Deep Exploration 5.0 Tutorial

Create Interactive 3D PDFs That Include Product Manufacturing Information (PMI)

If you are a manufacturer, supplier to a manufacturer, or have a manufacturing client, then this tutorial represents a significant opportunity to streamline communications between links in the supply chain.

Product Manufacturing Information (PMI) includes Geometric Dimensioning & Tolerancing (GD&T), Functional Tolerancing and Annotation (FT&A), model views, dimensions, datum, text, rich text, and metadata. These are important manufacturing specifications that give suppliers clearer, more accurate and precise information on how to build something.

When Adobe Acrobat 3D was introduced in January of 2006, Right Hemisphere released two plugins for it, namely, the PMI Module and the PDF Publishing Module, these plugins work together to automatically extract, import, and publish JT or CATIA models and associated PMI data directly into a 3D PDF.

The modules can also interactively display and publish multiple model views in PDF. This is significant because it allows engineers, suppliers, and others outside of engineering to have complete and accurate manufacturing specifications as well as 3D model views, all wrapped up in a single, easy to view PDF. In the past, this data was typically locked up in a proprietary CAD model and required proprietary applications and viewers to access them. In some cases, an entire set of PMI 2D drawings had to be developed to try to communicate the same information.

This tutorial is the second in a series on publishing interactive 3D content and demonstrates how to easily create an interactive 3D PDF with associated PMI data directly from the original 3D CAD model.

Assumptions

Certain assumptions have been made regarding this tutorial:

- You should be familiar with 3D concepts.
- You should be familiar in the use of Microsoft Windows.
- Note that the model displayed on your screen during this tutorial may be different depending on the graphics card you have installed in your computer, the screen geometry, and the colors and placement of objects that you choose.

Features Covered

To create this interactive 3D PDF, this tutorial focuses primarily on the 3D Toolkit and the Right Hemisphere PMI Module and PDF Publishing Module (plugins to the 3D Toolkit). These two plugins will work with Right Hemisphere's own client software, Deep Exploration CAD Edition, as well as Adobe Acrobat 3D.

Before we start, let us review some basic 3D navigation instructions:

a) Rotate - Left Mouse Button Down & Drag

b) Zoom - Right Mouse Button Down & Drag

c) Pan – Left & Right Mouse Button Down & Drag

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Requirements

The software tools you will need to create this tutorial are:

- Adobe Acrobat 3D.
- Right Hemisphere's PDF Publishing Module.
- Adobe Reader 7.07+ for viewing.
- To import PMI you will need the JT/CATIA5 modules

There are three main software components which are shipped with Acrobat 3D:

- Adobe Acrobat 3D.
- Adobe 3D Toolkit.
- Adobe LiveCycle Designer.

Completion Time

This tutorial should take approximately 20-30 minutes to complete.

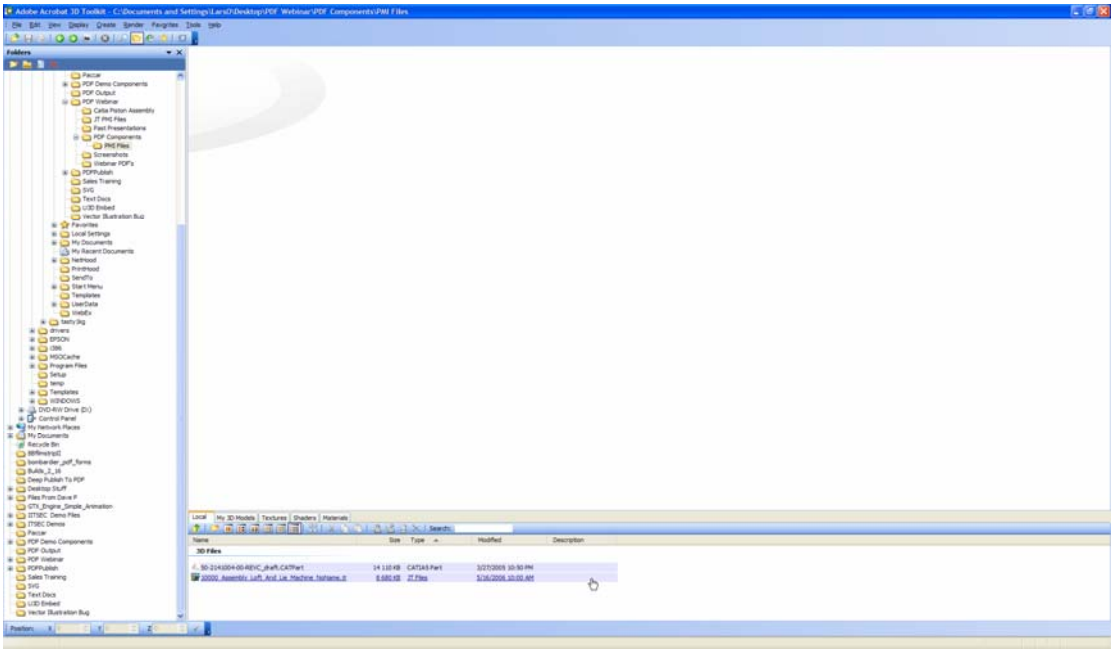
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Create an Interactive PDF with PMI

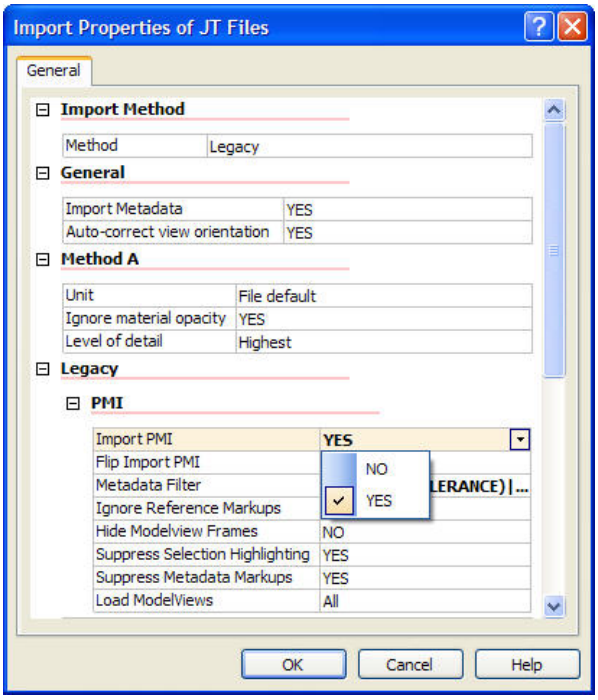
Procedure: Create PDF

1 Launch 3D Toolkit, and using the standard Microsoft Windows Explorer interface browse to locate a JT or CATIA v5 3D CAD file that contains PMI data, for example:

10000_Assembly_Loft_And_Lie_Machine_NoName.jt



2 Right click on the 3D CAD PMI file (JT or CATIA v5) that you would like to import and choose **Import Options**.



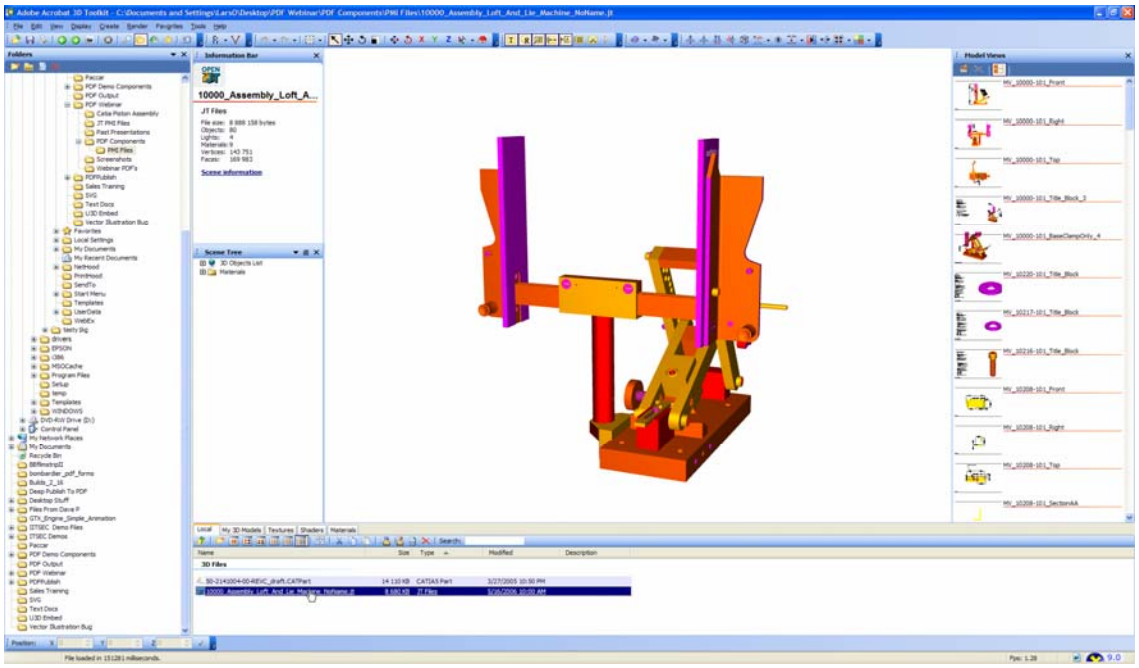
3 Change the default setting for Import PMI (legacy only), select **Import PMI > Yes** then click **OK**.

4 Next we need to change the dark Viewport background color so that the PMI markups are visible. Choose **Tools > Options** then select the **Colors** tab.

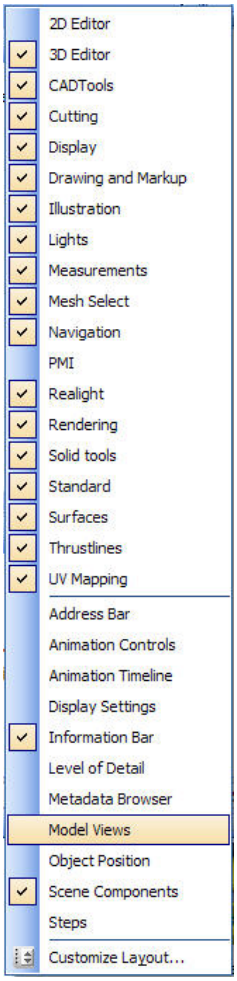
5 Change **Background Top** and **Background Bottom** color to **white**, then click **OK**.

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6 Double click on the 3D CAD PMI file that you would like to import.

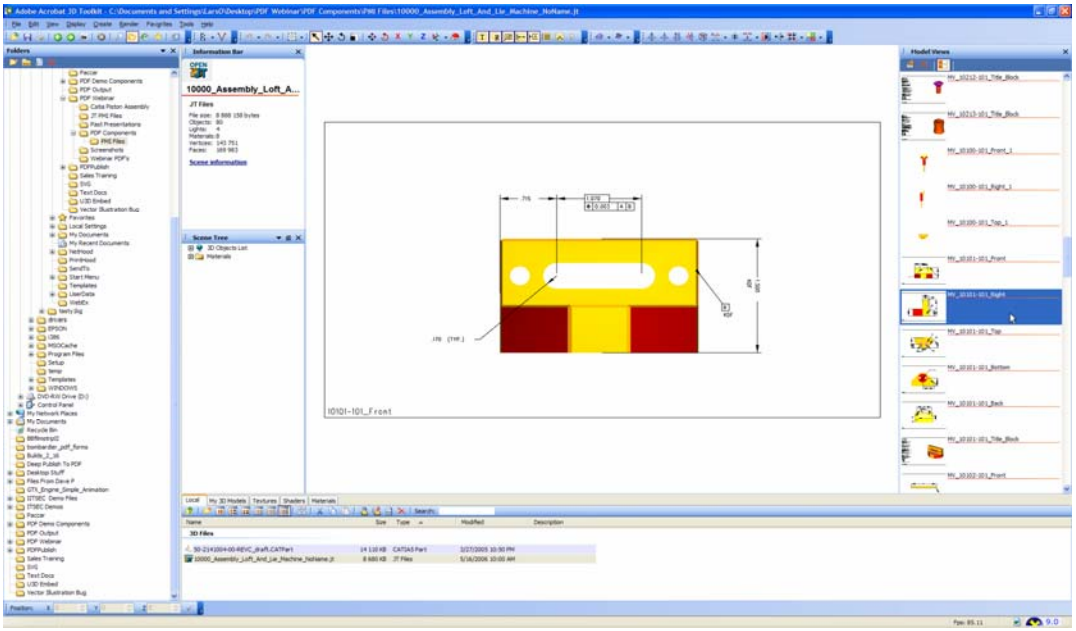


7 When the 3D CAD PMI file loads into 3D Toolkit the PMI Model Views should be visible on the right hand side of the UI. If the Model Views menu is not visible right click in the menu area and choose **Model Views**.

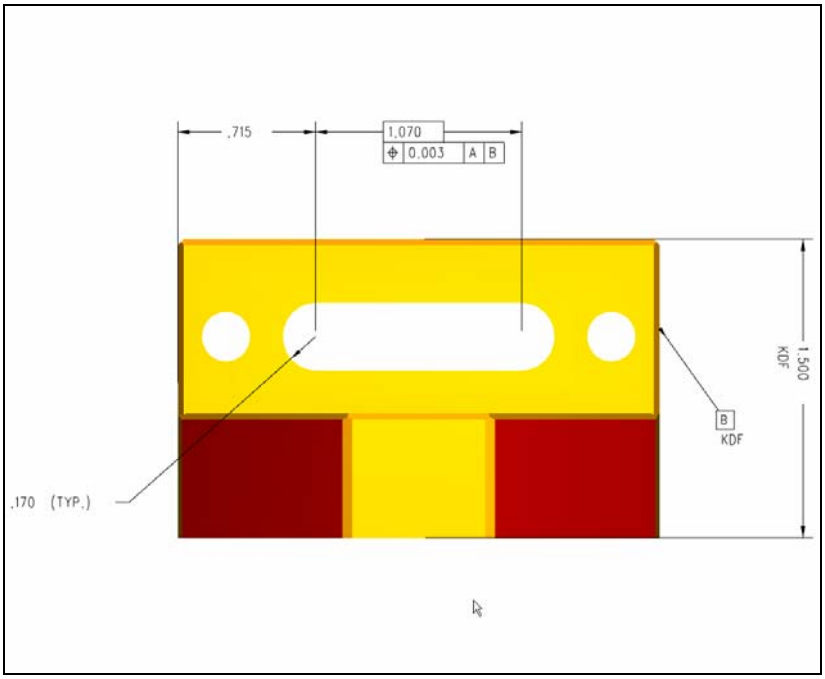


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8 Double click to activate a Model View.



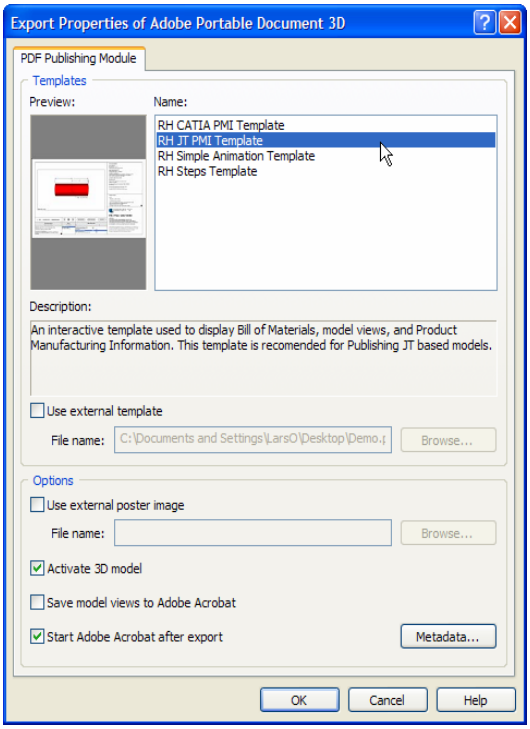
9 Right click and drag to Zoom, Left or right click and drag to pan or view the PMI data in the 3D scene.



10 Select the first Model View at the top of the list.

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11 Choose **File > Save As** then select **Adobe Portable Document 3D (.pdf)** and select **Settings**.



12 Choose **3D Steps Simple Template** then click **OK** and save the PDF file to disk.

Congratulations…. Adobe Acrobat 3D or Acrobat Reader 7.07 will launch and display the fully interactive Product Manufacturing Information (PMI) PDF automatically.

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