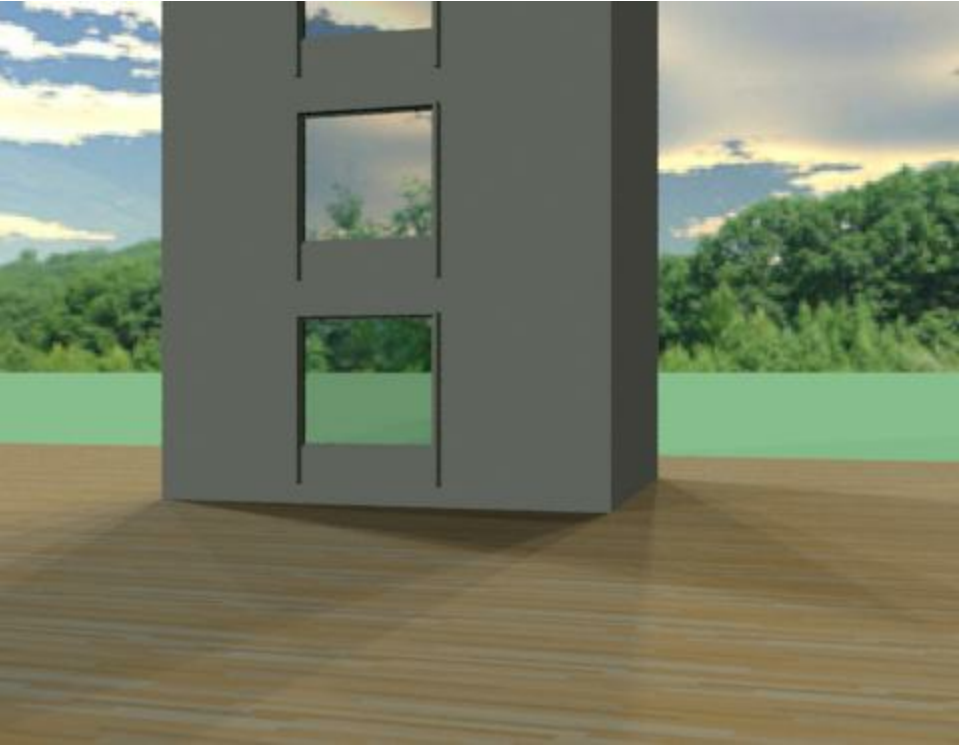
camera 5' from ground.

Now, with a tall building, we want to position the camera well. If the camera is high above the ground, the reflections of the windows will see the ground and not the sky. So you want to place the camera near the ground.

(I also removed the mirrors, so we can see just the windows.)

For this first image, I placed the camera at 5' from the ground.
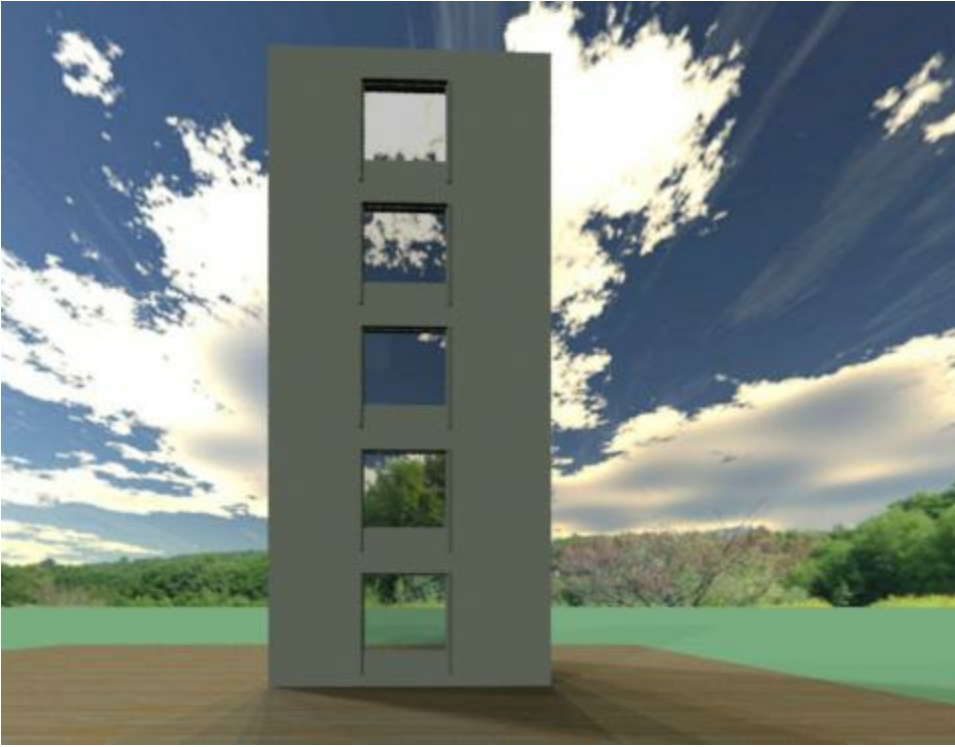
camera 5' from ground, looking up using 2pt perspective and pan.

In order to see the whole building, you need to change the view.

If you try to rotate the view in SketchUp to see the top of the building, you will find that the camera moves below the ground.

If you pan up to see the top of the building, SketchUp will move the camera height to 1/2 the height of the building and most of the windows will reflect the mountains and the ground.

The trick is to turn on 2-pt perspective in SketchUp, and then pan. The camera wil stay at 5' for good reflections, but the building will be visible, and the vertical lines will stay vertical.

Showing Sky in Windows only

Windows reflecting an invisible sky

Another trick you can use is to turn off the sky, but leave the sky reflective.

This lets you sky reflections be stunning, while the visible sky is just a white background.

Lighting

Lighting is an important aspect of a Photorealistic rendering.

Use the following guidelines when lighting your model:

- Provide accurate information whenever possible. Avoid using unrealistic intensity levels for light sources.
- Adjust the overall brightness of your rendering by using the Brightness control on the Render Display Window . Do not attempt to adjust the overall scene brightness by changing the intensity of all of the light sources. nXt's automatic exposure adjustment will be working against you if you attempt to do this.
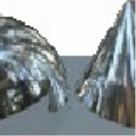
IRender nXt automatically processes illumination and shadows from the SketchUp sun and from the sky. You can add additional lights to the model - especially for interior scenes for more realistic effects.

Lighting Defaults

Presets

Lighting Presets (click to set and re-render)

○ High Dynamic ○ Exterior ○ Int. w/sun ○ Int. no sun ● HDRi sky

{{{topimage_text}}}

The **Presets** lets you choose predefined settings for the most common lighting situations.

There are a lot of settings to create special lighting effects. The presets make it easier to get a good rendering without having to make all the setting manually.

Standard Presets

- **Studio or High Dynamic** for subtle shadows for exterior scenes.
- **Exterior** - for exterior scenes with sun and sky.
- **Interior with Sun** - Interior scenes with lighting through doors and windows.
- **Interior no Sun** - Interior scenes with no external lighting.
- **HDRi Sky** - Exterior scene with a sky full of clouds.
- See: Lighting Presets

Lighting Presets make it easy to create an effective rendering without having to worry about lights, the sun, or shadows.
Template:IRender Nxt Defaults Tab

3D Object Sample
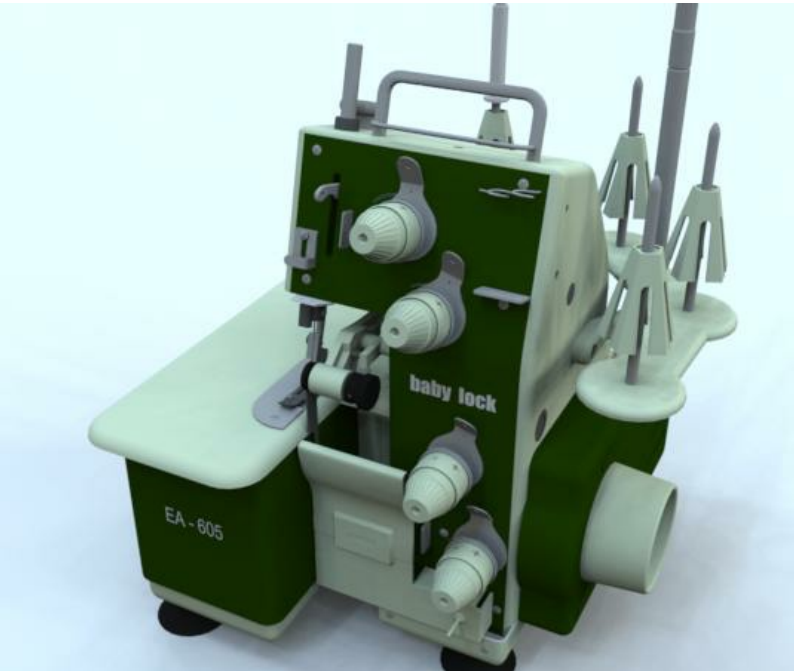
IRender nXt sample. (No lights. 4 minutes rendering time. 50 passes)

This model, downloaded from the Google 3D Warehouse , (Lock Machine by Jon was rendered without making any light or material settings. Using the default Studio, or High Dynamic Lighting in nXtRender makes an excellent rendering, with subtle lighting effects with the push of a single button in IRender nXt.
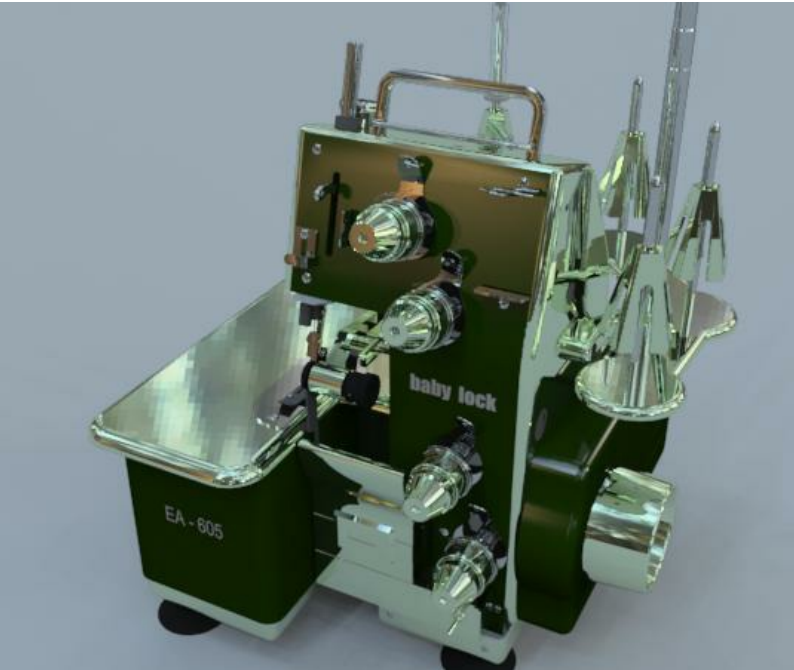
Same model with reflection settings on materials. (No lights. 5 minutes rendering time. 30 passes.)

Adding some reflective materials, (by right clicking on the material, and selecting the default plastic, or metal box), creates a

Rendering with SketchUp using IRender nXt
much more dramatic rendering - again without adding any lights.

Ambient Light

Ambient light is a constant light that is added to the rendering. **IRender** adds **Ambient Light** to a scene to represent more realistic lighting effect without having to enter every actual light source. Ambient Light is light applied to the entire scene. Using Ambient Light, you can highlight parts of an image with an actual light, and use Ambient Light to provide a flat, but usable illumination for the rest of the scene.

Decreasing the amount of ambient light generally produces images with more contrast. Too much ambient light can make a rendered image seem flat and uninteresting; too little can cause excessive contrast.

IRender nXt also uses Indirect Lighting which calculates the effect of light bouncing off of surfaces and illuminating other surfaces. This reduces the need for Ambient Light.

*Note: I know everybody wants an "easy button" which will just make the scene look the way you want. But you will need to adjust some things to get lighting right. Be sure to use the **Brightness Slider** and **Tone Operator** to adjust the brightness of the rendered image.*

Brightness slider on render window

Ambient Light presets
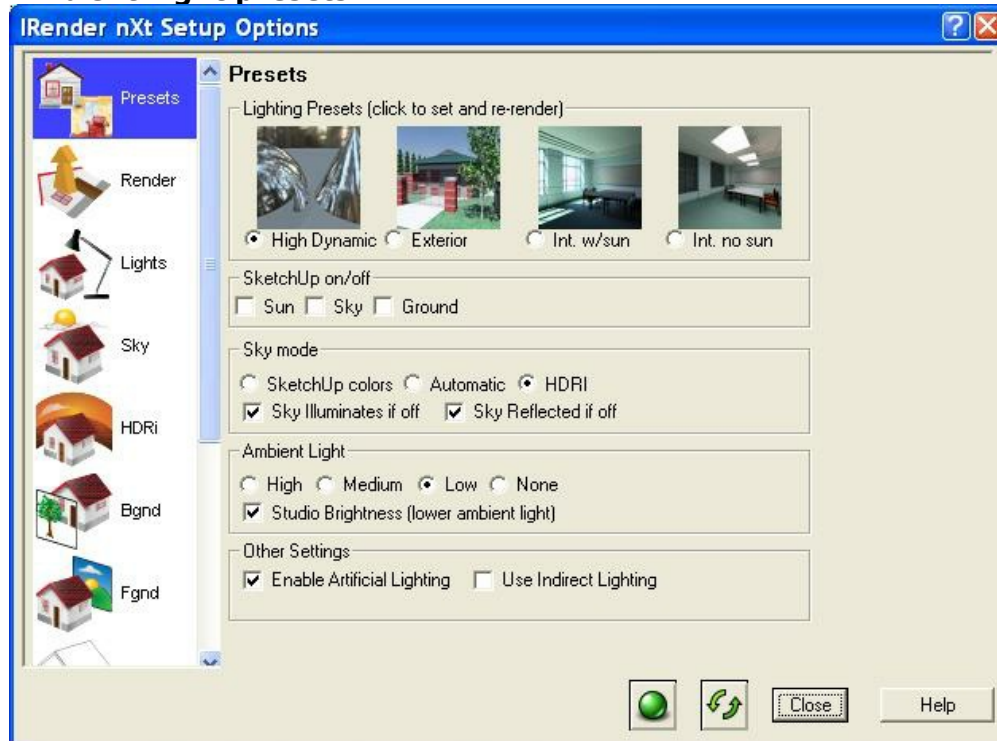
Ambient light levels are automatically set with each of the preset, default, lighting types on the Presets Tab .

- **High Dynamic** - sets Low Ambient Light. (also sets Studio brightness - even lower)
- **Exterior** - sets High Ambient Light.
- **Interior w/sun** - sets Medium Ambient Light.
- **Interior no sun** - sets Medium Ambient Light.

These levels can be overridden on this Presets Tab.

The balance between ambient light and artificial lights can adjusted on the Light Tab .

Ambient Light Balance

You can use the slider on the Light Setup Tab to adjust the balance between lamps and Ambient Light. (**Default 50%**)
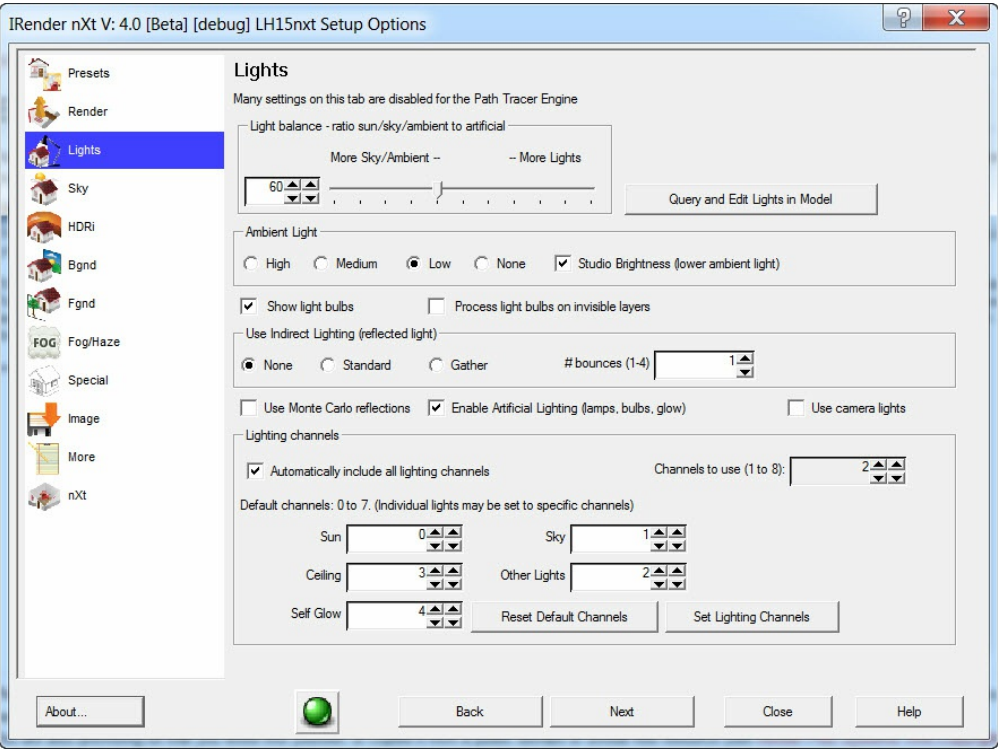
Note:This slider adjusts ambient light vs artificial light. If you want to adjust the effects of sun and sky, you need to use the sliders on the <u>Sky Tab</u> .

Default Interior Ambient Light Balance

Balance at 90% - mostly lamps
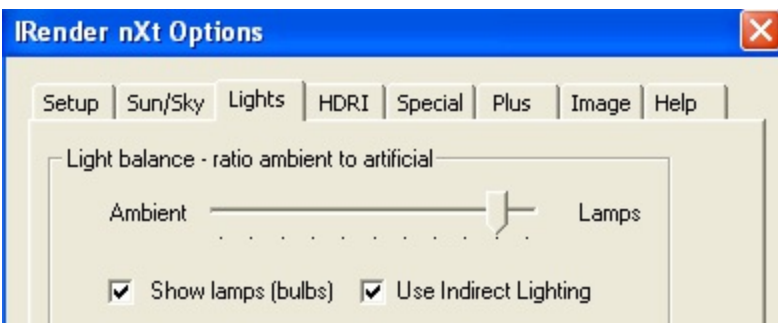
90% Ambient Light Balance - mostly lamps

Balance at 10% - mostly ambient
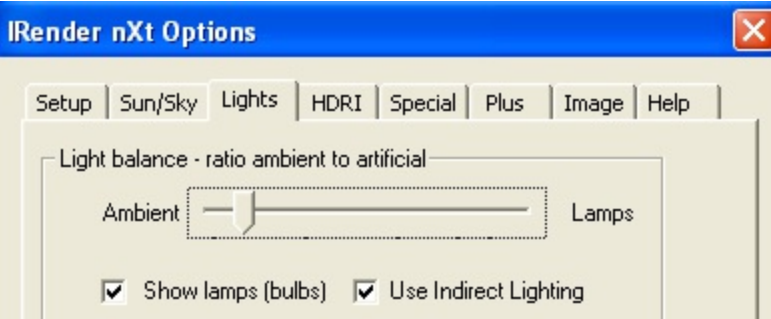
Living Room with Ambient Light

Frequently asked questions

- This is a 6-sided cube viewed from the inside. There are no lights. Why is the ceiling brighter than the floor? (I get the same result with earlier versions, and without textures on the walls.)

    The ambient lighting is intentionally non-uniform-- more light is directed upward.

Highlighting

Highlighting' is the reflection of lights onto a surface.

The IRender nXt Material Wizard has several settings which apply to reflective materials.

With the new Material Wizard is that you can change all of these and quickly see the effect in the render preview window at the right.

Reflection

This is the mirror like reflection of other objects
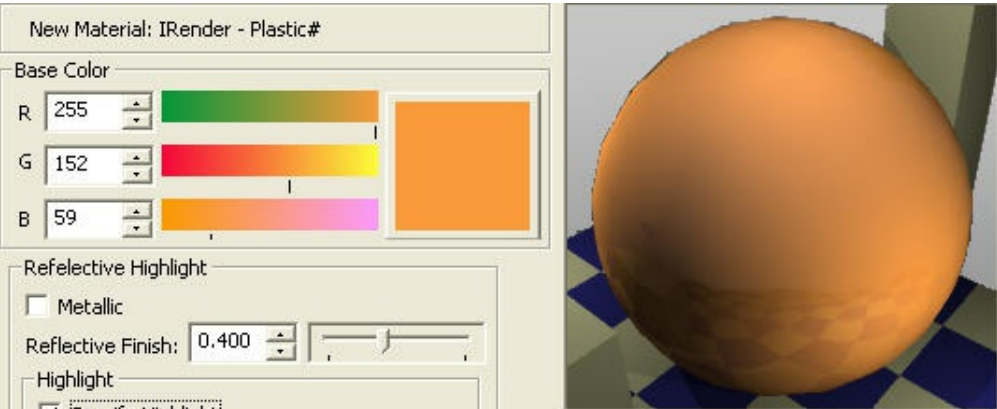
Plastic with reflection set to 0.40 and highlighting turned off.
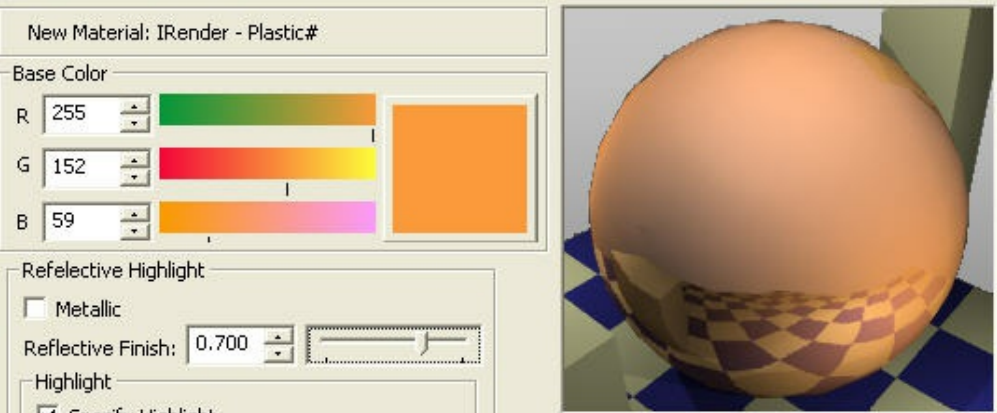
Plastic with reflection set to 0.80 and highlighting turned off.

Highlight intensity or Sharpness

This controls "highlights" from the reflection of light sources. This is also sometimes called Glossiness.
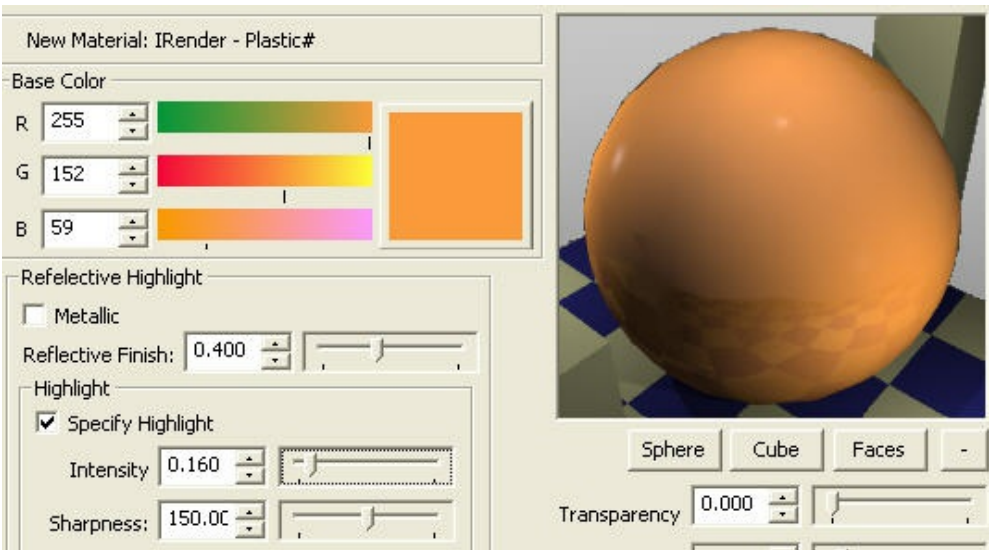
Plastic material with Highlight Intensity set low - 0.16
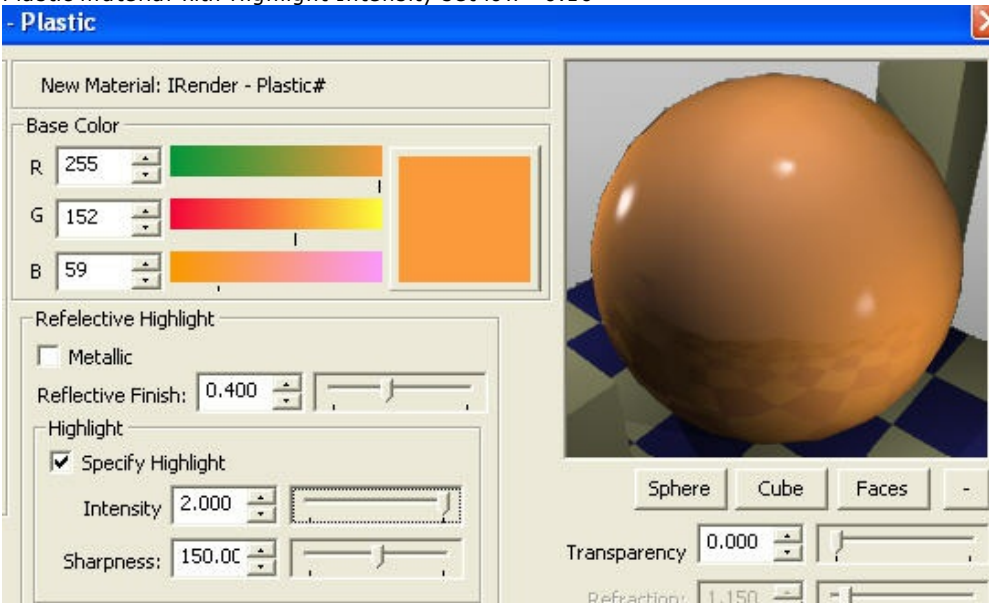
Plastic material with Highlight Intensity set high - 2.00

Highlight Sharpness

Or Intensity-Y - this is how sharp or fuzzy the highlight is. Note how the Highlight Sharpness setting change the appearance of plastic. (The default Highlight Sharpness for plastic is 150.)
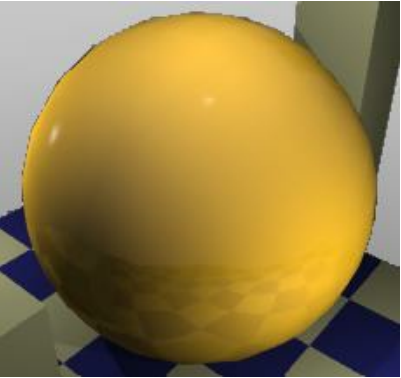
Plastic material with sharpness set to 246.
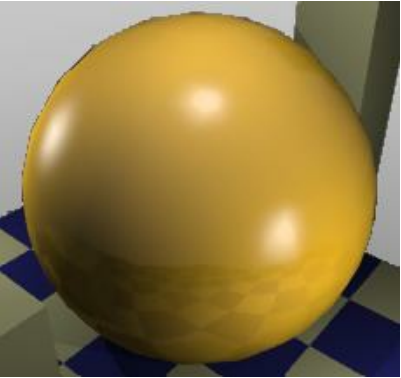
Plastic material with sharpness set to 45.

Highlight Type

White, Metallic or colored - this determines the color of the highlight.

Intensity Override

Intensity Override ? X

Intensity

[25] % ○ % ○ Watts ○ Lumens

☐ Remove Intensity Override from Selection

OK   Cancel
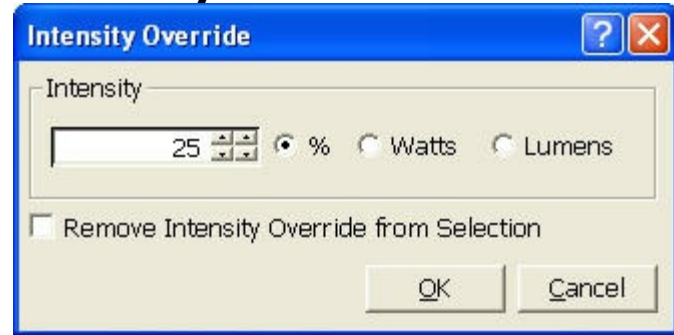
After creating, or placing a light fixture, you can **override** the **intensity** of the lamps within the fixture for each instance of the light fixture. This allows you to place two identical light fixtures and give them different intensities.

1. Right click on a light fixture and select **Override Light Intensity**
2. Select the override desired (% or Watts)
3. Click OK to save the settings for the light fixture.

[[Image:Intensity override sample.jpg|frame|left|Four floor lamps with varying intensities.
The lamp on the left has its original intensity (75 Watts).
The next lamp has a percentage override of 50%.
The next lamp has a wattage override of 300 watts.
Note: If the light fixture has multiple lamps, then the override is applied to each lamp. If the lamps within a light fixture originally had different intensities, and you override them with Watts, they will all be set to the same intensity.

Camera Light

The page explains how to create and user a **Camera Light**

It is often very difficult to place enough lights in your drawing to be fully realistic. Ambient light settings help with this, but often produce a flat effect. By placing movable lights, attached to the camera you can add effective illumination and highlighting which will be used for all views.

Lights which move with your camera make it easier to illuminate scenes with out having to place lights for every view angle you may want to use.

You can, and should, add lights to your scene - especially lights which will appear in the rendered image. However, a couple of lights placed near the camera will provide good illumination for the rest of the scene.

How to use a Camera Light
Step1 - create camera light
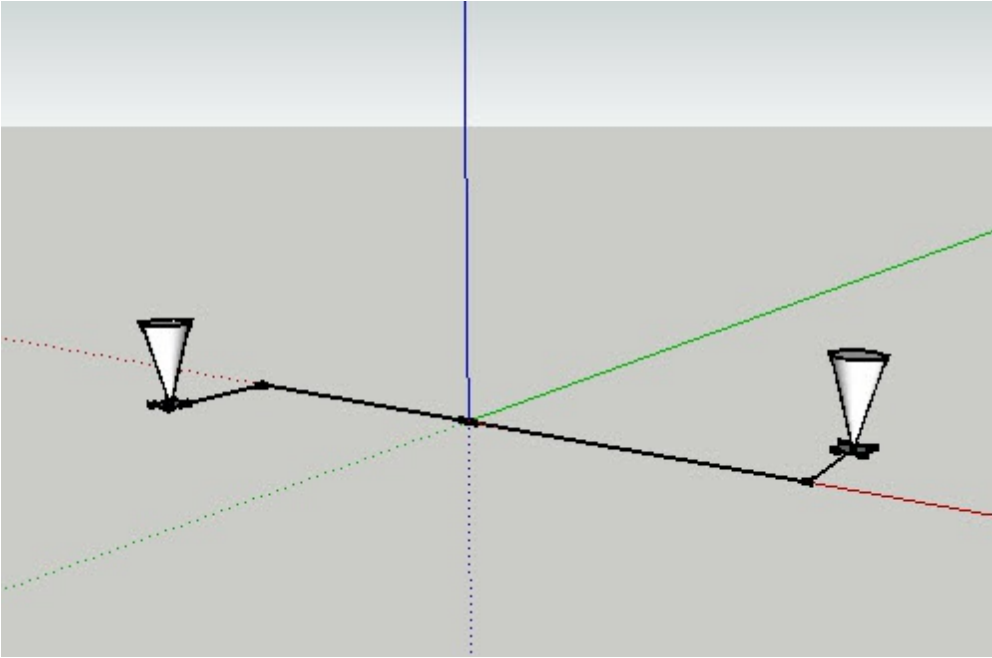
Camera Light component

Create a component with one or more lights in it.

- The origin of the component should bet in the location where it will snap to the camera.
- The blue axis will be aligned to the line from the camera to the eye.
- The green axis be aligned to the camera's up vector.
- The red axis will be aligned perpendicularly to the up vector - usually left and right of the camera.

Place any geometry or attributes in the camera_light component which will help illuminate the scene. (The construction lines will not effect the scene)

Do not place any geometry which will obstruct the camera.

Save the component as '*camera_light*

Step 2 - place camera_light component in a drawing

camera_light component placed in drawing.

It does not matter where you place it, it will be snapped into position when you align it.

Step 3 - Align camera_light to camera
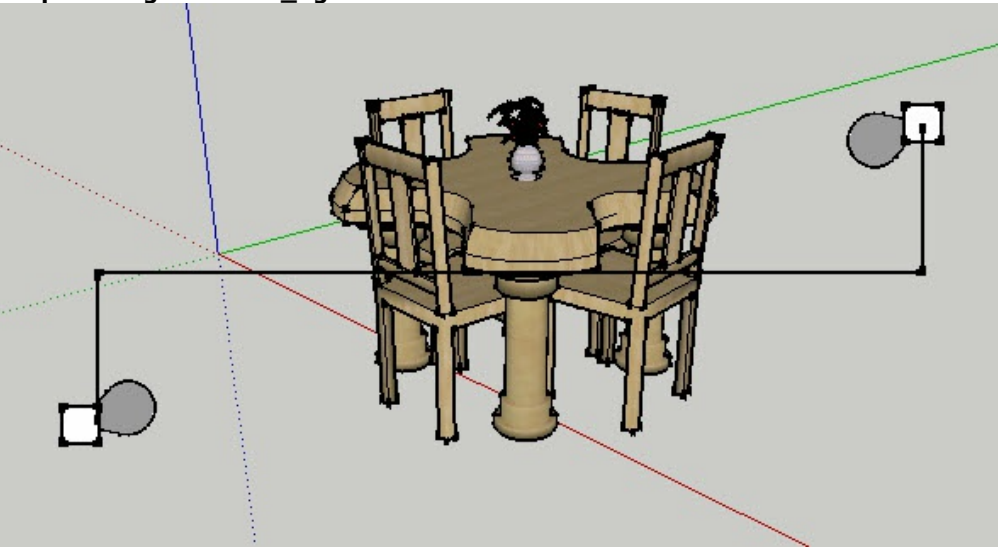
Camera light after alignment.
(Zoomed out a bit so that we can see it).

Select **Align Camera Light** from the plugins menu.

When aligned properly you will not be able to see it.

For testing, it may be handy to zoom out to let you see how the camera has been placed.

Step 4 - Render model with camera light

Scene rendered with camera light.
(Zoomed out a bit. Normally the camera light would not be visible

(Rendered with IRender nXt. No other lights in model.)

Creating a Camera Light in Render Plus

Scene rendered with 4-bulb Camera Light generated by IRender nXt
(Note: This image is a little extreme because there are no other lights. Normally you
would use the camera lights to augment other lighting.

You can automatically create camera lights in Render Plus from the [Create Lamp](#) Wizard.

- See: [Camera Light Tab](#)

Tips

- Two or more spotlight will usually provide the best effect.
- Normally the camera light will not be your only light. It is intended to augment other lighting.

Cove Lighting

Cove Lighting refers to lighting in a suspended ceiling where the lighting itself points up and is then reflected by the ceiling into the scene.

Here is a model with cove lighting after 30 rendering passes. The model has a single light applied to the entire upward facing surface on top of the recessed area of the ceiling. After 30 passes the lighting in the room is somewhat balanced, but still the lighting above the ceiling shows the effects of the individual lights. This will improve with additional rendering passes.

1 cove light, 30 passes.

After 200 passes, the lighting is fairly smooth.

1 cove light, 200 passes.

Light Setup

Light Settings for IRender nXt

Lights Tab

Light Balance

Sets the balance between Ambient light and light from lamps and light fixtures,

After changing this value, you must perform a full render - not just a refresh rendering.

See: Ambient Light

Lights Query and **Edit Lights in Model** Loads the Lights Query & Edit Wizard to find and edit lights in the model.

Settings

- **Show Light Bulbs**
- **Process light bulbs on invisible layers**
- **Use Indirect Lighting** and **Bounces** - See: Indirect Lighting
- **Artificial Lighting** - Turn this off to not use the illumination of lamps in the model.
- **Use camera lights when rendering**

> The camera_light component will be aligned to the camera while rendering, and then hidden again after the rendering is complete.
> See: Camera Light

Lighting Channels

Sets the number of channels to use and default channels for groups of lights. See: <u>Lighting Channels</u>

Set Lighting Channels

Sets the names of the lighting channels.

Sun

The SketchUp **Sun** is automatically used in IRender to create lighting effects and shadows.

Sun Settings

Sun Settings depend on the SketchUp Sun Settings, and on overrides on the Lighting Options Tab of the IRender Setup Dialog. Other sun settings are made directly in SketchUp .

SketchUp Settings
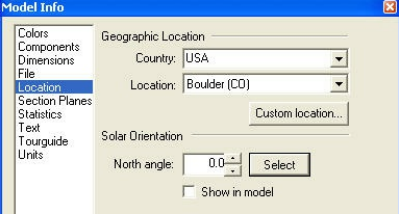
Location from Model Info in
SketchUp
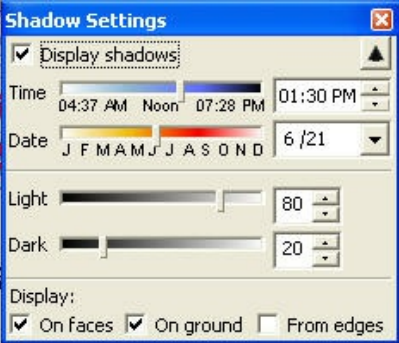
Shadow Settings in SketchUp

Basic shadow and sun settings are made in SketchUp - using the Model Location and Shadow Settings dialog.

IRender Setup Dialog

You can set cloudiness, and override the SketchUp intensities on the Sky Setup Tab .

Lights Tab

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Set Lighting Channels

> Sets the names of the lighting channels.

Shadows
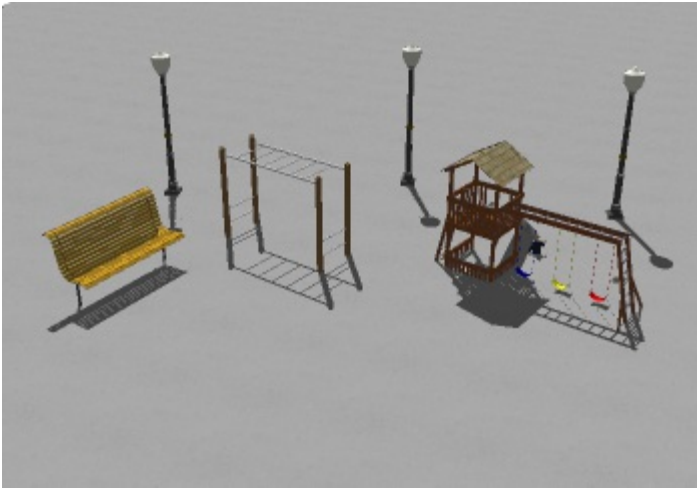
Shadows from the sun. Rendered with SketchUp.

Multiple shadows from SketchUp street light components.
Rendered with IRender .

Shadows add to the Photorealism of a rendered model.

Shadows in SketchUp

SketchUp displays shadows from the sun, using the Shadow Settings dialog box to specify the day of the year, and the time of day. to create the shadows.

See Shadow Settings for information on how to set sun shadows.

Multiple Shadows

High end renderers, such as a IRender nXt , can also cast shadows from other light sources to create a more realistic effect for interiors or night scenes.

This scene is rendered with multiple lights and Soft Shadows.

Soft Shadows

Soft Shadows is a feature of **IRender** which re-samples the sun and lamps to create soft shadows.

Lamp Size

Larger lamp bulbs will create software shadows - see the examples below.

Small lamp placed in front of chair. 30 rendering passes. Note harsher shadows

Large lamp placed in front of chair. 30 rendering passes. Note soft shadows

Notes

- *The shadows are softened with each rendering pass, so you need to allow enough rendering passes to see the soft shadows.*
- *The wall on the left has* Auto Bump *enabled.*

Another Example

Here is another example using a 0.05" lamp on the left and a 2" lamp on the right.

500 passes with the Path Tracer Engine

HDRi Skies

HDRi Skies will improve your SketchUp Rendering with realistic backgrounds and exterior illumination.

HDRi Skies

HDRi Skies are special images to represent skies which contain extra information about intensities of the colors.

HDRi (high dynamic range imaging)is a set of techniques that allows a greater dynamic range of exposures (the range of values between light and dark areas) than normal digital imaging techniques. The intention of HDRi is to accurately represent the wide range of intensity levels found in real scenes ranging from direct sunlight to shadows.

IRender nXt offers support for HDRi Skies - used as visible skies, as sky reflections and for illumination from the Sky.

HDRI Skies are special 360 degree images of background imagery such as skies, trees, sunsets and buildings that also contain illumination information such as the intensity and color of light based on the background imagery chosen.

What **HDRi Skies** means to you...

- Accurately illuminate a scene.
- Create realistic reflections.
- Increase realism.
- Featured in IRender nXt and nXtRender.

HDRI (high dynamic range imaging)is a set of techniques that allows a greater dynamic range of exposures (the range of values between light and dark areas) than normal digital imaging techniques. The intention of HDRI is to accurately represent the wide range of intensity levels found in real scenes ranging from direct sunlight to shadows.

HDRi Sky Tutorial
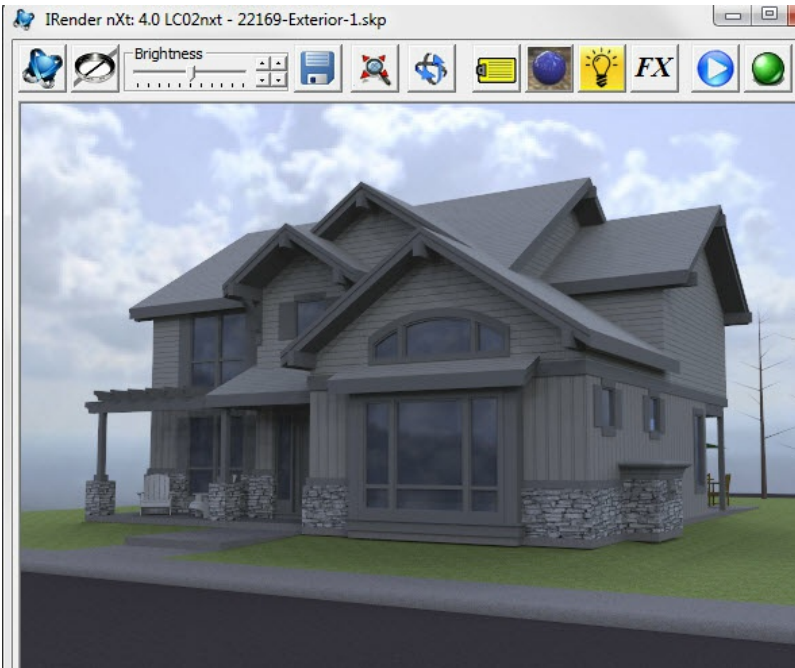
This tutorial show you how to use the HDRi Sky Lighting default, to add a quick HDRi sky background to a model.

You can easily choose a different HDRi sky, or mke other changes after you view a sample rendering.

- See HDRi Sky Tutorial

Using HDRI skies in IRender nXt
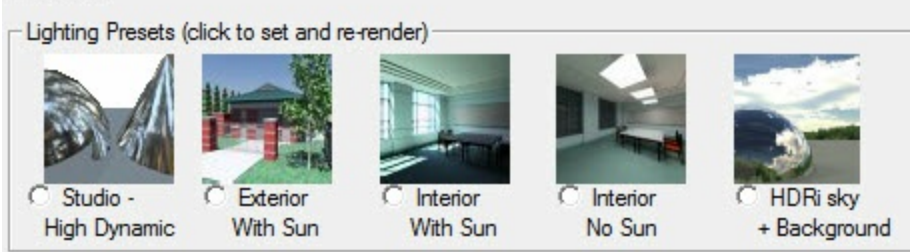
We added a new Lighting Preset to IRender nXt - HDRi Sky

Because of the new Image Layer Wizard - which make it easy to rotate and position HDRi skies, more and more people are using HDRi skies in the models.

This new Lighting Preset automatically makes the best settings for HDRi skies, and selects a nice sky with a mountain, background trees, sky and clouds.

If you want to use a different HDRi sky - just choose this preset and then go to the HDRi Setup tab to choose a different sky.

IRender contains several HDRI skies from various sources, including ArchVision, AccuStudio and EverMotion. You can click on the plus sign to cycle between the included HDRI skies.

IRender nXt Setup Options

HDRi 3

HDRi images from Brian James, Robert McNeel _Associates

TIFF at night

Mt Monadnock

Gravel Road

StJohns

StudioA

StudioB

Current

ever_sky0040.hdr

Rotation 45

Intensity 1

Close   Help

IRender nXt Plus - 2.0 HG01nxt:

Render nXt Options

Setup | Sun/Sky | Lights | HDRI | Special | Plus | Image | Help

Lighting Presets
- High Dynamic - Exterior - Interior w/sun - Interior no sun

SketchUp on/off
- Sun ☑ Sky - Ground Plane

Sky mode
- SketchUp colors - Automatic ● HDRI

Ambient Light
● Exterior - Interior - High Dynamic - None

Other Settings
- Use Indirect Lighting
☑ Sky Reflected if off
☑ Sky Illuminates if off

Rendering with SketchUp using IRender nXt
If you want to make HDRI Skies visible, or just reflective, use the Sun/Sky Tab to adjust the settings

In order to see the HDRI skies, you need to turn the sky on, and select an HDRI sky. None of the 4 lighting defaults selects HDRI sky and makes the sky visible, so you need to do this manually on the Sun/Sky tab. In the example on the right, we selected the Exterior Default, then turned off the sun, and turned on HDRI sky mode. (We selected the HDRI sky to use from the HDRI tab)

Resolution Issues

HDRI skies don't work well for backgrounds unless you have a very high resolution HDRi, or use a very large Field of View.

If you use a standard FOV of 35, then you're only using 10% of the width of the HDRi image and stretching part of the image that across the background of your rendering. (35 degrees is about 10% of 360 degrees)

So if you do the math, for a 1000 pixel rendering, you would need a 10,000 pixel HDRi image for a 35 degree FOV to render at highest quality.

If the FOV is small, it will look like you are zoomed in on the background image, the wrong scale. So it's better to use a larger FOV for exterior scenes for which you want to use a HDRi sky for the background.

If you set the FOV to 90, then you will see 1/4 th of the HDRi image as a background. That kind of works, but of course you may get distortion from the 90 FOV in the perspective view. 2 Pt Perspective may help with this.

Here I used StJohns_09_2.hdr, one of the highest resolution HDRi files that are included with the librairies. It has a width of 4096 pixels. And I used a FOV of 90 and turned on 2 pt perspective.

HDRi background. 90 degree FOV and 2 PT perspective set in SketchUp.

So it's using about 1/4 of the entire HDRI image: (This is hard to see here because this is a flat representation of a Panoramic HDRI Image)
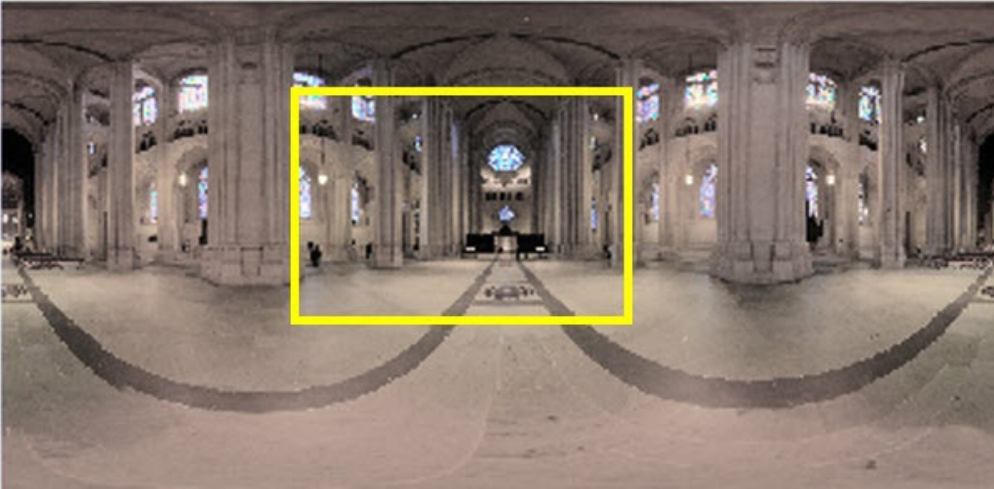
Approximate location of the background used from full HDRi image.

Here is another sample with a 90 degree FOV for an exterior - without 2 PT Perspective.
(Using the Bear Mountain HDRi from our library)

HDRi background. 90 degree FOV and normal perspective set in SketchUp.

Additional HDRI Skies
HDRI Tab

IRender nXt Setup Options

Presets
Render
Lights
Sky
HDRi
Bgnd
Fgnd
Special
Image
More
nXt

HDRi 2

HDRi images from EverSky and AccuStudio

Blue 01   Evening 36   Sunset 40

Bear Mtn   Early Morning   Tom Clouds

Current

ever_sky0040.hdr [...]

Rotation [45]   Intensity [1]

Close   Help

Rendering with SketchUp using IRender nXt
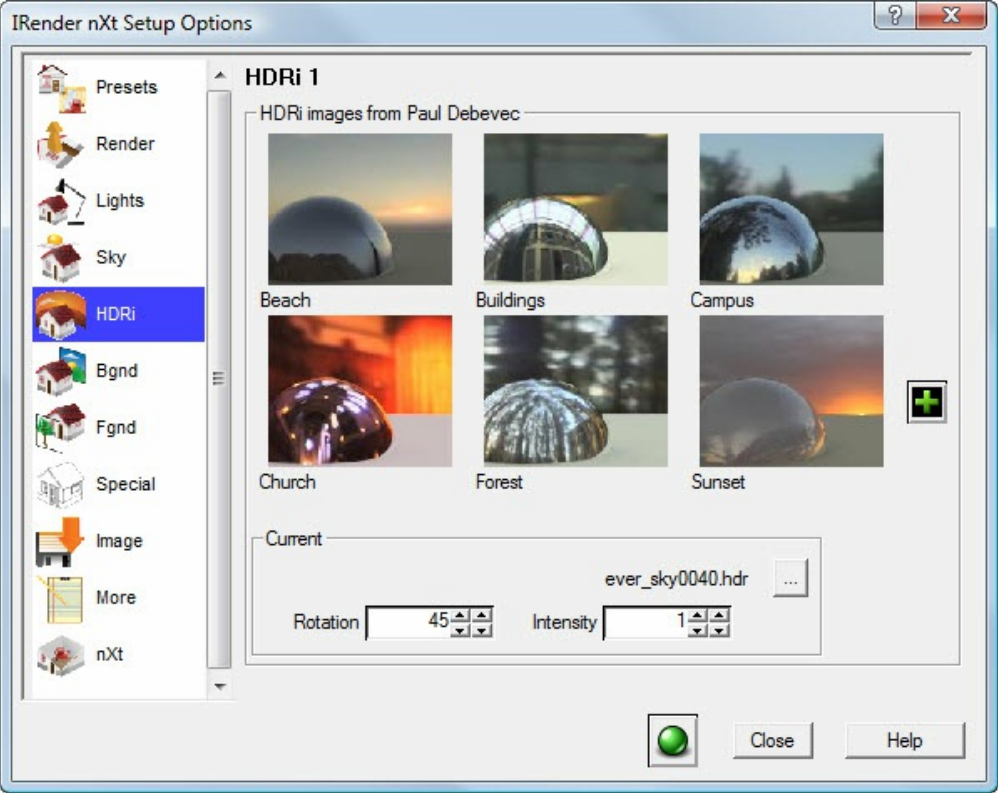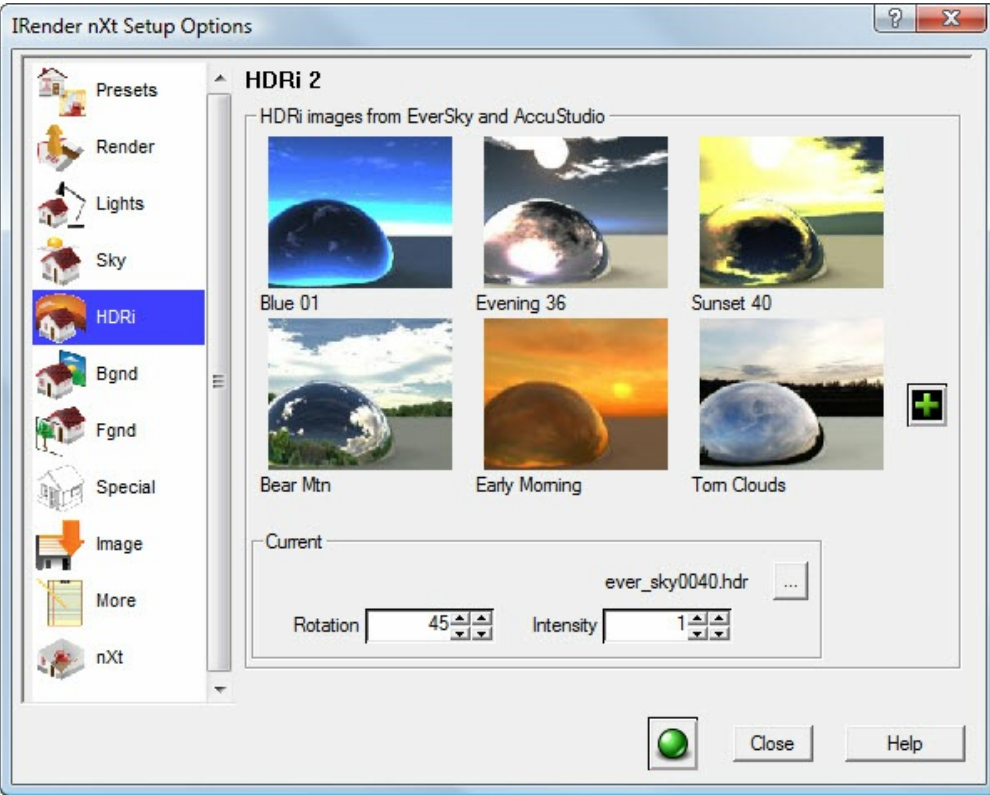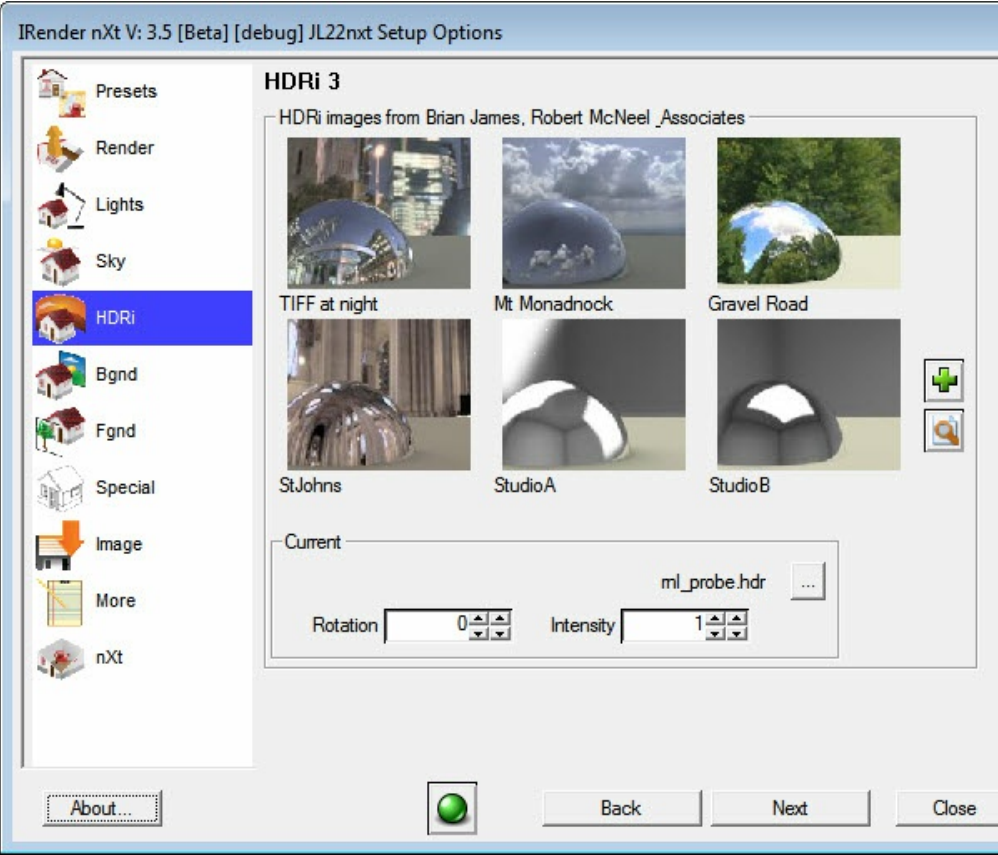
The Plus Sign on the IRender nXt HDRI Skies tab will page through additional HDRI Skies.

Sources

HDRI Skies which can be used with IRender nXt are available at: **Free HDRI Skies:**

- HDRI-Hub.com - HDRI-Hub.com is your first address for royalty free, high resolution 360-degree High Dynamic Range panoramas and high quality architectural textures. These enable you to light and shade your 3D scenes photo realistically. You will find the panorama images and textures in our shop.
- OPENFOOTAGE.NET - 35 Full 360 degree HDRI Panoramas for backgrounds
- www.accustudio.com AccuStudio Gallery - go to Exchange and then HDRI.
- EverMotion
- Brian Jame's HDRI collections
- Paul Debevec Probes
- Max Planck Institut OpenEXR
- USC - ICT Graphics Laboratory
- Keith Bruns HDRI Gallery
- Evermotion.org
- Greg Ward, Anywhere Software

Not free HDRI files:

- ArchVision
- Hyperfocal Design
- Dosch Design
- HDRI Studio
- Sachform Technology

High Dynamic Lighting

Presets

Lighting Presets (click to set and re-render)

○ Studio - High Dynamic   ○ Exterior With Sun   ○ Interior With Sun   ○ Interior No Sun   ○ HDRi sky + Background

The **Studio** or **High Dynamic** default provides HDRi lighting which is very effective for many renderings without using the sun or any exterior lights.

When you are trying to render an object or building you have created, High Dynamic Lighting creates a good rendering without having to place the sun, lights, reflective panels, etc.

See also: nXtRender , Lighting Presets Feature
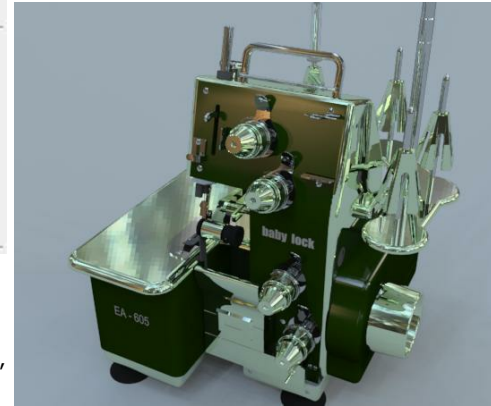
Aim Lamp

IRender lamp, with (optional), transparent pointing beam. The lamp was
initially "glued" to the wall. We want to point it at the plant on the table.

Use cursor to point lamp. (Cursor position is near where the word "Endpoint"
appears.) As you move the cursor, the lamp points to the cursor location
until you click the mouse button. The base point of the light stays fixed.

Aim Lamp is a SketchUp tool to point an IRender lamp at an object in the SketchUp model.

Starting the tool

- Right click on a lamp, and select **IRender:: Aim Lamp**, or
- Select a lamp, or other component, and select **Aim Components** from the SketchUp Edit menu.

Aim lamp

- The lamp will automatically point at the cursor position.
- Snap the cursor to a face, edge, etc. at which you want to point the lamp.
- Click the left mouse button to point the lamp, or click escape to stop the operation.

Other components

- You can use **Point Components** to point other components as well. However, they will point best if the components axis is set to the center bottom of the component, and if the blue axis is aligned in the direction you want the component to use for pointing. (You can right click on a component and select **Change Axes** to reset its axes for better *Pointing*.)

Notes

1. If a lamp or component is glued, then a unique instance will be created which is not glued. (Because you can not aim glued components - they will re-glue when you save the model.)

Beam and Field Angles

The **Beam and Field Angles** determine how a spot light lights the surrounding area.

For most uses, the field angle should be 180 degrees, because that creates a softer transition at the edge of the beam angle.

We have changed the default field angle to 180. (It used to be 1 1/2 x the beam angle). This should give better results. If you want a tighter angle, then overrider it.

Beam 15 degrees, Field 180 degrees (default)

Beam 30 degrees, Field 180 degrees (default)

Beam 60 degrees, Field 180 degrees (default)

Beam 60 degrees, Field 75 degrees

Visible Light Paths
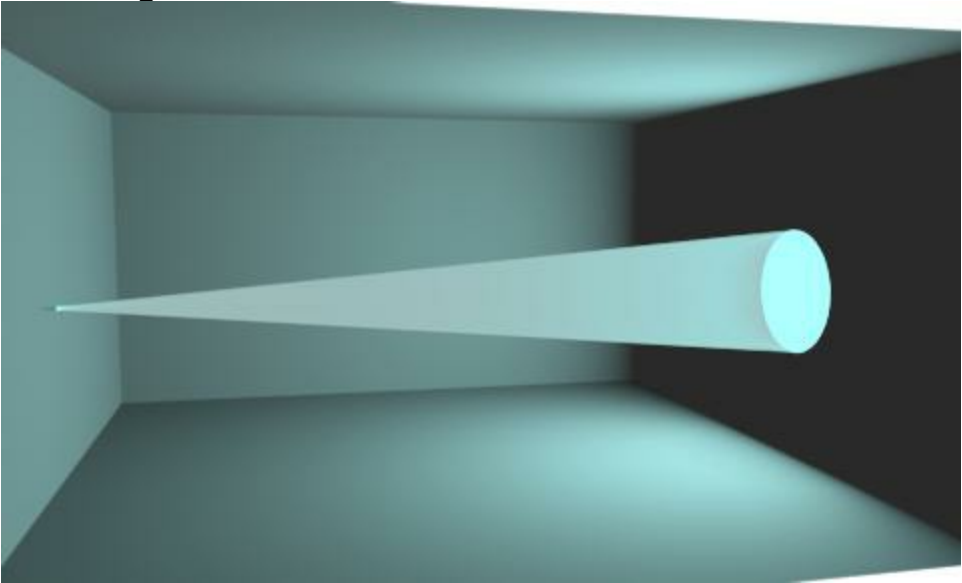
See: Visible Light Paths

Create Lamp or Light Fixture

Create Lamp or Light Fixture

Adding lamps and light fixtures will provide lighting for your Interior Scenes or Nighttime Scenes.

- **SketchUp lamps** - many SketchUp lamps are automatically used as light sources.

- **Create Lamp** - the lamp wizard makes it easy to add custom lamps.
- **Components and Lamps** - the Object Properties Wizard makes it easy to turn any surface or object into a lamp.
- Video: Interior Lighting Basics

The **Light Fixtures** dialog is launched by the create light fixture icon ( ) on the IRender Toolbar:

A light fixture is created as a SketchUp component, either as a lamp or as an uncovered light source. An uncovered light source can be placed inside some other geometry to make a new light fixture component, or placed directly in the drawing. You can edit a lamp already placed in the drawing by right-clicking on it and selecting **Edit Irender Lamp** .

Light Fixture Types

The tabs at the top of the dialog select one of several types of light fixtures, each with its own complement of settings that apply to that type only.

Ceiling

A Ceiling light fixture is a flat rectangle that emits light.

- See: Ceiling Light Tab

Floor

A floor lamp is a decorative lamp that has a shade and a tall stand.

- See: Floor Lamp Tab

Table

A table lamp is similar to a floor lamp, but it has a shorter base and is meant to be placed on top of a piece of furniture.

- See: Table Lamp Tab

Point

A Point light fixture is a light source that radiates light from a single, spherical point of origin, such as a bare light bulb.

- See: Point Light Tab

Spot
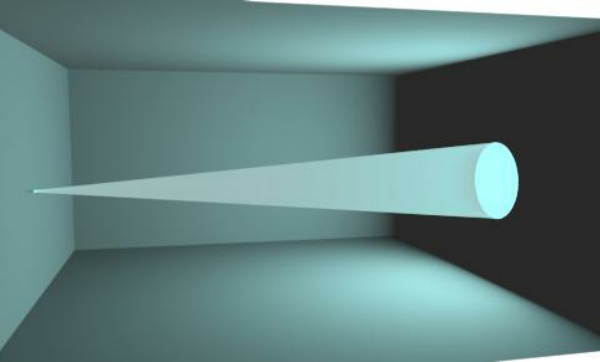
- See: Spot Lamp Tab

Linear

A Linear Light sub-divides a long, narrow light so that points within the lamp are sampled more often and more smoothly.

Linear light - bottom and rectangluar light - top after 5 rendering passes.

- See: Linear Light Tab

Camera Light

Creates a single component called "camera_light" which is automatically aligned to the current view camera when rendering.

- See: Camera Light Tab

Beams

Creates a visible Light Beam.

- See: <u>Visible Light Paths</u>

Edit Lamp
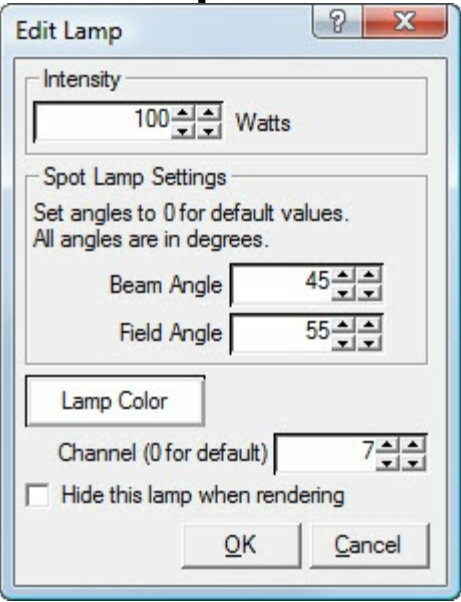
Edit Lamp is used to change to settings for a lamp placed as a SketchUp component.

To invoke **Edit Lamp**, right click on a lamp and select: **IRender: Edit Lamp**.

For values for settings, see **Create Lamp** .

Click **OK** to save your changes.

Editing Multiple Instances of a Lamp

Edit IRender Lamp" only changes one lamp at a time. (The new light intensity is stored on the instance, and not in the component definition)

If you want to replace all the existing lamps, you can create a new lamp with the new wattage, and then go to the SketchUp Component Window in Model View and List View.

1. Right Click on the lamp you want to change (In the Components window), and click "Select Instances"
2. Right Click on the new lamp and click "Replace Selected"

That should replace the selected instances of the original lamp with the new lamp.

Indirect Lighting

Indirect Lighting

Indirect Lighting refers to the IRender nXt feature of processing light reflected from mirrors and other surfaces.

This creates a realistic lighting effect which improves with each successive rendering pass. Indirect should be used with most interiors scenes to soften the lighting effects.

- See: Cove Lighting

Indirect Lighting refers to the feature of processing light reflected from mirrors and other surfaces.

Indirect lighting, or lighting reflected from other surfaces, can add some subtlety and realism to your exterior rendering. In particular, the undersides of overhanging features such as eaves or balconies can be rendered more accurately when using indirect lighting.

This subtlety, however, comes at a performance cost. More passes will be required to resolve the image, and each pass will take longer.

- More realistic lighting effects.
- Subtle, soft shadows due to reflected lights.
- Better images for presentations.

Cove Lights

Indirect lighting from lights above suspended ceiling.

In this example, the lights are placed above the suspended ceiling and reflected into the room from the main ceiling.

The lighting becomes smoother and smoother as more bounces are processed during each rendering pass.

Settings

Method

There are two methods for Indirect Lighting - Standard and Gather.

Gather sometimes produces a smoother effect, but takes longer.

Gather Indirect Light uses Monte Carlo like techniques to solve the indirect portion of the lighting. Images start out noisy and gradually refine. May be useful for exterior daylighting-- much slower for interiors than standard method and not much better.

- See: Gather Indirect Lighting method

Bounces

The default for indirect lighting bounces is 1, meaning that a light shining on a wall or mirror, will be bounced once, but it is not, then, bounced off of additional walls.

You can increase this value for special situations, but each bounce added will add to the rendering time.

Lumens vs Watts

[IRender](#) allows you to specify lamp intensity in **Watts**. Wattage specifies how much energy the lamp uses.

IRender uses a conversion factor of 17 Lumens per Watt, meaning that a 100 Watt lamp will emit 1700 Lumens. If you know the lamps value in Lumens, divide by 17 when entering it as watts into IRender nXt.

Here is a table of some lamp types and with wattage, Lumens per watt, and total Lumens.

Lamp type	Wattage	Lumens	Lumens per Watt
Incandescent	40	504	12.6
Incandescent	100	1750	17.5
Fluorescent	32	1600	50.0
Quartz halogen	50	1200	24.0

Self Glow

Self Glow

Self Glow

Self Glow illuminates a surface as if it had light shining on it, without actually making it a light. For objects which you want to appear bright, but which don't need to illuminate other objects, this is much faster than making lights out of them.
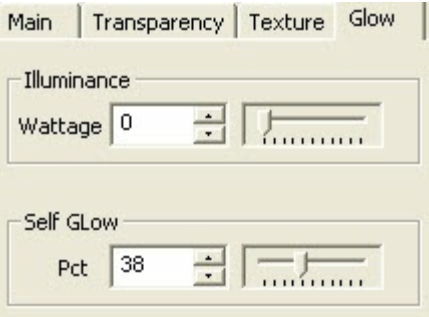
Defines a material which glows with **Self Glow**, or acts as a light with **Illumination**.

- **Illuminance** - the faces which contain this texture will act as lights.

  Set the desired Wattage

- **Self Glow** - the face glows, but does not illuminate other surfaces. This is the best setting or Neon lights.

  Set the glow percentage - 0 to 100%

See also: Glow

Visible Light Paths

Visible Light Paths

View spot light beams as if shining in a hazy room.

This feature creates a transparent lamp beam with a pattern to emulate light passing through a smoky or foggy room.

You can define a visible light beam on the spot-light creation wizard.

Settings
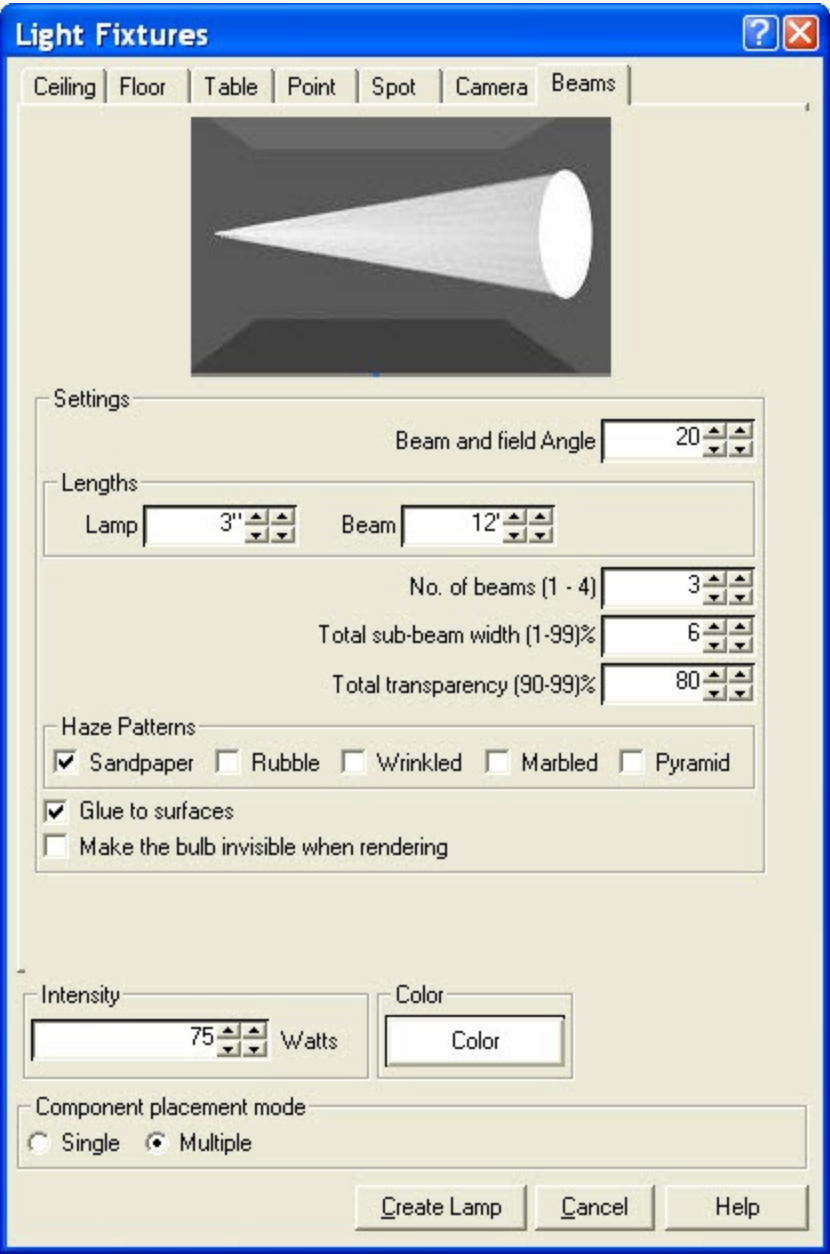
Beam and Field angle - these are set to the same value to make a tight beam of light.
Lamp Length - the length of the lamp itself.
Beam Length - the length of the lamp beams.

> This should be long enough to pass through the wall or screen which receives the light paths.

No. of beams - creating 2 or 3 beams will produce a more realistic effect.

> If you use multiple beams, see: Refraction issues below.

Total sub-beam width - the percentage of the full beam angle which is divided between multiple sub-beams.
Total Transparency - this is divided by the number of beams.

Haze Patterns one or more patterns can be applied to emulate a haze effect. See: <u>Procedural Bump Patterns</u> below.

Procedural Bump Patterns

You may select one or more patterns to place on the light beam.

The patterns are all created with default strengths and other settings. If you want to modify them, right click on the beam and edit its material directly.
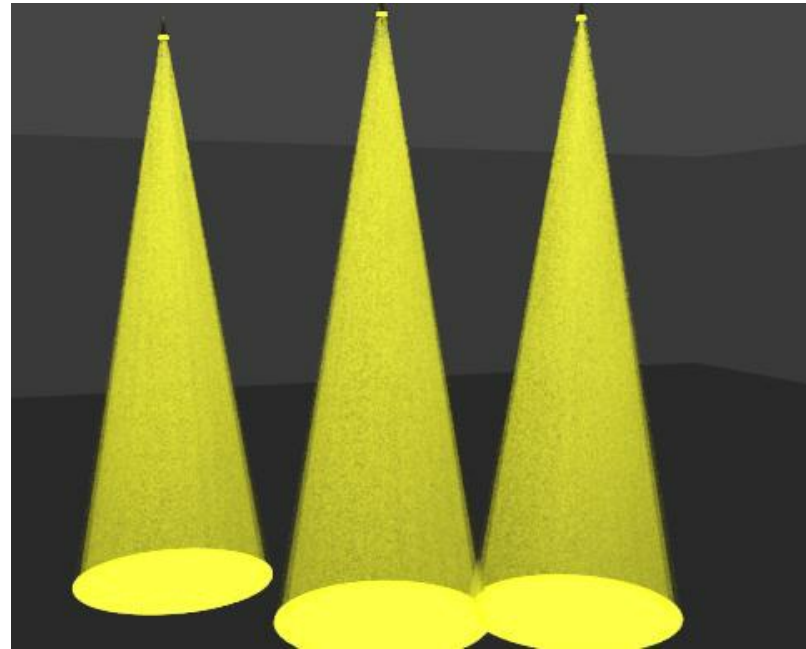
Sandpaper pattern on light beam.
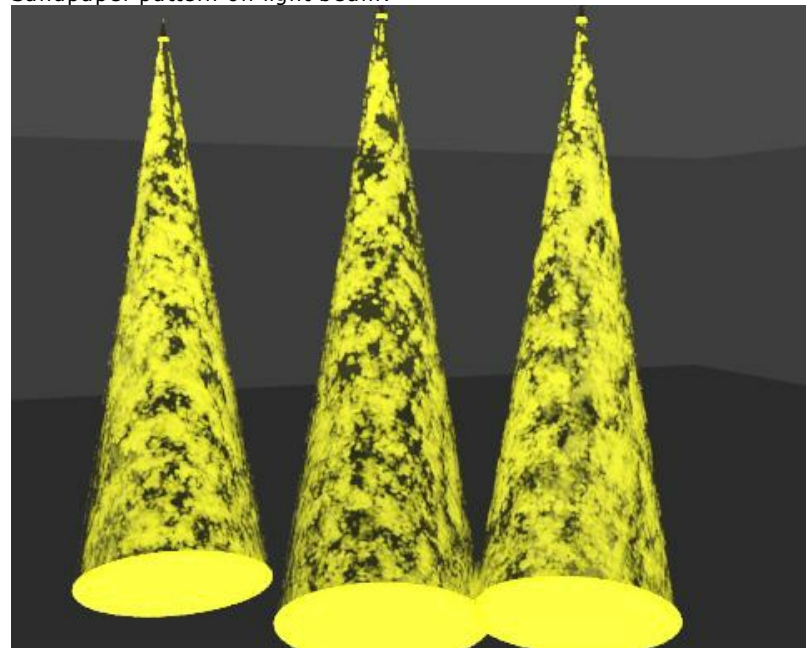
Rendering with SketchUp using IRender nXt
Rubble pattern on light beam.
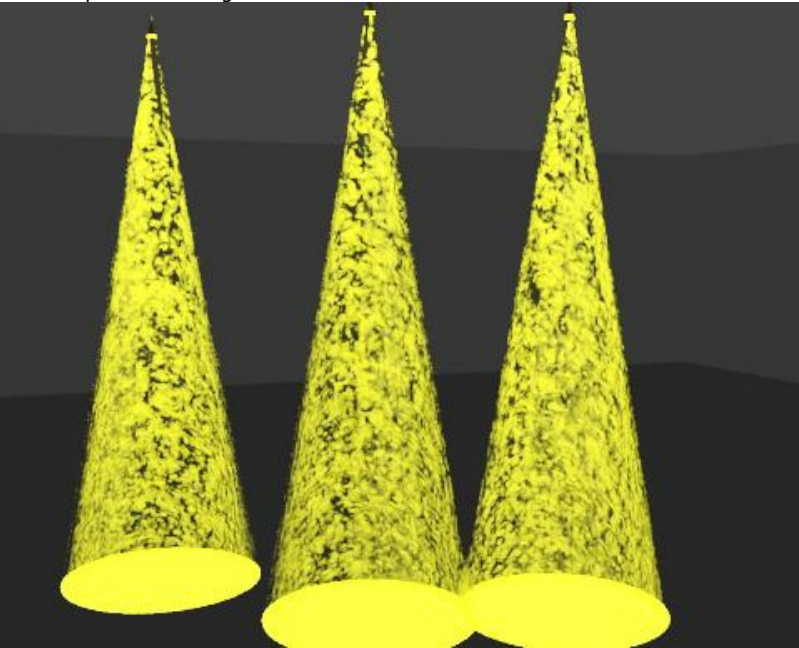
:Wrinkled pattern on light beam.
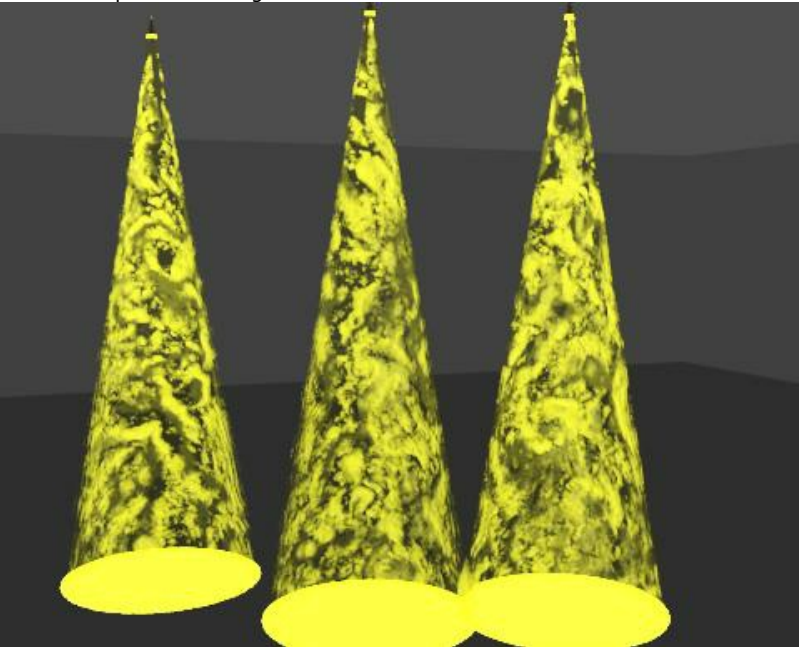
Marbled pattern on light beam.
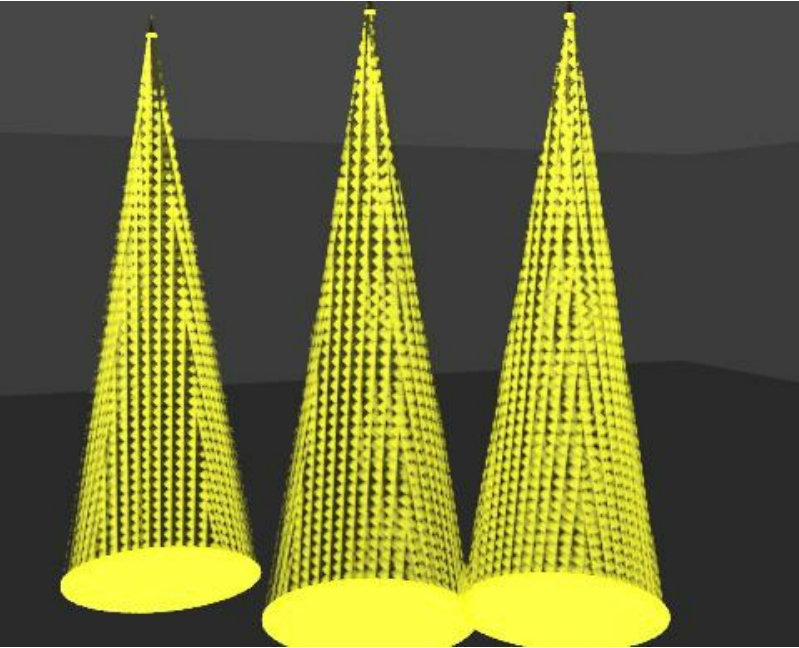
Pyramid pattern on light beam.
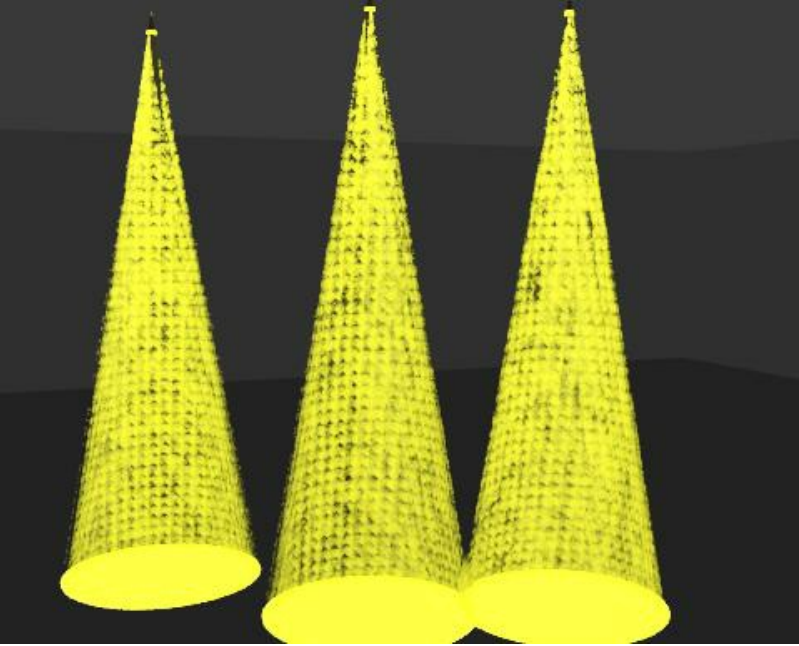
All 5 patterns on light beam.

Note: It sook 1 minute 16 seconds to render this image with just one pattern, and 2 miniutes and 18 seconds to render it with all 5 patterns.

Refraction issues

Visible Light Paths processed with 6 refractive bounces.
The lamps have 1,2,3,4,5 and 6 sub-beams - from left to right.
The lamps with 4 or more sub-beams require 8, 10 and 12 refractive
bounces in order to be transparent.

Visible Light Paths processed with 12 refractive bounces.
The lamps with 4 or more sub-beams are now transparent.
However it too longer
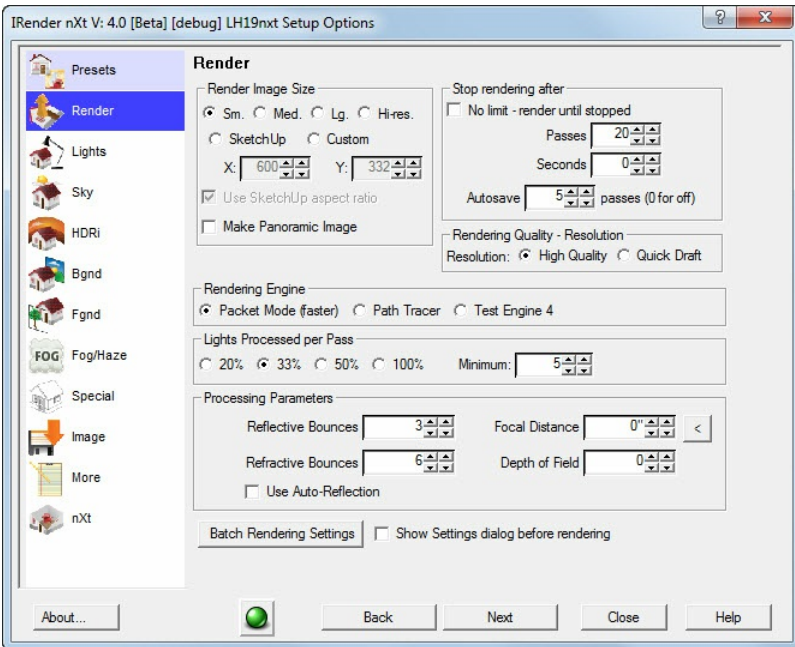
Render Tab

There is a setting in IRender nXt, Refraction Bounces, which determines how many transparent surfaces will be processed for transparency and refraction. The default for this setting is 6.

If you use 3 sub-cones for your domes that means that light and colors passing through a single light fixture will need 6 refraction passes. If there are two light beams - one behind the other - then the second light beam will be opaque where it appears behind the first light beam - because all 6 refractions were used up for the first light beam. So you would want to change this refraction setting to 12 to process overlapping visible light paths.

Similarly, if you were to place 6 sub-beams in a single light, then 12 refraction passes would be required to see lights and colors from behind the 12 surfaces.

You can increase refraction bounces on the Render tab of the Setup Dialog

Plants
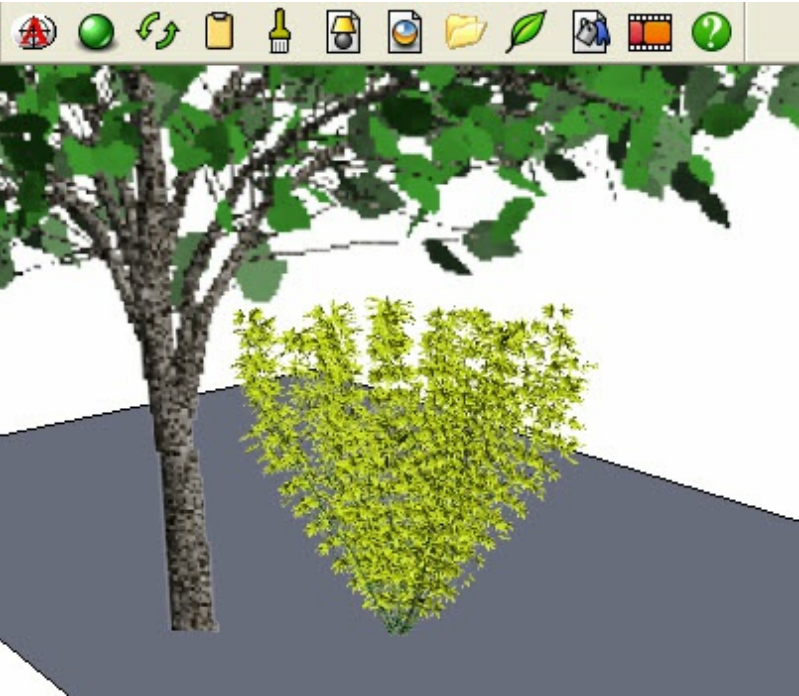
SketchUp model with 2 AR3 Library Plants

There are three ways to place **Plants** in **IRender nXt**:

1. Download Plant Components from the 3D Warehouse
2. Create a new plant with the Tree Editor
3. Load a nXt plant from the nXt Plant Library.
4. Load an AR3 plant from the AR3 Plant Library.

3D Warehouse Trees

A number of plants are being placed in the 3D Warehouse. These plants can be placed directly into your SketchUp model, and will render as Fractal nXt plants.

Here is the collection of premade plants.

IRender Ready Trees

Tree Editor

- See: Tree Editor for information on creating and editing trees.

Using .ArPlant Plants

After creating an ArPlant in the Tree Editor and saving it, you can map it to an IRender Plant.

1. Create and Place an IRender Plant from the AR3 library.
2. Right click on the Plant, and select the Plant Editor
3. Use the Browse button to select a .ArPlant file from the disk.
4. Set the age if desired.

When you render the new plant should be used for the rendering.

Rendering with SketchUp using IRender nXt
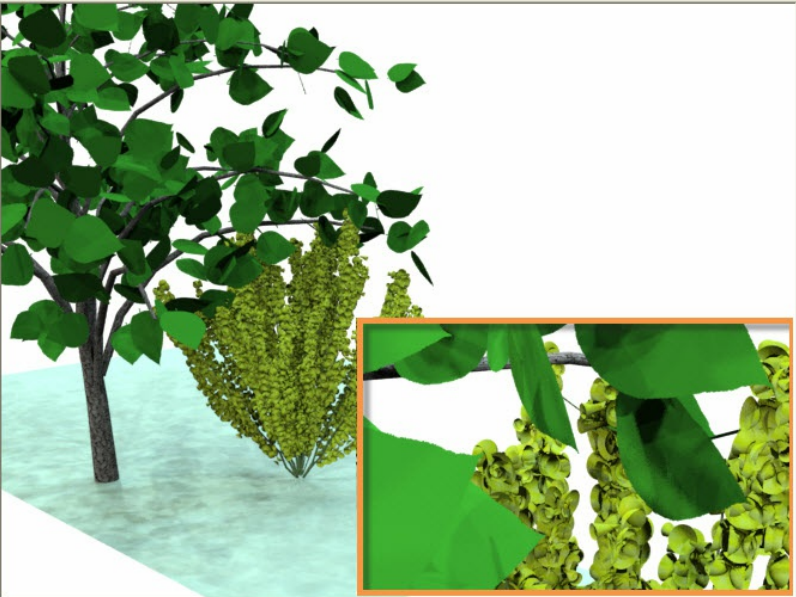
SketchUp scene rendered with IRender nXt and blown up to show detail or trees.

nXt Plant Library

The Plant Libraries contain various pre-made RpTreeMaker plants

These libraries are stored in the **nXt_Materials** folder in your Libraries folder.

To access these libraries:

1. Select **Create Plant** from the IRender nXt Toolbar:
2. Select **Load from Library...** to open the library of nXt Plants.
3. Turn on thumbnails if you want to see samples of each material as you load it.

AR3 Plant Library
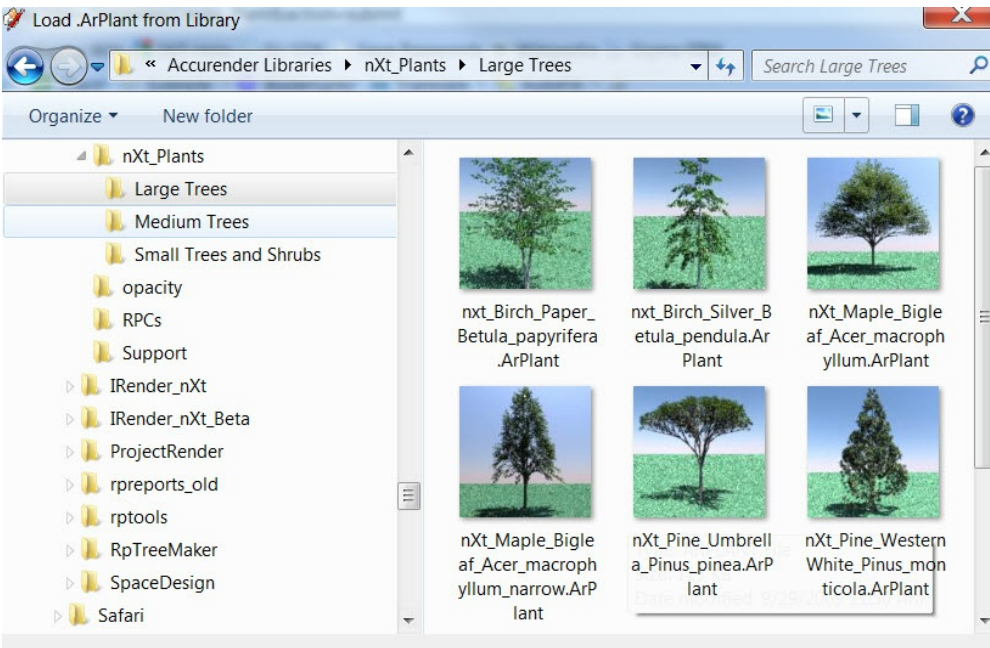
1. Select the **Create Plant** icon form the IRender Plus toolbar:
2. Select a plant from the nXtRender libraries.

Create Component from AccuRender Plant

Library: accurender

Trees and Shrubs\Deciduous\Pear, Bradford (orna

Attributes

Max Height: 57' 4.64652"

Min Height: 8' 2.37807"

Height [30']

Season for image

Spring

Image quality

○ Low (100)   ● Medium (200)   ○ High (400)

[Remake]

Orientation

☑ Always Face Camera

☐ Criss-Cross

[Create and Place] [Create and Make Another]

[Create and Close] [Cancel]
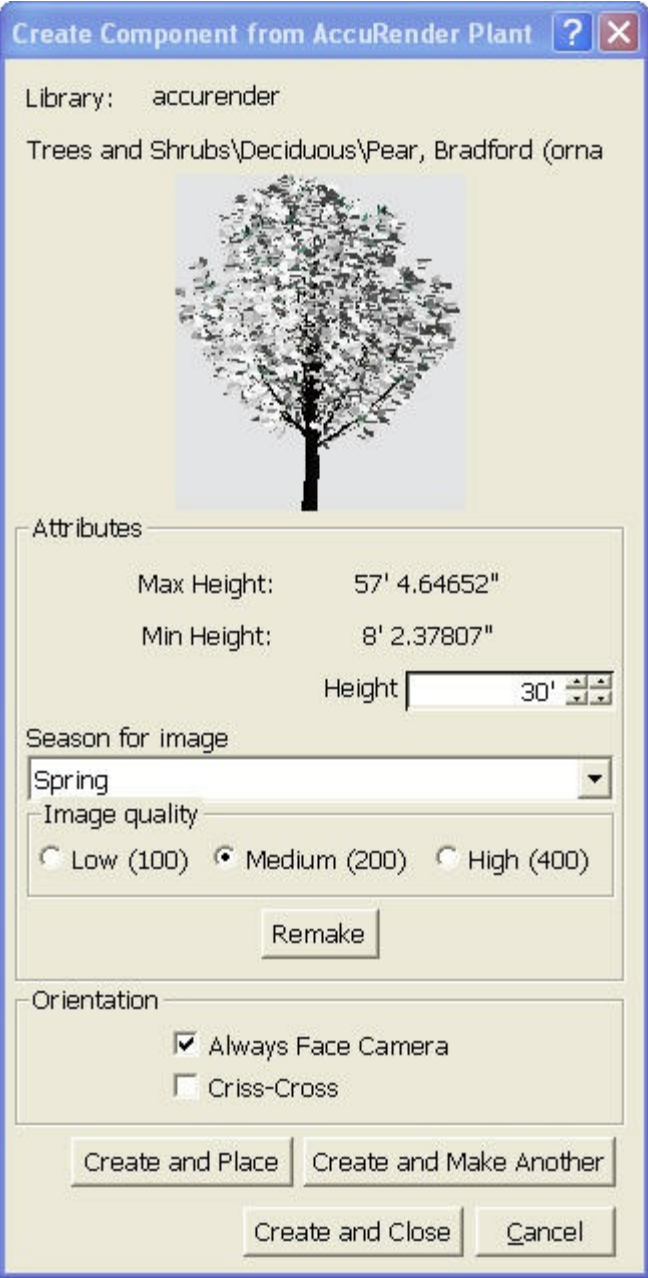
Set the height and other parameters and place the plant.

Seasons
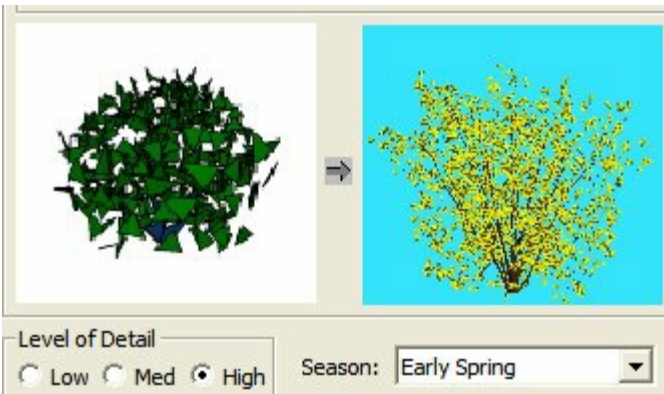
Mapping a Fractal Plant to a SketchUp Plant - Early Spring

AR3 Plants can automatically change appearance to match the seasons. This makes it easy to make client presentations to show what a building site, or landscaping project will look like in varying seasons.
Plant changes for various seasons:
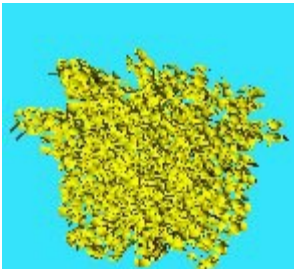
Late Spring

Summer

Winter

Plant Size

Plant sizes are determined by the trunk size, so the plant can be sized to match the height or width of a component, but not both.

When mapping a fractal plant to a component, you can specify whether the fractal plant will match the height or width of the component.

Rendering Detail

Three levels of detail are provided. Medium is best for most uses. You may want to use low to speed up rendering while you are working on your scene. You may want to use high for the best quality rendering for your final presentation.

Create Plant

Create Plant is used to create a SketchUp component to represent an nXtRender plant. When the model is rendered the plant is automatically rendered as a fractal plant, providing much greater detail than that available in the SketchUp model.

Create Plant is a wizard in IRender nXt

Sample Model
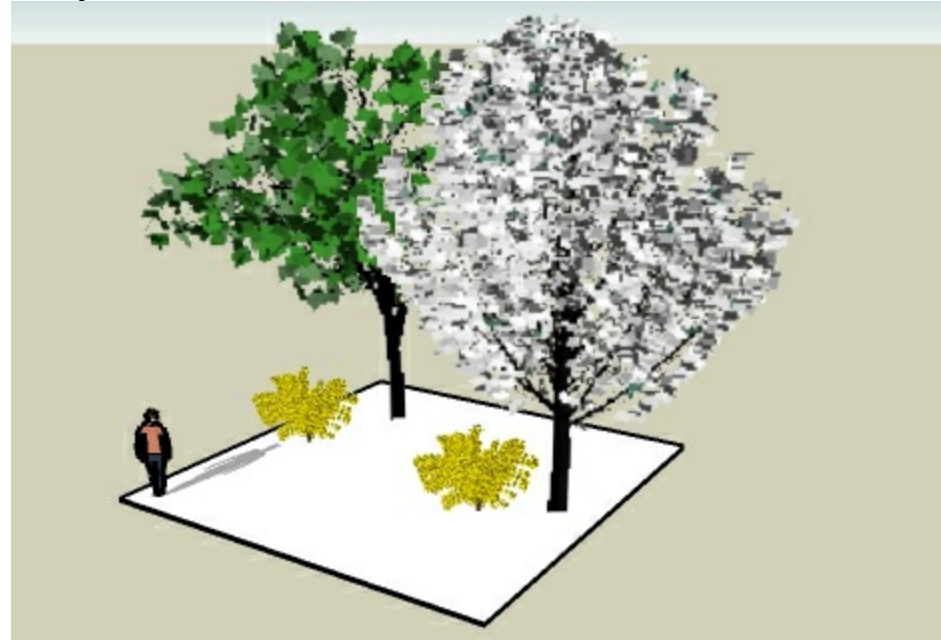
IRender nXt plants in SketchUp

IRender nXt plants in IRender nXt

Create Plant Components
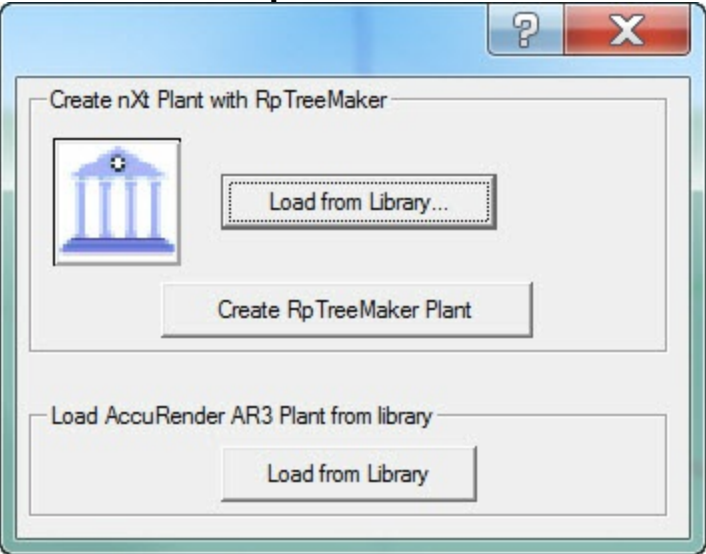
1. Select the **Create Plant** icon form the IRender nXt toolbar:
2. Select a plant from the AccuRender libraries.
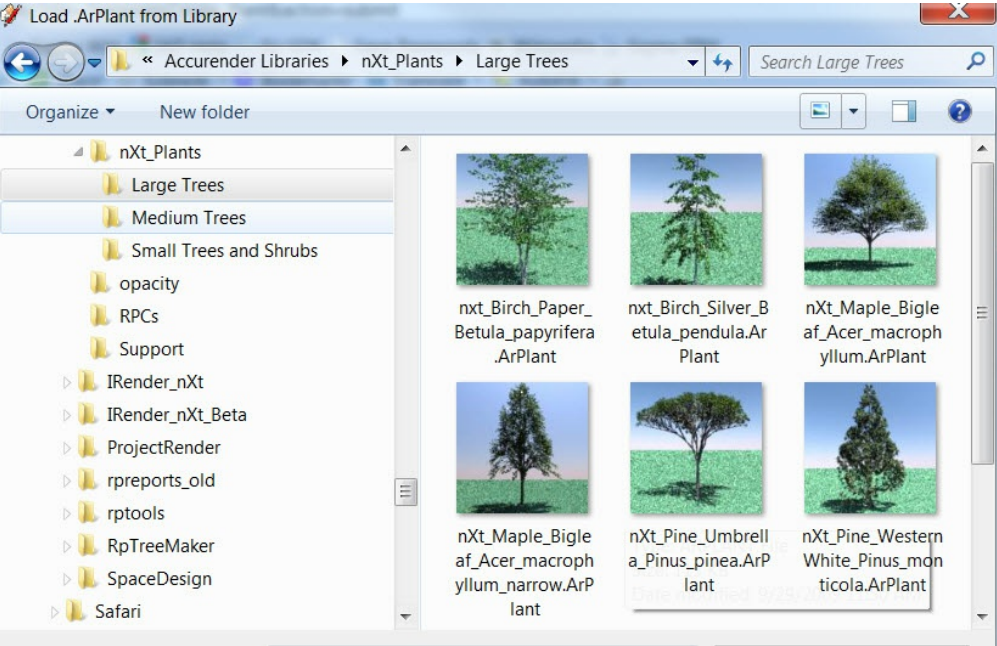
Make any changes to Plant
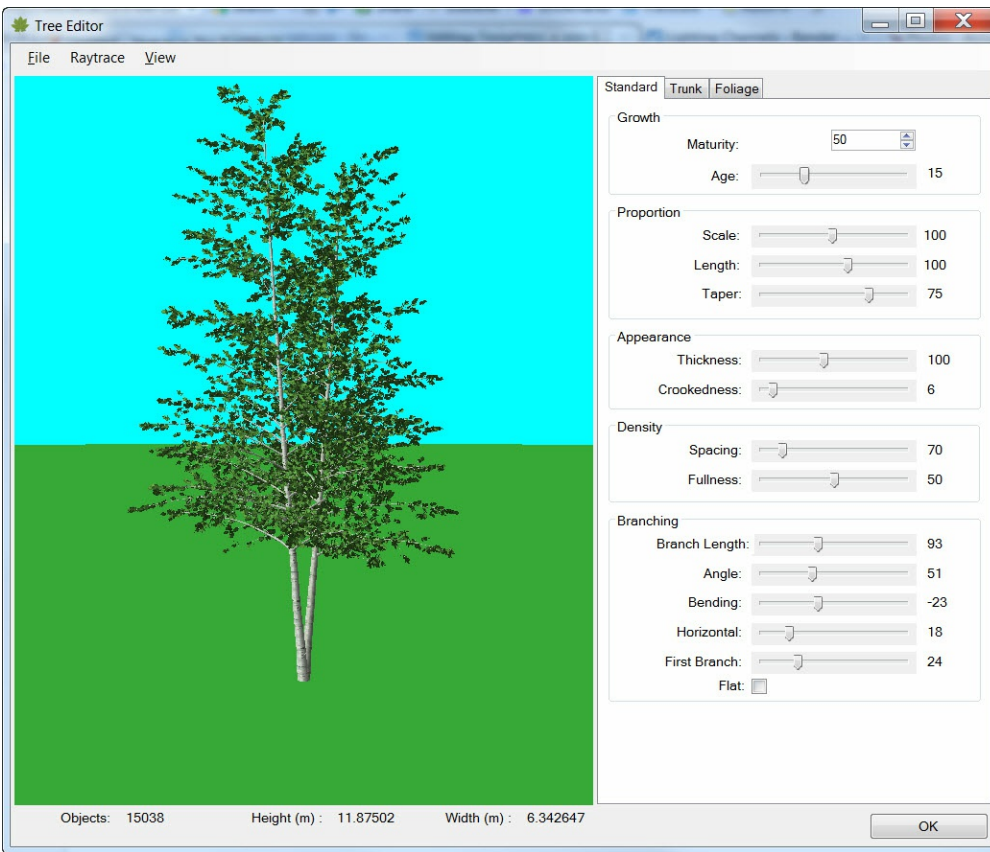
Generate Plant Image and Place Plant
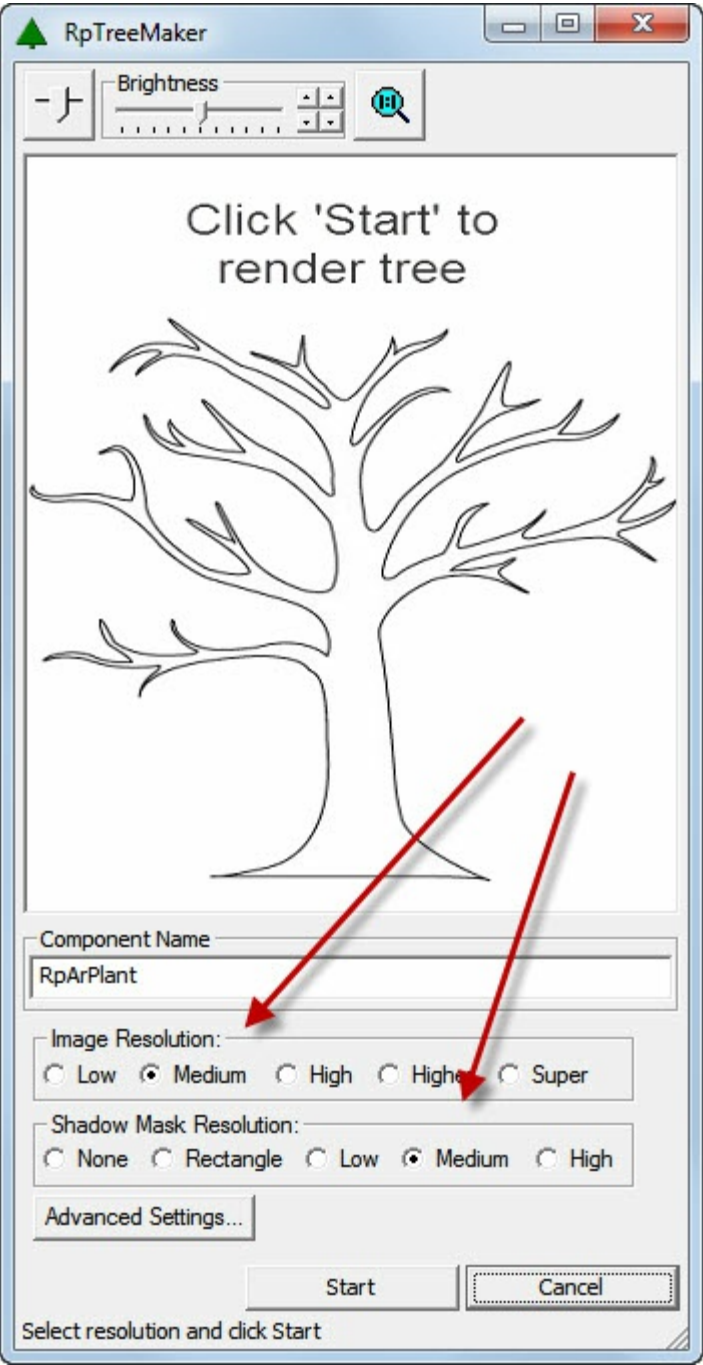
Image resolution - quality of the image in SketchUp - this does not effect the quality of the rendering.

Shadow mask Resolution -the shadow mask will create shadows in SketchUp - this does not effect the quality of the rendering.

Start or **Remake** Click this button to remake the image with the new settings

Save Tree Image - save the tree and place it in SketchUp.

Settings on SetUp dialog

|
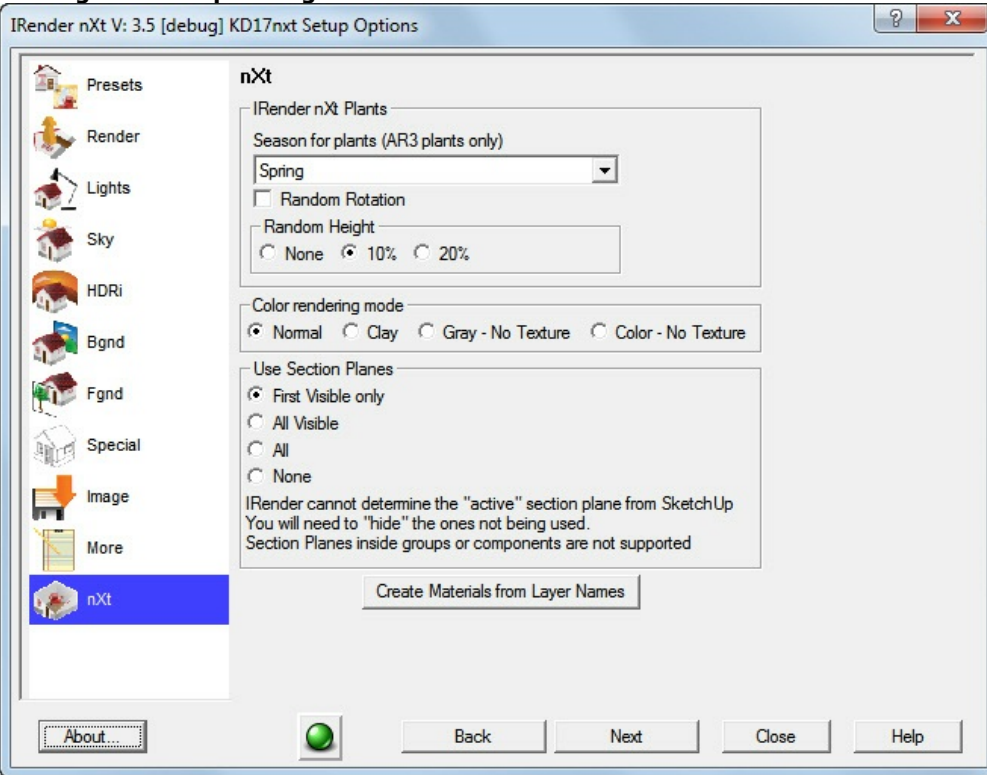
- **Random Rotation** - randomly rotates plants.
- **Random Height** - randomly scales plants.

See: Random Plant Settings

- **Season** - sets the default season for all plants. (Only applies to AR3 plants, not new nXt plants)

Advanced Settings
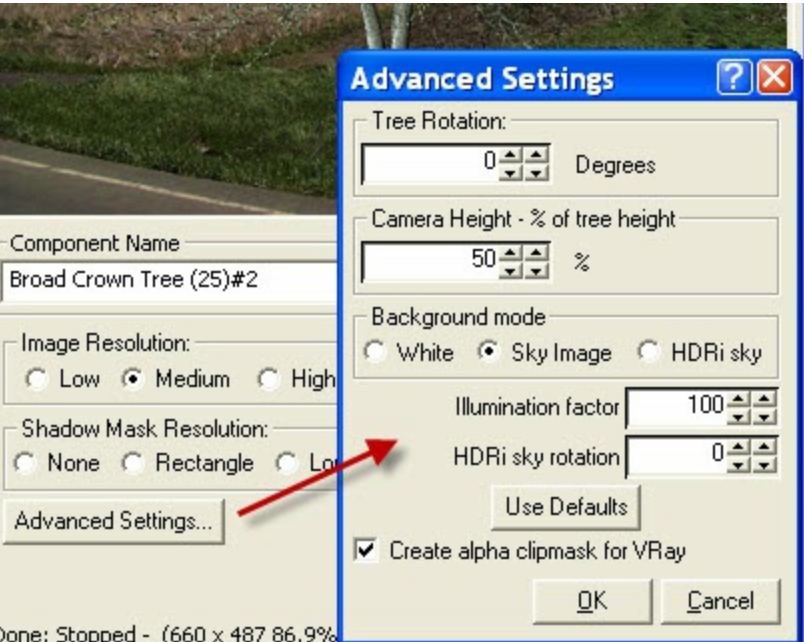
- **Tree Rotation** - lets you rotate the tree in the image.

  (Useful for angled, or non-symmetrical trees)

- **Camera Height** - lets you raise or lower the camera for different effects.
- **Background mode** - this does not effect the final image when saved to SketchUp.

  HDRi sky mode and be useful to see how the sky effects the lighting.

- **Illumination factor** - alter if tree is too light or too dark.
- **HDRi sky rotation** - will effect how the HDRi sky illuminates the tree.
- **Use Defaults** - reset to default settings
- **Create alpha clipmask for VRay** - an alpha mask is created for VRay users.

Tree Maker
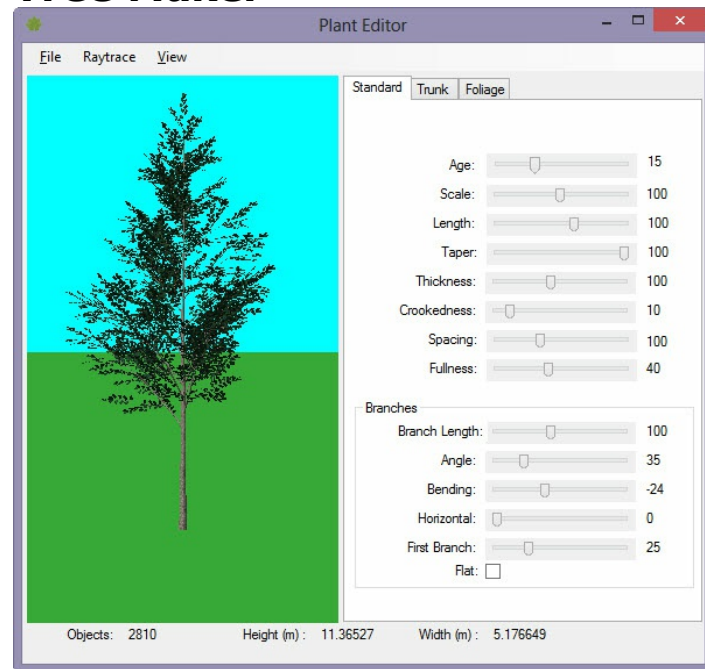
The **Tree Maker** is a feature of IRender nXt which allows you to create definitions for Fractal Trees, save them in a library as **.ArPlant** files and then use them as plants in IRender nXt.

It uses the **nXt Tree Editor** to create custom trees, stores a 2D representation of the tree in SketchUp and renders it as a full, fractal, 3D Tree.

Mapping to IRender nXt Plant
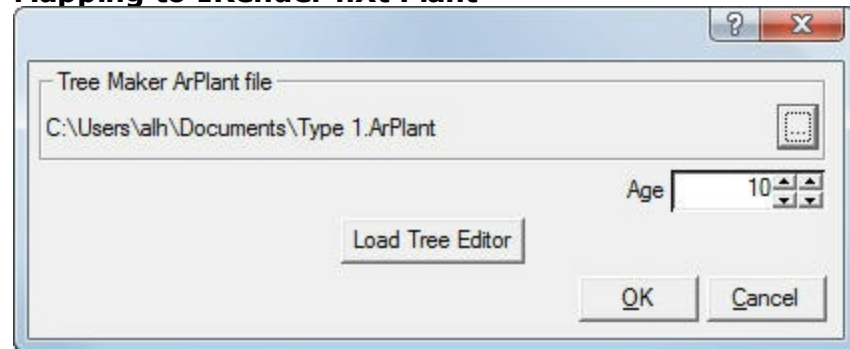
After creating an ArPlant in the Tree Editor and saving it, you can map it to an IRender plant.

1. Create and Place an IRender Plant from the AR3 library.
2. Right click on the Plant, and select the Plant Editor
3. Use the Browse button to select a .ArPlant file from the disk.
4. Set the age if desired.

When you render the new plant should be used for the rendering.

Tree Editor usage
Plant Type

Rendering with SketchUp using IRender nXt
Set the type from the **File/New** menu at the top.
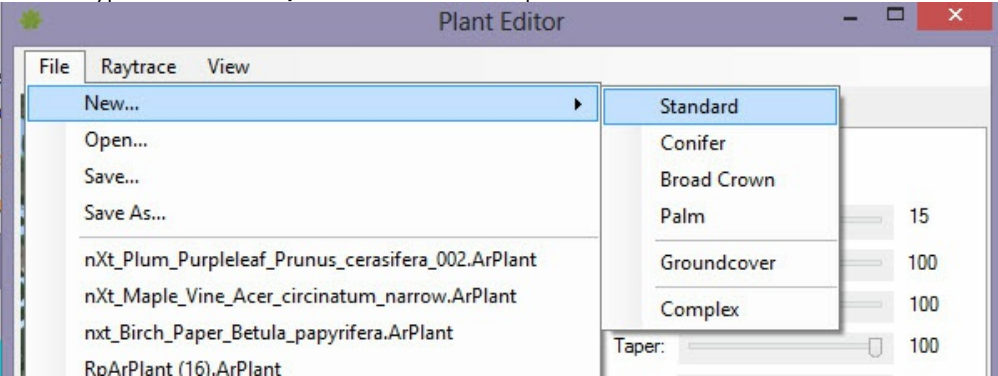
There are four tree types - **Standard, Conifer,** Broad Crown**, Palm and** Complex
(Do not use Groundcover with RpTreeMaker).
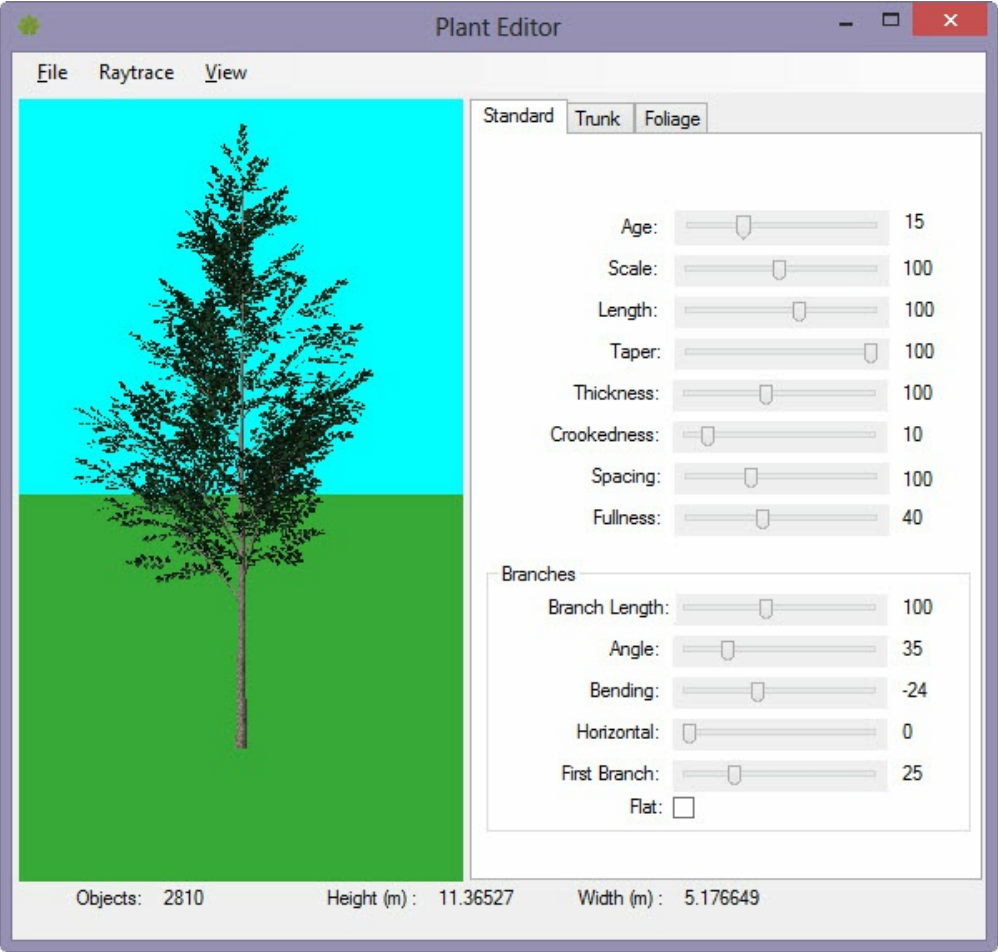
Each has different setting on the tabs of the tree editor.

Play with the various settings to see what they do.

Trunk Settings
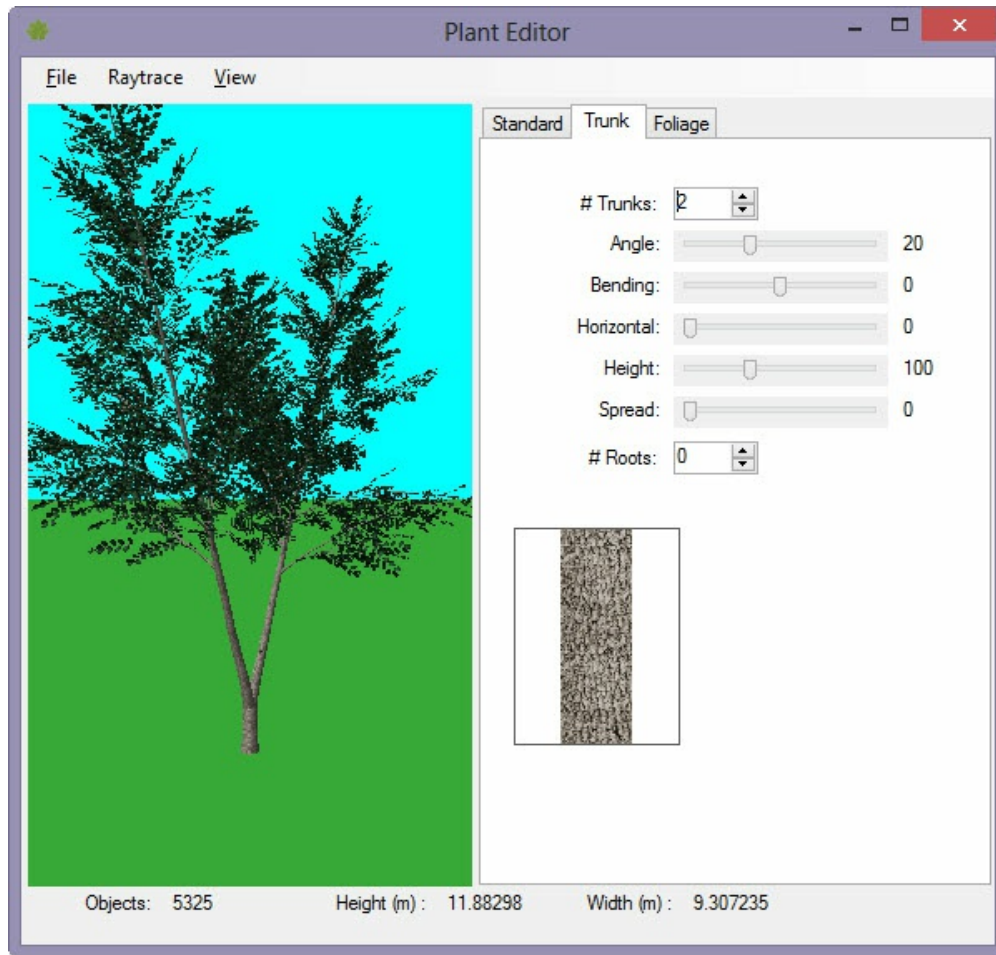
Change the Parameters and see the results at the left.

Foliage and Flowers

[[Image:Tree-editor-foliage.jpg|500px]]

You can click on the leaf image to select a different image.

Flowers/Fruit
You can also add an image to be used as flowers or fruit

Leaf and Flower Images

You can select new leaves, trunk, etc. by clicking on the image.

You can also add your own leaves and bark to the Plant Image folder and use them for your custom trees.
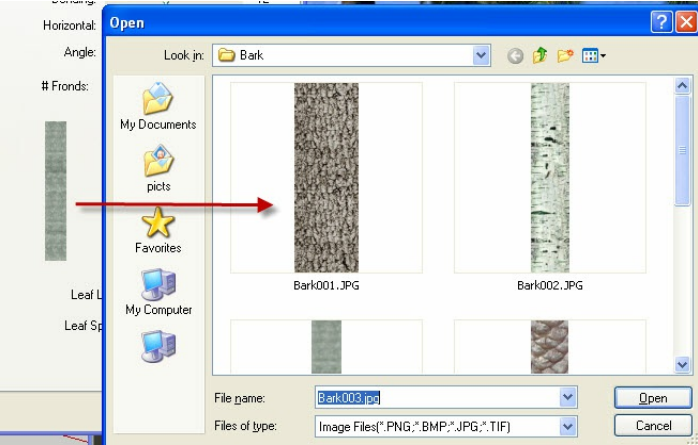
RayTrace

Click 'Start' on the RayTrace drop down menu to see a sample rendering of the tree with foliage.

Use the mouse and scroll-wheel to on the image to set a new view before starting rendering if desired.
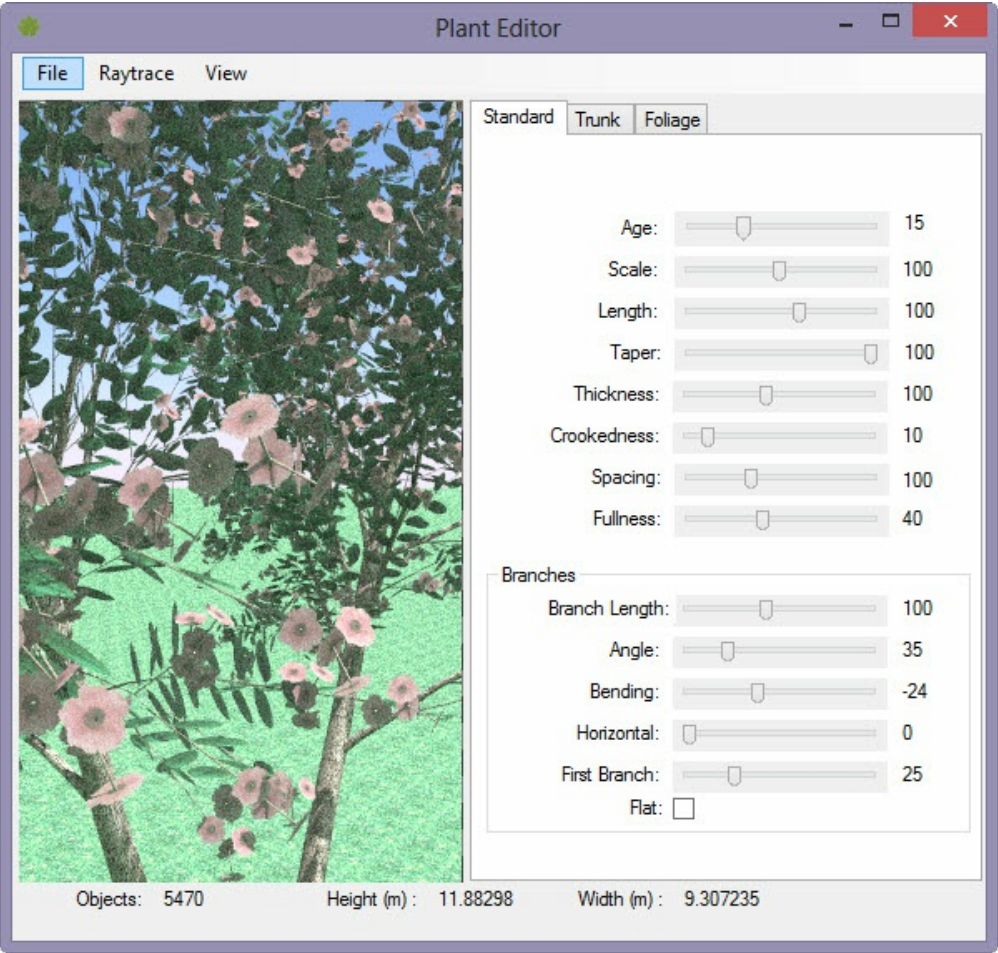
Rendering tips

RpTreeMaker tree placed as an image in SketchUp and rendered with IRender. Note the quality of the fractal rendering and the subtlety of the shadows.

For IRender nXt users, the RpTreeMaker tree will automatically re-render as a full, fractal, 3D tree.

IRender nXt users should make their tree images at the lowest resolution to save time and keep the SketchUp model fast and small. After the tree is re-rendered the original image resolution will not effect the final image.

The 2D Trees will work properly with SketchUp, including shadows, and most other rendering packages. Users of rendering some other products have discovered that they need to explode the tree component, explode the image entity into a face, and remake to tree component in order to get the tree to render properly.

Settings
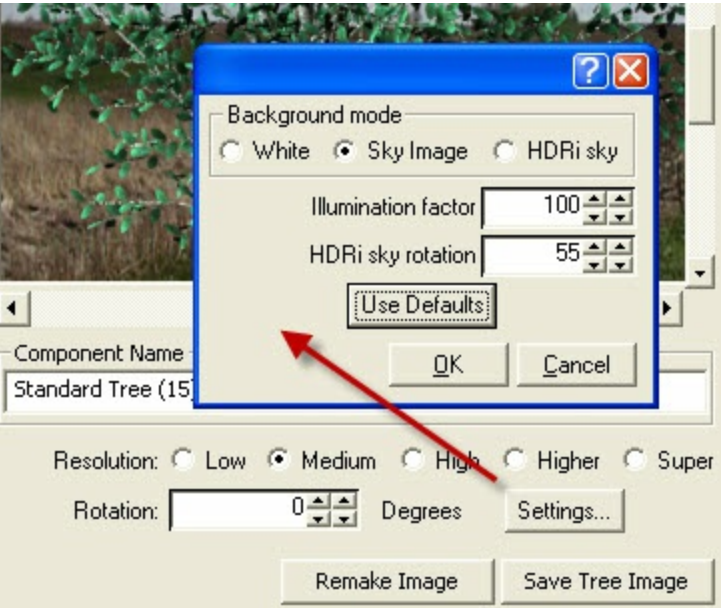
There is a **Settings** menu which lets you set:

- **Background mode** while rendering (this had nothing to do with the final image, but the HDRi setting gives you some sense of how the HDRi illumination works - If turn it on you will see that the tree is illuminated in a forest with the sun shining from behind on the left)
- default **Illumination** of the image. -(Smaller numbers make the image brighter)
- **HDRi sky rotation** for illumination. (55 degrees leaves the tree half in light and half in shadow)

Display Quality
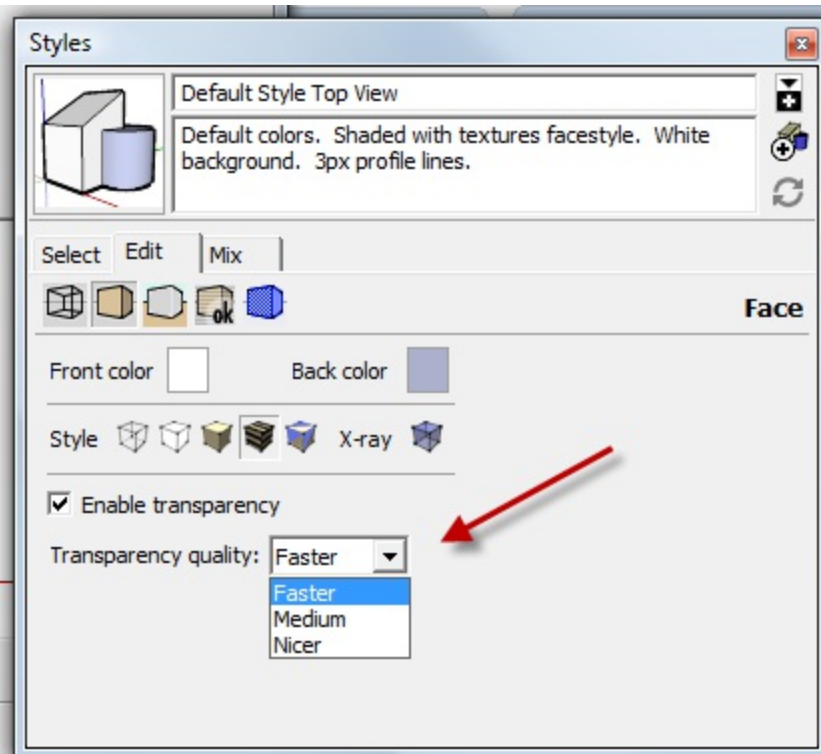
Note: If your alpha transparent images do not display well in SketchUp, you can adjust the quality (vs speed) of Alpha Image display.

Set it to 'nicer' for the best tree display.

Notes

- The Tree Editor allows you to choose from four types of trees (more coming soon.)
- .ArPlant files can be saved and loaded in the editor.
- .ArPlant files can be loaded into SketchUp for rendering.

Some Limitations on Trees (still numerous)

- Shrubs may be difficult to do in the current interface.
- We don't have templates for things like Herbaceous Plants yet.
- You can't change anything about the trees at the moment.

Ground Cover
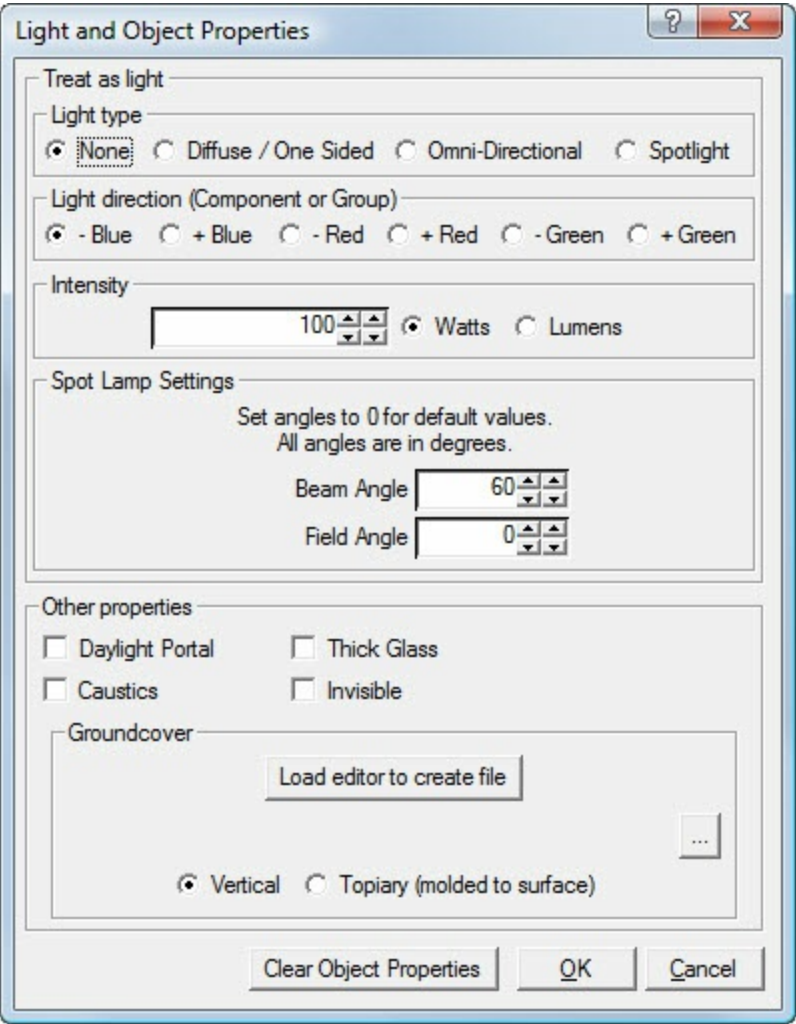
Ground Cover

Ground Cover - define Ground Cover for use on the ground or on topiary bushes.

IRender nXt lets you define **Ground Cover** for use on the ground or on topiary bushes.

In about 2 hours we will post the first test version of Ground Cover.

As Rich and I were testing it I found a better way to implement it which we will put in the next version.

For now, you must:

A. Create a XXX.ArGroundCover file using Tree Maker.

B. Save the file somewhere

C. Use the Object Properties right -click on a surface to assign the Ground Cover to It.

D. Render it.

- To change it, you can load and resave the .ArGroundCover file with the Tree Maker, and re-render

- Give it a try and let us know if it works.

Define Ground Cover

- You **MUST** save a .ArGroundCover file before you can user your Ground Cover.)

To define a ground cover, right click on a face or surface to which you want to set ground cover, and select 'Set Object Properties'

Click **Load editor to create file** to define a ground cover.
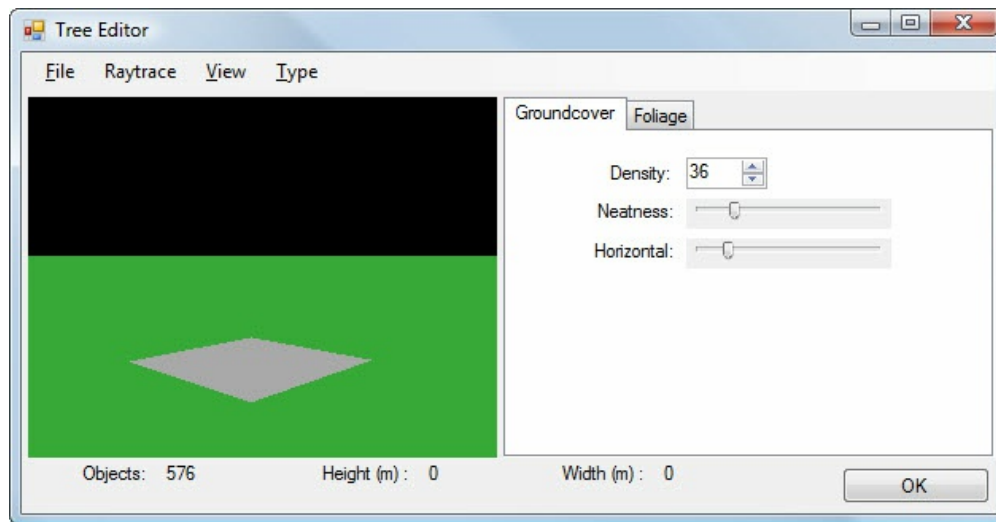
Ground Cover settings
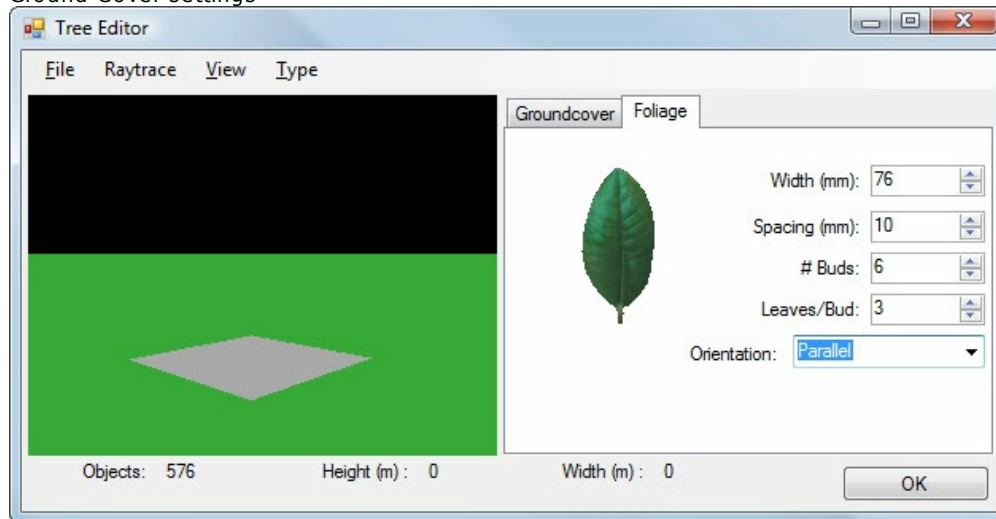
Foliage settings. Click on leaf to select a different leaf.
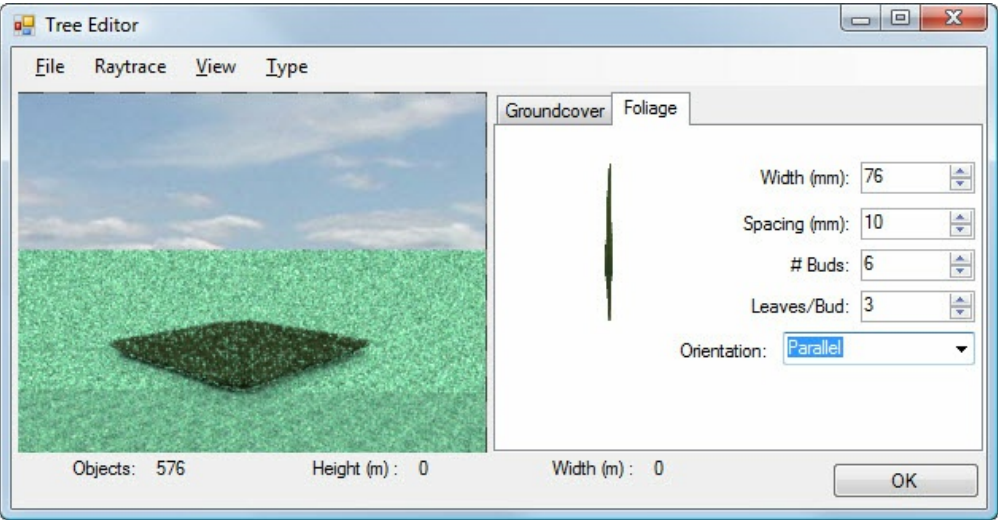
Rendered Ground Cover (in center) with a different leaf.

Click **Start** from the **Raytrace** menu if you want to see a sample of your foliage.

Save the ground cover .ArGroundCover file on the disk some place. (You **MUST** save a .ArGroundCover file before you can user your Ground Cover.)

Click OK.

Assign to surface

In the Object Properties Dialog Box, click the **...** browse button and select the file you just created, (or a .ArGroundCover file you have created previously.)

Set the vegetation mode - **Vertical** for items which grow up from the ground, or **Topiary** for items which should be molded to a surface.

Notes

- Ground Cover is not fast. It creates 3D geometry for each leaf. It keeps your SketchUp model small and fast, (because there are no 3D leaves in the SketchUp model), but it can take a lot of time to render.

RPC Objects
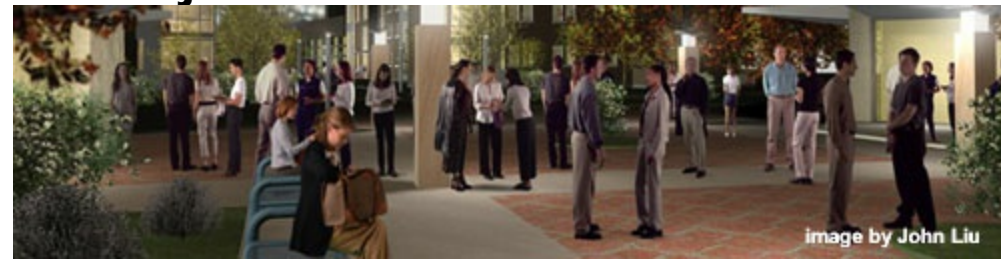
Model rendered with RPC Objects

RPC Objects

Place RPC components in your SketchUp model which automatically render as RPC objects.

- See: **RPC Objects**

RPC Objects are 3D objects containing software and content associated with ArchVision's Image-Based Rendering (IBR) technology. (RPC stands for Rich Photorealistic Content. RPC is also the file extension for this image-based content.)

These objects are available for high-end renderers such as:

- **IRender Plus** for SketchUup, and nXtRender for AutoCAD.
- Autodesk: VIZ, 3ds Max, Architectural Desktop (ADT), Civil 3D, Revit
- SGI Performer, Informatix's Piranesi
- Cubicspace's rtre
- Bentley MicroStation.

When you purchase RPC Objects you can use them with any of these applications.

Because RPCs rely on photo image data, the incredible richness of detail and quality of images far surpasses even the best computer-generated models.

Installing RPC - ArchVision Content Manager

This ArchVision Content Manager Tutorial will guide you through installation and use in your SketchUp model.

This **Tutorial - Installing RPC - ArchVision Content Manager** will guide you through the steps of installing the ArchVision Content Manager necessary to place RPC objects in your SketchUp model and render them.

Step 1 - Download RPC Content Manager

If you click the RPC icon (   ) in IRender nXt toolbar and if the RPC content manager is not loaded yet, this dialog will appear.

(If the content manager is already installed, the icon will jump to Step 4 below.)

You can also jump directly to the ArchVision Content Manager download here: **ArchVision Content Manager**

Follow this process to download the ArchVision Content Manager:
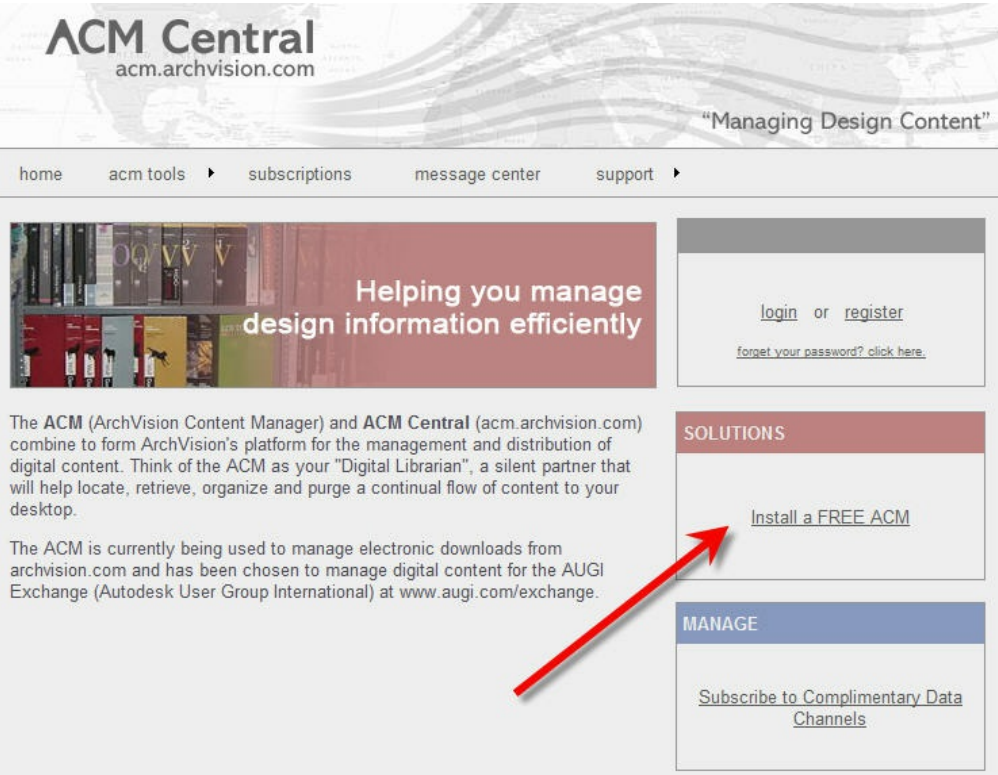
Click **Install a Free ACM** to continue.

You may get a message like this:
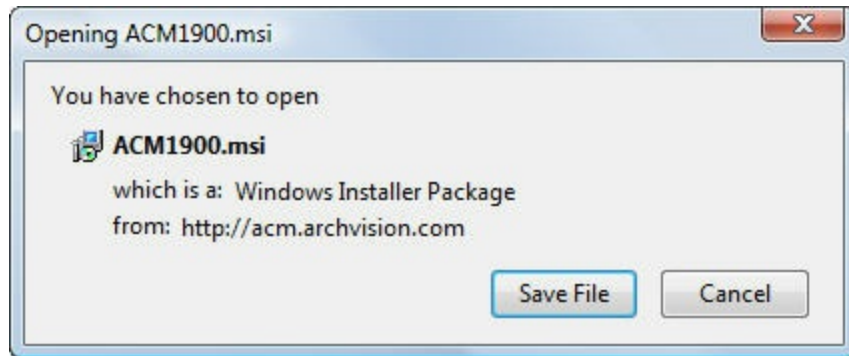
If so, Click 'Save File **or** Open**.**

Step 2 - ArchVision Content Manager Installation

Click **Next** for each step of the installation:

ArchVision Content Manager Setup

End-User License Agreement

Please read the following license agreement carefully

ARCHVISION® SOFTWARE LICENSE AGREEMENT

PLEASE READ THIS SOFTWARE LICENSE AGREEMENT
("LICENSE") CAREFULLY BEFORE SELECTING THE "YES"
BUTTON AT THE BOTTOM OF THE PAGE AND INSTALLING THE
SOFTWARE. BY SELECTING "YES" OR BY INSTALLING THE
SOFTWARE, YOU ARE AGREEING TO BE BOUND BY THE TERMS
OF THIS LICENSE. IF YOU DO NOT AGREE TO THE TERMS
OF THIS LICENSE, DO NOT INSTALL THE SOFTWARE OR
SELECT "YES." IF YOU ARE NOT WILLING TO BE BOUND BY
THIS LICENSE AGREEMENT AND YOU DO NOT AGREE TO ALL

☑ I accept the terms in the License Agreement

[Print] [Back] [Next] [Cancel]

ArchVision Content Manager Setup

Destination Folder
Click Next to install to the default folder or click Browse to choose another.

Install ArchVision Content Manager to:

C:\Program Files\ArchVision\ArchVision Content Manager\

Browse...

Back   Next   Cancel

Step 3 - Configuring the Content Manager

After installation, the ArchVision Content Manager Configuration Dialog may appear automatically, or you may need to run it from the Program Manager, or you may launch it the next time you click the RPC icon in IRender nXt.
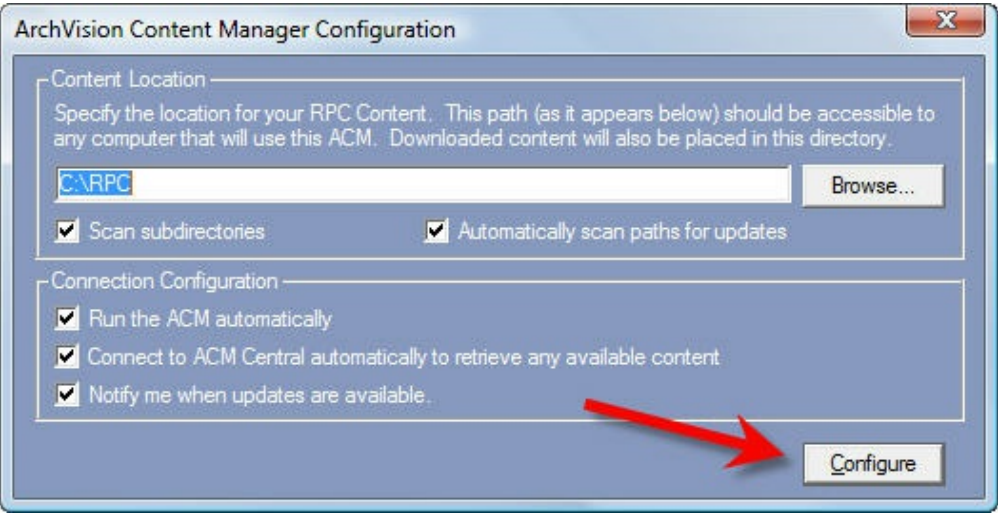
Select a default location for your RPC files. and click **Configure**

Click **Ok** on the next dialog box.
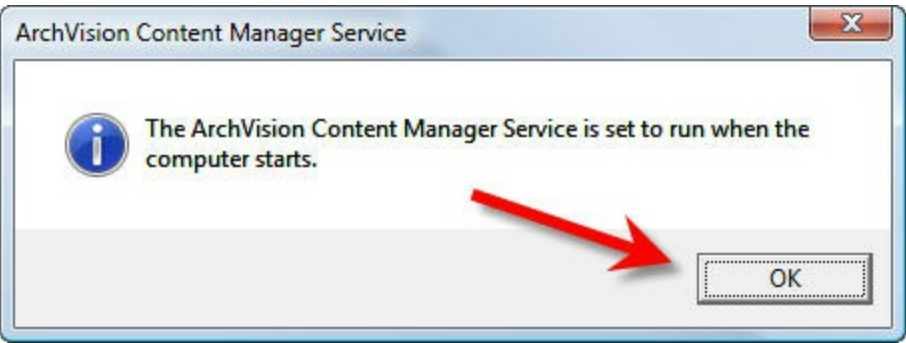
If this dialog appears, Click the **X** in the upper right corner to take it down.
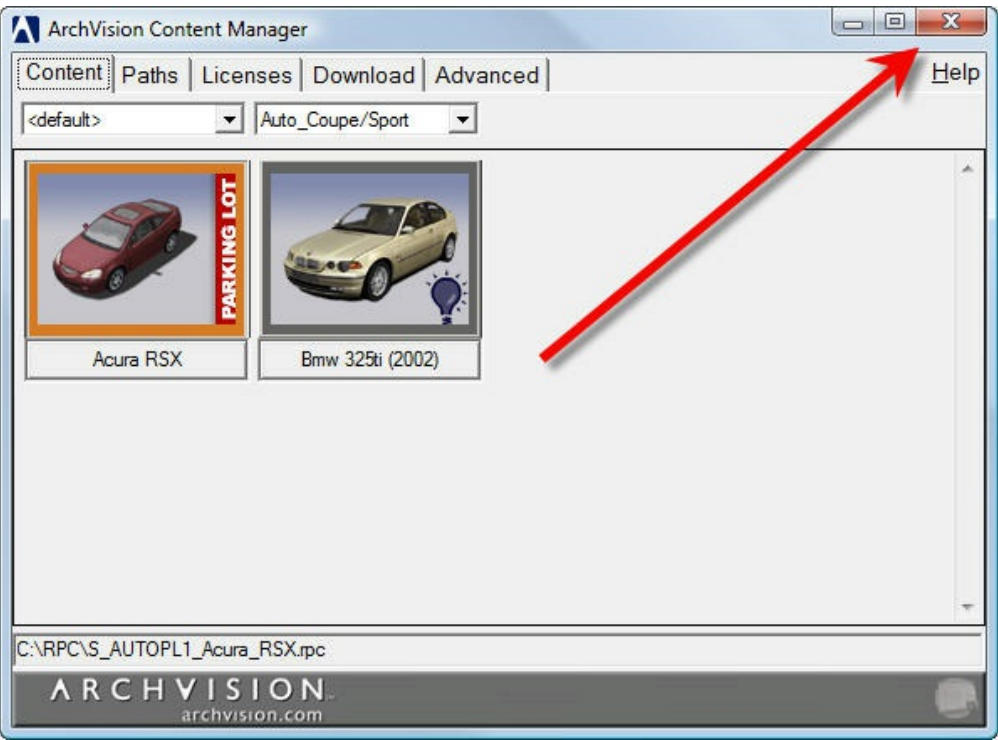
Step 4 - Select and Place an RPC Object
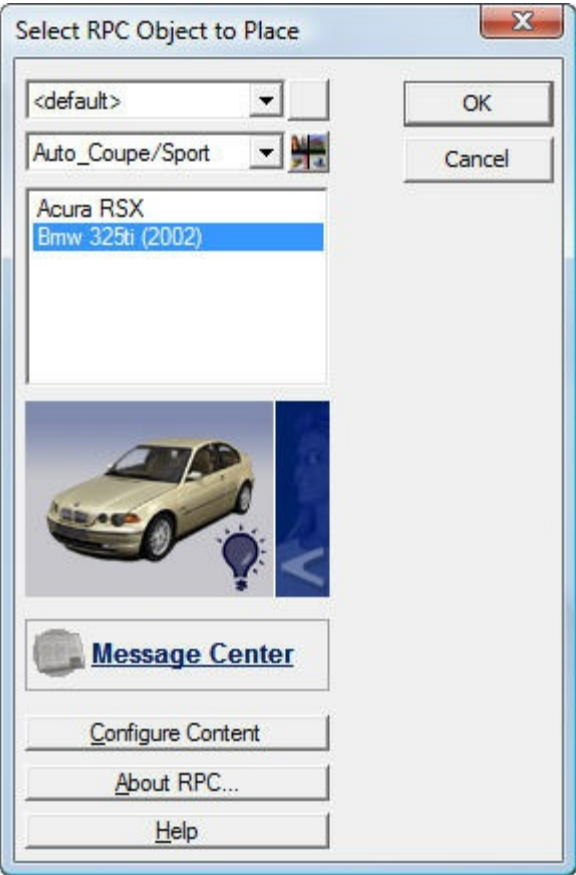
The next time you click the RPC icon in SketchUp, this dialog should appear.

Select a .RPC file and click **Ok**.
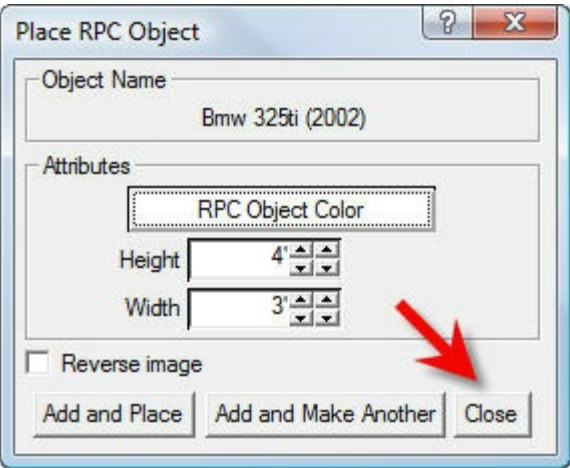
This dialog should appear to let you place the component generated from the RPC file into SketchUp.

See: **RPC** for more information on using RPC Content.

ArchVision

RPC vehicles, people and plants

ArchVision is the leader in the development of image-based content creation, management and delivery solutions. In addition to its RPC (Rich Photorealistic Content) Plug-in technology, ArchVision's products include a growing library of RPC content ranging from people, trees and shrubs to image-based automobiles and other popular objects.

For more information, visit: www.archvision.com.
IRender Plus has a Wizard to create SketchUp components from RPC Objects. These do not have the images applied to them in SketchUp. You need to render the SketchUp model in IRender to view the quality objects.
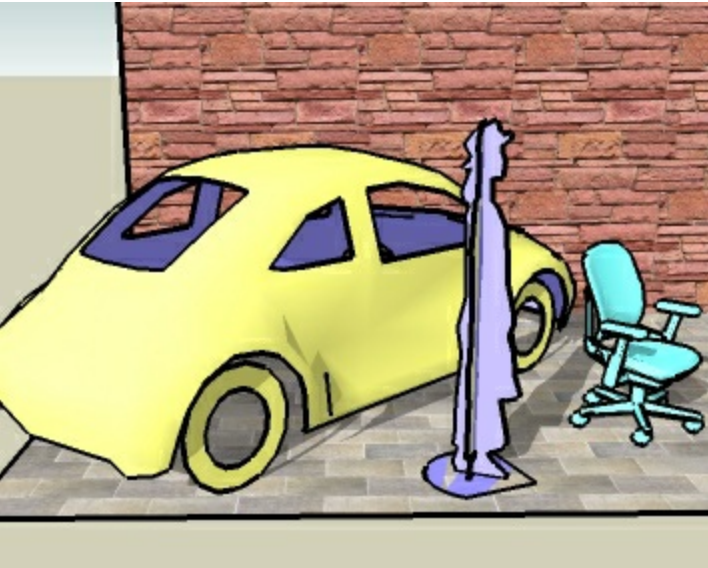
3 sample RPC objects, (included with IRender), placed in SketchUp.

3 sample RPC objects, rendered with IRender

Additional Functions
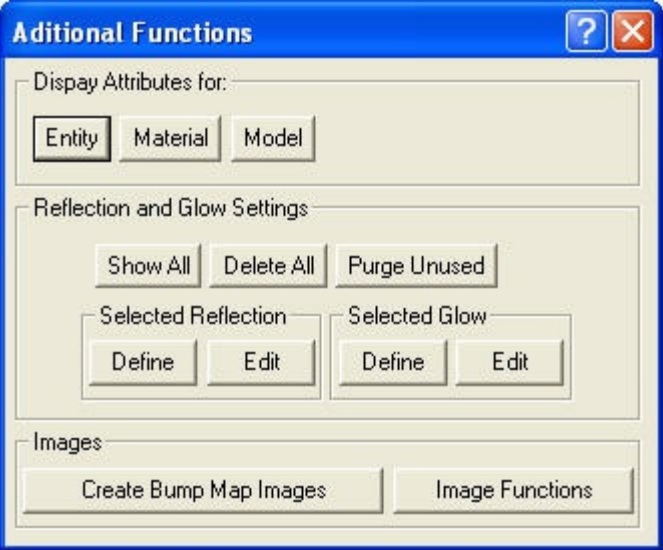
Additional Functions (   ) loads a dialog of functions to help view and trace material settings.

Note

You can assign reflection or glow to a face by right clicking on the face. If the face has a material, you can also use this method to assign the reflection or glow to all faces with the same material. This is usually much easier then using these functions. These functions are provided for cases where the material you want to set is buried inside of components and/or groups and it would be difficult to access the face directly to modify it.

Usage

To invoke these functions, use the Plus Sign icon on the IRender Toolbar (   ).

Display Attributes for:

These functions are used to view attributes stored by IRender on your SketchUp model.

- **Entity**
- **Material**
- **Model**

Reflection and Glow Settings

- **Show All** - displays all material overrides stored in the model.
- **Delete All** - removes all material overrides stored in the model.
- **Purge Unused** - removes all material overrides which are not being used.

Selected Reflection

- **Define** - Displays a list of materials in the model and lets you assign a reflection to them.
- **Edit** - Displays a lost of materials int the model which already have a refection and lets you change the reflection.

Selected Glow

- **Define** - Displays a list of materials in the model and lets you assign a glow to them.
- **Edit** - Displays a lost of materials int the model which already have a glow and lets you change the glow.

If there are entities selected in the model, these functions only display materials for the selected entities. Otherwise they display

display materials for all entities in the model.

Images

- **Create Bump Map Images** - Creates a Bump Map from the geometry in a SketchUp model.
  See: Create Bump Map
- **Image Functions** - Loads a dialog to display, select and remove images from a SketchUp model..
  See: Image Functions

Advanced Techniques

Advanced Techniques for use with IRender nXt

- Animation
- Edge Highlighting
- HDRi Skies
- [RPC](RPC) 3D Objects from ArchVision

Alpha Images

IRender Alpha Images

IRender can save its renderings as alpha channel images with the background transparent. This lets you easily place the image over a background.

- Step 1: Render image in IRender with a background color (no sky or ground plane unless you want them in the alpha image)
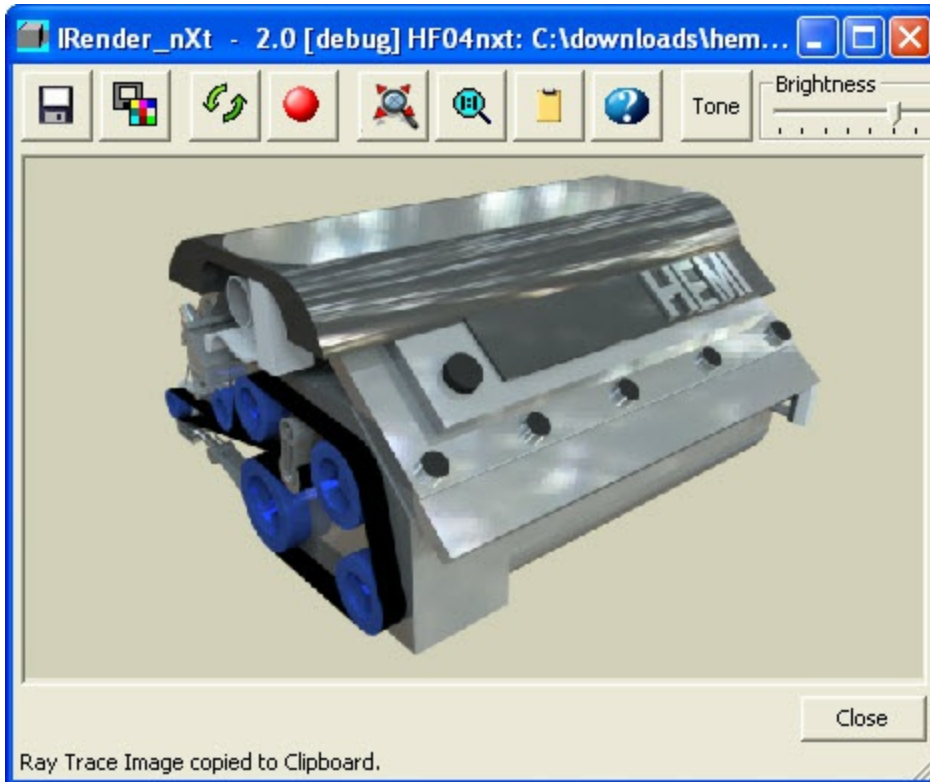
Model from 3D Warehouse - HEMI V8 by Custom Car Garage (CCG)

- Step 2: Click the Save icon to save the rendered image.
- Step 3: Choose **Transparent PNG Files** as the desired file type
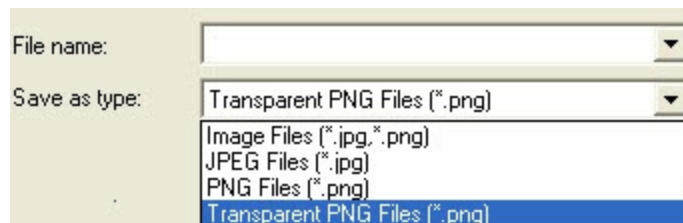
Save As type

- Step 4: Click Save to save the image
- Step 4: load the image in front of a background.

This example was loaded into SketchUp as an Image

Notes

Note: *The alpha transparency is anti-aliased at the edges of the item which makes it smoother when placed in front of a background image.*
Note: *In a future version you will be able to specify an image to use as a background while rendering. However the alpha transparency will often be better because you can position the rendering on the background after the rendering is completed.*

Alpha Ground Plane

IRender nXt has a feature called Alpha Ground Plane . This renders the ground as invisible, and saves the ground as an Alpha Channel when you save the rendering as an Alpha Image. However, the shadows on the ground are still visible. So you can paste the rendered image and shadows on top of a background image using a paint program.

- See: Alpha Transparent Ground Plane

Alpha Objects

You can also mark objects as Alpha Channel, and they will appear invisible but shadows cast on them will appear. This can be used to let your model cast shadows on walls or nearby buildings, and then paste the rendered image and the shadows on top of a photographic background.

- See: Object Properties

Antialiasing

Simple SketchUp model rendered with no Antialiasing.
Each of these examples shows the image at normal size
on the left and blown up 2 to 1 on the right to
demonstrate how Antialiasing is performed.

Same model exported with Anti-alias option.

Same model exported at 4X the desired resolution and
then reduced in an image editing program.

Antialiasing option in SketchUp Export.

Antialiasing refers to the process of making edge lines look smoother by blending in the colors at the edges. SketchUp
provides an option for anti-aliasing when saving a SketchUp model as a 2D image using " Export 2d Graphic ".

Tips and Tricks

1. SketchUp anti-aliasing provides a slight improvement, but you will achieve a much better result if you save the image
   at 4X the desired size from SketchUp, and then use an image editing program to reduce its size and perform the anti-
   aliasing.
2. To Create High Resolution images from SketchUp, use a rendering engine such as IRender nXt and choose the
   resolution desired. See SketchUp High Resolution Images .

Edge Highlighting

Edge Highlighting

Edge Highlighting displays the edges of faces while [rendering](#) . This is especially valuable with scenes which contain cabinets or furniture where edge highlighting is necessary to bring out the detail of the components.

In [IRender nXt](#) edge highlighting is turned on in the Advanced Settings dialog.

Videos and Tutorials

- [Edge Lines Video](#)

Image rendered with edge lines to show detail. Note how these "rendered" edge lines are reflected in the countertop as well.

Image rendered without edge lines. Note how the details are 'washed' out..

Edge Line Highlighting displays the edges of faces when rendered. This is especially valuable with scenes which contain cabinets or furniture where edge line highlighting is necessary to bring out the detail of the components.

What **Edge Line Highlighting** means to you...

- Visualize detail elements of models.
- Achieve a new rendering style with the addition of edge lines.
- Able to pick which type of edge lines to show as well as the style and size of them.
- Edge lines will be visible in reflections on other objects in the model.
- One button click to render edge lines.

Settings
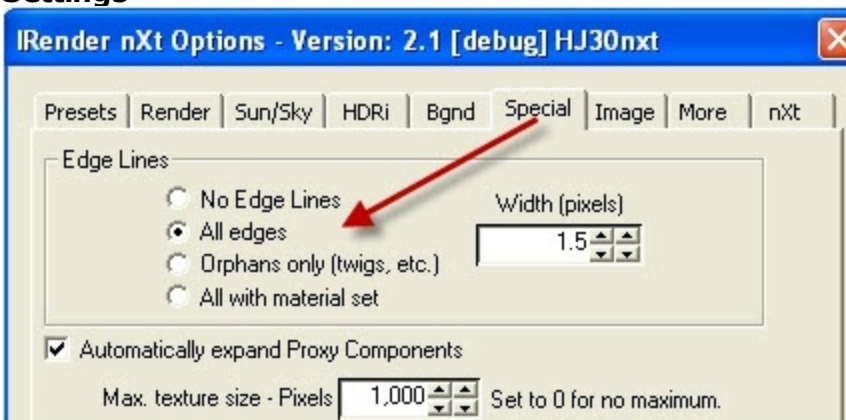
Settings are available on the Special Options tab of the setup dialog.

Rendering with SketchUp using IRender nXt

- **Width** - sets the approximate width of the edges in pixels.
- **No Edge Lines** - Do not include edge lines
- **All Edges** - include all edge lines
- **Orphans Only** - this displays only edges which are not attached to faces. (Some plant components use orphan edges to represent branches and twigs.)
- **All with material set** - will only include edges with a material set. This can be used when you want only some edges - such as a ceiling grid - to render. Put a material on the edge in SketchUp and check this option.
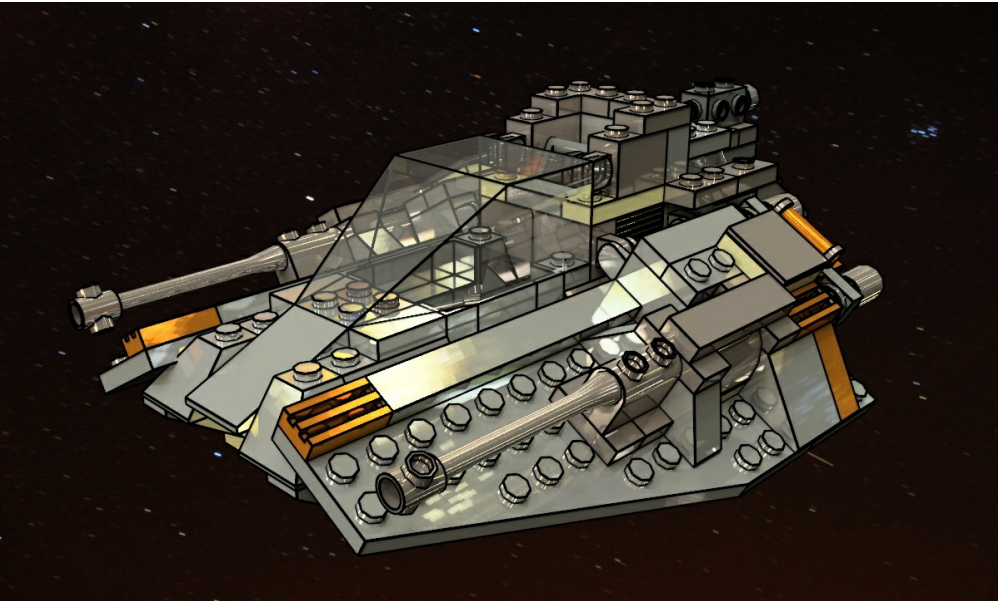
Edge Lines as Geometry.
Note reflections of edges in other surfaces.
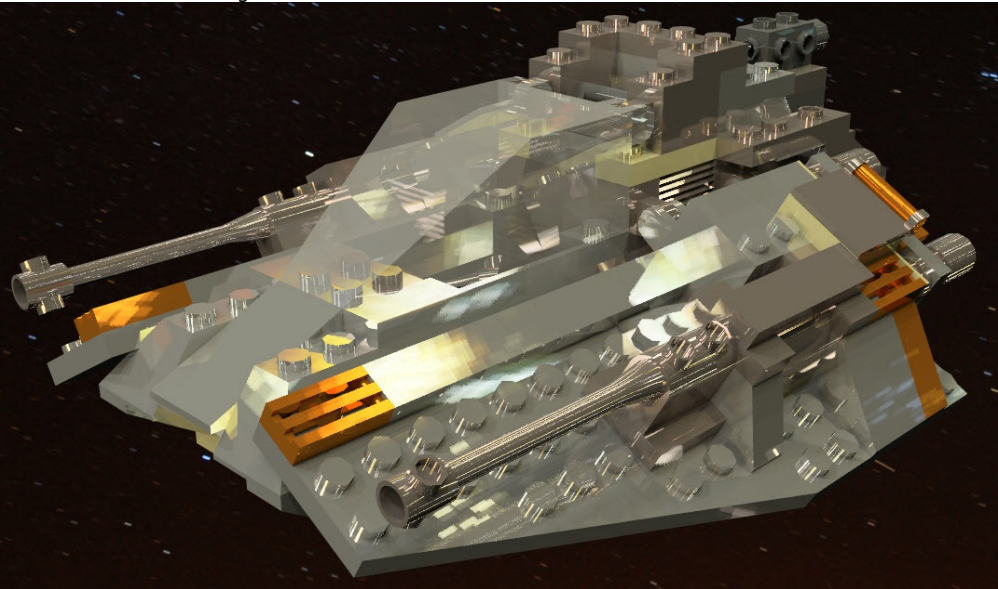
Here is the same scene rendered without edge lines. You can see how the edge lines can be important for detail.

Post Processing

This image was photoshoped. Used a rendered image wihtout edge lines (like image #2) and blended it with another image of only edge lines. **Note**: The edge lines are not reflected.
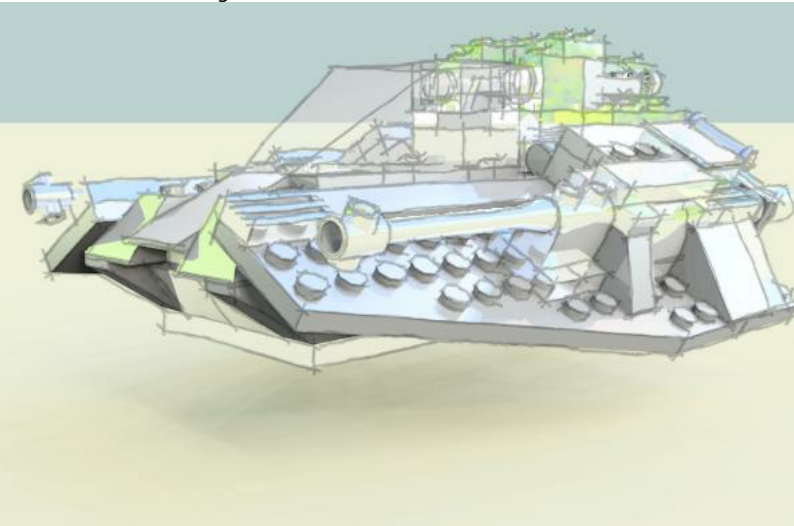
This image had Sketchy Edges placed on top using the Foreground feature in IRender nXt

You can also add edge lines after rendering, using PhotoShop, or the IRender nXt Foreground Image feature.

Save a hidden line drawing from SketchUp and paste it on top of the rendered image.

- See: IRender Foreground Tab

Video Tutorial

- Rendering with Edge Lines - Video Tutorial

Auto Image
Image Tab

Auto Image

Auto Image is a feature in IRender nXt which will automatically save an image of your rendering when it is complete. This is useful, because it you start a rendering in the background, and inadvertently close SketchUp without realizing that the rendering is complete, then the rendering will be lost. **Auto Image** can be used to automatically save the image on disk when it is completed.

Settings

- **Use Auto Image** - turns on the use of Auto Image
- **Prompt before Rendering** - loads a dialog before rendering to review and change settings
- **Autosave Image** every XXX passes - if XXX is greater than 0, then a copy of your rendering will be saved after each XXX passes. (The image is saved in the folder used in the Image name below. The default is "My Docments\IRender")
- **Image name** - Specifies the name to use for the image.

If you check Auto Image, then an image is automatically saved whenever you complete a rendering.

You can choose to:

- always use (and overwrite) the same image name,
- always use (and overwrite) a name based on the name of your model
- create a unique name each time you render.

- **Automatically name image by drawing** - Uses the current drawing name for the image name.
- **Make Unique** - If the image name already exists, this setting will create a new unique name for the image. This allows you to enable auto-image and have copies of all your renderings automatically saved on the disk.

IRender Image Saved

Image saved as:

C:\docs\IRender\Untitled.jpg

Click OK to to launch image.

[OK]   Cancel

- **Notify when done** - Loads a dialog when the rendering is complete.
- **Launch when done** - Launches the image in a paint program when done.
- **Close Window** - Close the rendering application when done.

JPEG images

> **Quality** - set quality for JPEG images (vs compression)
>> Move very close to the right for best results.
>> Recommend the highest quality setting (default).
>> - See: JPEG Quality
> **Always add comments after saving image**
>> You will be prompted for comments to save with the JPEG image.
> **Edit/Query** - load a JPEG image to view or edit precious comments.

Background Image

Background Image

Background Images are special images which you can place behind your model.

- **Simple Background** - you can use any image as a simple background for skies or other prupuses
- **HDRi Skies** - for full illumination and reflection of a background image, you will need to use an HDRi Sky
- **Image Layer WIzard** - backgrounds can easily be positioned using the Image Layer Wizard.
- See: HDRi Skies
- Video: **Background Wizard Video**

IRender can place a **Background Image** behind your model.

Use the Background Tab or the Background Wizard and select an image to use as the background.

Background Wizard
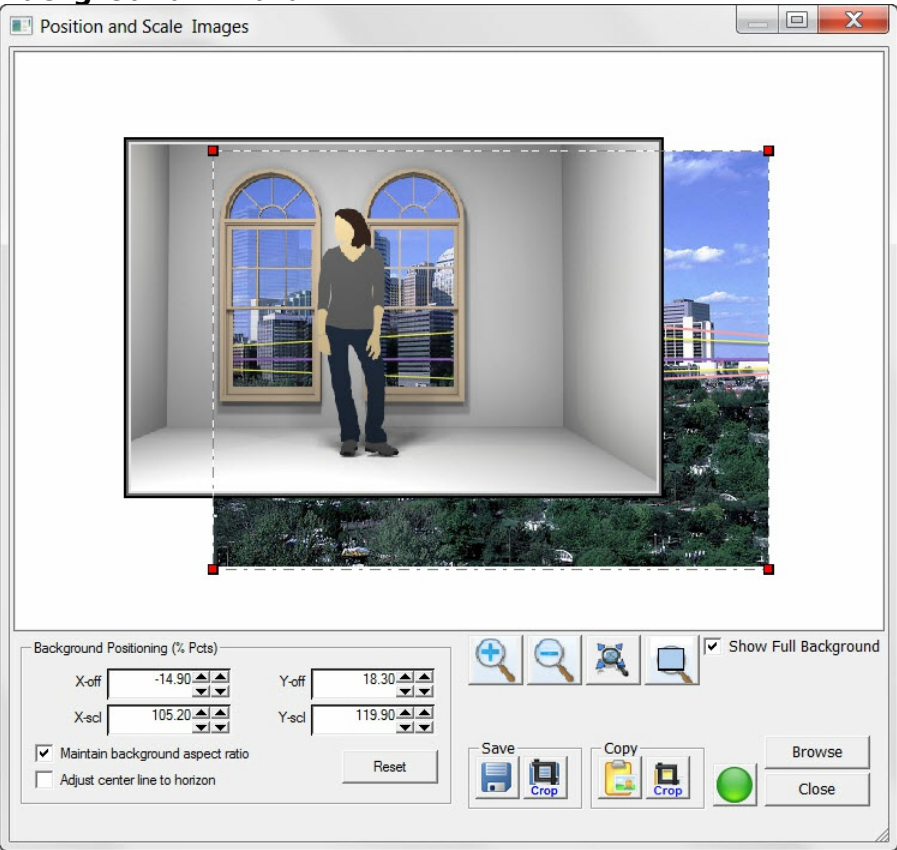
The new Background Wizard , introduced in Version 4.0, make it easy to position your rendered model in a background, and to remember the settings for future renderings.

To invoke the new Background Wizard select **Preview/Position** from the Background Tab.

Features:

- [Background Positioning](#) - slide or resize background image.
- [Distortion](#) - distort background image to adjust for Perspective or rotations.
- [Save or Copy](#) - save or copy the resultant image directly from the rendering without re-rendering.

Watch the Video: [Background Wizard Video](#)

- See: [Background Wizard](#)

Background Tab

The Background Tab is used to define background image and also for Ground Plane materials.

Background Image

- Click **Browse** to select an image to use for the background.
- Click **Clear** to clear the background image.

Background Visibility

- **Visible** - image is visible (will override any sky settings)
- **Reflected** - image is reflected in windows.

Background Projection

This determines how the image is projected onto the sky of background.

- **Flat**
- **Cylindrical**
- **Spherical**

Create Planar HDRi **Image**

Converts a normal image to a HDRi background image.
See: Planar HDRi Backgrounds

Clear

Clear out Background Image

Browse

Select HDRi Image from disk

Positioning

Offsets and **Scales**

Use the Image Layer Wizard to size and position the background image and set these values.

Rotation

for Cylindrical and Spherical Projections.

Maintain Aspect Ratio

if this is not checked, the background image is stretched to fill the screen.

Adjust Center Line to Horizon

If checked then the image will be scaled and offset so that the horizontal center line of the image matches the horizon of the current perspective view.
The image is scaled and positioned so that it still fills the entire background of the rendered image.
See: Horizon

Reset

Resets Offsets, Scales and Rotation.

Preview/Position

Loads the Background Wizard to easily position and scale the background image.

See: Background Image for examples.

Ground Plane Settings

- **On** - turns on the Ground Plane
- **Alpha Channel** - makes the ground plane transparent, but shows the shadows on the ground.
  See: Alpha Channel
- **Elevation** - set the elevation of the ground plane.
- See: Ground Plane

Ground Plane Material

- From the Background Tab you can define and edit materials for the Ground Plane.

This lets you apply a grass texture for land, or a Procedural Bump Map and reflection to emulate water.

- See: Background Tab

Alpha Transparent Ground Plane

With an Alpha Transparent Ground Plane, you can save the rendering as an Alpha Transparent image, and the ground

plane will be transparent. However, shadows on the ground will be visible. This can be used to place the ground plane image on top of a background image and still see where the shadows would appear. (Of course this works best if you are placing he image on a flat surface.)

Visible and Reflected

This shows samples of the 4 possibilities for Background visible, and Background reflected.

A non-sky image has been used for the background, because it make it easier to wee when it is visible and when it is reflected.

Visible and Reflected background - visible on, reflected on
This is normal, but there may be times when you want to see the background, but not reflect it in windows.

Visible but not Reflected background. - visible on, reflected off
The background is visible - but not reflected in the dome.

Not Visible, butReflected background - visible off, reflected on
This could ne used to reflect dramatic clouds without showing clouds in the sky.

No background image used - visible off, reflected off

Background Projections

These determine how the image is projected onto the sky of background.

Here are some examples using the same sky background and 3 different projections.

Notice that the cylindrical and spherical projections stretch out the image more to fill the entire background. This may work properly with normal sky images, or you may need a 360 degree image to stretch around the cylinder or sphere.

Flat

Image fills render area. See Scales and Offsets below.

Cylindrical

Image wraps around 360 degree cylinder.

Spherical

Image wraps around 360 degree sphere.

Scales and Offsets

Here are some examples of scale and offset for Backgrounds.

0% offset, 100% scale.
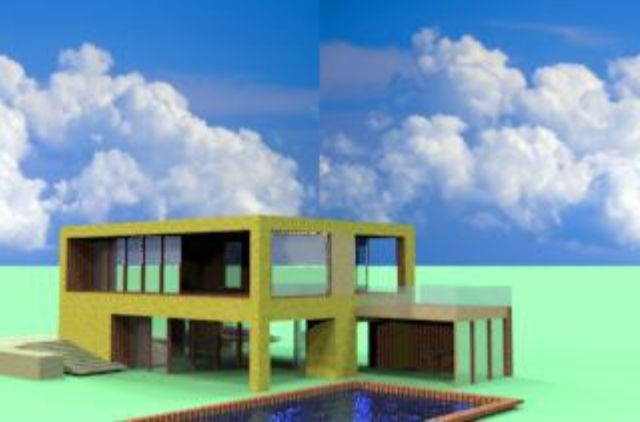
50% X offset - 100% scale.
Notice it moves the image 50% to the left and repeats.

0% X offset - 150% scale (X and Y).

Rendering with SketchUp using IRender nXt

50% X offset - 150% scale (X and Y).
The X Offset seems to be effected by the scale.

Horizon

If you check **Adjust Center Line to Horizon**, then the image will be scaled and offset so that the vertical centerline of the image matches the horizon of the current perspective view. If you have created your background image with the horizon in the center, then this provides a more realistic view - especially when seen through windows.

Background Image with horizon at center of image. (You can place the horizon at the center by enlarging the image in a Paint Program, shifting the image so that the horizon is in the center, and adding additional color above or below the image to complete it.

rendered scene without background image to show the location of the horizon.
Not that the horizon is not in the center of the rendered area.

Rendered image with background adjusted to match the horizon.

Planar HDRi backgrounds

<div style="border:1px solid #999; background:#eee; padding:1em;">
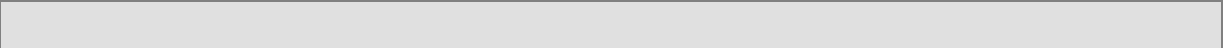
[Planar HDRi Backgrounds](#)

You can use a, (non panoramic), HDRi image as a background.

Image Adjustments

If you use a Planar HDRi background with the [Path Tracer](#) , you can adjust its brightness as an additional lighting channel after rendering. (This is not working with the standard renderer yet)

- See: [[]]

</div>

You can use a, (non panoramic), HDRi image as a background.

To use this feature, select Browse on the Background tab and choose a .HDR file.

You can create a Planar HDRi from a normal image using the **Convert Image to HDRi background** button on the Background Setup Tab.

Settings for Inverse Tone Mapping

Tone mapping, (converting from HDRi to normal images), takes luminance and creates RGB colors for display or saving in an image. Inverse tone mapping reverses that equation. nXt's tone operator requires two other pieces of information in order to invert it properly-- the average luminance and the maximum luminance of a scene. The way it works at the moment is that you select Daylight, Nighttime to get default values, and then adjust the custom settings for Average and Maximum illumination in the image.

Lumens and Default Values

After selecting a normal, ("Tone Mapped"), image, you can set the Average Lumens and maximum Lumens which control how bright the image will appear.

- **Daylight** 5,000 and 20,000
- **Nighttime** 1 and 500

Load this image as a Planar HDRi Background

After converting your image, you can load it as a HDRi background for rendering.
Image Adjustments
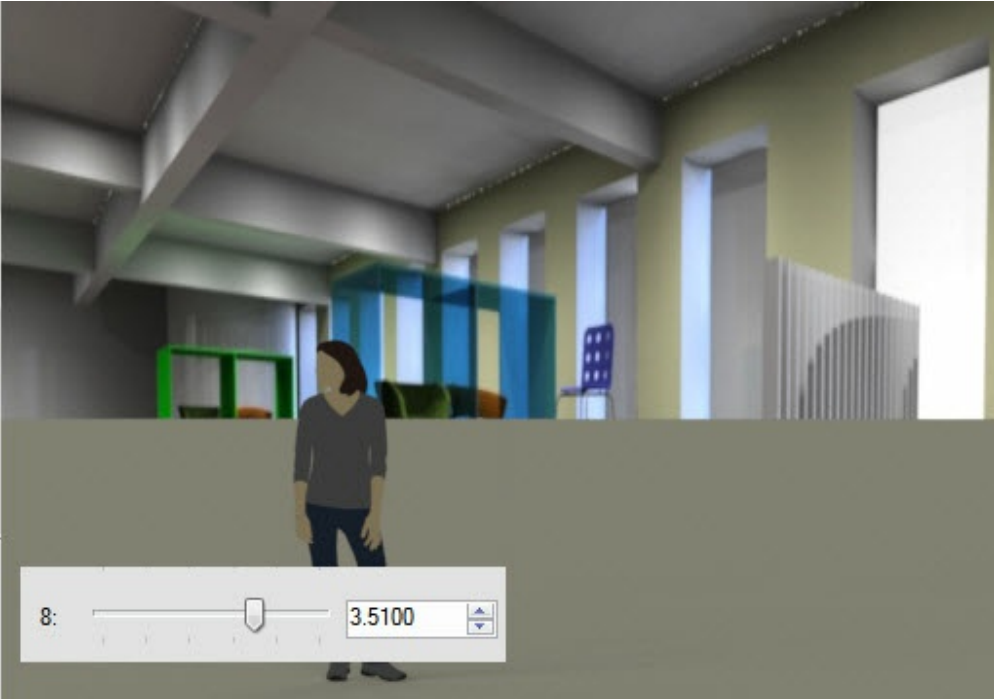
Adjusting Background image in the nXt Image Editor

If you use a Planar HDRi background with the Path Tracer , you can adjust its brightness as an additional lighting channel after rendering.

HDRi Image Adjustment are not working with the standard renderer yet from the Rendering Window. However, you can save the rendered image in Native Image format and use the HDRi background channel (8) in the nXt Image Editor .

nXtRender Batch

nXtRender Batch Rendering exports the model to a file, and then renders the file in a separate process.

It has 3 main uses and benefits.

1. **Large Models** - Models which are too large to render directly from SketchUp can be rendered in batch mode. Batch Rendering can process models which are 2 to 5 times larger than Direct Rendering.
2. **Animation** - Batch mode is used for animation, because animations need to load and reload the model when there are layer changes, and because animations typically take a long time to render.
3. **Network Rendering** - The entire folder containing the rendering information and files can be accessed across a network, or copied to a thumb drive or another machine and used to render the model.

nXtRender Toolbar Functions

These are the functions for each of the buttons on the Render Dialog Toolbar:

 - Load the **About** dialog

 - Image Filters and Tone Operator - Adjust Image Brightness, Contrast, Burn, and Saturation or apply other filters.

 - **Brightness Control** - Adjust the brightness without loading the Tone Operator dialog

- Save the rendered image to a JPEG or PNG file. See: Saving Rendered Image

- Copy rendered image to clipboard

- Zoom All - This button will toggle the render display between showing the actual pixels and filling the current window.

- View Rotate - Change View and re-render.

- Render Setup Dialog - Change Setup Options before restarting the renderer.

- Render Material Dialog - Change Materials before restarting the renderer.

After changing Setup Options or Materials, use the Start Render button to see the changes.

- Lighting Channels - adjust the intensity of sun, sky or groups of lights directly.

- Image Effects - Switch to nXtImage Format for special effects - Real Time Haze , Depth Blur and Glare

- Resume Rendering - Use the Resume button to add more passes to a rendering which has been completed. See: Resume Rendering .

- Start Rendering - This button is red while the renderer is processing. It will turn green when the rendering in finished. Click on the red button to stop the rendering. Click on the green button to restart the rendering.

Settings

Click **Batch Rendering Settings** pn the Render Setup Wizard to change the default folder or behavior.
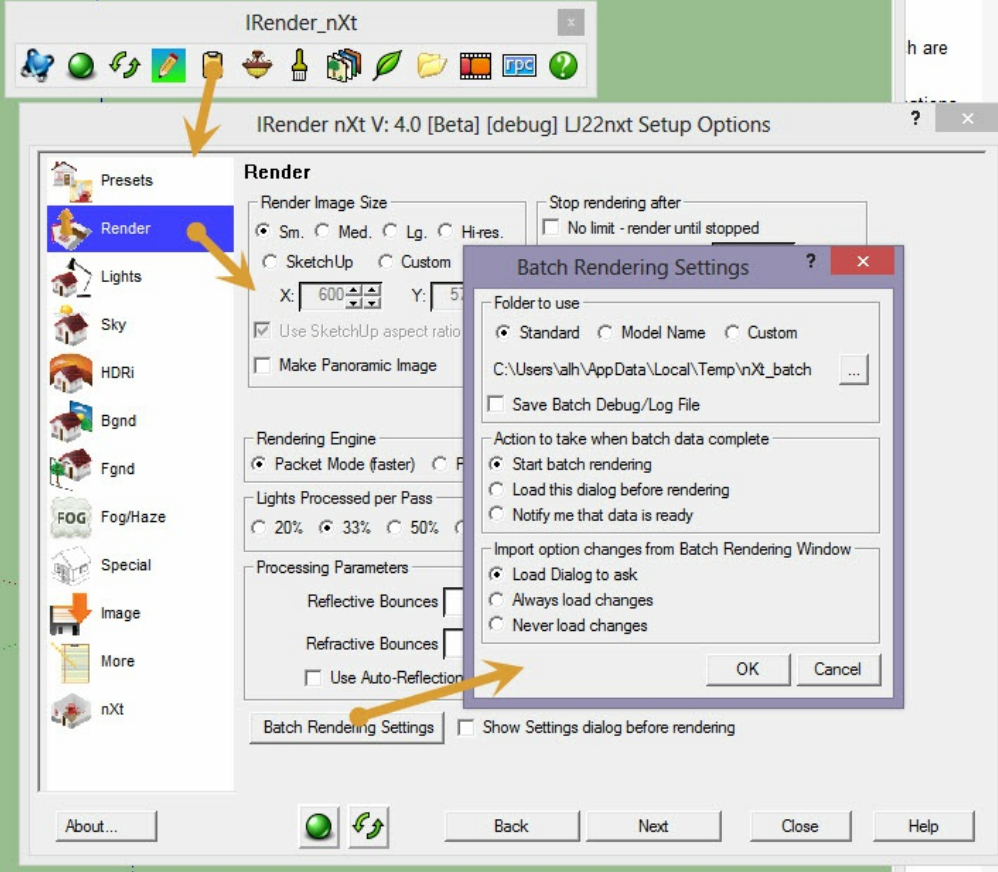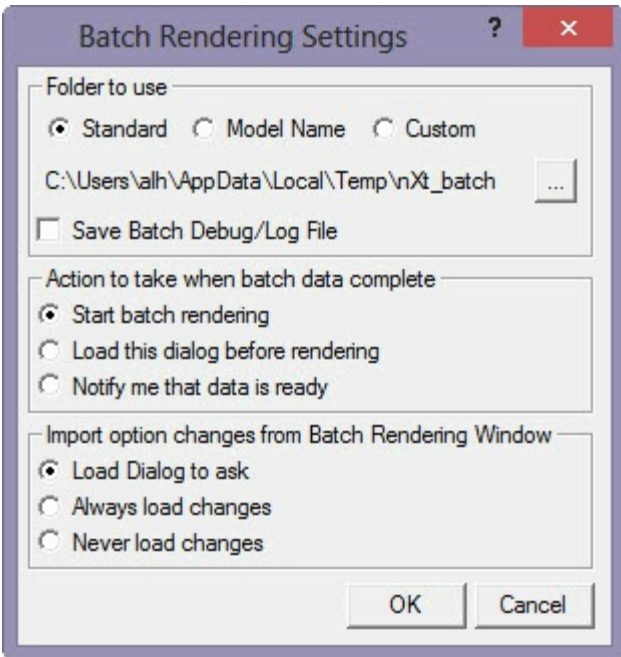
Folder to Use

Batch Rendering stores everything needed to render the drawing in a folder on your disk. This lets you render the drawing from a network machine, or render it later if desired.

- **Standard** - the standard folder is stored in your Windows temporary folder. It is reused every time you start a Batch Rendering. The folder is **nXt_Batch**.
- **Model Name** - the Batch Rendering folder name is based on the name of the current SketchUp model.
- **Custom** - you can enter your own name and location for the Batch Rendering folder.

For **Batch Rendering on a Network Computer**, select **Custom** and save the rendering information on a drive on your computer which is accessible by the network computer, or save it directly onto the network computer.

Action to tak when batch data complete

The second two options cause a pause in the rendering process so that you can start the rendering on a separate network machine, or delay the start of the rendering, if desired.

- **Start batch rendering** - the rendering is automatically started after the data is extracted from your SketchUp model.
- **Load this dialog before rendering** - this dialog is re-loaded before rendering so that you can set the Batch Rendering folder.
- **Notify me that data is ready** - A message box is loaded to show that the data is ready.

Import option changes from Batch Rendering Window

When you make changes to your rendering settings, materials, etc. from the Rendering window, these can be reloaded back into SketchUp. (Assuming you are still working on the same model in SketchUp).

- **Load dialog to ask** - Sketchup will load a dialog asking if you want to import any changes made while renderings.
- **Always load changes** - Always load the changes into the SketchUp model without asking first.
- **Never Load changes** - Do not load the dialog and do not load any changes back into SketchUp.

Network Rendering

Rendering with SketchUp using IRender nXt
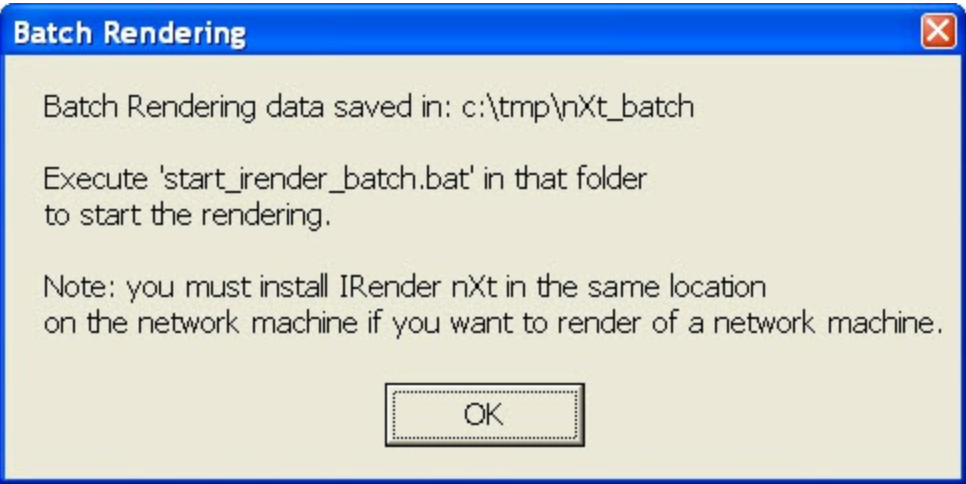
This message will appear if you check: *Notify me that data is ready* on the Batch Rendering Setup Dialog.

Remote Rendering

External Rendering exports the model to a file, and then renders the file in a separate process.

This allows you to make changes to the SketchUp model wihtout having to wait for the rendering to complete

---

After extracting the data from the SketchUp model, you can access the entire folder containing the rendering information and files across a network, or copy the folder to a thumb drive or another machine and use it to render the model.

If you check: *Notify me that data is ready* on the Batch Rendering Setup Dialog you will be prompted when the batch data is read, and you can start the rendering on the remote machine. a DOS .BAT file is created in the batch rendering folder which will start the rendering for you.

Installations

> **nXtRender**: *You must install nXtRender in the same location on a network machine if you want to render from the network machine. You do not need to install SketchUp and you do not need to authorize nXtRender for the batch rendering network machine.*
> **SketchUp**: *You do not need to install SketchUp on the remote machine.*
> **RPC:**: *If you are using RPC objects, you will need to install the ArchVision Content Manager on the network machine.*

Licensing

> **nXtRender**: *You do not need to license nXtRender of the Remote Machine.*

Batch Rendering Editor

You can edit materials or options in the Batch Renderer, and re-render the model without returning to SketchUp and then reload the changes back into SketchUp.

- See: Batch Rendering Editor

Licensing for Batch Rendering

You do not need a license for a Batch Rendering machine.

You need a license for each machine which is running the 3D Modeller and wants to access nXtRender from within the 3D

Model.

You do not need a license for machines which are used only to perform the renderings using the Batch Rendering process. As long as these machines do not need to access nXtRender from within AutoCAD, SketchUp or Revit - they do not need a license.

Render Farms

A Render Farm consists of a group of networked computers working together to complete large rendering tasks. Render farms proceed silently, without graphically displaying the renderings as they progress, or you can run the Render Farm Display tool to display parts of the image as they are completed. Using the Render Farm allows you to use more compute power for lengthy tasks at the expense of some interactivity.

See: <u>Render Farm</u>

nXtRender Batch - Tutorial

The Batch render component of IRender Nxt has two distinct advantages over rendering in the standard render window. Firstly , the image is rendered outside of the SketchUp program envelope and therefore the amount of ram utilized to render is not restricted to the 1.8GB of ram used by SketchUp. In larger\complex models this results in much faster render times. The second and equally useful advantage is that it will produce an independent batch file (.bat) that can be started outside of SketchUp at anytime or on any computer (as long as the appropriate IRender NXT files are installed on the host machine).

Although I very rarely 'farm'renders to other machines I regularly use the batch render facility to create multiple renders overnight using Windows Task Scheduler.

This quick tutorial describes how to create batch files in IRender NXT and then use windows task scheduler to time the start\save of renders without continual user input.

Step 1 - Preparing Batch Files

1. After saving SketchUp file, open IRender nXt and select 'render' tab
2. Open 'Settings' dialog.
3. Select where you would like batch file to be placed. I usually use 'Model Name' - this will produce the batch files in a folder of the same name as file in the sub-folder IRender in documents. Alternatively you can press the browse tab and select your own folder. For the purposes of the tutorial I will keep to the same name as model.
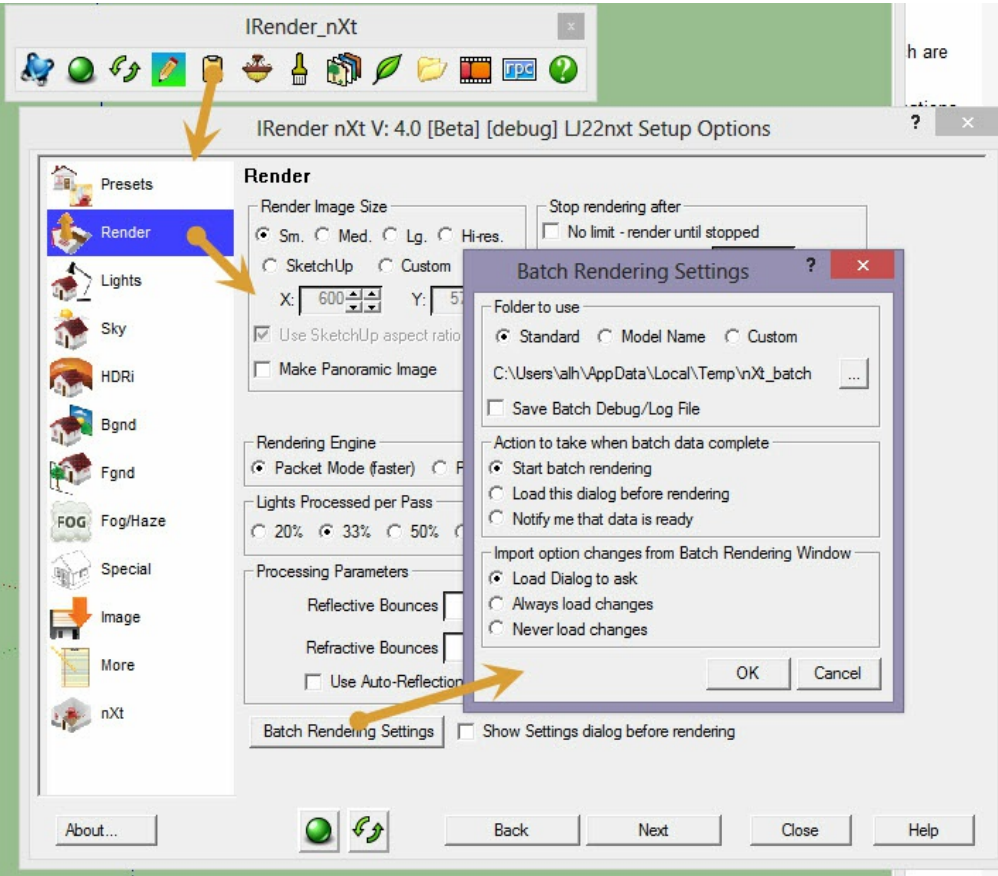
1. On the image tab make sure the 'Use Auto Image' and 'Close window' is checked. You need both these items to make sure that at the end of each batch render the image is saved and that after the image is saved - the render window is closed to allow the next scheduled render to open. Make sure the 'Prompt before Rendering' and 'Notify' are unchecked - we do not want the whole process to grind to a halt by the render dialog appearing in the middle of the night and waiting for you to respond. You can select where the image should be saved. Although not listed in file type

I often use uncompressed bitmap as preferred choice of file type in addition to the default JPEG and PNG-the file should save automatically if given the correct file extension (.jpeg , .png , .bmp).

2. After deciding on all other render options press green render button to start batch render.
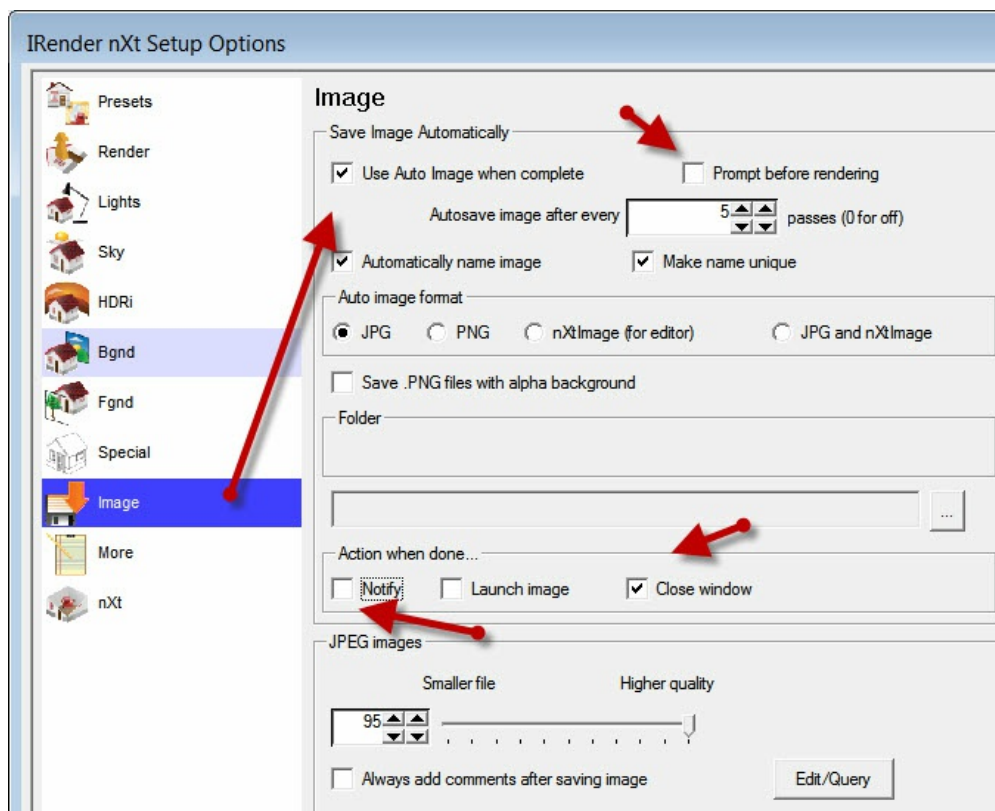
3. You also need to clear the 'Show End Render Dialog after Rendering' checkbox on the 'More' tab.

Image:Show end render.jpg
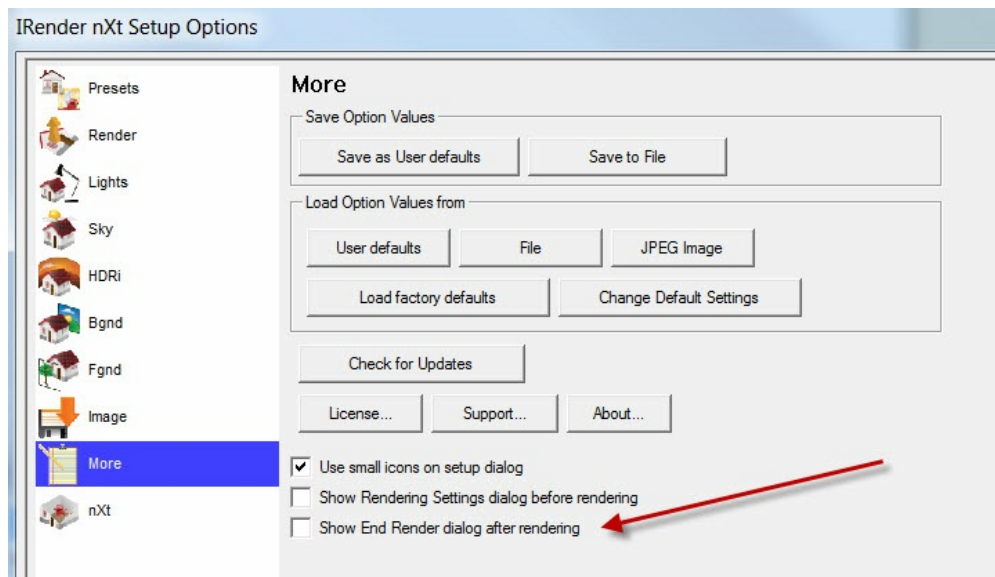
Step 2 - Complete Batch files

1. After completing the batch process the following dialog should appear (unlike the standard renderer a render window will not appear at this stage).
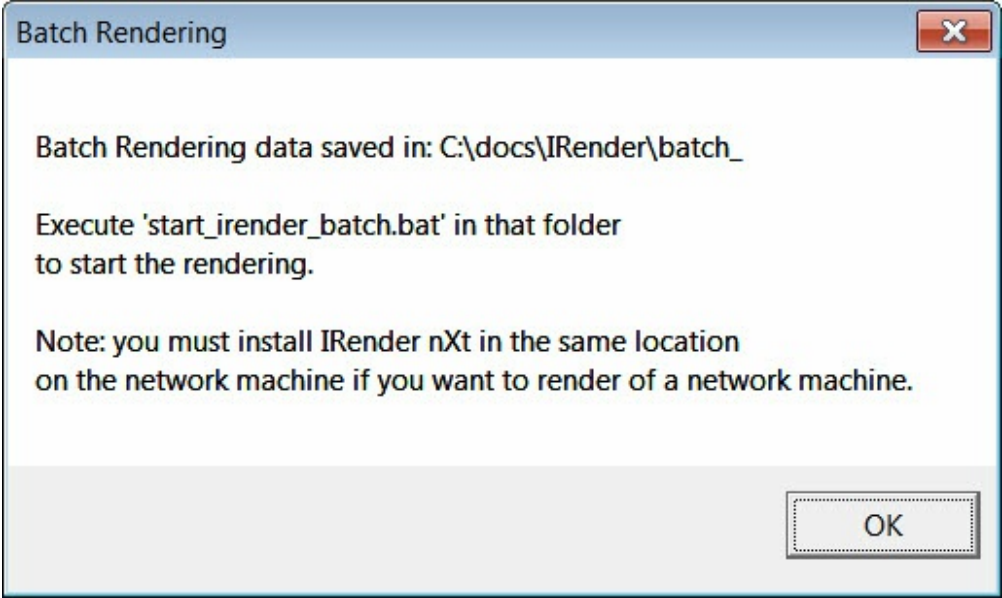
Step 3 - Repeat Process for all files

1. Repeat step 1 with all the files\models you wish to render - remember - if you wish to produce different views of the same model - save the views as separate files - if you re render the same file with a new view the original batch file of the same name will be overwritten - loosing the original view.

If you wish to create automated multiple views of the same model try the following tip ''One trick, to render each scene is a model, is do do an animation, and turn off page transitions. This creates one rendering per scene, and then you can set it to save the rendered scene as a .JPG or .PNG '' - Al Hart

Batch Rendering

Batch Rendering data saved in:
C:\Users\Documents\IRender\batch_tut3_2

Execute 'start_irender_batch.bat' in that folder
to start the rendering.

Note: you must install IRender nXt in the same location
on the network machine if you want to render of a network machine.

OK
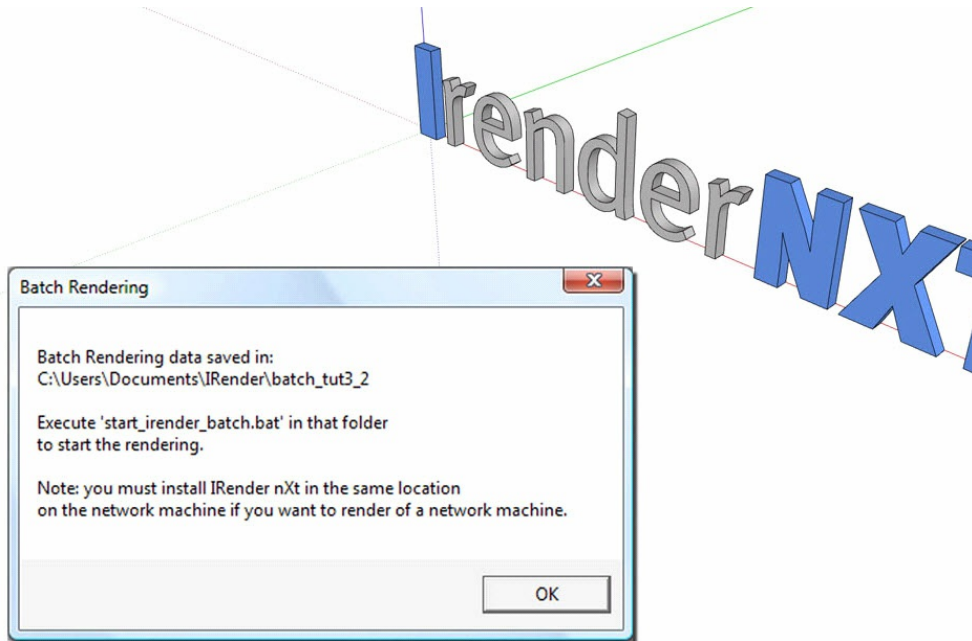
Step 4 - Check Batch Files Folder

1. Using the standard 'Model Name' setting - the batch renderer should have produced several folders containing the batch files in the \Documents\IRender\filename folder as per image below.
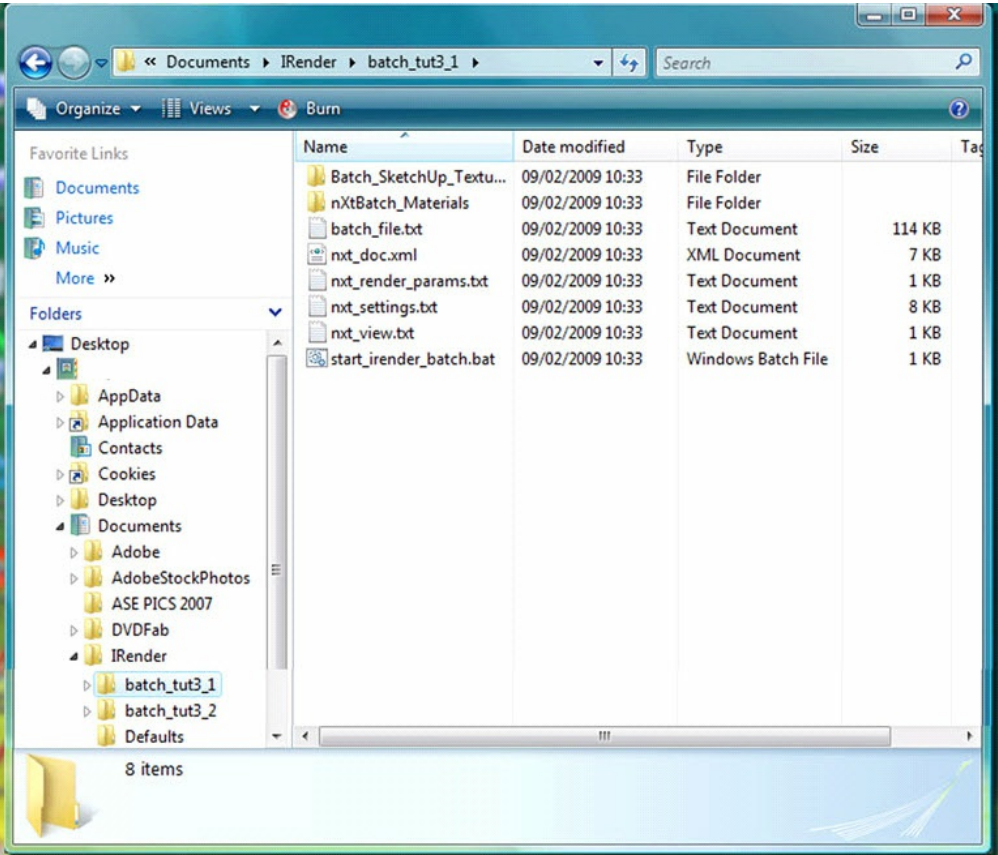
Step 5 - Open Windows Task Scheduler

Open Windows Task Scheduler - after pressing programs click on accessories > System Tools > Task Scheduler
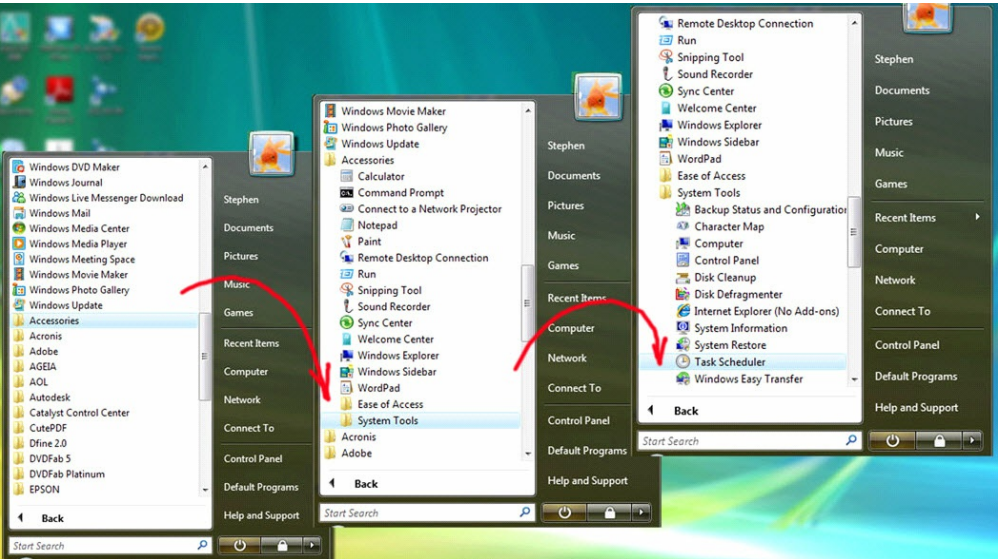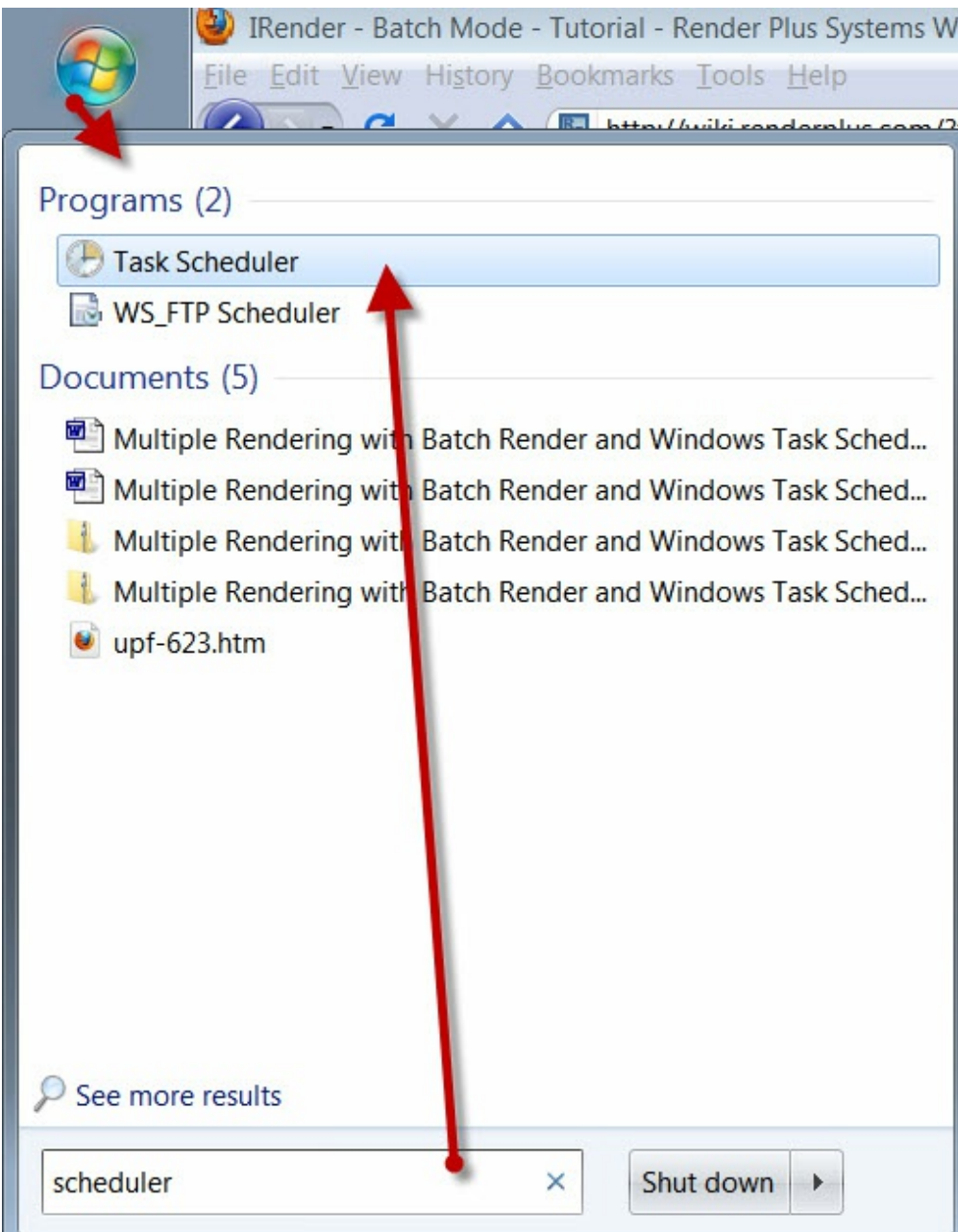
In Windows 7, you can click the Start Icon, and type in scheduler to locate it more easily.

Step 6 - Create Basic Task

1. Click on 'Create Basic Task' in first window
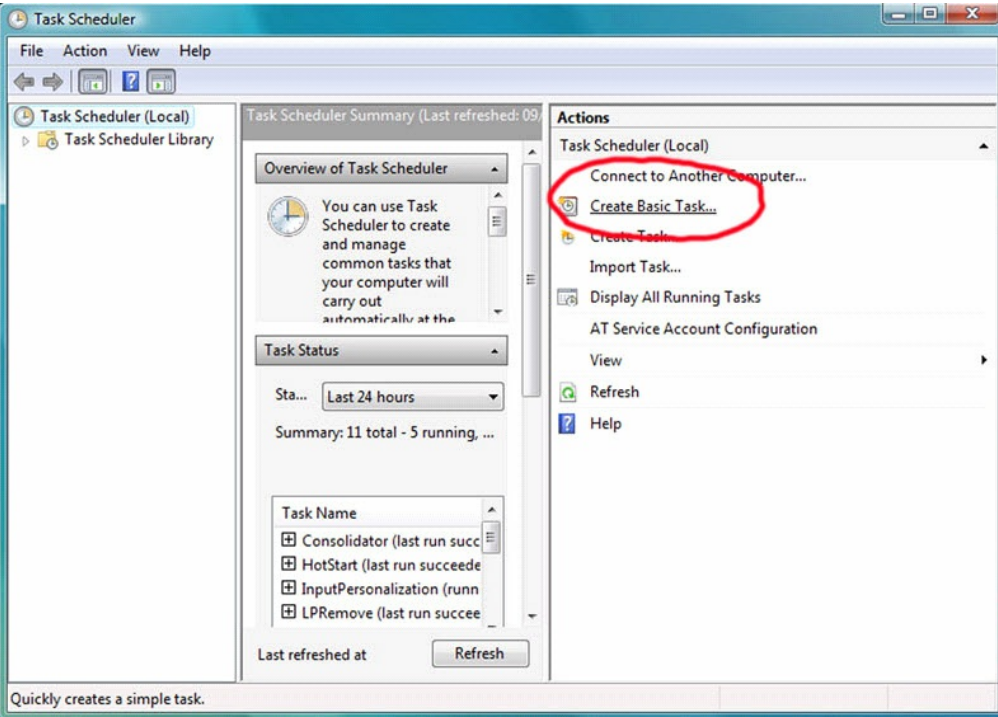
Step 7 - Set Parameters

1. Provide a name and description to scheduled task. The names can be anything - they are more for personal reference if creating lots of tasks.

2.On the next screen select 'one time'

3.Select time and date of task. Time is important when creating multiple renders - you must (at the moment anyway) approximate how long each render will be (usually by experience) and allow enough time between render.(see notes at end of tutorial) The batch render process will only work one at a time - if there is any overlap the second render task will not open.

4.Select 'Start a Program' option and move to next window.
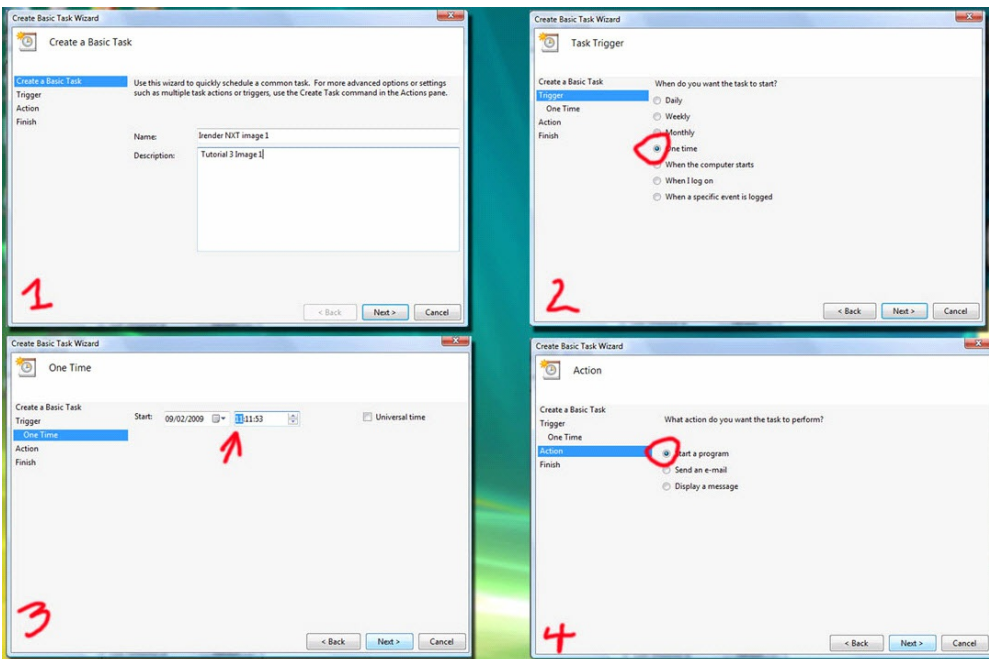
Step 8 - Select batch File and File Address

1.Press the browse button and select the batch file (.bat) in model folder in IRender subfolder.

2.Copy and paste the address into the 'Start in (optional) window - this is important - I have found task scheduler (certainly in Vista)will not find file without and hence not work. Only include file address - do not paste the file name itself or again the task will not complete.
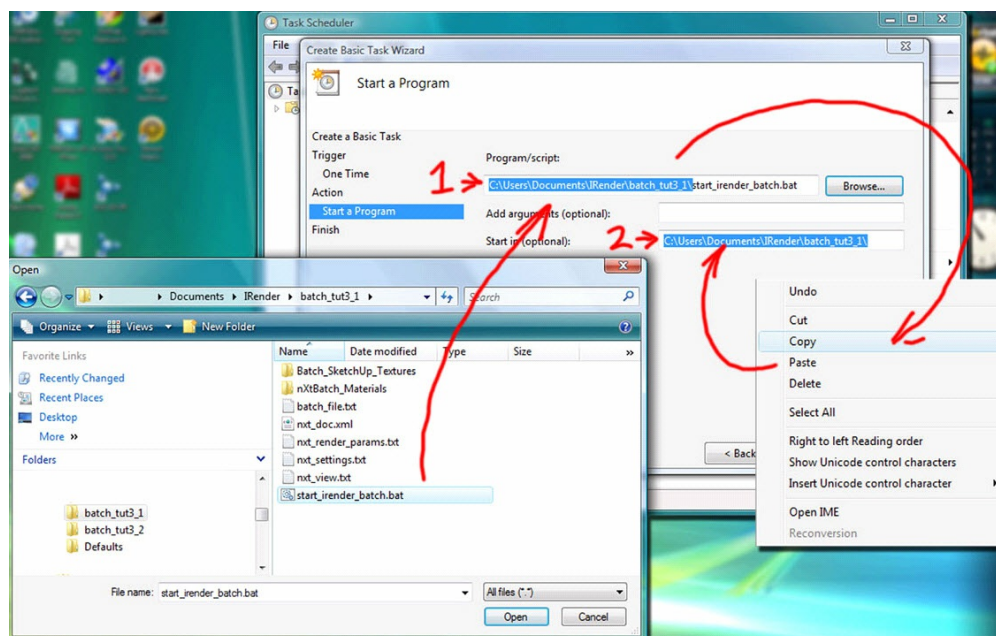
Step 9 - Check Task Summary and Properties

1. When you have completed all dialogs - the summary window will appear showing relevant settings.

2. Repeat process for all the files you wish to render - *again make sure you allow enough time between tasks for render to complete.

3. You can check status of each individual task and edit accordingly by double clicking on 'Task Scheduler Library'.

4. Check in task library to see if there are any other competing\conflicting tasks that may prioritize memory and make IRender Crash - i.e. virus scan.
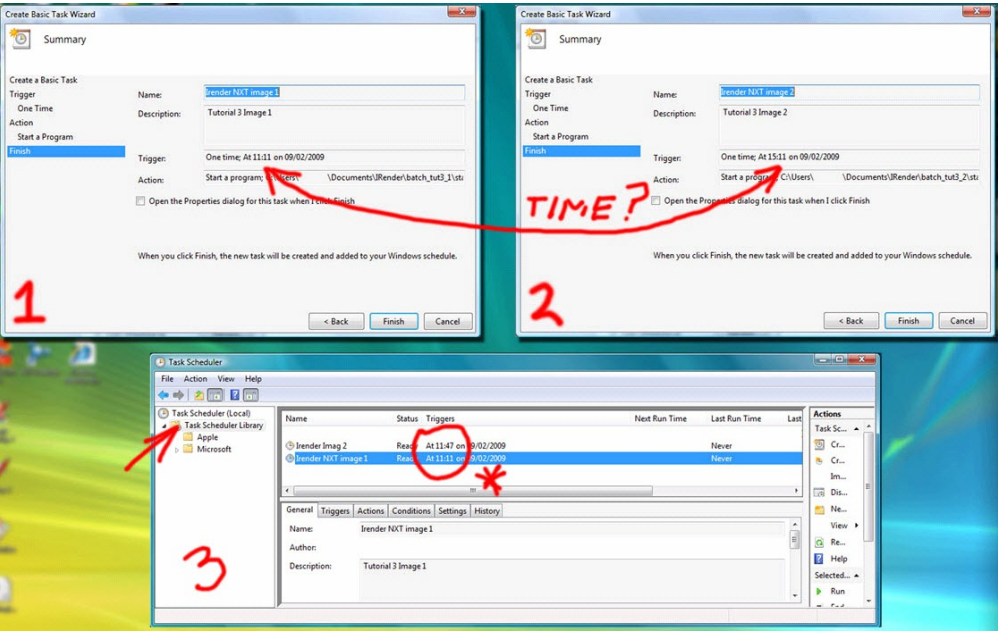
Checklist

1. Check 'model name' and 'notify when ready' in render settings
2. Check 'auto image' and 'close window' in image settings
3. Uncheck 'Prompt before Rendering' in image settings
4. Check 'automatically name image' or give it a file name and extension.
5. Create individual saved models for each view.
6. Make sure you allow enough time in windows task scheduler between renders
7. Make sure optional address of batch file is included within settings
8. Check in task library to see if there are any other competing task.

Testing

The first time you try this, you might create a small model, with a short time rendering and:

1. Go to the batch folder, and run the .bat file from a DOS Prompt to make sure it works properly.
2. Set up the scheduler to run the process in just a few minutes to see if it works.

Running several batch renderings in a single batch file

You can create several batch folders and then run them from a new, single .bat file.

This allows you to start them all at once (one at a time), or to use the Windows scheduler to start all the batch files at once.

1. Create the batch folders as in the rest of this tutorial
   e.g. Create Batch folders called: c:\tmp\batch1 and c:\tmp\batch2.
2. Create a new .bat file. It should look like this.

cd c:\tmp\batch1 call start_irender_batch.bat

cd c:\tmp\batch2 call start_irender_batch.bat

     3. Then start the new batch file.
     Note: Your setting for each batch file must not require users input to complete processing.

Creating .bat files

A .bat file is simply a plain text file with the file extension changed from .txt to .bat

You can use notepad, or any other Windows text editor to create or edit them.

e.g.: notepad run_all.bat

Notes

1. If your are rendering overnight - make sure your screen saver is switched off (some of the newer vista savers are really power hungry and will crash IRender every time).If you are using a LCD monitor turn it off overnight to save screen burn.
2. It is sometimes hard to assess render times for each individual model at present - the best way is to run the batch render manually by double clicking on batch file and seeing how long one pass takes then multiplying by the number of passes and adding some tolerance. Hopefully in the future we may be provided with an indication of render time or even our own task \batch render interface.
3. On my Intel Quad based machine I find a fairly complex model of between 10 - 20 MB,3000x1600 will take approximately 2-3 hours at 40 passes with 20-30 lights .I therefore usually leave about 4 hours between scheduled renders.
4. The majority of the time I only will render a couple of visuals overnight - I would therefore simplify the process by manually starting first batch render by double-clicking on batch file and then only setting the second render in task scheduler for later on in the evening.

I see this tutorial as a stop gap until the developers further enhance the Batch Render process - in the short term it may save some sleepless nights!

Boothy

Caustics

> **Caustics**
>
> produces focused light and shadow effects from light passing through a transparent object.

Caustics refers to the bending and refraction of light when passing through transparent materials.

Caustics can be set for a transparent material on the <u>Material Wizard</u> , or using <u>Object Properties</u> - in <u>IRender Plus</u> mode.

Caustic Refraction
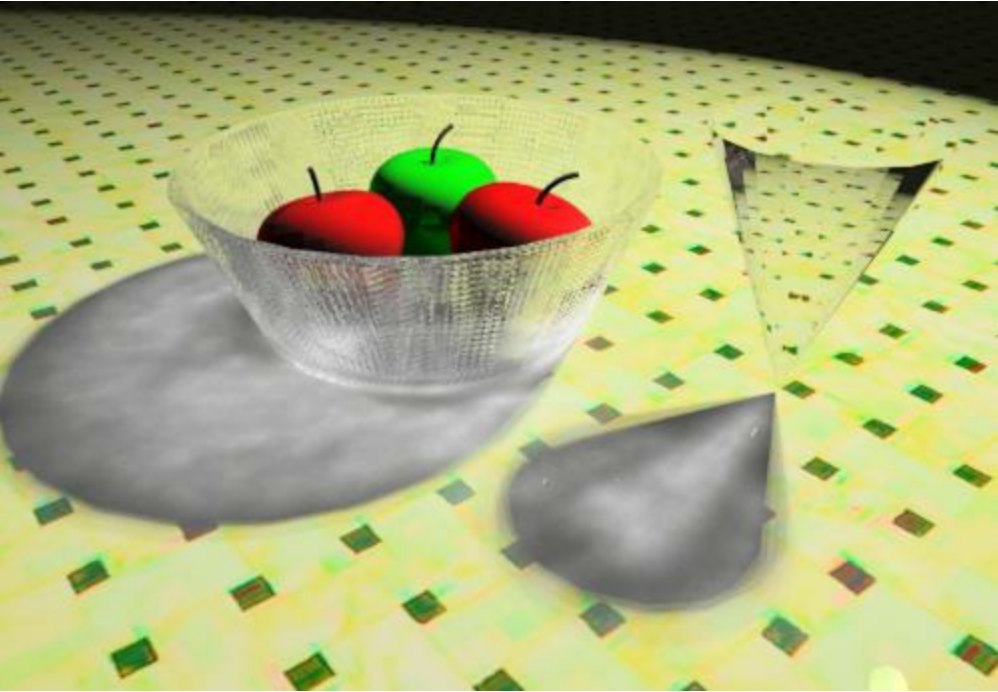
Caustic image after 20 passes
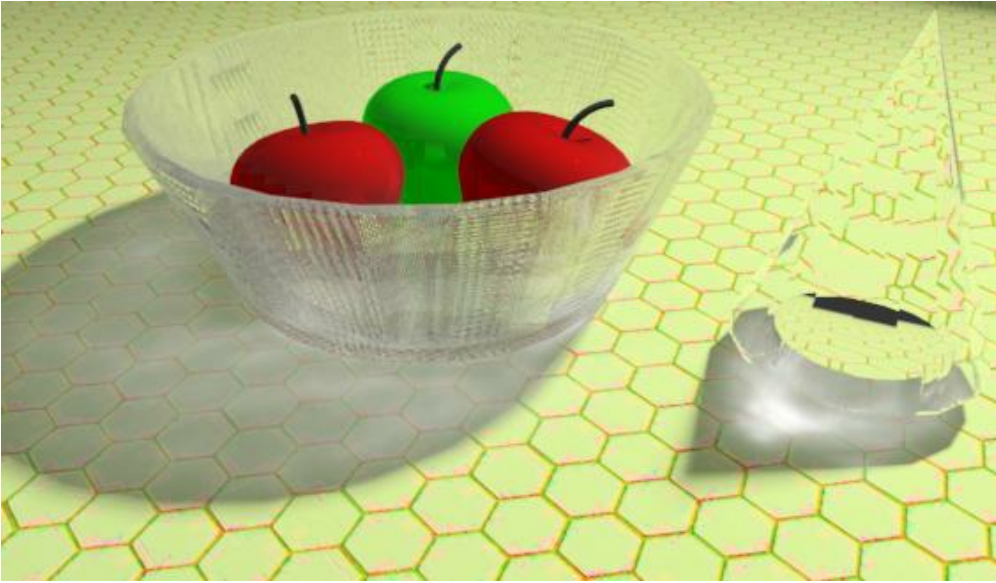
Caustic image after 100 passes

A caustic is the envelope of light rays reflected or refracted by a curved surface or object, or the projection of that envelope of rays on another surface.

The Caustic effect produces focused light and shadow effects from a point light.

This is a glass bowl of apples, (with a pyramid procedural bump effect), and a glass cone, rendered with transparency and refraction, and with Caustic effects. (Reflection 0.90, refraction 1.15).

These scene is illuminated with a spotlight.

Note: Caustic does not currently work with the Sun for illumination. This scene was illuminated with a spotlight.

Normal Refraction
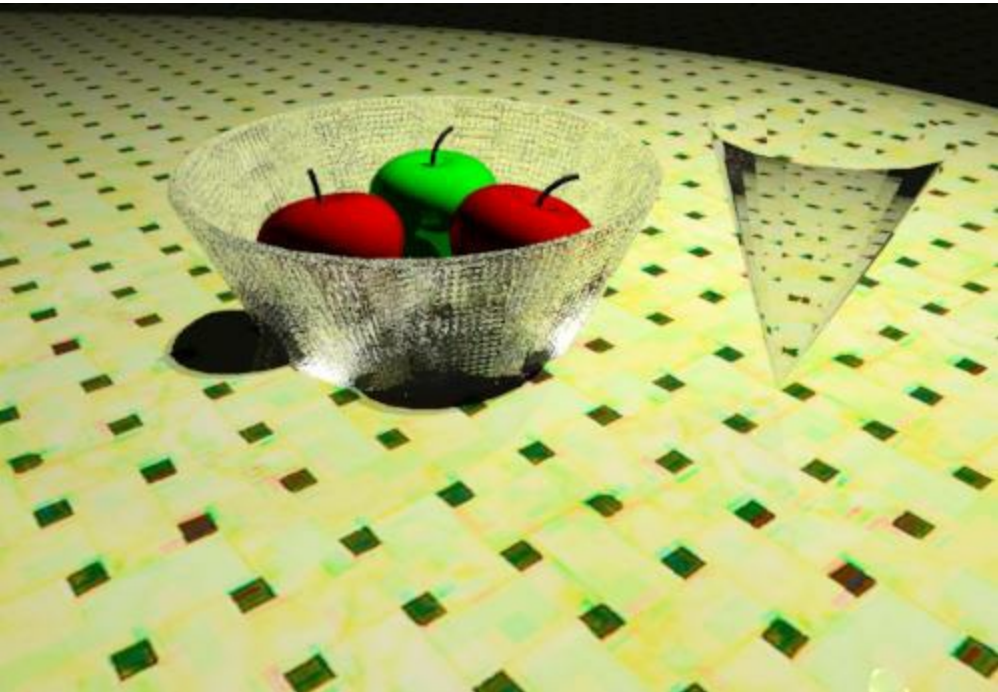
This is the same model but no Caustic effects.

Note that with the Normal setting, objects which are highly transparent do not cast appreciable shadows.

Clay Rendering
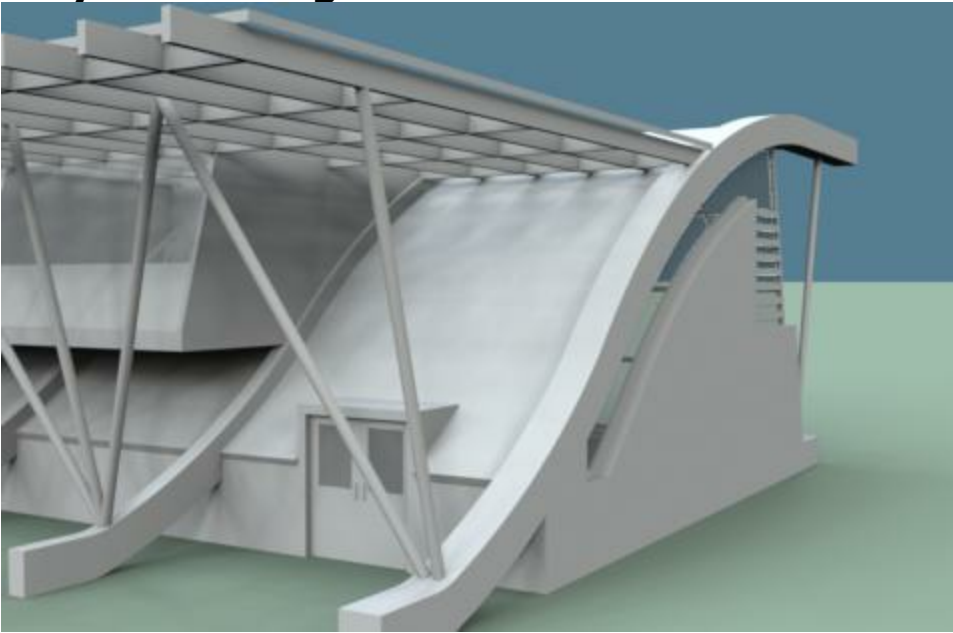
Clay mode - no textures - all color is white - color saturation does not apply

Clay Rendering is used to show the details of your model without adding colors or textures.

It lets you highlight the quality of your model with:

- **Simple, monochrome surfaces** - which do not distract from the model.
- **Subtle lighting effects** - which bring out the detail in the model

- **All with a single button click in [IRender nXt](#)**

You will also get Clay Rendering mode if you render from SketchUp in *Hidden Line* Face Mode.

Depth of Field

Depth of Field

Depth of Field and Focal Distance settings create renderings with areas in sharp focus and areas out of focus.

Depth Blur can also be defined as a Post-Processing technique in the nXt Image Editor .

- See also: Depth Blur

Render nXt has two different ways to set focus.

- The **Focal-Distance/Depth-of-Field** settings on the Render SetUp tab can be used to set focus before rendering.

    Depth of Field is set before rendering and saved in the SketchUp model.

- The **Post-Processing Depth Blur** feature from the FX icon after rendering can be used to set depth blur after rendering.

    Depth Blur is performed as a Post-Processing edit, after the rendering is completed, in the **nXt Image Editor** .

Depth Blur
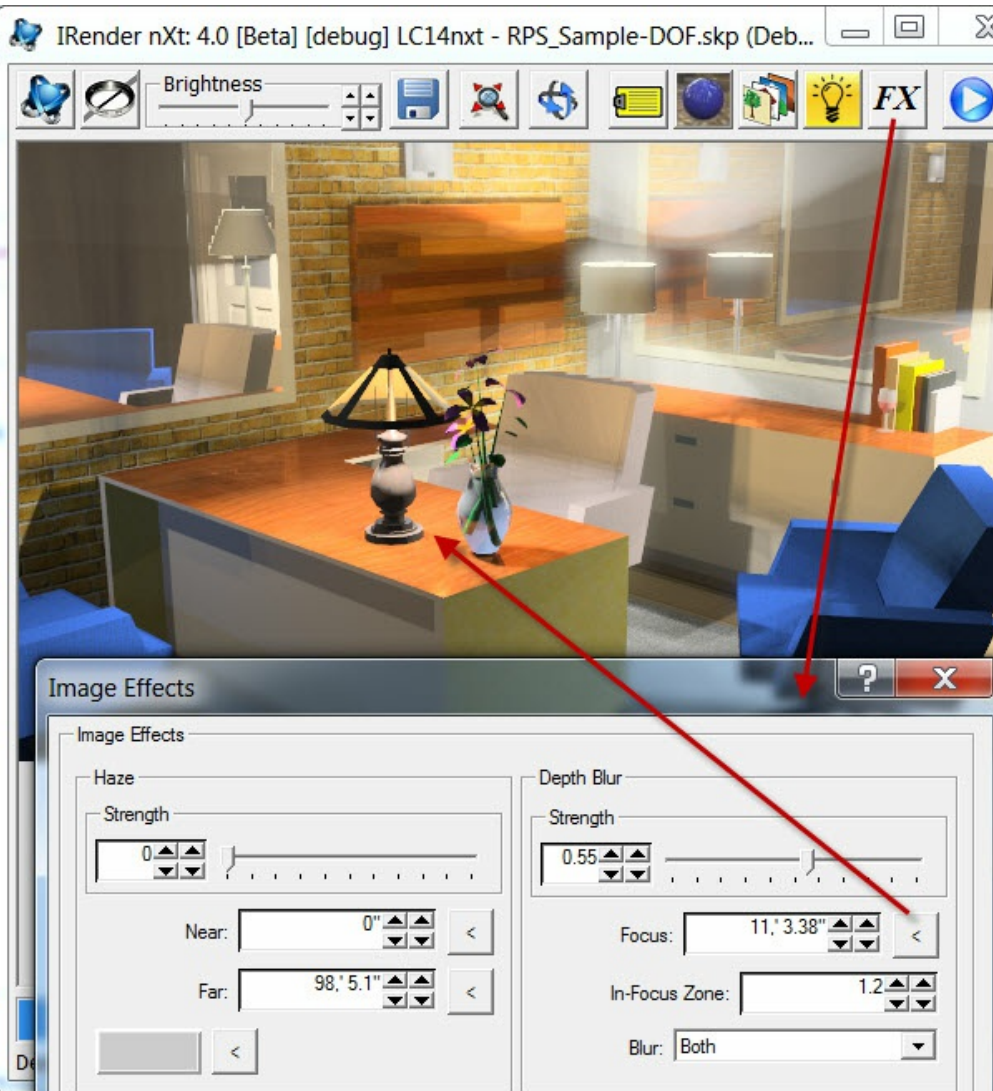
- **Strength** - amount of Blur to apply
- **Focus** - the distance in meters of objects in focus. Use the **<** button to select a point in the image to be in focus.
- **In Focus Zone** - measured in meters-- it controls the transition zone as well.
- **Blur** - you can blur the foreground (rendered image), background, or both.

Depth of Field

Depth of Field is set on the **Render Setup Tab** as **Focal Distance** and **Depth of Field**

DOF of 0.0 has all the image in focus, as the DOF rises, the image gets more and more out of focus - except for objects near the **Focal Distance** which stay in focus.
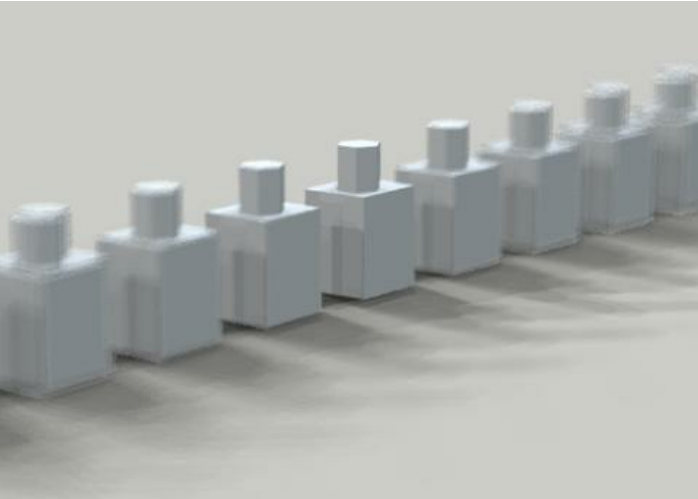
DOF 1.0 - Focal Distance 100'
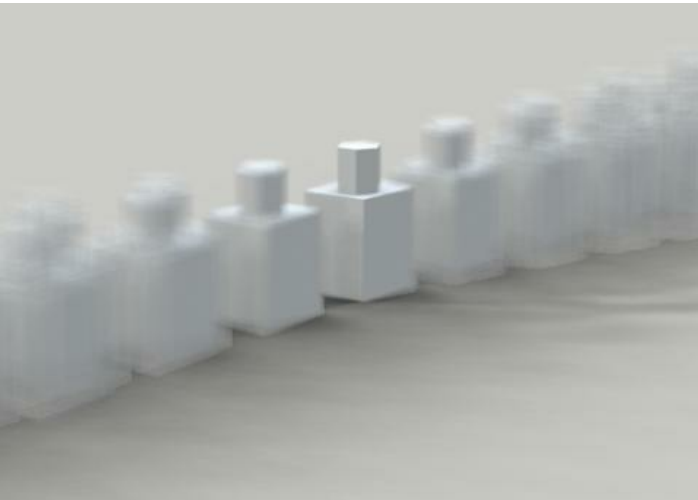
DOF 3.0 - Focal Distance 100'

Another Example

Here I drew a construction line from the cylinder 40' in the desired direction of the camera and placed then placed the camera at the end of the line. That way I knew that a Focal Distance of 40' would work well. (I believe there are some ruby scripts somewhere to let you measure the distance from the camera to a desired focal point. If not we will need to write one.)

Then I rendered 3 images with DOF of 0.30, 1.00 and 2.00 to ensure that the column was in focus and that the Depth of Field effected the loss of focus.
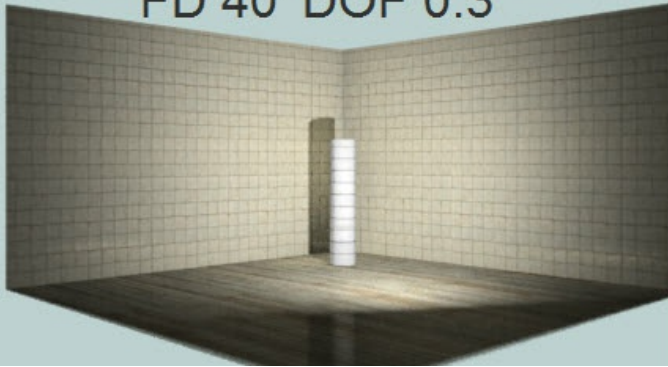
DOF 0.3 - Focal Distance 40'. Focus is fairly sharp.

DOF 1.0 - Focal Distance 40'. Focus on wall is less sharp.

DOF 2.0 - Focal Distance 40'. Focus on wall is blurred.

Fog

SketchUp has added a nice **Fog** feature in SU 6. IRender now reads these settings and creates similar fog effects.
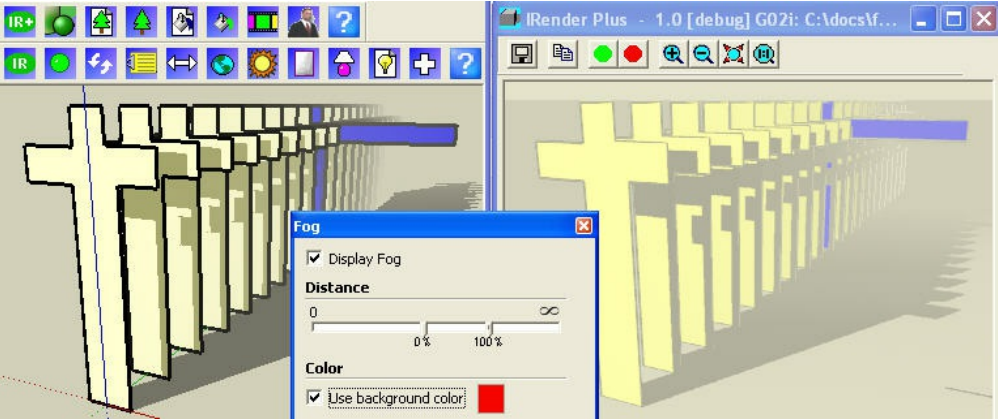
Fog sample in SketchUp and IRender.
(One of these crosses is blue and has a long arm, because I wanted to be able to see where the fog was supposed to stop.)

Note: SU has a "start fog" setting which we are not able to emulate in IRender.

Note: Su does not apply fog to shadows, but IRender is able to do that.

Foreground Tab

Foreground Image

Foreground Images are special images which you can place in front of your model. They can be used for logos and pattern masks, as well as stencils placed in front of the rendering.

Watermarks

Watermarks - are used to place logos, foregrounds images, or texture maps in front of your rendering.

Foreground Tab

You can add **Foreground Images** to IRender nXt renderings using the Foreground Tab of the Options Dialog

Usage --- There are 4 basic modes:

- **Foreground Image** - pasted in front of rendering.
- **Logo Watermark** on image
- **Pattern Masks**
- **Overlay SketchUp Edges**

Render Plus watermark add in 90% transparent, masked mode at lower right.

Pattern mask added to image. 85% transparent - mask mode. Note: In mask mode the pattern is applied only to the geometry and not to the background. 50% blend.
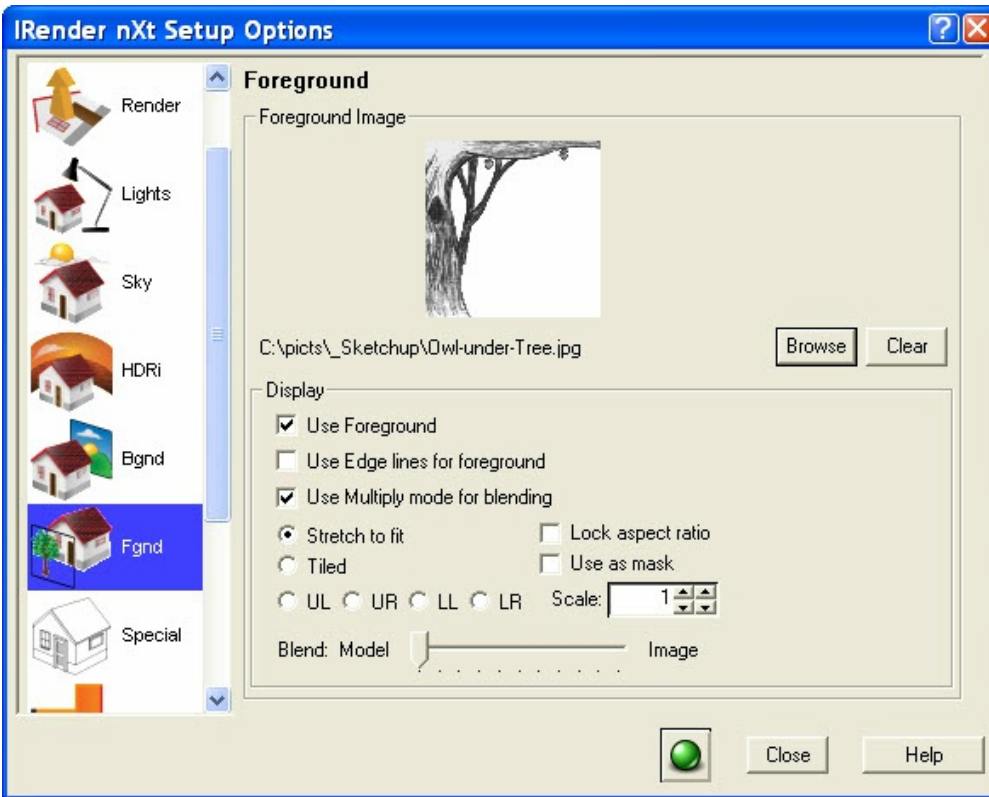
Settings

- **Foreground Image** - Select an image for the foreground.

    Browse' - select an image
    Clear - clear current image

- **Use Foreground Image** - uncheck this to turn off the foreground image without changing any other settings.
- **Use Edge lines for foreground** (SketchUp only) - uses the SketchUp edge lines as a foreground overlay.
- **Use Multiple Mode** - merge images using Multiply Mode
- **Treat White as Transparent** - any white in the image is treated as fully transparent.

- **Stretch to fill screen** - the foreground image will fill the entire screen*
- **Tiled** - the foreground image will be tiled across screen. This is good for masking patterns.

- **Image Position** - UL, UR, LL, LR - the foreground image is placed in a corner of the rendered image - useful for logos.
- **Lock Aspect ratio** - When stretching the foreground image, it will not be distorted. (And if may not fill the entire screen).
- **Use as mask** - the intensities in the foreground image will change the intensity - but not the color - of the rendered image. In mask mode the pattern is applied only to the geometry and not to the background.
- **Scale** - for tiled and centered, allows you to make the image larger of smaller.

- **Blend Foreground into rendering** - makes the foreground image partially transparent. Less = more transparent. More = Less transparent.
- **Apply** - redisplays the rendered image with any changes you have made.

Notes

- Use .PNG files when possible. Compression artifacts in .JPG images may effect transparency.

Use with Edge Lines
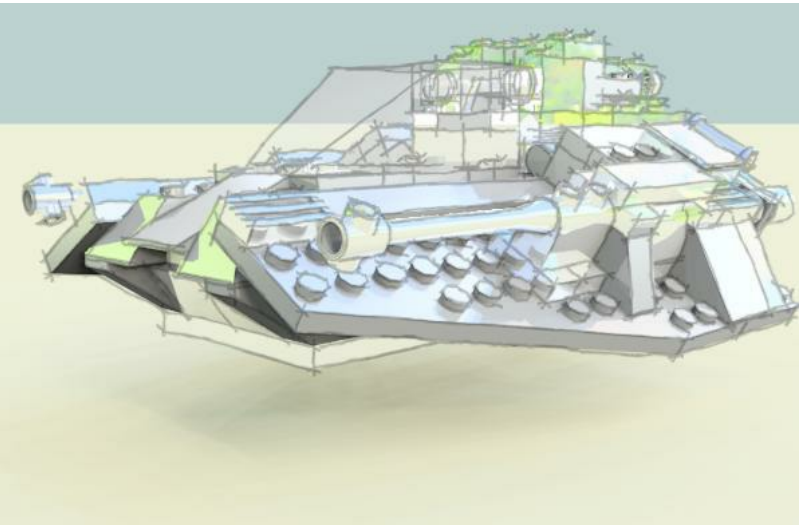
This image had Sketchy Edges placed on top using the Foreground
feature in IRender nXt
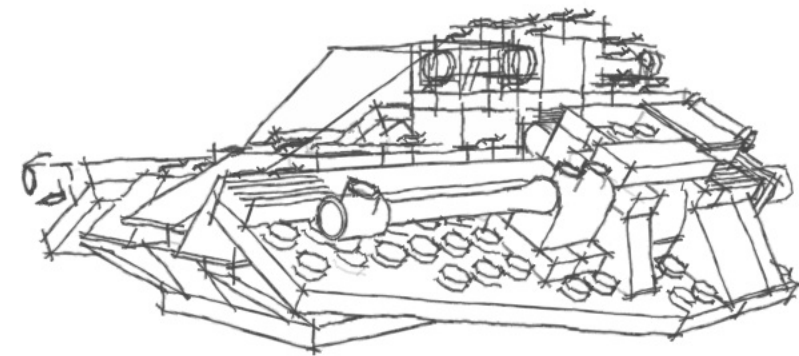
Sketchy Hidden Line from SketchUp

By saving an image of your SketchUp model in Hidden line or with Sketchy Edges, you can use the line image as a foregorund
image, which will add the edges to the rendered image.

Multiply Mode According to Photoshop help...

> Looks at the color information in each channel and multiplies the base color by the blend color. The result color is
> always a darker color. Multiplying any color with black produces black. Multiplying any color with white leaves the color
> unchanged. When you're painting with a color other than black or white, successive strokes with a painting tool produce
> progressively darker colors. The effect is similar to drawing on the image with multiple magic markers.

Paw print merged with image using
multiply mode

Ground Plane

The **Ground Plane** is an automatic display of plane where the ground would be.

SketchUp Settings

Ground Plane on the SketchUp Styles Wizard

IRender nXt uses the color and transparency of the SketchUp ground plane to create a ground plane in your rendering.

Ground Plane Materials

From the Background Tab you can define and edit materials for the Ground Plane.

This lets you apply a grass texture for land, or a Procedural Bump Map and reflection to emulate water.

- See: Background Tab

Opaque Ground Plane

Checking Opaque will ignore the transparency setting of the SketchUp ground plane and create a solid ground plane material.

Alpha Transparent Ground Plane

IRender nXt Options - Version: 2.0 [debug] HI30nxt

Setup | Sun/Sky | Lights | HDRi | Bgnd | Special | Image | More | nXt

Lighting Presets
○ High Dynamic ○ Exterior ○ Interior w/sun ○ Interior no sun

SketchUp on/off
☑ Sun ☐ Sky ☑ Ground Plane

Sky mode
○ SketchUp colors ● Automatic ○ HDRI

Ambient Light
● High ○ Medium ○ Low ○ None

Other Settings
☐ Use Indirect Lighting
☐ Sky Reflected if off
☐ Sky Illuminates if off
☑ Alpha Transparent Ground Plane

Help | Close | ● | ↰

There is a setting on the Sun/Sky setup tab which lets you define an **Alpha Transparent Ground Plane**. With an Alpha Transparent Ground Plane, you can save the rendering as an Alpha Transparent image, and the ground plane will be transparent. However, shadows on the ground will be visible. This can be used to place the ground plane image on top of a background image and still see where the shadows would appear. (Of course this works best if you are placing he image on a flat surface.)

Note:If you don't have a paint program which supports transparent images, you can load images into SketchUp and the transparent alpha channel will be recognized.
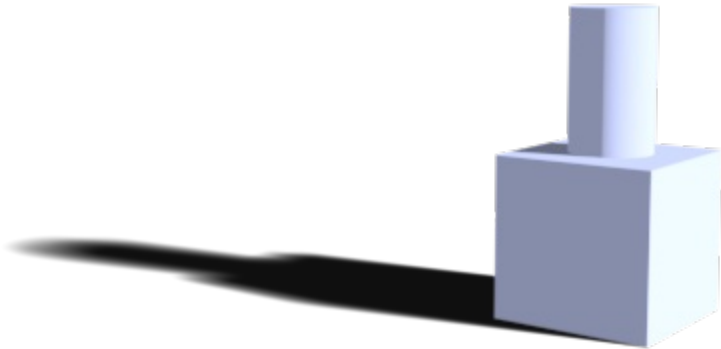
Simple model with shadow cast on Ground Plane
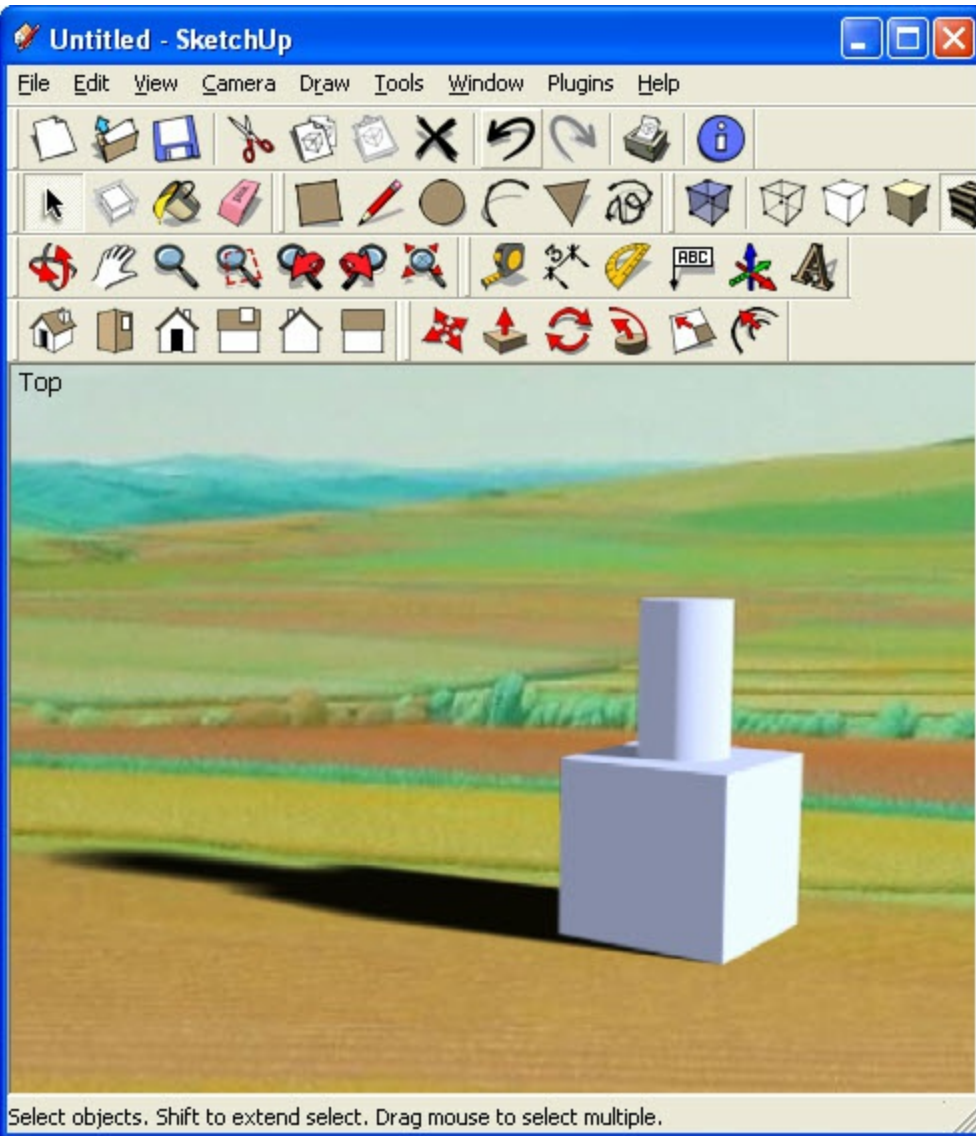
Transparent image placed in front of a background image in SketchUp. It is easy in SketchUp to size and move the alpha-transparent image.

Real Time Haze

Real Time Haze

Post Processing to set haze and fog effects.

These effects can be modified after the rendering is completed.

Real Time Haze' is a feature of the nXt Image Editor to let you apply haze or fog to your rendering as a post-process after the rendering is completed.

- **Strength** - set the Strength of the Haze
- **Near** defines a distance in Meters in front of which no haze will appear. Use the **<** button to select the distance of a point in the rendering.
- **Far** defines a distance in Meters behind which full strength haze will appear. Use the **<** button to select the distance of a point in the rendering.
- **Color** use the **<** button to select a color for the haze.

NXt Image Editor

nXt Image Editor

The **nXt Image Editor** is used for Post-Processing images after the rendering has been completed.

The **nXt Image Editor** is a special post-processing step for IRender nXt.

Using the **nXt Image Editor**, you can provide real time adjustments of:

1. Brightness, Burn, and Saturation of the image
2. Create a Vignette effect
3. Add real-time Haze effects
4. Add real-time Depth Blur
5. Adjust the intensity of lights with Lighting Channels
6. Save ,EPX files for use with Piranesi
7. Save .HDR or .EXR images for use a lighting or backgrounds.

Loading nXt Image Editor

1. After your rendering is complete, click the "Save As" icon ( )
2. Select .nXtImage as the Save As type at the bottom of the dialog.
3. Enter a file name
4. After the file is saved click **Open File** to load the nXt material editor.
   (If you are loading a nXt Image for the first time you may need to browse for nXtImageEditor.exe to help the Batch Renderer find it)

Real Time Haze

Rendering with SketchUp using IRender nXt
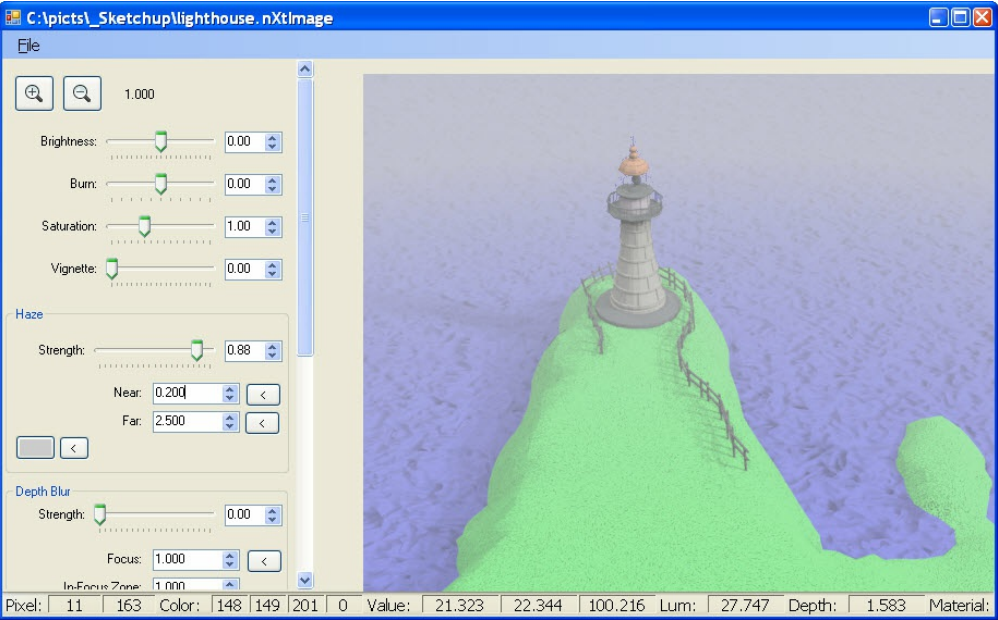
Real Time Haze applied to model.

- See: Real Time Haze

Depth Blur
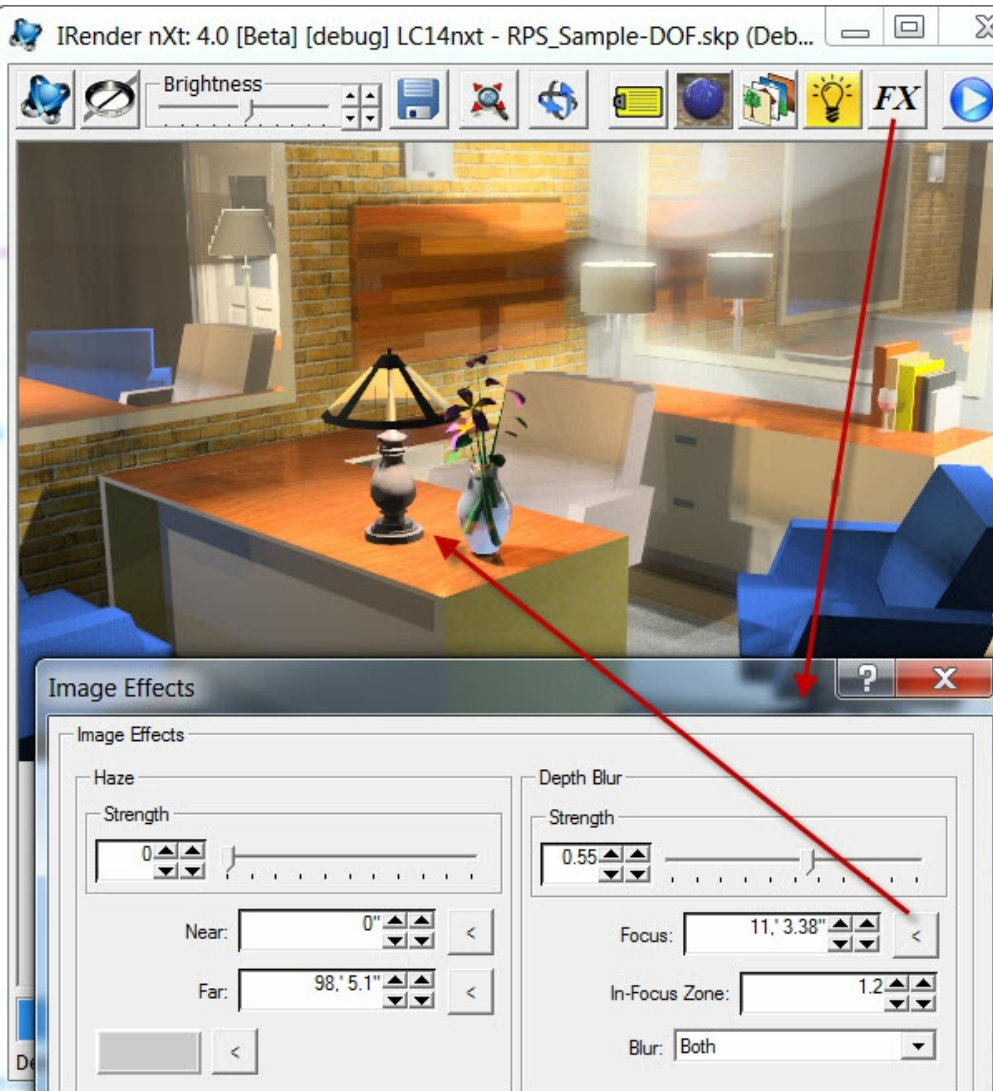
Real time adjustment of Depth Blur

- See: Depth Blur

Lighting Channels

Rendering with SketchUp using IRender nXt
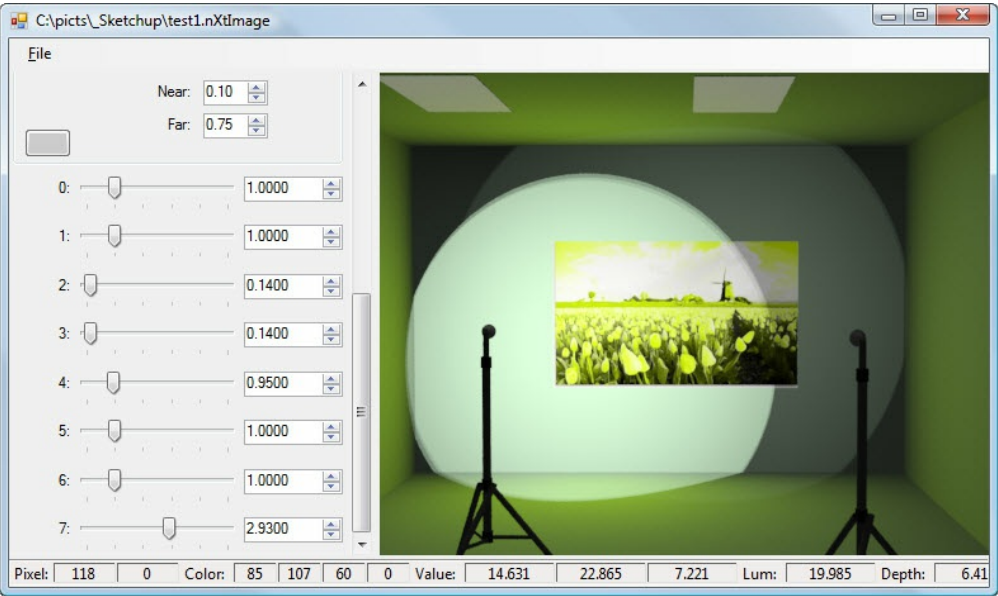
Use of Lighting Channels to adjust the intensity of the left hand spotlight.

- See: Lighting Channels

Image Functions

Image Functions

- **Display Image Information** - displays the name and size of images in the model.
- **Select All Images** - selects all images in the model. (Top level only - not images stored in components or groups.)
- **Delete all images** - removes all images in the model. (Top level only - not images stored in components or groups.)

Invisible

Invisible is an Object Property which makes a group, component, or face invisible when rendering with IRender .

It can be used to mark geometry which is visible in SketchUp as invisible when rendering with IRender.

Lights

One use if if you want to make a lamp or light fixture which illuminates the scene but which is not invisible.

In this example, the floor lamp is invisible, but still illuminates the rear wall.
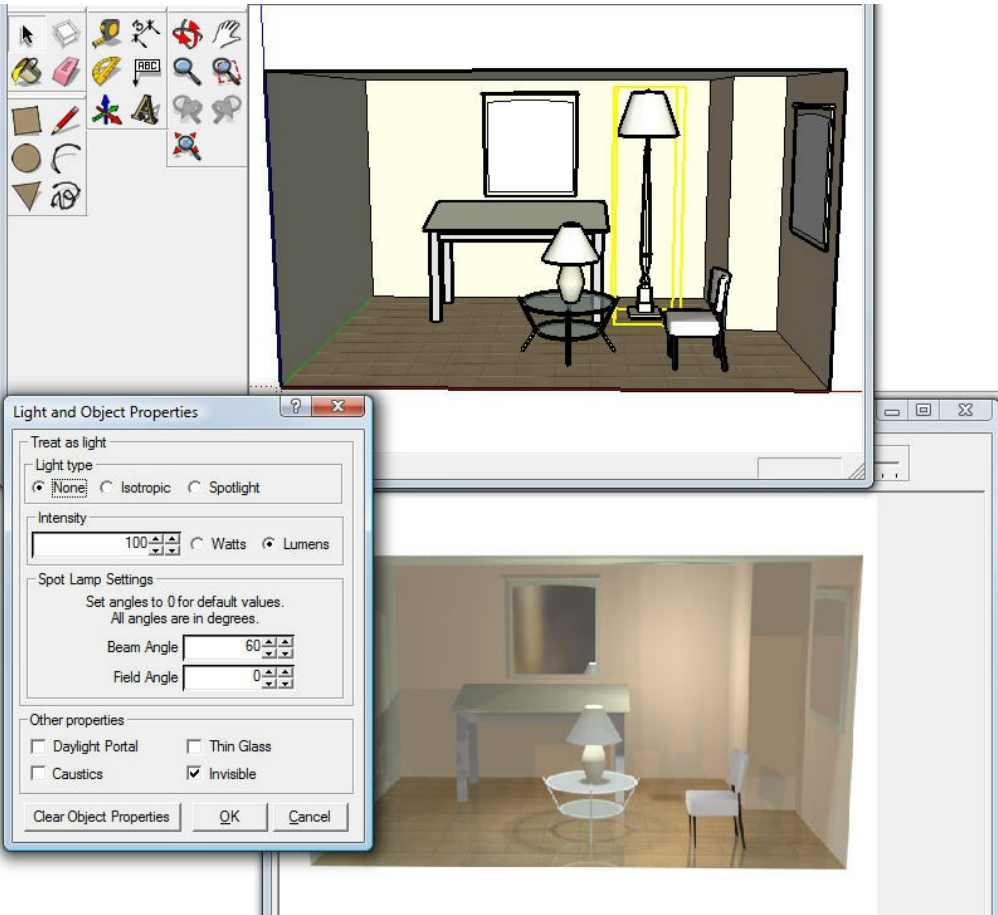
Invisible lamp illuminates back wall.

Shadows

Note: Invisible objects do cast shadows. (which makes them useful for canisters around lights which need to block the light.)

For example, here the table is invisible but still casts a shadow.
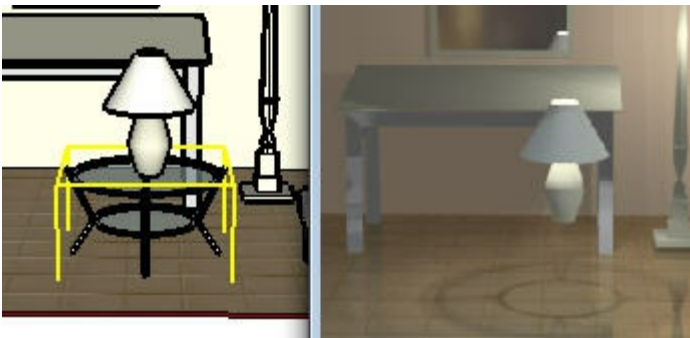
Invisible table still casts shadows.

Here is an example of using an alpha-transparent material on an invisible face to cast shadows on the scene.

Rendering with SketchUp using IRender nXt
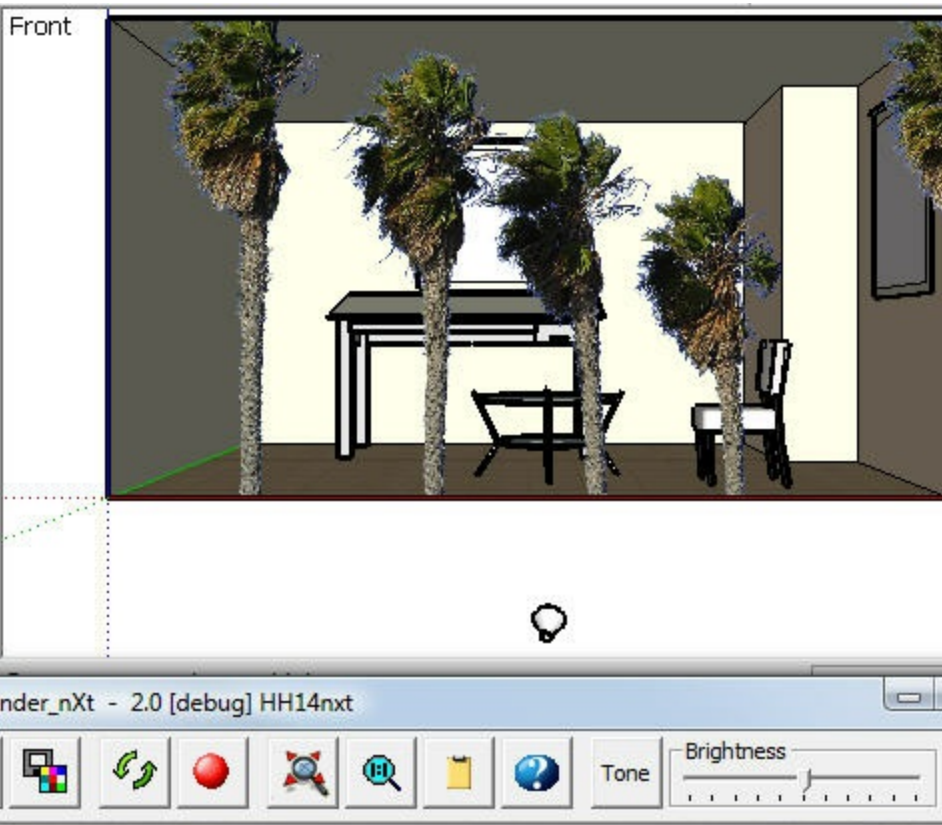
Shadows from an invisible wall.

Object Properties

Object Properties

set special lighting, transparency and rendering properties of groups, components and faces.

Object Properties can be used to make any face or object act as a light source, or to set other special properties.

Object Properties are properties placed directly on model entities to specify rendering properties of the entities.

Settings which are better set on a material, are defined using the Material Wizard

To set object properties, right click on a face, group, or components and select **IRender Object Properties**. There are two classes of Object Properties - Lighting and Other Object Properties.

Lighting

Causes this entity to act as a light.

- **Light Type**

  None - do not treat this object as a light.
  Diffuse / One Sided - all light goes in one direction. This should be used for ceiling lights and other area lights.
  Omni-Directional or Isotropic (all directions)
  Spotlight - should only be used for the lens of a spotlight.

- **Light direction** (Component or Group)

  Spotlight and **Diffuse** light needs to have a direction.
  For lights assigned to faces the direction will always be a perpendicular from the front side of the face.
  For components and groups, you can assign the direction based on the axes of the component, or the transformation of the group. If you create a spot light which points down (in the negative blue axis of the component, then select **- Blue** for the Light direction.

- **Intensity** - In watts or lumens

- **Spot Lamp Settings**

  Beam Angle - For Spot lights - see Beam Angle
  Field Angle - For Spot lights - see Field Angle

The color of the light will be determined by the color of the SketchUp entity.

Other Object Properties

Set the values desired:

- **Daylight Portal** - Produces realistic sun and daylight effects from windows.

    See: Daylight Portal

- **Caustics** - Creates caustic refraction of light for a transparent object.

    See Caustic Illumination

- **Thick** - Marks glass as created from more than just a single face.

    See Thin - Thick

- **Invisible** - the object will be sent to the renderer, but marked as invisible.

    See: Invisible

- **Alpha** - You can mark objects as Alpha Channel, and they will appear invisible but shadows cast on them will appear. This can be used to let your model cast shadows on walls or nearby buildings, and then paste the rendered image and the shadows on top of a photographic background.

    See: IRender Alpha Images

Ground Cover

- See: Ground Cover for defining and assigning Ground Cover foliage to a surface.

Object Properties vs Material Settings

Some object properties - such as thin/thick glass can be set either on a material, or directly on an object.

The advantage of setting the property on the material, is that you can create a material - e.g. ThinGlass - and place it on all thin glass objects.

The advantage of setting the property directly on the face of the glass, is that you can then set an SketchUp material on the glass and it will render as thin glass without having to make a new (thin) material for each color of glass which you want to use.

No Light Source Reflections
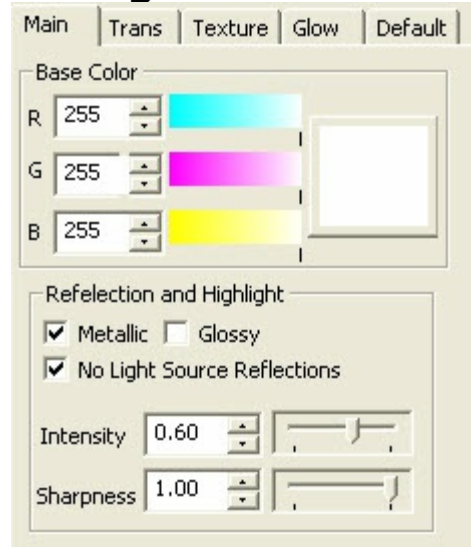
No Light Source Reflections is a setting on the **Material Wizard** to created materials which to not reflect light.

It can be used to solve problems, where you are getting strange reflections from lights and want to eliminate them, or where you are creating light fixtures, and don't want some of the geometry to reflect the light itself.
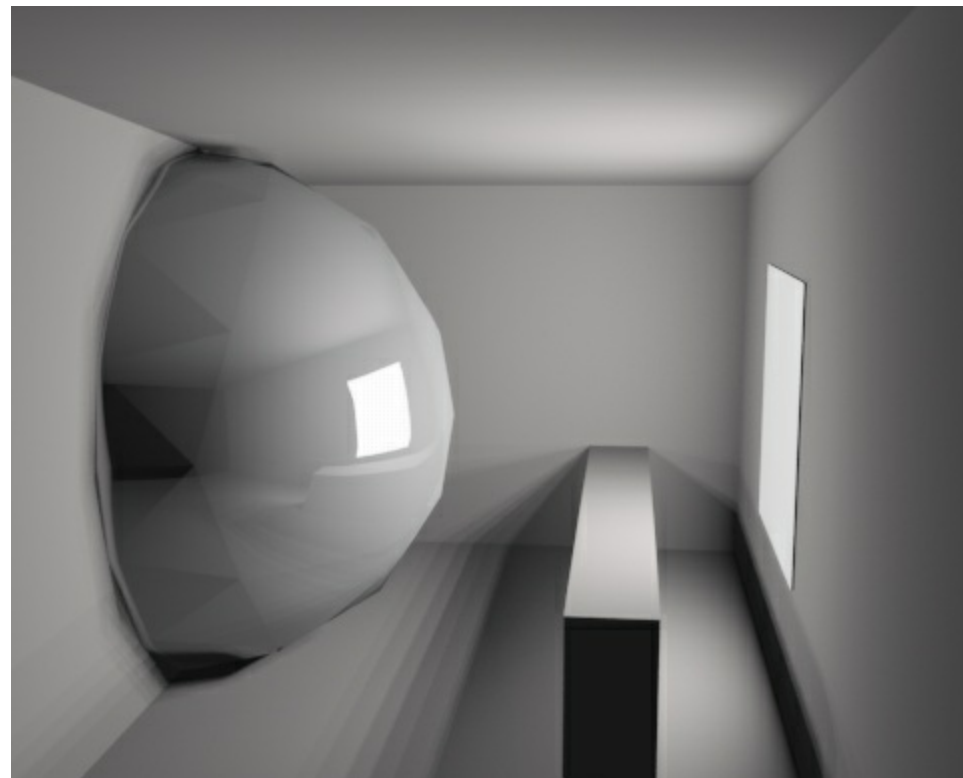
The dome on the left is reflective, and reflects the light on the right wall.
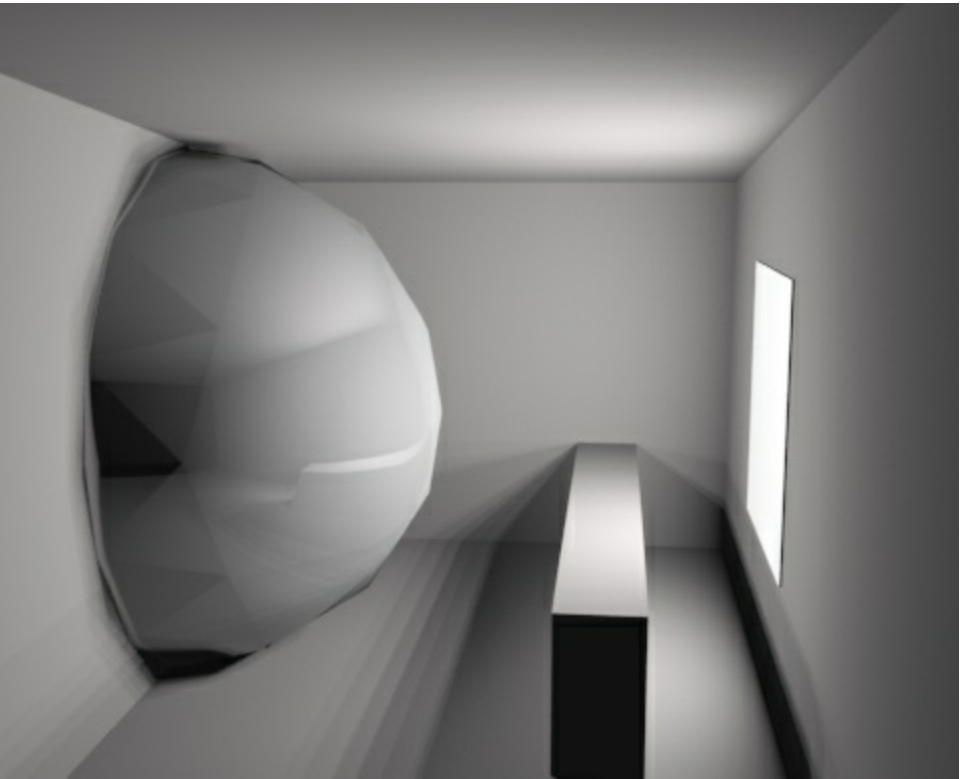
Guidelines

- This is usually applied to surfaces with blurry reflections -- surfaces with sharp reflections should always see the light sources.
- This is usually not necessary for surfaces marked glossy - because they already blur the light reflections.
- If you are getting too much highlighting from the sun, you can turn it off everywhere. See: Sun Highlight

Render Selection

To render just selected items, right click on the selection and select **IRender: Render Selection**.

Saving Defaults

'*Saving Defaults* lets you save your own values to be used as the default values when you start a new model.

This is available on the **More Tab**

More Tab

Save Options Values

Saves the defaults from the Setup Wizard as **User Defaults** - to be used for new models, or in a **File** which you can manually load into other models.

Load Options Values

- **User Defaults** - reload the last user default you saved.
- **File** - reload saved defaults from a file
- **JPG File** - load defaults from a JPG file of a previous rendering
- **Batch** - load defaults from a Batch Folder
- **Load Factory Defaults** - reloads all defaults and other values to their original setting.
- **Change Default Settings** - changes to defaults for small, medium and large rendering size.

Other Functions

- **Check for Updates** - load the download page to see if a new version is available.
- **Customize Toolbar** - define the icons you want to display on the Toolbar. See: IRender Toolbar Setup
- **License** - load the License and Authorization dialog.
- **Support** - load a special dialog of additional settings. - Use if you have been requested to try special settings by

Customer Support.
- **About** - load the About dialog. - information about the IRender version

Other Settings

- **Automatically load IRender toolbar and function** to automatically load the IRender toolbar and application whenever you start a SketchUp session.

  - If you do not automatically load the application, then you need to select **IRender: Load** from the SketchUp plugins menu.
  - If you have turned off the toolbars during a previous, you need to turn them back on from the SketchUp **View/Toolbars** menu.

- **Number of Threads**

  You can set the maximum number of threads to be used for rendering.
  - The default is to set the number of threads to match the number of cores available.
  - Setting a number greater than the number of cores may provide faster renderings.
  - Setting a number less than the number of cores will render slower, but may speed up other functions on your computer.

Section Planes

<div>

Section Planes

You can use SketchUp **Section Planes** to cut sections through your [IRender nXt](#) model.

</div>

You can use SketchUp **Section Planes** to cut sections enabling you to view geometry within your model.

What **Section Planes** means to you...

- Allows for better access to the interior of a model.
- IRender nXt is able to use all section planes when rendered.
- When rendered with IRender nXt, correct illumination calculations are processed which means the room will render accurately.

Section Plane Settings

IRender nXt V: 3.5 [debug] KD17nxt Setup Options

nXt

IRender nXt Plants

Season for plants (AR3 plants only)

Spring

☐ Random Rotation

Random Height

○ None ⦿ 10% ○ 20%

Color rendering mode

⦿ Normal ○ Clay ○ Gray - No Texture ○ Color - No Texture

Use Section Planes

⦿ First Visible only
○ All Visible
○ All
○ None

IRender cannot determine the "active" section plane from SketchUp
You will need to "hide" the ones not being used.
Section Planes inside groups or components are not supported

Create Materials from Layer Names

Presets · Render · Lights · Sky · HDRi · Bgnd · Fgnd · Special · Image · More · nXt

About... · Back · Next · Close · Help

IRender nXt cannot tell which section planes are enabled or disabled. Ordinarily, only the first section plane which is visible is used to clip the rendering.

This can be changed on the nXt Tab to allow processing of all section planes and processing of hidden section planes.

Note: SketchUp only supports 1 active Section Plane at the main model level. IRender nXt can support multiple section planes.

Note: Section Planes in groups or components are not supported.

Advantages of section planes

See entire room with using a wide angle lens

No section plane. Camera placed inside of the room and the field of view was increased to see the entire room. However the image gets distorted and has a fish-eye look.

Option 1 often produces a distorted image.

Especially if you want to see detail on the left and right walls.

Remove geometry which blocks the view without altering the scene

Wall removed and camera placed outside of room. This creates a good perspective. However light is let in the room due to the missing wall.

Removing geometry is a problem for photorealistic renderers.

Especially if there is sun and sky lighting to be processed through windows, because you have effectively removed an entire wall which means that light from the outside is now able to filter in causing improper illumination.

Section Planes provide the best result

Section Plane cut through building. The geometry sectioned out is still used for lighting and reflections.

You get the best of both worlds. The wall is removed, allowing for better camera positioning, but the wall is still used for shadows, illumination and reflection which means the room will be lit accurately.

Rendering Question - White Walls

White Walls and White Backgrounds are often a challenge. Here are some tips.

Recently on our Forum, we received this query:

How can I make Walls or other surfaces whiter?

We often get requests for information on how to make walls, ceilings, or objects being rendered look "*Whiter*". White Walls and White Backgrounds are often a challenge, because illuminated items in the real world are almost never pure white. Whereas "pure white" is used often in computer images.

Here are some tips.

White that we see in computer images isn't always realistic.

Some walls in the real world aren't as "White" as we think they are. For instance, if we stood in front of the white wall with a very bright flashlight, would the beam of the flashlight be even "whiter". If so, then the wall wasn't really "white", but rather we perceived it as whiter than it was.

Here is a typical rendering of a room with white walls, illuminated by artificial lights.

White walls which appear gray because they do not receive enough light.

It is actually fairly realistic, but often we feel that the walls are just not white enough.

You can make walls whiter in IRender nXt using a combination of Self Glow and the Brightness Slider .

(Mathematically, we can't make a surface any whiter then pure white (RGB 255,255,255). - So if a wall s not 100% fully illuminated, then we have to make it a little less white (gray) in order to allow more white for other objects. This is what makes some scenes too grey.

Here I have use a Paint Program to make the walls completely white.

This is not really the effect we want either - since both walls are pure white the natural darkening near the corner is washed

out.

Walls made 100% white

Brightness Slider

Here I increased overall brightness by 10%.

That made the walls "whiter", but if I ran brightness all the way up, the rest of the scene would wash out.

Brightness slider increased by 10%

Self Glow

Another way to make a single object brighter is to apply self glow to the material on the surface. Here I placed a face on the wall with the same white material, but gave it a 20% self glow. This make the rectangle more white, as if it had more light shining on it. (Self glow is available on the glow tab of the material editor. Note: Self glow makes the surface brighter, but does not treat it a s light source)

Panel on wall with Self Glow

Here I applied a 15% self glow to both walls. This made the walls lighter, but the automatic "photometric" lighting adjuster darkened the rest of the scene to compensate for the bright walls. (This can be turned off by locking the Automatic Luminance .)

Rendering with SketchUp using IRender nXt

Self Glow on Both Walls

So finally, I adjusted the brightness slider at the top of the screen to make the whole image brighter:

I think that with a combination of self glow and the brightness slider you may be able to get close to the effect you are looking for.

Self Glow and Brightness

Lighting Channels

Note: Lighting channels will make this easier - their is one lighting channel which adjusts the self glow with a slider bar, so you can adjust self glow and overall brightness after the rendering is complete.

- See also: <u>Lighting Channels</u>

Material/Color Channels

Boothy pointed out that you can also make quick adjustments to walls using the Material/Color channels feature.

Here is a rendering of a house which we used for our first Webinar;

Rendering with SketchUp using IRender nXt

By clicking on the material in the back wall, you can select Change Color
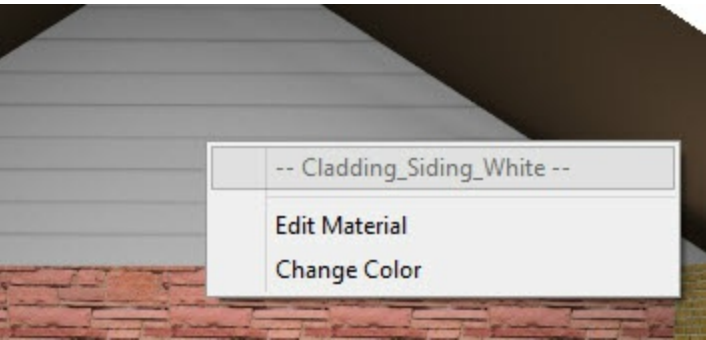
This brings up a Wizard which lets you make changes to the color of a material after rendering.

Here I changed it to HSL (rather than RGB) mode, which lets you set the luminance of the color directly. And used the slider bar to move it more towards white.
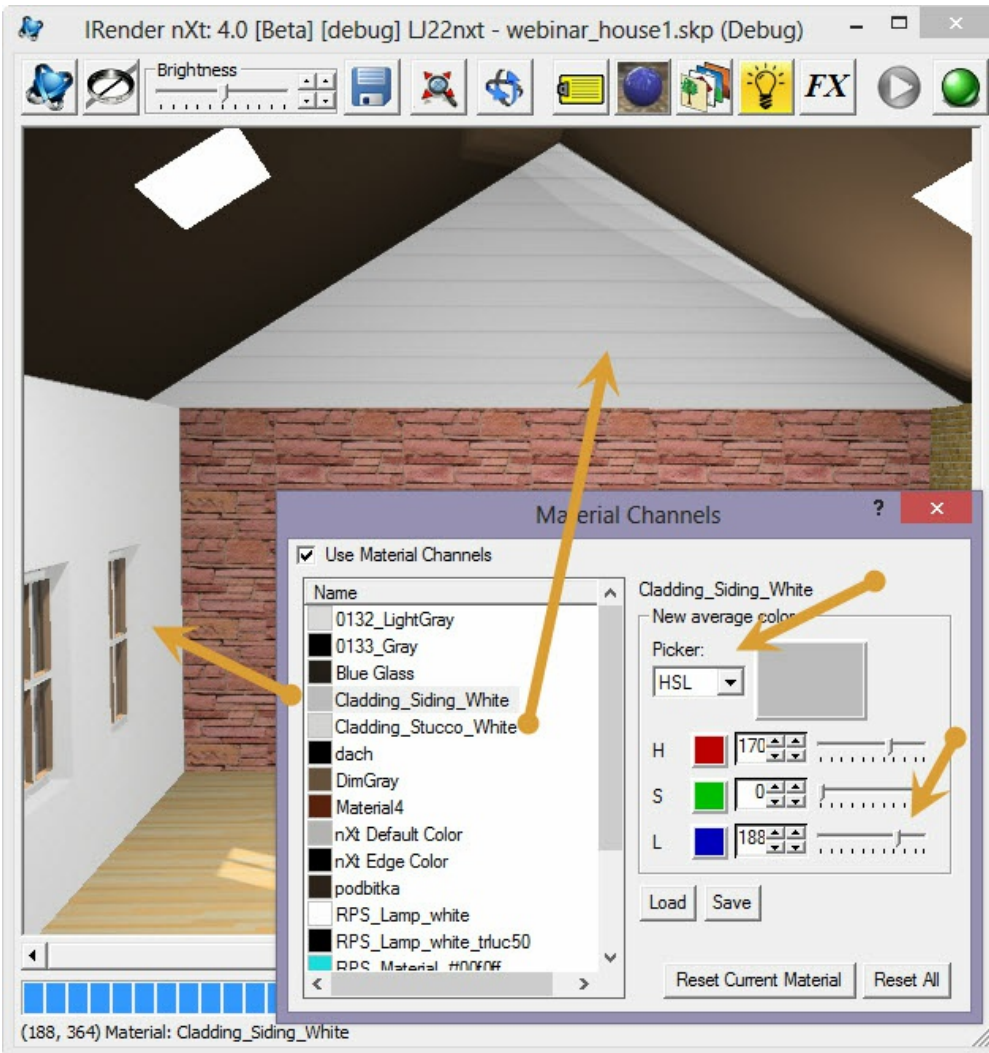
Note Material Channels does not re-render the model, so if you change the color too much, any anti-aliasing at the edge of the color will not be changed properly, and also any reflections of a color will not be changed. But it can be a good idea for Walls.

See: Material Channels

Panoramic Views

Panoramic Views

Create a full 360 degree panoramic image which can be turned into a movie and embedded in a web page.

A Panoramic image is created by rotation the camera while rendering to create a full 360 x 360 degree image.

When trying to show an entire project to a client, you often use several rendered images, or an animated movie. Another option which works well for some models, is to create an interactive, 360 degree panoramic view. This can then be turned into a movie, or embedded with a view in a web page.

A Panoramic image is created by rotating the camera while rendering to create a full 360 x 360 degree image. It works best with large interiors, or with exteriors which have a central point which let you view the full model.

You can create **Panoramic Views** by check the **make Panoramic View** check box on the Render Setup Tab dialog.

Most software to process Panoramic Views requires that the aspect ratio be 2:1 (e.g. 2000 x 1000) pixels. So the rendering resolution will automatically be set to a ratio of 2 to 1.

You can view the flash movie made from the Panoramic image here: **View Panoramic Image in Viewer**
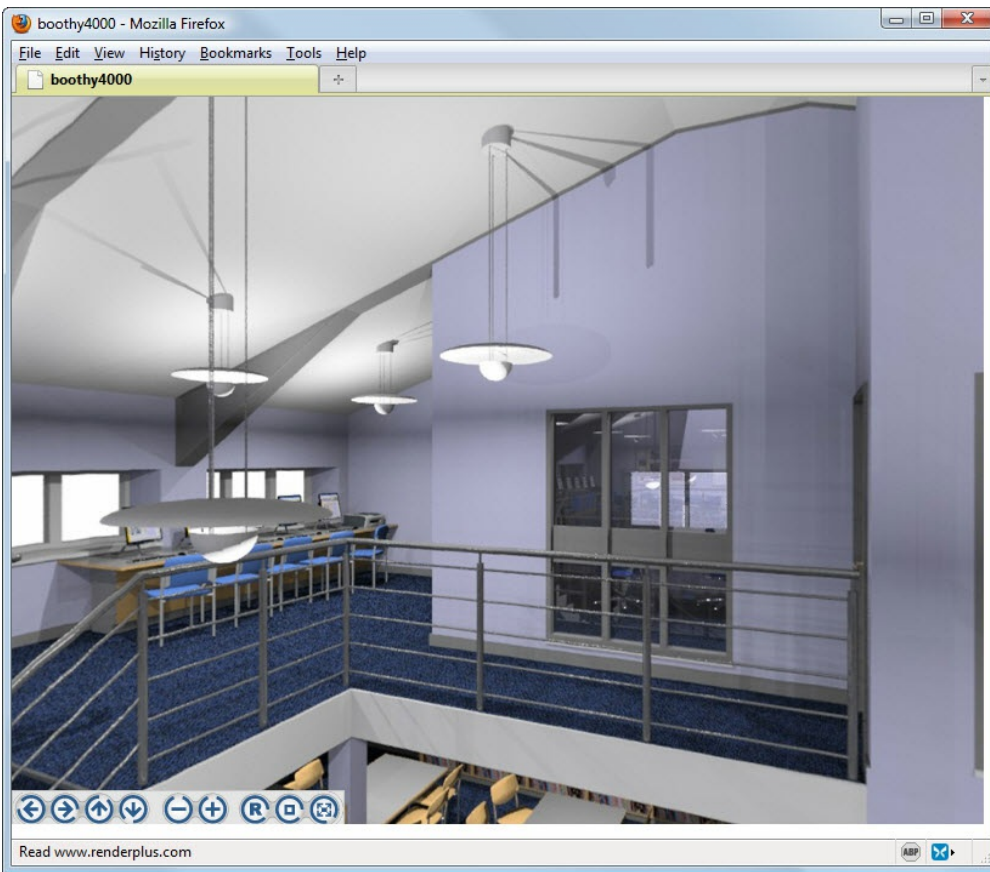
Panorama viewed in a web page. You can spin, zoom, look up and look down on the entire scene.

Tutorial - Animation

Animation is the filming a sequence of drawings or positions of models to create an illusion of movement. It is an optical illusion of motion due to the phenomenon of persistence of vision.

High quality animations of SketchUp models can be made with **IRender nXt** . In IRender nXt animation is created by rendering scenes, moving the camera, and rendering the next frame. We pass the rendered scenes to QuickTime to create a .AVI movie. (Or as an option, you can create a .JPG image for each frame and assemble them into a movie later.)

The times and delays specified for each page in SketchUp are used to time the animation. You specify the number of frames per second and the image size when you create the movie.

Animation is not available in IRender Lite . See the Feature Comparison chart for a full list of IRender nXt and Irender Lite features.

Batch Mode

Animations are created by a process separate from SketchUp.

This allows you to exit SketchUp and the animation will continue.

You can also set the Batch Mode to delay starting the animation, which would allow you to start the animation in a different computer.

See: Batch Rendering

Tutorial

It will be best to learn animation with a small model, and 2 view pages with about 20 animation frames between each page.

Step 1 - Set up view pages in SketchUp

Set up your view pages and animation options using SketchUp Animation

Animation View Pages
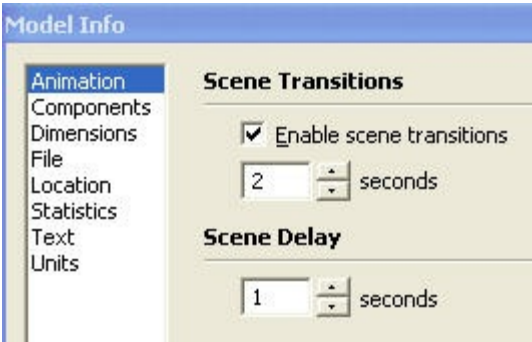
Animation Settings. These values from
SketchUp are not used by IRender nXt
animation. You will have to enter them again
on the IRender nXt Animation Wizard. (This
allows you to specify different values for the
IRender nXt Animation.
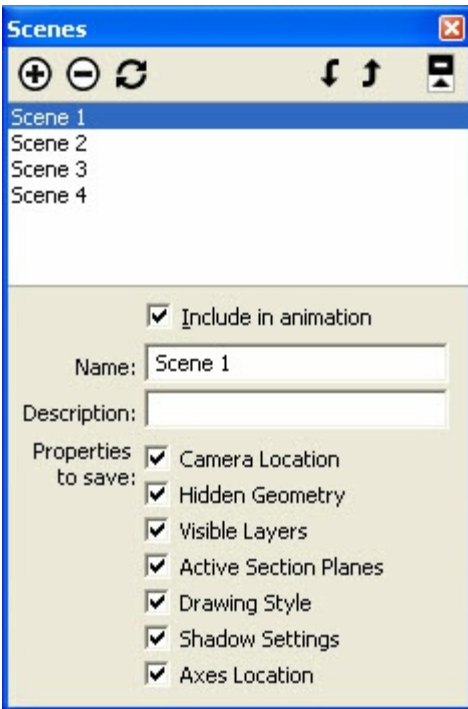
Scene Manager

In SketchUp you can specify that various items, such a layers, are stored with each scene.

IRender nXt processes Camera Location and Visible Layer changes between scenes. It currently does not process sun position changes, or section plane changes.

Step 2 - Animation settings in IRender nXt

Click the **Animation** icon on the IRender nXt tool bar (   ) to load the Animation Wizard.

Remember: Animations can take a very long time to perform, so you may want to test them first with fewer frames per second or at a

lower image quality before creating the final animation.

General
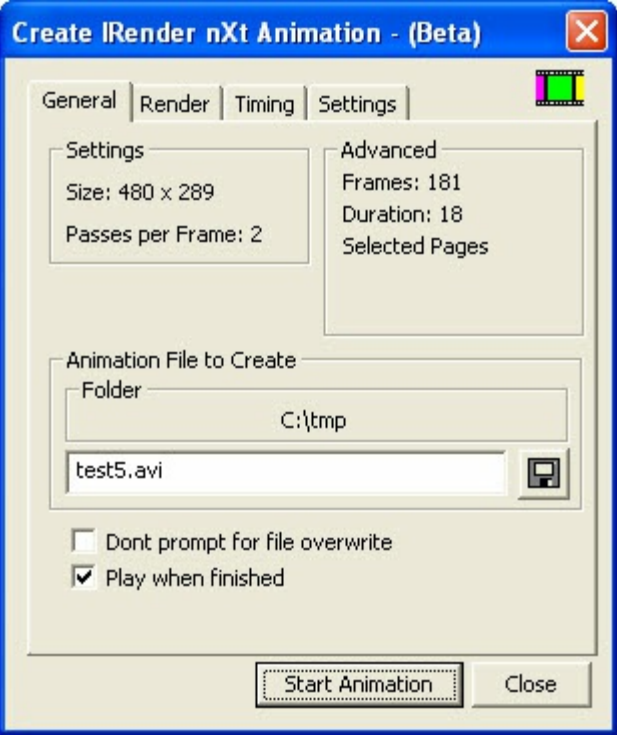
Render and **Settings** - these are set on the Render and Settings tabs. This is a quick review of the length and size of the final animation.
Animation file to create - choose a folder and file name.
Choose .avi for movies
Choose .jpg or .png to create a set of slides - one per frame. The name entered will be used as a base, with a number added for each frame.

Don't prompt for file overwrite - if this is checked, then you will be not warned if you are overwriting an existing movie.
Play when finished - will launch you movie when it is created.

Render
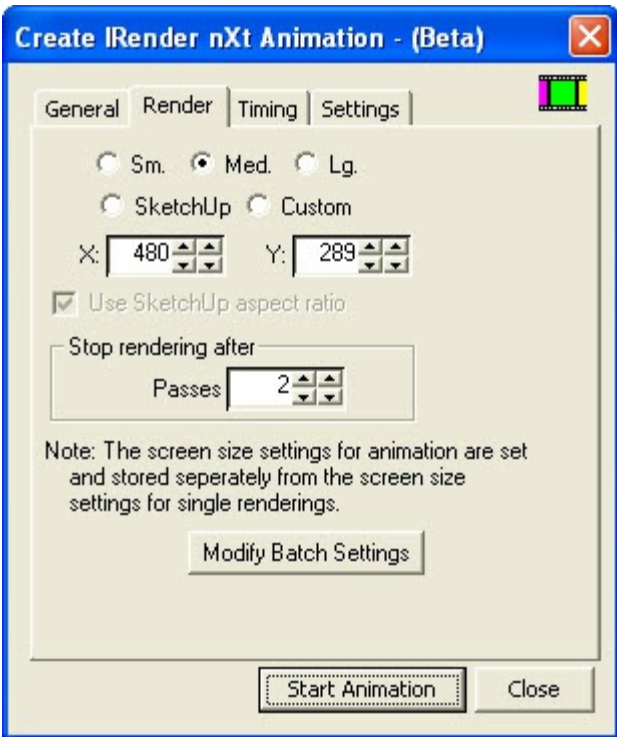
Render Window Size - set the desired size for the render window.
> Note: The animation size is different than the size for normal rendering so that you can remember you desired size for creating animations.

Stop rendering after - You should do a sample rendering first and decide how many rendering passes you want for each frame of the animation.

Modify Batch Settings - Animation and general rendering use the same options for batch files. Use this button to review or change the options. See: Batch Rendering Settings
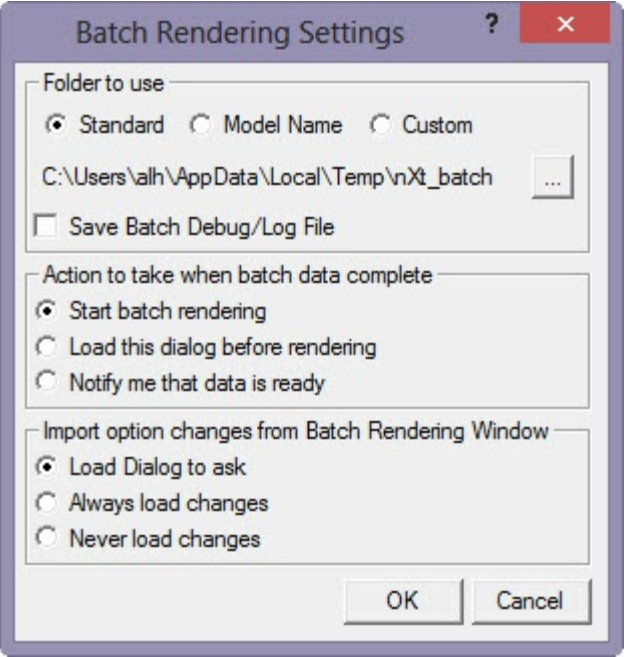
Timing
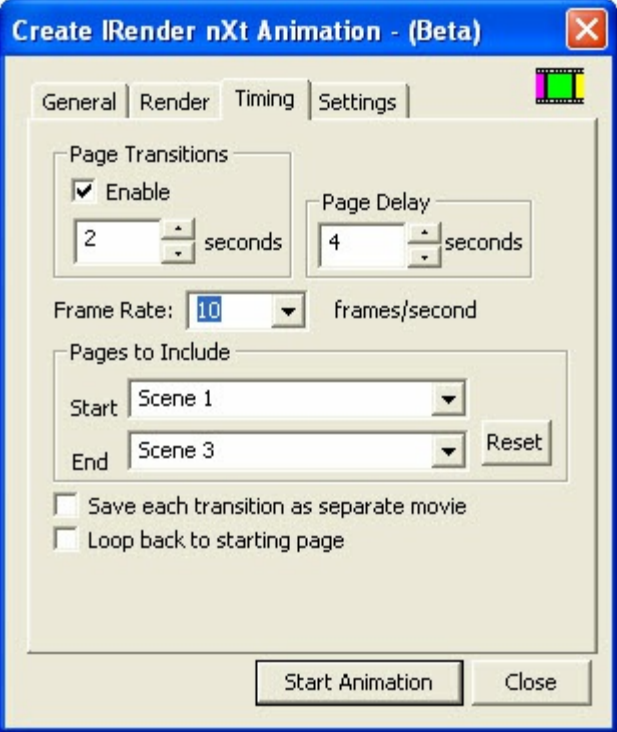
Page Transitions and Delay - Although similar to the settings stored in SketchUp, the animation values are separate. This is done so that if you set a longer transition time for animations, SketchUp can still use a shorter transition time when switching between animation pages.

Frame Rate - determines the amount of time between scenes.

(You can also use flightpath.rb to customize the time between pages.)

Pages to include - lets you create animations of only certain pages.
*Note: The **Reset** button is not working properly. You will have to sepcify the first and last scenes manually, (with the drop down arrows).*
Loop back to starting page - will create an extra transition to return to the starting page.

Settings
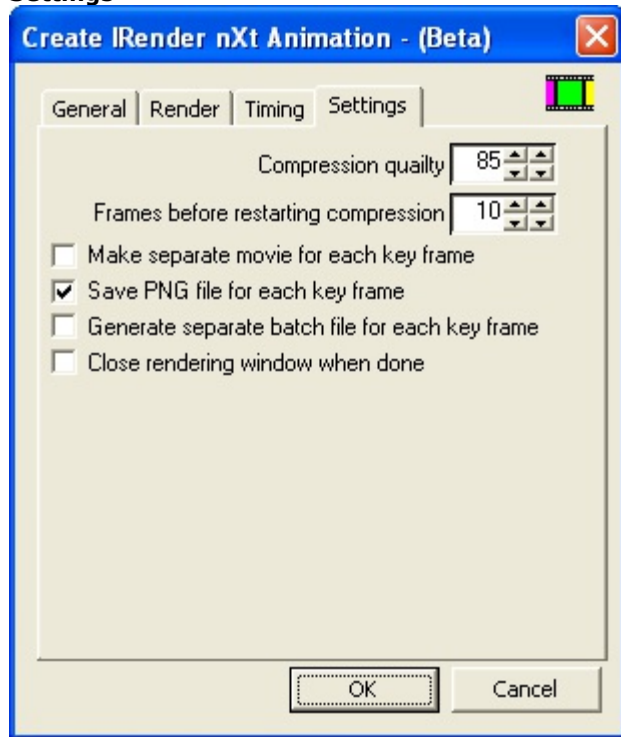
Compression Quality - The default is 85, 100 is max. Lower quality produces smaller movie files.
Frames before restarting compression - The default is 10, which will compress sequentially for 10 frames, and then restart. A higher number will make smaller AVI files, but may reduce quality.
Make separate movie for each key frame - This can be used to save multiple movies from a single SketchUp model.
Save PNG file for each frame - This can be used to create the animation later with another program.
Generate separate batch file for each key frame - (not working yet) - When this is working you will be able to generate separate batch files for key frames and process them on separate machines, and then combine all the images into a single movie when done.
Close rendering window when done - will close the rendering window. This can be used to process multiple animations sequentially from a DOS .bat file. When each animation completes, the next will start.

Step 3 - click OK to start the animation

It may take several minutes, or longer to create the animation.

Notes

The default location for the animation is the *IRender* sub-folder in your *My Documents* folder.
IRender nXt Animation can be used to create .AVI movies of fly throughs of your model, or automatically create still renderings and images of each of the SketchUp view pages.
If you have changed layers between pages, the layers will be process properly..

Car by Coolade

Click this link for an animation loaded to YouTube.

Appendix

This appendix contains information about:

- <u>SketchUp Versions</u>
- <u>IRender Ready Content</u>
- <u>Error Messages</u>
- <u>Support Dialog</u>

SketchUp Versions

SketchUp Versions

When SketchUp releases a new version, you will need to reinstall your Render Plus Applications to use the new version. (Or you can copy some files from the old SketchUp plugins folder to the new folder.)

SketchUp 8

SketchUp 8 incorporated a new version of Ruby which requires that you will need to install new versions of most Render Plus applications. You can download the latest version from: **Downloads Page**

Reinstalling

The cleanest way to do this is to:

1. Uninstall the application. This will remove it from the old version of SketchUp.
2. Re-install it selecting the new SketchUp location.

If you uninstall and reinstall, then when you install later upgrades, they will install into the proper version of SketchUp.

Copying Files

Copying files is much easier. However if you ever install a new version of SketchUp it will continue to install any plugins folders into the old SketchUp location. The new SketchUp Plugins folder will be in a path something like:

C:\Program Files (x86)\Google\Google SketchUp 8\Plugins
(There may be no ' (x86)' if you do not have a 64-bit machine.
The path may be different depending on where you installed SketchUp.

The old SketchUp Plugins folder will be in a path something like:

C:\Program Files (x86)\Google\Google SketchUp 7\Plugins

The file you want to copy are:

Note: Do not worry if you do not have some of the _loader.rb files.
The ones you have will depend on which Render Plus applications you have installed.
Note: The Win32API.so file is very important. Be sure to copy it.
Note: Render Plus is a folder. Copy the entire folder if you have it.

- IRender_Nxt_Beta_loader.rb
- IRender_Nxt_loader.rb
- NprTools_loader.rb
- ProjectSketch_loader.rb
- RpTools_loader.rb
- RpTreeMaker_loader.rb
- RpWallMaker_loader.rb
- SpaceDesign_loader.rb

- Win32API.so

Using multiple versions of SketchUp

If you want to run Render Plus applications in more than one version of SketchUp, then you should uninstall/reinstall the application into the latest version of SketchUp, and then copy the files to the older version.

Error Messages

If you receive an error message in a Render Plus application, it will look something like this:
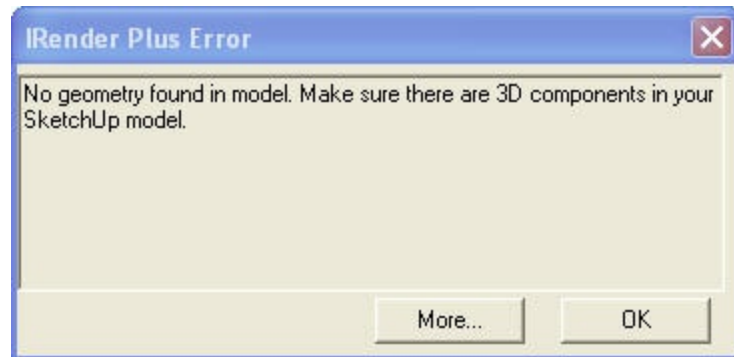
If you click more, you will get an expanded error message, which contains information to help the developers identify what caused the error.
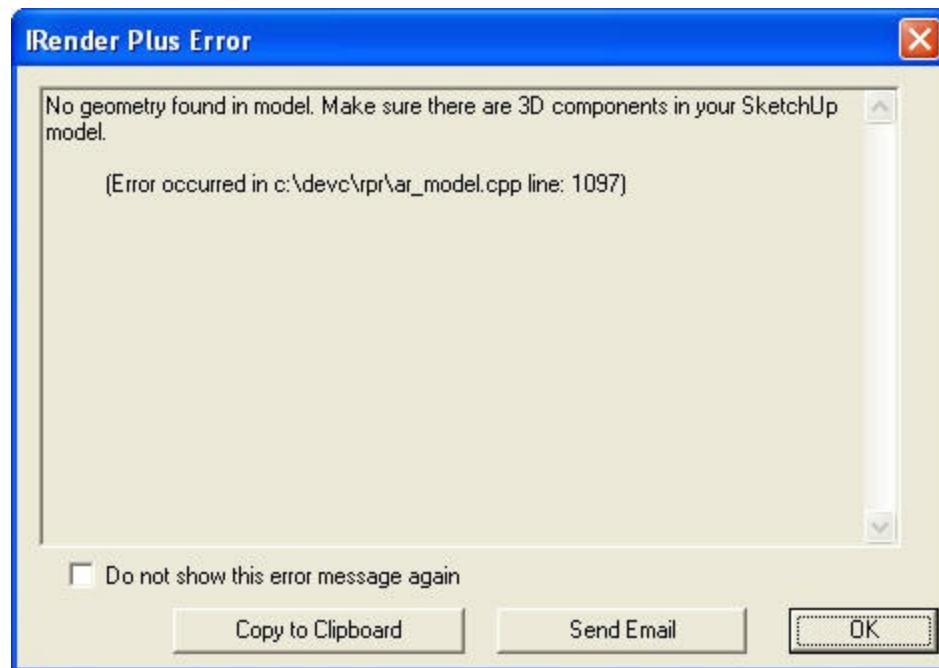
Click **Email** on this dialog and the error information will be placed in an email which you can send to Render plus. Or you can click **Copy** and paste the error information into an email of your own.

To: Support Request <support@renderplus.com>
From: Al Hart <al.hart@renderplus.com>
Subject: IRender Plus Support Request
Cc:
Bcc:
Attached:

I received this error message while running IRender Plus Version: 1.0 [debug] B09i-B09i

No geometry found in model. Make sure there are 3D components in your SketchUp model.

   (Error occurred in c:\devc\rpr\ar_model.cpp line: 1097)

 #Date: '02/09/2007 12:18:56 Mountain Standard Time'
 #Company: "
 #Phone: "
 #Owner: 'Albert Hart'
 #Computer: 'APOLLO'
 #Product: 'IRender Plus'
 #Version: '1.0 [debug] B09i'
 #Build: 'B09i'

Support Dialog

The IRender **Support Dialog** is used to make special settings or to help Render Plus customer support in certain situations.

The dialog is available from the SketchUp Plugins menu, under "IRender...", or from the "More" tab of the IRender nXt Options Dialog.

Folder for nXtRender Libraries

This sets the folder where the nXtRender plant and material libraries are stored.

Normally this is setup properly for you during the application and the library installation.

However in certain cases, such as trying to test a new version while the old version is still active, you may want to override it.

Developer Tools

You may be asked to check one of these if Render Plus customer support is trying to help you with a problem.

- See: Debug File

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Rendering with SketchUp using IRender nXt

Rendering with SketchUp using IRender nXt