

Acrobat Insider for Manufacturing Professionals

Tips and Tricks for Adobe Acrobat 3D

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Solutions for manufacturing

Reduce 3D designs into smaller, easy-to-share files with Acrobat 3D.

Smaller, Faster, and More Optimized Files

Tips for converting and capturing with Acrobat 3D

by Don LaCourse

Welcome to the June 2006 issue of *Acrobat 3D Insider!* In the last issue ([Issue #4](#)) I discussed how Adobe® Acrobat® 3D lets you combine many different kinds of files into one easy-to-share document. In this issue I share tips and tricks for converting and capturing 3D models for use in Adobe 3D PDF documents. (For instructions on how to capture or convert files, see [Issue #2](#) of *Acrobat 3D Insider*.)

Optimize Your Conversion Procedures

To get optimal performance and smaller file sizes, try some of these recommendations.

- **Disable double-sided rendering.** In the Preferences dialog box (Edit Menu / Preferences / 3D), uncheck the Enable double-sided rendering option. File sizes will be smaller and performance will be better.

JUNE 2006

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IN THIS ISSUE

Learn how to shrink file size and increase performance when you import files into Acrobat 3D.

This month's tips:

Five ways to get smaller files and improve performance.

Subscribe here to receive subsequent issues of *Acrobat Insider for Manufacturing Professionals*, a monthly guide to Adobe Acrobat 3D.

NEXT MONTH

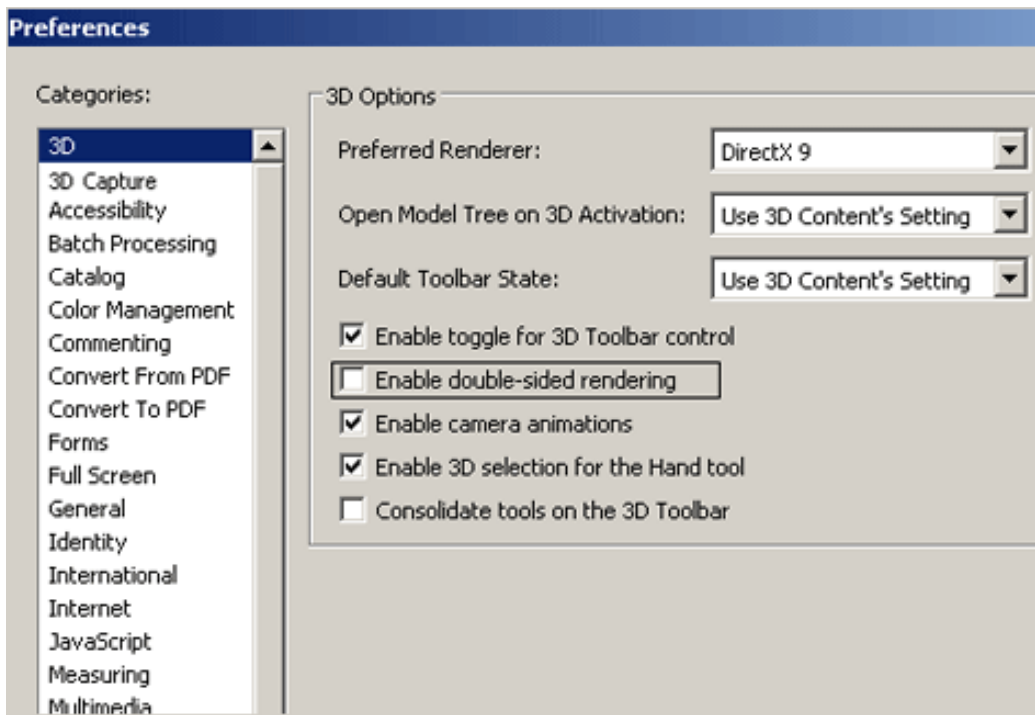
How to empower users of the free Adobe Reader® to fully participate in the collaboration process.

Submit a Tip

Submit a manufacturing-specific trick or a tip for using Adobe Acrobat 3D to our editor. If we publish it, you'll win a free *Cadalyst* t-shirt.*

Request a Tip

Have a question about



Disable double-sided rendering before you convert your 3D files.

- **Use the Small File Conversion setting.** For large assemblies, you can reduce file size and improve rendering performance by changing the conversion setting to Small File in the Acrobat 3D Conversion dialog box (Edit menu / Preferences / Convert to PDF) before converting files. (Don't use this setting for small parts because the part resolution may be slightly degraded.) The tolerance settings on the Import tab automatically change to reflect the level of resolution. For best results, experiment with your own settings.

Adobe Acrobat 3D? Send it to *Acrobat Insider*; we'll try to address it in an upcoming issue.



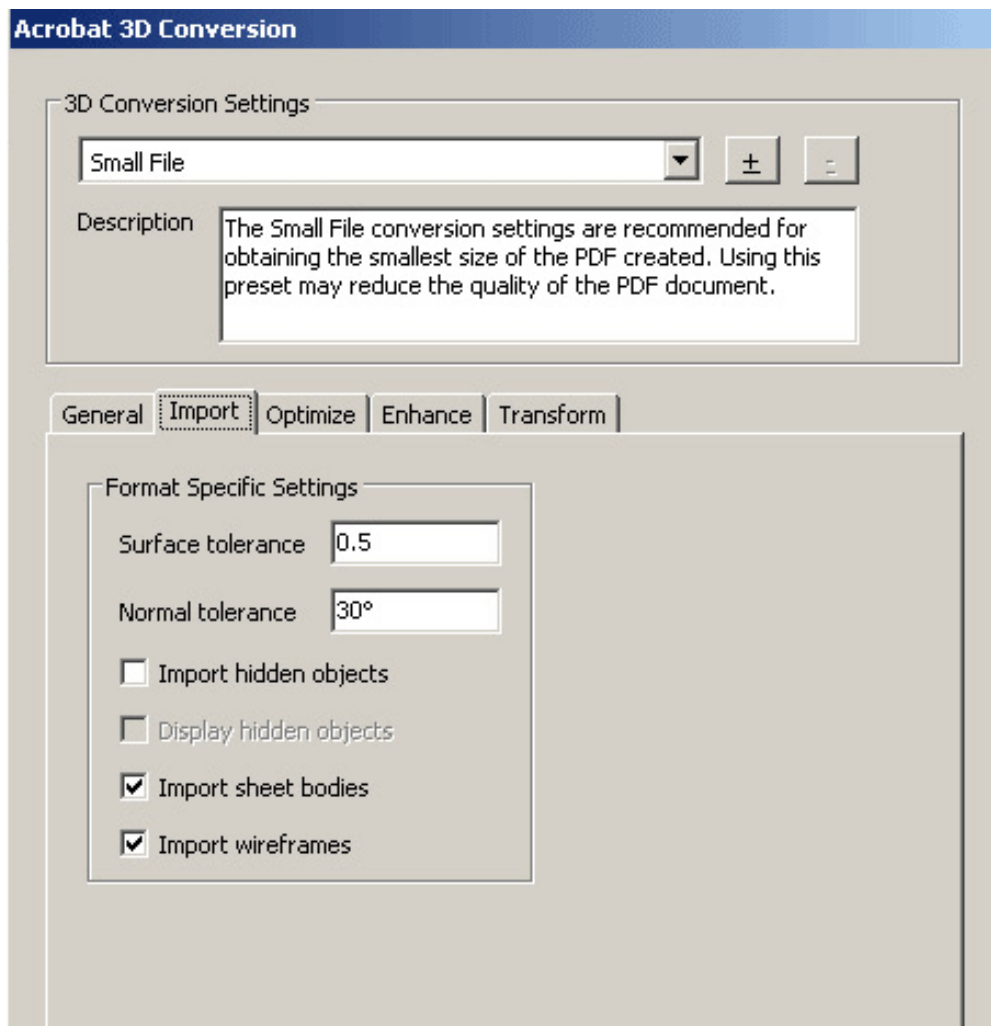
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When you convert large assemblies, use the **Small File** conversion setting.

- **Experiment with the Default Lighting Setting.** In the same Acrobat 3D Conversion dialog box, click the General tab and change the Default Lighting setting. You can also change the lighting mode after conversion using the Acrobat 3D toolbar. Some settings produce better performance. You should experiment to balance visual quality with performance. (Don't use the Lights from File setting because rendering may look poor.)
- **Use the Save As command.** Every now and then, use the Save As command (File menu) to overwrite your existing file to minimize file size.

Optimize Your Capture Procedure

As I described in [Issue #2](#), you can capture 3D design data directly from within your CAD application using the Print Screen command. To optimize the procedure, make sure you use the correct settings for your CAD application. Below I describe the optimal capture settings for many popular CAD applications. (For a more comprehensive list of CAD application capture settings, go to <http://www.adobe.com/support/techdocs/332661.html>.)

Note: The setting names for applications may vary depending on the product

version.

Autodesk® Inventor software

From the Tools menu, select Application Options and use the following settings:

- On the General tab, deselect Show 3D Indicator
- On the Display tab, deselect Active-Edge Display under Shaded Display Modes. Select Smooth under Display Quality.

Autodesk Revit 5.1 software

No specific Autodesk Revit settings are required.

CATIA V5 R16

In the Display dialog box (Tools menu / Options / General / Display), use the following settings:

Under Performances:

Transparency Quality	High
Enable Back Face Culling For Faces And Surfaces Only	Off
Enable OpenGL Local Viewer Lighting	On

Under Visualization, deselect the option to display all elements using Z-buffer depth.

CATIA V4

No specific CATIA 4 settings are required.

Pro/ENGINEER software

Use the following settings:

- From the View menu, choose Model Tree to deselect it so that the Model Tree isn't captured.
- From the View menu, select Display Settings, and then Datum Display, and deselect all settings.
- From the View menu, select Display Settings, and then System Colors, and deselect Blended Background.

Limitations If you change these settings, the original orientation, origin, and scale are not preserved. Measurements may be incorrect.

Rhino3D software

Use the following settings:

- From the Tools menu, select Options, Rhino Options, and Display. Under Wireframe Viewport Options, set Display Wireframe Viewport to OpenGL. Under Rendered Viewport Options, deselect all options.
- Select Document Properties, and then Grid. Under Grid Properties, deselect all options.

Limitations for all Rhino display modes When you use these settings:

- DOT Entity is not captured.
- Text Entity is not captured (the Rhino TextObject entity is captured).
- Bump mapping information is not captured.
- Environment mapping is captured as a static texture map.
- Wireframe lines and edges are captured, but they are not oriented correctly.
- For analysis modes, Rhino analysis results displayed as interpolated color across surfaces are not captured correctly (colors are all set to the first color in the gradient).

SolidWorks software

No specific SolidWorks settings are required.

UGS NX3 or NX4

1. From the Preferences menu, select Visualization.
2. Click Edit Background.
3. Select Plain for all settings.
4. Click Apply, and then click OK.

UGS I-DEAS software

From the Option menu, select Preferences and then Display. Use the following settings:

Viewport Triad, Viewport Outline, Viewport Label, Origin display	Deselected
Enable Display Reduction	Deselected
Save Graphic Levels Of Detail Per Entity	Deselected
Display Off Screen Entities	Selected

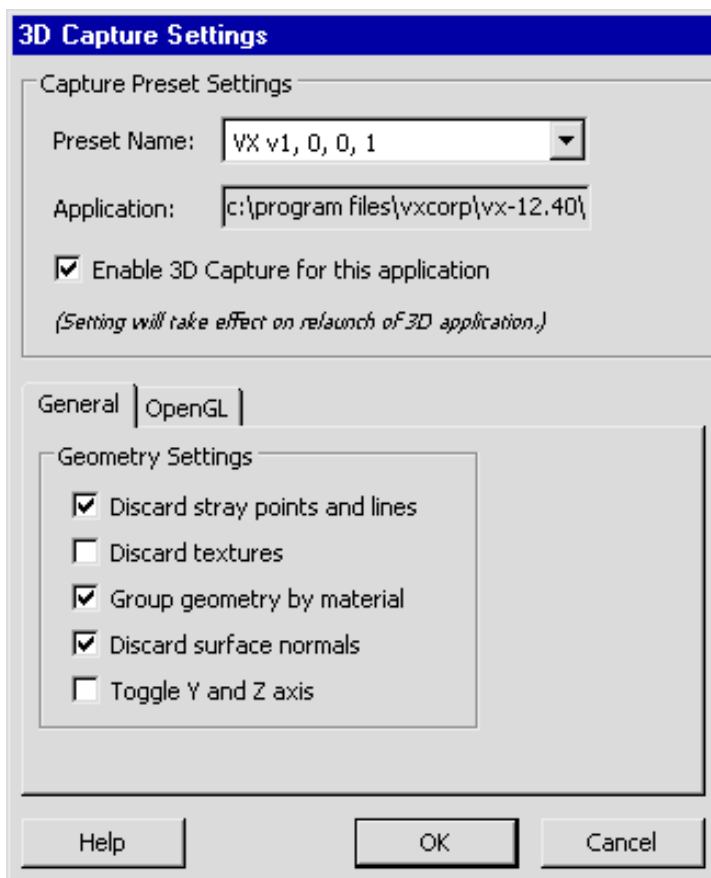
UGS Solid Edge software

1. From the Tools menu, select Options and click the View tab.
2. From the Application Display list, select Graphics Card Driven or Backing Store.
3. Deselect Culling.
4. Click OK.

3D Capture Settings in Acrobat 3D

There are some important settings in the 3D Capture Settings dialog box (General tab) that you can use to help reduce file size and improve performance. Let's take a look.

- **Discard stray points and lines** Use this setting to remove points and lines in your model that do not appear to be connected to the 3D object. For example, if you have reference points, lines, or profiles that are not being used, this setting will attempt to remove them. However, you should do this yourself in your 3D CAD application prior to capturing.
- **Discard textures** If your 3D model has surface textures applied and you don't really need them in the capture, use this setting to filter them out.
- **Discard surface normals** A surface normal is a vector at any given point on a surface that determines the direction the surface is facing. Surface normals are used for rendering. You can reduce file size by allowing Acrobat 3D to recompute all surface normals. They are determined by the angle between adjacent faces. Be aware, however, that the appearance of the rendered model will likely change.



Changing the settings in the 3D Capture dialog box can help reduce file size and speed performance.

Tips and Tricks

After converting or capturing, or when you work with PDF files directly, you can reduce file size and improve performance using Acrobat 3D by trying these general tips.

- **Use orthographic rendering.** On the 3D Toolbar, click the Use Orthographic Projection button to allow unlimited zoom for better performance.



Orthographic rendering can improve performance.

- **Use 32 bit color.** Make sure you're using the right color setting. In Windows® Control Panel, select Display, click the Settings Tab, and then select Highest (32 bit) in the Color Quality pull-down menu.

- **Plug in your laptop.** Don't run your laptop on a battery while using Acrobat 3D — it can slow performance.
- **Use the Reduce File Size command.** When your file includes both graphical and non-graphical data, use the Reduce File Size command (Edit menu) after conversion to minimize file size and improve performance.
- **Check your graphics driver.** Ensure that you have the latest driver for your graphics card. (Drivers are often available for free on the manufacturer's website.) For Acrobat 3D, the driver should be set to DirectX 9. In the Preferences dialog box (Edit menu / Preferences / 3D), select DirectX 9 from the Preferred Rendered pull-down menu. This setting will help your overall performance.

About the Author

Don LaCourse (don.lacourse@cadalyst.com) is the Editor of 3DCADTips (www.3DCADTips.com), a site with over 23,000 CAD and Graphics resources including 10,000 tips and 6,000 tutorials including Adobe Acrobat! Don is also a Cadalyst Contributing Editor and has spent the last 29 years working with and writing about CAD/CAM operations. Don lives and works in Cookeville, Tennessee.

Details and Availability

For a full list of features and system requirements, visit [Adobe's Web site](#). Microsoft Windows® 2000 with Service Pack 2, Windows® XP Professional or Home Edition, or Windows XP Tablet PC Edition is required for use with Acrobat 3D. Acrobat 3D for Windows, available on CD-ROM or by download, is \$995. **

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