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Information Engineering

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Layton Graphics Weighs In On PDF Versus DWF Debate

Autodesk, Inc. recently launched an anti-PDF campaign. Layton Graphics, an evangelist of PDF for engineering, responds to the issues surrounding PDF versus DWF. Layton Graphics has converted millions of CAD files to PDF.

Autodesk recently made statements on their web site regarding the advantages of DWF versus PDF. <http://usa.autodesk.com/adsk/servlet/index?id=3232971&siteID=123112>

Layton Graphics would like to respond to these issues.

Viewer

Autodesk points out that the file size of the Adobe Reader download is larger than their DWF Viewer. This is true. However, Reader is already on just about every computer. Who hasn't opened a PDF file? DWF requires users to download yet another viewer. There are various Autodesk Viewers for viewing AutoCAD file formats: Express Viewer (previously called the WHIP! Viewer), Volo View Express, Volo View (not free), as well as "native" viewing of files within the design applications. The real issue with a new viewer is that people will have to learn how to use the new viewer, and IT will potentially have to support a new viewer. Requiring engineering viewers to view engineering data erects a barrier to the seamless distribution of all your data.

File Size

Autodesk is pushing the small file size of DWF.

They show the following file sizes on their web site (willhome.dwg is a sample file that ships with AutoCAD):

Willhome.dwf: 69K

Wihome.pdf: 1.6MB

File size compression will vary depending on the file used, as well as the settings chosen for rendering to PDF.

Here are the benchmarks we put together using the same file:

Willhome.dwg: 617K (source file)

Willhome.pdf: 211K (using Acrobat Distiller)

Using other sample files we were able to gain much greater compression ratios. We believe using an objective 3rd party evaluator would be the best way to educate the public on true compression ratios between DWF versus PDF.

Creation Speed

Autodesk cites the fast creation speed of DWF. The metrics listed on the Autodesk web site show:

Creation time of DWF from DWG (willhome.dwg): 4 seconds

Creation time of PDF from DWG (willhome.dwg): 85 seconds

The hardware cited is a Pentium III 1.3 GHZ processor.

There are various 3rd party products that can be used for creating PDFs. The Layton Graphics CAD2PDF product rendered willhome.dwg to PDF in 4 seconds – the same amount of time as it takes to create a DWF.

Benefits of PDF

PDF is Ubiquitous. This benefit applies to PDF versus dwg, dwf, dxf, dgn (V8 dgn, V7 dgn, Intergraph dgn), dpr, vlp, str, sid, cal, tif, and so on. DWF is currently a single vendor solution. PDF is the only universal file format for distributing any type of data.

PDF - You Don't Have To Be An Engineer To Work With Engineering Data.

Many end-users of engineering data are not engineers and don't know how to use engineering viewers. The DWF viewer is unfamiliar to non-AutoCAD users.

PDF is Secure. Acrobat allows for 128-bit encryption on PDF files, if encryption is needed. Other security features include the ability to disable cutting and pasting out of the PDF file, disable changing the file, disable printing, and Public Private Key (PPK) digital signature/security features.

PDF is Intelligent. PDF allows for embedding scale for measuring distance, and even allows for embedding latitude/longitude or state plane coordinates as in the case of Layton Graphics geo-referenced PDFs. CAD2PDF allows you to render text-searchable PDFs that are automatically bookmarked and hyperlinked. PDF maintains vector resolution. PDF is just as intelligent as the CAD file.

Counterpoints to PDF versus DWF Claims

<http://discussion.autodesk.com/WebX?displayMessages@216.CYGEaAmdu3D.5@.f1816b1#1>

Acrobat doesn't support Snap when measuring or when redlining, meaning you can't get the required accuracy you need.

Layton Graphics: Acrobat 6.0 includes a very accurate measure tool. Layton Graphics also offers a Measure tool that works with Adobe Reader. Snap is not essential for accurate measurements in many situations. For those that do need it, LineType Software has released LineScale plug-in for Acrobat with snap capability.

Acrobat measure requires the user to manually provide a scale, and isn't viewport aware.

Layton Graphics: With Acrobat 6.0 you can manually enter scale, or with CAD2PDF you can batch embed scale at conversion time.

Hyperlinks are not preserved from AutoCAD when using Acrobat to PDF but are with DWF.

Layton Graphics: CAD2PDF can automatically create bookmarks and hyperlinks between PDF files generated from DWG. The links are created between the PDF files, without the need for the links to be in the DWG files.

No multi-layout and multi-DWG publishing of all your pages into a single PDF in one step from AutoCAD (as there is with DWF).

Layton Graphics: CAD2PDF can convert multi-layout or multi-DWG into a single PDF.

Acrobat doesn't support layers with AutoCAD 2004.

Layton Graphics: Acrobat 6.0 and the PDF specification do support turning on/off layers.

Acrobat has Plot time performance problems (takes about 2-3x the time or worse in default mode).

Layton Graphics: PDF files will print slow to printers without postscript drivers. Get a postscript driver and it should solve the problem. Most modern large format plotting/printing hardware do support PDF/postscript.

PDF has file size problems

Layton Graphics: PDFs are generally smaller than the DWG. Users will have to decide if further compression to DWF is compelling.

Acrobat PDF has some rendering artifacts (triangle edges show up in the 24-bit color wheel demo for example).

Layton Graphics: This is not a problem with the PDF specification, but rather a bug that needs to be fixed in Acrobat 6.0. With Acrobat 5.0 this does not occur.

Acrobat Dynamic Pan/Zoom are poor and aren't truly dynamic as they are in DWF viewers.

Layton Graphics: Zoom is something that is continually being upgraded by Adobe. We are not aware of any Pan shortfalls.

PDF redlines can't be imported back into AutoCAD.

Layton Graphics: AutoCAD should allow PDF redlines to be imported into DWG files. This would be a valuable upgrade.

Acrobat has a higher cost compared to DWF products.

Layton Graphics: Adobe Reader is free.

Acrobat's viewer download size is many times larger.

Layton Graphics: Everybody already has Adobe Reader.

Conclusion

Autodesk is promoting DWF versus PDF based on the engineering merits of its Express Viewer. Adobe Reader is an all purpose viewer, and not just an engineering viewer. However, Adobe Reader holds up well in Engineering, even against this latest competition. Adobe Reader is the world's only ubiquitous single user interface. Publishing engineering data to PDF so users can view all your data with the free Adobe Reader breaks down the barrier between the engineering world and the business world.

For more information about using Adobe Acrobat for Engineering visit:

<http://www.adobe.com/products/acrobat/engineering.html>

For more information on CAD2PDF visit:

<http://www.layton-graphics.com/cad2pdf/>

For more information on DWF please visit:

<http://usa.autodesk.com/adsk/servlet/index?siteID=123112&id=2787358>

About Layton Graphics

Layton Graphics is the nation's leader in publishing engineering information from heterogeneous data sources into intelligent PDFs. With the Layton Graphics CAD2PDF and MAP2PDF software, large organizations can easily convert all their CAD, Mapping and GIS database information to intelligent PDF. PDF is the ideal file format for publishing all your data to field personnel, the intranet and paper.