



# **Designjet Universal Print Driver**

## **System Administrator's Guide**

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# 1 Purpose and scope

## Introduction

This system administrator's guide provides information about the HP Designjet Universal Print Driver (HP DJ UPD) software.

This guide is distributed in electronic format to serve as a quick-reference tool for information Technology (IT) Administrators, Customer Care Center (CCC) Agents, Support Engineers, System Administrators, Management Information Systems (MIS) Personnel, and Printer Users.

This guide includes the following information:

- Procedures for installing and uninstalling the HP Designjet Universal Print Driver.
- Descriptions of the HP Designjet Universal Print Driver, its features, benefits, use, and management.
- The following table describes the structure of this System Administrator's Guide:

**Table 1-1 HP Designjet Universal Print Driver System Administrator's Guide overview**

Chapter	Content
Chapter 1, Purpose and scope	Describes the purpose of this guide, including conventions and hardware.
Chapter 2, Software description	Describes the software, including installation requirements, and availability. Also described are the different driver versions (HP-GL/2 and PostScript), their specific purposes, and the modes for installing them.
Chapter 3, Plan an HP DJ UPD deployment	Provides information for planning and deploying the HP DJ UPD in your environment.
Chapter 4, Install and Uninstall of the HP DJ UPD	Provides instructions for installing and uninstalling the HP DJ UPD.
Chapter 5, HP DJ UPD Features and Use Cases	Includes information on using the HP DJ UPD

For more information about the location of information within these chapters, see the table of contents and the index at the end of this guide.

## Conventions used in this guide

This guide uses the following conventions:

- Keyboard keys appear in colored font. For example, Press the **Shift** key.
- Directory paths, file names, and file extensions appear in fixed width (mono-spaced) font. File names and file extensions appear in uppercase. For example, Find the `SAMPLE.TXT` file in the `C:\Temp` directory
- Menu names, field names, and options to select display in bold type. For example, On the **File** menu, click **New**.
- Windows®, screens, and panels display in bold type. For example, The **Job Manager** window displays.
- References to other sections in this guide are underlined. For example, For more information, see [Software description](#).

## HP Designjet UPD Supported products

For an updated list of supported products, see the following Web site:  
[www.hp.com/go/designjetupd](http://www.hp.com/go/designjetupd)

**Table 1-2 products supported by HP Designjet UPD**

Model name	HP DJ UPD HP-GL/2 support	HP DJ UPD PostScript support
HP Designjet T120	Yes (PCL3GUI)	No
HP Designjet T520 24in	Yes	No
HP Designjet T520 36in	Yes	No
HP Designjet T790 24in	Yes	No
HP Designjet T790ps 24in	Yes	Yes
HP Designjet T790 44in	Yes	No
HP Designjet T790ps 44in	Yes	Yes
HP Designjet T795 44in	Yes	No
HP Designjet T795ps 44in	Yes	Yes
HP Designjet T920	Yes	No
HP Designjet T920 PostScript	Yes	Yes
HP Designjet T1300	Yes	No
HP Designjet T1300 PostScript	Yes	Yes
HP Designjet T1500	Yes	No
HP Designjet T1500 PostScript	Yes	Yes
HP Designjet T2300	Yes	No
HP Designjet T2300 PostScript	Yes	Yes
HP Designjet T2500	Yes	No
HP Designjet T2500 PostScript	Yes	Yes
HP Designjet T3500	Yes	No
HP Designjet T3500 PostScript	Yes	Yes
HP Designjet T7100 Monochrome	Yes	No
HP Designjet T7100ps Monochrome	Yes	Yes
HP Designjet T7100	Yes	No
HP Designjet T7100ps	Yes	Yes
HP Designjet T7200	Yes	No
HP Designjet T7200ps	Yes	Yes
HP Designjet Z6200 42in Photo	Yes	No
HP Designjet Z5400 PostScript	No	Yes
HP Designjet Z6200ps 42in Photo	Yes	Yes
HP Designjet Z6200 60in Photo	Yes	No
HP Designjet Z6200ps 60in Photo	Yes	Yes
HP Designjet Z6600	Yes	No
HP Designjet Z6600ps	Yes	Yes
HP Designjet Z6800 Photo	Yes	No
HP Designjet Z6800ps Photo	Yes	Yes

## 2 Software description

### Introduction

The HP Designjet Universal Print Driver helps eliminate print environment confusion by dramatically reducing the number of drivers required. The HP Designjet Universal Print Driver offers the same functionality as supported printers. For non-supported Designjet printers, there is broad compatibility with the generic model. HP Broad compatibility ensures it works with many HP Designjet print products, often reducing driver use to a single driver.

- The HP Designjet Universal Print Driver works well with a broad range of networked HP Designjet print products using HP-GL/2 or Adobe® PostScript®. HP products share state-of-the-art technology, allowing the HP Designjet Universal Print Driver to support complex capabilities across many HP products, making them easier to use, support, certify, and deploy.
- Local language drivers available in 13 languages.
- The HP Universal Print Driver supports HP-GL/2 and PostScript printer languages.
- By providing real-time print job and print product information, the HP Designjet Universal Print Driver empowers you to resolve common problems yourself, and place fewer calls to the help desk resulting in faster problem resolution, improved printer uptime, and increased productivity.

### System requirements

The following are the minimum system requirements for HP DJ UPD:

Client operating systems supported:

- Microsoft Windows 7 Starter, Home Premium, Professional, Enterprise, and Ultimate; x86 and x64
- Microsoft Windows 8, Pro and Enterprise editions; x86 and x64
- Microsoft Windows 8.1, Pro and Enterprise editions; x86 and x64

Server operating systems supported:

- Microsoft Windows Server 2012 and Microsoft Windows Server 2012 R2, Enterprise and Standard Editions
  - Architectures: x64
  - Services: Terminal Server, Cluster Server
- Microsoft Windows Server 2008 SP2 and Microsoft Windows Server 2008 R2, Enterprise and Standard Editions
  - Architectures: x86 and x64
  - Services: Terminal Server, Cluster Server
- Citrix XenApp 7.5

### Software availability

The HP Designjet Universal Print Driver version is available in the following languages:

Table 2-1 HP Designjet UPD supported languages

Catalan	English	French	German
Italian	Japanese	Korean	Polish
Portuguese (Brazilian)	Russian	Simplified Chinese	Spanish
Traditional Chinese			

## 3 Plan an HP Designjet UPD deployment

This chapter is designed to help you make strategic deployment decisions as you integrate the HP DJ UPD into your printing environment. The deployment of the HP DJ UPD is unique based upon your specific objectives and current IT infrastructure. This chapter assumes that you have a basic understanding of the functionality of print drivers and the Windows printing architecture.

This chapter also provides the options and recommendations to customize deployment based on your current printing environment and printing goals and objectives. Although your environment will vary slightly from the installation models below, you should be able to use the recommendations in this document so that deployment will be smooth and have the least impact to your printing environment. In some cases you will use more than one solution provided in the information below.

### The five steps to a successful deployment

- **Initiation and planning**
  - Fully understand your printing requirements and environment
  - Make decisions
- **Communication and training**
  - Executive sponsorship
  - Training
- **Conducting a pilot**
- **Test and evaluation**
- **Roll out to production**

### Initiation and planning

To gain the maximum benefit from the HP DJ UPD, it is important to:

- Fully understand your printing requirements and environment.
- Develop an HP DJ UPD deployment strategy.

An HP DJ UPD deployment needs to be considered similar to any other major change to your IT environment, and should be treated accordingly. Back up print servers and print queues before beginning an installation.

## Understand your printing requirements and environment

### Determine deployment objectives

Description of the deployment objectives. The intent is to get a clear and detailed picture of what the end result will be after the migration or upgrade.

### Print servers or Direct IP

HP DJ UPD supports both client-server printing and direct IP printing.

For additional information on whether direct IP printing is right for you please refer to *Direct IP Printing with the HP Universal Print Driver* available on [www.hp.com](http://www.hp.com).

### Identify stakeholders

The stakeholders are anybody impacted by the plan. Stakeholders can include, but are not limited to, the following groups.

- End users – Will there be downtime, what will change?
- IT staff – How much time and resources?
- Help Desk – What do they need to know?

### Make an inventory

Make an inventory of all printing products, print servers, print queue names, printer drivers, IP addresses, and printer languages that you are using. If you have print servers, you also need to determine if all of the print queues are still active.

### Driver considerations

Please consider the following to determine if the HP DJ UPD is the correct solution for your printing environment.

- The HP DJ UPD is supported and tested on HP printers only. For non-HP products, HP recommends using the driver supplied by the product manufacturer.
- Not all HP printers are supported by the HP DJ UPD. The HP DJ UPD supports a wide range of Designjet printers and MFPs. To obtain the latest list of HP DJ UPD supported products, visit the following website: [www.hp.com/go/designjetupd](http://www.hp.com/go/designjetupd)

### Environment and network compatibility

Validate that the HP DJ UPD is compatible with your current environment and network communication protocols. Make sure that the SNMP and mDNS protocols are not filtered or blocked. The HP DJ UPD requires these protocols for product discovery and communication.

### Baseline the system

Test that all printing applications are compatible with the HP DJ UPD. Run performance and printing tests using “typical” documents.

## Risk management

As with all projects, there are risks involved. Spend some time identifying the risks and making plans on how to mitigate them. Some suggestions are:

- Make a backup of all systems before making any modifications.
- Thoroughly test before going into production.
- Plan your activities for a time of low print server usage to minimize user impact.
- When migrating to a new server, keep the old server operational for a period of time just in case you need to fall back on it.

## Key deployment decisions

- [Create a list of required drivers](#)
- [Choose an installation method](#)
- [Estimate time requirements](#)

### Create a list of required drivers

- HP DJ UPD
- Product specific drivers
- Non-HP products

### Choose an installation method

HP DJ UPD can be installed using multiple methods including:

- Add Printer Wizard
- Microsoft Print Management Console
- Custom scripts using Microsoft-approved tools

### Estimate time requirements

Make sure to allow sufficient time to complete all the steps. The following are some things to consider:

- Planning
- Performing System Backups
- Gathering tools and/or write scripts
- Server Installation
- Client Installation
- Testing

The amount of time it will take to install the HP DJ UPD depends on a number of factors including the number of drivers, the number of print queues on the server, and the number of host clients receiving the installation. Typically, the installation of any driver only takes a minute or two, but this can be significantly slower if there are other printer drivers on the system.

Creating a print queue using an existing driver typically takes only 30-60 seconds depending on processor speed, etc. However, if you have 100 print queues to create, this could easily add up to almost 2 hours.

See: <http://support.microsoft.com/kb/832219> - Users cannot print after installing a service pack, updating rollup, or a printer hot fix on a server.

## Communication and training

HP strongly suggests having a communication plan in place prior to beginning your deployment of the HP DJ UPD. This helps overcome objections and ease the fears of end-users who might be worried about losing some of their printing functionality. Make sure your end-users and the IT staff members understand the benefits gained by using the HP DJ UPD.

### Training

Develop training reference materials and identify resources to help end-users successfully transition to the HP DJ UPD from standard product drivers. Include information about how to identify products through the HP DJ UPD. Employ a survey to gauge customer satisfaction.

### Conducting a pilot

HP recommends the creation of a test-environment during HP DJ UPD implementation. Select a part of your printing environment that will not affect too many users to test the implementation prior to deployment to the entire printing environment. Make sure this test environment (applications and printers) is representative of the overall printing environment.

### Deploy to production

HP strongly recommends a phased approach to deploying the HP DJ UPD.

Deploying in a phased manner across the IT environments helps to:

- Minimize issues and provide valuable information about each type of environment.
- Uncover issues that could be documented and considered prior to the next phase.
- Increase the confidence of end-users and sponsors in the project.
- Confirm work is done adhering to requirements
- Gain formal acceptance of the product
- Hand off completed product

## 4 Installing and Uninstalling the HP Designjet UPD

The HP DJ UPD can only be installed in **Traditional** mode. During installation, the driver is associated with a specific printer, creating a permanent instance of the driver. Even though the printer is created as a permanent instance, you can modify the current model from Printer Properties -> Device Settings.

### Supported Modifications of the Hewlett-Packard Designjet Universal Print Driver

- The HP DJ UPD must be installed exactly as it was received from HP, with no modifications.
- The HP DJ UPD may be installed using the HP-supplied scripts (Visual Basic or Power Shell technology) or using a Microsoft recommended and HP-approved tool and/or process listed in [HP DJ UPD installation methods](#).
- Modifying any HP DJ UPD driver files (INF, MSI ,etc.), making registry edits after installation, or manually copying or deleting files, except when explicitly instructed to do so by HP in writing, will result in an unsupported configuration.
- HP DJ UPD should be deleted using only Microsoft-supplied tools and procedures. Manual deleting of registry entries and/or driver files is not recommended and not supported. See [Uninstall the HP UPD](#) for more information.

### Determine the HP DJ UPD version installed

To determine if a version of the HP UPD is already installed, open the **Printers** folders using one of the following methods:

**Command Line:** From a command prompt (**Start>Run**, type cmd, press enter) type the following command to open the **Printers** folder: control printers.

**User Interface:** Dependent upon operating system version:

- Windows 7: Click the **Start** button, and then select **Devices and Printers**.
- Windows Server 2008R2: Click the **Start** button, and then select **Devices and Printers**.  
Select the printer, right mouse click, and then select either **Properties** or **Printer Properties**, select the **About** tab. The UPD version is displayed at the top.

## Microsoft Windows Driver Architecture

### HP DJ UPD v1.0 Install/Upgrade

The HP Designjet Universal Print Driver (HP DJ UPD) is dependent on the Microsoft Windows Unidriver (unidrv.dll) architecture. The HP DJ UPD release notes provide the unidrv.dll version used by HP for internal testing, and subsequently qualified by Microsoft's WHQL test process. The Microsoft WHQL certification gives the HP DJ UPD the "Certified for Windows" logotype. The HP DJ UPD is supported by HP for all versions releases of unidrv.dll that remain under Microsoft's standard support. It is the expectation that Microsoft's updates to unidrv.dll will be backward compatible in support of the Microsoft Windows universal print driver architecture. Any unexpected behavior resulting from the dependency on the Microsoft unidrv.dll requiring code change to the HP DJ UPD would become a candidate for fix in the next release of the HP DJ UPD, and/or investigated with Microsoft, as required. The HP DJ UPD installer is one of several possible distribution mechanisms for the shared unidrv.dll and pscript5.dll files. HP DJ UPD v1.0 includes updated versions of the unidrv.dll and pscript5.dll compared to prior releases. The HP DJ UPD installation package may update the unidrv.dll and pscript5.dll as necessary during installation. Before installation, it is advised to review Microsoft's KB832219, KB944733, KB829766 articles and the HP DJ UPD System Administrator's Guide. Enterprise environments that have a Unidrv.dll version older than the version packaged in the HP DJ UPD may experience the symptoms defined in the Microsoft articles. Administrators should identify the unidrv.dll or pscript5.dll version installed on the target host's

\\windows\system32\spool\drivers\\*\3 directory, compare to the HP DJ UPD Version History table in this release note, and create appropriate testing and deployment plans specific to the installation environment.

## HP DJ UPD Supported Upgrades

HP will support upgrading from one version of the HP DJ UPD to a newer version of the HP DJ UPD, starting with v1.0. Upgrading from a non HP Universal Print Driver to the HP Universal Print Driver, regardless of whether the version or vendor is not supported. For supported environments, customers should proceed with steps for new printer installation.

## HP DJ UPD installation methods

HP DJ UPD supports the following for new printer installation and driver upgrade:

### Installation through Microsoft Operating System procedures

Considerations for each method provided:

Microsoft Operating System: HP supports the following Microsoft methods for print driver installation or upgrade of the HP UPD:

- **Add Print Wizard:** Accessible from **Printers** folder — wizard based installation for new printer installation and driver upgrade.
  - **Add Driver Wizard/Replace Driver:** From the **Printers** folder select either the **File-Server Properties-Drivers** tab (XP, Vista, Server 2003, Server 2008), or select a printer name, select the **Print Server Properties** button (Windows 7, Server 2008R2). Methods available include
    - Add Driver — new driver installation, creating a new printer and adds driver version to the Microsoft driver store.
    - Replace driver — for the selected printer, replaces the currently used driver with a driver of the same name taken from the Microsoft driver store.
  - **Print Management Console:** See Microsoft documentation.
  - **PrintUI:** Allows common print administration tasks from a command prompt or script, including adding a new printer, delete existing printing, add or remove host connections.
- Point and Print:** The HP DJ UPD can be vended from a server to clients connected to a shared printer, performing either a new printer installation, or driver upgrade.

### Installation through Visual Basic script

A Visual Basic script is provided along with the HP DJ UPD. This script should be taken as a reference on how to install the UPD connecting by TCP/IP to any supported printer from the command prompt. Final IT administrators can take this sample script and adjust it according to their own needs. HP will not provide any support for customizing nor modifying the provided script.

The sample script performs three main tasks per execution:

- Port creation
- Driver installation
- Printer Queue creation

### Configuration file

Along with the `HP_DJ_UPD_install.vbs`, the file `config.cfg` is provided to set some default installation values.

The `config.cfg` contains the following settings:

```
kSharing=0
kVerbosity=1
kDriverSubfolder=HP-GL/2
kPort=16.23.12.14
```

**kSharing:** sets if the printer is shared or not

**kVerbosity:** sets the message verbosity level while installing

**kDriverSubfolder:** sets the subfolder name inside the script installation path where the inf and the driver binary files are located. This setting is used when the second argument is not present while calling the script

**kPort:** sets the port. This setting is used as a port when the script is called with zero arguments. TCP/IP ports (both IP or Hostaddress) as well as local ports are supported

### Calling the script with zero arguments

When the script is executed without any argument, both the port and the driver path are read from the `config.cfg` file.

Example:

```
C:\script>cscript HP_DJ_UPD_install.vbs
```

### Calling the script with one argument

When calling the script with one argument, you can either pass a Printer Name (hostname), IP Address or a local port path. The script will create a port with name `HPDSJUPDPort_XXX` where `XXX` is the argument passed.

Example:

```
C:\script>cscript HP_DJ_UPD_install.vbs 16.23.12.15
```

Or

```
C:\script>cscript HP_DJ_UPD_install.vbs HP_T1500_B2_corridor
```

Or

```
C:\script>cscript HP_DJ_UPD_install.vbs c:\myfolder\myfile.prn
```

### Calling the script with two arguments

When calling the script with two arguments, the first one will be the port (IP/Hostname/localport), and the second one will be the path from where the driver will be installed.

Example:

```
C:\script>cscript HP_DJ_UPD_install.vbs 16.23.12.15 c:\DJ_UPD_HPGL2_driver
```

Or

```
C:\script>cscript HP_DJ_UPD_install.vbs HP_T1500_B2_corridor
```

```
c:\DJ_UPD_PS3_driver
```

Or

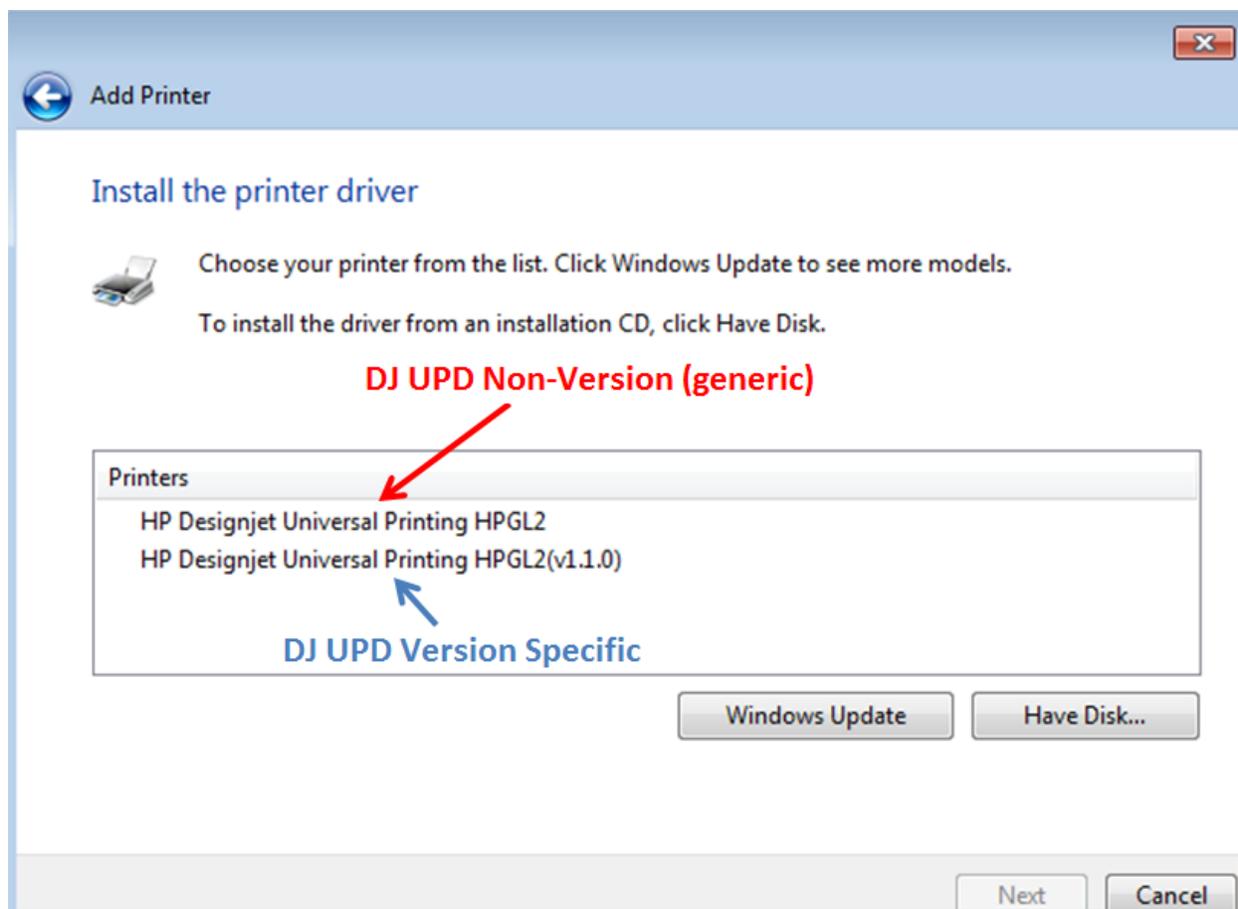
```
C:\script>cscript HP_DJ_UPD_install.vbs c:\myfolder\myfile.prn
```

```
c:\DJ_UPD_PS3_driver
```

### Explanation of driver name

During a new driver installation, or when changing the driver version for an existing installed HP DJ UPD printer, two choices exist for the HP DJ UPD. Selecting either option installs the same version of the driver offering the same set of capabilities.

**Figure 4-2** Driver names in the Add Printer Wizard



Following installation, based on the selection, the driver name of the HP DJ UPD printer will be either the version specific or non-version specific HP DJ UPD.

### HP Universal Print Driver name selection

The first option, "HP Designjet Universal Printing", referred to as the non-version specific HP DJ UPD, will install or upgrade all printers using the HP DJ UPD to the driver version being installed.

For example, if HP DJ UPD v5.0 is installed on the system as "HP Designjet Universal Printing HPGL2" and the administrator installs the HP DJ UPD v5.1 selecting the non-version HP DJ UPD during installation, every printer using the driver name "HP Designjet Universal Printing HPGL2" will be upgraded.

The second option, "HP Designjet Universal Printing(vX.Y)", referred as the version specific HP DJ UPD, creates a version specific driver name instance of the HP DJ UPD. Selecting a version specific driver name of the HP UPD does not upgrade HP DJ UPD's printers that have a different driver version assigned to the printer. This allows a print server to have multiple driver versions of the HP DJ UPD on a single system. For example, the following driver names could all be on the same host:

- HP Designjet Universal Printing HPGL2 (v5.1)
- HP Designjet Universal Printing HPGL2 (v5.0)
- HP Designjet Universal Printing PS3 (v4.7)
- HP Designjet Universal Printing PS3
- HP Designjet Universal Printing PS3 (v4.8)

### Some Upgrade Examples:

Example 1:

- “Printer Queue 1” is installed with driver “HP Designjet Universal Printing HPGL2” and version 5.0
- “Printer Queue 2” is installed with driver “HP Designjet Universal Printing HPGL2 (v5.0)”
- “Printer Queue 3” is installed with driver “HP Designjet Universal Printing HPGL2” and version 5.0
- Updating “Printer Queue 1” to driver “HP Designjet Universal Printing HPGL2” and version 5.1 results in:
  - “Printer Queue 2” driver is not updated
  - “Printer Queue 3” driver is updated to driver “HP Designjet Universal Printing HPGL2” of version 5.1

#### Example 2:

- “Printer Queue 1” is installed with driver “HP Designjet Universal Printing HPGL2” and version 5.0
- “Printer Queue 2” is installed with driver “HP Designjet Universal Printing HPGL2 (v5.0)”
- “Printer Queue 3” is installed with driver “HP Designjet Universal Printing HPGL2” and version 5.0
- Updating “Printer Queue 2” to driver “HP Designjet Universal Printing HPGL2 (v5.1)” results in:
  - “Printer Queue 1” driver will not be updated
  - “Printer Queue 3” driver will not be updated
  - “Printer Queue 2” driver will be updated to “HP Designjet Universal Printing HPGL2 (v5.1)”

**NOTE: Maintenance Releases:** Only Major.Minor version numbers display in the MODEL field, which becomes the printer model name. For example, “HP Designjet Universal Printing HPGL2 (v5.1)” displays in the MODEL field for version 5.1.x of the HP DJ UPD. If version 5.1.0 is installed followed by an installation of version 5.1.1, all printers on the print server using driver version 5.1.0 would upgrade to version 5.1.1.

**NOTE: Printer name matches driver name:** By default, the printer name will match the driver name defined in the \*.inf file. For example, both the driver name and the printer name of the HP UPD are "HP Designjet Universal Printing HPGL2 (v5.1)". HP recommends administrator's change the printer's name to be different than the installed driver name.

**Identify the driver name for the HP DJ UPD printer:** Follow these steps to view the driver name for an installed printer:

1. From a command prompt (**Start-Run**, type cmd, and press enter) type the following command: control printers and then press [Enter](#).
2. Within the **Printers** folder, select the installed driver, right mouse click, and then select either **Properties** or **Printer Properties**, select the **Advanced** tab, see the "Driver" for installed driver's name.

## Best practices — upgrade

**Reasons to Upgrade:** Upgrading to the current HP DJ UPD is advised for customers that:

- Need new print driver features introduced in the release.
- Are experiencing symptoms from resolved defects documented in the release notes.
- Require support for recent Microsoft operating system releases.
- Require support for a new HP Designjet printer recently purchased and not supported on previous HP DJ UPD releases.

**Predictable Upgrades:** The most consistent and reliable method to obtain predictable results is the creation of new printers using the new driver version, forcing all settings to installation defaults.

**Testing:** HP performs upgrade testing using typical operating systems. Your environment is likely different from our test environments, so you are strongly encouraged to perform your own upgrade testing in a test environment.

#### **Printer name should be different than driver name:**

The printer name is an arbitrary name assigned to identify a print queue. By default, the HP DJ UPD install sets the HP DJ UPD printer name to be the same as the driver name (i.e. "HP Designjet Universal Printing HP-GL/2"). The printer name can be changed without affecting the driver name. HP recommends administrator's change the default printer name to not match the driver name. The printer can be viewed, defined, or changed from several access points:

- During installation, such as Add Printer Wizard, the name can be specified, or the HP UPD

installation default of "HP Designjet Universal Printing [PDL]" or "HP Designjet Universal Printing [PDL] (vX.Y)" will be applied. If a printer with the default name exists on the system, "(Copy 1)" will be appended to the HP Designjet UPD default name.

- After installation, the printer name can be viewed or changed in the **Printer's** folder by selecting the printer and right mouse clicking **Printer Properties**. The **Name** field is located at the top of the **General** tab.

#### **Benefit of HP DJ UPD version name installation:**

For shared printers (i.e. print servers) HP recommends implementation of the version specific driver name. The version specific model selection during HP DJ UPD installation allows control over the upgrade and migration strategies.

Multiple versions of the HP DJ UPD could exist on the same system. For example v4.7, v5.0 and v5.1 could all co-exist on the same system assuming each was installed choosing the version specific driver name. This benefit allows customers to upgrade drivers for newly released HP devices without having to re-test or re-certify legacy devices for every new release of the driver. For instance, assume a print server has 100 existing printers installed all using the 5.0 version of HP Designjet Universal Printing HP-GL/2. Further, assume that new HP Designjet printers have been purchased and only support v5.1 of the HP DJ UPD. The administrator can create new printers using the HP DJ UPD v5.1 version specific installation without affecting existing printers that use a previous version of the HP Designjet Universal Print Driver.

## **Driver upgrade steps**

This section assumes the reader has an understanding of the following:

- Microsoft Windows driver architecture
- HP DJ UPD supported upgrades
- HP DJ UPD installation methods
- Explanation of driver name
- Best practice-upgrade

#### **Settings retention:**

The settings retained during an upgrade are dependent upon how the driver was first installed. If the Printer was installed with the non-version specific HP DJ UPD, driver settings will be retained during the upgrade. If the printer was installed with the version specific HP DJ UPD, some settings may not be retained during the upgrade. Those settings not retained will assume the defaults of the newly installed driver.

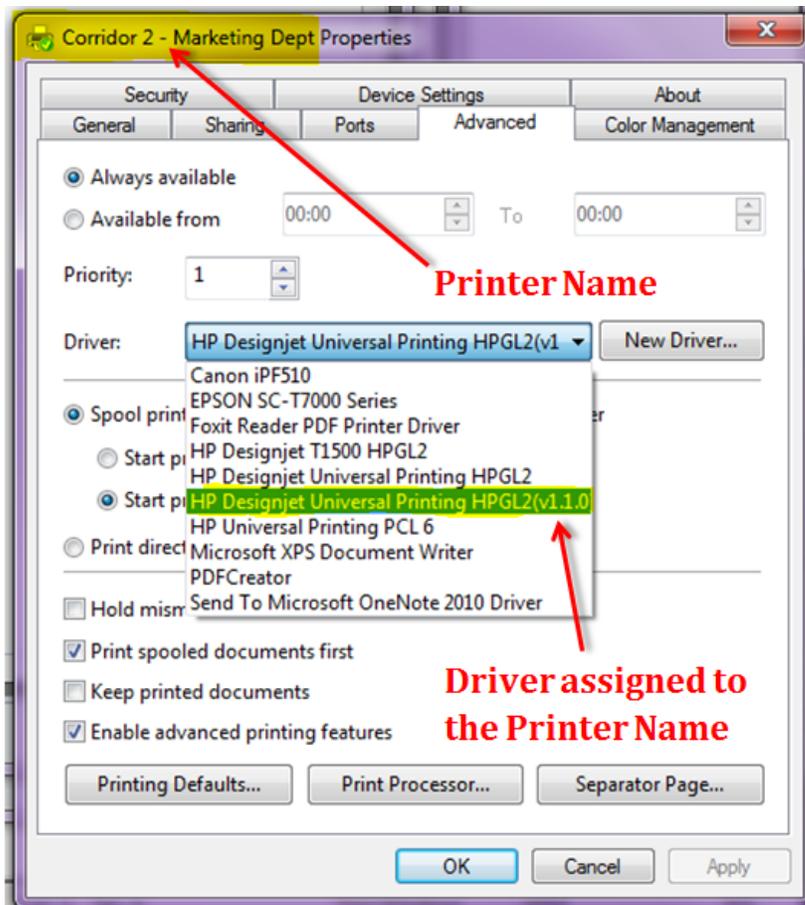
#### **Upgrade Steps:**

HP recommends the following steps to upgrade the HP DJ UPD on print servers. These steps complete a sequence of events to ensure the administrator's personal print settings are not applied to the printer during the driver version upgrade. The settings applied become the default settings of the shared printer and Point and Print clients, and all file changes as a result of driver upgrade are completely registered to the system. The steps are not scriptable using supported methods, and are dependent upon environment size; this should be accounted for in project planning.

After upgrading the system to a new driver version, it is recommended to reboot the system to force replacement of locked files shared by the Microsoft print system.

Assign the newly installed driver version to the existing HP DJ UPD printers.

- Example steps provided: From the **Printers** folder, select **Printer Properties** for the HP DJ UPD printer, and click the **Advanced** tab. Change the driver to the newly installed HP DJ UPD version. For example, if the printer name is currently set to "Corridor 2- Marketing Dept", change the **Driver** selection to "HP DJ Universal Printing HP-GL/2 (v5.1)" to and click **OK** to assign the printer name to the new driver version.
- **Figure 5-3** Assign newly installed driver to existing HP DJ UPD printers



## Uninstall the HP UPD

HP recommends using Microsoft operating system utilities to remove the HP Designjet Universal Print Driver from the Microsoft Windows operating system. This is the safest method to uninstall print drivers. HP does not recommend manually editing the Windows Registry or manually deleting driver files. This can destabilize the printing environment and is not supported.

HP recommends the following procedure to remove the HP DJ UPD:

1. Delete all printers that use the HP DJ UPD.
2. In the **Devices and Printers** folder, select any printer, and then click **Print Server Properties**.
3. From the **Server Properties** window, select the **Drivers** tab.
4. Select the HP DJ UPD driver(s) to be uninstalled, and click **Remove**.

**NOTE:** If Windows displays an error message that the driver is in use; stop and restart the print spooler using one of the following methods:

- ▲ From a command prompt, type “net stop spooler” and then press **Enter** to stop the print spooler. Type “net start spooler” and then press **Enter** to restart the print spooler.

**-or-**

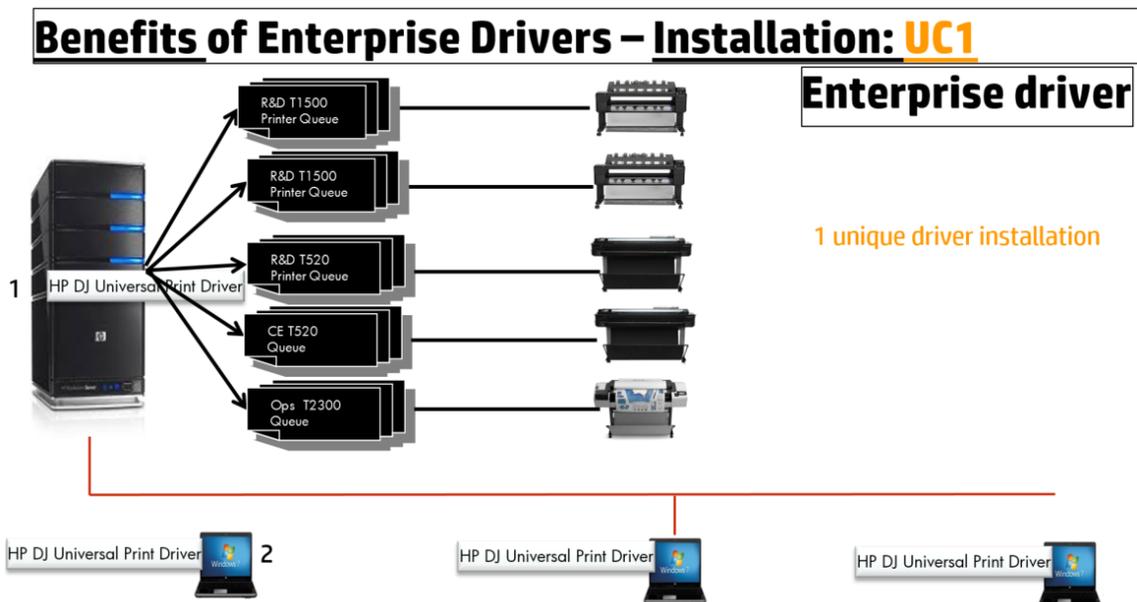
Open the **Services** applet in Control Panel (Start-Run-services.msc), select **Print Spooler**, and then click **Restart**.

Once the print spooler has been restarted, repeat the steps above to remove the print driver.

## 5 HP Designjet UPD Features and Use Cases

### Use Case

Only one driver needs to be installed to support most of Designjet printer models currently available.

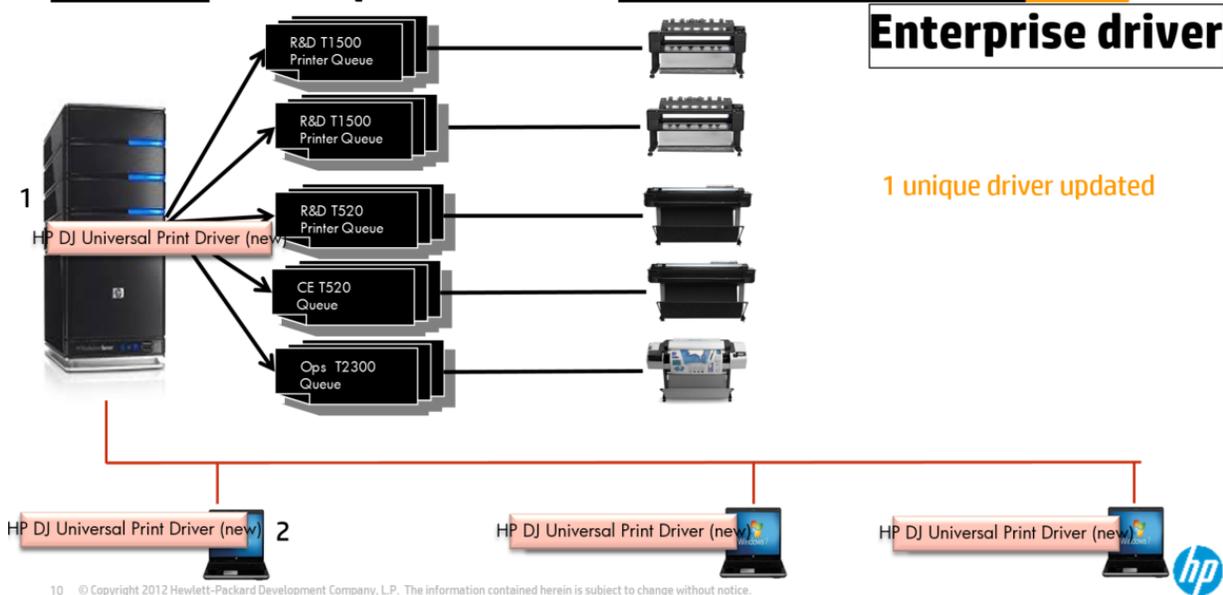


### Use Case 2

#### Case 2.1

**Unversioned driver update:** when a new driver is released supporting a new printer model, the user substitutes all printers from old driver to the new one

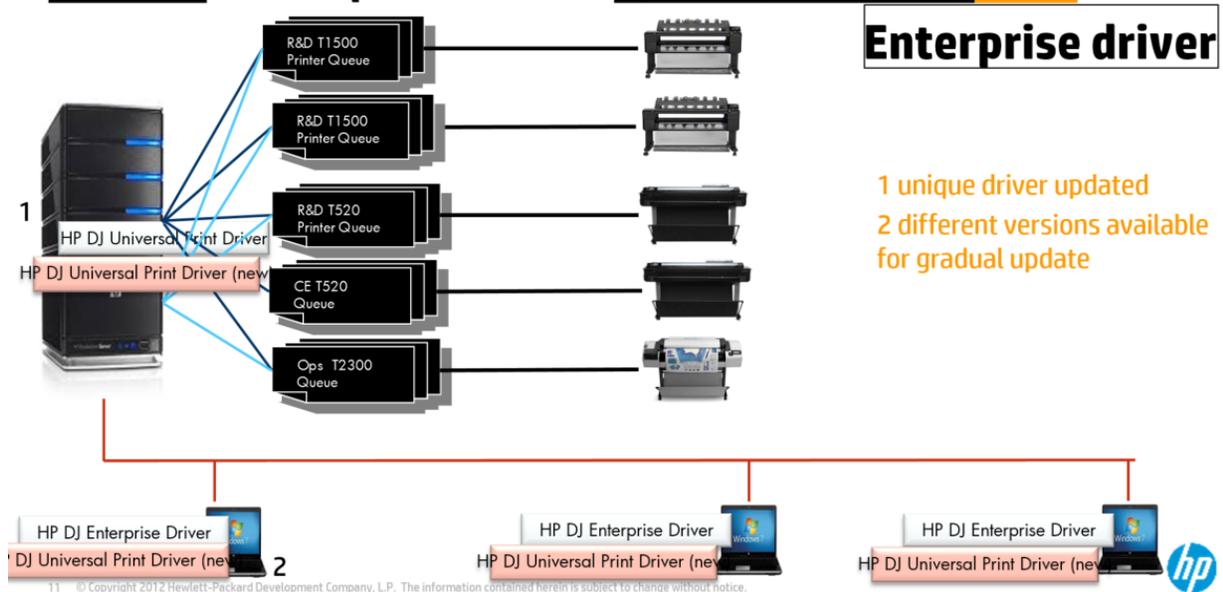
## Benefits of Enterprise Drivers – Update (unversioned): UC2.1



### Case 2.2

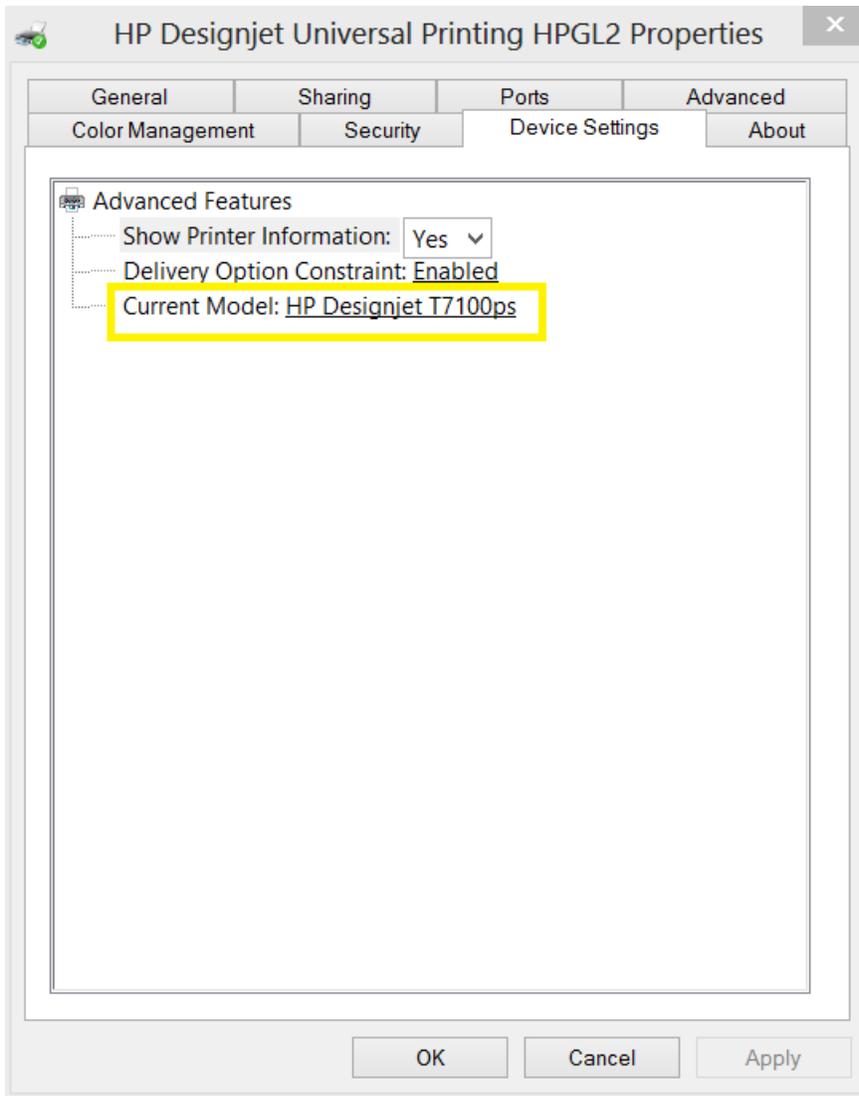
**Versioned driver update:** when a new driver supporting a new printer model is released, the user can install the new driver for the new printer without being forced to change the old driver being used by previous printers

## Benefits of Enterprise Drivers – Update (versioned): UC2.2

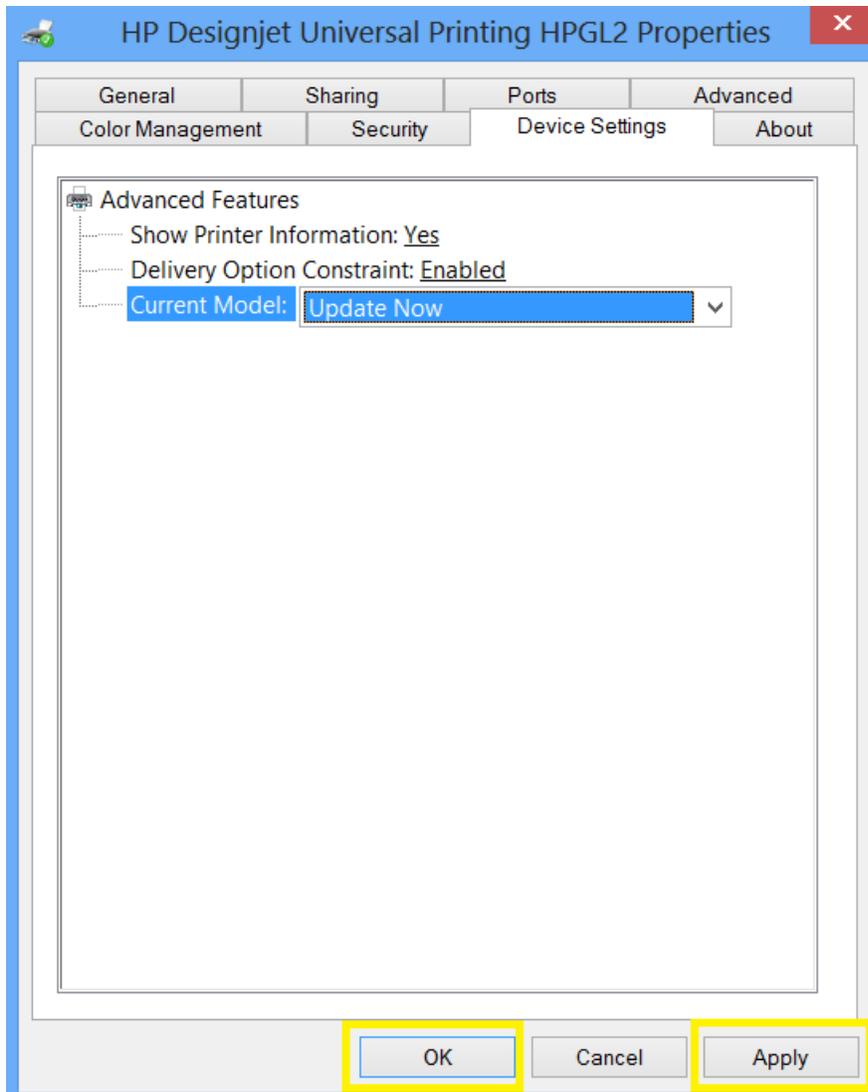


## Update Current Printer Model functionality

**Current Model** is a functionality that you can find in the Printer Properties UI, in the Device Settings tab:



The motivation behind this functionality is that some IT administrators prepare their IT infrastructure even before unpacking the printers. To do that, they install the driver in the server and the final user computers. When the printers are ready and reachable through the network, they set the printer port to the IP address or Hostname of the device, and select the **Update Now** option from the combo box, and then click on the **OK** or **Apply** buttons:

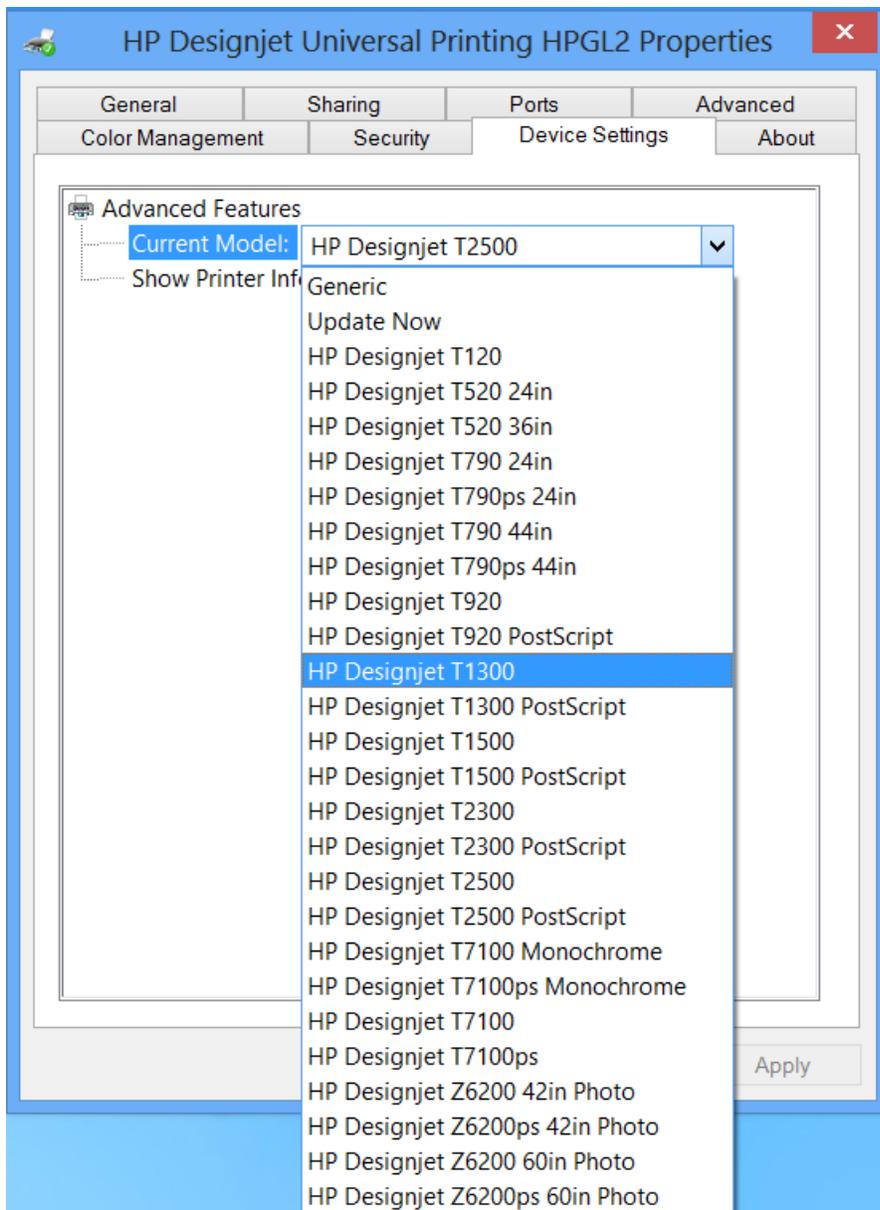


At this point, the driver queries the device to which it is connected, and configures the printer according to the printer model returned by the device. This is also known as automatic configuration of the printer.

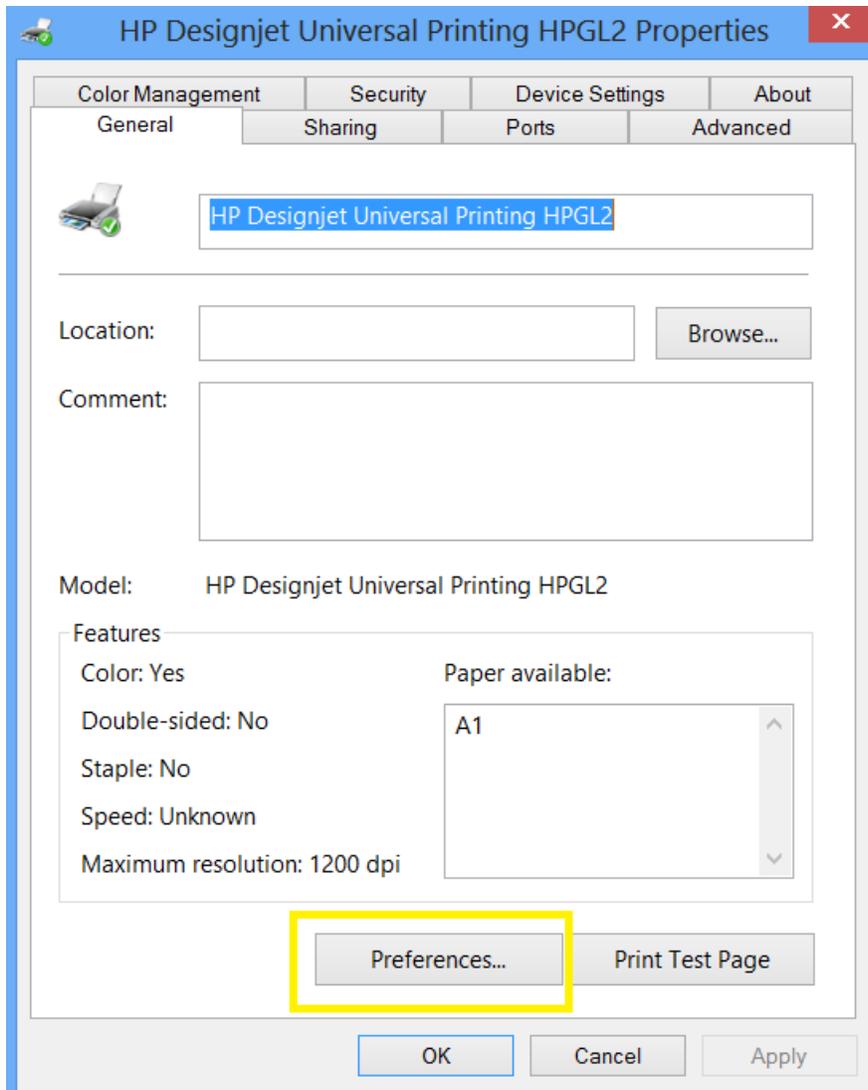
As the HP Designjet Printer specific drivers are Printer Model oriented instead of Feature oriented, in the Current Model combo box, all the printer models supported are also selectable just in case you require setting it manually. This functionality is useful in case you want to print to a local port, and keep the printouts in the hard disk to submit them later to the printer by other means (EWS, IO program, etc.). It is also useful if you wish to print to a model that is not supported by the UPD that is very similar to one supported, and much more complete than the Generic model.

### **Current model: setting it manually**

As mentioned before, you may want to set the printer model manually without querying the device. This can be achieved by setting your desired printer model option in the combo box, and clicking on the **Apply** or **OK** buttons.



If you click **Apply** but do not close the Printer Properties UI, and then you click the **Preferences** button, you will still get the older printer model. You need to close and reopen Printer Properties in order to get the new model from Preferences:



Similarly if you change the printer model from the combo box and click on the **Apply** or **OK** buttons, applications that had the Printing Preferences UI already opened will continue to use the older printer model. Any application that opens the Printing Preferences UI after either clicking on the **Apply** or **OK** buttons will get the newer printer model.

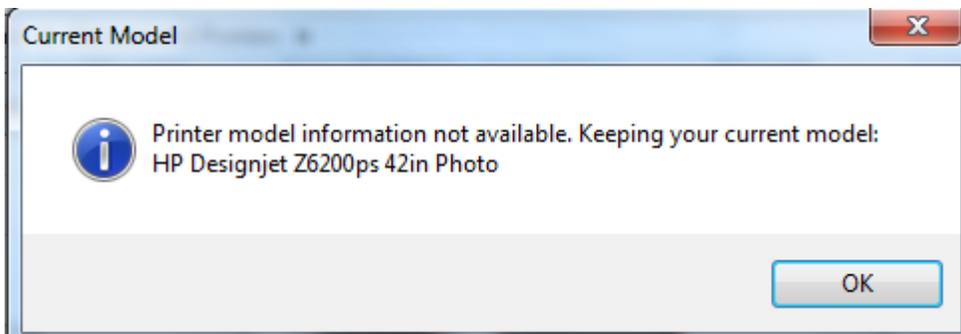
This **Apply** and **OK** button behavior with previous instances of Printing Preferences or Printer Properties also applies to the **Update Now** option.

## Current model: setting it automatically

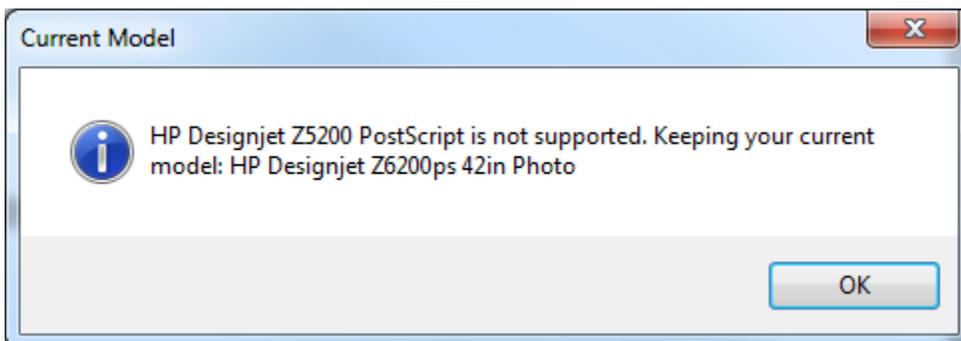
To set the printer model automatically you need to select **Update Now** option from the current Model combo box, and then click on the **Apply** or **OK** button.

The query can return four results:

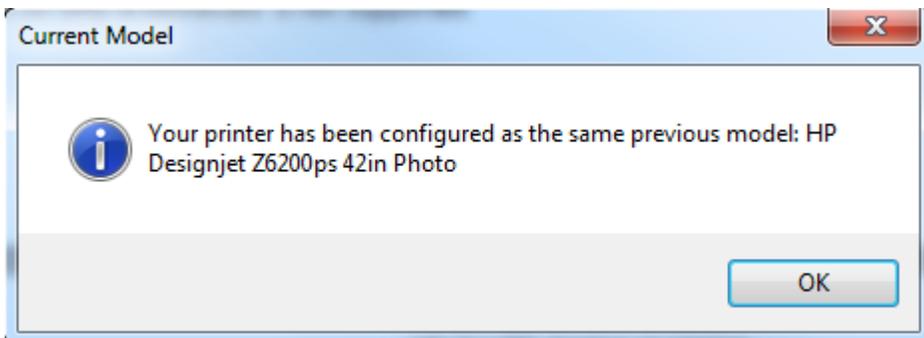
- 1) **Not available.** The printer is not connected to a network printer



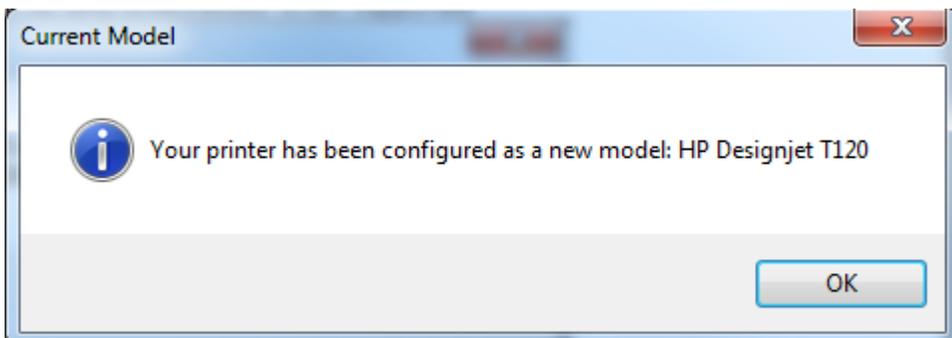
2) **Not supported.** The DJ UPD connected device is not supported



3) **Printer model supported and the same as the previous one.** The printer will not be modified.



4) **Printer model supported and different from the previous one.** The printer will be modified.

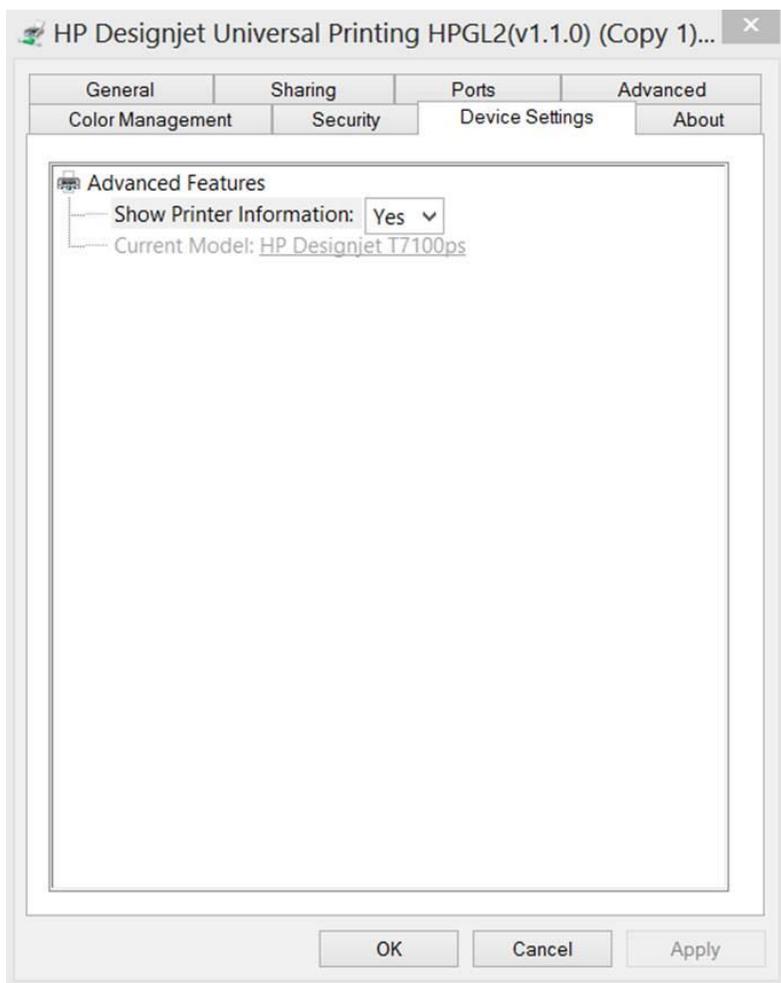


## User profile considerations for Current model

Please note that setting the printer model from the “Printer Properties” window requires that the user is included in the system’s administrators group, if not, although the “Your printer has been configured as a new model” may appear, the new settings will not be applied and the Current Model will not be updated.

## Current model in client-server

In a client-server scenario, the current model combo box is only available from the server. The client is able to view the current model but is not able to modify the setting. The process is that printer model modifications will be completed in the server, and the client follows current selections in the server. Whenever the client needs the printer reads current printer model in the server, and modifies its printer accordingly.



Due to an architectural limitation, the new printer model in the server is available to the client’s computers one minute after the modification is completed in the server. During that minute after the modification, clients use the previous model.

## Generic Printer

The user can select a Generic Printer model when he wants to print to a non-supported printer model. This Generic model offers a subset of common features that are common to the Designjet portfolio. There is a Generic Model for HP-GL/2 and one for PS3.

## UI Features

The HP DJ UPD UI contains all the features that are useful across all Designjet models:

**Available UI features:** Quicksets, Document size, Print with margins (Standard, Oversize, Clip contents by margins), Custom paper size, Orientation, Current loaded paper, Show preview, Paper source (single sheet, roll1, roll2, roll3), Paper type (see below; supported medias), Print quality slider, Custom print quality (fast, normal and best), Orientation, Rendering and Printing resolution, Concept preview, Resizing, Automatic cutter, Remove top/bottom bland areas, Remove margins between pages, Page order, Copies, Collate, Rotation combo (avoid clipping, autorotate, rotate 90), Roll width for autorotate, Color (color, grayscale, black and white), Color management, Max application resolution, Resolution managed by application, mirror image, Crop lines

**Non-available UI features:** Borderless, advanced checkboxes in custom print quality (maximum detail, more passes), Delivery options, Hold for attended

## Print Quality

	Resolution	Quality level	Economode
Economode	600	Fast	On
Fast	600	Fast	Off
Normal	600	Normal	Off
Best	600	Best	Off

## Margins

The margins reported to the application in the case of a roll are 5mm for each side. Single sheet reports 17mm as bottom margin, and 5mm for top, left, and right margins.

## Document size

Supported document size up to 60"

## Media Type

A minimal set of paper types is offered to the user:

- Plain Paper (plain)
- Coated paper (coated)
- Heavyweight Coated paper (HWC)
- Photo Gloss Paper (glossy)
- Photo Semi-Gloss/Satin Paper (glossy)
- Photo Matte Paper (glossy)
- Backlit Material (glossy)
- Transparent/Clear Film (plain)
- Natural Tracing Paper (plain)

Default option is 'Use printer settings'.

## Differences with discrete driver

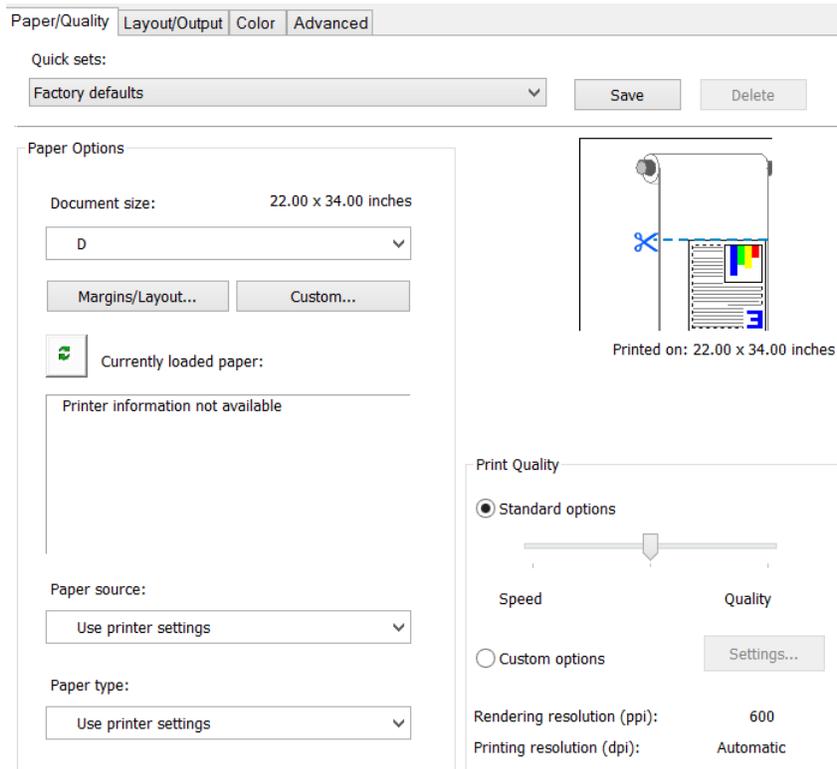
Users can find several differences comparing the printer specific driver versus the HP DJ UPD, depending when the printer (and the discrete driver) was released. The user may find some other differences such as the fact that the Services Tab has been removed from HP DJ UPD.

Please note also that ePrint and Share does not support HP DJ UPD.

## Features re-layout

Some features have been moved from tab to tab in the Printing Preferences UI. Also the wordings of some features may be modified. Some features may also be moved inside the same tab.

Below are four screenshots of the HP DJ UPD driver tabs driver, shown to reference expected behavior.



Paper/Quality | Layout/Output | Color | **Advanced**

Quick sets:  
Factory defaults [Save] [Delete]

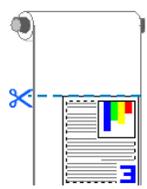
---

**Resizing Options**

Actual size

Fit to:  
D

% of actual size:  
100



Printed on: 22.00 x 34.00 inches

**Orientation**

Portrait  Landscape

**Rotation**

Rotation: Avoid Clipping

Roll width: From printer

**Output Options**

Copies: 1 [Collate] [Page Order: First page on top]

**Roll Options**

Disable automatic cutter  
 Remove blank areas  
 Crop lines  
 Remove margins between pages

**Accounting**

Account ID: [ ]

Paper/Quality | Layout/Output | Color | **Advanced**

Quick sets:  
Factory defaults [Save] [Delete]

---

**Color Options**

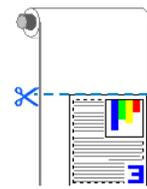
Print in color  
 Print in grayscale  
 Print in pure black and white

**Color management:**

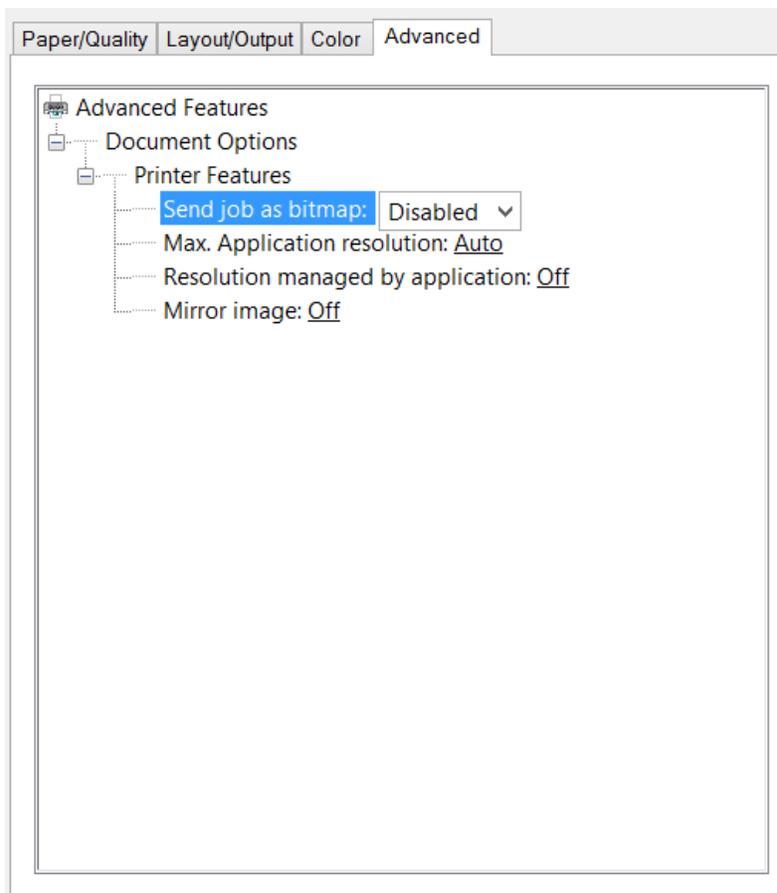
Application managed colors  
 Printer managed colors

Source profile: sRGB

Advanced color adjustments [Settings...]



Printed on: 22.00 x 34.00 inches



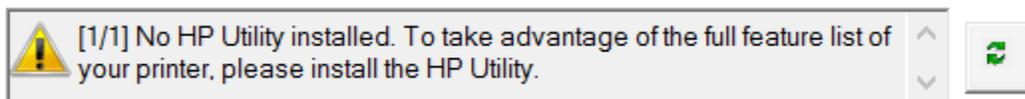
The most prominent features modified are: orientation, copies and collate, and page order.

### Services tab

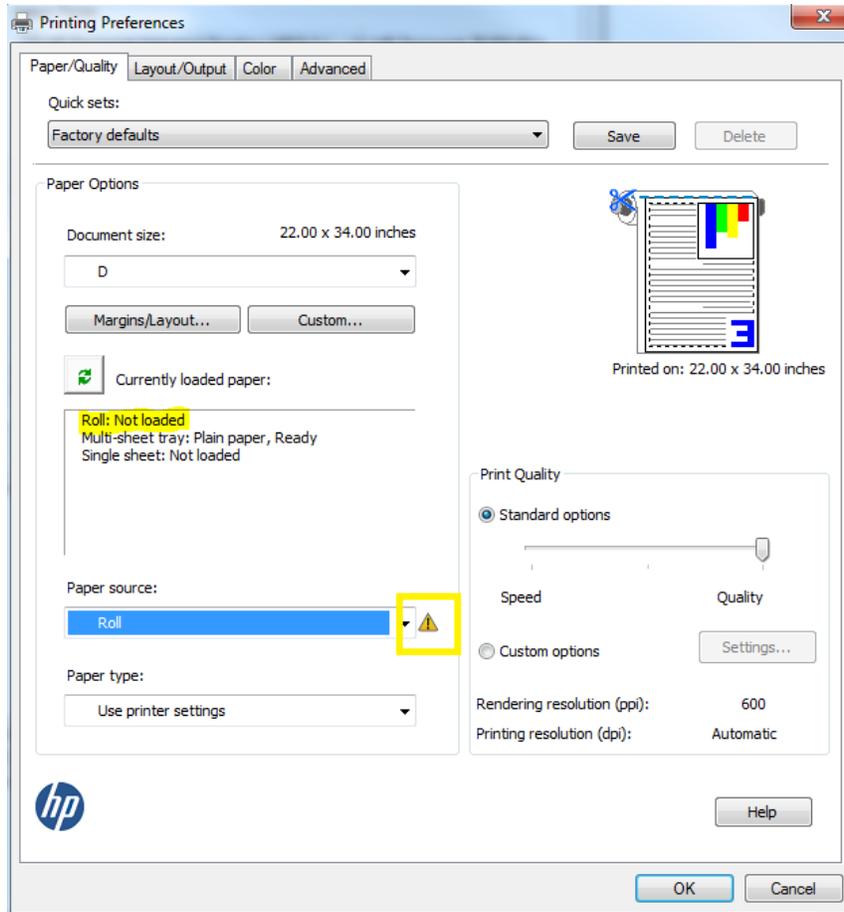
The Services tab has been removed from HP DJ UPD as it is not shipped with HP Designjet Utility. Internet links inside services tab are also not be available.

### Alerts

The alerts information is not available in HP DJ UPD



Instead of these kind of alerts, a yellow triangle is shown when there is a mismatch in user selected option and what is available in the printer.



## Appendix: Visual Basic Script

```

.....
' HP_DJ_UPD_install command line script
.....
option explicit

'Main program
Main
Sub main
    Dim hostAddress, infFile, path, printer, platform, driverName, portName, local
    'Variables to read configuration settings from config.cfg
    Dim configVerbosity, configSharing, configDriverSubfolder

    'Read config settings from config.cfg
    ReadConfigValues configSharing, configVerbosity, configDriverSubfolder, portName

    if configVerbosity = 1 then
        wscript.echo "Sharing = " + configSharing
    end if

    'Get the computer platform (x64 or x86)
    GetPlatform platform
    if configVerbosity = 1 then
        wscript.echo "Platform = " + platform
    end if

    'Parse command line arguments
    ParseCommandLine hostAddress, path, local, portName
    if local = 0 then
        portName = "HPDSJUPDPort_" + hostAddress
    end if

    if Not (Ping(hostAddress)) and configVerbosity = 1 then
        wscript.echo "IP or Hostname " + hostAddress + " unreachabeable. There may be some delay with the
installation"
    end if

    if configVerbosity = 1 then
        wscript.echo "IP or Hostname = " + hostAddress
        wscript.echo "Inf path = " + path
        wscript.echo "Port name = " + portName
    end if

    'Get the inf file from path
    if Not (GetInfFile(path, platform, configDriverSubfolder, infFile)) then
        wscript.echo "No inf found in " + path
        wscript.echo "Installation not done"
        wscript.quit(1)
    end if

    if configVerbosity = 1 then
        wscript.echo "Inf file = " + infFile
    end if

```

```

'Get printer name from inf
ReadInf infFile, printer
if configVerbosity = 1 then
  wscript.echo "Candidate Printer Name = " + printer
end if

driverName = """" + printer + """"

' Check the actual name of queue printers installed to choice the name that we use to install new queue
CheckPrinterName printer

if configVerbosity = 1 then
  wscript.echo "Final Printer Name = " + printer
end if

' Add Port
if local = 0 then
  AddTCPIPPort hostAddress, portName
else
  if not (PortExists(portName)) then
    AddLocalPort portName
    if configVerbosity = 1 then
      wscript.echo "Restarting the spooler..."
    end if
    WScript.Sleep(10000)
  end if
end if
' Install Driver and Printer
DoInstall printer, infFile, portName, driverName, configVerbosity

' Share printer if needed
if configSharing = 1 then
  SharePrinter printer
end if
wscript.echo "Installation Done"

end sub

```

```

.....
' This function allows the user to install new Driver and Printer on client

```

```

' Input Params:

```

```

' - printer: The Printer Name

```

```

' - infFile: Full path of INF file

```

```

' - portName: Port name

```

```

' - strDriver: Driver name

```

```

' Output Params:

```

```

' - N/A

```

```

.....
Public Function DoInstall (printer, infFile, portName, strDriver, configVerbosity)

```

```

  Dim strShellLine, IShellResults, objShell

```

```

  Set objShell = WScript.CreateObject ("WScript.shell")

```

```

  strShellLine = "rundll32 printui.dll, PrintUIEntry /if /b " + printer + "/f " + infFile + "/r " + portName + "/m " + strDriver

```

```

if configVerbosity = 1 then
    wscript.echo strShellLine
end if
lShellResults = objShell.Run(strShellLine,1,True)
if lShellResults = 1 then
    wscript.echo "Error on driver instalation. Contact with your IT administrator"
    ShowHelp
end if
end function

```

```

.....
' This function allows the user to add new TCPIPort on computer
' Input Params:
' - hostAddress: The IP address or hostname of the port
' - portName: Name of the port
' Output Parmas:
' - N/A
.....

```

```

Public Function AddTCPIPort(hostAddress, portName)
    Dim objWMIService, objNewPort

```

```

    Set objWMIService = GetObject("winmgmts:{impersonationLevel=impersonate}!\\.\root\cimv2")
    Set objNewPort = objWMIService.Get ("Win32_TCIPPrinterPort").SpawnInstance_

```

```

    objNewPort.Name = portName
    objNewPort.Protocol = 1
    objNewPort.HostAddress = hostAddress
    objNewPort.PortNumber = "9100"
    objNewPort.SNMPEEnabled = False
    objNewPort.Put_
End Function

```

```

.....
' This function allows the user to add new LOCALport on computer
' Input Params:
' - portName: Name of the local port
' Output Parmas:
' - N/A
.....

```

```

Public Function AddLocalPort(portName)

```

```

    Dim wmiSvc, spooler, reg
    Const HKLM = &h80000002
    Set wmiSvc = GetObject("winmgmts:\\.root\cimv2")
    Set spooler = wmiSvc.Get("Win32_Service.Name='spooler'")
    Set reg = GetObject("winmgmts:root\default:StdRegProv")
    spooler.StopService
    reg.SetStringValue HKLM, "SOFTWARE\Microsoft\Windows NT\CurrentVersion\Ports", portName, ""
    spooler.StartService
End Function

```

```

.....
' This function recover the params gived by user
' Input Params:
' - N/A
' Output Parmas:

```

' - hostAddress: The printer IP address  
 ' - strParamPath: The optional path where the installation files are located  
 .....

function ParseCommandLine(hostAddress, strParam, local, portName)

```

  Dim oArgs, iIndex, pos
  set oArgs = wscript.Arguments
  If oArgs.Count = 0 then
    local = 1
    exit function
  ElseIf oArgs.Count = 1 then
    if (oArgs(0) = "/?") then
      ShowHelp
      exit function
    ElseIf (InStrRev(oArgs(0), "\")) then
      local = 1
      portName = oArgs(0)
      CheckPortName(portName)
    else
      local = 0
      hostAddress = oArgs(0)
    end if
  ElseIf oArgs.Count = 2 then
    If (InStrRev(oArgs(0), "\")) then
      local = 1
      portName = oArgs(0)
      strParam = oArgs(1)
      CheckPortName(portName)
    else
      local = 0
      hostAddress = oArgs(0)
      strParam = oArgs(1)
    end if
  end if
end function

```

.....  
 ' This function check the system bits

' Input Params:

' - N/A

' Output Params:

' - platform: The computer platform  
 .....

function GetPlatform(platform)

```

  dim Shell, Is64BitOs
  set Shell = CreateObject("WScript.Shell")
  on error resume next
  Shell.RegRead "HKLM\Software\Microsoft\Windows\CurrentVersion\ProgramFilesDir (x86)"
  Is64BitOs = Err.Number = 0
  on error goto 0
  if Is64BitOs then
    platform = "x64"
  else
    platform = "x86"
  end if

```

end function

```

.....
' This function recovers information from Driver instalation path
' Input Params:
' - path: The Path of the instalation files
' Output Parm:
' - infFile: The INF full path file
.....
function GetInfFile(path,platform,configDriverSubfolder,infFile)
  Dim FSO, objDir, altem, found, subpath
  Dim WshShell

  found = false
  if path <> "" then
    path = path + "\"
  else
    Set WshShell = WScript.CreateObject("WScript.Shell")
    path = wshshell.currentdirectory + "\" + configDriverSubfolder + "\"
  end if

  Set FSO = CreateObject("Scripting.FileSystemObject")
  if Not FSO.FolderExists(path) then
    wscript.echo "Folder does not exist"
    wscript.echo "Installation not done"
    wscript.quit(1)
  end if

  Set objDir = FSO.GetFolder(path)

  For Each altem In objDir.Files
    If LCase(Right(Cstr(altem.Name), 3)) = "inf" Then
      infFile = path + altem.Name
      found = true
      exit for
    end if
  Next

  if found = false then
    ' path does not contain inf. Let's add x86 and x64 subfolders
    if platform = "x86" then
      subpath = path + "win2k_xp_vista\"
    else
      subpath = path + "winxp_vista_x64\"
    end if
    if Not FSO.FolderExists(subpath) then
      wscript.echo "No inf found either in " + path + " or in " + subpath
      wscript.echo "Installation not done"
      wscript.quit(1)
    end if
    Set objDir = FSO.GetFolder(subpath)

    For Each altem In objDir.Files
      If LCase(Right(Cstr(altem.Name), 3)) = "inf" Then

```

```

        infFile = subpath + altem.Name
        found = true
        exit for
    end if
Next
end if

GetInfFile = found

end function

.....
' This function read the inf file to obtain information about driver
' Input Params:
' - strInfPath: The INF full path file
' Output Params:
' - printer: The name of the printer
.....
function ReadInf(strInfPath, printer)

    Dim FSO, objFile, printerSectionFound, leng, line
    Const ForReading = 1
    printerSectionFound = 0

    Set FSO = CreateObject("Scripting.FileSystemObject")
    set objFile =FSO.OpenTextFile(strInfPath, ForReading)

    Do Until objFile.AtEndOfStream
        line = objFile.Readline
        if printerSectionFound = 1 and Left(line,1) = """" then
            'Getting first quoted text (""")
            leng = len(line)
            leng = leng - 1
            line = Right(line,leng)
            leng = instr(line,"""")
            leng = leng - 1
            printer = Left(line , leng)
            exit function
        end if

        if line = "[HP.NTAMD64]" or line = "[HP]" then
            printerSectionFound = 1
        end if
    Loop
end function

.....
' This function checks if printer name already exists. If it exists, it will return a new
' name with the format printerName(Copy x). If it does not exists, the name passed will not get modified
' Input Params:
' - printerName: The name of the printer to install
' Output Params:
' - printerName: The name of the printer with no duplicates (copy x)
.....

```

```
Public Function CheckPrinterName(printerName)
```

```
    Dim index, candidateName
```

```
    candidateName = printerName
```

```
    index = 0
```

```
    While CompareName(candidateName)
```

```
        index = index + 1
```

```
        candidateName = printerName + " (Copy " + Cstr(index) + ")"
```

```
    Wend
```

```
    printerName = """" + candidateName + """"
```

```
end function
```

```
.....
```

```
' This function returns 1 if printer name already exists. Otherwise it returns 0
```

```
' Input Params:
```

```
' - printerName: The name of the printer to compare
```

```
.....
```

```
Public Function CompareName(printerName)
```

```
    Dim WshNetwork, objPrinter, collInstalledPrinters, objWMIService
```

```
    Set WshNetwork = CreateObject("WScript.Network")
```

```
    Set objWMIService = GetObject("winmgmts:{impersonationLevel=impersonate}!\\.\root\cimv2")
```

```
    Set collInstalledPrinters = objWMIService.ExecQuery("Select * from Win32_Printer")
```

```
    For Each objPrinter in collInstalledPrinters
```

```
        if (objPrinter.Name = printerName) then
```

```
            CompareName = 1
```

```
            exit function
```

```
        end if
```

```
    Next
```

```
    CompareName = 0
```

```
end function
```

```
.....
```

```
' This function allows the to set the printer sharing
```

```
' Input Params:
```

```
' - PrintName: The printer name you want to share
```

```
' Output Params:
```

```
' - N/A
```

```
.....
```

```
Function SharePrinter (Printname)
```

```
    dim objWMIService
```

```
    dim collInstalledPrinters
```

```
    dim objPrinter
```

```
    dim msg
```

```
    dim PrintNewStatus
```

```
    dim TempPrintName
```

```
    PrintNewStatus = True
```

```
    Set objWMIService = GetObject("winmgmts:" & "{impersonationLevel=impersonate}!\\.\root\cimv2")
```

```
    Set collInstalledPrinters = objWMIService.ExecQuery ("Select * from Win32_Printer")
```

```
    For Each objPrinter in collInstalledPrinters
```

```
        TempPrintName = """" + objPrinter.Name + """"
```

```
    If TempPrintName = Printname and objPrinter.Shared = False then
```

```
        objPrinter.Shared = PrintNewStatus
```

```
        objPrinter.ShareName = objPrinter.Name
```

```
    On Error Resume Next
```

```

objPrinter.Put_
msg = Err.Description
On Error GoTo 0
If msg <> "" Then
    wscript.echo "Cannot share printer" & objPrinter.Name & ": " & msg
End If
End If
Next
End Function

.....

' This function read from external config file
.....

Function ReadConfigValues(configSharing,configVerbosity,configDriverSubfolder,configPort)
Dim FSO, objFile, leng, leng2,StrConst,StrConstValue,strText,oArgs
Const ForReading = 1

Set FSO = CreateObject("Scripting.FileSystemObject")
set objFile =FSO.OpenTextFile("Config.cfg", ForReading)

Do Until objFile.AtEndOfStream
    strText = objFile.Readline
    if Left(strText,1) ="k" then
        leng = InStr(strText,"=")
        leng2 = len(strText) - leng
        StrConstValue = Right(strText,leng2)
        StrConst = Left(strText,leng-1)
        select case StrConst
            case "kSharing"
                configSharing = StrConstValue
            case "kVerbosity"
                configVerbosity = StrConstValue
            case "kDriverSubfolder"
                configDriverSubfolder = StrConstValue
            case "kPort"
                set oArgs = wscript.Arguments
                If oArgs.Count = 0 then
                    configPort = StrConstValue
                end if
            case else
                exit function
            end select
        end if
    Loop
end function

.....

' This function checks that the local port is correct
.....

Function CheckPortName(portName)
Dim pos, path, fso2
pos = InStrRev(portName, "\")
path = Left(portName, pos)
Set fso2 = CreateObject("Scripting.FileSystemObject")
if Not fso2.FolderExists(path) then

```

```

        wscript.echo "The Folder "+ path +"does not exist."
        wscript.echo "Installation not done"
        wscript.quit(1)
    end if
end function

.....

' This function verifies if the local port given by the user
' already exists
.....
Function PortExists(portName)
    const HKEY_LOCAL_MACHINE = &H80000002
    dim strKeyPath, oReg, arrValueNames, arrValueTypes, i, found
    found = false
    Set oReg=GetObject("winmgmts:{impersonationLevel=impersonate}!\\.\root\default:StdRegProv")
    strKeyPath = "SOFTWARE\Microsoft\Windows NT\CurrentVersion\Ports"
    oReg.EnumValues HKEY_LOCAL_MACHINE, strKeyPath, arrValueNames, arrValueTypes

    For i=0 To UBound(arrValueNames)
        if arrValueNames(i) = portName then
            found = true
            exit for
        end if
    Next
    PortExists = found
end function

Function Ping (hostAddress)
    Dim colPingResults, objPingResult, strQuery, respond
    respond = False

    ' Define the WMI query
    strQuery = "SELECT * FROM Win32_PingStatus WHERE Address = " & hostAddress & ""

    ' Run the WMI query
    Set colPingResults = GetObject("winmgmts://./root/cimv2").ExecQuery( strQuery )

    ' Translate the query results to either True or False
    For Each objPingResult In colPingResults
        If Not IsObject( objPingResult ) Then
            respond = False
        ElseIf objPingResult.StatusCode = 0 Then
            respond = True
        Else
            respond = False
        End If
    Next
    Ping = respond
    Set colPingResults = Nothing
End Function

.....

' This function displays help message
.....
sub ShowHelp()

```

```
wscript.echo "Usage:"  
wscript.echo "  cscript.exe HP_DJ_UPD_install.vbs PortHost [path]"  
wscript.echo "Arguments:"  
wscript.echo "  PortHost - The Printer IP address, path to the .prn file or hostname"  
wscript.echo "  [path] - The installation files path"  
wscript.echo "  /? - Display this help message"  
wscript.echo "Examples:"  
wscript.echo "  cscript.exe HP_DJ_UPD_install.vbs"  
wscript.echo "  cscript.exe HP_DJ_UPD_install.vbs 16.23.13.29"  
wscript.echo "  cscript.exe HP_DJ_UPD_install.vbs HP_T1500_B2_corridor"  
wscript.echo "  cscript.exe HP_DJ_UPD_install.vbs c:\myfolder\myfile.prn"  
wscript.echo "  cscript.exe HP_DJ_UPD_install.vbs 16.23.13.29 c:\DJ_UPD_HPGL2_driver"  
wscript.echo "  cscript.exe HP_DJ_UPD_install.vbs HP_T1500_B2_corridor c:\DJ_UPD_PS3_driver"  
wscript.echo "  cscript.exe HP_DJ_UPD_install.vbs c:\myfolder\myfile.prn c:\DJ_UPD_PS3_driver"  
wscript.echo "  cscript.exe HP_DJ_UPD_install.vbs /?"  
wscript.quit(1)
```

end sub