HP Designjet Tips and Tricks
Going Beyond Foam Core

Eric DuPaul
Designjet Business Development Manager
HP Designjet History
<table>
<thead>
<tr>
<th>Designjet Family</th>
<th>Launch Date</th>
<th>EOL Support Date</th>
<th>Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designjet 600</td>
<td>1994, 1994</td>
<td>2000</td>
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<tr>
<td>Designjet 400</td>
<td>1997</td>
<td>April 2010, (DJ 430 E size – C4714A) April 2011</td>
<td>Only one model</td>
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<td>Designjet 3500</td>
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<td>Designjet 3800</td>
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<td>Designjet 2500</td>
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<td>2006</td>
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<td>Designjet 1050C, 1055CM</td>
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<td><strong>Designjet 1050C Plus, 1055CM Plus</strong></td>
<td><strong>2001</strong></td>
<td><strong>November 2014</strong></td>
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<tr>
<td>Designjet 5000</td>
<td>2001</td>
<td>2007</td>
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<tr>
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<td>2002</td>
<td>November 2012</td>
<td>Yes</td>
</tr>
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<td>Designjet 500</td>
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<td>May 2011</td>
<td>Yes</td>
</tr>
<tr>
<td>Designjet 800</td>
<td>2000</td>
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<tr>
<td>Designjet Family</td>
<td>Launch Date</td>
<td>EOL Support Date</td>
<td>Supported</td>
</tr>
<tr>
<td>-------------------------------</td>
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<tr>
<td>Designjet 4000</td>
<td>2004</td>
<td>2014</td>
<td>Yes</td>
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<tr>
<td>Designjet 4500, 4200 Scanner, 4500MFP</td>
<td>2006</td>
<td>2014</td>
<td>Yes</td>
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<td>Designjet 90, 70</td>
<td>2005</td>
<td>2011</td>
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<td>Designjet Z3100</td>
<td>2006</td>
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<td><strong>Designjet T1100</strong></td>
<td><strong>2007</strong></td>
<td><strong>2014</strong></td>
<td><strong>Yes</strong></td>
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<tr>
<td>Designjet T1120, T1120MFP</td>
<td>2009</td>
<td>2015</td>
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<td>Designjet T610</td>
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<td>Designjet 820MFP</td>
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<td>Designjet 815MFP</td>
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<td>Designjet cc800ps</td>
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<td>Designjet T1200</td>
<td>2009</td>
<td>2016</td>
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<td>Designjet T770HDV</td>
<td>2009</td>
<td>2016</td>
<td>Yes</td>
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<tr>
<td>Designjet Z6100</td>
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<td>2016</td>
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<tr>
<td><strong>Designjet 4000</strong></td>
<td><strong>2004</strong></td>
<td><strong>2014</strong></td>
<td><strong>Yes</strong></td>
</tr>
</tbody>
</table>
Troubleshooting Common Problems
- Print color does not match my screen color
- Saving Paper and Ink
Print color does not match my screen color

- Workspace set-up
- Monitor calibration
- Printer tools & calibration
- Media and Ink Choices
- My new printer does not match my old printer
Questions to ask yourself:

- What is my workspace lighting?
- Is my monitor calibrated?
- Is my printer calibrated?
- Are you using HP Inks?
- Do you have the correct media profile chosen?
- Are you using the correct printer driver?
Workspace Set-Up

Work environment

- Ambient lighting (Turn down the lights)
- Display brightness (5000-5500K)
- Room colors (Dark is better)
- Workstation (HDMI connection is better)
- Graphics Card
- Monitor Calibration (Calibrate every two weeks)
- Use a display that is up to the job! (You are an artist, use artists tools)
Monitor Calibration

- Monitor often is the only visual reference of an image before it is printed.
- All data in the digital creative workflow needs to be displayed on the monitor.
- The challenge is to make sure that all the data throughout the workflow, from input to final output, is the same or as closest to the image on the Monitor.
- The difference in color reproduction between various monitors is one of today's largest problems.

<table>
<thead>
<tr>
<th></th>
<th>ColorMunki Display</th>
<th>i1Display Pro</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSRP:</td>
<td>$189</td>
<td>$269</td>
</tr>
<tr>
<td>Target Markets:</td>
<td>Photo &amp; Design</td>
<td>Pro-photo, Design, Prepress, &amp; Publishing</td>
</tr>
<tr>
<td>User Proficiency Level:</td>
<td>Serious enthusiast to professional</td>
<td>Professional</td>
</tr>
<tr>
<td>UI Focus:</td>
<td>Simplicity but professional quality</td>
<td>Color precision with high level of speed, options and controls</td>
</tr>
<tr>
<td>Key Features:</td>
<td>Accuracy on new displays technologies, Better display to print matching, Projector profiling, Ease of use</td>
<td>Highest accuracy on new displays technologies, Better display to print matching, Projector profiling, Advanced options &amp; workflows, Pantone optimization, Quality Analysis</td>
</tr>
</tbody>
</table>
Printer tools and calibration

Read your user documentation

Let your printer help you
Printer tools and calibration

- Print quality defects can be caused by the following reasons:
  - Print heads in bad shape
  - Misaligned print heads
  - Incorrect paper advance (select printers only)
- Corrective actions are available for each of these reasons:
  - Cleaning print heads
  - Aligning print heads
  - Calibrating paper advance

*In order to simplify the task, Designjets T and Z series include a Print Quality troubleshooting wizard*
Printer tools and calibration

HP Designjet Utility
Download from www.hp.com – Support and Drivers
Printer tools and calibration

- Clean print heads
- Align print heads
- Calibrate color
**HP Media**

*HP media is designed to optimize output from HP Designjet printers*

If your HP Designjet printer utilizes *Dye Ink* (111r, 130, T series, 4xxx, 1xxx) **use** *swellable* media.

- Not waterfast
- Long dry-time
- Not compatible with pigment inks

**Swellable**

<table>
<thead>
<tr>
<th>Examples of Swellable Media</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP Premium Plus Satin Photo Paper</td>
</tr>
<tr>
<td>HP Premium Plus Gloss Photo Paper</td>
</tr>
<tr>
<td>HP Universal Semi-gloss Photo-Paper</td>
</tr>
<tr>
<td>HP Universal High-gloss Photo Paper</td>
</tr>
</tbody>
</table>

**PROBLEM SOLVING**

If you print on **porous** media using a Dye based ink system, the image will fade very fast.

If you print on **swellable** media using a Pigment base ink system, the ink may never dry.

If your HP Designjet printer utilizes *Pigment Ink* (Z2100, Z3100, Z5200, Z6100, Z6200) **use** *porous* media.

- Water-fast
- Instant dry-time
- Dyes and pigments compatible

**Porous**

<table>
<thead>
<tr>
<th>Examples of Micro-Porous Media</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP Everyday Pigment Ink Gloss Photo Paper</td>
</tr>
<tr>
<td>HP Everyday Pigment Ink Satin Photo Paper</td>
</tr>
<tr>
<td>HP Universal Instant-dry Semi-gloss Photo Paper</td>
</tr>
<tr>
<td>HP Universal Instant-dry Gloss Photo Paper</td>
</tr>
<tr>
<td>HP Premium Instant-dry Satin Photo Paper</td>
</tr>
<tr>
<td>HP Premium Instant-dry Gloss Photo Paper</td>
</tr>
<tr>
<td>HP Professional Satin Photo Paper</td>
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</table>
**HP Designjet Ink**

<table>
<thead>
<tr>
<th>Designjet Model</th>
<th>Dye Based Color Ink (CYM)</th>
<th>Pigment Based Black</th>
<th>Pigment</th>
<th>Latex</th>
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</thead>
<tbody>
<tr>
<td>Designjet 110plus/510</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Designjet T120, T520, T620, T770, T1100, T1120, T1200, T790, T1300, T2300, T920, T1500, T2500eMFP</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
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<tr>
<td>HP Designjet Z2100, Z3100, Z3200</td>
<td></td>
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<td>Yes</td>
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<tr>
<td>HP Designjet Z5200, Z6100, Z6200</td>
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<td>Yes</td>
<td></td>
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<tr>
<td>HP Designjet L25500, L26500, L28500</td>
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<td>HP Designjet 4000, 4500, 4020, 4520</td>
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<td>Yes</td>
<td></td>
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<tr>
<td>HP Designjet 130</td>
<td></td>
<td></td>
<td>Yes</td>
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</tbody>
</table>

**Dye Ink**
- Ultra small & water soluble – give brighter, vibrant colors
- Ultra small size – penetrates paper, therefore high-gloss possible
- Highly-exposed individual molecules – rely on paper for protection
- (if any) from light and air

**Pigment Ink**
- Non water soluble solid particles can potentially have very good light-fastness
- Forming smooth high-gloss film difficult
- Long-term pen reliability more difficult plain paper colors are dull, not vibrant
- Pigments tend to stay on the surface
Getting the right colors

My colors do not match my previous Designjets

- Newer Designjet printers have better inks and color management systems than older models, providing a better match to the screen.
- This means that, by default, their colors will be different from previous models.
- In order to provide backwards compatibility, emulation modes are included:
  - Designjet T1500, T920, T2500eMFP emulates Designjet 1050/1055, Designjet 500/800
  - Designjet Z6200, Z6100 emulates Designjet 5500 and Designjet 1050
Saving paper and ink
- Remove top/bottom blank areas
- Auto-rotate
- Nesting
- Saving ink
Saving paper

Remove top/bottom blank areas

Image on Workstation screen

REMOVE TOP/BOTTOM BLANK AREAS
It rotates the drawing only if:
- It fits on the loaded roll with no clipping
- It saves paper
Saving paper

Nesting

- Nesting
  - Placing pages side by side on the paper, rather than one after the other
  - Avoids wasting paper
  - Can be accessed through
    - Front panel
    - The EWS
- Designjet T7100PS, T2500PS, T1500PS and Z6200PS adds two new nesting features
  - Nesting in optimized order
  - Crop lines when nesting
Saving Ink

- Make sure you have selected the correct media profile
- Print in normal mode for final versions
- Economodes – Switch on economode in printer driver
- Newer print models – use minimal ink usage during service routines
Clipping and Out of Memory Errors
- Clipping
- Out of memory
Clipping

- Incorrect page size selected
- Incorrect orientation selected (portrait or landscape)
- Incorrect margins setting
- Incorrect scaling

To troubleshoot:

Check the concept preview to see where clipping will occur. It will also show the page size and the effective printable area with the selected margins.
Out of memory

- Out of memory problems can happen in different stages of the printing workflow
- The symptoms can be:
  - A explicit message in the computer or the printer
  - Slow performance of the computer or the printer
  - Missing content from the output
Resolving Out of Memory problems

The following settings help solve out of memory issues:

In the driver:
- Advanced tab → Send job as bitmap
- Advanced tab → Max. Application resolution = 300dpi

In the application:
- Properties → Graphics → Raster graphics
- Lower the resolution of OLE objects and shaded viewports
Technologies that Help to Maximize Productivity
- Job management technologies
- Cost tracking
- HP Designjet ePrint and Share
- Printing from AutoCAD WS
Processing Print Job Options

In-printer versus PC

In-printer processing architecture
- Low traffic over the network
- Print and process at the same time
- Job queue in printer
- Low computer load while spooling files

Raster/in-computer processing architecture
- Dense traffic over the network
- Print one job at a time
- No job queue
- High computer load while spooling files
Free up your workstation

Send and print jobs reliably over the network

Processing Print Job Options

*In-printer versus PC*
A job queue allows to:

- Manage job priorities
- Manage the printer from the desktop
- Free user’s computers from the task of queuing jobs
- Parallel processing and printing

But how can you handle situations where:

- Different papers are needed for different jobs in the queue
- The queue is full but an intervention on the printer is needed?
Pausing the queue

- Pauses the queue of jobs
- Enables user to replace consumables, load media, or perform other activities to prepare the printer for unattended printing
- To continue printing, use the “Release” option that appears in the same menu
Job management

Job alerts for Designjet T790, T1300, T920, T1500, T2500eMFP, T7100

• If configured to do so, the printer will hold jobs if the paper requirements can’t be met for:
  • Paper type
  • Paper size (clipping)
  • Paper source (sheet vs. roll)
• An alert will be issued
• Held jobs won’t be printed until:
  • The user continues them proactively through the Front Panel, the Embedded Web Server, or the Printer Utility
  • The required paper is loaded
Workgroup Designjet printers allow users to track and report precise consumption and cost data per:

- Job
- User
- User group
- Type of plot (ink coverage)
What is HP Designjet ePrint & Share?

Experience cloud printing from virtually anywhere—a conference room, the job site, or even home—using HP Designjet ePrint & Share. This free web service makes it easy to access and print large-format documents, using your tablet, smartphone, laptop, or printer touchscreen.

Desktop / Web browser access

Mobile apps iOS and Android

Print to Plot from AutoCAD WS

Print and scan directly to and from the cloud through HP Designjet ePrinter touch screen interface.
- You can plot your files to any HP ePrinter and HP Designjet ePrinter
- Must have HP Designjet ePrint and Share account (free)
- Manage your printers from HP Designjet ePrint and Share
AutoCAD WS: iPad App Workflow

Select “Share with” icon and “Plot”

- To access plot options tap in Output arrow icon.
- Two options available: Share by email, or Plot.
AutoCAD WS: iPad App Workflow

eP&S Remote Printers will show up

• Selecting Plot shows menu.
• Plot can be to PDF, DWF, or to print to an HP ePrinter.
• Tap Add HP ePrinter to start connecting printers.
HP Designjet Printer Settings with AutoCAD
- Which drivers should you use?
- Print workflow from AutoCAD
- Creating custom media sizes
Which drivers should be used?

Available drivers for HP Designjet printers

There are no HDI drivers for HP Designjet printers. Windows HP-GL/2 and Raster drivers are optimized to work with AutoCAD through a special SW module in the application.
Which drivers should be used?

1. If HP-GL/2 is available, always use it

2. If HP-GL/2 is not available, use the Raster driver

3. Use the PS3 driver as a third option
Optimized drivers

- Installed via the standard Windows installation process
- Common User Interface for all applications, including Autodesk products
- Interfaces transparently with Autodesk products
- Better line quality than standard Windows drivers
- HP provides the best-in-class Autodesk integration working directly with Autodesk engineers

"HP has developed the only Windows large-format printer driver optimized for AutoCAD combining high quality and performance in the technical market"
PC3 files

Printer driver settings
- Print quality
- Paper source and type
- Color options
- etc.

AutoCAD plotter configuration
- Filter page sizes
- Raster and OLE object resolution
- Plotter calibration

AutoCAD Plotter configuration file
You can select which ones you want in:
Plot dialog -> Printer properties ->
Plotter configuration editor -> Filter paper sizes.

You can restore it later by rechecking the boxes.
Creating and sharing custom page sizes

![HP Designjet T1100ps 44in HPGL2 Printing Preferences](image)

- **Paper Options**
  - **Document size**: 432 x 559 mm
  - **Margins/Layout**: Custom

- **Orientation**
  - **Format**: Portrait
  - **Landscape**

- **Paper Source**: Automatically Select
- **Paper Type**: Any

- **Print Quality**
  - **Default options**: Standard options
  - **Speed**: Quality

- **Units**
  - Inches
  - Centimeters

- **Custom Paper Size**
  - **Name**: Custom - Test page
  - **Paper Size**
    - **Width**: 431.80 mm (16.99 inch)
    - **Length**: 559.80 mm (22.00 inch)

- **Save**
Creating and sharing custom page sizes

- Custom page sizes created from the driver are local. This means that they can only be accessed from the computer where the page size was created, even if the driver is shared.
Creating and sharing custom page sizes

- A user with administrative rights can create custom sizes in the server that will be shared to client workstations by using the following process:
  1. Go to Start → Printers and Faxes
  2. Go to File → Server properties
  3. In the “Forms” tab, create a new Form with the desired custom size

- This form will be available in the driver and shared to client workstations, enabling the previous PC3 file sharing workflow
Creative Output
Printing From Autodesk Products
- Printing from AutoCAD
- Printing from Inventor
- Printing from Revit
A Few Notes:

1. You can just print directly to printer without setting up PC3 files (plotter configuration files) or other drawing templates, but most users do not do this since you have very little control over output.

2. Not as intuitive as other Autodesk packages.

3. HDI (Heidi Device Interface) drivers are no longer needed – since 2009.
Printing from AutoCAD

Step 1: Select Output then Page Set-up Manager then select “New”
Printing from AutoCAD

Step 2: Name new page set-up
Printing from AutoCAD

Step 3: Select device and other options
Printing from AutoCAD

Step 4: Select Plot
Printing from AutoCAD

Step 5: Review set-up
Printing from AutoCAD

Step 6: Properties - Device and Document Settings
Printing from AutoCAD

Step 7: Custom Properties
Printing from AutoCAD

Step 7: Print
Printing from Inventor

A few notes:
1. Typical workflow is not directly from Inventor to printer
   a. Usually will convert to a DWG and then print.
   b. Combine multiple parts and sections to one page to print
Printing from Inventor

Step 1: Select Inventor Icon and then Print - Print
Printing from Inventor

Step 2: Select Printer - driver first window

![Print dialog box](image)

- **Printer**
  - **Name:** HP Designjet T120 PCL3
  - **Status:** Ready
  - **Type:** HP Designjet T120
  - **Where:** HPDSJTPORT 1
  - **Comment:**

- **Print range**
  - **All**

- **Copies**
  - **Number of copies:** 1

- **Options**
  - **Print to file**
Printing from Inventor

Step 3: Properties - Paper/Quality
Printing from Inventor

Step 4: Properties - Features
Printing from Inventor

Step 5: Properties - Color
Printing from Inventor

Step 6: Properties - Services

- Internet Services
  - Download drivers and software
  - Browse online information

- Device Services
  - Status of my printer (media, ink, ...)
  - Troubleshoot my printer
Printing from Inventor

Step 7: Properties - Advanced
Printing from Inventor

Step 8 Print
Creating a Drawing & Printing in Inventor

Step 1-2: Create New Sheet & Name New Sheet
Creating a Drawing & Printing in Inventor

Step 3: Add items to sheet
Creating a Drawing & Printing in Inventor

Step 4: Position the item on the sheet
Creating a Drawing & Printing in Inventor

Step 5: Select Inventor Icon and Print-Print
Creating a Drawing & Printing in Inventor

Step 6: Print Driver first window
Creating a Drawing & Printing in Inventor

Step 7: Properties

![HP Designjet T120 PCL3 Properties window](image)

- **Paper/Quality**
  - Document size: 24.00 x 18.00 inches
  - Arch C
  - Currently loaded paper: HP Premium Gloss Photo Paper, 24.02 inches
  - Multi-sheet tray: Not ready
  - Single sheet: Not ready

- **Paper source**: Printer auto select
- **Paper Type**: Any

- **Orientation**: Portrait, Landscape

- **Print Quality**
  - Standard options
    - Speed
    - Quality
  - Custom options
    - Rendering resolution (ppi): 300
    - Printing resolution (dpi): Automatic
Creating a Drawing & Printing in Inventor

Step 8: Print
A few notes:
1. Projects are based off project templates
2. One model per discipline- not many dwg files
3. Ribbon interface- not buttons/icons/commands
4. No special drivers or pc3 file creation before printing
Printing from Revit

Step 1: Create Sheet
Printing from Revit

Step 2: Drag View onto Sheet
Printing from Revit

Step 3: Select Revit Icon, then Print-Print
Printing from Revit

Step 4: Select Printer - Driver First Window
Printing from Revit

Step 5: Select what to print
Printing from Revit

Optional Step: In-session set-up
Printing from Revit

Step 6: Properties - Paper/Quality
Printing from Revit

Step 7: Properties - Features
Printing from Revit

Step 8: Properties - Color
Printing from Revit

Step 9: Properties - Services
Printing from Revit

Step 10: Properties - Advanced
Printing from Revit

Step 11: Print
Printing from Revit

**Final Step: Printing**
Questions?