

Autodesk Inventor Studio

Create Lifelike Renderings with Autodesk Inventor Studio

One of the powerful capabilities of 3D design software such as Autodesk Inventor is support for creation of 3D images of proposed designs. When you can present intuitive renderings of design ideas *before* any prototyping or production takes place, you save costs and time to refine concepts to meet customers' approval.

Now Autodesk Inventor 10 lets you create high-quality, photorealistic renderings and animations within the Autodesk Inventor design environment. New, special tools help you define lighting, camera angles, animation parameters and background style to make images that best present your ideas.

Here's how to create a simple rendering, using the SUSPENSION.IAM model of a vehicle's suspension assembly, found in the Inventor Samples catalog (figure 1).

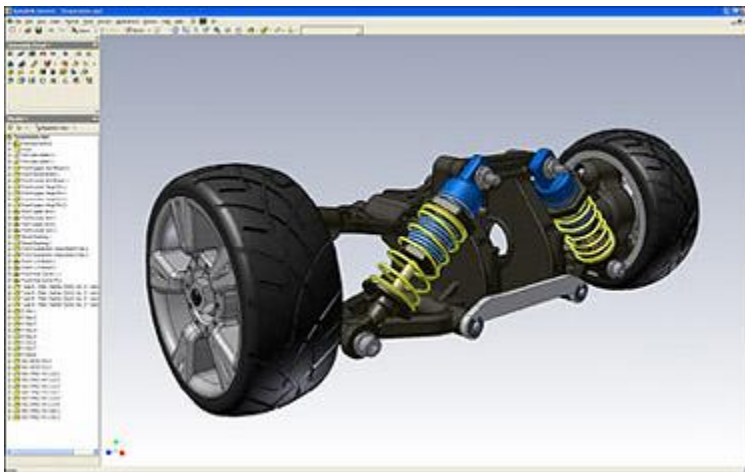


Figure 1. Autodesk Inventor 10 includes reference examples such as this suspension assembly.

Getting Started

Rather than launching a new application to create photorealistic images of your designs, all you have to do is switch to the Inventor Studio Environment by selecting Inventor Studio from the Applications pull-down menu.

Autodesk Inventor loads the Inventor Studio application, and the user interface shows a new command panel with rendering and animation tools (figure 2).

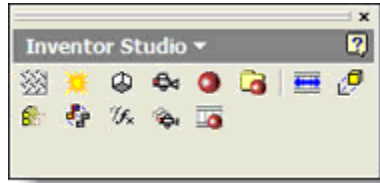


Figure 2. The Autodesk Inventor Studio control panel includes tools for rendering and animation effects.

The software includes basic tools to complete the following tasks:

- Definition and application of textures and materials that show reflections, bump maps, surface qualities and color
- Definition and setting of lighting, including omni, spot and directional effects with shadow maps or ray-traced shadows
- Definition of the environment or studio standard for representing objects
- Rendering and viewing designs

Additionally, advanced tools help you set the duration and format of animation, and automate animation of subjects including:

- Moving parts
- Component transparency
- Assembly constraints
- User parameters
- Camera motion



Figure 3. The browser view of Autodesk Inventor Studio shows an alternate view of rendering and animation controls.

Customize Your Rendering Studio

To establish standards to ensure your presentation images are consistent, you need to adjust the Background and Floor settings in Autodesk Inventor Studio. Images, environment maps and color effects such as gradients between two colors offer interesting backdrops to set off your design.

1. Select Scene Styles and click on the Background tab. The background is preset to XZ Reflective GP (tan).
2. Preview other pre-built studio styles with a right-click on any of the options in the scroll-down list and select Activate.
3. Choose a background effect by clicking on any of the Type icons. Create a gradient by choosing that option and editing the top and bottom colors; in this example, shades of blue-gray make a simple and neutral background (figure 4)

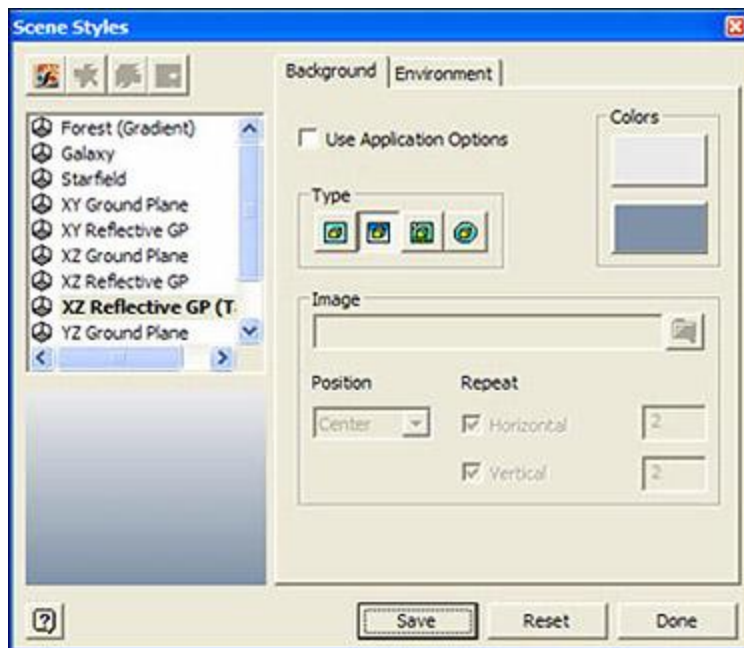


Figure 4. Click on the Gradient icon, and then choose colors to create the effect shown in the lower left preview box.

To refine the background effect, click on the Environment tab to display your options for the direction of gradient, the degree of contrast and other effects (figure 5).

1. Choose the XZ plane direction for a vertical gradient effect, and enter a value that is close to the location of the floor. In this example, a value of -1.21 works well.

2. Check Show Shadows and set a value of 33 percent, for a natural-looking blend from object shadows to the floor of the image space.
3. Choose Show Reflections to create this effect on the floor of the image space. A value of 10 percent provides just a hint of a reflection, adding interest and drama to the scene.

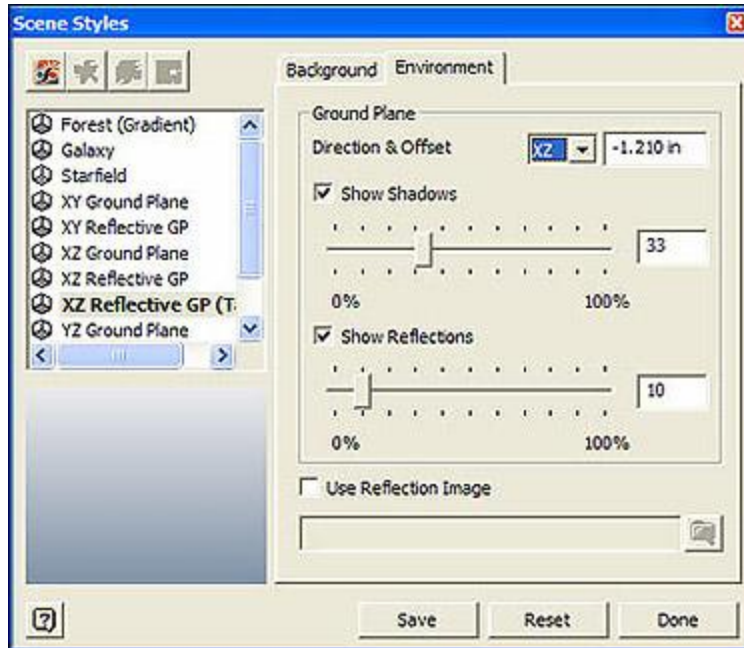


Figure 5. Set Environment options to create visual interest in your rendering studio.

Set Pre-Defined Views

The Camera isn't real -- it's shorthand for a great way to set up pre-defined views that you can use again and again as your design changes or evolves. Here are steps to create a view that is close to isometric and fills the frame with the design, presenting as much detail as possible.

1. Position the model where you want it to be.
2. Right-click on the background in the Inventor Graphics window, then select Create Camera from View (figure 6).

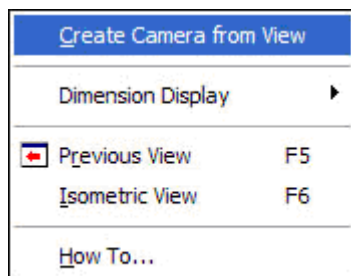


Figure 6. Choose Create Camera from View to establish specific, consistent presentation of objects.

Set Lighting

Lighting is vital to the quality and realism of your design rendering, but it can be the hardest step to get right. Autodesk Inventor Studio includes pre-created lighting effects to make this work easier.

1. Open the Lighting dialog box. You can preview the pre-defined lighting options by activating any of them in the scroll-down box (figure 7).
2. Adjust shadow type and quality by clicking on the appropriate icons, and adjust the ambience level for the desired effect. Ambient lighting lets you adjust the global lighting of the scene. If your rendering is too dark or too light, use the ambient lighting to adjust for your desired results.

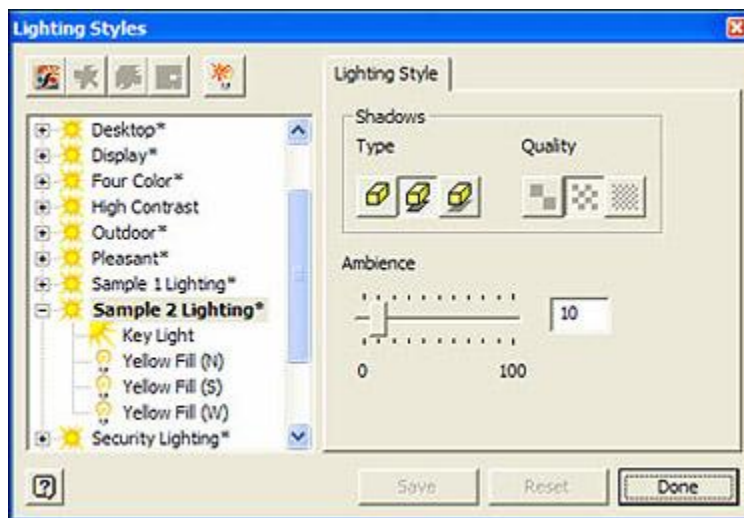


Figure 7. Select from a wide range of lighting effects, and then customize shadows and ambience for even greater realism.

Render Your Scene

Now you're ready to render your scene. Click the Render command and make sure that the scene selections and specifications are correct (figure 8).

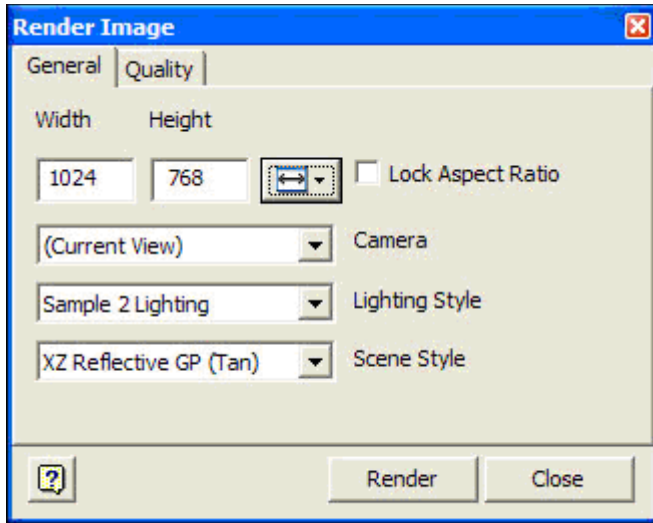


Figure 8. Verify the parameters you've set for your scene before you render it.

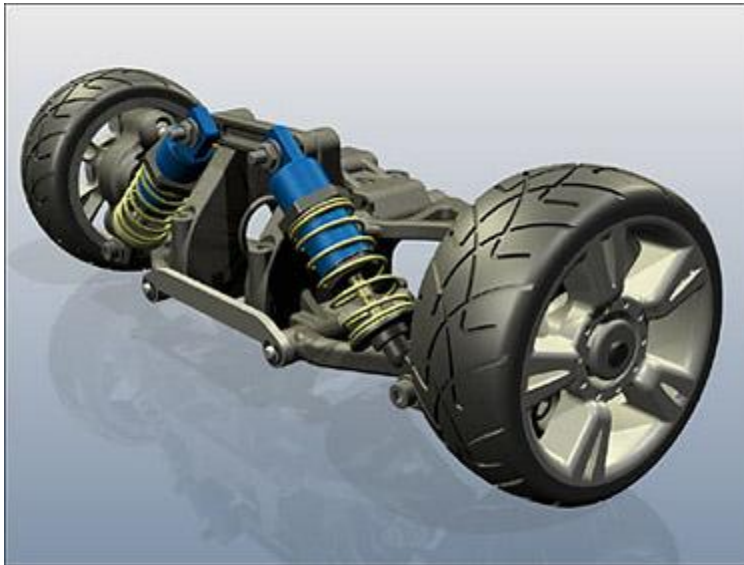


Figure 9. Click Render to generate an image complete with lighting, reflective and background effects that make design ideas look real.

Reduce Time to Realize Ideas, Meet Customers' Needs

Autodesk Inventor Studio is designed for convenience -- and not only by allowing you to render ideas within the same application environment. Pre-set studio and lighting effects can make it fast and easy to choose characteristics that give your image the quality and realism you want to present. What's more, Autodesk Inventor Studio automatically integrates your definitions of materials, textures and colors from Autodesk Inventor as a starting point for your rendering, saving even more time and effort to prepare the image.

Final Thoughts

High-quality, compelling presentations of complex design concepts and animation of parts' interaction can be an indispensable tool in communicating your ideas to customers and coworkers who are not engineers. By reviewing the form and function of your designs in virtual format, you save prototyping costs and get to the right design for your customer more quickly.