



UNIVERSAL PRINT DRIVER

System Administrator's Guide

Updated 6/2010





HP Universal Print Driver

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1 Purpose and scope

Introduction

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

This guide is distributed in an 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 software components, including command line configuration and installation of the HP UPD.
- Descriptions of the HP Universal Print Driver (HP UPD), and the features, benefits, use and management of the HP UPD.
- Descriptions of the HP Managed Printing Administration (HP MPA) software, including HP Managed Print Policies (MPPs) and HP Managed Printer Lists (MPLs). Used by administrators to configure and manage the HP UPD.
- Descriptions of the HP Active Directory Template used to manage the HP UPD.

The following table describes the structure of this System Administrator's Guide.

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

Chapter	Content
Chapter 1, Purpose and scope	This chapter describes the focus and intent of this system administrator's guide, including the conventions in this description, and the hardware to which this guide pertains.
Chapter 2, Software description	This chapter describes the HP UPD software, including the software requirements for installing the HP UPD and software availability. This chapter also describes the different driver versions (HP PCL 6, HP PCL 5, and HP PS emulation,), their specific purposes, and the modes for installing these HP UPD versions.
Chapter 3, Plan an HP UPD deployment	This chapter provides information for planning and deploying the HP UPD in your environment.

Table 1-1 HP Universal Print Driver System Administrator's Guide overview (continued)

Chapter	Content
Chapter 4, Preconfigure the HP UPD	<p>This chapter includes information about the methods for preconfiguring the HP UPD.</p> <ul style="list-style-type: none">• Preconfigure the HP UPD.<ul style="list-style-type: none">◦ Using Install.exe◦ Using the HP Managed Printing Administrator (HP MPA)◦ Using Group Policy Objects in Active Directory◦ Using Driver Configuration Utility (DCU)◦ Using HP Driver Deployment Utility (DDU)• Pre-configuration utilities and configurable functions
Chapter 5, Install and uninstall of the HP UPD	<p>This chapter provides instructions for installing and uninstalling of the HP UPD in dynamic and traditional mode.</p>
Chapter 6, HP UPD Administrative features	<p>This chapter describes configuration features for the HP UPD.</p> <ul style="list-style-type: none">• HP UPD 5.1 Features• HP UPD 5.0 Features• HP UPD 4.7 Features• Job storage and PIN printing• Modify HP UPD using Install.exe• Printer Automatic Configuration
Chapter 7, Use HP Universal print drivers	<p>This chapter includes information about using the HP UPD</p> <ul style="list-style-type: none">• Use the HP UPD• Print using the HP UPD• Add a printer to the Printers and Faxes folder
Chapter 8, Manage the HP UPD using HP Managed Printing Administration (HP MPA) and Active Directory Group Policy	<ul style="list-style-type: none">• Manage the HP UPD using HP MPA• Manage Active Directory Group Policy with the HP UPD using HP Active Directory Templates
Appendix A—Manage SNP Pop-ups	<p>This appendix provides information for managing Status Notification Pop-ups.</p>
Appendix B—Frequently Asked Questions	<p>This appendix provides answers to common questions regarding the HP UPD.</p>
Appendix C—HP UPD Deployment Worksheet	<p>This appendix provides an worksheet containing HP UPD deployment line items.</p>
Appendix D—HP UPD Deployment Flowcharts	<p>This appendix contains flowcharts describing deployment of the HP UPD.</p>
Appendix E—Glossary of terms	<p>This appendix contains explanations of commonly used terms in reference to the HP UPD.</p>
Appendix F—Support information to collect	<p>This appendix contains a list of support related questions for troubleshooting HP UPD issues.</p>

For more information about the location of information within these chapters, see the table of contents. An index is provided in the back 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 user-interface (UI)-specific 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 on page 9](#).

HP UPD Supported products

For an updated list of supported products, see the following Web site.

www.hp.com/go/upd

Table 1-2 products supported by HP UPD and HP MPA

HP printer/MFP	Plug and play	HP UPD PDL Support
HP LaserJet/Color LaserJet (network and direct-connect)		
CM1015 MFP	Yes	PCL5, PCL6, PS
1200 series	No	PCL5, PCL6, PS
1300 series	No	PCL5 ONLY
CM1312 MFP series	Yes	PCL5, PCL6, PS
1320 series	Yes	PCL5 ONLY
CP1510 series	Yes	PCL5, PCL6, PS
M1522 MFP series	Yes	PCL5, PCL6, PS
P2015 series	Yes	PCL5, PCL6, PS
CP2020 series	Yes	PCL5, PCL6, PS
P2030 series	Yes	PCL5 ONLY
P2050 series	Yes	PCL5, PCL6, PS
2100 series	No	PCL5 ONLY
2200 series	No	PCL5, PCL6, PS
2300 series	No	PCL5, PCL6, PS
CM2320 MFP series	Yes	PCL5, PCL6, PS
2400 series	Yes	PCL5, PCL6, PS
2500 series	No	PCL5, PCL6, PS
2550 series	Yes	PCL5, PCL6, PS
2605 series	Yes	PCL6, PS ONLY
2700 series	Yes	PCL6, PS ONLY
M2727 MFP series	Yes	PCL5, PCL6, PS
P3005 series	Yes	PCL5, PCL6, PS
P3015 series	Yes	PCL5, PCL6, PS
3015 AiO	No	PCL5 ONLY
3020 AiO series	No	PCL5, PCL6, PS
M3027 MFP series	Yes	PCL5, PCL6, PS
3030 AiO series	No	PCL5, PCL6, PS
M3035 MFP series	Yes	PCL5, PCL6, PS

Table 1-2 products supported by HP UPD and HP MPA (continued)

HP printer/MFP	Plug and play	HP UPD PDL Support
3050 AiO	Yes	PCL5, PCL6, PS
3052 AiO	No	PCL5, PCL6, PS
3055 AiO	No	PCL5, PCL6, PS
3200 AiO series	No	PCL5, PCL6, PS
3300 MFP series	No	PCL5, PCL6, PS
3390 AiO	Yes	PCL5, PCL6, PS
3392 AiO	Yes	PCL5, PCL6, PS
CP3505 series	Yes	PCL5, PCL6, PS
CP3520 series	Yes	PCL5, PCL6, PS
CM3530 MFP series	Yes	PCL5, PCL6, PS
3700 series	No	PCL5, PCL6, PS
3800 series	No	PCL5, PCL6, PS
4000 series	No	PCL5, PCL6, PS
CP4005 series	Yes	PCL5, PCL6, PS
P4014 series	Yes	PCL5, PCL6, PS
P4015 series	Yes	PCL5, PCL6, PS
4050 series	No	PCL5, PCL6, PS
4100 series	No	PCL5, PCL6, PS
4100mfp	No	PCL5, PCL6, PS
4200 series	No	PCL5, PCL6, PS
4240 series	No	PCL5, PCL6, PS
4250 series	No	PCL5, PCL6, PS
4300 series	No	PCL5, PCL6, PS
4345mfp series	No	PCL5, PCL6, PS
M4345 MFP series	Yes	PCL5, PCL6, PS
M4349 MFP series	Yes	PCL5, PCL6, PS
4350 series	No	PCL5, PCL6, PS
4500 series	No	PCL5, PCL6, PS
P4510 series	Yes	PCL5, PCL6, PS
CP4525	Yes	PCL5, PCL6, PS
4550 series	No	PCL5, PCL6, PS
4600 series	No	PCL5, PCL6, PS
4610 series	No	PCL5, PCL6, PS
4650 series	No	PCL5, PCL6, PS

Table 1-2 products supported by HP UPD and HP MPA (continued)

HP printer/MFP	Plug and play	HP UPD PDL Support
4700 series	Yes	PCL5, PCL6, PS
4730 MFP series	Yes	PCL5, PCL6, PS
CM4730 MFP series	Yes	PCL5, PCL6, PS
5000 series	No	PCL5, PCL6, PS
M5025 MFP series	Yes	PCL5, PCL6, PS
M5035 MFP series	Yes	PCL5, PCL6, PS
5100 series	No	PCL5, PCL6, PS
5200 series	Yes	PCL5, PCL6, PS
5500 series	No	PCL5, PCL6, PS
5550 series	Yes	PCL5, PCL6, PS
CP6015 series	Yes	PCL5, PCL6, PS
CM6030 MFP series	Yes	PCL5, PCL6, PS
CM6040 MFP series	Yes	PCL5, PCL6, PS
CM6049 MFP series	Yes	PCL5, PCL6, PS
8000 series	No	PCL5, PCL6, PS
CM8050 Color MFP with Edgeline Technology	Yes	PCL5, PCL6, PS
CM8060 Color MFP with Edgeline Technology	Yes	PCL5, PCL6, PS
8100 series	No	PCL5, PCL6, PS
8150 series	No	PCL5, PCL6, PS
8150mfp series	No	PCL5, PCL6, PS
9000 series	No	PCL5, PCL6, PS
9000mfp series	No	PCL5, PCL6, PS
9040 series	Yes	PCL5, PCL6, PS
9040mfp series	Yes	PCL5, PCL6, PS
M9040 MFP series	Yes	PCL5, PCL6, PS
9050 series	Yes	PCL5, PCL6, PS
9050mfp series	Yes	PCL5, PCL6, PS
M9050 MFP series	Yes	PCL5, PCL6, PS
M9059 MFP series	Yes	PCL5, PCL6, PS
9055mfp	No	PCL5, PCL6, PS
9065mfp	No	PCL5, PCL6, PS
9500 series	No	PCL5, PCL6, PS
9500mfp series	No	PCL5, PCL6, PS

Table 1-2 products supported by HP UPD and HP MPA (continued)

HP printer/MFP	Plug and play	HP UPD PDL Support
HP Business Inkjet/Officejet (network only)		
2250 series	No	PCL5, PS ONLY
2280 series	No	PCL5, PS ONLY
2300 series	No	PCL5, PS ONLY
2600 series	No	PCL5, PS ONLY
2800 series	No	PCL5, PS ONLY
3000 series	No	PCL5, PS ONLY
9100 series all-in-one	No	PCL5, PS ONLY

2 Software description

Introduction

The HP Universal Print Driver helps eliminate driver chaos in your print environment by dramatically reducing the number of drivers needed. Broad compatibility ensures it works with many HP print products, often reducing driver use to a single driver.

- The HP Universal Print Driver works well with a broad range of networked and direct-connected HP LaserJet and Edgeline print products using PCL 5, PCL 6 or postscript emulation. HP products share state-of-the-art technology, allowing the HP Universal Print Driver to support complex capabilities across many HP products, making them easier to use, support, certify and deploy.
- The HP Universal Print Driver offers optional dynamic mode, in addition to traditional mode, to enhance mobile printing. Dynamic mode locates network printers near your location, or you can enter a printer name or address and print anywhere on your network. It's great when you're on the road or want to print to a new product. Traditional mode is just like a traditional driver. Both modes can be used on the same PC to allow you to print what you want no matter where you are located.
- Local language drivers available in 35 spoken languages.
- You can rely on the HP Universal Print Driver to perform because it's built on the same technology we've been using in our product-specific drivers for years.

Easy management tools help meet your unique needs.

HP provides tools and services to customize and manage drivers and printers, so you choose driver capabilities that best suit your unique environment, from managing print queues and color use, to ensuring secure printing for sensitive documents.

- Create print queues and update drivers on remote systems from one location via HP Web Jetadmin.
- Color access control allows you to determine who uses color and when.
- Print private documents securely with or without a PIN.
- Help make your printing environment and your printers more secure.
- Create, import and modify Managed Printer Lists for mobile users in remote offices or on the road.

Helps reduce paper use and save money.

- The HP Universal Print Driver's Eco Print short cut has two-sided printing enabled, making it easier to reduce paper use.
- The HP Managed Printing Administration and Active Directory templates support a variety of policy controls that can help your company lessen its impact on the environment and save money via your HP LaserJet and Edgeline print products. The Duplex Default setting reduces paper use and Edgeline Quality Modes Control ensures the right print quality is pre-set for HP Edgeline MFPs.

Helps increase productivity, reduce support calls.

- The HP Universal Print Driver enables advanced functions on all the printers it supports--from two-sided printing and stapling to Private (PIN) Printing and color themes--so users are not held up or held back by a lack of advanced print features.
- The HP Universal Print Driver supports PCL 5, PCL 6 and postscript emulation printer languages.
- By providing real-time print job and print product information, the HP Universal Print Driver empowers you to resolve common problems yourself and place fewer calls to the help desk. This can mean faster problem resolution, improved printer uptime, and increased productivity.

New Features

The following are the new features of the HP UPD 5.1.

- Hagaki paper size support added
- Lock PIN Printing
- Easy Print Quality for Monochrome
- Retain Settings During Upgrade
- Manual Duplexing has been enabled for a number of older printer models

The following were new features of the HP UPD 5.0.

- HP EasyColor technology
- HP UPD version control using an Install.exe switch
- Ability to create/delete/modify shortcuts in the driver using driver preconfiguration tools.
- Recognizes user-defined media types
- Choose "username" as a default watermark
- Enable printing to HP UPD unsupported products

The following were new features of the HP UPD 4.7.2. (Off-cycle limited release. Refer to driver release table.)

- Tower Tray support added
- Form-to-tray assignments are retained in upgrades

- Removed "User Guide" printing shortcut
- Performance improvements for PCL6 through Delta Row Compression and JPEG "pass through"

The following were the new features of the HP UPD version 4.7.


- Ability to turn off automatic configuration ("printer auto-configuration")
- Pinless private printing
- Support for job separator pages
- Support for HP Web Jetadmin local product status
- New Eco-print shortcut added to **Printing Shortcuts** tab (enables two-sided printing)
- Status Notification Pop-ups can be enabled/disabled from the **Device Settings** tab
- Status Notification Pop-ups are disabled by default for enterprise environments
- HP UPD version control using the **Add Printer Wizard**
- Users who do not have administrator rights on their workstation can add printers to their **Printers** folder in dynamic mode

System requirements

The following are the minimum system requirements for 5.X.

Client operating systems supported:

- Microsoft Windows Vista Business, Enterprise, Home Basic, Home Premium, and Ultimate; x86 and x64
- Microsoft Windows XP (SP2 and later) Home Edition, and Professional; x86 and x64

 **NOTE:** Microsoft no longer supports Windows XP operating systems. Support of the HP UPD with Windows XP may be limited.

- Microsoft Windows 7 Starter, Home Premium, Professional, Enterprise, and Ultimate; x86 and x64

 **NOTE:** Windows 7 requires the use of HP UPD version 5.X.

Server operating systems supported:


- Microsoft Windows Server 2008 SP2 and Microsoft Windows Server 2008 R2, Enterprise and Standard Editions
 - Architectures: x86 and x64
 - Services: Terminal Server, Cluster Server
- Microsoft Windows Server 2003 (SP1 and later) Datacenter, Enterprise, and Standard Editions
 - Architectures: x86 and x64
 - Services: Terminal Server, Cluster Server

- Citrix Presentation Server 4.0 and 4.5
- Citrix XenApp 5.0 and 6.0
- Novell NetWare 6.5 SP7
- Novell iPrint Client for Windows 5.12
- Novell iPrint Client for Windows Vista 5.08
- Novell iManager 2.7

HP UPD can be used independently of the HP MPA software.

Requirements for HP MPA Software

- Supported Operating Systems
 - Microsoft Windows XP
 - Microsoft Windows Server 2003 (32-bit)

 **NOTE:** Microsoft no longer supports Windows XP operating systems. Support of the HP UPD with Windows XP may be limited.

- Supported Internet Browsers
 - Internet Explorer 7.0, 8.0
- IIS Internet Information Services. Versions provided by the following OSs.
 - Windows XP
 - Windows Server 2003
 - Windows Server 2008
- Java JRE (Runtime Environment, required for graphical views) version 1_5_0_9 and newer. The latest version is available at the following website: www.java.com/en/download/index.jsp.

Software availability


The HP Universal Print Driver version 5.X is available in the following languages:

Table 2-1 HP UPD supported languages

Arabic	Bulgarian	Catalan	Croatian
Czech	Danish	Dutch	English
Estonian	Finnish	French	German
Greek	Hebrew	Hungarian	Italian
Japanese	Korean	Latvian	Lithuanian
Norwegian	Polish	Portuguese (Brazilian)	Romanian
Russian	Serbian (Latin)	Simplified Chinese	Slovak

Table 2-1 HP UPD supported languages (continued)

Slovenian	Spanish	Swedish	Thai
Traditional Chinese	Turkish	Ukrainian	

 **NOTE:** If the HP UPD is used to print to an unsupported product, HP recommends using the HP PS UPD for best print results.

3 Plan an HP UPD deployment

This chapter is designed to help you make strategic deployment decisions as you integrate the HP UPD into your printing environment. The deployment of the HP UPD in your printing environment will be 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 provides you with the options and recommendations to customize your deployment experience based on your current printing environment and your 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 your HP UPD 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

1. Initiation and planning
 - Fully understand your printing requirements and environment
 - Make decisions
2. Communication and training
 - Executive sponsorship
 - Training
3. Conducting a pilot
4. Test and evaluation
5. Roll out to production

Initiation and planning

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

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

An HP UPD deployment needs to be considered similar to any other major change to your IT environment and should be treated accordingly. Make sure you back up your print servers and print queues before beginning any installation.

Understand your printing requirements and environment

Determine deployment objectives

This is a description of the objectives of the deployment. The intent is to get a clear and detailed picture of what the end result will be after the migration or upgrade. See [HP UPD Deployment Worksheet on page 159](#) for details

Print servers or Direct IP

With improvements in desktop computing power, available printing management tools, and the growing concerns about reducing printing management costs, some enterprise customers are starting to question whether they should move to Direct IP printing or continue with client-server 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. HP UPD supports either environment.

Identify stakeholders

The stakeholders are anyone 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

You must inventory all printing products, print servers, print queue names, printer drivers, IP Addresses, and page description languages (PDLs) that you are using. If you have print servers, you also need to determine if all of the print queues are still active.

Consider PDL needs

Some business applications rely on a specific version of Printer Command Language (PCL) or require Adobe® PostScript®. As a result, test that the applications you are using are compatible with the HP UPD versions of PCL and postscript emulation. If your testing proves that some applications

are not compatible with the HP UPD versions of PCL and postscript emulation, you should retain the current drivers and queues for the non-compatible applications.

- Specialty products
- Specific business applications, such as ERP
- The use of certified drivers, such as SAP
- Line printers
- Large format printing products
- HP products that feature edge-to-edge printing, which require product-specific drivers

Driver considerations

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

- The HP 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 UPD. The HP UPD supports most workgroup class HP LaserJet printers and MFPs, and a number of business inkjet printers. Some personal HP LaserJet and inkjet printers are not supported. For the most current list of HP UPD supported products, see the following website www.hp.com/go/upd.

Pre-configuration, policy and access requirements

If you have a goal of setting up custom default settings, or restricting access to printers or printer capabilities like color printing, now is the time to make a list of all those requirements.

Environment and network compatibility

Validate that the HP UPD is compatible with your current environment and network communication protocols. Make sure that the SNMP and mDNS protocols are not being filtered or blocked. The HP UPD requires these protocols for discovery and communication with products. See [HP UPD Deployment Worksheet on page 159](#) to make sure the HP UPD will work in your environment

Baseline the system

Test that all your applications (shrink wrapped and home-grown) are compatible with the HP UPD. Run performance and printing tests using “typical” documents.

Risk management

As is true of all projects, there are risks involved. Spend some time identifying the risks and making plans on how to mitigate serious risks. 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 to it.

Key deployment decisions

- [Create a list of required drivers](#)
- [Choose an installation method](#)
- [Driver Pre-Configuration](#)
- [Traditional and dynamic Mode](#)
- [Manage the HP UPD with HP MPA or Active Directory Group Policy](#)
- [Estimate time requirements](#)

Create a list of required drivers

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

Choose an installation method

HP UPD can be installed using multiple methods including:

- Add Printer Wizard
- Install.exe
- Web JetAdmin
- Microsoft Print Management Console
- Custom scripts using Microsoft-approved tools

Note that there are pre-configuration implications.

See [HP UPD Deployment Flowcharts on page 167](#) for additional guidance on which installation option is best for your environment..

Driver Pre-Configuration

The default settings of the HP UPD can be changed to suit specific needs. For example, the administrator may want to set duplex printing, and print in grayscale as the defaults. This can be done on a per-installation, per user, per group, or per site basis. For more information, see [Manage the HP UPD using HP MPA on page 90](#), [Manage the HP UPD with Active Directory Group Policy on page 131](#), the HP Driver Configuration Utility documentation, or by referring to the list of installation options in [Install on page 33](#).

Traditional and dynamic Mode

The HP Universal Print Driver (HP UPD) can operate in two different modes, traditional or dynamic.

- Traditional mode functions like the product-specific drivers. When installed in traditional mode, the HP UPD is associated with a specific printing product, which can then be selected from the application print menu. Once selected, the HP UPD user interface is similar in appearance to a traditional, product-specific driver.
- Dynamic mode allows the user to find printers on a network. This is ideal when traveling or printing to a new product in the office. An easy-to-use interface helps users connect to HP printing products on their own. There are four methods for finding printers in dynamic mode: manually enter printer address, recently used printers, managed printer lists, or search options.

Dynamic mode and traditional mode are not mutually-exclusive. You can deploy print queues using traditional mode and also deploy the HP UPD using dynamic mode for mobile users.

For more information about traditional and dynamic mode, see [Install on page 33](#).

Manage the HP UPD with HP MPA or Active Directory Group Policy

HP MPA and Active Directory provide options for managing the HP UPD in your environment. The HP UPD has the capabilities and features that can be managed and controlled on a per-user or group level. This means that the features like Use Mode settings, Color Access Control, Search Capabilities, SNP Pop-ups, and more can be managed down to the user level, or at a group level.

For more information about HP Managed Printing Administration and the Active Directory Administrative Templates, see the chapters on [Manage the HP UPD using HP MPA on page 90](#) and [Manage the HP UPD with Active Directory Group Policy on page 131](#).

Estimate time requirements

Make sure that you 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 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 either PnP vended or through UPD Install.exe or Add Printer Wizard. 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 1000 print queues to create, this could easily add up to between 8 and 16 hours.

See the <http://support.microsoft.com/kb/832219> - Users cannot print after you install a service pack, update rollup, or 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 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 UPD.

Training

Develop training reference materials and identify resources to help your end-users successfully transition to the HP UPD from standard product drivers. For example, a change from traditional mode printing user interface to the dynamic mode interface requires planning and in some cases simple training. Include information about how to identify products through the HP UPD. Employ a survey to gauge customer satisfaction.

Conducting a pilot

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

Testing and Evaluation

- Measure against the performance baselines.
- Determine variances and if they warrant corrective action or a change.
- Make any necessary entries into the configuration management log.

Deploy to production

HP strongly recommends a phased approach to deploying the HP 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.

Closing

- Confirm work is done to requirements
- Gain formal acceptance of the product
- Hand off completed product

4 Preconfigure the HP UPD

This chapter outlines several options for configuring the default behavior of the HP UPD. The options vary based on the installation method selected. Please review each option to determine which method is right for your environment.

The table at the end of this chapter, [Pre-configuration utilities and configurable functions on page 25](#), lists the available settings for each pre-configuration utility and installation method. This chapter provides some representative examples, but is not a comprehensive list of available settings. The information in this chapter will help you select an option that best meets your needs.

The following methods are available for pre-configuring the HP UPD default settings.

- [Pre-configure the HP UPD using Install.exe](#)
- [Pre-configure the HP UPD using the HP Managed Printing Administration \(HP MPA\)](#)
- [Pre-configure the HP UPD using Group Policy Objects in Active Directory](#)
- [Pre-configure the HP UPD using HP Driver Configuration Utility](#)
- [Pre-configure the HP UPD using HP Driver Deployment Utility \(DDU\)](#)
- [Pre-configuration utilities and configurable functions](#)

Pre-configure the HP UPD using Install.exe

The HP UPD installer allows some driver default settings to be modified via command line options. Some of these switches will change the system-wide behavior of the HP UPD, while other changes are specific to a single print queue.

A list of the available options for the Install.exe utility can be displayed by entering `install /?` from the command prompt in the HP UPD driver folder.

The screen that appears is a comprehensive list of the available configuration options that are available during installation of the HP UPD. Some of the more popular install switches include the following:


- `/pfduplex` – Allows an administrator to enable duplex by default
- `/gdssnp` – Disables the Status Notification Pop-up for all queues
- `/pfplib` – Enables job storage capabilities
- `/q` – Quiet mode, no prompts
- `/h` – Hides the install dialogue

Multiple switches can be combined to create a command-line installation that is customized to meet your requirements.

The default settings are changed to reflect the chosen options in each of the printers installed in this manner.

Pre-configure the HP UPD using the HP Managed Printing Administration (HP MPA)

The HP MPA utility pre-configures some driver default settings in a managed HP UPD environment. Settings made within the HP MPA environment control the HP UPD at a user level. The resulting policies are maintained for every printer attached to the HP UPD. They are global user policies that affect HP UPD users. For more information about HP MPA software, see [Manage the HP UPD using HP MPA on page 90](#).

 **NOTE:** Policy management for the HP UPD is disabled by default, and must be enabled to use the HP MPA software to manage the HP UPD capabilities. Enabling policy management for the HP UPD is only available through the Install.exe method. See step two below in [Process Flow for HP UPD management with HP MPA on page 23](#) to enable policy management for the HP UPD. An example of a command line instruction for enabling policy management is `install /sm1.1.1.1 /policy"mpaservername" /h /q /n"HP Color LaserJet CP3525"`.

HP MPA settings that can be pre-configured include:

- Duplex
- Economode
- Private Printing
- Edgeline QAC (Quality Access Control)

- Services tab
- Status Notification Pop-up

Many of these settings can be locked down to prevent users from making modifications to the settings.

Process Flow for HP UPD management with HP MPA

1. Administrator installs and configures HP MPA User Groups, Policies, and Printer Lists.
2. To enable HP MPA policy management, the HP UPD is installed or upgraded using Install.exe with one of the following switches:
 - /gempa - Installs the HP UPD and enables policy management for the HP MPA server named “managed-Print”.
 - /policy”MPAservername”–Enables the HP UPD to be managed by HP MPA and allows the administrator to enter the name of the server running HP MPA.
 - /gpolicy”servername” – Globally enables policy management for all users who log onto a PC and uses the HP MPA server defined in the servername field.

Pre-configure the HP UPD using Group Policy Objects in Active Directory

Like HP MPA settings, the changes made within Group Policy Objects control the global HP UPD user capabilities. Available for download at www.hp.com/go/upd, an HP UPD Administrative Template can be added to create a Group Policy Object to manage the user UPD capabilities. The settings apply to any queue that uses the HP UPD. Care should be taken when locking configuration settings as the user is unable to change a locked setting. As an example, if duplex is enabled and locked, the user will be unable to override this to print transparencies.

The HP UPD Administrative Template is available for download at h20338.www2.hp.com/Hpsub/cache/494717-0-0-225-121.html as part of the HP Printer Administrator’s Resource Kit (PARK). Click the link to the PARK beneath the **Universal Print Driver Tools** heading.

The PARK is a collection of tools, scripts and documentation to help print administrators install, deploy, configure and manage the HP Universal Print Driver.

 **NOTE:** See [Manage the HP UPD with Active Directory Group Policy on page 131](#) for detailed information on installing and using the Active Directory template.

The following settings are available for preconfiguration and are located in the **Default Print Settings** section of the HP UPD AD Admin Templates:

- Duplex
- Economode
- Private Printing with PIN
- Edgeline QAC
- Services tab
- Status Notification Pop-ups

HP UPD policy management capabilities are disabled by default. To take advantage of the management capabilities through the Group Policy Objects on new and existing queues, the HP UPD management capabilities must be enabled. Please see the example below for steps on enabling policy management for existing queues.


Pre-configure the HP UPD using HP Driver Configuration Utility

The HP Driver Configuration Utility (DCU) is a Windows application used to edit the configuration file associated with a particular driver. The configuration file controls the print driver settings and takes effect when the driver is installed.

The HP Driver Configuration Utility does not handle any part of the deployment or installation of the driver. Rather, the default configuration file is modified and saved back to the same driver directory in which it was opened. The HP Driver Configuration Editor is intended for use in environments where there is an established process for deploying drivers.

The DCU utility provides the most comprehensive list of configurable options and settings, but it does not include all of the available options. In some cases, DCU is the only method to configure a specific driver setting. It may become necessary to combine some of the pre-configuration tools to get a completely configured driver for your environment. Please refer to the readme notes for additional information on using the DCU utility.

For information on using the DCU, go to www.hp.com/go/dcu and click on **Manuals**.

 **NOTE:** The DCU is available for both 32 and 64-bit systems.

Sample list of the features available within the DCU.

- Print on both sides (duplex)
- Paper Size
- Create Shortcuts
- Watermarks with user name

Pre-configure the HP UPD using HP Driver Deployment Utility (DDU)

The DDU simplifies the deployment of printer drivers onto a client computer. DDU enables print administrators to create driver packages that include the printer driver files and the code needed for deployment. The custom package is then run on a client computer to copy the printer driver files to the Windows driver store, and for network packages to install the product.

The DDU works with HP printer drivers that can be installed by an .INF file.

The DDU is used to pre-configure a printer driver for deployment. When the package is run on the client computer, the new configuration file configures the printer driver after it is installed, and does not interfere with WHQL certification. The DDU contains the standalone DCU utility inside the package and is launched when **Pre-configure driver** is selected from the DDU tool.

For information on using the DDU, go to www.hp.com/go/ddu and click on **Manuals**.

Pre-configuration utilities and configurable functions

Table 4-1 [Pre-configuration utilities and configurable functions on page 25](#) shows which utility, or utilities, can be used to configure several commonly-used driver features. In some cases, more than one method will need to be used depending on the combination of settings that are to be changed. For example, to enable policy management and set the **Watermarks** to **Username**, use the Install.exe utility to enable policy management and the DCU tool to set the default Watermark option.

Table 4-1 Pre-configuration utilities and configurable functions

Function	Install.exe	MPA/AD	DCU	DDU
Duplex (lock)	X	X	X	X
Economode	X	X	X	X
Job Storage (lock)	X	X	X	X
90Edgeline QAC	X	X	X	X
Color Access Control		X	X	X
Enable Policy mgmt	X			
Status Notification Pop-up	X	X	X	X
Disable Printer Automatic Configuration			X	X
Gray scale (lock)			X	X
Paper size			X	X
Shortcuts			X	X
Watermarks			X	X
Orientation			X	X
Print quality			X	X
Memory			X	X
Hard disk			X	X
Media type (lock)			X	X
Paper source (lock)			X	X
Services Tab	X	X	X	X
Collate			X	X

5 Install and Uninstall of the HP UPD

Install the HP UPD in either traditional or dynamic mode. The mode determines the HP UPD user experience and also influences the extent of HP UPD management.

- **Traditional mode**

An HP UPD installed in **Traditional** mode behaves like a product specific driver. During installation, the driver is associated to a specific printer, creating a permanent instance of the driver.

- **Dynamic mode**

An HP UPD installed in **Dynamic mode** allows the most flexibility. A user can find and print to any supported HP product within any network or print environment without installing a product-specific driver. The HP UPD discovers the product capabilities so that users can print using most product capabilities, including advanced printing options such as watermarks and booklet printing.

Creating a permanent instance makes the printer appear (in the UI) more like a traditional printer driver but its features can still be updated dynamically. This also reduces the number of mouse clicks a user goes through when selecting a printer that is used often.

The following information provides detailed instructions for installing the HP UPD in either traditional or dynamic mode, along with instructions on how to remove the HP UPD.

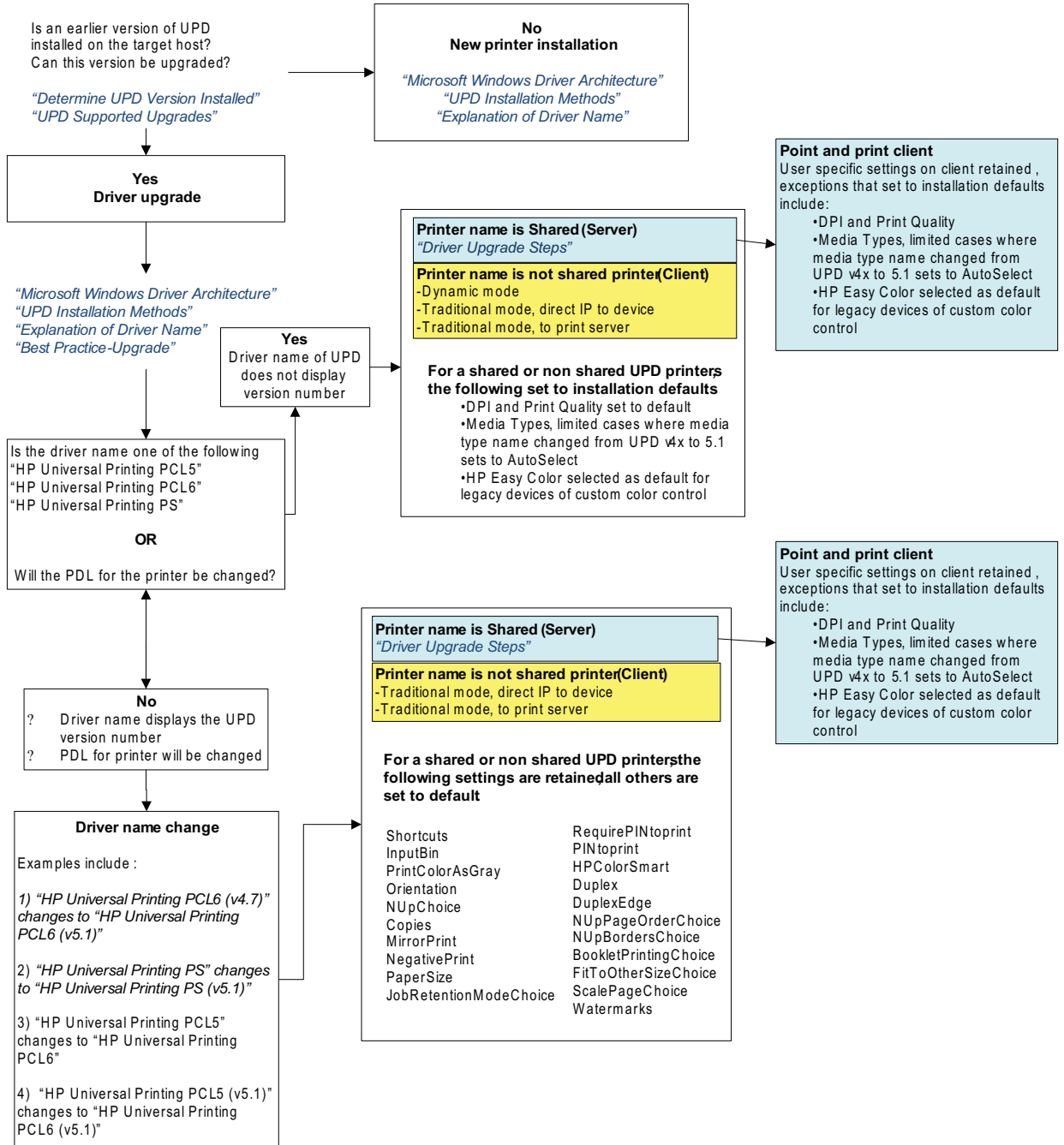
Supported Modifications of the Hewlett-Packard Universal Print Driver 5.1

- The HP UPD must be installed exactly as it was received from HP, with no modifications except as provided by HP-supplied utilities such as the Driver Configuration Utility, Driver Deployment Utility, or HP WebJetadmin. No other driver modifications are supported.
- The HP UPD must be installed using the HP-supplied installer (install.exe) or using a Microsoft-recommended and HP-approved tool and/or process listed in [HP UPD installation methods on page 30](#). The use of any other tool or method must be approved by HP in writing to be considered a supported installation method.
- Any modifications to any HP 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 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 on page 51](#) for more information.

Install or upgrade HP UPD version 5.1 and later

Figure 5-1 HP UPD version 5.1 and later install/upgrade overview

Install / Upgrade v5.1 and Later



Determine the HP UPD version installed

To determine if 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 XP: Click the **Start** button, and then select **Printers and Faxes**.
- Windows Vista: Click the **Start** button, select **Control Panel**, locate the heading **Hardware and Sound**, and select the sub-topic **Printer**.
- Windows 7: Click the **Start** button, and then select **Devices and Printers**.
- Windows Server 2003: Click the **Start** button, and then select **Printers and Faxes**.
- Windows Server 2008: Click the **Start** button, select **Control Panel**, and then select **Printer**.
- 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**.

- For an HP UPD dynamic mode installation, the UPD version displays on the lower left.
- For an HP UPD traditional mode installation, select the **About** tab. The UPD version displays at the top.

Microsoft Windows Driver Architecture

HP UPD v5.1 Install/Upgrade: The HP Universal Print Driver (HP UPD) is dependent on the Microsoft Windows Unidriver (unidrv.dll) architecture. The HP 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 UPD the "Certified for Windows" logotype. The HP 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 UPD would become a candidate for fix in the next release of the HP UPD, and/or investigated with Microsoft, as required.

The HP UPD installer is one of several possible distribution mechanisms for the shared unidrv.dll and pscript5.dll files. HP UPD v5.1 includes updated versions of the unidrv.dll and pscript5.dll compared to prior releases. The HP UPD installation package may update the unidrv.dll and pscript5.dll as necessary during install. Before installation, it is advised to review Microsoft's KB832219, KB944733, KB829766 articles and the HP UPD System Administrator's Guide. Enterprise environments that have a Unidrv.dll version older than the version packaged in the HP 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 UPD Version History table in this release note, and create appropriate testing and deployment plans specific to the installation environment.

HP UPD Supported Upgrades

HP will support upgrading from one version of the HP UPD to a newer version of the HP UPD, starting with v4.5. Upgrading from a non HP Universal Print Driver to the HP Universal Print Driver, regardless of version or vendor, is not supported. For supported environments, customer's should proceed with steps for new printer installation.

Change from Unidrv v5 to Unidrv6: Current HP product specific printer drivers and HP UPD rely on the UNIDRV.DLL or PSCRIPT5.DLL files supplied by Microsoft. On March 8, 2007, Microsoft updated their UNIDRV.DLL and PSCRIPT5.DLL files from v5.xxx to v6.xxx and as a consequence has caused changes in the structure of DEVMODE tables within UNIDRV or PSCRIPT based drivers.

When switching from older HP printer drivers prior to v61.74.xx.xx to newer driver versions, many customers have noticed that the paper type has changed from "Unspecified" to "Plain" or "Heavy Media" (others types also reported). For example, this could be seen in an upgrade from HP UPD v4.1 to v5.0. The paper type change is caused by a mismatch in the DevMode structures of the old driver and the new driver. HP printer drivers with file versions prior to 61.074.xx.xx* were built with the Microsoft version 5 files, and with HP drivers with file versions of 61.074.xx.xx* or later were built for compatibility with the Microsoft version 6 files. All supported releases of the HP UPD utilize v6 files. For this reason, upgrade from v5.xxx to v6.xxx is not a supported path. Therefore, if the existing HP driver version on the system is prior to v61.74.xx.xx, upgrade is not supported because of the known issues introduced by the change. To avoid this problem, first delete the existing printer and driver, install a v61.74.xxx or newer driver, then create a new printer.

Environments that experience the symptoms from the change in v5 to v6 unidrv.dll will need to reset the DevMode structure. Assuming HP UPD v4.5 or higher installation on a server or client, the solution is to delete the old HP printer name and the the existing HP printer and driver on both the server and all connecting clients (see System Admin Guide, Uninstall the HP UPD). Next, recreate the printer on the server. Point and print clients will need to delete the printer and reestablish the connection to the print server. When the printer is recreated with a v61.74.xxx driver (or newer), Windows will create new DevMode structures that match the v6.xxx architecture for new printer. There is no need to delete and replace the ports associated with the deleted printer.

For enterprise deployments requiring tools support of this process, please reference the HP Printer Administrator Resource Kit to test with the PRNCON tool (see the Release Notes for this HP unsupported tool).

The HP Printer Administrator's Resource Kit (PARK) is available at h20338.www2.hp.com/Hpsub/cache/494717-0-0-225-121.html. Click the link to the PARK beneath the Universal Print Driver Tools heading to download the PARK zip file.

HP UPD installation methods

HP UPD supports the following for new printer installation and driver upgrade. All methods support pre-configuration of the driver's settings using the HP Driver Configuration Utility functionality. Considerations for each method provided:

HP UPD's Install.exe: Launched from command line or script, supports optional configuration switches executed during the installation process. See "install.exe /?" for available options.


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

- **Add Print Wizard:** Accessible from **Printers** folder — wizard based installation for new printer install and driver upgrade.
- **Add Driver Wizard/Replace Driver:** From the **Printers** folder select either **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.

HP Driver Deployment Utility: A utility that packages preconfigured HP UPD installation files, and the code needed to deploy them, into an *.EXE and *.CAB file. These files are run on the client PC to copy the driver files to the Windows driver store, and optionally, install the printer.

HP Web Jetadmin: Administrators can create, edit, and delete printer and install or update print drivers by using the Print Management features in HP Web Jetadmin.

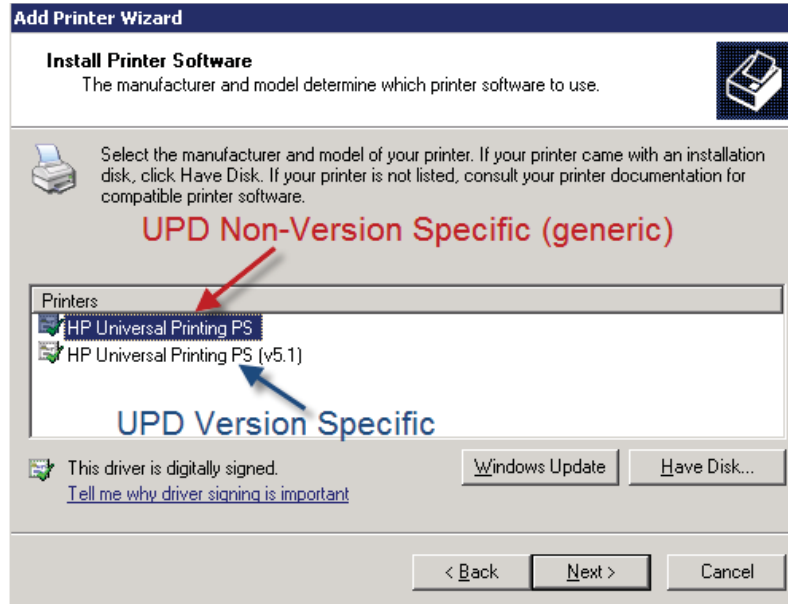
Point and Print: The HP UPD can be vended from a server to clients connected to a shared printer, performing either a new printer install or driver upgrade.

 **NOTE:** HP UPD also supports USB Plug and Play, which is not an installation method for the driver, but instead a method for an already installed printer driver to create a new printer instance in the printer's folder.

Explanation of driver name

During a new driver install, or when changing the driver version for an existing installed HP UPD printer, two choices exist for the HP UPD. These two driver name options are defined by HP and read directly from the driver *.inf file. Selecting either option installs the same version driver offering the same set of capabilities.

Figure 5-2 Driver names in the Add Printer Wizard



The installation option to define the HP UPD driver name selection applies only to traditional mode installations. Implementation options include the following:

- install.exe /tm (non-version specific)
- install.exe /m /sm (version specific)
- Add Printer Wizard
- PrintUI

Following installation, based upon the selection, the driver name of the HP UPD printer will be either the version specific or the non-version specific HP UPD. HP UPD dynamic mode always uses the non-version specific driver name.


HP Universal Print Driver name selection

The first option, "HP Universal Printing", referred to as the non-version specific HP UPD, will install or upgrade all printers using the HP UPD to the driver version being installed. For example, if HP UPD v5.0 is installed on the system as "HP Universal Printing PCL6" and the administrator installs the PCL6 UPD v5.1 selecting the non-version HP UPD during install, every printer using the driver name "HP Universal Printing PCL" will be upgraded.

The second option, "HP Universal Printing PCL 6 (vX.Y)", referred as the version specific HP UPD, creates version specific driver name instance of the HP UPD. Selecting version specific driver name of the HP UPD does not upgrade HP 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 UPD on a single system. For example, the following driver names could all be on the same host:

- HP Universal Printing PCL6 (v5.1)
- HP Universal Printing PCL6 (v5.0)
- HP Universal Printing PS (v4.7)
- HP Universal Printing PS
- HP Universal Printing PCL5 (v4.7)

 **NOTE: Maintenance Releases:** Only Major.Minor version numbers display in the MODEL field, which becomes the printer model name. For example, “HP Universal Printing PCL6 (v5.1)” displays in the MODEL field for version 5.1.x of the HP 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 Universal Printing PCL6 (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 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**.
 - For an HP UPD dynamic mode installation, **Print Preferences**, select **OK**, go to the **Advanced** tab.
 - For an HP UPD traditional mode installation, select the **Advanced** tab, see the “Driver” for installed driver’s name.

Install

Install the HP UPD by using one of the following methods.

- [Download and unzip the HP UPD](#)
- [Windows client/server: Use the Add Printer Wizard](#)
- [Windows client/server: Use Install.exe](#)
- [Windows client/server: Use the command prompt](#)
- [Windows client/server: Use Point and Print](#)
- [Windows client/server: Use the HP Web Jetadmin Print Queue Creation](#)
- [Windows Cluster server environment](#)
- [Windows Terminal Server/Citrix environment](#)


- [Novell](#)
- [Plug and play installation](#)

Download and unzip the HP UPD


1. Go to the following Web site:
www.hp.com/go/upd
2. Download and save the HP UPD that is specific to your operating system, and printing needs.
3. Navigate to the HP UPD download file.
4. Unzip the HP UPD download file.
 - a. Double-click the downloaded file.
 - b. Deselect the **When done unzipping open install.exe** option.
 - c. Click the **Unzip** button.

Windows client/server: Use the Add Printer Wizard


Follow these steps to install the HP UPD in **Traditional mode** with the **Windows Add Printer Wizard**.

 **NOTE:** The **Windows Add Printer Wizard** does not provide any customization options. If you install the HP UPD by using this method, the driver installs so that the user has common printing functionality.

1. From the **Control Panel**, navigate to the **Printers** folder..
2. The **Add Printer Wizard** opens. Click **Next**.
3. Select **Local printer attached to this computer**, deselect **Automatically detect and install my Plug and Play printer**, and then click **Next**.

 **NOTE:** If you are using an existing port, or if you are specifying the **Port Name** instead of using the default, make sure that the name you use does not contain the colon ':' character. This character is not allowed, and will cause configuration and status communication problems with the printer.

4. Select **Create a new port**, and then select **Standard TCP/IP Port**. Click **Next**.
5. The **Add Standard TCP/IP Printer Port Wizard** opens. Click **Next**.
6. The **Add Port** window opens. In the **Host Name or IP Address** field, type the DNS or WINS host name or IP Address (un-check **Auto Search** in Server 2008). Click the **Next** button.

 **NOTE:** If the DNS host name is used for the port, click the **Always print to device, even if its ID address changes** check box.

NOTE: If the **Additional Port Information Required** window opens, it means the printer is not connected. Under these circumstances it is best to cancel out of the installation, connect and turn on the product, and then start over. If you must continue the installation, then under **Device Type**, select **Standard**, and then select **Hewlett Packard JetDirect** from the menu. Click **Next**.

NOTE: Installing the HP UPD with the product disconnected or off line prevents the HP UPD from receiving the product configuration, which results in the used default settings (monochrome, no job storage, etc). Following complete install of the HP UPD, to update the HP UPD product configuration, right-click on the printer, select **Properties**, select the **Device Settings** tab, scroll down to **Automatic Configuration** and select **Update Now**.

7. The **Completing the Add Standard TCP/IP Port Wizard** window opens. Click **Finish**.
8. The **Install Printer Software** window opens. Click **Have Disk**.
9. Browse to the folder in which the unzipped HP UPD download file is saved.
10. In the unzipped HP UPD file, select any .inf file, and then click **Open**. You will be prompted to select a driver name, either the generic name or a version specific name. See [Versioning of printer driver shared files on page 185](#).

If an HP UPD is currently installed, select **Replace existing driver**.

11. Click **OK**.
12. The **Install Printer Software** window lists the driver under the **Printers** box. Select the **HP Universal Printing** driver and then click **Next**.
13. The **Name Your Printer** window opens.

The name specified in the **Printer name:** field is the name of the installed printer and displays in the **Printers and Faxes** folder. The default printer name is “HP Universal Printing PCL6” for the first installation. However, this increments to “HP Universal Printing PCL6 (copy1)” and so on for subsequent installs.

Rename the printer to better identify the printer.

14. Under **Do you want to use this printer as the default printer?**, select **Yes** or **No**. Click **Next**.
15. The **Printer Sharing** window opens. Select **Do not share this printer**, or enter a **Share name:** to share the printer. Click **Next**.
16. The **Print Test Page** window opens. Select **Yes** or **No**, and then click **Next**.
17. The **Completing the Add Printer Wizard** opens. Click **Finish**.


Windows client/server: Use Install.exe

 **NOTE:** Use the Install.exe command to create traditional mode queues (only) on your print server.

Follow these steps to install the HP UPD by using the HP Universal Printing Installer Wizard.

1. Download and unzip the HP UPD.
2. Navigate to and open the unzipped HP UPD folder.
3. Double-click **Install.exe**.
4. The **Universal Printing Installer Wizard** opens. Read the software license agreement, and then click **Yes** to continue.
5. Double-click **Install.exe**.

6. The **Universal Printing Installer Wizard** opens. Read the software license agreement, and then click **Yes** to continue.
7. The **Installation Mode** window opens. Select **Traditional mode** and click **Install**.

 **NOTE:** Only traditional mode queues are supported on print servers. Do not create and share dynamic mode queues on any print server.

8. The **Finish** window opens. Click **Finish**.

Windows client/server: Use the command prompt

At the command prompt, type `C:\Folder\Install /option`, where Folder is the location of the INSTALL.EXE file, / is a forward slash, and option is the command option. For a list of available command options, see [Available command options on page 39](#). Use the command options to control the installation and the behavior of the HP UPD after installation.

 **NOTE:** In an enterprise environment, a login script may be used to install the HP UPD on a client.

NOTE: To view a complete list of installer options, type the following at the command prompt:

```
c:\folder\install /?
```

For example, to make the installation completely silent by making it available through an .EXE-based administration tool (such as SMS), type the following syntax:

```
C:\folder\Install /q /h
```

Or, to install the driver in dynamic mode, type the following:

```
C:\folder\Install /dm
```

Topics:

- [Configure default print settings while installing by command prompt install](#)
- [Available command options](#)

Configure default print settings while installing by command prompt install

The HP UPD 4.7 and later provides a means of preconfiguring default settings within the printing environment. The following settings can be reconfigured on the HP UPD before deployment. When the settings are configured and not locked, users see these default settings which can be changed by the user. If the **Lock** feature is selected, the users do not have the ability to change the settings.

 **NOTE:** See [Pre-configure the HP UPD using Install.exe on page 22](#) for more information on preconfiguring the HP UPD.

In addition to managing these default settings through the HP Managed Printing Administrator and the HP Active Directory Templates, default settings can be configured when installing the HP UPD through the Install.exe utility.

Use the following information as a guideline when configuring the default settings.

Duplex

Table 5-1 Duplex default configuration

Main switch	Description	Code
/pfduplex=		
	DEFAULT_DUPLEX_SETTING	=0
	DUPLEX_ON	=1
	DUPLEX_FLIP_PAGES_UP_ON	=2
	DUPLEX_ON_AND_LOCKED	=101
	DUPLEX_FLIP_PAGES_UP_ON_AND_LOCKED	=102

Example: /pfduplex=2

Economode

Table 5-2 Economode default configuration

Main switch	Description	Code
/pfecono=		
	ECONOMODE_DEFAULT_SETTINGS	=0
	ECONOMODE_ON	=1
	ECONOMODE_ON_AND_LOCKED	=101

Example: /pfecono=101

Private printing

Table 5-3 Private printing default configuration

Main switch	Description	Code
/pfpjob=		
	PRIVATE_PRINTING_DEFAULT_SETTING	=0
	PRIVATE_PRINTING_PROOF_AND_HOLD	=1
	PRIVATE_PRINTING_PERSONAL_JOB	=2
	PRIVATE_PRINTING_QUICK_COPY	=3
	PRIVATE_PRINTING_STORED_JOB_REQUIRE_PIN	=5
	PRIVATE_PRINTING_PROOF_AND_HOLD_LOCKED	=101
	PRIVATE_PRINTING_PERSONAL_JOB_LOCKED	=102
	PRIVATE_PRINTING_QUICK_COPY_LOCKED	=103
	PRIVATE_PRINTING_STORED_JOB_REQUIRE_PIN_LOCKED	=105
Example: /pfpjob=3		

Private printing with Pin

Table 5-4 Private printing with Pin default configuration

Main switch	Description	Code
/pfpjpin=		
	(4 numeric characters only)	
Example: /pfpjpin=8574		

Edgeline QAC

Table 5-5 Edgeline QAC default configuration

Main switch	Description	Code
/pfeiqac		
	EDGE LINE_QAC_DEFAULT_SETTINGS	=0
	EDGE LINE_QAC_PROFESSIONAL	=1
	EDGE LINE_QAC_GENERAL_OFFICE	=2
	EDGE LINE_QAC_MONOCHROME	=3

Table 5-5 Edgeline QAC default configuration (continued)

Main switch	Description	Code
	EDGE LINE_QAC_PROFESSIONAL_LOCKED	=101
	EDGE LINE_QAC_GENERAL_OFFICE_LOCKED	=102
	EDGE LINE_QAC_MONOCHROME_LOCKED	=103

Example: /pfe1qac=3

Available command options

To view the available command options, enter the following at the command prompt:

```
C:\Folder\Install /?
```

where

- **Folder** is the location of the INSTALL.EXE file.
- / is a forward slash.

The command options are explained in the following table.

Table 5-6 Command options

Command option	Definition	Description
/q	Quiet mode, no prompts	Use this option to install the driver and present only a single progress dialog box to the user. All other warnings and confirmations are hidden, and default actions occur in cases where user input would otherwise be expected.
/npf	Do not open the Printers folder on completion.	The default behavior of the installer is to open the Printers folder on completion. This option disables that functionality.
/ru	Restricted user mode only displays HP Managed Printer Lists	Use this option to configure the driver so that users can only print to the products that you specified in the managed printer lists. The Printer Selection dialog box is replaced with a dialog box that lists the printers in the managed printer list. For more information, see Use HP Managed Printer Lists (MPLs) on page 112 .
/sc	Simple confirmation	Use this option to install the driver so that location profiles are disabled in the Printer Selection dialog box in dynamic mode.
/h	Hides the install dialog box; must be used with Quiet mode (/q)	Use this option to hide the primary installation dialog box and produce a completely silent installation.

Table 5-6 Command options (continued)

Command option	Definition	Description
/sm<port>	Creates a static printer instance bound to a specific <port>, for example, ./sm\server\printer, /smhostname, /sm15.65.98.111 NOTE: Cannot be used with the /tm option.	Use this option to create a statically bound printer that points to the specified port (local, TCP/IP, IPX/SPX, Hostname, UNC). The printer operates as a normal queue. When installed in traditional mode, the HP Universal Print Driver behaves as a standard printer driver but can also be installed from non-Windows servers as a Point and Print driver. NOTE: If the HP Universal Print Driver is installed in traditional mode, the static mode printer does not allow the user to use the universal printing functionality or change the destination address of the static mode printer.
/n"Printer Name"	Uses the specified name as the name of the printer, for example, /n"HP LaserJet P4515"	This option uses the specified name as the name of the printer (for example, HP LaserJet P4515). This option is helpful when using the traditional mode (/sm) option, but can be used for common printing as well.
/ni	Does not perform the printer install, only processes other install options	Use this option to process the specified install options without creating a printer in the Printers folder. You can then create subsequent instances of the HP UPD that show only the configured options that are not queue-specific.
/aml"<NAME" , URL>	Adds a new managed printer list name using the specified URL, for example, /aml"MyServer, http://mywebserver or /aml"MyPrinters", \\myprinters\printerlist\printerlist.xml	Use this option to specify a location where the target system can look for the managed printer list.
/rml"<Managed List Name>"	Removes a previously added managed list	Use this option to delete the specified managed printer list.
/nd	Does not set the printer as the default.	This option does not change the current default printer on the client system. By default, the installer sets the newly installed or updated common printer as the default printer.
/dst	Disables the Services tab in the HP UPD for the selected print queue.	Use this option to completely disable and hide the Services tab when accessing the printer property pages.
/dgst	Disables the Services tab globally in the HP UPD for all print queues.	Use this option to completely disable and hide the Services tab when accessing the printer property pages.
/dod	Disables the Online Diagnostic option on the Services tab in the HP UPD	Use this option to remove the Online Diagnostic Tools choice from the Services menu.

Table 5-6 Command options (continued)

Command option	Definition	Description
/dos	Disables the Online Support option on the Services tab in the HP UPD	Use this option to remove the Support and Troubleshooting choice from the Services tab.
/dpm	Disables the Online Product Manual option on the Services tab in the HP UPD	Use this option to remove the Product Manuals choice from the Services tab.
/ddu	Disables the Online Driver Updates option on the Services tab in the HP UPD	Use this option to remove the Check for Driver Updates choice from the Services tab.
/dso	Disables the Online Supplies Ordering option on the Services tab in the HP UPD	Use this option to remove the Order Supplies choice from the Services tab.
/dssnp	Disables the Status Notification Pop-ups for the selected printer	When used with /sm or /tm, this option disables the SNPs for the selected printer.
/gdssnp	Disables the Status Notification Pop-ups for all printers	Use this option to turn off SNPs for all printers.
/snptm=0	Disables the Special Offers program pop-ups.	
/tm	Installs the printer in traditional mode NOTE: Cannot be used with the /sm option.	Use this option to force the HP UPD to install in traditional mode. This routine launches the Add Printer Wizard, and prompts the user to select a printer port to complete the process. Do not use this option when using the /sm option.
/dm	Installs the printer in dynamic mode	Use this option to force the HP UPD to install in dynamic mode.
/u	Use the existing printer driver if it is already installed	Use this option to remove the dialog box asking the user to "Use existing driver" or to "Replace existing driver."
/qcomname "name"	Specifies a queue-specific SNMP community name	
/gcomname "name"	Specifies a system-global SNMP community name	
/m	Provides the ability to specify the driver version name allowing multiple versions of UPD to be installed onto one system.	The /sm is required. Cannot be used with /sm\server\printer. The /n is optional. Syntax example <code>/m"HP Universal Printing PCL 5 (v5.0)" /sm10.1.3.2</code> If a syntax error exists in the command line switch, installation proceeds without implementing the /m version specific installation of the HP UPD.

Table 5-7 Command options for policy management

Command option	Description
----------------	-------------

Table 5-7 Command options for policy management (continued)

<code>/policy</code> "MPA server name"	Enables HP MPA policy checking for all users using current policy settings (default is to use managed-print). Using the <code>/gpolicy</code> "your_mpa_server" command line option is the equivalent of enabling HP MPA policy checking and forcing the HP MPA server to query the http server "your_mpa_server".
<code>/empa</code>	Enables HP MPA policy checking for current user using current policy settings (default is to use managed-print). Using the <code>/policy</code> "your_mpa_server" command line option is the equivalent of enabling HP MPA policy checking and forcing the HP MPA server to query the http server "your_mpa_server".
<code>/gempa</code>	Enables HP MPA policy checking for all users using current policy settings (default is to use managed-print). Using the <code>/policy</code> "your_mpa_server" command line option is the equivalent of enabling HP MPA policy checking and forcing the HP MPA server to query the http server "your_mpa_server".
<code>/dmpa</code>	Disables HP MPA policy checking for current user.
<code>/eads</code>	Enables ADS policy checking for current user using current policy settings.
<code>/geads</code>	Enables ADS policy checking for all users using current policy settings.
<code>/dads</code>	Disables ADS policy checking for current user.
<code>/pqdmpa</code>	Disables HP MPA policy checking for the current print queue (logical windows printer) no matter who uses it.
<code>/pqdads</code>	Disables ADS policy checking for the current print queue (logical windows printer) no matter who uses it.
<code>/gpolicy</code>	See the <code>/Policy</code> example above. The difference between these switches is that <code>/gpolicy</code> specifies the HP MPA Policy URL for all users of a system. <code>/Policy</code> specifies this information on a per user basis.

Windows client/server: Use Point and Print

To use the HP UPD and Point and Print, install the driver on the print server in **Traditional mode**. After the driver installs on the Windows server, it behaves as any other installed driver. The user prints to a statically bound port established on the server.

When a client PC connects to a shared printer, the HP UPD automatically downloads to the client PC through Point and Print.

Vending of 32-bit drivers is supported from all 64-bit server OSs. Vending of 64-bit drivers is supported from all 32-bit OSs that support 64-bit alternate drivers.


Windows client/server: Use the HP Web Jetadmin Print Queue Creation

The HP UPD can also be installed via HP Web Jetadmin Print Queue Creation. For more information, go to the following Web site.

www.hp.com/go/webjetadmin_software

Windows Cluster server environment

The HP UPD installs with automatic configuration enabled by default and requires a specific installation procedure. The HP UPD requires that certain COM objects be registered and initialized in order to perform the automatic configuration of the products during setup. Please follow the instructions below to install the HP UPD in a Windows Cluster server environment.

 **NOTE:** HP UPD 4.7 introduced the capability to disable Printer Automatic Configuration communications. This capability is useful if HP UPD cannot be installed on each physical node, as recommended by HP. See [Manually configure product settings on page 57](#) for more details on disabling bidirectional communication, and manually configuring the driver.

The HP UPD must be installed and initialized on every physical node that makes up the cluster environment before creating queues on the virtual servers. HP recommends installing the HP UPD in traditional mode and creating an LPT1 port on the nodes. After the printer is created, it can be deleted from the Node's **Printers and Faxes** folder if desired. This will leave the HP UPD driver intact and properly initialized.

Only traditional mode printer queues can be shared from any of the Microsoft based print servers. Sharing of dynamic mode queues is not supported on any print servers using the HP UPD.

Repeat Step 1 on each physical node before proceeding.

1. Install the driver on each physical node in the cluster, using the **Add Printer Driver Wizard**.
 - a. Download the latest version of the HP UPD from the following Web site: www.hp.com/go/upd
 - b. Log into or remotely connect to one of the physical nodes.
 - c. Open the **Printers** folder.
 - d. Click **Add Printer**.
 - e. Select **Local printer attached to this computer**. Click **Next**.
 - f. Click **Use the following port** and select **LPT1: (Recommended) Printer Port**.
 - g. Click **Next**.
 - h. Browse to your HP UPD Installation files and click **Next**.
 - i. Follow the rest of the Add Printer Wizard procedure to complete the installation. See [Windows client/server: Use the Add Printer Wizard on page 34](#) for more information.

2. Install the HP UPD on the virtual print server.

Installing the HP UPD on the virtual server is similar to installing the HP UPD on any print server. Install the traditional Mode of the driver, using the Add Printer Wizard.

- a. Log into the active node of the cluster. You can log in while at the machine or remotely.
- b. Access the virtual print server by clicking **Start**, then **Run**, and then typing the
`\\virtualservername`
- c. Open the **Printers** folder.
- d. Run the **Add Printer Wizard** and install the driver in traditional mode.

 **NOTE:** If prompted to use **Existing Driver**, select **Replace Driver**.

Alternative install with printer automatic configuration disabled

If the HP UPD cannot be installed on every physical node in your cluster, you can follow the steps below to disable Printer automatic configuration when installing the HP UPD.

Please refer to the section in this guide for disabling bidirectional communications. These steps assume that you will be using the DCU utility to disable the bidirectional communication functionality as well as save the configuration file as CFM in order to retain the digital signature driver files.

Use the DCU (Driver Configuration Utility) tool to disable the bidirectional setting as well and preset other default settings as you wish. Once the cfm file has been created, it resides in the HP UPD driver folder where the files are located. Copy this cfm file to the virtual server w32x86\3 folder before installing printer queues using HP UPD.

Use the following steps to copy the cfm file to the proper folder prior to creating printer queues on the virtual server.

1. Browse to the print\$ share of the virtual server. Enter \\virtualserver\print\$ You have accessed the Printers folder for the Physical node that is hosting the virtual server. You will see a few folders here representing both the printing environment for the Physical Node as well as the GUID folder which represents the virtual server printing environment. The print\$ folder will appear with the following folders:
 - \BIDI
 - \color
 - \e7776de2-fbd9-4644-9jdt-0jsy —Virtual Server printing folder
 - \w32x86—Physical node printing folder (\x64 for 64-bit)
2. Browse to the folder with the long GUID as the file name. Your GUID name will be different. This is the print environment for the virtual server.
3. Browse to the \Drivers\w32x86\3 directory of the GUID folder
4. Copy the cfm file previously created by the DCU utility here.
5. Use the Microsoft recommended method to create printers using the **Add Printer Wizard**.

Windows Terminal Server/Citrix environment

HP supports the HP UPD 4.7 and later in Citrix XenApp and Terminal Server environments. HP has tested the HP Universal Printing PCL6, HP Universal Printing PCL5, and the HP Universal Printing PS drivers in Citrix XenApp environments.

For network printers, the HP UPD can be installed in dynamic mode on the Citrix XenApp server for all clients to access as a universal driver.

When the HP UPD is installed on the Terminal Server or Citrix XenApp server in traditional mode, it can be used as the printer driver of choice for the fallback or auto-created printers.

For auto created printers, the HP Universal Print PCL 5 driver can be mapped to all PCL 5/PCL 6-capable HP client printers or the HP Universal Print postscript emulation driver to all postscript-capable HP client printers through driver mapping in the Citrix management tools.

For further information see the HP white paper "HP Printers Supported in Citrix Presentation Server Environments" on www.hp.com/go/upd.

Versions of Terminal Server and Citrix supported by HP

See [System requirements on page 11](#).


Known limitations of the HP UPD when used for auto– created printers or redirected printers with client printers that are directly attached

The HP UPD, outside a Citrix environment, has the ability to configure itself according to the configuration of the printer by communicating directly with the printer.

HP UPD 4.7 and higher is limited when installed on the Citrix Presentation Server (or XenApp Server) and mapped for auto created printers. It cannot communicate with directly attached printers, such as by USB.

If the printer is connected to a network, automatic configuration is supported. For full feature support of locally connected printers, HP recommends the Citrix UPD be mapped to the HP UPD on the client.

For directly attached printers on the client, the HP UPD PCL driver defaults to black and white, no extra trays, no product-specific paper handling, etc.

 **NOTE:** Printers attached to the client by network ports are unaffected. The HP UPD, installed on the server, can communicate with client printers that are available on the network.

Novell

HP UPD in a traditional Mode installation, not in dynamic mode, is supported. This includes use of the HP UPD's Enterprise Auto Configuration capabilities (bidirectional communication between printer product and HP UPD enables the driver user interface to change showing the functionality provided by the product). In addition, preconfiguration of the driver using the HP Driver Configuration Utility is supported so administrators can define defaults before driver installation.


Since Novell does not provide a way for the HP UPD to query the product configuration from the printer, the HP UPD only makes the default settings available. No trays, output bins, or other printer specific features are visible in the driver user interface.

iPrint cannot present the correct printer driver options to the administrator to configure the PDP when the driver is universal.

For additional details on using iPrint's Print Driver Profile, see www.novell.com/support/viewContent.do?externalId=7001400.

Enterprise Auto Configuration (bidirectional communication) can be turned off through the HP Driver Configuration Utility.

Install the HP UPD in a Novell environment

 **NOTE:** Use Novell's most current iPrint client. It is critical to have the client installed even if all you are doing is uploading the driver to the Novell server. Novell has posted the iPrint client at the iPrint: Novell Open Enterprise Server 2 website. Click here to go to the iPrint: Novell Open Enterprise Server 2 website (<http://www.novell.com/iprint>).

NOTE: UPD for Novell only supports static mode and not dynamic mode.

NOTE: This has been tested with both User and Workstation printer setups.

To add the HP UPD driver and create the printer on the server, go to a computer that has the iPrint client installed.

1. Unpack the UPD installer but do not run the installer. Just have it unpack itself to the local PC.
2. Upload the driver to the Novell server by using the Novell iManager web page.
 - a. Select the **Manage Broker** task.
 - b. Click the **RMS Drivers** tab.
 - c. Click the **Add from file** button.
 - d. Select the HP UPD inf file, and click OK.

The driver will begin to upload to the server. This process can take several minutes. Do not touch the Internet Explorer (IE) window while it is doing this.

- e. When it is done, you should see the HP UPD driver in the driver list.
3. Create an HP UPD printer on the server by using the Novell iManager web page.
 - a. Select the **Create Printer** task.
 - b. Type a printer name and click **Next**.
 - c. Type an IP address and click **Next**.
 - d. Select the HP UPD driver in the Microsoft Windows XP driver dropdown.
 - e. Click **Next** or **OK** to create the printer.

To use the newly created printer on a PC.

1. Close any browser windows that you have open.
2. Install the iPrint client on the PC.
3. Go to the IPP printer page on the Novell server, that is, <http://foo.example.com/ipp>.
4. Click the newly created printer.

You will get a message stating that the printer needs to be installed.

5. Click **OK**.

The driver will download and install. This will take a few minutes.

The printer is now installed on the local PC and will route print jobs to the Novell server.

NDPS

The HP UPD will function with limited capabilities in the Novell NDPS environment. This is due to the HP UPD not being able to communicate with the product directly, therefore losing the ability to gather product-specific information back from the printers.

The HP UPD can only be used in traditional mode in the NDPS environment. In this mode, the HP UPD operates the same as a product-specific driver.

Since Novell does not provide a way for the UPD to query the product configuration from the printer, the HP UPD will only make the default settings available. No trays, no output bins, or other printer specific features will be visible in the driver user interface.

The latest patches for iPrint and Winspool must be applied to get the advanced printing features supported (such as N-up and Watermarks). URLs related to this information will be forthcoming.

Plug and play installation

The HP UPD can be installed for use with plug and play products as either a hardware first or a software first installation.

- [Hardware first installation](#)
- [Software first \(unattended\) installation](#)

Hardware first installation

In a hardware first installation, a USB cable is connected to the PC first and *then* the HP UPD is installed. When the operating system detects that no driver is installed for the connected product, it will prompt for a disk or a location from which to install the driver. This method requires that the user be logged on to an account with administrator privileges.

- Download and unzip the HP UPD from www.hp.com/go/upd.
- Plug in the product USB cable.
- When prompted, browse to the location where the HP UPD was downloaded and unzipped.

Software first (unattended) installation

In a software first installation, the HP UPD has already been pre-loaded on the PC, and will be found and used by the operating system when the new product is connected. This method does not require any interaction by the current user, and does not require the user to have administrator privileges.

Pre-configure the HP UPD for use with software first installation

To pre-configure the HP UPD for a Software first, plug and play installation, use the HP Driver Distribution Utility (DDU), and select the `Preload the Driver` option. This method creates a package with a `setup.exe` utility that is easy to deploy interactively or via scripting. See [Pre-configure the HP UPD using HP Driver Deployment Utility \(DDU\) on page 24](#) for more information.

Best practices — upgrade

Reasons to Upgrade: Upgrading to the current HP 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. For example, Windows 7 support was added to the HP UPD v5.0; Windows Server 2008R2 support was added in HP UPD v5.1.

Predictable Upgrades: The most consistent and reliable method to obtain predictable results is creation of new printers using the new driver version, forcing all settings to installation defaults. HP has provided several tools in the HP Printer Administrator's Resource Kit(PARK) to enable deployment and administration. The PARK is available for download at h20338.www2.hp.com/Hpsub/cache/494717-0-0-225-121.html. Click the link to the PARK beneath the Universal Print Driver Tools heading to download the PARK zip file.

Changing PDLs: Avoid switching PDLs during the upgrade process. This may result in uncertain results of dependent applications. If you need to switch PDLs, the best practice is to delete and recreate the printer. For those that choose to switch PDLs during upgrade, PS to PCL5 or PCL6 HP strongly recommends delete and recreate the printer.

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 UPD install sets the HP UPD printer name to be the same as the driver name (i.e. "HP Universal Printing PCL5"). 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 Universal Printing [PDL]" or "HP 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 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 UPD version name installation: For share printers (i.e. print servers) HP recommends implementation of the version specific driver name. The version specific model selection during HP UPD installation allows control over the upgrade and migration strategies. Multiple versions of the HP 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 bound to the 5.0 version of HP Universal Printing PCL 6. Further, assume that new HP printers have been purchased and only support v5.1 of the HP UPD. The administrator can create new printers using the HP UPD v5.1 version specific install without affecting existing printers that use a previous version of the HP Universal Print Driver.

Modify existing HP UPD printer with Install.exe: The HP UPD install.exe switch /ni processes only the options specified on the installation command line without installing a new HP UPD printer. For example, to enable HP UPD policy management via Group Policy for printer name "Floor1-monochrome":

```
install /ni /n"Floor1-monochrome" /tm /eads
```

Driver upgrade steps

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

- Microsoft Windows driver architecture
- HP UPD supported upgrades
- HP 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 HP UPD was installed in dynamic mode, or traditional mode with the generic printer name "HP Universal Printing PDL", driver settings will be retained during upgrade. If the HP UPD was installed using traditional mode with the version specific printer name "HP Universal Printing PDL (vX.Y)" every setting will not be retained during the upgrade. Those settings not retained will assume defaults of the newly installed driver. Settings that are retained include the following:

Table 5-8 HP UPD settings retained during upgrade

Shortcuts	PINtoprint
InputBin	HPColorSmart
PrintColorAsGray	Duplex
Orientation	DuplexEdge
NUpChoice	NUpPageOrderChoice
Copies	NUpBordersChoice
MirrorPrint	BookletPrintingChoice
NegativePrint	FitToOtherSizeChoice
PaperSize	ScalePageChoice
JobRetentionModeChoice	Watermarks
RequirePINtoprint	

Upgrade Steps: HP recommends the following steps to upgrade the HP 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, that 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 dependent upon environment size should be accounted for in project planning.

1. Login in using an account with "Manage Printers" permission to the print server (i.e.- the Administrator account, or an account from the Administrator's or Power Users group).
2. From command prompt (**Start-Run**, type `cmd`, press enter). Type the following command at the prompt: `control printers` and then press enter.
3. In the **Printers** folder, select the installed printer, right mouse click, and then select either **Properties** or **Printer Properties**.
4. Select the **Advanced** tab.
5. Click **Printing Defaults...**
6. Click the **Printing Shortcuts** tab. Remove all personal shortcuts. If you require custom shortcuts for Point and Print clients, please use the HP Driver Configuration Utility.
7. Within each tab, validate that the defined print settings are the intended defaults for clients receiving point and print vended driver from this server.
8. Click on the **Effects** tab and check the watermarks. Click on **Edit** to remove any unwanted watermarks, again validating settings defined will become the default for clients receiving the point and print vended driver from this server.
9. When the settings have been validated, click the **OK** button, which saves the settings to be used as default settings on the client systems.
10. Log out from Windows, and then log back in with the same account.
11. Stop and restart the spooler. From command line type:

```
net stop spooler && net start spooler
```
12. Launch the HP UPD driver installation package. This step only needs to be performed one time for each PDL, regardless of the number of current printers utilizing older versions of the HP UPD, either version specific or non-version specific driver name.

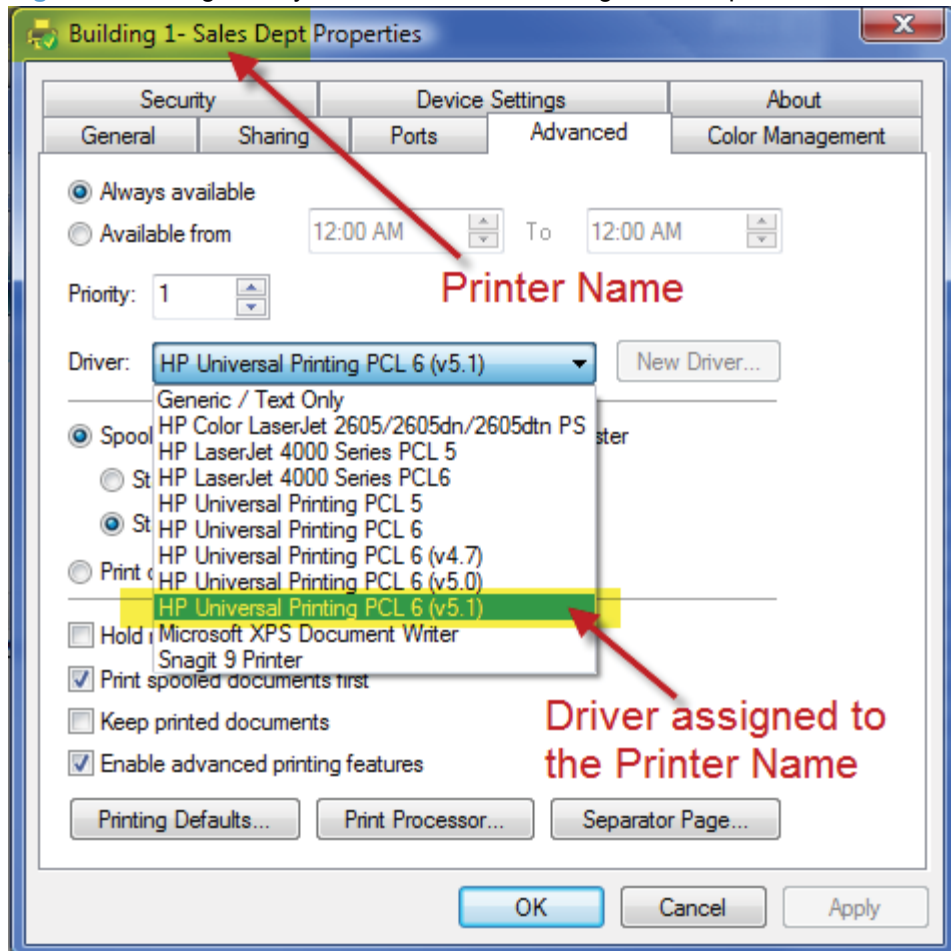
Result:

- A new printer is created in the printers folder
 - The new driver version of the HP UPD has be installed on the system
 - Shared dependencies on Unidrv.dll or pscript.dll are updated as determined by the install (see section "Unidrv or Pscript5.dll Updates")
13. Reboot the system to force replacement of locked files shared by the Microsoft print system.

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

Example steps provided: From the **Printers** folder, select **Printer Properties** for the HP UPD printer, and click the **Advanced** tab. Change the driver to the newly installed HP UPD version. For example, if the printer name is currently set to "Building 1- Sales Dept", change the **Driver** selection to "HP Universal Printing PCL 6 (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 UPD printers




Uninstall the HP UPD

HP recommends using Microsoft operating system utilities to remove the HP 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 UPD.

1. Delete all printers that use the HP UPD.
2. In the **Printers** folder, open the **File** menu and select **Server Properties**.
3. From the **Server Properties** window, select the **Drivers** tab.
4. Select the HP 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.

6 HP UPD Administrative features

This chapter contains configuration information for features in HP UPD 5.X and HP UPD 4.7.

- [HP UPD 5.1 Features](#)
- [HP UPD 5.0 Features](#)
- [HP UPD 4.7 Features](#)
- [Job storage and PIN printing](#)
- [Printer Automatic Configuration](#)

HP UPD 5.1 Features

This section lists the features available in HP UPD 5.1.

New paper size supported

Hagaki paper size (200 x 148 (mm) and 100 x 148 (mm)) is now supported with HP UPD 5.1.

Lock PIN Printing

If job storage mode is set to require a PIN (/pfpjob=5,6,105,106) then a valid PIN must also be included (/pfppin=<0000 - 9999>). If a valid PIN is not set in the command line when required, Install.exe will pop-up the help dialog and stop the installation process.

Easy Print Quality for Monochrome

Utilizing print technology from EasyColor (introduced in HP UPD v 4.7), the same technology is enabled for monochrome print providing faster print, smaller print jobs, with improved print quality through enhanced sharpening and adaptive lighting for documents sent from MS Office applications, JPG and PNG images within a document.

Retain Settings During Upgrade

Many driver settings may be retained when upgrading from previous versions of the HP UPD. Please see [Install or upgrade HP UPD version 5.1 and later on page 28](#).

Manual duplexing enabled for certain, older products

Manual duplexing is supported on the following products with HP UPD 5.1.

- HP LaserJet 4350
- HP LaserJet 4300
- HP LaserJet 8150
- HP LaserJet 4100
- HP LaserJet 4050
- HP LaserJet 5100
- HP Color LaserJet 4550

HP UPD 5.0 Features

This section lists the features available in HP UPD 5.0.

Printing to unsupported products enabled by default

HP UPD 5.0 allows for printing to unsupported or non-HP products by default. The list of supported printers for the HP UPD is located on the **Specifications** tab at www.hp.com/go/upd. Printers on this list are tested, verified, and supported by HP to work with the HP UPD. The HP UPD may also provide basic printing functionality to products not listed on the **Supported printers** list. The following list applies to all installation methods.


- All available features and capabilities of the non-HP or unsupported target product may not be present, may not work, or may not provide a consistent user experience. HP recommends that customers test and validate the printing experience before adopting.
- HP is unable to add additional new features for non-HP products into the HP UPD.
- Technical support is available for HP UPD printing to products on the HP UPD supported printers list only.
- When printing to a non-HP printer, using postscript emulation 2 and 3 may provide more consistent results than PCL5 or PCL6.

Installation to allow HP UPD version control

HP UPD version specific installation allows multiple versions of the UPD to be installed on the same system (i.e- UPD v4.5, UPD v4.7 and UPD v5.X). Beginning with UPD v4.7 a traditional mode installation of the UPD driver using the Add Printer Wizard allowed two different installation paths, each installing the same version of the driver. Selecting generic "HP Universal Printing" upgrades all queues utilizing the UPD to the version being installed. Selecting "HP Universal Printing PCL 6 (vX.Y)" creates a version specific instance of the UPD without upgrading existing UPD queues. Beginning with UPD v5.0, version specific UPD installation is added to the INSTALL.EXE options command line. The /m switch only applies to traditional mode driver installation, therefore the /sm switch is required and supports only IP address or hostname.

Example: `install /m"HP Universal Printing PCL 6 (v5.0)" /sm10.1.1.200`

Additional details on the use and purpose of version specific installation can be found in the installation chapter of this document [Install and Uninstall of the HP UPD on page 27](#)

 **NOTE:** You must use the exact name and syntax of the driver when using this feature. For example, "HP Universal Printing PCL 6 (v5.0)". Failure to provide proper command line syntax will result in the UPD installing using the generic UPD install.

Create and edit shortcuts with the HP Driver Configuration Utility

Using the DCU, administrators can pre-configure the driver before installation to customize the shortcuts presented to the client in the driver user interface. This includes removing HP product default shortcuts (all except the **Factory Default**) and creation of administrator defined shortcuts. Shortcuts defined through pre-configuration will become the defaults.

For more details on using the HP Driver Configuration Utility, please refer to www.hp.com/go/DCU and click **Manuals**.

 **NOTE:** The DCU is available for both 32 and 64-bit systems.

Custom media types recognized by the HP UPD

The HP UPD can now recognize up to five custom media types. Administrators can define these five media types by using Web Jetadmin.

1. Obtain the most current version Web Jetadmin from www.hp.com/go/webjetadmin.
2. Change all five paper types through Web Jetadmin. This functionality is dependent upon product support.
3. Install HP UPD in traditional mode and perform **Update Now** from **Advanced** tab
4. View the **Paper Type** from the **Paper Quality** tab.

Username added to watermark selections

This feature adds a new pre defined watermark called **[User Name]**. The user's name is retrieved from the computer and becomes the text for the watermark. This feature is available by default in the **Printer Property** pages under the **Effects** tab, or pre-configurable using the updated version of the HP Driver Pre-configuration Utility.

To configure a watermark to contain a username from the printer property pages, follow these steps.

1. In the property page of the product, click on **Printing Preferences**.
2. Click the **Effects** tab.
3. Select **[User Name]** from the menu for watermarks.

To pre-configure the watermark feature in DCU, follow these steps.

1. Load the driver's .cf_ file in DCU.

 **NOTE:** DCU can be downloaded from www.hp.com/go/dcu.

NOTE: The DCU is available for both 32 and 64-bit systems.

2. Select **Advanced Features** from the **Printing Preferences** tab
3. Select **[User Name]** from the **Watermarks** pull down menu.

HP EasyColor

For PCL6 installations, HP EasyColor automatically selects settings in the driver to optimize the print experience and printed quality (color theme, color options, image enhancements) of images. HP EasyColor is enabled by default but can be turned off on the driver's **Color** tab so the selection of features becomes the user's decision.

The HP EasyColor feature will behave differently depending on whether or not HP UPD Bidirectional communications is enabled.

HP Easy color takes advantage of applications that support PNG and JPEG pass through. Examples of these applications are Microsoft Office applications. HP Easy Color will have no effect on PDF, Illustrator or Photoshop images as the technology differs from Microsoft Office applications.

Global per machine policy management

Prior to HP UPD 5.0, policy management was enabled for the user that installed the driver. Other users who logged onto the machine were not managed. With the release of the HP UPD 5.0, new Install.exe switches allow the administrator to enable HP MPA or AD policy for all users logging onto the PC. See [Available command options on page 39](#) for the specific install switches.

HP UPD 4.7 Features

This section lists the features available in HP UPD 4.7. These new features are also available in UPD 5.X.

Manually configure product settings

The HP UPD 4.7 supports turning off the automatic configuration forcing the manual configuration of product settings.

In previous versions of the HP UPD, the driver queried the product to request the product capabilities, including the presence of installed trays, output bins, duplexer, and so on. If turned on and connected to the network, the product returned its capabilities to the driver. The product capabilities were displayed in the driver user interface.

The following scenarios might be reasons for disabling bidirectional communications, otherwise HP recommends the default behavior.

- Hardware capabilities can be managed for defined queues or user groups. Administrators can disable bidirectional communication and control specific product capabilities made available through the driver user interface.
- The queue is created *before* the product is available and the administrator wants it ready to go with no further intervention.
- The product is connected over an NDPS queue on a Novell Server.
- Security concerns around having services running or SNMP V2 traffic on the network.
- *Any* of these produce the need to manually configure the queue to get access to product capabilities.

HP recommends that unless you have a specific reason for disabling Printer Automatic Configuration, you should leave it enabled. Using the HP Driver Configuration Utility to manually configure the products does not allow for configuring a product as color, or setting the trays or envelope feeders. These items must be configured manually and must be done for every queue through the product properties. Also, **Update Now** is disabled and the update process cannot be automated. Dynamic mode will not work in this configuration.

The HP UPD provide a generic list of basic capabilities when bidirectional communication is set to **Off**. The same basic capabilities are presented as when bidirectional communication is enabled and the product cannot be queried by the HP UPD over the network.

If a feature is defined for a product that does not support the feature, the product behaves the same as an improperly configured traditional mode driver.

Status Notification Pop-ups do not work when bidirectional communication is set to **Off**.

Pinless private printing

The HP UPD 4.7 can store personal print jobs on the product and does not require a PIN to print. This functionality is similar to Pinless Private Printing with product-specific drivers.

Follow these steps to perform Pinless Private Printing:

- An HP UPD driver with Pinless private printing
- An HP product that supports Job Storage
- An HP product with the firmware that supports Pinless Private Printing

To perform Pinless Private Printing, do the following:

1. Open the software program that you want to print from. Select File **File>Print**, and then click the **Properties** button.
2. Select the **Job Storage** tab, and then click **Personal Job**. Leave the **Make Job Private** area blank.
3. Click **OK** to start the print job, and then go to the printer.
4. Select the job from the list on the printer control panel and print.

Job separator page

A job separator page can be added to print jobs with the HP UPD. Job separator pages are useful for separating print jobs in the output tray printed by different users. Each job is accompanied by a separator page which provides information on which user has printed the job.

To enable the job separator page feature, follow these steps.

1. Open the **Printers** folder, right-click the printer, and select **Properties**.
2. Click the **Device Settings** tab.
3. Click **Job Separator**, under **Installable Options**, and then select **Enabled**.
4. Click **OK**.

At least one feature for **Output Bins** should be selected to show up on the **Output** tab. A button displays on the **Output** tab when the job separator feature is enabled. Click this button to open a dialog box to configure the separator page. Select the **Separator Page Details** option in the separator page dialog box to enable all controls on the dialog box. The default value for **Source Is** is **Automatically Select** and for **Media Type** the default value is **Plain**. The other four check boxes are unchecked by default.

Once the job separator page feature is enabled, follow these steps to select it.

1. Open the **Printers** folder, right-click the printer, and select **Printing Preferences**.
2. Select the **Finishing** tab.
3. Click the **Job Separator** button.

Web Jetadmin language monitor support

The Web Jetadmin language monitor can be integrated into an HP UPD installation package. Doing so enables Web Jetadmin to support products that use direct connect over USB for status and monitoring proper Web Jetadmin client dependencies. This feature is only available as PCL6, PS, and PCL5 in dynamic mode (not added for XPS or traditional mode).

Eco-Print (Two-sided printing) shortcut

A new printing shortcut named **Eco-print (Two-sided printing)** is available on the **Printing Shortcuts** tab with the HP UPD 4.7. **Eco-print (Two-sided printing)** allows duplex printing to be enabled by default.

Cache printer settings

Printer settings can be cached to allow switching of physical products while maintaining the same TCP/IP address.

The (<**Policy**>node member) element can be used to control how often the current MPP refreshes. What this means is that downloaded MPP content is cached for the specified (or default) amount of time, and any future requests for retrieval of the MPP result in using the cached content.

Job storage and PIN printing

Job storage is the capability of a printer to store a print job on the target product's hard drive or in its memory. Job storage allows a print job to be stored and printed at the user's convenience. Job storage also provides features for making a print job a personal job with a personal identification number (PIN) and proofing a print job.

How the HP UPD works with job storage

During installation, the HP UPD queries the products for installed options and additional equipment using Printer Automatic Configuration. When job storage capabilities are detected, the HP UPD enables the job storage feature and mopier function. To override these product derived settings, set **Mopier mode** to **Disabled** in **Device Settings**. This disables job storage as well as product based collation. Since printer drivers do not perform capacity checks before attempting to store print jobs, the job storage area may become full. If this occurs, an **Unable to store job at printer** error message will display.

Access and configure the job storage feature.

To access the job storage features open the printer **Properties** and then select **Printing Preferences**. Click on the **Job Storage** tab.


 **NOTE:** If the HP UPD detects the presence of a hard drive or RAM disk on a printer, the **Job Storage** tab is displayed and job storage is enabled by default.

Table 6-1 Job Storage tab features

Feature	Function
Job Storage Mode	<p>Proof and Hold—Proof and Hold allows users to print the first page of a multi-page print job and verify their print appears as designed. After the first page is proofed, users print the remaining pages at the printer control panel.</p> <p>Personal Job—A user's print job is stored on the printer, but not printed, until the print job is printed at the control panel. After the job is printed, it is automatically removed from the printer's job storage. Personal jobs can be secured with a PIN.</p> <p>Quick Copy—Quick Copy allows users to print a job through the print driver and to then store the print job on the printer's hard drive for printing at a later time, without the need to re-access the print job at their PC.</p> <p>Stored Job—This feature allows users to send a print job to a printer's hard drive or RAM disk and store the print job indefinitely. The stored job can be printed at any time from the printer's control panel, eliminating the need to send commonly printed jobs or forms from a user PC each time they are printed. Stored jobs can be secured with a PIN.</p>
User Name	<p>The User Name section defines how a job is stored and identified on the printer. By default, a job is stored under a user name. Selecting the Custom option allows a user to create a new identifier for stored jobs.</p>
Make Job Private	<p>Personal jobs and stored jobs can be made private by selecting PIN to print and entering a 4-digit PIN. The PIN must be entered at the control panel to print the personal or stored job. This setting can be preconfigured using Install.exe, HP MPA, AD group policy, DCU, or DDU.</p> <p>NOTE: If a print job is made private and no PIN is entered, the PIN defaults to "0000".</p>
Job Name	<p>This feature allows a user to identify the stored job by a custom name. The default settings are increased in numerical value as they are stored on the printers.</p>
If job name exists:	<p>This setting allows the user to make a decision regarding same name print jobs that are being stored on the printer.</p>
Job Notification Options	<p>This option allows the user to decide if the job storage message and job name are displayed on the user's screen when the job is sent to the printer.</p>

Pre-configure job storage capabilities

The job storage feature can be preconfigured and, if desired, locked down during printing. For security purposes a company may decide to force every print job to be stored on the printer and retrieved by a user, so no documents reside on the output tray unattended. The following section describes the different methods for pre-configuring the job storage feature.

Pre-configuration method	Notes
HP UPD Install.exe utility	<p>The HP UPD Install.exe utility includes switches that allow the job storage feature to be pre-configured.</p> <ul style="list-style-type: none"> • /pfpjob—This switch enables the job storage capabilities for the HP UPD. Refer to Available command options on page 39 in this manual for the arguments available with this switch • /pfpjpin—This switch allows an administrator to pre-set a unique 4 digit code to be used with the Pin printing or personal job feature. Only numeric values are permitted, and 4 digits must be used. The default value is 0000 if a PIN is not selected.
HP Driver Configuration Utility	<p>The HP Driver Configuration Utility, DCU allows for job storage, in this case known as Job Retention Mode, to be enabled and locked prior to driver deployment. Use the pull down menu to select the proper method of job storage desired. Put a check mark in the Lock section if you want to force the Job retention mode.</p> <p>If Personal Job or Stored Job is selected an additional pull down menu is created to allow for the setting of custom PIN numbers. Click on the (+) Plus icon to enable require a PIN setting and click on the next + icon to enter a unique PIN. Please refer to the DCU release notes for additional information.</p>
Managed Printing Administrator	<p>HP MPA allows an administrator to pre-set the job storage settings. The job storage settings are configured inside the Managed Print Policies in the Default Print Settings. Create a new template in the Default Print Settings and use the Private Printing option to choose the storage option and lock option. See Manage the HP UPD using HP MPA on page 90 for more information.</p>
HP UPD Active Directory Template	<p>The Default Print Settings section is used to enable and configure the job storage feature. Enable the feature and choose the Private Printing option. Enter a custom 4-digit PIN or use the default PIN of 0000. See Manage the HP UPD with Active Directory Group Policy on page 131 for more details.</p>
HP Driver Deployment Utility	<p>The DDU tool utilizes the Driver Pre-configure Utility to allow an administrator to preconfigure the driver settings prior to creating the driver package. Please refer to the Readme notes accompanying the DDU tool for additional details.</p>

Printer Automatic Configuration

This chapter contains information on using printer automatic configuration.

Device Automatic Configuration defined

Within the Universal Print Driver's (UPD) core functionality is Automatic Configuration enabling the UPD driver user interface to change to reflect the supported capabilities of the target print device. Automatic configuration occurs through bidirectional communication between the device and a UPD. This communication can occur over the network or to a USB direct connect device. When the user installs the driver the default printer model options will be base model. Successful implementation

requires the UPD installed bidirectional services are loaded, the correct port settings, and the target device is available direct connect to the host or over the network. If the communication is successful, the printer options will be updated in the driver user interface. This process of the UPD sending request and accepting responses directly between the driver the device is referred as 'bidi' for bidirectional communication. The UPD driver user interface options will change to enable features of the target device based on the result of the response query (installable trays, Duplexer, Accessory Output Bin, HP Easy Color, etc). If the communication is unsuccessful, the driver will still have base model functionality presented in the UPD driver user interface and extended options will not be displayed or available for use during FILE-PRINT.

The benefit of Printer Auto-Configuration is enabling the driver to query the printer and recognize the device's capabilities with a level of automation and accuracy.

Printer Automatic Configuration can only be launched in the following methods.

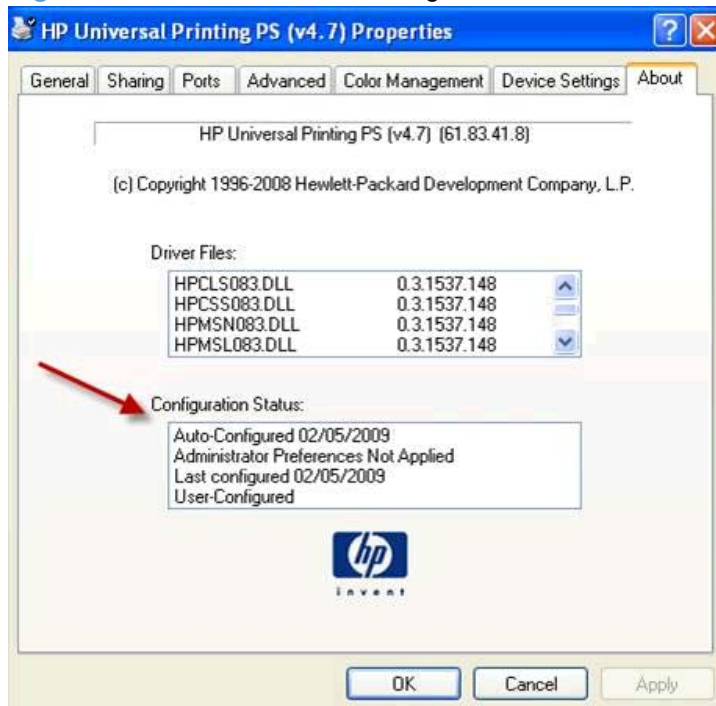
1. UPD driver installation (automatic update to all queues utilizing the UPD driver)
2. Dynamic mode- each time **PRINT** is selected from the UPD client.
3. Update Now GUI: Traditional mode installations can manually launch through the UPD driver User Interface: Printer Properties-Device Settings tab-Installable Options-Automatic Configuration-Update Now.
4. UPDATE COMMAND LINE: Traditional mode installations can execute a command line using Microsoft's Rundll32.dll allowing change updates to occur through scripting (reference table A).

Automatic Printer Configuration status

Dynamic mode: invoke Printer Automatic Configuration each time the HP UPD user interface is invoked (ie- print properties for FILE-PRINT from the application).

Traditional mode: Printer Automatic Configuration status can be determined by checking the **About** tab of the HP UPD available through the HP UPD Printer Properties.

Figure 6-1 Printer Automatic Configuration status



Traditional Mode **About** status.

- **Auto-Configured MM/DD/YYYY:** Automatic configuration through the Printer Automatic Configuration has successfully executed and updated the printer's configuration. Status of "Last Configured xx/yy/zzzz" displays date of the last attempted automatic configuration.
- **Not Auto-Configured:** will apply if the driver is Printer Automatic Configuration enabled, and PRINTER AUTOMATIC CONFIGURATION runs, but could not update the configuration (i.e., unable to communicate with the printer). Status of **Last Configured xx/yy/zzzz** displays the date of the last attempted automatic configuration.
- **Auto-Configuration Not Attempted:** will apply when the driver is Printer Automatic Configuration enabled, but Printer Automatic Configuration did not run. This would be a case such as when the driver is Printer Automatic Configuration enabled, but the registering of the services fail loading a DLL.

NOTE: If the Printer Auto-Configuration options has been disable via driver pre-configuration the Configuration Status box will show

Administrator Preferences Not Applied

Last Configured xx/yy/zzzz (which is the date of install)

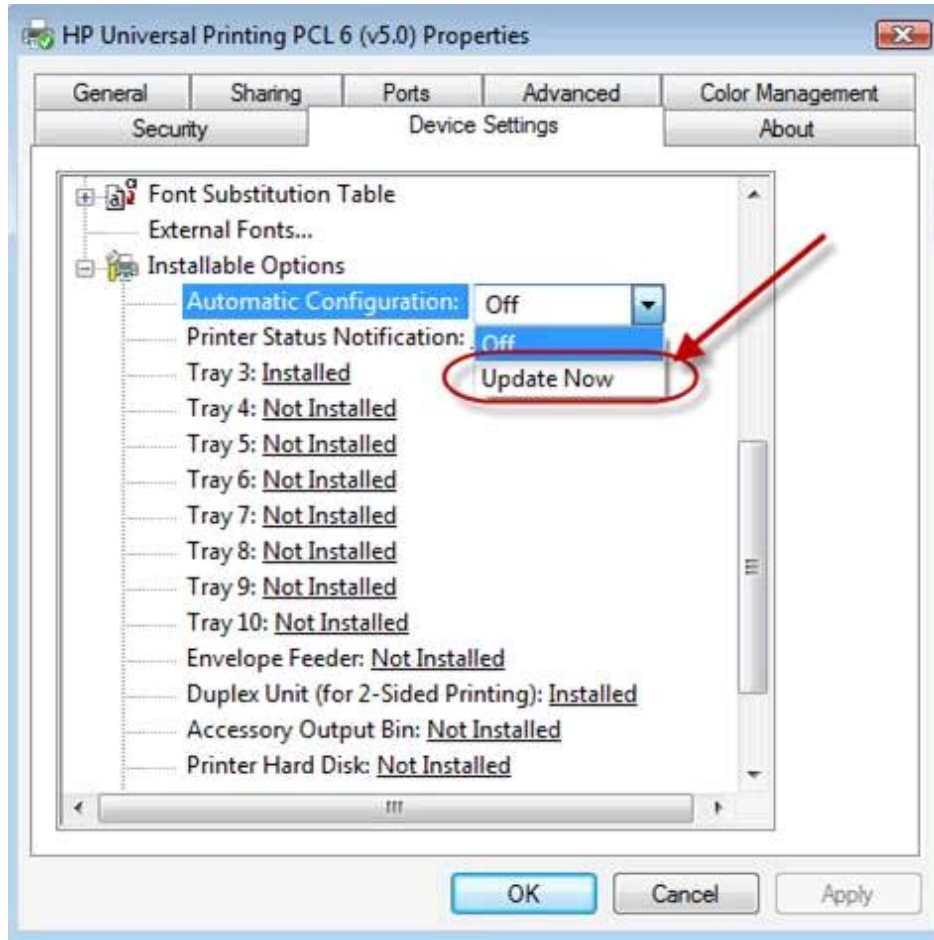
Default Configuration

User Interface

Traditional Mode installations: the Printer Auto-Configuration is automatically executed at the end of the installation routine. When the printer's capabilities have changed the 'Update Now' process can

be launched from the driver user interface to allow the UPD to query the target device: Printer Properties-Device Settings tab-Installable Options-Automatic Configuration-Update Now.

Figure 6-2 Setting Automatic Configuration through the user interface



Automatic configuration selectable options

- **Automatic Configuration:= Off:** The update now bidirectional communication is not currently in progress
- **Automatic Configuration:= Update Now:** The driver is in process of communicating with the target product; this process can take minutes dependent upon environment and configuration. When finished, the status will change to **Off**.

Dynamic mode installations: The Printer Automatic Configuration is happen automatic using the following methods:

- a. Hitting **Print**.
- b. After **Enter a Printer Address**.
- c. Selecting **Check Status...** of an existing printer.
- d. Searching for products on the network subnet.

The configuration is automatically updated each time the client connects to the printer via Dynamic mode connection.

Command line interface

Starting with HP UPD 4.0, administrators can script the **Update Now** process from a command line for traditional mode installations of the HP UPD driver. This applies only to HP UPD traditional mode installation. The files used and file location required for configuration entry point are different with Printer Automatic Configuration release and therefore Microsoft platform UPD version specific.

Table 6-2 Platform specific commands for scripting the Update Now process

HP UPD version	Platform	Example command line
HP UPD 4.7	x86	<pre>rundll32 %systemroot%\system32\spool\drivers \w32x86\3\hpmux083.d11,UpdateStaticModePrinter "printer name here" /q</pre>
	x64	<pre>rundll32 %systemroot%\system32\spool\drivers \x64\3\hpmux083.d11,UpdateStaticModePrinter "printer name here" /q</pre>
HP UPD 4.7.2	x86	<pre>rundll32 %systemroot%\system32\spool\drivers \w32x86\3\hpmux084.d11,UpdateStaticModePrinter "printer name here" /q</pre>
	x64	<pre>rundll32 %systemroot%\system32\spool\drivers \x64\3\hpmux084.d11,UpdateStaticModePrinter "printer name here" /q</pre>
HP UPD 5.0	x86	<pre>rundll32 %systemroot%\system32\spool\drivers \w32x86\3\hpmux091.d11,UpdateStaticModePrinter "printer name here" /q</pre>
HP UPD 5.0.1		<pre>rundll32 %systemroot%\system32\spool\drivers \x64\3\hpmux091.d11,UpdateStaticModePrinter "printer name here" /q</pre>
HP UPD 5.0.3	x86	<pre>rundll32 %systemroot%\system32\spool\drivers \w32x86\3\hpmux094.d11,UpdateStaticModePrinter "printer name here" /q</pre>
	x64	<pre>rundll32 %systemroot%\system32\spool\drivers \x64\3\hpmux094.d11,UpdateStaticModePrinter "printer name here" /q</pre>

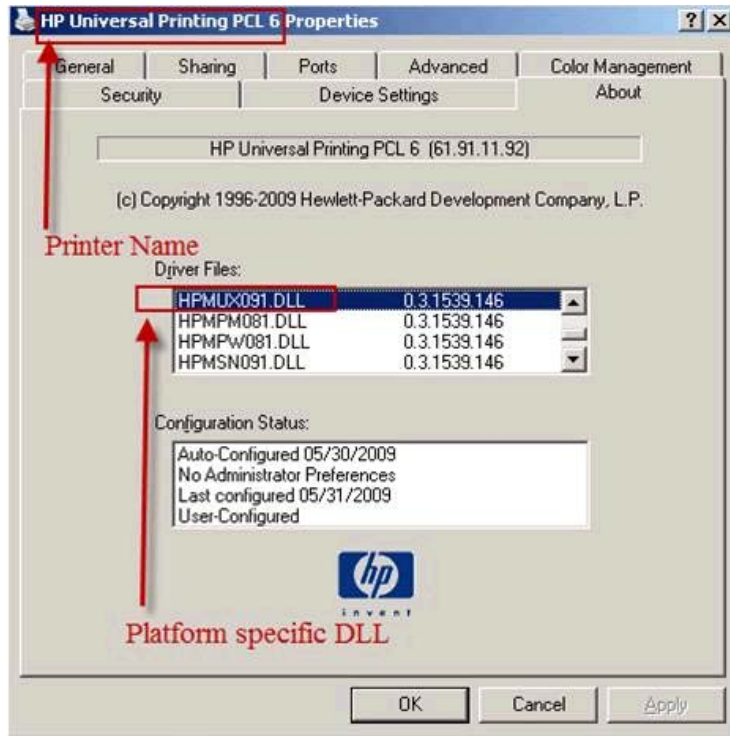
Table 6-2 Platform specific commands for scripting the Update Now process (continued)

HP UPD version	Platform	Example command line
HP UPD 5.1	x86	<pre>rundll32 %systemroot%\system32\spool\drivers \w32x86\3\hpmux104.dll,UpdateStaticModePrinter "printer name here" /q</pre>
	x64	<pre>rundll32 %systemroot%\system32\spool\drivers \x64\3\hpmux104.dll,UpdateStaticModePrinter "printer name here" /q</pre>

Example steps to initiate Printer Automatic Configuration via command line

1. Note the **Printer Name** and Platform Specific DLL of the installed HP UPD. From the system's **Printers and Fax** folder, right mouse on the printer name and select **Properties**, **About** to locate the HPMUX*.DLL and the installed driver name instance.

Figure 6-3 Locate the platform specific DLL



2. Open a command prompt: START-RUN-CMD.EXE [enter]

```
C:\> rundll32 %systemroot%\system32\spool\drivers
\w32x86\3\hpmux091.dll,UpdateStaticModePrinter "HP Universal Printing
PCL 5 (v5.0)" /q
```

User dialogue box opens stating, "Getting printer information... Establishing Communication with printer... Finishing printer validation"

3. Open the HP UPD Printer Properties-About tab and check the **Configuration Status** box. The status should display the current system date for **Last configured xx/yy/zzzz** and default

options for the printer or HP UPD preconfigurations of the driver display in the HP UPD user interface.

Disabling Printer Automatic Configuration

UPD installed services provide bi-directional I/O capability outside the context of the user, application, or print job. Most printing functions will work without the driver to device communication, and print quality and speed are not affected by the services enablement. UPD 4.7 added support for manual configuration of the driver to both enable and configure device capabilities without requiring Automatic Update to be enabled. The Installable Options section of the UPD's Device Settings tab can be manually defined using Driver Configuration Utility or the HP Driver Deployment Utility.

Benefits Comparison

 **NOTE:** Using bi-directional communication is strongly recommended.

Automatic configuration enabled

1. Accuracy in Device capabilities: capabilities of the target device can change without end user awareness. Automatic configuration allows the UPD to accurately reflect the capabilities of the target device.
2. Staged deployment: If the printers are not yet available printer automatic configuration is a good option. The install.exe utility will still create the port. The only consequence of not having the printer connected is that they would get the defaults for the printers, but a simple update now (user interface or command line) after the device is added to the host or network synchronizes the UPD driver to device capabilities.
3. Manual configuration of every setting for every device connection introduces additional management overhead defining settings or correcting misconfigurations.
4. Manual configuration requires managing multiple Driver Configuration Utility settings files (*.cf_ or *.cfm).

If bidirectional communication is successful followed by bidirectional communication failing on successive attempts, the driver user interface options will utilize cached settings of the last successful Printer Automatic Configuration.

Automatic configuration disabled

1. Administrator's can disable printer automatic configuration to control which device capabilities are presented through the print user interface. For example, if a device supports a particular feature that does not comply with standard fleet deployment, the features enablement can be centrally controlled.
2. Pre-Installed queues: administrators can manually configure device capabilities regardless of the device's status on the network. For example, an administrator could define duplex printing in the driver without the device having to be on the network at the time of pre-configuration (the driver does not have to confirm the targeted device capabilities).
3. The device is hooked up over an NDPS queue on a Novell Server.

Default capabilities without automatic configuration


Printer Automatic Configuration can be disabled through pre-configuration of the UPD driver. If the Automatic Update feature is disabled using the Driver Configuration Utility tool prior to the UPD's

installation standard printing defaults or cached settings will be utilized by the UPD and Status Notification Pop-ups (SNP) will not work.

If a capability is enabled through pre-configuration of the driver that the target device does not support, printing failures or unexpected results will occur. For example, setting duplex for a device that only prints simplex will output simplex.

Table 6-3 Defaults applied when the Printer Automatic Configuration fails attempted communication.

	PLC5, PLC6	Post Script
Trays	1,2	1,2
Manual Feed	Tray 1	Tray 1
Envelope Feeder	Not installed	Not installed
Duplex	Installed	Installed
Accessory output bin	Not installed	Not installed
Hard disk	Installed	Installed
Device type	Monochrome (1)	Color (2)


 **NOTE:** Device type can be changed to Color by reconfiguring the Device Type on the Properties -> Device Settings tab. Some monochrome PCL 5 and PCL 6 devices cannot handle color data. If color data is sent, the device will either generate an error or unexpected print output may occur.

NOTE: Postscript driver always sends color regardless of device type. Monochrome devices are able to handle the color data properly. However, the driver color tab may not display.

Steps to disable the Printer Automatic Configuration

Disabling the Printer Automatic Configuration is accomplished through pre-configuration of the UPD driver before installation onto the client or server. The HP Driver Configuration Utility available for download from the HP public website:

www.hp.com/go/dcu

 **NOTE:** The DCU is available for both 32 and 64-bit systems.

1. Using the Driver Configuration Utility, path out to the UPD driver files and open the *.cf_ file or the *.cfm if modifying pre-configuration setting file of UPD already installed onto a system.
2. From the Device Settings tab, select "Printer Auto-Configuration" drop down menu.
 - a. Disabled
 1. Printer Automatic Configuration will not run at install time
 2. Auto Configuration will be grayed out/disabled in the Device Settings tab
 3. Feature will not apply to dynamic Mode

4. The Auto-Configuration UI control on the Device Settings tab will remain ENABLED allowing Administrators to manually invoke the Printer Automatic Configuration from the driver itself.
 5. The SNP Pop-ups will not be displayed if bidirectional communication is disabled. SNP requires the ability to communicate to the devices via SNMP.
- b. Enabled (Auto Configuration Takes Priority)
 - c. Enabled (Driver Pre-Configuration Takes Priority)
 1. Is the current Processing order for DMC /PRINTER AUTOMATIC CONFIGURATION
 2. Is the default for PRINTER AUTOMATIC CONFIGURATION.
 - d. Help About in the Configuration Status box will display
 - Administrator Preferences Not Applied
 - Last Configured xx/yy/zzzz
 - Default Configuration

Communication protocols

Bidirectional communication between the UPD driver and the target device occur direct or over the network:

- **SNMP over the network:** UDP ports 160 (general request/response messages) and 161 (traps).
- **HTTP over the network (Job Capabilities Ticket):** a compressed file that can be sent to the UPD over http that defines specifications for the target device. JCT implementation in UPD v5 only includes media types, paper type and HP Easy Color. Device supporting JCT will also communicate SNMP information during bidirectional communication, therefore JCT supported devices may display more capabilities compared to non JCT supported devices.
- **PML over DOT4:** DOT4 is based on the IEEE 1284.4 protocol. For direct connect, DOT4 over USB or DOT4 over LPT is used for most devices. Many composite devices do not support DOT4 and may support an alternate directional mechanism.
- **Low end device model (LEDMM) over Composite USB:** Beginning with UPD v4.7 the UPD can query low end laser models direct to get device configuration, status and alerts over composite USB. If the low end device is also networked, UPD printer automatic configuration will use the network.

Printer Automatic Configuration services

HP UPD installs two services that enable Printer Automatic Configuration to function. In combination these services allow the HP UPD to retrieve device configuration after installation, using UPDATE NOW, or via command line using RUNDLL32.

- **Net Driver HPZ12:** Provides channelized data transfers over the network for scan and fax
- **Pml Driver HPZ12:** For USB connected devices that support PML or for network SNMP, provides the ability to determine what features a device has using printer automatic configuration and device status.

Steps to Disable

By default two UPD installed services are set to load Automatic. If the UPD is preconfigured prior to installation to disable Printer Automatic Configuration using the Driver Configuration Utility or HP Driver Deployment Utility, and the system installing UPD does not already have the UPD or other HP driver utilizing bidirectional communications, the UPD services will not be registered to the system.

If the “PML Driver HPZ12” is stopped and set to Manual the service will restart when UPD Update Process is launched; if set to Disable when the UPD Update Process is launched an error may be generated.

Steps to Remove

See [Uninstall the HP UPD on page 51](#)

Symptoms when Printer Automatic Configuration fails

When the HP UPD Printer Automatic Configuration services have not or can communicate direct to the target printing device the exact capabilities of the target device will be unknown to the installed HP UPD printer. Symptoms or observable changes to the HP UPD installed driver can include the following.

- Error message displays, **This command could not be completed because a printer communication error occurred.**
- No special device features or device attachments available for selection.
- Black and white printing only (even to color devices).
- No color tab.
- No duplex unit.
- No hard drive (no Job Storage tab).
- No Status Notification Pop-ups during FILE-PRINT (this feature may also be disabled through administrator settings at time of HP UPD install).

Troubleshooting

Printer Automatic Configuration can fail communication with the device because of issues in the communication path, the client or network configuration may prevent communication, or the feature has been disabled by the print administrator at install via driver preconfiguration. Take the following steps to isolate issues when Auto-Configuration is not successful.

1. Can the HP UPD print to the target device?

No, then bidirectional communication may also fail because of connection issues between the HP UPD and the target print device.

2. Is the HP UPD printer defined with Printer Auto Configuration enabled?

Check the Printer properties-Device Settings tab. Under Installable Options, is Automatic-Configuration grayed out?

- a. Yes, run "Update Now" to check bidirectional communication
- b. b) No, then Auto-Configuration has been disabled either through driver configuration or disabling the bidirectional communication services. Suggested steps.
 - Are the Net Driver HPZ12 and PML Driver HPZ12 services installed (My Computer- Manage-Services or by NET START at the command line)?
 - Reinstall the driver after confirming the source *.cf_ file or *.cfm file has not been preconfigured to disable Printer Auto Configuration. If unsure, download the source driver package from www.hp.com/go/upd and perform a default installation without using HP Driver Preconfiguration Utility.

3. After running "Update Now" were expected results returned?

- a. Check the Printer Properties-About tab and verify "Last Configured xx/yy/zzzz" date matches the Microsoft OS system date (confirmed typing START-RUN-cmd /k date). If not then Auto Configuration did not succeed.
- b. Was an error message returned?

"This command could not be completed because a printer communication error occurred" Check for the correct port, port address, physical and logical connection to the target device.
- c. Paper types supported by the target device are not in the UPD driver user interface?
 1. For some older device the UPD may not retrieve the device's full list of supported paper types. Instead, the UPD driver presents a subset of paper types, a generic list believed to be supported by most all printers. Presenting a generic list supported by most all printers prevents selecting a paper type through that perhaps the device would not support. For a small class of devices the penalty for this level of protection is not displaying a paper type that the device might support. If the paper type is not part of the generic list of paper types it will not be presented through the UPD driver UI.
 2. ii. Changes to media such as paper size or paper types settings made via the device's embedded web server, HP Web Jetadmin to the device, or the device's control panel would not change or update the UPD driver display options. To administrate these types of change to appear in the UPD drive user interface:
 - (a) The end user would need to go to PROPERTIES-ADVANCE-Printing Defaults and manually change.
 - (b) Point and Print vended client would see the defined setting under Printing Preferences
 - (c) Pre-configuration of the UPD driver with the HP Driver Configuration Utility or the HP Driver Deployment Utility prior to install or reinstallation of the driver.

4. What is the physical connection method between the HP UPD installed printer and the target printing device?

Bidirectional communication between the HP UPD driver and the target device is possible through direct connection to the device or over the network by means of UDP. To confirm your connection

method, select the HP UPD in **Printers** folder, **Print Properties**, and check the **Port** tab. Is the selected port defined correctly?

- No, set to the correct port type or port address (TCP/IP address or DNS name)
- Yes, proceed to next steps, either Troubleshoot Network connected or Troubleshoot Direct connected.

5. Troubleshoot network connection/port

- a. Can you ping the target print product by the TCP/IP address? By host name?
- b. Can you ping the print server by the TCP/IP address? By host name?
- c. Is the UPD's target port defined by hostname or IP address?
- d. If by host name fails, is the hostname registered in DNS? nslookup dns_name_of_device
- e. Is the UPD installed client traversing network subnets to the target print server or printing device? Is yes, is http and snmp traffic allowed through these connection paths? To define the segments in the network path run the following from the UPD install client: tracert print_device_ipaddress
- f. Is the localhost or the target print server running an internet firewall? Are ports 160, 161, and/or 80 open?
- g. Can the UPD client host access the device's embedded web server? http://device_ip_address or https://device_ip_address
- h. Network issues such as denial-of-service at the print server or printing device, network service interruption, or unauthorized and privileged access to the target print device or print server
- i. TCP filter enabled: TCPIP-ADVANCED-Options Tab-PROPERTIES (types of traffic allowed to pass to the TCP protocol)

6. Distinguish if target product is communicating bidirectional for printer auto configuration via HTTP or SNMP?

Bidirectional communication over the network could occur via HTTP and SNMP dependent upon target device. Errors specific to the protocol:

HTTP

- a. Does the device support hp job capabilities ticket? To determine,
`http://device_ip_address/hp/device/JobCapabilities/JobCapabilitiesTicket.zip`
- b. HTTP port 80/tcp is enabled in the \ % SystemRoot %\System32\Drivers\Etc\services file?
- c. Does the HP UPD installed host firewall allow HTTP traffic?
- d. If the target product is on a separate subnet, does the network route HTTP traffic?

SNMP

- a. Do community names of the installed HP UPD host match the community name of target print product?
- b. Does the HP UPD installed host firewall allow SNMP traffic?
- c. If the HP UPD installed host is on a separate subnet, does the network route SNMP traffic?
- d. Wireless network security often disable SNMP routing as a security measure.
- e. SNMP port 161/udp is enabled in the `\ % SystemRoot %\System32\Drivers\Etc \services file?`

7. Install and test a new print queue?

Reducing complexity to isolate variables. A simple test is to install the UPD driver taken from www.hp.com/go/upd using the default installation options onto a clean system. This insures the driver has not been pre-configured before installation, that upgrade from one version to the next in a contaminated environment is reduced, and the print queue itself is new and self managed. During installation, create a new print queue targeted to a device with an address on the test machine's subnet.

8. Is the network congested?

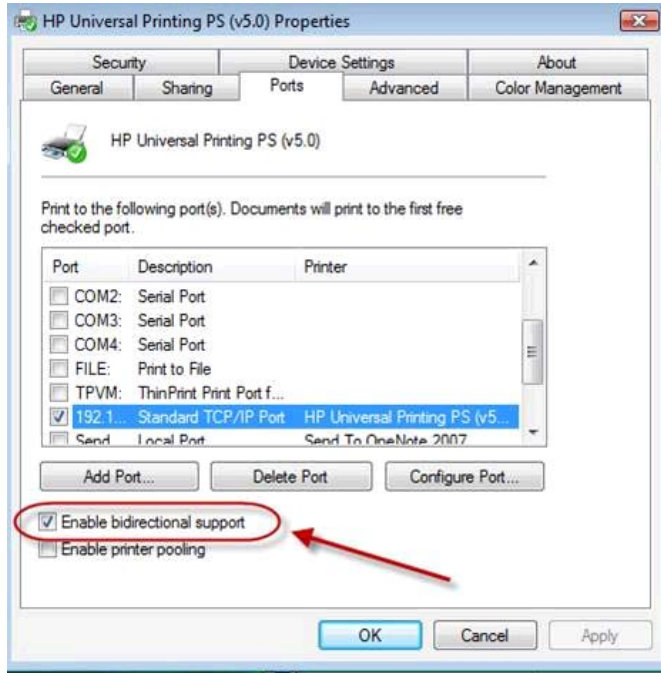
HP UPD bidi uses SNMP protocol, which is carried on the network using HP UPD protocol. HP UPD packets are low priority, and can be discarded if the network is congested.

FAQ

1. **For non permanent instance installations of the UPD will the printer be queried every time?** For cases where a user has chosen to create a permanent instance of a printer, settings are permanently saved to the local registry (like any other printer driver) and the user would continue to print to that permanently created instance. For cases where a user has not chosen to create a permanent instance of a driver, registry entries are saved in a .CREG file (cached registry). Initially the driver will attempt to save the CREG files to the "C:\Program Files\Hewlett-Packard\HP Universal Printing" directory. If that directory is not available or is locked, the driver will attempt to cache settings in the %TEMP% then %TMP% directories. If neither of these directories are available then the HP Universal Print Driver will query the printer every time for non-permanent instances.

2. **How does enabling or disabling the Microsoft port Enable bidirectional support impact the HP UPD's bidirectional communication?** The HP UPD uses the MS port's bidirectional communication for basic status level related to print spooler operations such as 'Printer Online' and 'Paper Out.' However, for product configuration and capabilities the HP UPD uses its own installed services for bidirectional communication between the HP UPD and the target product (NET DRIVER HPZ12 and PML DRIVER HPZ12).

Figure 6-4 Enabling bidirectional support



3. **Does HP UPD Printer Autoconfiguration bidirectional communication cause slow print performance?** No, the traffic send/receive response is very small (SNMP around 65 kilobytes) and infrequent. For traditional mode installation the UPD only queries for printer information at time of installation, when executed through Update Now or RUNDLL32 at the UPD installed client, and for a simple change id at the beginning of Printer Automatic Configuration job to verify that the configuration has not changed.
4. **After the PRINTER AUTOMATIC CONFIGURATION has completed a successful bidirectional update several device features appear in the UPD driver user interface that my device does not support. For example, why does the DEVICE SETTINGS tab show "Tray 3: Not Installed" for several trays?** The settings are place holders for the UPD. Because the UPD does not know before an Automatic or Preconfiguration of the driver's exact configuration the UPD driver UI structure must remain capable of displaying settings beyond the standard default settings in the UDP drivers UI design. By preserving the setting locations, after completing Printer Automatic Configuration update the user interface can dynamically update the "Not Installed" settings to the current configuration when a change has occurred to configuration of the device.
5. **Print Properties-Device Settings-Installable Options, the Automatic Configuration option is grayed out and unavailable for selection. What could be the cause?**

Two possibilities dependent upon how the driver was installed onto the host.

- a. Point and Print connection the driver is a printing client to print server connection. Updates would be centrally controlled from the print server and not the client, therefore the print client would not initiate the Printer Auto Configuration between the print queue and the

target printing product. However, printing clients can check their Printer Properties-About tab to display the server's last update status between the print server and printing target product:

Auto-Configured MM/DD/YYYY

Not Auto-Configured

Auto-Configuration Not Attempted

- b. Printing Automatic Configuration may have been disabled by pre-configuration of the driver before the HP UPD was installed. This can be confirmed by checking the About tab; the following will display if disabled by your Administrator:

Auto-Configured MM/DD/YYYY

Not Auto-Configured

Auto-Configuration Not Attempted

6. Is there a good method for testing Printer Automatic Configuration?

- a. Install UPD with default options (do not utilize switches on the INSTALL.EXE command line) using an HP default driver package downloaded from www.hp.com/go/upd. This step ensures the driver has not been pre-configured.
- b. During installation, create a new printer port with an invalid TCP/IP address. During the UPD installation the Automatic Configuration will attempt to communicate to the invalid device IP address. Install will complete without error and provide default options. For example, the Color tab will not display because automatic configuration could not validate a color printer at the defined TCP/IP address.
- c. For the newly install UPD printer check Printer Automatic Configuration is enabled (Printer Properties-Device Settings tab-Installable Options-Automatic Configuration-Update Now)
- d. Check the ABOUT tab and note the "Last Configured xx/yy/zzzz" which identifies if Printer Automatic Configuration has communicated with the target device.
- e. Change the UPD install printer TCP/IP port address to a valid device IP address.
- f. Run UPD's Printer Automatic Configuration through the UPD driver user interface or the command line specific to the installed UPD version (see [Command line interface on page 65](#)).
- g. Check the device capabilities updated from the default settings.

7. Does the following message, "Windows Security Alert: Spooler Subsystem App" generated during the installation relate the UPD's installed bidirectional communication services over the network? UPD installation can make calls over the network utilizing different ports and communication protocols for configuration, device capabilities and status. For example, ports 160, 161, and 80 might all be utilized in the Printer Automatic Configuration process when the UPD communicates bidirectional over the network to the target device. If the ports used by the print spooler are not open, the firewall may need to be configured.

8. Is there a tool or steps to test SNMP port access required by UPD printer automatic configuration? The SNMP port utilization by UPD will not be active until traffic is being sent or received during the Update Now process. Full diagnosis involves checking port access at all connection points of the network between the UPD printing client and target device (gateway/routers/switches/server and host firewalls). Utilities to help troubleshoot connection path access

can include Net Print, netstat, tracer, and pathping to identify network device access. SNMP port utilization by UPD will not be active until traffic is being sent or received during the Update Now process making a network sniffer one of the best tools for diagnostics during the update process.

7 Use HP Universal print drivers

Introduction

The HP Universal Print Driver (HP UPD) combines a general-purpose print driver with additional functionality allowing users to print to:

- Devices on a local port
- Devices on a network
- Devices on a managed printer list

The following sections describe how to use the HP UPD and its features.

- [Use the HP UPD](#)
- [Print using the HP UPD](#)
- [Add a printer to the Printers and Faxes folder](#)

Use the HP UPD

- [Universal print driver modes](#)
- [Configure HP UPD dynamic mode settings](#)
- [Change the settings for the HP UPD](#)
- [Change driver properties \(print job preferences\)](#)
- [Help](#)

Universal print driver modes

The look and feel of the HP UPD varies depending on whether it has been installed in dynamic or traditional mode.

For more information about installing the HP UPD in these modes, see [Install and Uninstall of the HP UPD on page 27](#).

Traditional mode

When installed in traditional mode, the HP UPD behaves as a product-specific driver, associated to a specific printer with a permanent instance of the driver in the **Printers** folder. Traditional mode installs using the **Add Printer Wizard** in the **Printers** folder or by using Install.exe.

Dynamic mode

An HP UPD installed in **Dynamic mode** allows the most flexibility for the users to locate and connect to products.

A user can print to a wide variety of supported HP products using the HP UPD without having to download a product-specific driver.

When printing in a mobile environment, the user also has the ability to search for printers through any of the three search features enabled by default.

Dynamic mode offers a unique, easy to use user interface that steps the user through the printer discovery and selection process. Dynamic mode requires user interaction because it presents the user with a dialog box for entry of the printer's IP address or the printer's host name. This interaction can be minimized by adjusting the dynamic mode settings mentioned in this section.

Advanced features available for the HP UPD allow an administrator to offer additional printer discovery options and management control via HP Managed Printing Administrator and the HP UPD Active Directory Administrative Template.

The following information describes the driver in **Dynamic mode** unless otherwise stated.

Configure HP UPD dynamic mode settings

The processes for entering the **Dynamic** mode UI and changing the default behavior is outlined below.

To access the **Printing Preferences** and **Properties**, do the following:

1. Click **Start, Settings**, then **Printers**.
2. In the **Printers** window, right-click the driver.
3. Click **Properties** or **Printing Preferences**.

Change the settings for the HP UPD

Access the settings of the HP UPD in one of the following ways:

- **When printing:** In the Print dialog box, select **HP Universal Printing** and click **Properties**.
- **From the Printers folder:** Right-click **HP Universal Printing** and select **Properties** or **Printing Preferences**.

Change General HP UPD settings

To specify the prompt you receive for destination printers when you are printing, follow these steps:

1. Do one of the following:
 - **When printing:** In the Print dialog box, select **HP Universal Printing** and click **Properties**.
 - **From the Printers folder:** Right-click **HP Universal Printing** and select **Properties** or **Printing Preferences**.
2. Click **Settings** (number 5 on [Figure 7-1 HP UPD dialog box on page 83](#)) and click the **General** tab.
3. Select one of the following options:
 - **Always prompt for the printer when printing a job.**

The HP Universal Printing dialog box displays every time HP Universal Printing is the selected printer. You can select a destination printer in this dialog box.
 - **Only prompt the first time a job is printed from an application.**


The HP Universal Printing dialog box displays the first time HP Universal Printing is selected as the printer from an application. This option is helpful if other print jobs from that application are sent to the same printer by reducing the number of key clicks required by the user.
 - **Only prompt if the last known printer is no longer available.**

The HP Universal Printing dialog box displays if the last used printer is no longer available.
4. Click **OK**.

Change Device Verification settings (number 5 on Figure 7.1)

To set the level of verification required to allow printing, follow these steps:

1. Do one of the following:
 - **When printing:** In the Print dialog box, select **HP Universal Printing** and click **Properties**.
 - **From the Printers folder:** Right-click **HP Universal Printing** and select **Properties** or **Printing Preferences**.
2. Click **Settings** and the **Device Verification** tab.

 **NOTE:** See [Figure 7-1 HP UPD dialog box on page 83](#) for a picture of the dynamic mode screen.


3. Set the level of verification required to allow printing:
 - **Verify bidirectional communication with device and language compatibility with driver (High)** to block printing if bidirectional communication and language compatibility cannot be verified.
 - **Verify device ID and Model Name can be obtained from port (Medium)** to block printing if the product ID and Model Name cannot be verified. Medium is the default setting.
 - **Verify port can be opened for printing (Low)** to allow printing (but issue a warning message) if the port can be opened for printing.
4. Click **OK**.

Change driver properties (print job preferences)

Access HP UPD properties in one of the following ways:


- **When printing from an application**—Recommended to change print settings for a single print job, or for print jobs during a single session in an application.
- **From the Printers and Faxes folder**—Recommended to change default print settings for all applications that use this driver.

Change driver properties while printing

 **NOTE:** The changed settings apply only to the current print job or only to print jobs sent within the same session in that application.

1. From an application, click **File** and **Print**.
2. Select the Printer representing the dynamic mode use and click **Properties**. The **HP Universal Printing** dialog box opens.
3. Select a printer from the **Recently Used Printers** list, or find a printer, and click **OK**. The **HP Universal Printing Properties** window opens.
4. After making changes to the driver settings, click **OK**. The **Print** window returns.
5. Click **OK** to print the job according to the changed settings.

Change driver properties from the Printers and Faxes folder

 **NOTE:** The changed settings apply as default settings for all print jobs in any application that uses this driver.

1. In the **Printers** folder, right-click on the printer representing HP UPD dynamic mode use and select **Properties** or **Printing Preferences**. The **HP Universal Printing** dialog opens.
2. Select a printer from the **Recently Used Printers** list, or find a printer, and click **OK**. The **HP Universal Printing Properties** window opens.
3. After making changes to the driver settings, click **OK**.

Help

Click the **Help** button in the HP Universal Print Driver software to open the *HP Universal Print Driver for Windows User Guide*.

Print using the HP UPD

Printing using the HP UPD depends on the installation mode of the HP UPD.

An HP UPD installed in dynamic mode functions within the constraints established by the administrator to manage the printer. If a feature does not behave normally, the administrator might have limited the functionality.

An HP UPD installed in traditional mode behaves like a product-specific driver. The HP UPD behaves according to the driver features available for the product to which the driver is attached.

See the following sections for more information. This section is divided according to the installation method, as the installation method dictates how the HP UPD behaves.

- [Print using the HP UPD in dynamic mode](#)
- [Print using the HP UPD in traditional mode](#)

Print using the HP UPD in dynamic mode

When the HP UPD is installed in dynamic mode, it appears as a typical printer in the user's **Printers** folder. Dynamic mode provides a unique interface to the users allowing them to instantly locate and connect to printers on the fly.

Search for printers using any of these methods:

- Enter a printer address.
- Search the local subnet for printers.
- Enter the name of a print server.

The next section details each of the dynamic mode options. Printers found via dynamic mode are temporary connections and do not appear individually in the **Printers** folder. Dynamic mode installation of the HP UPD does not require the user to have any elevated rights or printing permissions, allowing the existing user permissions to remain intact. Dynamic mode is supported in Direct IP and local printing only and is not supported as shared printers on print servers at any time.

See the following for more information.

- [Dynamic mode options – Default configuration](#)
- [Use dynamic mode](#)
- [Select a recently used printer \(Figure 7.1 item 1\)](#)
- [Find a printer \(Figure 7.1 item 3\)](#)

Dynamic mode options – Default configuration

By default the name of the dynamic mode printer created is the same as the name of the driver. In the case of PCL6, the default queue name is HP Universal Printing PCL6. This name can be changed during installation, or renamed to something more descriptive like “Search for a Printer”.



NOTE: The printer name is changed in the printers folder after the driver is installed.

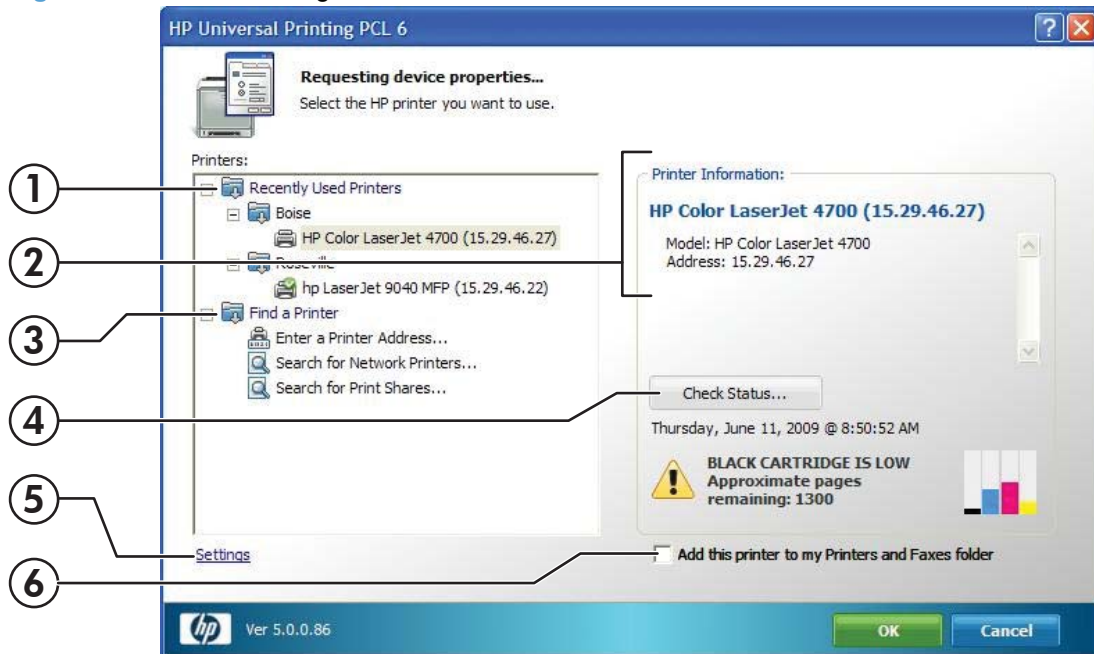
Use dynamic mode

1. From an application, click **File** and **Print**.
2. Select **HP Universal Printing** as the printer, and click **OK**. The **HP Universal Printing** dialog box opens.
3. For the quickest way to print, select a printer from the **Recently Used Printers** list, and then click **Print**.

If no printer is available in the **Recently Used Printers** list, or if you prefer to find a different printer, you can find a printer immediately by using one of the options under **Find a printer**.

Select a recently used printer (Figure 7.1 item 1)

Figure 7-1 HP UPD dialog box




The **Recently Used Printers** list contains all the products to which the HP Universal Print driver has recently printed. After you have determined which recently used printer to use, click **Print**.

Additional options:

To verify whether or not this printer contains the necessary supplies for the print job before printing, click the **Check Status** button.

To add a recently used printer to the **Printers** folder, select the **Add this printer to my Printers folder** option. This option allows you to print directly to this printer rather than accessing it through the **HP Universal Printing** dialog box.

 **NOTE:** Recent changes to the HP UPD (Version 4.7 and newer) no longer require that the user have elevated rights to create a permanent instance of the selected printer. Restricted or “locked down” users can now create traditional mode queues from within the dynamic mode routine.

Find a printer (Figure 7.1 item 3)

From the **HP Universal Printing** dialog box, you can find a printer (Figure 7.1 item 3) locally or on the network and print to it immediately.

The following methods for locating and connecting to a printer are available:


- **Enter a printer address**—Recommended if the IP address, host name or UNC path is known or if you want to use a printer that is outside your local subnet.

 **NOTE:** To determine the printer address, print a configuration page from the printer.


- **Search for network printers**—Recommended if you do not have the printer address for a printer or you want to see what products are available on your subnet. This feature uses a local subnet broadcast known as Multicast DNS (mDNS) and is similar to the Bonjour or Rendezvous protocol.

For Devices to show up in the Network Printers list, the following requirements must be met:

- The printer must be on the same subnet as the PC running dynamic mode.
- mDNS, TCP/IP V4 protocol, port 9100 printing must be enabled.

 **NOTE:** The printer list returned represents the list of printers available on the local subnet. The information for each printer by default represents the mDNS service name and is a text field that can be changed to provide more descriptive information for the users.

- **Search for print shares**—Recommended if you want to view shared printers on the network or products that use a print server.

 **NOTE:** The above are all default options. Other options might be available depending on the print policies created by your system administrator. Contact your system administrator for more information about these options.

See the following for more information.

- [Enter a print address](#)
- [Search for network printers](#)
- [Search for print shares](#)

Enter a print address

 **NOTE:** To determine the printer address, print a configuration page from the printer.

1. Click **Enter a printer address**.
2. Type the printer address (IP address, host name, or UNC path) and click **OK**. If the printer address is found, the printer is displayed under the **Printer Information** pane on the right side of the window.
3. Click **Print**.

Check Status

To verify the status of the product or whether the printer contains the necessary supplies for the print job before printing, click the **Check Status** button.

Add this printer to my Printers folder

To add the currently selected printer to the **Printers** folder as a traditional mode print queue, select the **Add this printer to my Printers folder** option (Figure 7.1 item 6). This option allows you to print directly to this printer rather than accessing it through the HP Universal Printing dialog box. Adding a traditional mode printer via dynamic mode no longer requires that the user have elevated rights.

Search for network printers

When selecting **Search for Network Printers**, the HP UPD will use the mDNS protocol to discover products on the local subnet only. This means that only products on the same subnet as the HP UPD will be displayed in the list. mDNS, or Multicast DNS is also known as Bonjour protocol.

1. Click **Search for network printers**. The available printers appear under **Printers** in the **Search for network printers** dialog box.

If necessary, click **Refresh** to update the list.
2. Select the desired printer and click **OK**. The selected printer is displayed under the **Printer Information** window. Click **OK** to return to the main dynamic mode window. The selected printer also appears on the right side of the pane under **Printer Information**.
3. Click **OK** to proceed.

More options:

To verify whether or not this printer contains the necessary supplies for the print job before printing, click the **Check Status** button, Figure 7.1 item 4.

To add a recently used printer to the **Printers** folder, select the **Add this printer to my Printers folder** option. This option allows you to print directly to this printer rather than accessing it through the **HP Universal Printing** dialog box.

Search for print shares

1. Click **Search for print shares**.
2. Enter the network printer address, example `\\servername\sharename` or click **Browse** to browse the network for shared printer resources, a print share, or a shared printer.
3. Click **OK**. The printer displays under the **Search for print shares** option.
4. Click **Print**.

More options:

To verify whether or not this printer contains the necessary supplies for the print job before printing, click the **Check Status** button.

To add a recently used printer to the **Printers** folder, select the **Add this printer to my Printers folder** option, Figure 7.1 item 6. This option allows you to print directly to this printer rather than accessing it through the **HP Universal Printing** dialog box.

Print using the HP UPD in traditional mode

When a printer is installed using the HP UPD in traditional mode, it behaves just like the product specific drivers.


1. In the program, click **File**, and then click **Print**.
2. The **Print** dialog box opens. Select the printer from the list of available printers.
3. Click **Properties** and modify the driver features as needed. (For example, select the **Finishing** tab, and select **Print on both sides**.)

Click **OK** when complete.

4. Click **Print**.

Add a printer to the Printers and Faxes folder

Use the **HP Universal Printing** dialog box to add a printer to the **Printers** folder while printing from a program or from within the **Printers** folder.

 **NOTE:** When a printer is created using the **Add Printer Wizard**, or from within the dynamic mode UI screen, a traditional mode version of the HP UPD is created for the printer. This means that both traditional mode and dynamic mode queues can be used on the same system. Also, when a printer is created from dynamic mode, the new traditional mode printer takes on the same driver PDL: version as the dynamic mode queue. This means that if PCL6 is used for the dynamic mode queue, then the traditional mode printers created from this will also be using the PCL6 version of the driver.

See the following for more information:

- [Add a printer to the Printers folder using the dynamic mode user interface.](#)
- [Add a printer to Printers and Faxes folder from within the Printers and Faxes folder](#)
- [Organize the Recently Used Printers list](#)

Add a printer to the Printers folder using the dynamic mode user interface.

1. In the software program, click **File** and **Print**.
2. Select **HP Universal Printing** and click **Print**. The **HP Universal Printing** dialog box opens.
3. To add a previously used printer, select one of the printers in the **Recently Used Printers** list.
4. To discover a printer to add, select one of the following options under **Find a printer**:

- **Enter a printer address.** Type the IP address, host name, or UNC path, and click **OK**.


 **NOTE:** To find the printer address of a printer, print a configuration page.

- **Search for network printers.** Select one of the printers listed and click **OK**.
 - **Search for print shares.** Type the network printer address or click **Browse** to browse to the printer. Click **OK**.
5. Select **Add this printer to my Printers folder**, Figure 7.1 item 6.
 6. Click **OK**.

Add a printer to Printers and Faxes folder from within the Printers and Faxes folder

1. In the **Printers** folder, right-click **HP Universal Printing** and select **Properties** or **Printing Preferences**. The **HP Universal Printing** dialog box opens.
2. To add a previously used printer, select one of the printers from the **Recently Used Printers** list.

3. To discover a printer to add, select one of the following options under **Find a printer**:
 - **Enter a printer address.** Type the IP address, host name, or UNC path, and then click **OK**.

 **NOTE:** To find the printer address of a printer, print a configuration page.

 - **Search for network printers.** Select one of the printers listed and click **OK**.
 - **Search for print shares.** Type the network printer address or click **Browse** to browse to the printer. Click **OK**.
4. Select **Add this printer to my Printers folder**.
5. Click **OK**.

Organize the Recently Used Printers list

The products listed under the **Recently Used Printers** list can be organized by deleting products, moving products into folders, and creating new folders.

 **NOTE:** By default, no folders are listed under the **Recently Used Printers** list.

Add a new folder

1. Right-click **Recently Used Printers**, and select **New Folder**.
2. In the **New Folder** dialog box, type a name for the folder, and click **OK**. The folder displays under **Recently Used Printers**.

Move devices into folders

- Drag and drop the products you want to move into the desired folder.
- Right-click the product to move, select **Move to Folder**, and select the desired folder.

To delete a product or a folder, right-click the product or folder and click **Delete**.

8 Manage the HP UPD using HP Managed Printing Administration (HP MPA) and Active Directory Group Policy

- [Manage the HP UPD using HP MPA](#)
- [Manage the HP UPD with Active Directory Group Policy](#)

Manage the HP UPD using HP MPA

Introduction

The HP Managed Printing Administration (HP MPA) software enables the HP UPD to create a controlled and customized print environment.

The HP MPA software consists of three main components.

- HP Managed Print Policies (MPPs)
- HP Managed Printer Lists (MPLs)
- User Groups

For more information, see the HP MPA website www.hp.com/go/mpa

- [HP MPA version information](#)
- [Supported environments for managing the HP UPD](#)
- [Install and uninstall the HP MPA software](#)
- [Access HP MPA](#)
- [Use HP Managed Print Policies \(MPPs\)](#)
- [Use HP Managed Printer Lists \(MPLs\)](#)
- [Use User Groups](#)

HP MPA version information

Each HP MPA version represents a new release that describes updates and feature enhancements. The table below identifies these changes. For more information about each release, review the HP MPA release notes.

Supported HP MPA versions

Table 8-1 HP MPA supported version information

HP MPA version	Release date	New features	Required HP UPD version
2.5.8	June 1, 2010	Includes new device images NOTE: HP MPA is only supported on 32-bit servers and workstations.	Requires HP UPD 4.7 or newer to use this feature
2.5.7	July, 2009	Added new printer images for Printer lists	Requires HP UPD 4.7 or newer to use this feature
2.5.2	Jan, 2009	Added support for Personal Job Pin-Less Printing Added support for WJA 10.1 printer list creation via XML lists	All HP UPD versions apply

Supported environments for managing the HP UPD

To enable policy management with HP MPA, install the HP UPD locally on each PC by using Install.exe and the appropriate policy enablement switch. This includes print server environments where Point and Print is normally used to vend drivers to the client PCs. Installing the HP UPD on the print server and enabling policy management is not sufficient to manage the client-based printing, the policy information is not propagated to the client PCs during Point and Print driver vending.

Install and uninstall the HP MPA software

By default, the HP UPD assumes that the HP MPA is installed on a server named **managed-print**. As a result, the HP UPD searches the network for **http://managed-print** for HP Managed Print Policies or HP Managed Printer Lists. If you install the HP MPA on a computer with a name other than **managed-print**, you must change the HP UPD default settings. To change the HP UPD default settings, install the HP UPD with the following switch options.

Install/Policy"<computername>" or Install/Policy"<IPaddress>" where the computer name or IP address represents the name of the computer with HP MPA installed.


For example, to install the HP MPA on a server named **mgmt-srvr**, the complete command line switch for the install would be.

```
Install /Policy"mgmt-srvr" /sm192.168.1.10 /n"print queue name" /h /q
```

- [HP MPA Software requirements](#)
- [Software availability](#)
- [Install the HP MPA software](#)
- [Back up the HP MPA software](#)
- [Uninstall the HP MPA software](#)

HP MPA Software requirements

Requirements for HP MPA Software

- Supported Operating Systems
 - Microsoft Windows XP
 -  **NOTE:** Microsoft no longer supports Windows XP operating systems. Support of the HP UPD with Windows XP may be limited.
 - Microsoft Windows 7 Pro, Enterprise, and Ultimate
 - Microsoft Windows Server 2003 (32-bit)
 - Microsoft Windows Server 2008 SP2 (32-bit)
 - Windows Vista (32-bit)
- Supported Internet Browsers
 - Internet Explorer 7.0, 8.0

- IIS Internet Information Services. Versions provided by the following OSs.
 - Windows XP
 - Windows Server 2003
- Java JRE (Runtime Environment, required for graphical views) version 1_5_0_9 and newer. The latest version is available at the following website: www.java.com/en/download/index.jsp.

Software availability

The HP MPA is available in the following languages.

- English

Install the HP MPA software

Follow these steps to install the HP MPA software.

1. Download the HP MPA as part of the HP Printer Administrator's Resource Kit (PARK) available at h20338.www2.hp.com/Hpsub/cache/494717-0-0-225-121.html. Click the link to the PARK beneath the **Universal Print Driver Tools** heading to download the PARK zip file.
2. Extract the contents of the PARK zip file to your hard drive.
3. Locate the folder where you extracted the PARK zip file. Browse to the **managed print administrator** folder and double-click **HPMPAInstall.exe** to create an installation folder for HP MPA.
4. Browse to the **HP Managed Printing Administration** installation folder and double-click **HPMPAInstall.msi**.
5. The **HP Managed Printing Admin Setup Wizard** opens. Click **Next**.
6. The **Confirm Installation** window opens. Click **Next**.
7. The **Installing HP Managed Printing Admin** window opens. A progress bar indicates the progression of the install. Wait until the next window opens.
8. The **Installation Complete** window opens. Click **Close**.

Back up the HP MPA software

HP MPA stores information about users, groups, policy, and printer lists in a Microsoft Access database file. HP recommends periodic back ups of this database in case the database becomes corrupted. Back up the database before performing an upgrade.

1. Browse to C:\inetpub\HPManagedPrintAdmin\Database.
2. Copy the file **hpmpa.mdb** to your backup location.

Uninstall the HP MPA software

When uninstalling the HP MPA, the **hpmpa.mdb** database file created during installation is not removed. An older version HP MPA must be uninstalled before a newer version can be installed and this database file is left behind to accommodate the updating of HP MPA versions without losing any data.

There are two ways to uninstall the HP MPA software from the computer.

- HP Managed Printing Admin Setup Wizard
- Add/Remove Programs

Uninstall HP MPA using HP Managed Printing Admin Setup Wizard

1. Double-click the **HPMPAInstall.msi** file used to install HP MPA. The **HP Managed Printing Admin Setup Wizard** opens.
2. Two options are available in the **HP Managed Printing Admin Setup Wizard** window.
 - Repair HP Managed Printing Admin
 - Remove HP Managed Printing AdminSelect **Remove HP Managed Printing Admin**.
3. Click **Finish**. The **Removing HP Managed Printing Admin** window opens.
4. The **Installation Complete** window opens, indicating the HP MPA is successfully removed. Click **Close** to exit.

Uninstall HP MPA using Add/Remove Programs

1. Click **Start, Settings, Control Panel**, and then **Add or Remove Programs**.
2. Select **HP Managed Printing Admin**.
3. Click **Remove**.
4. A confirmation dialog box displays, **Are you sure you want to remove HP Managed Printing Admin from your computer?** Click **Yes**.

The software is removed from the computer.

Access HP MPA

The HP MPA opens in one of the following two views.

- **Classic interface:** Uses typical Windows format to facilitate management of the HP MPA through text.
- **Graphic interface:** Uses Java to facilitate management of the HP MPA through images.

Follow these steps to open the to open the HP MPA software.

1. Double-click the **HP Managed Printing Admin** icon on the desktop.
2. The **Welcome to the HP Managed Printing Administrator control panel** screen displays. Click **Classic interface** or **Graph interface**.

For more information about the feature layout of each interface, see the following sections.

- [Classic interface](#)
- [Graphic interface](#)

Classic interface

The classic interface screen briefly describes the main components of the program and shows the relationship between Users, Groups, Policies, and Printer Lists.

In the classic interface, a navigation bar located in the upper left of the main screen provides links to all features and tasks within the HP MPA software and is used to manage printer use.

[Table 8-2 HP MPA classic interface options on page 94](#) lists the options provided in the leftmost navigation bar. The left-side of the table lists the main headings, and the right-side of the table lists the corresponding task-oriented subheadings available.

Table 8-2 HP MPA classic interface options

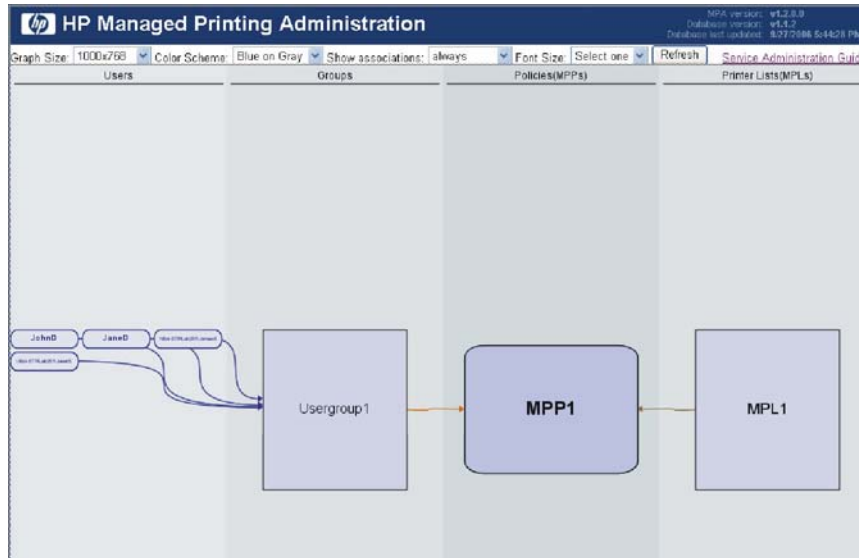
Option	Item
HP Managed Printer Lists	Create a new list
	Edit an existing list
	Associate with a policy
	Duplicate an existing list
	Manage MPL view
	Manage virtual printers
	Remove an existing list
HP Managed Print Policies	Create a new policy
	Edit an existing policy
	Duplicate an existing policy
	Associate printer lists
	Associate user groups
	Remove an existing policy
User Groups	Create a new user group
	Edit an existing user group
	Associate with a policy
	Remove a user group
Help	Service Administration Guide

Graphic interface

The graphic interface screen displays a real-time mapping of Users, Groups, Policies, and Printer Lists.

[Figure 8-1 HP MPA—Graphic interface view on page 95](#) shows the main screen of the graphic interface.

Figure 8-1 HP MPA—Graphic interface view



To manage printer use, a navigation bar located on the top of the screen provides links to all features and tasks within the HP MPA software.

Follow these steps to browse through the possible settings and features available in the HP MPA software.

1. Use the toolbar menus at the top of the screen to customize any of the following options.
 - **Graph Size**
 - **Color Scheme**
 - **Show associations**
 - **Font Size**

Settings for each of these options are identified in [Table 8-3 HP MPA graphic interface options on page 95](#).

2. Right-click an entry that you want to modify in the **Users**, **Groups**, **Policies (MPPs)**, or **Printer Lists (MPLs)** column and select one of the options shown in the following table.

Table 8-3 HP MPA graphic interface options

Column	Option
Users	Remove 'user name'
	Rename 'user name'
	Show policy XML for 'user name': The user name policy displays in XML format.
	Change association to: Select a group name.

Table 8-3 HP MPA graphic interface options (continued)

Column	Option
Groups	Remove 'group name': Opens the Confirm Object Removal dialog box. Click Yes to confirm the removal.
	Remove all users from this group
	Edit 'group name': See Edit an existing user group on page 130 for more information.
	Rename 'group name': Opens the Edit Groups Name dialog box. Enter a new name and click OK .
	Show policy XML for 'group name': The group-name policy displays in XML format.
	Change association to: Select a group name.
	Remove association from: Select the MPP from which to remove the association.
	Add a user to this group: Enter a new user name in the New user dialog box.
	Create a new user group: Enter a new user-group name in the Add new user to group dialog box.
	Policies (MPPs)
Edit 'policy name': For more information, see Edit an existing MPP on page 110 .	
Rename 'policy name': Opens Edit Policies (MPPs) name dialog box. Enter a new name and click OK .	
Show policy 'policy name': The policy displays in XML format.	
Export policy 'policy name' to XML file: The policy displays in XML format. You can save this file as an XML file and edit it later.	
Add user group association: For more information, see Associate user groups with an MPP on page 111 .	
Edit user group associations: For more information, see Associate user groups with an MPP on page 111 .	
Add printer list association: For more information, see Associate MPLs with an MPP on page 110 .	
Edit printer list association: Select a policy name. For more information, see Associate MPLs with an MPP on page 110 .	
Remove user group association from: Select a user-group name from which to remove the association.	
Remove printer list association from: Select a printer-list name from which to remove the association.	
Create a new policy (MPP): The Add a new HP Managed Print Policies (MPP) dialog box displays. Enter a new name and click OK .	

Table 8-3 HP MPA graphic interface options (continued)

Column	Option
Printer Lists (MPLs)	<p>Remove 'printer list name'</p> <hr/> <p>Edit 'printer list name': For more information, see Edit an existing MPL on page 120.</p> <hr/> <p>Rename 'printer list name' settings...: The Edit Printer Lists (MPL) Name dialog box displays. Modify the name and click OK.</p> <hr/> <p>Show XML for 'printer list name'...: The printer lists name displays in XML format.</p> <hr/> <p>Manage MPL view: The Manage MPL view dialog box displays. For more information, see Manage the MPL view on page 121.</p> <hr/> <p>Manage virtual printers: The Manage virtual printers dialog box displays.</p> <hr/> <p>Show MPL Preview: Shows information according to the option selected in the Manage MPL view dialog box.</p> <hr/> <p>Export printer list 'printer list name' to XML file...: Displays the printer list in XML format. You can save this file as an .XML file for later editing.</p> <hr/> <p>Add association to: Select a policy name to which you want to add the association.</p> <hr/> <p>Remove association from: Select a policy name from which you want to remove the association.</p> <hr/> <p>Create a new printer list (MPL): The Add a new HP Managed Printer Lists (MPL) dialog box displays. Enter a new name and click OK.</p>

Use HP Managed Print Policies (MPPs)

Use HP Managed Print Policies (MPPs) to control the driver operation mode, customize the print environment for the user, and limit user network access to certain printers or features. When enabled, MPPs prevent users from overriding or circumventing settings by downloading a new version of the driver.

A HP Managed Print Policies (MPP) is an XML document that controls the driver operation mode in a particular printing environment. For example, users in one environment could search or discover printers using any available search option. In turn, the same user running the same driver in another environment could be limited to printing a select few products, as defined by the restricted mode use settings.

One benefit of an MPP is that IT administrators have extended control over the printer environment, ultimately reducing support costs, supplies costs, and productivity costs. Another benefit is that the IT Administrator can use a policy ticket to define how the HP UPD behaves when operating in a specific environment. Every user printing through the HP UPD in the specific environment is limited or controlled by the defined policy, if they download the driver from an IT specified location or from the HP website, the first time or the 100th time. That control also extends to laptop computers that have HP UPD installed and are used at a site that defines an MPP. The printing is controlled by the defined policy.

The MPP contains the following features.

- **UseMode settings.** Controls the mode users use to access the printing environment; and, controls printing attributes, detection of HP printers, product-verification level, and availability of services. (See [UseMode settings on page 99](#) for detailed instructions.)
- **Default print settings.** Controls basic user experience of the print driver.
- **Color access.** Controls user access to printing color on a color-capable product. (See [Color Access settings on page 103](#) for detailed instructions.)
- **User search capabilities.** Controls user searches based on local ports, network print shares, and network printers (in dynamic mode). (See [User Search capabilities on page 105](#) capabilities for detailed instructions.)
- **Status and supplies notifications.** Controls what status and supplies notifications (if any) appear when the user opens the HP UPD dialog box. (See [Status & Supplies Notification settings on page 106](#) for detailed instructions.)
- **Job accounting.** Controls what job accounting information to submit to an external program or post to a web server.
- **Job delivery.** Controls what print-job data to submit to an external program. For example, the job data can be used in a pay-for-print environment.
- **Basic MPP settings.** Controls basic features such as refresh rate, name, and a default MPP for users not associated to a specific MPP.

This section contains more information on the following topics.

Topics

- [Create a new MPP](#)
- [Edit an existing MPP](#)
- [Duplicate an existing MPP](#)
- [Associate MPLs with an MPP](#)
- [Associate user groups with an MPP](#)
- [Remove an existing MPP](#)

Create a new MPP

Follow these steps to create a new MPP.

1. On the **Managed Print Policies** menu, select **Create a new policy**. The **Create a new MPP** screen displays.
2. In the **Name** field, enter a unique name for the new MPP.
3. Click **Next**. The **Properties** screen displays.
4. Modify the settings as necessary.
5. In the **Update Policy** group box, click **Apply** (to apply selected options and leave the **Properties** screen open) or **Done** (to apply selected options and close the screen). Until you have clicked **Apply** or **Done**, any settings that have changed are not saved in the MPP.

See the following topics for information about configuring specific properties for a new MPP.

Topics

- [UseMode settings](#)
- [Default Print settings](#)
- [Color Access settings](#)
- [User Search capabilities](#)
- [Status & Supplies Notification settings](#)
- [Basic MPP settings](#)
- [Update an MPP](#)

UseMode settings

1. In the **UseMode Settings** section of the **Properties** screen, click **Configure**. The **UseMode Settings** panel displays.
2. From the **Template** menu, select one of the following options from [Table 8-4 UseMode Settings panel–Template menu options on page 99](#).

Table 8-4 UseMode Settings panel–Template menu options

Options	Description
(None)	Select this option to remove all UseMode setting from the selected MPP. NOTE: Selecting this option prevents the change of any settings.
(Create a new template)	Select this option to create a new UseMode template. When you select this option, all fields can be modified. Name the template in a way that is meaningful to your organization. You might also determine whether a naming convention exists for your organization.
HP Default	When this option is selected, HP default UseMode values are applied to this MPP.
Existing template name	Select a previously defined UseMode template to apply to the selected MPP.

3. In the **New template** field, enter a name for the new template of UseMode settings.
4. Then, select options to apply to all users assigned to this policy, based on the descriptions in [Table 8-5 UseMode Settings—Properties panel options on page 99](#).

Table 8-5 UseMode Settings—Properties panel options

Option	Description
Show device address	Select this option to provide the product address to users associated with this MPP. (Selected by default.)

Table 8-5 UseMode Settings—Properties panel options (continued)

Option	Description
Restricted mode	<p>Select this option to restrict the selection of destination printers not selected through a defined MPL or normal mode. In Restricted mode, only those printers defined in the MPL are available for printing. When this box is not selected (clear), the default is to operate in Normal mode. (Not selected by default.)</p> <p>When this option is not selected (clear), the following additional options can be selected.</p> <ul style="list-style-type: none"><li data-bbox="699 464 1134 487">● Show HP UPD dialog settings window. <p>Select this option to display the link to the HP UPD dialog settings window. If this option is enabled, a note at the bottom of the HP Universal Printing dialog box displays the HP Universal Printer Setting link.</p> <ul style="list-style-type: none"><li data-bbox="699 642 1230 665">● Allow user to add printers to OS Printers folder. <p>Select this option to allow users to create a permanent instance of the selected printer in the OS printers folder. If this option is disabled, the Make a permanent instance of this printer in my Printers folder check box does not appear in the HP Universal Printing dialog box. To add a printer, use the Add Printer Wizard. (See Windows client/server: Use the Add Printer Wizard on page 34.)</p>
Device verify level	<p>The device verify level controls the HP UPD behavior when the HP UPD is unable to get model name and PDLs information from the printer. The device verification level determines if the user is allowed to use the product and the strictness of compatibility checking. Select one of the following options from the menu to determine the device-verification level.</p> <ul style="list-style-type: none"><li data-bbox="699 1031 911 1054">● (Do not specify).<li data-bbox="699 1083 1337 1106">● Verify communication and compatibility with driver (High). <p>Select this option to check for the highest level of positive identification. This option validates that the user has access to the printer and there is PDL support from a network-connected product or direct-connected product. If verification fails, you cannot use the address or product. An error message conveys that the product is unsupported.</p> <ul style="list-style-type: none"><li data-bbox="699 1289 1358 1312">● Verify device ID and Model Name can be obtained (Medium). <p>Select this option to validate the printer model name, product ID, and PDL support from a network-connected product or direct-connected product. If verification fails because the product can not be verified, but the model is recognized, you are prompted that a driver incompatibility might exist. At this point, you can cancel out, or continue using the product at your own risk.</p> <ul style="list-style-type: none"><li data-bbox="699 1524 1198 1547">● Verify port can be opened for printing (Low). <p>Select this option to verify that the port can be opened before the product is available for printing. The model name and PDL are verified, but not validated. This setting assumes that the printer is available and there are no driver compatibility problems. Use this option in the following situations.</p> <ul style="list-style-type: none"><li data-bbox="746 1730 1422 1776">○ The product is directly connected, but bidirectional communication is not configured for the local port connection (USB, LPT, COM).<li data-bbox="746 1803 1426 1877">○ A network print queue exists when the network printer server is non-Windows based and the HP UPD cannot communicate directly with the product.

Table 8-5 UseMode Settings—Properties panel options (continued)

Option	Description
When printing	<p>This list controls how the HP UPD prompts users who are associated to this MPP when they select a destination printer based on the selection of one of the following options.</p> <p>NOTE: Selecting one of these options (with the exception of (Do not specify)) overrides the local configuration.</p> <ul style="list-style-type: none"> • (Do not specify). Select this option to maintain local configuration. • Always prompt for the destination when printing a job. Select this option to prompt users to select a destination printer each time a job is sent. • Only prompt the first time a job is printed from an application. Select this option to prompt users to select a destination printer only the first time a job is printed from an application. • Only prompt if the last known destination is no longer available. Select this option to prompt users to select a destination printer only if the last known destination is no longer available.
Enable services tab	<p>Select this option to enable the Services tab for users associated to this MPP. When this option is selected, the following check boxes are automatically selected and can be cleared, if necessary. (Selected by default.)</p> <ul style="list-style-type: none"> • Enable online diagnostics • Enable online support • Enable product manuals • Enable driver updates • Enable supply ordering

5. Click **Apply** to save your changes, or click **Hide** to close the **UseMode settings** panel without saving your the changes.

 **NOTE:** You receive a prompt with an error message at the top of the screen if you click **Apply** without providing enough information in the **UseMode settings** panel.

The following is an example of such an error message. **Please review the following errors: You specified creation of a new template for UseMode settings, but did not give a name.**

6. Optionally, if no more properties have to be applied to the selected MPP, select one of the options in the **Update policy** panel. For more information, see [Update an MPP on page 109](#).

Default Print settings

1. In the **Default Print Settings** panel of the **Properties** screen, click **Configure**. The **Default Print Settings** panel expands.
2. From the **Template:** menu, select one of the following.

Table 8-6 Default Print Settings panel—Template: menu options

Options	Descriptions
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Table 8-6 Default Print Settings panel–Template: menu options (continued)

(None)	Select this option to remove all Default Print settings from the selected MPP. NOTE: Selecting this option prevents the change of more settings.
(Create a new template)	Select this option to create a new Default Print Settings template. When you select this option, all fields can be modified. Choose a name for the new template that is meaningful to your organization. You might also determine whether a naming convention exists for your organization.
HP Default	When this option is selected, HP default values are applied to this MPP.
“Existing template name”	Select a previously defined Default Print Settings template to apply to the selected MPP.

3. In the **New Template:** field, enter a name for the new template.
4. Then, select the settings for the users assigned to this policy. See [Table 8-7 Default Print Settings option on page 102](#) for more information.


Table 8-7 Default Print Settings option

Option	Description
Duplex	<ul style="list-style-type: none"> • (Do not specify) • Driver Default • Print on both sides • Lock Duplex check box
Economode	<ul style="list-style-type: none"> • (Do not specify) • Driver Default • Economode on • Economode off • Lock Economode check box

Table 8-7 Default Print Settings option (continued)

Private Printing	<ul style="list-style-type: none"> • (Do not specify) • Driver Default (Off) • Proof and hold • Private Job (require pin) • Private Job (no pin) • Quick Copy • Stored Jobs (no pin) • Stored Jobs (require pin) • Lock Private Printing check box
Edgeline QAC	<ul style="list-style-type: none"> • (Do not specify) • Driver Default • Professional • General Office • Black and White • Lock Edgeline check box

5. Click **Apply** to save your changes, or click **Hide** to close the **Default Print Settings** panel without saving changes.

 **NOTE:** A prompt with an error message displays at the top of the screen if you click **Apply** without providing enough information in the **Default Print Settings** panel.

The following is an example of such an error message. **Please review the following errors: You specified creation of a new template for Default Print Settings, but did not give a name.**

6. If no more properties are applied to the selected MPP, select one of the options in the **Update policy** panel. For more information, see [Update an MPP on page 109](#).

Color Access settings

Control color printing by setting up templates that define how and when color can be used. This is useful when restricting color printing to a specific time of day (for example, only during work hours) or a specific application (for example, only photo application software).

1. In the **Color Access** panel of the **Properties** screen, click **Configure**. The **Color Access** panel expands.
2. From the **Template:** menu, select one of the following options listed in [Table 8-8 Color Access panel–Template menu options on page 103](#).

Table 8-8 Color Access panel–Template menu options

Options	Description
(None)	Select this option to remove all color access restrictions from the selected MPP.
	NOTE: Selecting this option prevents the change of any more settings.

Table 8-8 Color Access panel–Template menu options (continued)

(Create a new template)	Select this option to create a new color access template. When you select this option, all fields can be modified. Use a template name that is meaningful to your organization. You might also determine whether a naming convention exists for your organization.
HP Default	When this option is selected, HP default color access values are applied to this MPP.
Existing template name	Select a previously defined color access template to apply to the selected MPP.


3. In the **New Template:** field, enter a name for the new template.
4. Then, select the settings for the users assigned to this policy.

See [Table 8-9 Color-printing user access on page 104](#) for more information.

Table 8-9 Color-printing user access

Setting	Description
Allow color printing controls	<ul style="list-style-type: none"> • If this setting is unchecked, no color printing is allowed. • If this setting is checked, color printing is allowed, and can be further controlled by more specific settings of Day/Time and Application. <p>NOTE: Times ranges specified must be in military time. For example, 9 am to 5 pm would be noted as the following.</p> <p>From: 09:00 To: 17:00</p> <p>The following Day controls are available.</p> <ul style="list-style-type: none"> ◦ Allow color printing on Sunday ◦ Allow color printing on Monday ◦ Allow color printing on Tuesday ◦ Allow color printing on Wednesday ◦ Allow color printing on Thursday ◦ Allow color printing on Friday ◦ Allow color printing on Saturday
Applications controls	<p>The following controls are available.</p> <ul style="list-style-type: none"> • Do not control color printing by application. • Allow color printing for only the applications listed below. <p>Color printing can be limited to a specified set of applications. Specify to which applications this applies by typing the applications in the Applications filenames: field.</p> <ul style="list-style-type: none"> • Allow color printing for all applications except those listed below. <p>Color printing can also be allowed for all applications except a specified set. Specify to which applications this applies by typing the applications in the Applications filenames: field.</p>

5. Click **Apply** to save your changes, or click **Hide** to close the **Color Access** panel without saving changes.

 **NOTE:** A prompt with an error message displays at the top of the screen if you click **Apply** without providing enough information in the **Color Access** panel.

The following is an example of such an error message. **Please review the following errors: You specified creation of a new template for Color Access, but did not give a name.**

6. If no more properties are applied to the selected MPP, select one of the options in the **Update policy** panel. For more information, see [Update an MPP on page 109](#).

User Search capabilities

1. In the **User Search Capabilities** section of the **Properties** screen, click **Configure**. The **User Search Capabilities** panel displays.
2. In the **Template** menu, select one of the options listed in [Table 8-10 User Search Capabilities panel–Template menu options on page 105](#).

Table 8-10 User Search Capabilities panel–Template menu options

Options	Description
(None)	Select this option to remove all user search restrictions from the selected MPP. NOTE: Selecting this option prevents the changing of any more settings.
(Create a new template)	Select this option to create a new user search template. When you select this option, all fields can be modified. Name the template in a way that is meaningful to your organization. You might also determine whether a naming convention exists for your organization.
HP Default	When this option is selected, HP default user search values are applied to this MPP.
Existing template name	Select a previously defined user search template to apply to the selected MPP.

3. Modify the user search settings for all users associated with this MPP using the options described in [Table 8-11 User search capabilities on page 105](#).


 **NOTE:** Clearing the settings provided in [Table 8-11 User search capabilities on page 105](#) prevents users from printing to an address of the search type that you cleared. For example, if the **Network printers** option is cleared, users cannot locate printers with an address type of TCP/IP or host name.

Table 8-11 User search capabilities

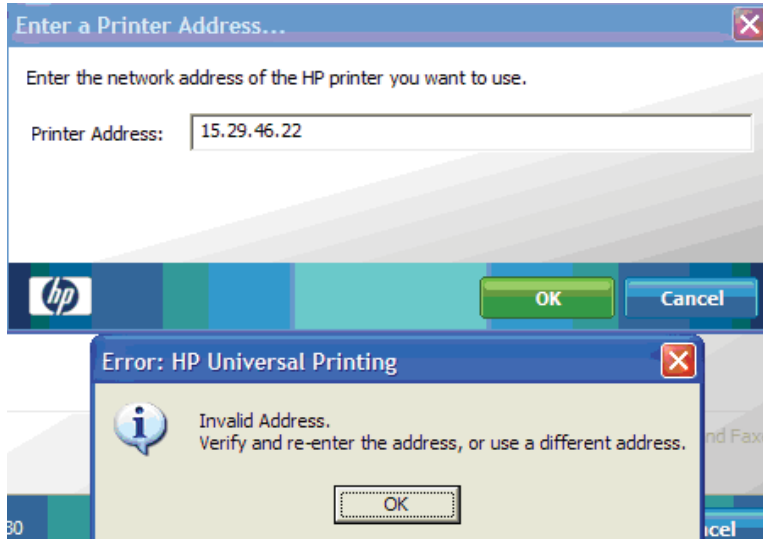
Options	Description
Network print shares	Select this option to allow users to browse for and use printer shares on the network. (Selected by default.)
Network printers	Select this option to allow users to search for and use TCP/IP printers connected to the network. (Selected by default.)

4. In the **New template** field, enter a name for the new user-search template.

- Click **Apply** to save your changes, or click **Hide** to close the **User search capabilities** panel without saving your the changes.

NOTE: Do not disable Network Printing. The **Network Printers** option is required to be enabled at all times. When a user searches for printers in dynamic mode, the code contains internal links that require this feature be continually enabled. A solution is available in a future release of HP MPA. [Figure 8-2 Network Printing error message on page 106](#) figure represents the error message that is displayed when **Network Printers** is disabled.

Figure 8-2 Network Printing error message



NOTE: An error message displays at the top of the screen if you click **Apply** without providing enough information in the **User search capabilities** panel.

The following is an example of such an error message. **Please review the following errors: You specified creation of a new template for user search capabilities, but did not give a name.**

- If no more properties must be applied to the selected MPP, select one of the options in the **Update policy** panel. For more information, see [Update an MPP on page 109](#).

Status & Supplies Notification settings

This section provides instructions to configure status and supplies notifications settings. The settings on the **Status & Supplies Notification** panel control the information that displays in the pop-up window when an end user opens the **HP Universal Printing** dialog box.

- In the **Status & Supplies Notifications** section of the **Properties** screen, click **Configure**. The **Status & Supplies Notifications** panel expands.
- From the **Template** menu, select one of the following options listed in [Table 8-12 Supplies Status Notifications panel–Template menu options on page 106](#).

Table 8-12 Supplies Status Notifications panel–Template menu options

Options	Description
(None)	Select this option to remove all status and supplies notifications restrictions from the selected MPP.

NOTE: Selecting this option prevents the change of any more settings.

Table 8-12 Supplies Status Notifications panel—Template menu options (continued)

(Create a new template)	Select this option to create a new status-and-supplies notification template. When you select this option, all status-and-supplies notification options are modifiable. Name the new template in a way that is meaningful to your organization. You might also determine whether a naming convention exists for your organization.
HP Default	When this option is selected, HP default status-and-supplies notification values are applied to this MPP.
Existing template name	Select a previously defined supplies status notifications template to apply to the selected MPP.

3. In the **New template** field, enter a name for the new Status & Supplies notifications template.
4. In the **Printer Alert Notification Settings** menu, select one of the following options.

Table 8-13 Status & Supplies Notifications panel—Printer Alert Notification Settings menu options

Options	Descriptions
(Do not specify)	No policy applies. The client or user policy determines these settings.
Disabled	Select this option to disable the Status and Supplies Notifications pop-up window so that it does not appear in the HP Universal Print Driver dialog box.
Show for Every Print job	Opens the Status & Supplies Notifications pop-up window in the HP Universal Print Driver dialog box for every printed job or when the product detects a warning or error. This option shows the print-job status. Show for every print job is the default value unless another setting is specified.
Show for Device Errors and Warnings	Opens the Status & Status and Supplies Notifications pop-up window only when a warning or error is detected on the product. This setting does not show print-job status.
Show for Device Errors (printing stops)	Displays the Status & Supplies Notifications pop-up window only when an error is active that prevents the product from printing. This setting does not show print-job status.

5. In the **Device Query Interval** menu, select one of the following options.

Table 8-14 Status & Supplies Notifications panel—Device Query Interval menu options

Options	Description
(Do not specify)	No policy applies. The client or user policy determines these settings.
Normal	The client computer sends out queries to the product about every 10 seconds. This is the default value unless another setting is specified.
Minimize Network Traffic	The client computer sends out queries to the product about every 20 seconds.

6. Modify the user search settings for all users associated with this MPP, using the options described in [Table 8-15 Status and supplies notification options on page 107](#).


Table 8-15 Status and supplies notification options

Option	Description
Supplies Details	Select this option to allow users to click the Supplies Details link in the Status & Supplies Notifications pop-up window. (Selected by default.)
Shop for Supplies	Select this option to allow users to click the Shop for Supplies link in the Status & Supplies Notifications pop-up window. (Selected by default.)

Table 8-15 Status and supplies notification options (continued)

Option	Description
Allow special device information offers to be displayed	Select this option to enable the driver to provide valuable information about your HP product for things such as supplies, warranty, and support status.
Access HP Online Product Support	Select this option to allow users to click an HP Online Product Support link that displays on the Status & Supplies Notifications pop-up window. (Selected by default.)
Alternate Online HP Support URL	Enter a URL to show an alternative HP Online Product Support link specified by the system administrator instead of the HP default URL. This link displays on the Status & Supplies Notifications pop-up window. Use an alternate URL that is meaningful and valid. (Not selected by default.)

7. Click **Apply** to apply the changes, or click **Hide** to close the **Status & Supplies Notifications** panel without saving your the changes.

 **NOTE:** If you click **Apply** without providing the required information, an error message displays at the top of the screen in the **Status & Supplies Notification** window.

The following is an example of such an error message. **You specified creation of a new template for status & supplies notification, but did not give a name.**

Basic MPP settings

The **Basic MPP settings** panel is shown in the following figure.

In the **Basic MPP settings** panel of the **Properties** screen, select the following settings to apply for all users assigned to this MPP.

Options	Description
Save as XML	This field is automatically populated with the path to save the XML file for the selected MPP. This path is an active link that opens the File Download dialog box. Click Save to save the XML file to a local directory, or click Open to view the XML file in a browser window.

Refresh rate	<p>Select one of the following values from the Refresh rate menu to determine how often the MPL refreshes.</p> <ul style="list-style-type: none"> • Once per week • Once per 24 hours • Once per 18 hours • Once per 12 hours (HP default value) • Once per 6 hours • Once per hour • Once per 30 minutes • Once per minute • Once per 30 seconds • Once per second • Every UPD Query <p>Select this option to refresh the MPL every time the HP UPD executes a query for printer products.</p> <p>NOTE: Determine the Refresh rate setting by the frequency of MPP and MPL content changes. For example, during initial setup and testing/validation, set this value to Every UPD query or Once per minute. If an administrator plans to change MPP and MPL content settings multiple times each day, set the Refresh rate to be more frequent so the new settings are applied to each client computer. A typical setting might be Once per 24 hours so that new settings are applied daily.</p>
Info link name	<p>Enter a name for the selected MPP to display as an active link in the HP UPD dialog box. This link allows administrators to provide policy-specific printing information to users. An example might be a link to a Printing Help and FAQs. This link displays in orange on the lower-left corner of the HP Universal Printing dialog box.</p>
Info link URL	<p>Enter the Internet address of the web server for the location of the file to include policy-specific printing information to users.</p>
MPP name	<p>This field is optional. Enter a new name to save the modified MPP.</p>
Make this the default policy for unassociated users	<p>Select this option to apply the selected MPP to user groups not associated with an MPP.</p> <p>NOTE: A parenthetical message follows this option and indicates the current MPP association for unassociated users. For example, “MPP_Demo” is currently the default policy or There is currently no default policy specified.</p>

Optionally, if no more properties are applied to the selected MPP, select one of the options in the **Update policy** panel. For more information, see [Update an MPP on page 109](#).

Update an MPP

In the **Update policy** section located at the bottom of the **Properties** screen, select one of the following options listed in [Table 8-16 Managed Print Policy–Update policy panel options on page 110](#).

Table 8-16 Managed Print Policy–Update policy panel options

Option	Description
Back	Select this option to return to the Select an MPP screen without saving any changes.
Apply	Select this option to apply the changes to the selected MPP. Use this option to remain in the Properties screen and make more changes.
Associate MPL(s)	Select this option to save your changes to the selected MPP, and then browse to the Associate MPLs with an MPP screen to establish an association with MPLs. For more information, see Associate an MPL with an MPP on page 120 .
Associate User Group(s)	Select this option to save your changes to the selected MPP, and then browse to the Associate User Groups with an MPP screen to establish an association with user groups. For more information, see Associate a user group with a MPP on page 130 .
Done	Select this option to apply your changes to the MPP. The Done screen displays, providing a confirmation of successful change to the MPP and a list of possible next steps.

Edit an existing MPP

1. On the **HP Managed Print Policies** menu, select **Edit an existing policy**. The **Select an MPP** screen displays.
2. In the **Name** drop-down menu, select the MPP to edit.
3. Click **Next**. The **Properties** screen displays.
4. Modify the settings for the selected MPP, as necessary. For more information, see [Create a new MPP on page 98](#).

Duplicate an existing MPP

1. On the **Managed Print Policies** menu, select **Duplicate an existing policy**.
The **Select an MPP to duplicate** screen displays.
2. From the **Copy from** menu, select the name of an existing MPP.
3. In the **New name** field, enter a name for the new MPP.
4. Click **Next**. The **Properties** screen displays.
5. Modify the settings for the selected MPP, as necessary. For more information, see [Create a new MPP on page 98](#).

Associate MPLs with an MPP

1. On the **HP Managed Print Policies** menu, select **Associate printer lists**.
The **Associate MPLs with an MPP** screen displays.
2. From the **Name** drop-down menu, select the name of an existing MPP that you want to associate with an existing user group.
3. Click **Refresh**. The **Manage MPL associations** window populates automatically with the names of all existing MPLs and their current associations.

4. Select the check box next to any MPL that displays in the two panels listed in [Table 8-17 Managed Printer Policy—Manage MPL associations panel options on page 111](#).

Table 8-17 Managed Printer Policy—Manage MPL associations panel options

Option	Descriptions
Associated with other MPP(s)	To establish an association with the selected MPP, select the check box next to any MPL listed in this panel, as necessary.
Not associated with any MPP	To establish an association with the selected MPP, select the check box next to any MPL listed in this panel, as necessary.

5. Select one of the options listed in [Table 8-18 Managed Printer Policy—Associate with an MPP panel options on page 111](#).

Table 8-18 Managed Printer Policy—Associate with an MPP panel options

Option	Descriptions
Apply	Click this button to apply the associations and remain in the Associate MPLs with an MPL screen to make any more changes. The Associated with this MPP panel populates automatically with any MPLs selected for association with the MPP.
View/edit policy settings	Click this link to modify the settings for the selected MPP. For more information, see Create a new MPP on page 98 .
Done	Click this button to apply the associations and close the screen.

Associate user groups with an MPP

1. On the **HP Managed Print Policies** menu, select **Associate User Groups**. The **Associate User Groups with an MPP** screen displays.
2. From the **Name** menu, select the name of the MPP with which you want to establish an association with existing user groups.
3. Click **Refresh**. The **Manage user group associations** populates automatically with the existing user groups and their current associations.
4. Select the check box next to user groups that appear in the following two panels.

Table 8-19 Managed Printer Policy—Manage MPL associations panel options

Option	Descriptions
Associated with other MPP(s)	To establish an association with the selected MPP, select the check box next to user groups listed in this panel, as necessary.
Not associated with any MPP	To establish an association with the selected MPP, select the check box next to the user groups listed in this panel, as necessary.

5. Select one of the following options.

Table 8-20 Managed Printer Policy—Associate with an MPP panel options

Option	Descriptions
Apply	Click this button to apply the associations and remain in the Associate MPLs with an MPL screen to make any more changes. The Associated with this MPP panel populates automatically with any MPLs selected for association with the MPP.

Table 8-20 Managed Printer Policy—Associate with an MPP panel options (continued)

View/edit policy settings	Click this link to modify the settings for the selected MPP. For more information, see Edit an existing MPP on page 110 .
Done	Click this button to apply the associations and close the screen.

Remove an existing MPP

1. On the **Managed Print Policies** menu, select **Remove an existing policy**.
2. From the **Name** menu, select the MPP name to remove.
3. Click **Next**. The **Confirm** screen automatically populates with the MPLs and user groups associated with the MPP selected for removal.
4. Click **Remove** to continue with the removal of the selected MPP, or click **Back** to return to the **Select an MPP** screen without removing the MPP.

The confirmation screen provides confirmation of successful removal of the MPP.

Use HP Managed Printer Lists (MPLs)

Use the HP MPA software to create HP Managed Printer Lists (MPLs), add printers to existing MPLs, and establish associations with MPPs and User Groups.

The MPLs provide a simple method for users to find and use HP printing products. The MPL defines groupings of printers based on various attributes and also controls features at both the group and individual printer levels.

Administrators can use the HP MPA software to customize HTML views of MPLs to assist users in locating available printers in their own environments.

Use the HP MPA tool to create, edit, and manage the content available to the HP UPD without having to worry about the XML syntax and contents for each document type. HP MPA stores policy and printer settings in a database running on a centrally managed server. When the HP UPD queries for the MPP or MPL content, scripts convert the stored database settings into the correctly formatted XML content consumed by the HP UPD. Use the HP MPA tool to manage the MPP and MPL settings and to manage the associations between them.

What is an MPL?

MPLs are XML documents that provide the information required for print jobs to use printing products. These centrally managed XML documents contain the printer details in an easy-to-read and modify text file format. To assist users in finding supported printers for printing with the HP UPD for Windows, the administrator defines printer details in the XML files. HP UPD MPLs provide administrators with the ability to specify the products that users can use for printing.

MPLs create a reliable and seamless way of discovering and connecting to products in the office or to public printing venues.

MPLs allow users to select a printer with a descriptive name from a predefined list. Users do not need to know about network print shares, TCP/IP addresses, printer host names, user access permissions, or other printer connection details. Instead, users select a printer from the list dialog box and print.

Create and Edit MPLs

The MPLs can be created and edited through the HP MPA. HP MPA formats and manages the XML files that contain the printer details such as the addresses, the HP UPD display names, comments, and other printer settings.

HP MPA can also customize the view of each MPL so that users can select printers by clicking an image map or a picture of the printer to help the user find a printer.

Who should use MPLs?

MPLs can simplify printing for users and improve administrator control over the environment. Costs savings in productivity, security, support, and supplies frequently justify the effort of implementing MPLs.

Any business with a Microsoft Windows printing environment can benefit from the flexibility and ease of use that MPLs provide. For example,

- Hotels that offer printing to their guests who log in to their private network can use the HP UPD with MPLs to quickly connect to in-room or centrally located printers.
- Restaurants, coffee shops, and other printing hot spots that provide Internet access can also define HP MPLs to allow guests to quickly connect to printers on their premises.
- Enterprise environments with large campuses or offices spread across countries/regions can greatly benefit from MPLs, especially the mobile users who travel from site to site or building to building.

MPLs support administrative personnel responsible for managing printers and printing within their environment. Depending on the configuration of the HP UPD on the client machine, MPLs can either simplify printer discovery for users or restrict printing to a defined set of printers within the environment.

Use the HP MPA software to create, edit, and remove MPLs. MPLs are lists of printers that administrators can use to manage printer attributes. Manage the view of MPLs through the HP MPA software.

For more information, see the following topics.

- [Create a new MPL](#)
- [Edit an existing MPL](#)
- [Associate an MPL with an MPP](#)
- [Duplicate an existing MPL](#)
- [Manage the MPL view](#)
- [Manage virtual printers](#)
- [Remove an existing MPL](#)
- [Remove printers from an MPL](#)

Create a new MPL

Follow these steps to create a new MPL.

1. On the **HP Managed Printer Lists** menu, select **Create a new list**. The **Create a new MPL** screen displays.
2. In the **Name** field, enter a unique name for the new MPL.
3. Click **Next**. The **MPL printers** panel displays.

4. Select one of the following options listed in [Table 8-21 MPL printers panel–Options on page 114](#).

Table 8-21 MPL printers panel–Options

Option	Description
Auto printer discovery	Select this option to add printers to the selected MPL through auto discovery methods.
Manual printer entry	Select this option to add printers to the selected MPL manually.
Remove printer(s)	Select this option to remove printers from the selected MPL.

See the following topics for information about configuring specific settings for a new MPL.

- [Auto printer discovery](#)
- [Manual printer entry](#)

Auto printer discovery

In the MPL printers screen, click **Auto printer discovery** to open the **Add Automatically** screen.

Use **Auto printer discovery** to create a new MPL or to add printers to an MPL. Three methods of auto printer discovery are available.

- [Discover locally connected network printers](#)
- [Discover printers on a print server \(\\serverName\)](#)
- [Import printers from an XML file](#)

After printers have been discovered by using each of these method, all fields can be modified manually, as necessary. For more information, see [Manual printer entry on page 117](#).

Discover locally connected network printers

Follow these steps to discover locally connected network printers and add them to an MPL.

1. In the **MPL printers** window, click **Auto printer discovery**. The **Add automatically** screen displays.
2. On the **Discover locally connected network printers** panel, click **Discover**.

During discovery, the HP MPA performs a local mDNS discovery on the local subnet. Printing products that have the mDNS protocol enabled, and are on the same subnet as the HP MPA software, show up in the printer list.

The **Discovered printers** screen displays, and locally connected printers discovered automatically populate the **Printer** group box.

3. In the **Printer** group box, select the check box next to printers that you want to add to the MPL. (All printers are selected by default.)
4. Modify the settings listed in [Table 8-22 Discovered printers screen options on page 114](#) as necessary.

Table 8-22 Discovered printers screen options

Option	Description
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Table 8-22 Discovered printers screen options (continued)

Select/deselect all printers	Select this check box to toggle between selecting all or none of the printers in the Printer window to include in the selected MPL. (Selected by default.)
Query device configuration	Select this check box to query the printing product to determine the following information. (Selected by default.) <ul style="list-style-type: none">• Presence of printer features such as hard disk, duplexer, and color• Printer model name• Address of the printer (for example, IP address, UNC path, IPX/SPX protocol, or host name)
Use resolved hostname in place of IP address	Select this check box to replace the printer IP address in the Address field with the resolved host name. (Not selected by default.)
Set printer's IP address in the comments field	Select this check box to include the printer IP address in the Comments field. (Not selected by default.)

5. Click **Add checked printers** to add the selected printers to the MPL. The information associated with the selected printer automatically populates the **MPL Printers** screen.

Alternatively, click **Back** to return to the **Add automatically** screen without saving the changes.

6. Modify any more fields as necessary. For more information, see [Manual printer entry on page 117](#).

Discover printers on a print server (\\serverName)

Follow these steps to add any number of printers installed on a known print server.

1. In the **MPL printers** screen, click **Auto printer discovery**. The **Add automatically** screen displays.
2. In the **Discover printers on a print server (\\serverName)** section, specify a name in the **Print server** field. For example,
 - \\printserver
 - \\winprintserver
 - \\novellServer.tree1
 - \\novellServer.context1.context2
3. Optionally, in the **Connect as user** field, enter the user name for the server that you provided in the **Print server** field, and enter the corresponding password in the **Password** field.
4. Select the **Print server is a non-Windows machine** check box if the print server is a non-Windows computer.
5. Click **Discover**.

The **Discovered printers** screen displays. The printers discovered on the specified server automatically populate the **Printers** group box.
6. In the **Printers** panel, select the check box next to the printers that you want to add to the MPL. (All printers are selected by default.)
7. Modify the settings listed in [Table 8-23 Discovered printers screen options on page 116](#) as necessary.

Table 8-23 Discovered printers screen options

Option	Description
Select/deselect all printers	Select this check box to toggle between selecting all or none of the printers in the Printer window include in the selected MPL. (Selected by default.)
Query device configuration	Select this check box to query the printing product to determine the following information. (Selected by default.) <ul style="list-style-type: none">• Presence of printer features such as hard disk, duplexer, and color• Printer model name• Address of the printer (for example, IP address, UNC path, IPX/SPX protocol, or host name)
Use resolved hostname in place of IP address	Select this check box to replace the printer IP address in the Address field with the resolved host name. (Not selected by default.)
Set printer's IP address in the comments field	Select this check box to include the printer IP address in the Comments field. (Not selected by default.)

8. Click **Add checked printers** to add the selected printers to the MPL. The information associated with the selected printer automatically populates the **MPL Printers** screen.
Alternatively, click **Back** to return to the **Add automatically** screen without saving the changes.
9. Modify any more fields as necessary. For more information, see [Manual printer entry on page 117](#).

Import printers from an XML file

Administrators can use this method to add static printer information from an XML file. For example, an XML file from a previous MPL or a web Jetadmin file. When the XML file is imported the data remains the same; only its format is converted when added to the MPL.

Follow these steps to add static printer information from an XML file.

1. On the **MPL printers** screen, click **Auto printer discovery**. The **Add automatically** screen displays.
2. In the **Import printers from XML file** panel, you must provide the URL of the XML file or UNC path to continue. In the **XML URL or UNC** field, enter the Internet address that corresponds to the location of the XML file on a web server or the Universal Naming Convention (UNC) that corresponds to the location of the XML file on a local-area network.
3. Click **Next**. The **Discovered printers** screen displays. The printers discovered from the imported information automatically populate the **Printers** panel group box.
4. In the **Printer** group box, select the check box next to the printers that you want to add to the MPL. (All printers are selected by default.)
5. Modify the settings listed in [Table 8-24 Discovered printers screen options on page 116](#) as necessary.

Table 8-24 Discovered printers screen options

Option	Description
Select/deselect all printers	Select this check box to toggle between selecting all or none of the printers in the Printer window in the selected MPL. (Selected by default.)

Table 8-24 Discovered printers screen options (continued)

Query device configuration	Select this check box to query the printing product to determine the following information. (Selected by default.) <ul style="list-style-type: none">• Presence of printer features such as hard disk, duplexer, and color• Printer model name• Address of the printer (for example, IP address, UNC path, IPX/SPX protocol, or host name)
Use resolved hostname in place of IP address	Select this check box to replace the printer IP address in the Address field with the resolved host name. (Not selected by default.)
Set printer's IP address in the comments field	Select this check box to include the printer IP address in the Comments field. (Not selected by default.)


6. Click **Add checked printers** to add the selected printers to the MPL. The information associated with the selected printer automatically populates the **MPL Printers** screen.

Alternatively, click **Back** to return to the **Add automatically** screen without saving changes.

7. Modify more printer attributes as necessary. For more information, see [Manual printer entry on page 117](#).

Manual printer entry

This section provides instructions to add printers to an MPL manually or edit printers previously added. If you have performed one of the methods for auto printer discovery, many of the fields described here might automatically populate. For more information, see [Auto printer discovery on page 114](#).

 **NOTE:** Changes that you make in this section apply only to printers selected in the **Printers** window. To select multiple printers, press and hold the **Ctrl** key and then select printers.

Follow these steps to add printers to an MPL manually, or to modify printer attributes manually.

1. Click **Manual printer entry**. The **MPL printers** screen displays with all fields available for modification.
2. Modify the fields listed in [Table 8-25 MPL printers panel–Manual Printer Entry options on page 117](#) as necessary.

Table 8-25 MPL printers panel–Manual Printer Entry options

Option	Description
Printers	This panel populates automatically with previously retrieved printer information. Click a specific printer to modify the fields.
Printer name	Enter the name of the printer to add to the MPL, replacing the text "Default: Unnamed printer (current date and time)."

Table 8-25 MPL printers panel—Manual Printer Entry options (continued)

Address	<p>Provide one of the following addresses to define the type of connection and the printer address for users to connect to the printer.</p> <ul style="list-style-type: none"> ● IP address: Retrieve the IP address of the printer from the configuration page (for example, 115.22.112.151). ● UNC path: The UNC path tag includes any Windows printer share (also known as a Network print queue) or non-Windows print queues such as a PSA or Novell (for example, \\serverName\printerName, \\printServer\hplj4000, \\NovellTree1\Context1 \Context2\OU3.hplj5500, or \\LabTree \Bldg7.SEMeetingRoom.Printers.hp4100). ● Hostname: Retrieve the host name of a product from the configuration page (for example, NPIBB99EE, testlab.hou.com). ● IPX/SPX: The IPX/SPX protocol includes the "NetworkNumber.NodeNumber" format. NOTE: To use an IPX/SPX protocol, the IPX/SPX client networking software must be installed on the computer. Also, the HP IPX port monitor must be installed, which is supported only in Windows 2000.
Replace address with resolved hostname on query	<p>After the Address field populates with a valid printer address, select this option to query the printing product to determine the following information.</p> <ul style="list-style-type: none"> ● Presence of printer features such as hard disk, duplexer, and color ● Printer model name ● Address of the printer (for example, IP address, UNC path, IPX/SPX protocol, or host name)
Model name	<p>Enter the model name of the printer (for example, HP LaserJet 4100 MFP).</p>
Physical location	<p>Enter the physical location of the printer to add to the MPL (for example, HP LaserJet 4100 in Room 1002).</p>
Comments	<p>Enter in any comments (for example, tray 2 contains color paper).</p>
Check boxes	<p>The following two check boxes are available. Select as appropriate.</p> <ul style="list-style-type: none"> ● Duplex unit installed ● Hard disk installed
Printer group	<p>The following two options are available.</p> <ul style="list-style-type: none"> ● (None). Select this option if this MPL is not associated with a specific printer group. ● (Create new group). Select this option to define a new printer group. Enter the name of this group in the New Printer Group field.
Cost per page	<p>Provide a cost value to appear in a pay-for-print environment where a cost is assigned to print jobs (for example, \$1.09).</p>

- Another option is to click **Advanced** to open the **Advanced** panel. Select one of the options listed in [Table 8-26 MPL printers–Advanced panel options on page 119](#) as necessary.

Table 8-26 MPL printers–Advanced panel options

Option	Description
Disable color printing	Select this check box to disable color printing for the selected printer.
Validate when printing	Select this check box to require communication with the printer before it is available for printing. If the printer is on a print server (for example, Novell) that does not allow bidirectional communication, this check box should be clear.
Select for job delivery	Select this check box to apply the job delivery settings for all the print jobs submitted to the selected printer. NOTE: This option is applicable only when the job-delivery settings are configured in the MPP.
Secure print path	Select this check box to indicate to users that the selected printer is on a secure print path.
Configuration	Select the appropriate configuration option. <ul style="list-style-type: none"> Use the configuration from the address specified: The configuration will be queried directly from the printer at this address. Use the device from an alternate address: The configuration will be queried from the printer at this alternate address. Use the device from a virtual printer: The configuration will be queried from a virtual printer. See Manage virtual printers on page 127 for more information about setting up a virtual printer.

- Click **Hide** to save the settings to the selected printer, and close the **Advanced** panel.
- In the MPL settings panel, select the options listed in [Table 8-27 MPL settings panel on page 119](#) as necessary.

Table 8-27 MPL settings panel

Option	Description
Direct URL	This field populates automatically with the local path to the selected MPL. The URL provided is an active link to provide direct access to the selected MPL. For more information, see Auto printer discovery on page 114 .
Save as XML	This field populates automatically with the path to the XML file for the selected MPL. This path is an active link that initiates the File Download dialog box.

Table 8-27 MPL settings panel (continued)

Refresh rate	Select the refresh rate from the menu to determine how often the MPL refreshes. The selected refresh rate applies only to this MPL. The available controls are as follows. <ul style="list-style-type: none">• Once per week• Once per 24 hours• Once per 18 hours• Once per 12 hours• Once per 6 hours• Once per hour• Once per 30 minutes• Once per minute• Once per 30 seconds• Once per second• Once per UPD query
MPL name	Optionally, enter a modified name in the MPL name field to save the MPL with more printers included.

6. In the **MPL settings** panel, click **Apply** (to apply selected options and leave the **MPL printers** screen open) or **Done** (to apply selected options and close the screen). Until you have clicked **Apply** or **Done**, any settings that have changed are not saved in the MPL.

A message displays indicating successful change of the MPL and listing further steps.

Edit an existing MPL

Follow these steps to edit an existing MPL.

1. On the **HP Managed Printer Lists** menu, select **Edit an existing list**. The **Select an MPL** screen displays.
2. In the **Name** menu, select the MPL to modify
3. Click **Next**. The **MPL printers** screen displays, automatically populated with the values assigned to the selected MPL.
4. Modify the settings for the selected MPL as necessary. For more information, see [Auto printer discovery on page 114](#) or [Manual printer entry on page 117](#).

Associate an MPL with an MPP

For more information, see [Associate MPLs with an MPP on page 110](#).

Duplicate an existing MPL

Follow these steps to duplicate an existing MPL.

1. In the **HP Managed Printer Lists** menu, select **Duplicate an existing list**. The **Select an MPL to duplicate** screen displays.
2. In the **Copy from:** drop-down menu, select the MPL to duplicate.

3. In the **New name:** field, enter the name for the new MPL.
4. Click **Next**. The **MPL printer** screen displays and automatically populates with the values assigned to the duplicated MPL.
5. Modify the settings for the selected MPL, as necessary. For more information, see [Auto printer discovery on page 114](#) or [Manual printer entry on page 117](#).
6. Click **Apply** (to apply selected options and leave the **MPL printers** screen open) or **Done** (to apply selected options and close the screen). Until you have clicked **Apply** or **Done**, any settings that have changed are not saved in the MPL.

A message displays indicating successful modification of the MPL and listing further steps.

Manage the MPL view

MPL views can be modified to assist users in selecting printers.

Follow these steps to modify views.

1. On the **HP Managed Printer Lists** menu, click **Manage MPL view**. The **Select an MPL** screen displays.
2. From the **Name** menu, select the name of an existing MPL.
3. Click **Next**. The **Select a view type** screen displays.

Modify views from one or both of the following panels.

- [Select a view](#)
- [Advanced view settings](#)

Select a view

1. On the **Select a view type** panel, click one of the following options to select a view type.


 **NOTE:** The **Don't require user to confirm printer after selection from view** check box is located below the MPL view-type options. Select this box after you create a view if you want to allow users to select printers from a view without providing more confirmation. This box is the default selection.

Table 8-28 Select a view type panel—View options

Option	Description
Default UPD view	Select this option to show a specified MPL in the HP UPD dialog box.
Clickable image map	Select this option to create a clickable image map for the selected MPL.
List with printer graphics	Select this option to create a list of printers that contains a graphic for the selected MPL.
Tabular HTML view	Select this option to create a table of printers for the selected MPL.

2. Optionally, to view the result in a new window, click the **Preview** button below the selection.
3. Click **Configure** to apply the selections.

See the following topics for more information about each view type.

- [Clickable image map view](#)
- [List with printer graphics view](#)
- [Tabular HTML view](#)

Clickable image map view

The clickable image map view is an interactive image-based map that lists selectable printers associated with the specified MPL. The clickable image map allows users to drill down from a large-scale image to a local image that provides links to local printers.

1. From the **Select a view type** screen, select **Clickable image map**.
2. Click **Configure**. The **Image map** screen displays.
3. On the **View settings** panel, click **Select background image from library** to select a background image. The **Select a background image** screen displays.
4. Select the option button above the image to apply to image-map background, and then click one of the options listed in [Table 8-29 Clickable image map view options on page 122](#).

Table 8-29 Clickable image map view options

Option	Description
Back	Select this option to return to the Configure image map screen without applying a new image.
Delete selected image	Select this option to remove the selected image from the HP MPA software.
Upload new image	Select this option to upload a new image from an external source. The Upload a new background image screen displays. When the Upload new image option is selected, you must perform the following steps. <ol style="list-style-type: none"> 1. Click Browse to the right of the File field. The Choose file window displays. 2. Select the file to upload and click Open. The File field populates automatically with the file name and path. 3. Optionally, in the Description field, enter a description for the selected background image. 4. Click Upload Image. The image becomes available for selection on the Select a background image screen.
Select image	The selected image displays in the Image map panel with graphics for added printers on the leftmost side.

5. Select **Show legend** to include a legend at the bottom of the image map. (This option is not selected by default.)
6. In the **Printer select** panel, select a printer to which you want to assign an image.
7. Click **Auto match images** for all printers to automatically match all the printers with their corresponding image. The printer image selected in the **Printer select** drop-down menu displays in the **Printer image** panel.

Other automatically matched images appear as icons in the **Image map** panel

8. In the **Printer image** panel, select one of the following options.

Table 8-30 Printer image panel options

Option	Description
Replace image	Select this option to replace the image automatically assigned to the selected printer with an image from the library. When you select this option, you must perform the following steps. <ol style="list-style-type: none">1. Click Browse images to view the list of available images to match with the selected printer. The Select an image for [Printer Name] screen displays.2. Click the option button above the image that you want to assign to the selected printer.3. Click Select image. The selected printer image displays in the Printer image section.
Add to map	Click this option to place the image on the image map.
Refresh	
Reduce to	Optionally, select the check box to modify the size of the image selected on the image map. When this option is selected, the following options are available. <ul style="list-style-type: none">• (original size)• 35 pixels• 50 pixels• 75 pixels• 100 pixels• 150 pixels• 200 pixels

9. Drag the images in the **Image map** panel to the chosen location by clicking the image, holding down the left-mouse button, and then dragging to the appropriate location.

10. In the **Labels** panel, click **Show**. The **Labels** panel displays.

A label can be created for an image already added to the **Image map** panel, or can be used instead of an image.


- To add a label to an image in the **Image map** panel, select the image and continue with the following steps.
 - To add a label to the **Image map** panel not associated with an image, continue with the following steps.
11. From the **Labels** drop-down menu, select the name of a label, or select (**Create a new text label**).
12. Modify the following settings, as necessary.

 **NOTE:** These settings will be automatically reflected on the **Image map** panel.

Table 8-31 Labels panel options

Option	Description
Text	Enter the text to appear on the label.
Size	Select one of the following to apply the appropriate font size. (Medium is the default.) <ul style="list-style-type: none">• Large• Medium• Small
Weight	Select one of the following to apply the appropriate font weight. (Normal is the default.) <ul style="list-style-type: none">• Normal• Bold
Color	Select one of the following color options from the menu to apply the color to the label text. (Black is the default.) <ul style="list-style-type: none">• Black• Red• Blue• Green
Width	Select one of the following options to set the width of the label text box. (The 200 pixels option is the default.) <ul style="list-style-type: none">• 100 pixels• 200 pixels• 300 pixels

13. Click **Add to map**. The new label is automatically added to the image map.
14. To move the label to a location on the image map, click the label text box on the image map and drag to the location.
15. Click a new printer on the image map to add more labels as necessary, or click **Hide** to close the label panel.

 **NOTE:** To remove a label, select the label in the **Image map** panel or in the **Labels** drop-down menu. Then, click **Remove label** in the **Labels** panel.

List with printer graphics view

1. Click the option button next to **List with printer graphics**.
2. Optionally, select the **Show device address** check box to display the product address in the list with the printer graphics view. (This box is not selected by default.)
3. Click one of the options listed in [Table 8-32 Graphics view—List format options on page 125](#) to specify the list format.

Table 8-32 Graphics view—List format options

Option	Description
All printer groups on one page	Click this option to format the table with all printer groups on one page.
Each printer group in its own frame	Click this option to format the table with one printer group per frame.

4. Click **Preview** to view the list with the selected options. A new browser window displays that contains the list output.
5. Click **Configure** to make more changes to the list. The **Configure list with printer graphics** screen displays.
6. On the **Printer select** menu, select a printer to include in the list.
7. Click **Auto match images for all printers**.
8. Optionally, on the **Printer image** panel, click **Replace image** to replace the auto match image. The **Printer image** panel changes to show the following options. Select one.

Table 8-33 Printer image panel options

Option	Description
Auto match image	Click this button to automatically search for images that match the product. If the image is available in the image library, the automatically matched image displays.
Browse images	<p>Click this button to select an image from a library of printer images.</p> <p>In the select image screen, three options are available.</p> <ul style="list-style-type: none">• Back. Select this option to return to the Configure image map screen without applying a new image.• Delete selected image. Select this option to remove the selected image from the HP MPA software.• Upload new image. Select this option to upload a new image from an external source. The Upload a new background image screen displays. See the following for more instructions for uploading a new image. <p>Select the Upload new image option and perform the following steps.</p> <ol style="list-style-type: none">1. Click Browse to the right of the File field. The Choose file window displays.2. Select the file to upload and click Open. The File field populates automatically with the file name and path.3. Optionally, in the Description field, enter a description for the selected background image.4. Click Upload Image. The image becomes available for selection on the Select a background image screen.
Select image	The selected image displays in the Image map panel with graphics for added printers on the leftmost side.

9. In the **Complete** panel, select one of the options listed in [Table 8-34 Complete panel options on page 126](#).

Table 8-34 Complete panel options

Option	Description
Back	Click Back to return to the Select an MPL screen without saving the changes.
Apply	Click Apply to apply your changes to the MPL view and remain in the Configure list with graphics view screen to make any more modifications.
Preview	Click Preview to view the applied changes. A new browser window displays with the list output.
Done	Click Done to apply the changes to the MPL view. A confirmation screen displays and provides a list of suggested next steps.

Tabular HTML view

To create a table of all available printers in the specified MPL, follow these steps.

1. Click the option button next to **Tabular HTML view**.
2. Optionally, select the **Hide empty columns** check box to hide any columns that have no values.
3. Optionally, select the **Show device address** check box to show the product address in the tabular HTML view.
4. Click one of the option buttons listed in [Table 8-35 Tabular HTML view options on page 126](#) to select the list format.

Table 8-35 Tabular HTML view options

Option	Description
All printer groups on one page	Click this option to format the table with all the printer groups on one page.
Each printer group in its own frame	Click this option to format the table with one printer on each frame.

5. Click **Preview** to preview the tabular HTML output. A new browser window displays that contains the HTML output.
6. In the **Select a view type** panel, click one of the options listed in [Table 8-36 Select a view panel options on page 126](#).

Table 8-36 Select a view panel options

Option	Description
Back	Click Back to return to the Select an MPL screen without saving the changes.
Apply	Click Apply to apply your changes to the MPL view and remain in the Select a view type panel to make any more modifications.
Done	Click Done to apply the changes to the MPL view. A confirmation screen displays and provides a list of suggested next steps.


Advanced view settings

Use the advanced view settings to design a custom MPL view to assist users in selecting printing products from an image map. The URL in this section links directly to the **Final URL** field that displays. With this method, you can allow users to select a printer by drilling down from a high-level image map to the low-level view within the clickable image map.

In Advanced view, you can point to a starting web page. This web page can be made using standard web publishing tools with or without images to help ease users through a layer view of MPLs.

For example, the starting web page could show a state with links to individual cities. Each city would open to a web page with individual buildings linked. Then, each building could be linked to a web page with the building floors linked, and each floor to individual printers.

1. In the **Advanced view settings** section of the **Select a view** screen, click **Show**. The **Advanced view settings** panel displays.

 **NOTE:** The **Final URL** field populates automatically with the Internet address for the final MPL view that you selected for this MPL ID.

2. In the **Starting URL** field, enter the Internet address of the image that provides a starting point for the clickable image map.
3. Perform one of the following actions.

Option	Description
Back	Click Back to return to the Select an MPL screen without saving the changes.
Apply	Click Apply to apply your changes to the MPL view and remain in the Advanced view settings panel to make any more modifications.
Done	Click Done to apply the changes to the MPL view and return to the Select an MPL screen.
Hide	Click Hide to close the Advanced view settings panel.

Manage virtual printers

In some environments, it is not possible for the HP UPD to communicate with the destination printer. This might occur because the HP UPD and the printer are not on the same network, there is a firewall, or communication has been disabled for some other reason. In these environments, the HP UPD is unable to determine the physical capabilities of the product, and only basic printing options are provided to the user.

By using the **Use the device configuration from a virtual printer** option and then selecting one of the previously defined HP MPA virtual printers, the administrator can enable the HP UPD to act as though it communicated with the target product. The administrator can also set up the driver features as though the product detected the specific hardware features. Once a virtual printer is selected, the capabilities of that virtual printer are displayed for the administrator.

- [Create a new virtual printer](#)
- [Edit existing virtual printer](#)

Create a new virtual printer

Follow these steps to set up a virtual printer.

1. On the **HP Managed Printer Lists** menu, select **Manage Virtual Printers**. The **Create a new virtual printer** screen displays.
2. Enter the address of the printer in TCP/IP or hostname format.
3. Click **Add**. See [Edit existing virtual printer on page 128](#) for more information.

Edit existing virtual printer

Follow these steps to edit an existing virtual printer.

1. On the **Managed Printer List** menu, select **Manage Virtual Printers**. The **Edit existing virtual printers** panel opens.
2. In the **Edit existing virtual printers** panel, modify the settings listed in [Table 8-37 Edit existing virtual printers panel options on page 128](#) as necessary.

Table 8-37 Edit existing virtual printers panel options

Option	Description
Name	Edit the name.
Re-query this device to update its capabilities	Select this check box to query the printing product to update the printer's features (such as hard disk or duplexer).
Select/deselect all printers for requerying	Select this check box to toggle between selecting all or none of the printers for requery.
Select/deselect all printers for removal	Select this check box to toggle between selecting all or none of the printers for removal.

3. Click **Apply** (to apply selected options and leave the **Edit virtual printers** screen open) or **Done** (to apply selected options and close the screen). Until you have clicked **Apply** or **Done**, any settings that have changed are not saved in the MPL.

A message displays, stating that the virtual printer has been successfully modified and, listing further steps.

Remove an existing MPL

Follow these steps to remove an existing MPL.

1. On the **HP Managed Printer Lists** menu, select **Remove an existing list**. The **Select an MPL** screen displays.
2. From the **Name** menu, select the name of an existing MPL.
3. Click **Next**. A confirmation screen displays and automatically populates with the list of all printers currently assigned to the selected MPL.
4. Click **Remove** to confirm the removal of the selected MPL, or click **Back** to return to the **Select a MPL** screen without saving the changes.

Remove printers from an MPL

Follow these steps to remove printers from an MPL.

1. On the **HP Managed Printer Lists** menu, click **Edit an existing list**. The **Select an MPL** screen displays.
2. Select the MPL from which a printer or printers are to be removed and click **Next**. The **Printers** screen display.
3. On the **MPL printers** screen, select the printers to remove by clicking them in the **Printers** panel. (Press and hold the **Ctrl** key to select more than one printer.)
4. Click **Remove printer(s)**. A confirmation dialog box displays that contains the list of the printers that you selected for deletion.
5. Click **OK** to confirm, or click **Cancel** to return to the **Confirm** screen to view printer details.

Use User Groups

Use the HP MPA software to create, import, and modify groups of users. The HP MPA software also establishes associations for existing user groups with available MPPs to manage user group access to available printers and to control features. Users added to these groups are likely to be domain users, although users can be added with their local login name.

Use the HP MPA software to create user groups and modify permissions for HP UPD users.

For more information about creating user groups, see the following topics.

- [Create a new user group](#)
- [Edit an existing user group](#)
- [Associate a user group with a MPP](#)
- [Remove a user group](#)

Create a new user group

Follow these steps to create a new user group.

1. On the **User Groups** menu, select **Create a new user group**. The **Create a new user group** screen displays.
2. In the **Name** field, enter a name for the new user group.
3. Click **Next**. The **Users** screen displays.
4. In the **Users** field on the **Included Users** panel, enter the user entries in the format specified on the screen.

Alternatively, you can paste user entries from an external, semicolon-delimited list.

5. Optionally, in the **User group name** field on the **User Group Settings** panel, enter a name for the new user group.
6. Perform one of the following actions.

Table 8-38 User group creation options

Option	Description
Back	Click Back to return to the main menu without saving the changes.
Apply	Click Apply to update the user entries and remain in the Included users screen to make more modifications.
Done	Click Done to update user entries and return to the main menu.

Edit an existing user group

Follow these steps to edit an existing user group.

1. On the **User Groups** menu, select **Edit an existing user group**. The **Edit an existing user group** screen displays.
2. From the **Name** menu, select the name of an existing user group.
3. Click **Next**. The **Included users** screen displays and populates automatically with all users in the selected user group.
4. In the **Users:** field, enter the user entries in the format specified on the screen.
Alternatively, you can paste user entries from an external, semicolon-delimited list.
5. Optionally, in the **User group name:** field, enter a name for the new user group.
6. Perform one of the following actions.

Option	Description
Back	Click Back to return to the main menu without saving the changes.
Apply	Click Apply to update the user entries and remain in the Included users screen to make more modifications.
Done	Click Done to update user entries and return to the main menu.

Associate a user group with a MPP

See [Associate user groups with an MPP on page 111](#) for detailed instructions.

Remove a user group

Follow these steps to remove a user group.

1. On the **User Groups** menu, select **Remove a user group**. The **Remove an existing user group** screen displays.
2. From the **Name** menu, select the name of the user group to remove.
3. Click **Next**. A **Warning** screen displays. The **Included users** panel populates automatically with users in the selected user group.
4. Click **Remove** to continue with the removal of the selected user group, or click **Back** to return to the **Select a user group** screen without removing the user group.

Manage the HP UPD with Active Directory Group Policy

Active Directory Group Policy and the HP UPD Active Directory Administrative template allow complete management of the HP UPD printing experience within your Active Directory infrastructure.


You can use the HP UPD Active Directory Administrative Template to add policies to an existing Group Policy Object or create new, custom HP UPD Group Policy Objects for each user, group, or Organizational Unit.

In addition to creating policies for the HP UPD, you can also enter the location of HP Managed Printer Lists created by the HP MPA or by exporting printer groups from your HP web Jetadmin database in XML format.

- [Supported HP UPD versions](#)
- [Use HP Active Directory Group Policy versus HP MPA to manage HP UPD policies](#)
- [Install the HP UPD Active Directory Administrative template](#)

Supported HP UPD versions

The HP UPD Active Directory Administrator Template version 4.1 and higher is supported with HP UPD version 5.1 and is available for download at www.hp.com/go/upd.

 **NOTE:** The HP UPD Active Directory Administrative template cannot be used in a Point and Print configuration.

Use HP Active Directory Group Policy versus HP MPA to manage HP UPD policies

The decision to use HP Active Directory Group Policy or HP MPA to manage the HP UPD depends on the size of your business and the current software infrastructure within your business.

In an enterprise business, use Active Directory Group Policy when your enterprise environment requires user and Organizational Unit (OU) level HP UPD configuration settings that might be based on how the users are currently configured in your Active Directory. The HP UPD Active Directory Administrative template integrates into an existing Active Directory infrastructure and allows for creation of group Policy Objects to be linked to user groups and OUs. An experienced Active Directory administrator will be able to easily integrate the HP UPD Group Policy objects in large enterprise environments.

In a smaller business, use the HP Managed Printing Administrator software when a fewer number of policy variations are necessary or when a smaller number of users actually need the behavior of their HP UPD managed.

Install the HP UPD Active Directory Administrative template

The HP UPD Active Directory Administrative template can be added to the current Active Directory infrastructure. How the template is added depends on whether the system has the Microsoft Group Policy Management Console (GPMC). See the following for more information.

Install template on Windows Server 2003 and Server 2008 using Microsoft Group Policy Management Console (GPMC)

The following procedure provides details for creating and linking group policy objects using Microsoft Group Policy Management Console (GPMC). The Microsoft GPMC is available for Microsoft Server

2003 and Windows XP. The following example creates a group policy object and sets it as the default policy for the entire domain, which in this case is named **test.local**. The procedure is similar for creating and linking group policy objects for organizational units and groups.


 **NOTE:** Microsoft no longer supports Windows XP operating systems. Support of the HP UPD with Windows XP may be limited.

1. Download the HP UPD Active Directory template as part of the HP Printer Administrator's Resource Kit (PARK) available at h20338.www2.hp.com/Hpsub/cache/494717-0-0-225-121.html. Click the link to the PARK beneath the **Universal Print Driver Tools** heading to download the PARK zip file.
2. Extract the contents of the PARK zip file to your hard drive.
3. Locate the folder where you extracted the PARK zip file and browse to the **active directory administrative template** folder.
4. Copy the template (**HP_MPP_4.1.adm**) to the **\windows\inf** directory on the domain controller server.
5. Open the **Microsoft Group Policy Console**.
6. Right-click the server name **test.local**.
7. Click **Create and Link a GPO here**.
8. Give the new GPO a name and click **OK**.
9. Right-click the new Group Policy object in the rightmost window pane.
10. Click **Edit**. The **Microsoft Group Policy Object Editor** opens.
11. Select **User Configuration**, click **Administrative Templates**, and select **Add/Remove Templates**.
12. Browse to and select the HP UPD Active Directory template (**HP_MPP_4.1.adm**).

The policies configured to manage the HP UPD behaviors are similar to those found in the HP Managed Printing Administrator tool. See [Manage the HP UPD using HP MPA on page 90](#) for more information.

Remove the HP UPD Administrative template

1. Open the Microsoft Group Policy Editor.
2. Click **User Configuration**, select **Administrative Templates**, and then select **HP Managed Print Policies**.
3. Set each of the policies to **Not configured**.
4. Click **Administrative Templates**, and select **Add/Remove Templates**.


 **NOTE:** Failure to set all the template settings to **Not configured** before removing the template will leave registry settings that are no longer associated with an administrative template, resulting in errors when the **Group Policy Modeling Wizard** is run.

Upgrade the HP UPD Administrative template


To upgrade the HP UPD Administrative template, follow the steps to remove the old template in [Remove the HP UPD Administrative template on page 132](#), then follow the steps to install the new template in [Install the HP UPD Active Directory Administrative template on page 131](#).

Enable Active Directory Group Policy for HP UPD for a new or existing HP UPD installation

For new installations of the HP UPD when an HP Active Directory Template is installed

 **NOTE:** When using HP UPD 5.X and the latest version of the HP Active Directory Administrative template (version 4.1), policy can be enabled directly from the template settings, so no special installation switches are required.

To install a new instance of the HP UPD with HP UPD Active Directory group policy enabled, use any of the following examples from a command line.

 **NOTE:** These steps are only required if you are currently using policy objects created with AD template 4.0 or earlier.

- To install in traditional mode.

```
install /sm<ipaddress-or-hostname> /n"printer name" /eads
```

- To install in traditional mode with machine-wide policy.

```
install /sm<ipaddress-or-hostname> /n"printer name" /geads
```

- To install in dynamic mode.

```
install /dm /n"search for printers" /eads
```

- To disable HP UPD Active Directory group policy settings with an HP UPD installation use the following argument rather than the `/eads` argument in the examples above.

```
/dads
```

For existing installations of the HP UPD

To enable your existing installations of the HP UPD to recognize the Active Directory group policies, use the following procedure for every UPD GPO that you create.

1. Open the **Microsoft Group Policy Editor**.
2. Select **User Configuration, Administrative Templates, HP Managed Print Policies, UseMode Settings**.
3. Open **General Settings**, click **Enabled**, and check **Enable Policy for all users**.

Configure policies with the HP UPD Active Directory Administrative template

To manage and configure the HP UPD Policies settings, open the **Microsoft Group Policy** editor and select **User Configuration, Administrative Templates**, and then **HP Managed Print Policies**.

Configuring the policies for the HP UPD is similar to configuring any other Group Policy within the Active Directory Group Policy environment.

The following are policies that are part of the HP UPD Active Directory template.

UseMode settings

General Settings

Table 8-39 UseMode settings–General settings

Option	Description
Not Configured	
Enabled	<p>Select this option button to make the following options available.</p> <ul style="list-style-type: none"> • Disable Color • Show device address • Enable Policy for all users. This setting allows the administrator to configure the HP UPD to enable AD policy without having to configure every installed instance of the HP UPD.
Disabled	

User Interaction Settings

Table 8-40 User Interaction settings

Option	Description
Not Configured	
Enabled	<p>Select this option button to make the following options available.</p> <ul style="list-style-type: none"> • Show UPD dialog settings window check box • Allow user group printers by location check box • Allow user group printers to OS Printers folder check box • Device verify level. <ul style="list-style-type: none"> ◦ (Do not specify) ◦ Verify communication and compatibility with driver (High) ◦ Verify device ID and Model Name can be obtained (Medium) ◦ Verify port can be opened for printing (Low) • When printing. <ul style="list-style-type: none"> ◦ (Do not specify) ◦ Always prompt for the destination when printing

Table 8-40 User Interaction settings (continued)

Option	Description
	<ul style="list-style-type: none">◦ Only prompt if the last known driver is no◦ Only prompt the first time a job is printed from a
Disabled	

Enabled Services tab

Table 8-41 Enabled Services tab

Option	Description
Not Configured	
Enabled	Select this option button to make the following options available. <ul style="list-style-type: none">• Enabled online diagnostics• Enabled driver updates• Enabled online support• Enabled supply ordering• Enabled product manuals
Disabled	

Default Print Settings


 **NOTE:** When the **Default Print Settings Properties** window is set for **Not Configured**, the HP UPD uses the driver defaults for the settings.

Table 8-42 Default Print settings

Option	Description
Not Configured	
Enabled	<p>Select this option button to make the following options available.</p> <ul style="list-style-type: none">• Duplex.<ul style="list-style-type: none">◦ Driver Default◦ Print on both sides◦ Print on both sides–Flip pages up◦ Print on both sides–Flip pages up–Lock• Economode.<ul style="list-style-type: none">◦ Driver Default◦ Economode On◦ Economode On–Locked• Private Printing.<ul style="list-style-type: none">◦ Driver Default (Off)◦ Private Job◦ Private Job–Lock◦ Proof and Hold◦ Proof and Hold–Lock◦ Quick Copy◦ Quick Copy–Lock◦ Stored Job (no PIN)◦ Stored Job (no PIN)–Lock◦ Stored Job (require PIN)◦ Stored Job (require PIN)–Lock• Private Print Pin• Edgeline QAC.<ul style="list-style-type: none">◦ Driver Default◦ Black and White◦ Black and White–Lock◦ General Office

Table 8-42 Default Print settings (continued)

Option	Description
	<ul style="list-style-type: none">◦ General Office–Lock◦ Professional◦ Professional–Lock• Allow special device information and offers to be displayed check box
Disabled	

Color access control

Application Filtering

Table 8-43 Application Filtering

Option	Description
Not Configured	
Enabled	<p>Select this option button to make the following options available.</p> <ul style="list-style-type: none">• Exclude these Applications check box<ul style="list-style-type: none">◦ Name: field
Disabled	

Time of Day Restriction

Table 8-44 Time of Day Restriction

Option	Description
Not Configured	
Enabled	<p>Select this option button to make the following options available.</p> <ul style="list-style-type: none">• [Day] drop-down menu.<ul style="list-style-type: none">◦ Specify time◦ Allow Color all day◦ Restrict Color all day• Hour on: field• Hour off: field
Disabled	

User Search Capabilities

Table 8-45 User Search Capabilities

Option	Description
Not Configured	
Enabled	<p>Select this option button to make the following options available.</p> <ul style="list-style-type: none">• Network print shares check box—Allow users to browse for and use printer shares on the network.• Network printers check box—Allow users to search for and use TCP/IP printers connected to the network.
Disabled	

Status Notification Pop-ups

Table 8-46 Status Notification Popups

Option	Description
Not Configured	
Enabled	<p>Select this option button to make the following options available.</p> <ul style="list-style-type: none">• Printer Alert Notification Settings.<ul style="list-style-type: none">◦ Disabled◦ Show for Device Errors (printing stops)◦ Show for Device Errors and Warnings◦ Show for Every Print Job• Device Query Internal.<ul style="list-style-type: none">◦ Normal◦ Minimize Network Traffic• Supplies Details check box—Allow users to select the Supplies Details link.• Shop for Supplies check box—Allow users to select the Shop for Supplies link.• Access HP Online Product Support check box—Allow users to select the HP Support link for product-specific online help.• Alternate Online HP Support URL: field
Disabled	

Job Accounting

Job accounting information can be passed as xml to a Windows DLL function call or posted to an http or https server.

Pass the job accounting XML to a Windows DLL function call

Table 8-47 Pass the job accounting XML to a Windows DLL function call

Option	Description
Not Configured	
Enabled	Select this option button to make the following options available: <ul style="list-style-type: none">• Module name: field• API name: field
Disabled	

Post the job accounting XML to an http or https web server

Table 8-48 Post the job accounting XML to an http or https web server

Option	Description
Not Configured	
Enabled	Select this option button to make the following options available: <ul style="list-style-type: none">• URL: field
Disabled	

Job Delivery

Job delivery information can be passed as xml to a Windows DLL function call or posted to an http or https server.

Job Delivery

Table 8-49 Job Delivery

Option	Description
Not Configured	

Table 8-49 Job Delivery (continued)

Option	Description
Enabled	<p>Select this option button to make the following options available:</p> <ul style="list-style-type: none"> • Job Delivery Mode. <ul style="list-style-type: none"> ◦ All printers will deliver job according to this scheme ◦ Only printers that have been selected in the MPL will deliver jobs • Delivery port name: field • URL for job completion: field
Disabled	

Call a Windows DLL function to handle delivery of the print job data

Table 8-50 Call a Windows DLL function to handle delivery of the print job data

Option	Description
Not Configured	
Enabled	<p>Select this option button to make the following options available.</p> <ul style="list-style-type: none"> • Module name: field • API name: field
Disabled	

Post the print job data to an http or https web server

Table 8-51 Post the print job data to an http or https web server

Option	Description
Not Configured	
Enabled	<p>Select this option button to make the following options available.</p> <ul style="list-style-type: none"> • Job submit URL: field
Disabled	

MPP Information Settings

Table 8-52 MPP Information settings

Option	Description
Not Configured	

Table 8-52 MPP Information settings (continued)

Option	Description
Enabled	<p>Select this option button to make the following options available.</p> <ul style="list-style-type: none"> • Info Link Name: field • Info Link URL: field
Disabled	

Managed Printer List settings


Table 8-53 Managed Printer List settings

Option	Description
Not Configured	
Enabled	<p>Select this option button to make the following options available.</p> <ul style="list-style-type: none"> • Custom MPL Count: selection box • HP MPL Only check box • Custom MPL [#]:—(up to 40) <ul style="list-style-type: none"> ◦ Name: field ◦ Path: field ◦ Enter: drop-down menu – <ul style="list-style-type: none"> — Standard HP UPD MPL — web Jetadmin XML MPL
Disabled	

Implement HP Managed Printer Lists (MPLs) within the HP UPD Active Directory template file

Printer lists for use in the Active Directory Group Policy environment are created outside the Active Directory Group Policy object, and linked to the HP UPD Active Directory Administrative template within each Group Policy Object. Create HP Managed Printer Lists by using the HP MPA or by exporting printer lists from web Jetadmin. For each policy created, up to 40 HP Managed Printer Lists can be selected.

- **Custom MPL Count.** This number must match the number of printer lists entered.
- **HP MPL Only.** Check this if the printer lists have been created by, and exported from, the HP MPA software tool.
- **Name.** This is the name displayed for each group.
- **Path.** The information in the **Path** field depends on the type of MPL and the location of the data. In these examples the data is on an http web server.

 **NOTE:** The path string consists of a prefix like http, and a folder or subfolders separated by a colon (:).

- If the data is the default MPL view from HP MPA, the prefix is http.
- If the data is XML (exported from web JetAdmin), the prefix is http.
- If the data is a graphical view exported from HP MPA (an Image map, Printer Graphics View, or Tabular view), the prefix is hpmpl.
- **Type.** Choose the correct type of printer list being selected. **Standard UPD MPL** for printer lists created by HP MPA, or **web JetAdmin MPL XML** for printer lists exported by web JetAdmin.


When entering the path for printer lists created by HP MPA, you can cut-and-paste the direct location of the printer list by entering edit mode for the printer list, and cutting and pasting the Direct URL entry found at the bottom of the printer list.

Verification and troubleshooting

Use this section to verify that the users are obtaining the HP UPD policies correctly; also, use this section as a guide to see where to apply settings.

Functional test

1. Use the group Policy Modeling tool to run simulations on specific users or groups and specific machines.


 **NOTE:** The GPMC is a Microsoft supplied tool (not available on Windows Server 2000) and is an optional component on later server versions that can be downloaded from the Microsoft website.

2. Run the modeling wizard to verify your settings.
3. Right-click **Group Policy Modeling**.
4. Click **Group Policy Modeling Wizard**.
5. Enter the user that you want to model.
6. Select the **Skip to the final page** check box.

Registry population

Use this test to verify that the settings in the group policy object populate in the registry of the client computer.

1. Verify that the current user is logged into the domain.
2. Run regedit.exe and verify that the registry populates correctly. The registry path is HKCU/Software/Policies/Hewlett-Packard/HP Print Settings/ADSPrintPolicy.

 **NOTE:** Active Directory does not refresh settings immediately after you make a change to the Group Policy object. To refresh the settings on the client, you must log out and then log back in, or you can use the gpupdate utility with the /Force option run from a command window to force Active Directory to update the settings.

Example: `c:/> gpupdate /Force`

Final test

Install the latest version of the HP UPD and verify that the screens and final print result reflect the policy settings entered in the Group Policy Editor (gpedit.msc).

A Manage Status Notification Pop-ups

The HP UPD provides a feature named Status Notification Pop-ups (SNPs). SNPs provide immediate job information and printer status information by a small pop-up window on the client PC. SNPs also provide current information about printer consumables, such as toner levels and links to HP SureSupply ordering system and HP Instant Support page. The SNP feature, which displays during the submittal of a print job, is fully configurable through a variety of tools available to print administrators.

- [Description and benefits](#)
- [How the SNP works](#)
- [SNP default behavior](#)
- [HP Special Offers Program](#)
- [Use Device Settings tab in the property page to enable or disable SNP](#)
- [Use the pop-up window to enable/disable SNP](#)
- [Manage the SNP with the HP Driver Configuration Utility](#)
- [Manage SNP with HP Managed Printing Administration \(HP MPA\)](#)
- [Manage SNP through the command prompt install \(Install.exe\)](#)
- [Manage SNP through registry settings](#)

Description and benefits

Available with all PDLs, a Status Notification Pop-up (SNP) provides HP UPD users with the following information:

- **Print status and error messages.** Provides users with printer status information so they can respond to and resolve many minor printer problems such as an open cover or paper jams, reducing the number of Help Desk calls.
- **Dashboard view of supply levels.** Dashboard view allows users to plan ahead to ensure that sufficient supplies exist in the printer before printing large print jobs.
- **Links to the HP SureSupply ordering system.** This makes it convenient to order genuine HP supplies. Click the SNP Windows option, “Shop for Supplies,” to access the HP SureSupply ordering system.
- **Links to HP Support pages.** Get instant support for many printer problems by clicking on “HP Support” for detailed information on printer status and printer error messages.

How the SNP works

When selected for printing, the HP UPD attempts to communicate directly with the printer to gather status and job information during printing. By querying the printer through SNMP get commands, network traffic is kept to a minimum and is only present during printing. If the HP UPD is unable to communicate with the printer, possibly due to security settings, or SNMP community names set on the printing products, then the pop-ups do not appear on the client PCs. Normal printing is unaffected.

SNP default behavior

In small to medium business environments, defined as having fewer than 100 users or when domain names end in .local, the supplies and support links at the bottom of the pop-up window are active. Individual users also have the opportunity to enable the HP Special Offers Program for their product.


In larger enterprise environments, defined as having 100 users or more, and where domain names do not end in .local, the HP UPD programmatically disables the following:

- SNP
- HP Support and Shop for Supplies links
- HP Special Offers Program features

In most enterprise environments, internal centralized ordering personnel handle the ordering of supplies, and internal Help Desks assist users with daily solutions. Administrators can alter the default SNP behavior through methods defined in this chapter.

Administrators can alter the default SNP behavior through methods defined in this chapter.

HP Special Offers Program

 **NOTE:** The HP Special Offers Program is automatically disabled in an enterprise environment of 100 or more users, or if SNP runs on a print server queue. In these situations, the HP Special Offers Program cannot be enabled.

The HP Special Offers Program enables HP to present HP customers with 'targeted' offers to buy HP and HP partner products, use HP and HP partner services, and learn more about HP and HP partner offerings. For example, a printer with low toner 'triggers' a toner offer to the customer.

The HP Special Offers Program includes various methods for specifying offers to present to customers; offers are dependent on the information collected from the product, application, print driver, and operating system. There are four categories of offers, including:

- Consumables—toner, media.
- Support—paper jams, troubleshooting.
- Entitlement—care packs (1 or 11 months past the purchase date); the product may be eligible for care packs.
- Timed—various special offers every three days for such things as the following: (accessories, duplexer, informational (recycling))

The HP Special Offers Program is configured and managed. There are two main ways to enable/disable The HP Special Offers Program: the Privacy Settings window and the SNP Notification Settings window.

The Privacy Settings window displays soon after installing the HP UPD. In this window, the user can opt-in to the HP Special Offers Program program. The following options appear in Privacy Settings window:

- **Yes, allow this info to be sent to HP**
- **No, do not send this info to HP**
- **I'm not sure, ask me again later**

If **Yes, allow this info to be sent to HP** is selected, the HP Special Offers Program feature is enabled.

If **No, do not send this info to HP** is selected, the HP Special Offers Program feature is disabled.

To modify whether or not the HP Special Offers Program feature is enabled, use the settings available in the SNP Notification Settings window.

To enable or disable HP Special Offers Program, select or deselect **Allow special device information and offers to be displayed** in the SNP Notification Settings window.

Use Device Settings tab in the property page to enable or disable SNP

SNP can be enabled or disabled from the **Device Settings** tab of the driver with HP UPD 4.7. Before HP UPD 4.7, SNP could only be disabled from the SNP window. When SNP was disabled, it could not be enabled through the SNP window.

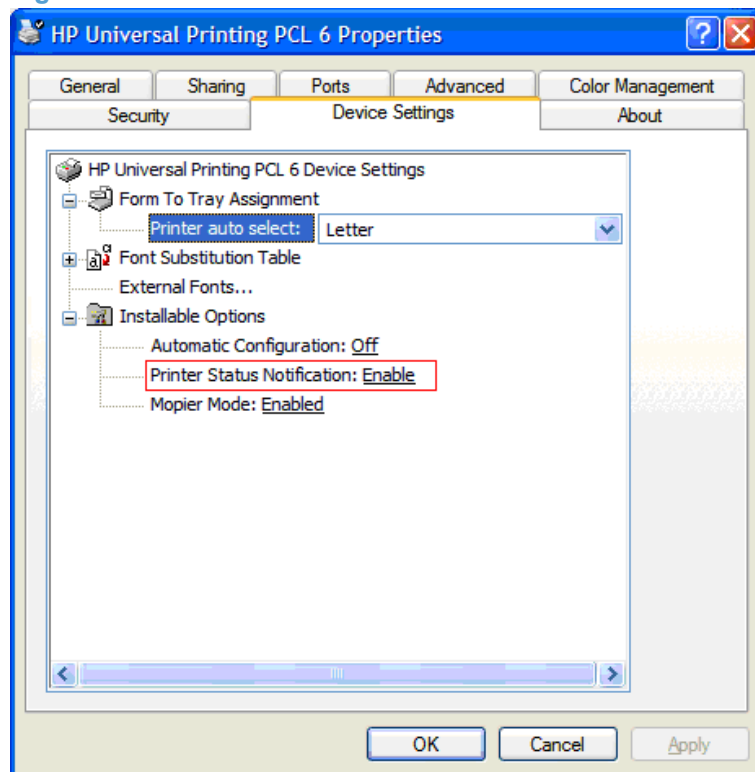
Enabling or disabling SNP requires the following items:

- Bidirectional communication is enabled and functional. Bidirectional communication can be disabled in the HP UPD version 4.7. See [Manage the HP UPD using HP Managed Printing Administration \(HP MPA\) and Active Directory Group Policy on page 89](#) for more information.
- The product supports SNP functionality
- The product is not a PCL3 product

Follow these steps to enable or disable SNP from the **Device Settings** tab:

1. Open the **Printers and Faxes** folder, right-click the HP UPD, and then select **Properties**.
2. Click the **Device Settings** tab.
3. In the **Installable Options** section, set **Printer Status Notification** to either **Enable** or **Disable**.
4. Click **OK**.

Figure A-1 Enable or disable **Printer Status Notifications**




The following conditions describe the possible situations that can enable or disable the **Printer Status Notification** setting in the driver's **Device Settings** properties.

- When no HP MPA or AD policy is defined for SNP and SNP is enabled, the **Printer Status Notification** combo box in the **Device Settings** user interface is set to **Enable**. The user can modify this setting.
- If SNP is disabled through the SNP pop-up or through the **Device Settings** user interface, then no SNP pop-up is visible for that queue and the **Printer Status Notification** combo box is set to **Disable**. The user can re-enable SNP pop-up by selecting **Enable** in the **Printer Status Notification** combo box.
- If SNP is disabled through Install.exe, DCU or any of the policies (HP MPA , AD), the **Printer Status Notification** combo box in the **Device Settings** user interface is set to **Disable**. In addition, the **Device Settings** user interface combo box appears dimmed so that the user cannot overwrite the policy settings

Use the pop-up window to enable/disable SNP

It is possible to alter the behavior of the SNPs within the pop-up window by using the **Notifications Settings** tab. To view the Notification settings, click the **Notifications Settings** link any time the pop-up is visible.

 **NOTE:** The Notification Settings tab only displays in the pop-up window in an environment where no Managed Print Policies appear on the network.

The options available for configuration are as follows:

- **Enabled.** Allows the user to select whether the pop-ups appear based on the condition of the printer status. Choose from three levels of severity as to when you wish the pop-ups to appear.
- **Disabled.** Allows the user to permanently disable the pop-up window for any printer condition.


Manage the SNP with the HP Driver Configuration Utility

The HP Driver Configuration utility is a software program that Information Technology (IT) administrators can use to pre-configure the HP UPD before deploying and installing on an operating system. It is most beneficial when configuring the HP UPD for multiple workstations or printer servers for print queues that share the same configuration.

Follow these steps to pre-configure the SNP behavior of the HP UPD:

1. Open www.hp.com. Download and open the Driver Configuration utility.

www.hp.com/go/hpdriverpre-config

 **NOTE:** Depending on how the HP UPD driver is installed, a message may open indicating that changes made to the HP UPD may invalidate the digital signature and Microsoft might display a warning message. The warning message is normal behavior. Click **OK** to continue.

2. Click **File**, then **Open** and browse to the directory where the HP UPD is located.
3. Select the .INF file for the HP UPD and click **Open**.
4. Click **Device settings** and expand the **SSNP_Level** listing by clicking the **+**.

5. Select the desired pop-up options.
6. Click **File** and **Save** to complete.

A file (.CFG) is created in the same folder as the HP UPD. This configuration file follows all installations of the HP UPD and controls the SNP behavior for each installation. For more information about the HP Driver Configuration Utility, see the *HP Driver Pre-Configuration Support Guide*.

Manage SNP with HP Managed Printing Administration (HP MPA)

Unlike any other print driver, the HP UPD can be controlled by a HP Managed Print Policies (MPPs). An MPP is an XML document that controls the driver operation mode in a particular printing environment. In addition, the MPPs can also manage the behavior of the SNP each printer user experiences. The new HP Managed Printing Administration tool (HP MPA) allows print administrators to create MPP to attain the desired SNP experience. The MPP tool is available at: www.hp.com/go/mpa.

Edit a policy, or create a new policy and use this screen to make the desired changes to affect the printer client behavior of the SNP.

See [User Search capabilities on page 105](#) for more information.

Manage SNP through the command prompt install (Install.exe)

The HP UPD includes an installer that allows administrators to install the HP UPD from the command prompt, or as part of other install batch files. Optional command line switches available to the Install.exe program allow the administrator to modify the HP UPD install experience. From the command prompt, type `install /?` to view the complete list of install printer options.

The two installation switches that enable you to manage the behavior of the SNP during the HP UPD installation include:

- `install /dssnp`—disables the SNP for a specified printer.
- `install /gdssnp`—disables the SNP for all printers installed.

Manage SNP through registry settings

Changes are made to specific registry settings by all previous methods for changing SNP behavior. It is also possible to change the SNP settings by editing the registry directly.

The registry location below contains the entries that modify the SNP behavior for each installed printer on the client PC or server. Modify the SNP behavior by making changes to each of the installed printers.

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Print\Printers  
\<PrinterName>\PrinterDriverData
```

Where **<PrinterName>** represents the names of each of your installed printers.

Table A-1 SNP settings

Setting	Type	Value
SSNPDeviceUpdateInterval	REG_DWORD	0x00000000 (0) 0 = Normal, 1 = Minimize
SSNPDisableAll	REG_DWORD	1 = SNP turned off for all queues on the system
SSNPDriverUISetting	REG_DWORD	0 = SNP Enable/Disable feature is disabled. The UI feature is NOT dimmed so the user can re-enable this feature later on. 1 = SNP Enable/Disable feature is enabled. The UI feature is NOT dimmed and the user can disable this feature later on. NOTE: SSNPDriverUISetting registry setting does NOT have precedence over policy settings. This registry value is also located in printerdriverdata for the queue.
SSNPNotifyEventSetting	REG_DWORD	0x00000001 (1) 0 = Disabled, 1 = When Printing, 2 = On Warnings or Errors 3 = On Errors only
SSNPShowAlertLink	REG_DWORD	0x00000001 (1) 0 = Hide, 1 = Show
SSNPShowShopLink	REG_DWORD	0x00000000 (0) 0 = Hide, 1 = Show
SSNPShowSSNSettings	REG_DWORD	0x00000000 (0) 0 = Hide, 1 = Show
SSNPShowSupportLink	REG_DWORD	0x00000000 (0) 0 = Hide, 1 = Show

B Frequently Asked Questions

Driver installation and configuration

Use this section to find answers to common installation and configuration questions.

1. Can I pre-configure the HP UPD using HP Web Jetadmin and the HP Driver Configuration Utility?

Yes. The HP UPD supports pre-configuration through HP Web Jetadmin and the HP Driver Configuration Utility.

2. Is the printer queried every time it is printed to?

For traditional mode queues, no. The printer is queried once and the settings are cached. In dynamic mode where a user has chosen to create a permanent instance of the printer, or is printing to one of the printers in the recently used list, settings are also cached. The only time the printer would be queried every time it is printed to is in dynamic mode if for some reason the settings could not be cached due to folder write restrictions in the user's %TEMP% and %TMP% folders.

When the Status Notification Pop-ups (SNP) are enabled, the HP UPD sends a few packets to the printer to gather printer status information.

3. Are traditional mode queues updated with new driver too?

Yes. The Microsoft operating system will update all instances because the driver name is the same (with different registry entries) for permanent instances. All queues sharing the same driver name will update.

4. How can I have permanent instances re-query a product?

As with other HP drivers, there is the ability to select an **Update Now** button or use the command line option. See [Printer Automatic Configuration on page 61](#).

5. Which port monitor is used with the HP UPD?

By default, the HP UPD uses the standard TCP/IP port monitor. The HP Standard TCP/IP port monitor is no longer used by *default* due to conflicts with earlier versions of the HP UPD. The HP Standard TCP/IP port monitor, as of version 7.x.3.5, can be used but it is not the default.

HP has its own version of the TCP/IP port monitor for communicating with network products. It is not part of the installer package of the HP UPD.

For cases where the HP UPD is pointed to an existing print queue shared out from a print server instead of a printer itself, the "HP UNC Port" monitor is used.

For cases where locally installed products are selected, the LPTX, USB00X, or Dot4 port will be used. This depends on the USB protocol that is negotiated between the HP UPD, and the product.

6. Is it possible to suppress the HP UPD Status Notification Pop-ups (SNPs) on the client machine installed from a print server?

Yes, see [Manage Status Notification Pop-ups on page 145](#) for more information about managing SNPs.

7. How do I set defaults for the driver on the server so all installs have the same defaults?

Configure the driver using the HP Driver Pre-configuration Utility.

8. How does the static mode install command line switch work?

The static mode install command line switch, in versions 3.0 and newer, uses the port name specified by the /sm switch if the specified port exists. If that port does not exist, the HP UPD install creates a new port. In the normal operation of printing with the HP UPD, once the printer binds to a port, the job is delivered to that port (and associated port monitor) no matter what the port is named.

9. If my product can be discovered by the HP UPD via mDNS but cannot communicate via SNMP, what is the issue?

If the product can be discovered by way of mDNS but cannot communicate by way of SNMP, it is possible that Jetdirect is configured so that SNMP is disabled. It is also possible that SNMP is disabled or may be using a non-default SNMP community name.

10. Can the HP UPD installation change the target port's SNMP community name (i.e. can it replace the current name and with a different SNMP community name)?

Yes. You can set or change the community name in the port using Install.exe. The installer switch was put there to set the community name at the time the port is created. Example: /gcommunity" name".

11. What version did the HP UPD begin using unique file names?

Starting with HP UPD 4.5 driver file names for each release are uniquely named to prevent overwriting existing files that may have shared dependency. Beginning with HP UPD 4.7, more than one HP UPD version can be installed onto the host if during the installation process the model specific version of the HP UPD was selected through the Add Printer Wizard and, beginning with HP UPD 5.0, using the /m switch with Install.exe.

12. Any tips for using Microsoft's PrintMig?

Testing has found limitations using the PrintMig tool with both HP and non HP drivers. For the HP UPD, install the HP UPD first on the target host to register all files and COM objects, then perform the PrintMig restore onto the host. PrintMig tool has been placed end of life by Microsoft.

13. What is our first step during upgrade?

Avoiding unintended issues resulting in change to UniDrv and postscript has been an issue. Updates to these files come unannounced and unplanned through update services, installation of service packs, etc that may negatively impact driver upgrades dependent upon Unidrv and Pscript version.

Upgrade has several steps that should be followed. Specific to this issue, check **Server Properties, Drivers** to see what version of UniDrv and postscript are on the system and compare against the version you are about to install. If they are different this may increase the scope of testing required for an uneventful upgrade. Refer to [Install and Uninstall of the HP UPD on page 27](#) for HP recommended steps.

14. Is there a tool or method available to force clients to disconnect their print connection to the print server and re-establish the connection?

A tool for this function can be found in the HP Printer Administrator's Resource Kit (PARK) available for download at h20338.www2.hp.com/Hpsub/cache/494717-0-0-225-121.html. Click the link to the PARK beneath the Universal Print Driver Tools heading.

15. HP UPD displays "HP Universal Printing PDL***" in the **Printers** folder. How can I make the HP UPD display the printer model name instead?

A tool for this function can be found in the HP Printer Administrator's Resource Kit (PARK) available for download at h20338.www2.hp.com/Hpsub/cache/494717-0-0-225-121.html. Click the link to the PARK beneath the Universal Print Driver Tools heading.

16. Are there thresholds or guidance limiters to scaling the HP UPD on a single print server?

HP UPD does not have a bounded limit to scale of installation. The recommendation of how many queues to install on a single server is entirely site dependent. Questions such as this are best answered by IT administrative policy placing criteria on status and monitoring, server disk/CPU/network IO utilization rates, print job throughput, peak load times etc. Some very well managed sites with resources can run 1000 print queues on the right server with redundancy and high availability requirements satisfied.

17. What does WHQL look at when it breaks: file byte size, date of file, etc?

When the driver is signed, part of the process is creating a hash of the contents of all the files that are part of the driver, including the .cfg or .cf_ file. If you alter even one bit in any file, the hash breaks.

18. Why am I unable to delete the HP UPD print driver?

The print spooler must be stopped to release the HP UPD print driver. Perform the following on the command line: `C:\>NET STOP SPOOLER && NET START SPOOLER.`

Driver Policy

Use this section to find answers to common questions regarding use of the HP UPD with HP MPA and Active Directory.

1. What are managed printer lists and policies?

Managed Printer Lists (MPLs) and Managed Printer Policies (MPPs) are features of HP Managed Printer Administration software which allows administrators to manage and control printing environments. See [Manage the HP UPD using HP MPA on page 90](#) for more information.

2. Does HP MPA support products not found on the HP UPD Supported Device list?

The HP UPD can print to unsupported products, but the HP MPA will not provide managed print control of products not found on the HP UPD supported printer list.

3. If I have the HP MPA and the HP UPD Active Directory Group Policy running simultaneously, which set of policies take priority?

The HP UPD Active Directory Group Policy takes precedence over both HP MPA defined policies and default settings.

4. How can I set up printer lists for each user?

Printer lists can be created within the HP MPA software tool, or by exporting printer lists from Web Jetadmin into XML format.

5. Are both modes of the HP UPD (traditional and dynamic) managed through Active Directory templates and HP MPA?

Both operating modes of the HP UPD are manageable through the Active Directory Group Policy and the HP MPA application.

6. What versions of the HP UPD support the Active Directory Group Policy?

HP UPD version 4.0 and newer.

7. How much does the HP UPD Active Directory Template cost?

The HP UPD Active Directory Administrator Template file is available for download at no charge from www.hp.com/go/upd

8. Are both modes of the HP UPD (traditional and dynamic) managed through the HP UPD Active Directory Administrator Template and the HP MPA tool?

Yes, both operating modes of the HP UPD are manageable through the Active Directory Group Policy and HP MPA Software.



NOTE: The HP UPD Active Directory Administrator Template does not work in an Point-and-Print configuration.

Operating system

Use this section to find answers to common questions regarding use of the HP UPD with various operating systems.

1. What about use in an Apple Macintosh Environment?

There are no plans for a Macintosh version of the driver. HP drivers can be used, however, with the Apple Bonjour™ (formerly Rendezvous™) discovery mechanism. Bonjour behaves the same way the HP UPD does when looking for products on the local subnet (using mDNS).

2. Does the HP UPD support XPS print paths?

XPS print path requires a product that consumes native XPS, an application that sends native XPS and an XPS print driver to send XPS data to the an XPS print product. If each step in the path is not native XPS requires conversion of the print content. HP UPD does offer an HP XPS print driver. Please contact HP support for download location and documentation.

3. What is the HP Port Monitor?

The port monitor that the HP UPD uses is the standard TCP/IP port monitor that is part of the operating system. There is an HP UPD Port monitor that is installed, but it is used only to

provide a print path to UNCpaths or shares, send print settings to a local printer, and send jobs to a defined HTTP location for job tracking.

C HP UPD Deployment Worksheet

Use this worksheet to guide your HP UPD deployment.

General Information

Do you primarily print in color or black and white?

- Would your company prefer that all users to print in grayscale, with the option to manually select color?

Are users defaulted to print in simplex (single-sided) or duplex (double-sided)?

- Would your company prefer that all users or user groups to print in simplex or duplex?

Are all users in your Windows environment Local Administrators to their PC?

- If not, please specify the default capabilities for the user.

Are there any government or industrial regulations or restrictions regarding the process of print jobs?

- Are all printer log files retained? What is your process for retaining printer log files?

Is there a preferred driver language (PCL5, PCL 6, or PS) for printing?

Do users have any special production or operational environments (non-application print) which require specialized drivers or non-standard printer drivers?

Do any groups or users use PIN printing? If so, please specify the groups or users that use PIN printing.

Port and protocol information

Port Monitor

- Standard TCP/IP Port?
- HP Standard Port Monitor?

RAW or LPR?

How are IP addresses distributed to your printers?

- If static IP addresses are distributed, how are they reserved (DNS, DHCP reservation, BOOTP)?
- Are printers set to DHCP, BOOTP, or Manual when configuring the IP address?

Ports and protocols

- Is SNMP enabled in your environment across all subnets?
 - If not, please describe the subnets where SNMP is disabled and if it is possible to enable SNMP.
- What versions of SNMP (SNMPv1, v2, v3, other) are enabled in your network infrastructure?
- Verify that "Get Community" names values are consistent.
 - Bi-directional communication – between the HP UPD and printer – is required to gather product-specific configuration information.
- Make sure mDNS broadcasts and IP multicast services are allowed on the network for the HP UPD to discover products.
 - In dynamic mode, the HP UPD will only discover products within the same subnet when **Search for network printers** is selected.
- Activate the mDNS protocol on the printer/product using the HP Embedded Web Server (EWS).
- Make sure a firewall or router is properly configured to allow the HP UPD to communicate over the necessary network ports.

Table C-1 Network Ports used by the HP UPD

Port	Type	Service	Used by
161	udp	SNMP	HP UPD
53	tcp	DNS query	HP UPD
5353, 5354	udp	Multicast DNS	HP UPD
80	tcp	HTTP	HP UPD, HP MPA server, HP EWS
9100	tcp	Print Data	HP UPD, Printer

Print server environment

Please fill out this section for each server to be migrated.

Print server information

How many current print servers are in production in your current environment?

Is there a print server for each location or are there regional print servers?

- If the answer is more than one, a checklist needs to be filled out for each of the servers that are to be created or migrated.

Server Name _____

Operating system

- Version _____
- 32 or 64 bit? _____

Cluster environment? _____

- Active-Active or Active-Passive? _____
- Names of Physical Nodes _____

Is this print server dedicated, or does this server have other server roles (file/printer, DNS/print, etc)?

Total number of print queues on the server? _____

Print queue settings

- Pre-configuration settings
 - _____
 - _____
 - _____
- Are any security settings such as Access Control Lists (ACLs) that you want configured for products at the printer or queue level?

Goals

- **New**-Set up new server that has new queue names?
- **Replace**-Set up new server to replace an existing server that has the same queue names as the existing server?
- **Upgrade**-Upgrading print queues on an existing server to the HP UPD?

Set up new server that has new queue names

Print queues and drivers:

- Prepare a list of list of the following information.
 - Queue name
 - HP printer model
 - Port name and/or IP address

Driver List:

- Not all HP printer models are supported by HP UPD. Compare this newly created list to the list of products supported by HP UPD.
- Mark the list to indicate which queues will use HP UPD, and which queues will require a product specific driver.

Upgrade print queues on an existing server to the HP UPD:

How will be server be backed up before the migration begins?

- Use the Microsoft Print Migrator 3.1 tool or the Server 2008/Vista PrintBrm.exe utility to back up the print servers.
- Will the backup be verified? _____

Test server available? _____

- Attempting to upgrade drivers to the HP UPD on a running production server is NOT RECOMMENDED.
- Will the test server become the new production server, or will the production server need to also be updated? _____

Microsoft file version information:

- UNIDRV.DLL File Version? _____
- PSCRIPT5.DLL File Version? _____

Print queues and drivers:

- Prepare a list of list of the following information.
 - Queue name
 - HP Driver name or HP printer model
 - Driver version
 - Port name and IP address
 - Kernel or user mode driver?
- You can create this list automatically by running the prnmngr.vbs script on the server.

Driver Mapping

- Not all of the hp drivers on the existing system can be migrated to the HP UPD. Compare this newly created list to the list of products supported by HP UPD to develop a list of potential migration candidates.
- Decide what you want to migrate?
 - Everything that is supported by the HP UPD to the HP UPD
 - Only HP kernel mode drivers
 - Install the HP UPD for new products only
- Mark the list to indicate which queues will use the HP UPD, and which queues will require a “native” driver.

Print queue settings

- Pre-configuration settings
 - _____
 - _____
 - _____
- Are any security settings such as Access Control Lists (ACLs) that you want configured for products at the printer or queue level?

Point and Print Client Information

Citrix, or Terminal Services? _____

How many clients?

- Windows XP 32 bit _____
- Windows XP 64 bit _____
- Vista 32 bit _____
- Vista 64 bit _____
- Windows 7 32 bit _____
- Windows 7 64 bit _____

Does the capability exist to run software or adjust client settings via login scripts or AD Group Policy?

Direct IP printing

General client information

Citrix, or Terminal Services? _____

How many clients?

- Windows XP 32 bit _____
- Windows XP 64 bit _____
- Vista 32 bit _____
- Vista 64 bit _____
- Windows 7 32 bit _____
- Windows 7 64 bit _____

Does the capability exist to run software or adjust client settings via login scripts or AD Group Policy?

Are the client PC's typically used exclusively by one user or shared by many users?

How many current drivers are stored in the printer driver repository/library (if applicable)?

Is there a default driver language (PCL5, PCL 6 or PS) for end-user printing?

- Can users request an alternate Driver language from the default (i.e., prefers PS over PCL5 for .pdf files?)

Total number of printers on a typical client? _____

Printer settings

- Pre-configuration settings
 - _____
 - _____
 - _____

Goal

- **New**-Set up new printers on a client using the HP UPD in traditional mode.
- **Dynamic**-Install the HP UPD in dynamic mode.
- **Upgrade**-Upgrade existing printers on the client to the HP UPD traditional mode.

Upgrade-Drivers:

- Run the prnmngr.vbs script on the client to create a list of the hp drivers currently on the client.
- If you create this list yourself, please include the following information.
 - Driver name or printer model supported
 - Version
 - Kernel or user mode?
- Not all of the hp drivers on the client can be upgraded to the HP UPD. Compare the newly created list with the list of products supported by the HP UPD to develop a list of potential migration candidates.

Upgrade-Settings configuration

Existing printer settings. Do you want to:

- Keep current queue settings? _____
- Pre-configure settings in addition to migrating current settings? _____
- Pre-configuration settings
 - _____
 - _____
 - _____
- Pre-configure the queues that cannot have settings migrated? _____
- Pre-configuration settings
 - _____
 - _____
 - _____

Are any security settings such as Access Control Lists (ACLs) configured for products at the printer or queue level?

HP UPD/HP MPA/AD Customized Options

Would you like policy or access control restrictions to be set based on user ID?

Would you like Color access control to be set configured with Time of Day restrictions (days/hours)?

Is there a preference to allow or disable specific applications (winword.exe, excel.exe, etc) to print in Color?

Is there a preference as to how users can search for printers (see below)?

- On the user's local subnet
- Using Managed printer lists

How would you prefer users view the list of printers (see below)

- A default view (list of printer names)
- Through a list showing customized groups (i.e., MFP, Color, B/W)
- A clickable image (possibly a floor layout in .jpg, .bmp or html format) that may be uploaded

Would you like for your users to receive a pop-up status message of their job?

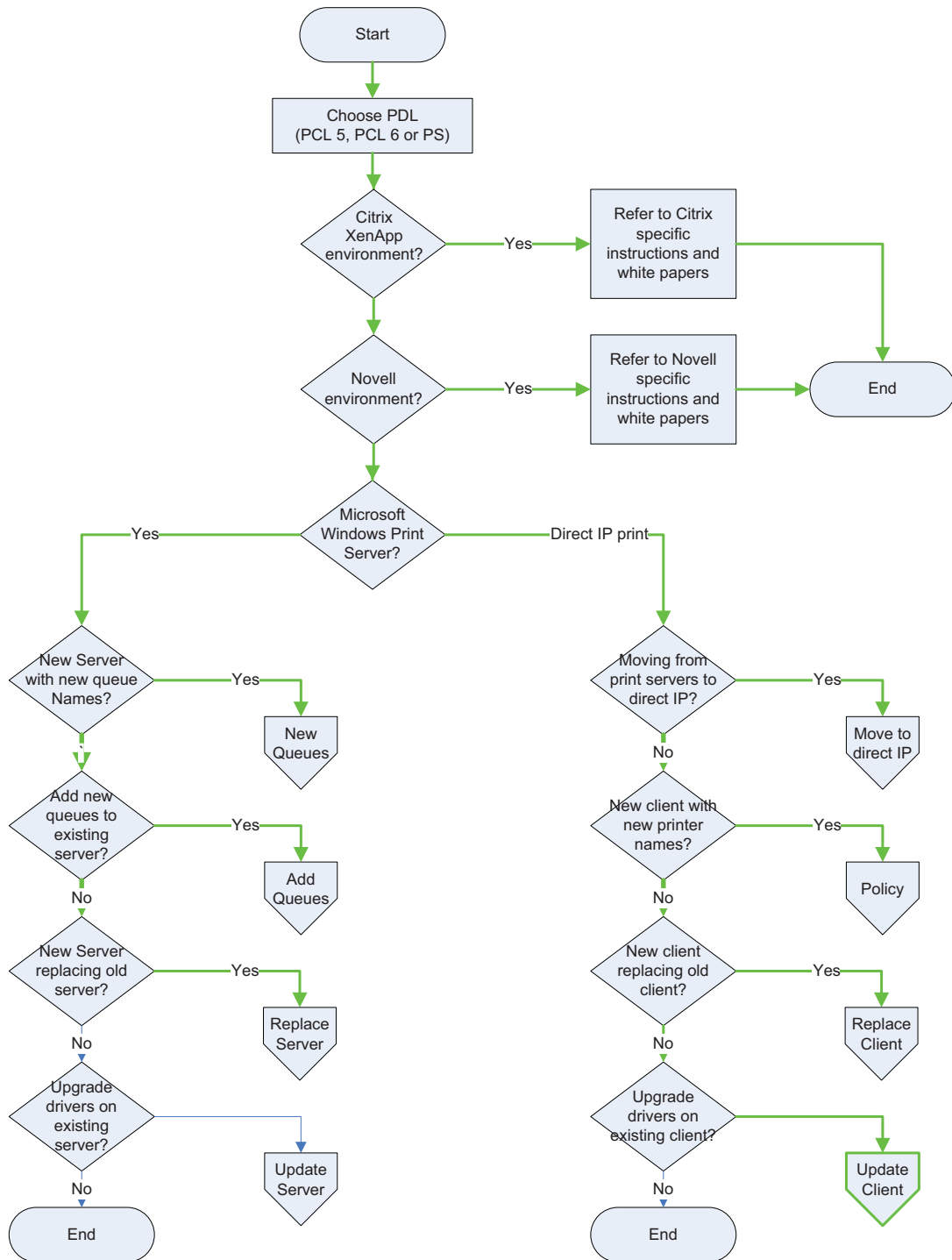
- Which message pop-ups are preferred? Select to show all, some, or none from the following:
 - Job Completion
 - Supplies Details link
 - Shop for Supplies link
 - HP Support link for product specific online help
 - Other

D HP UPD Deployment Flowcharts

The HP UPD can be installed and configured many ways. The following flowcharts contain green lines which outline the recommended deployment paths. These configurations allow for the simplest deployment and implement the full functionality of the HP UPD. All of the paths outlined on the flowcharts are supported, but following some of the paths may involve extra steps or limit the functionality of the HP UPD. There are valid technical and business reasons for using the alternate paths, but when in doubt, follow the green line.

Start

Figure D-1 HP UPD deployment start



Choose PDL: (PCL 5, PCL 6 or PS)

The first step is to decide which HP UPD PDLs (Page Description Language) to install. The HP UPD offers a choice of postscript, PCL 5, and PCL 6.

Citrix environment

See the HP white paper *HP Printers Supported in Citrix Presentation Server Environments* at www.hp.com/go/upd for more information.

Novell environment

See [Novell on page 45](#) for more information.

Microsoft Windows Print Server

In a print server environment there are four possible ways to deploy the HP UPD.

1. New server with new queue names.

In this scenario the administrator sets up a new print server and assigns new names to all the print queues.

2. Add new queues to existing server.

In this scenario the administrator adds the HP UPD to an existing print server and creates additional queues using the HP UPD.

3. A new server replacing an old server.

In this scenario the administrator sets up a new print server that replaces an existing print server. This scenario differs from scenario #1 because the administrator wants this server to have the same queue names as the server it replaces to minimize impact on existing traditional mode installed client connections.

4. Upgrade drivers on existing server

In this scenario the administrator upgrades the existing HP drivers on an existing print server to the latest version of the HP UPD.

Direct IP Printing

Direct IP printing is an environment where the Windows client prints directly to the product, either network connected or directly connected with an HP UPD or LPT port. In the Direct IP Printing environment there are four possible ways to deploy the HP UPD.

1. Moving from print servers to direct IP printing.

In this scenario the administrator moves from a print server environment to direct IP printing.

2. New client with new printer names

In this scenario the administrator installs new client PC's and uses the HP UPD.

3. New client replacing old client.

In this scenario the administrator replaces or upgrades client PC hardware or operating systems and uses the HP UPD. The administrator wants the new PC to have the same list of printers with the same names as the old PC to minimize impact on the users, or the users may not have administrator rights and can't add printers.

4. Upgrade drivers on existing client.

In this scenario the administrator upgrades the existing HP drivers on an existing client to the latest version of the HP UPD.

Client Driver deployment and Software Distribution Systems

Printer driver installation must be done through an account that has administrator rights on the client PC. This is how the Windows operating system is designed, and it is for good security reasons.

If all the client users have administrator rights, the HP UPD can be deployed with the following methods.

- Create a login script that will perform the installation.
- Put the HP UPD on local file system or a file share that is accessible to all users.

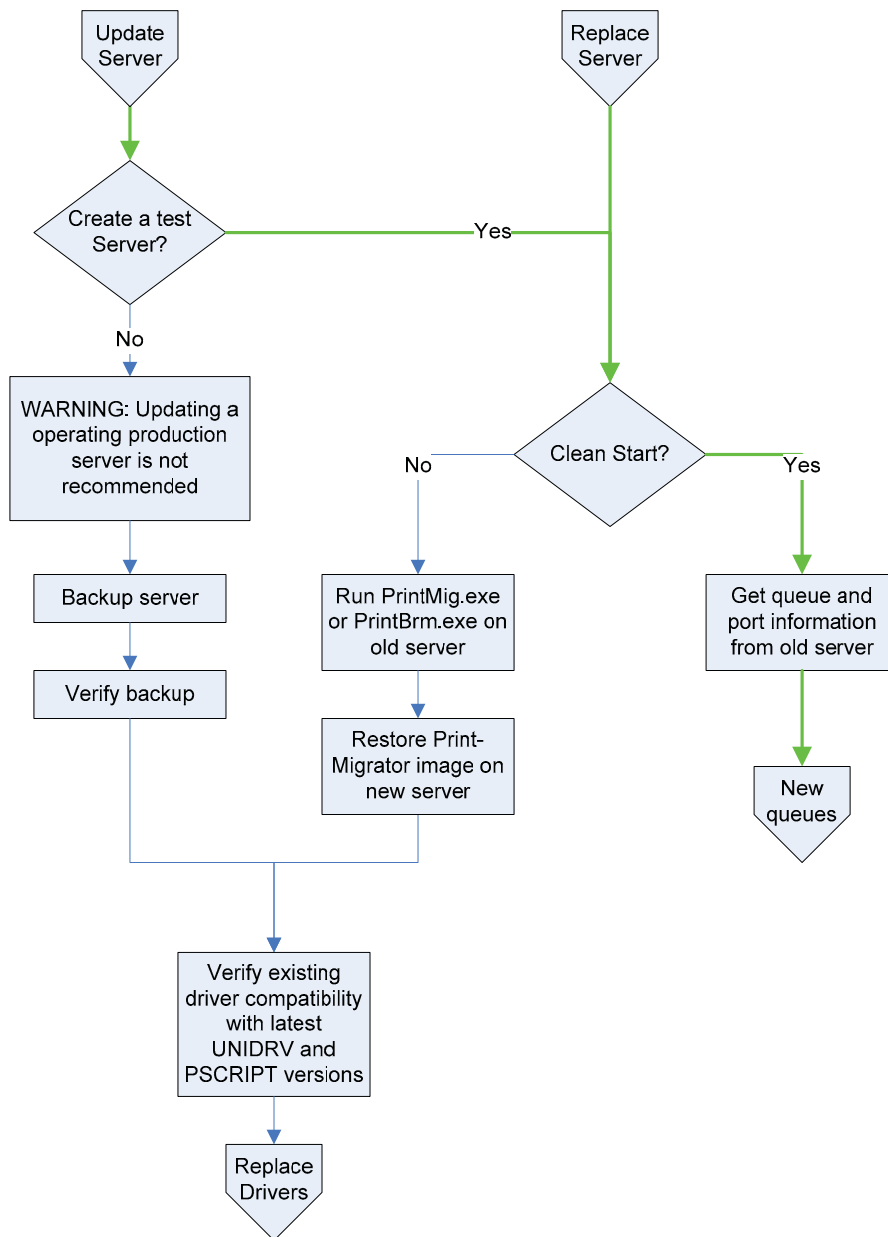
If the client users do not have administrative rights, then the installations need to be done either by someone that has administrator rights, or by a software distribution system.

Details about specific software distribution systems (SDS) are beyond the scope of this document, however some general guidelines can be offered. The steps in this document should be compatible with any SDS that has the following capabilities.

- Create a package that contains a program (Install.exe) and the driver.
- Deploy the package to the client(s).
- Log on as an administrator, and run the program (Install.exe) with HP UPD's command line options.

Update server/replace server

This section applies to print server deployments only.



Update server

When considering an update to a operating production server, it is strongly advised to set up a test server and perform the initial upgrade and testing on the test server.

Create a test server?

The procedure for a clean start is similar to replacing an existing server.

Replace server—clean start

Get queue and port information from the old server.


The Microsoft tools prnmngr.vbs and prnport.vbs simplify the task of gathering information such as queue names, driver names, port names, and IP addresses from the old server. This information can be used later to create the new queues manually, or to automate the process by scripting. See [Automating the process through scripting on page 189](#) for more information about automation and scripting.

Replace server–import drivers and queues from old server

Run PrintMig.exe or PrintBrm.exe on old server.

Restore Print-Migrator image on new server.

If the test server requires the same configuration as the old server, the Microsoft tools PrintMig.exe or PrintBrm.exe can be used to import the configuration from the old server to the test server.

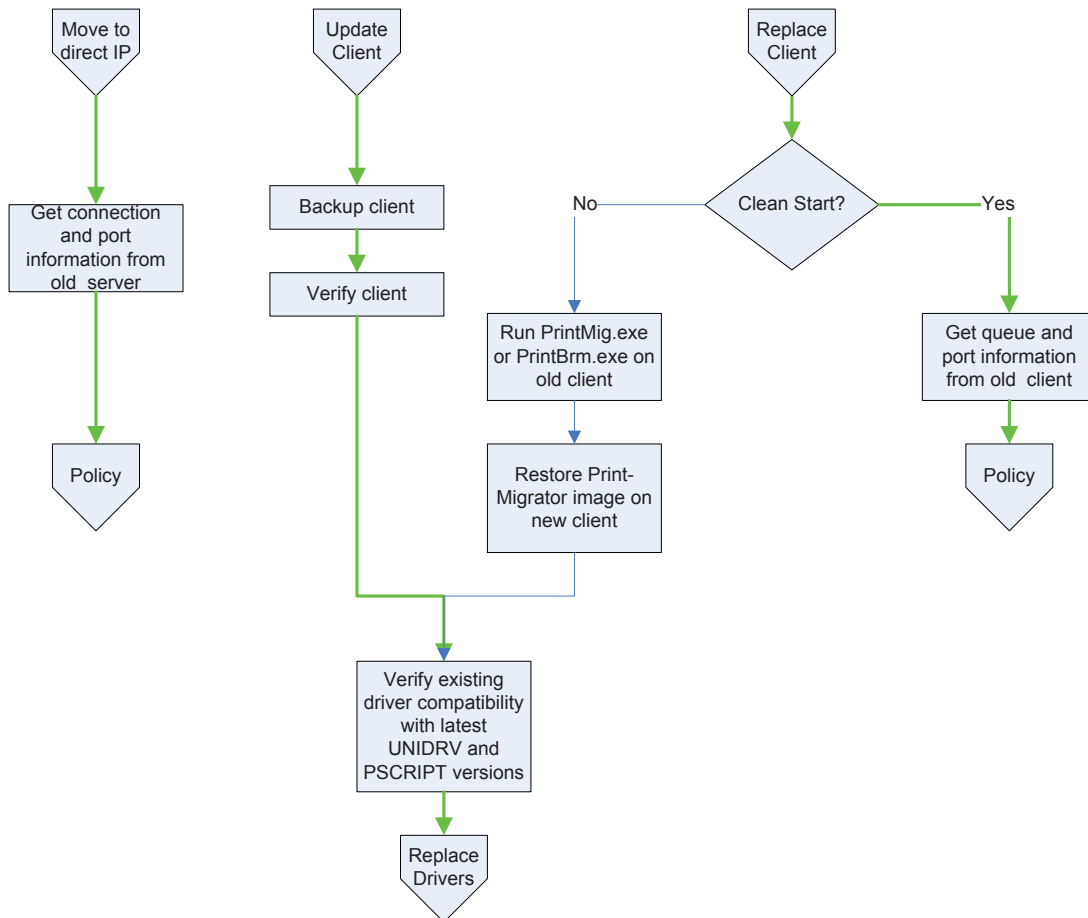
 **NOTE:** Not all drivers are compatible with PrintMig.exe, so the error log must be inspected after the restore. The PrintBrm.exe tool is only available on later version Microsoft operating systems such as Vista and Server 2008. PrintBrm.exe can import from a down level OS, but may not be able to restore to a down level OS.

Verify existing driver compatibility with the latest UNIDRV and PSCRIPT versions.

HP does not recommend updating drivers on an operating production server. Besides the obvious interruption of printing while the drivers are being replaced, there are other unforeseen problems that can occur due to incompatibilities between versions of shared files currently on the system and the versions of the shared files about to be installed. See [Versioning of printer driver shared files on page 185](#). If this is the only option, then HP recommends that a full backup of the server be made before any changes are done, so that in the event of a problem there is a fallback plan.

Client printing

This section applies to direct IP print deployments only.



Replace client—clean start

Get queue and port information from old client.

The Microsoft tools `prnmngr.vbs` and `prnport.vbs` simplify the task of gathering information such as queue names, driver names, port names, and IP addresses from the old server. This information can be used later to create the new queues manually, or to automate the process by scripting. See [Automating the process through scripting on page 189](#) for more information about automation and scripting.


Proceed to the section on [Policy on page 175](#).

Replace client—import drivers and queues from old client

Run `PrintMig.exe` or `PrintBrm.exe` on old client.

Restore Print-Migrator image on new client.

The Microsoft tools `PrintMig.exe` or `PrintBrm.exe` can be used to import the configuration from the old client to the test client.

 **NOTE:** Not all drivers are compatible with PintMig.exe, so the error log must be inspected after the restore. Also, the PrintBrm.exe tool is only available on later version Microsoft operating systems such as Vista and Server 2008. PrintBrm.exe can import from a down level OS, but may not be able to restore to a down level OS.

Update client

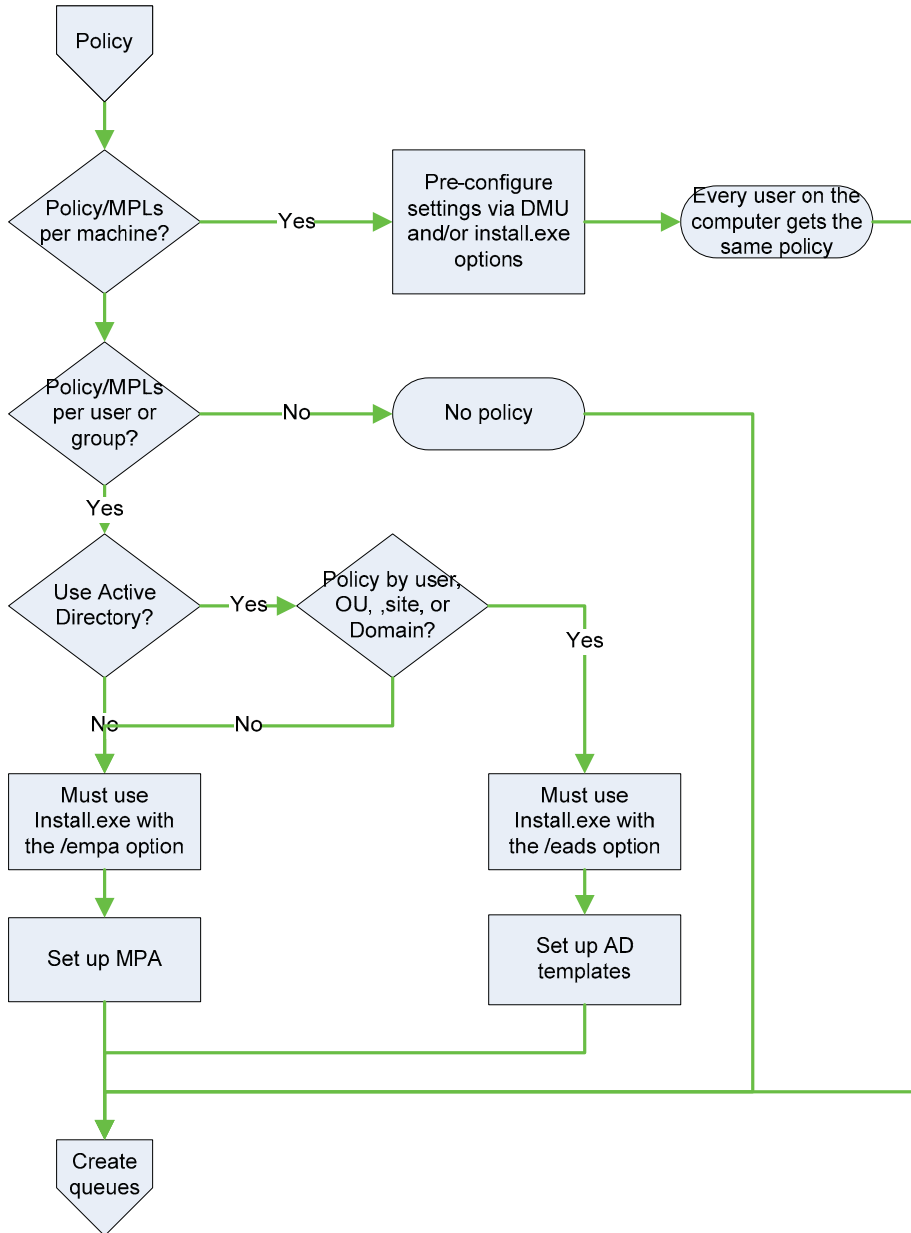
When updating a client, it is strongly advised to set up a test client and perform the initial upgrade and testing on the test client. See [Versioning of printer driver shared files on page 185](#) for more information on versioning printer driver shared files.

Verify existing driver compatibility with latest UNIDRV and PSCRIPT versions.

Policy

This section applies to direct IP print deployments only.

Policy means choosing settings other than the HP UPD defaults and applying them during or after the deployment. These settings can include who can print in color, setting grayscale or duplex to be the default setting, or assigning printers to users, based on department, floor, etc.



Policy/MPLs per machine?

If an administrator wants to assign settings to one or more computers and wants the settings to apply to anyone that uses those computers, then the best way to set up those policies is to configure them at the time the driver is installed. If this is the case, refer to [Create queues on page 179](#).

Policy/MPLs per user or group?

If the administrator wants to assign settings or printers based on who is using the computer, the choice is whether to use Active Directory (AD) or HP Managed Printing Administration (HP MPA).

Use Active Directory?

The decision to use Active Directory versus HP MPA depends first on whether there is an Active Directory domain available, and the granularity of policy desired.

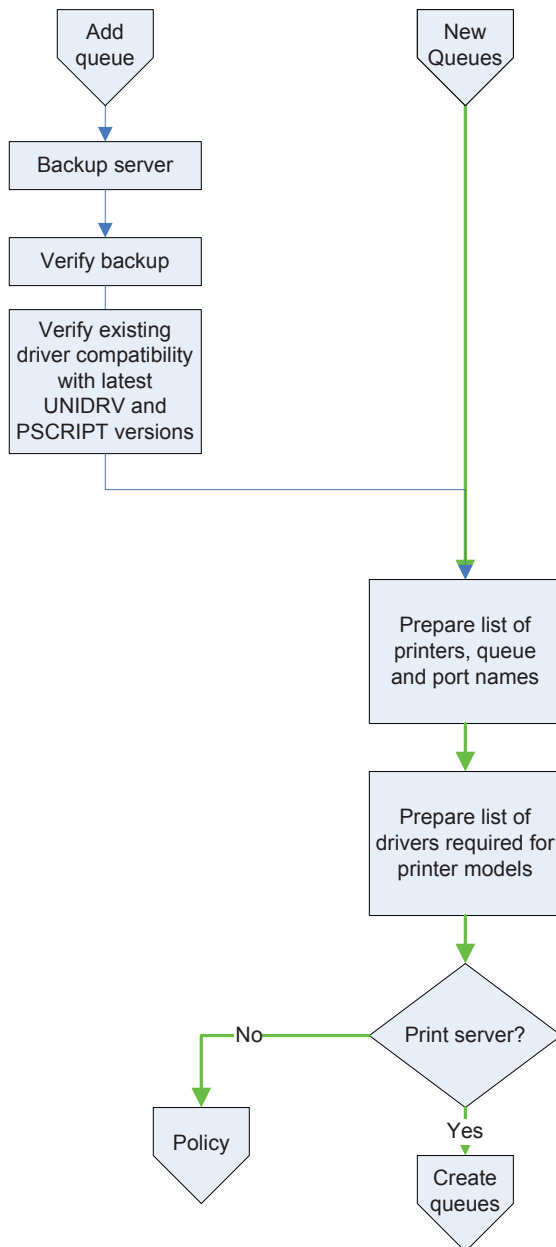
To set up Active Directory Policy, the administrator defines the policy settings in a Group Policy Object, (GPO) and then assigns that GPO to the domain, site, one or more Organizational Units (OU) or users. Group Policy Objects cannot be assigned to security groups. If the administrator wants to set up domain wide or site wide policy with overrides for specific individuals, then AD is a viable choice. On the other hand, if the administrator wants finer grained policy than the OU structure can provide, the options are to restructure the AD structure or use HP MPA.

HP Managed Printing Administration allows the administrator to set up arbitrary groups and to assign users to those groups. HP MPA also provides the means to set up a default policy, which is the policy that a user will receive if there is no specific user or group policy assigned to them. This way only exceptions to the general policy need to be managed, instead of adding all the users to the HP MPA database.

See [Manage the HP UPD using HP MPA on page 90](#) for more information on Managed Printer Lists and AD templates.

Add/new queues

This section applies to both server deployments and direct IP print deployments.



Add queues

When you add a new driver (HP UPD) and new print queues to an existing server, you may encounter change management issues similar to upgrading drivers. Besides the problems that can occur from increasing the load on an existing server, there can be unforeseen problems that occur due to incompatibles between versions of shared files currently on the system and the versions of the shared files about to be installed. See [Versioning of printer driver shared files on page 185](#) for more information on versioning printer driver shared files. If this is the only option, then HP recommends that a full backup of the server be made before any changes are done, so that in the event of a problem there is a fallback plan.

New queues

Prepare list of printers, queue and port names and port settings.

To create new queues on a new server or client, make a list of all the printers that are to be connected. Include the printer the IP address or hostname. You may want to also decide on a printer naming convention, location information, and port name convention if you decide not to use default port naming.

Prepare list of drivers required for printer models.

Once you have a list of all the printers, the next step is to decide what drivers to use. Refer to the list of printers supported by the HP UPD, in [HP UPD Supported products on page 4](#). For those products that are not supported by the HP UPD, download the appropriate driver(s) from the manufacture's web site.

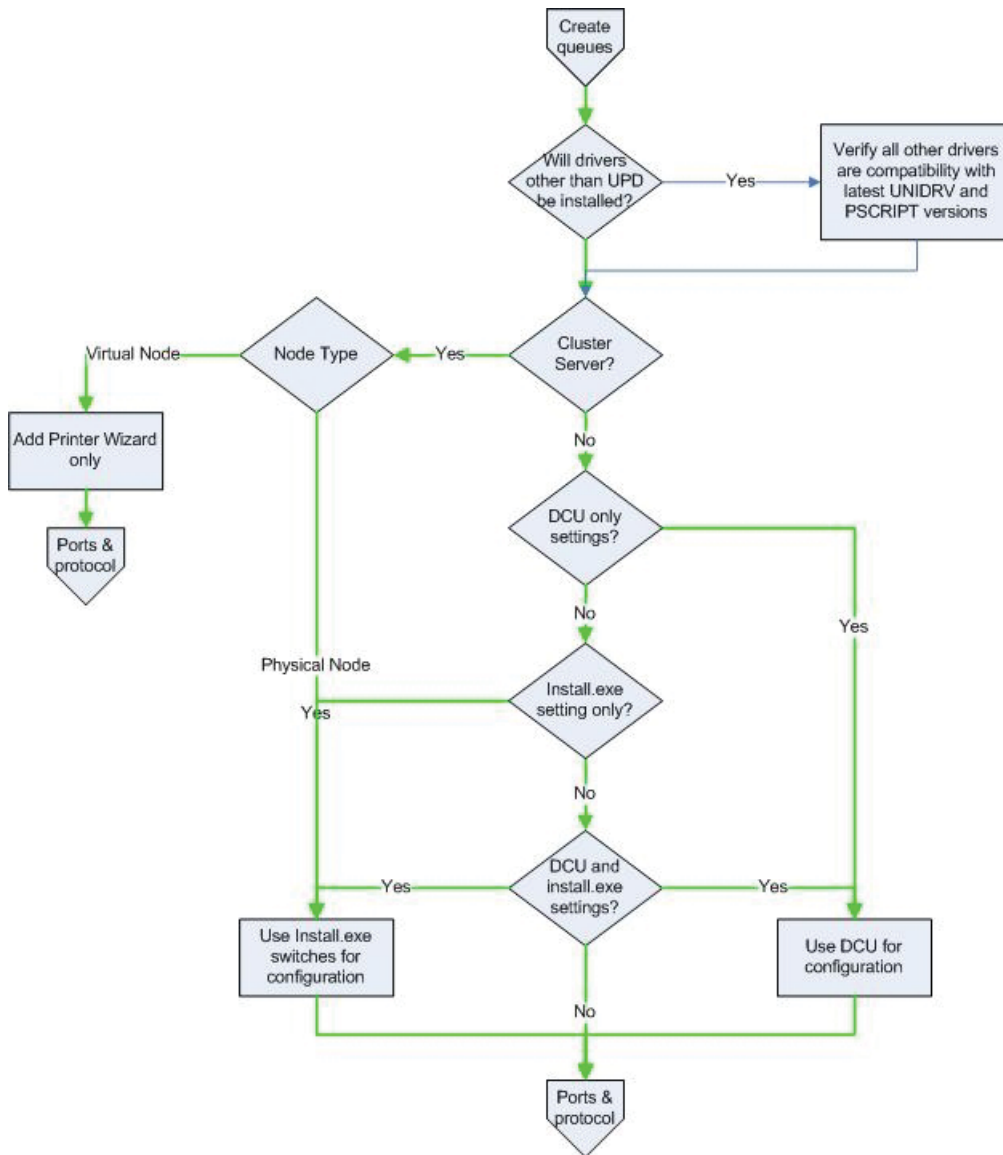
Print server?

The HP UPD in the Direct IP print mode supports the application of policy in a user by user basis. If this type of configuration is desired, proceed to [Policy on page 175](#) section.

If no per-user policy is desired, or if the HP UPD deployment is on a print server, proceed to [Create queues on page 179](#).

Create queues

This section applies to both server deployments and direct IP print deployments.



Will drivers other than the HP UPD be installed?

The HP UPD ships with a current version of the Microsoft UNIDRV and PSCRIPT5 files. If drivers other than the HP UPD will be installed, follow these steps to verify all drivers you plan to install are compatible.

1. Verify the other drivers are compatible with the HP UPD provided unidrv/postscript version.
2. Verify the other drivers are compatible with Microsoft's latest unidrv/postscript version.
3. Verify the HP UPD is compatible with Microsoft's latest unidrv/postscript version.

Cluster Server?

In a Microsoft Cluster server environment there are significant restrictions placed on the installation and configuration of the HP UPD. Refer to [Windows Cluster server environment on page 42](#) for more information.

DCU only settings?

Install.exe setting only?

DCU and Install.exe settings?

The DCU is available for download at h20338.www2.hp.com/Hpsub/cache/494717-0-0-225-121.html as part of the HP Printer Administrator's Resource Kit (PARK). Click the link to the PARK beneath the **Universal Print Driver Tools** heading.

The DCU is available for both 32 and 64-bit systems, and allows an administrator to preconfigure the HP UPD before installation. All of the queues created from this preconfigured driver have the same default settings. The HP UPD Install.exe utility also offers the administrator a number of configuration options. To get the list, run `Install.exe /?` However, some of the options that are available from Install.exe are not available from DCU, and vice versa. Refer to [Table 4-1 Pre-configuration utilities and configurable functions on page 25](#) for specific details. If all the options you want are available from DCU, you can use DCU to preconfigure the driver and then use Install.exe, or the Add Printer Wizard, to install the driver and create print queues. Or you can use Install.exe alone if it has all the desired options.

Table D-1 DCU options

Features	Install	APW	APW cluster	DCU	MPA	AD
Alternate driver name	Y	Y	Y			
Alternate Job Delivery					Y	Y
Color Access Control (CAC)					Y	Y
Bidi enable and disable				Y		
Duplex	Y	1		Y	Y	Y
Dynamic mode	Y					
Economode	Y	1		Y	Y	Y
Edgeline Quality Access Control (QAC)	Y				Y	Y
Enable HP MPA or AD policy	Y					
Grayscale as default	1			Y		
Job tracking					Y	Y
Private Printing / Job storage	Y	1		Y	Y	Y
Private Print default PIN	Y			Y		Y
Restricted mode, MPL display only	Y				Y	Y
Services Tab	Y	1		Y	Y	Y
SNP options (3)	Yg	1	2	Y	Y	Y
SNP HP Special Offers Program	Yg		2		Y	Y

Table D-1 DCU options (continued)

Features	Install	APW	APW cluster	DCU	MPA	AD
SNMP Community Name	Yg		2		Y	
Managed Printer List	Y				Y	Y

¹ DCU can be used with Install.exe, or APW, and must be run on driver first.

² Option must be specified when Install.exe is run on all physical nodes.

³ See [Manage Status Notification Pop-ups on page 145](#) for more information about turning off SNP Pop-ups.

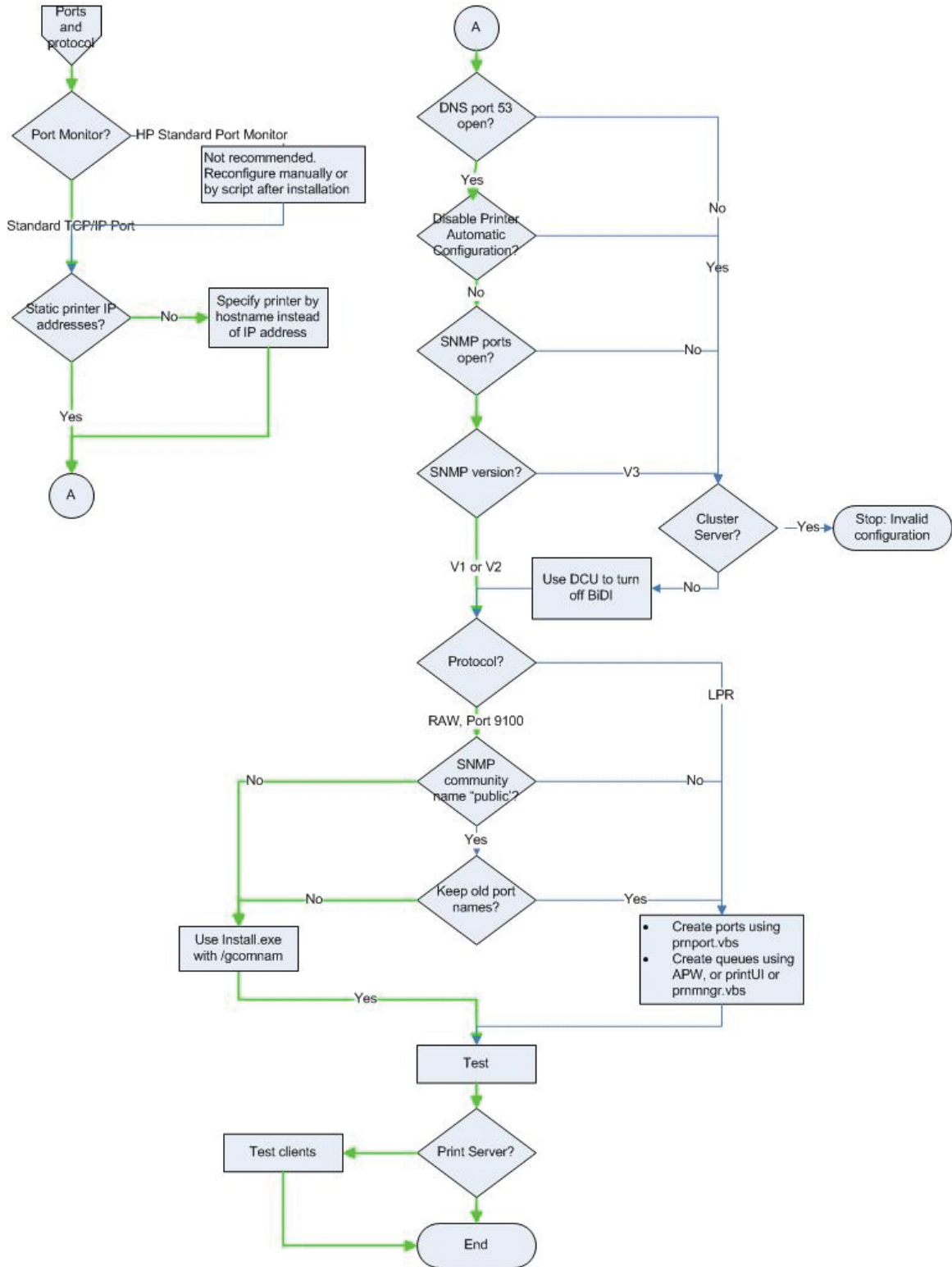
⁹ These Install.exe options apply to all queues and all users. Otherwise, the settings apply only to the current user.

Notes

- DCU options apply to the driver and all print queues created with that driver.
- AD and HP MPA configurations apply only to Direct IP printing, not server printing.
- Only Install.exe and the Add Printer Wizard actually install the driver and create print queues. DCU is used to configure the driver prior to installation; AD and HP MPA configure the driver at print time.

Ports and protocols

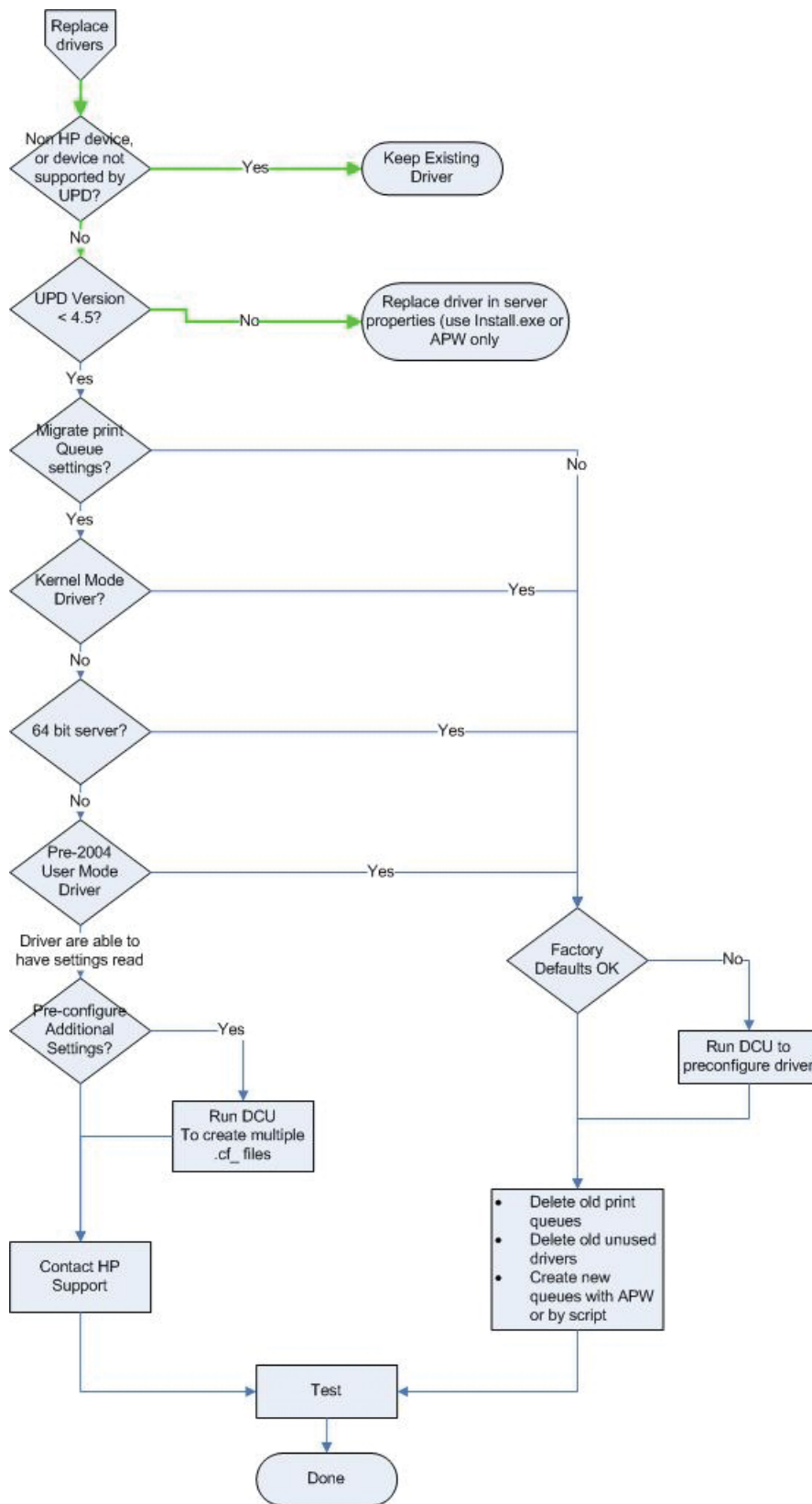
This section applies to both server deployments and direct IP print deployments.



Port Monitor?

By default, the HP UPD uses, and HP recommends the use of, the Microsoft supplied Standard TCP/IP port monitor for all network communications. If it is necessary to use the HP Standard Port Monitor, create and configure all the network ports before HP UPD print queue creation, or reconfigure the ports after installation.

Replace drivers



Versioning of printer driver shared files

All the files for all the printer drivers on Windows operating systems are located in one folder: %WINDIR%\system32\spool\drivers\, where <environment> can be W32X86 for 32 bit processors, IA64 for 64 bit processors, etc.

The HP UPD consists of HP specific files and shared Microsoft files. The shared files are part of the UNIDRV or postscript architectures. These files are shared by other HP drivers, and printer drivers from other manufacturers. They can be upgraded at any time by installing a new printer driver from HP, or other manufacturer, or by installing a service pack, .NET framework, or hot fix from Microsoft. For that reason, it is important to know the current version of these files on your system, and if the installations of a driver, service pack, etc, will cause an upgrade. When an upgrade takes place, all drivers that use those shared files will be impacted, so steps must be taken to verify that all the drivers that use these shared files work with the latest versions. HP does not support upgrading from .5 to .6 versioning

To determine the current version of these shared files, use the following methods.

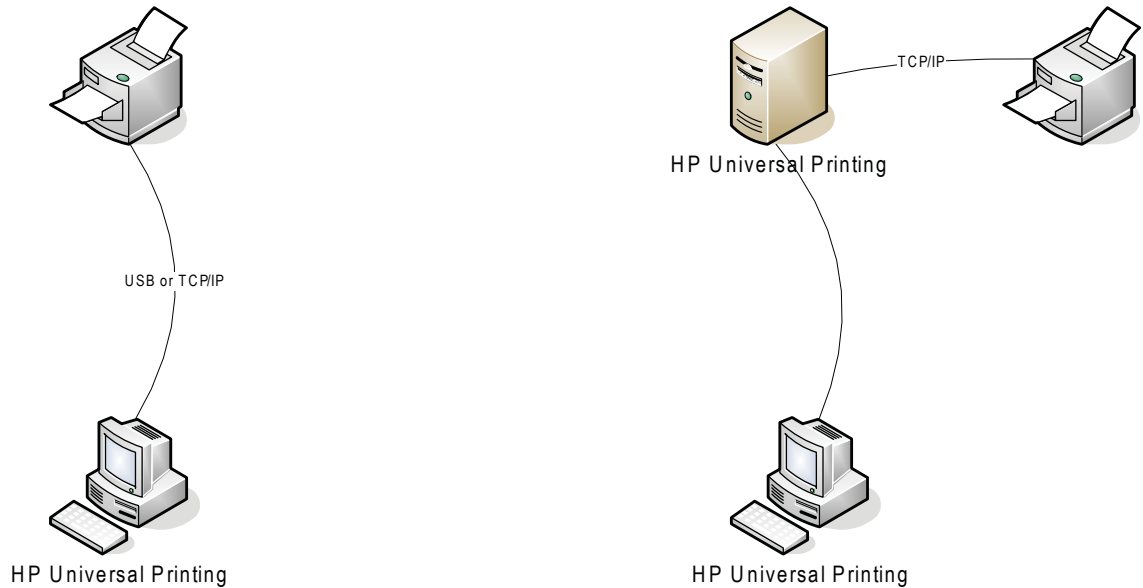
1. Right-click in the **Printers** folder, select **Server Properties**, and then select the **Drivers** tab.
2. To get the currently installed version of UNIDRV.DLL or PSCRIPT5.DLL, select an HP PS, PCL 5 or PCL 6 driver.
3. Select **Properties**.
4. Scroll down until you see driver file UNIDRV.DLL, or Driver File PSCRIPT5.DLL and click **Properties**.
5. If UNIDRV.DLL or PSCRIPT5.DLL do not appear in the list, the driver you selected is an old, "monolithic" driver that does not use the shared Microsoft components. Select another driver and try again.
6. Select the **Version** tab.
7. Select **Item name: File Version**. The **Value:** is the version of the file.

The problem described in this section is not unique to the HP UPD. It applies to all print drivers, including Product Specific drivers and drivers from out competitors. It applies to both monolithic and Unidrv/postscript based drivers. The HP UPD, however, is the only driver that has the capability to efficiently address this problem.

In the enterprise, the goal is to standardize on a particular version of driver, deploy it throughout the enterprise, and stay with that version until business need dictates the need to upgrade. However, due to many legitimate reasons, different versions of a particular driver will be deployed at any given time.

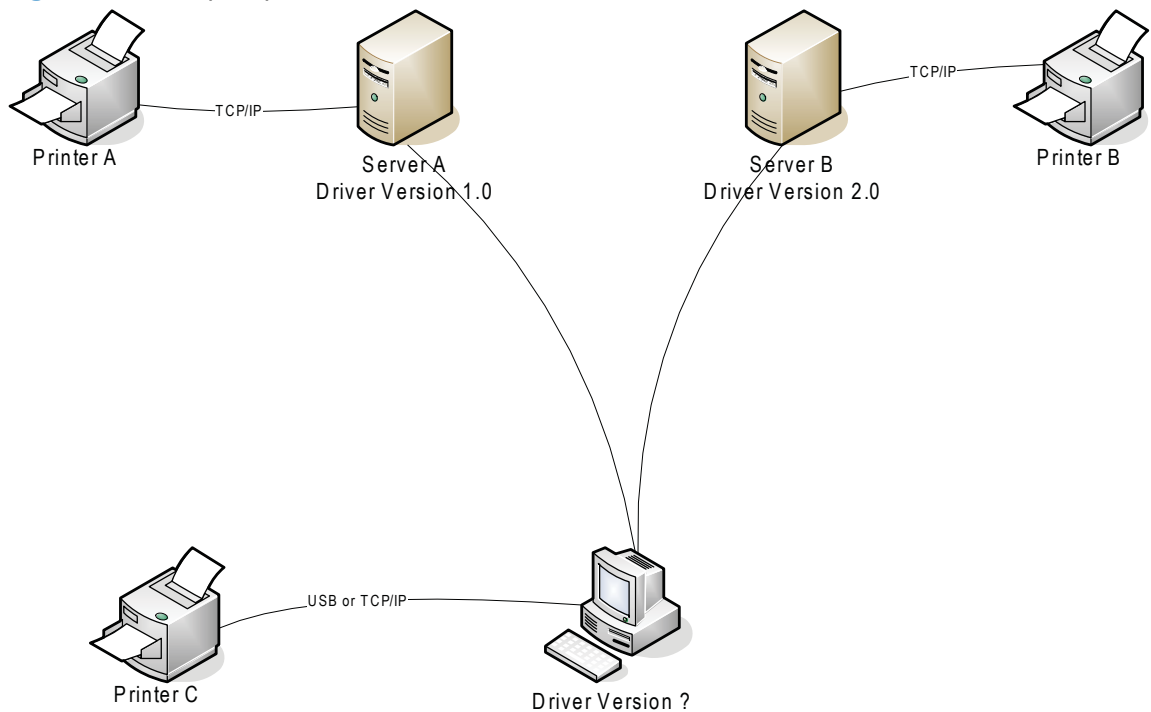
It is in these situations that care must be taken in how the different versions are deployed to avoid potential problems and unwanted side effects.

Figure D-2 Basic Printing



In both of the two topologies described in the diagram above, the version of the driver does not matter as long as it is compatible with the printing products. On the left, only one driver needs to be installed on the client in order to print to one or more products. On the right there is depicted a simple point and print configuration, in which only one driver needs to be vended down from the server to the client for printing.

Figure D-3 Complex print environments



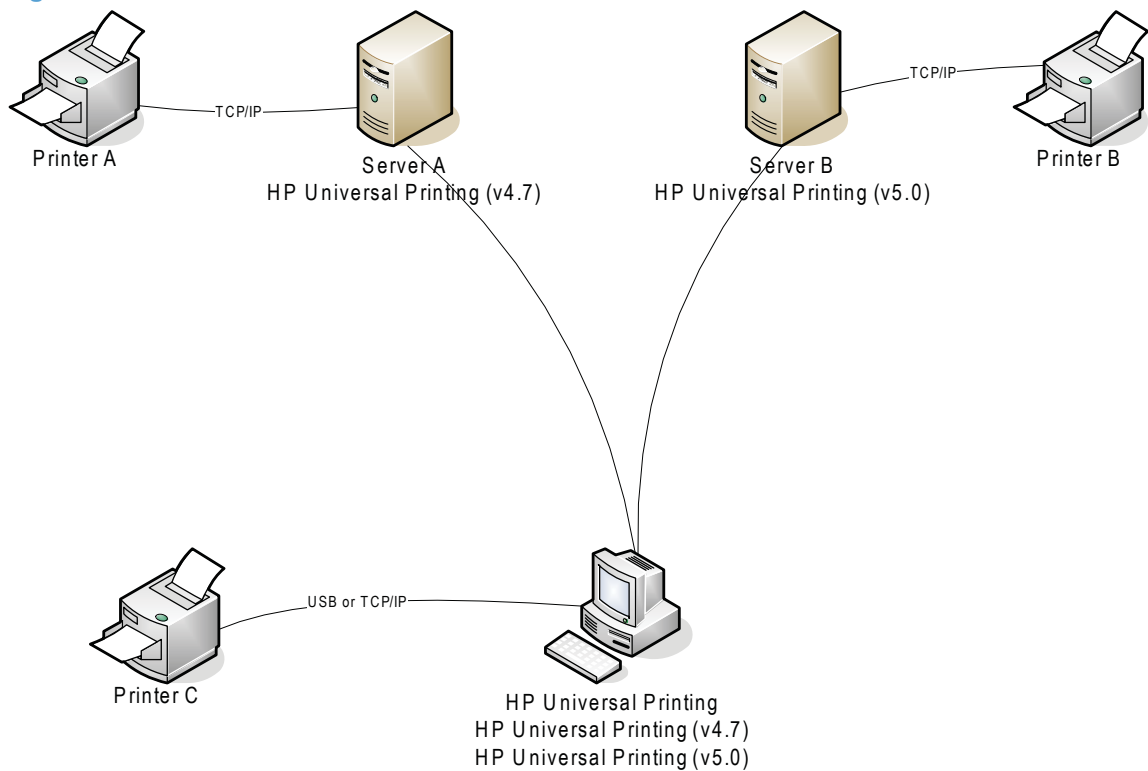
The diagram above depicts a more typical enterprise printing environment, where a client may be connected to more than one print server, and may also have directly connected products. It is in these situations that careful driver version management is critical.

Consider the following scenario: The client first Plugs and Plays with printer C, causing the pre-loaded printer driver version 3.0 to be installed. Next, the client connects and prints to server A. Microsoft Point and Print recognizes that the driver version on the client (3.0) does not match the driver version on the server (1.0), so the server installs driver version 1.0 on the client.

Then the client connects to and prints to server B. Again Point and Print recognizes the driver version difference and installs driver version 2.0 onto the client.

The net result is that every time the client switches from one print server to another, a driver installation takes place. And as for the client Plug and Play connection to printer C, the driver is also changed from the original version 3.0 to either version 1.0 or version 2.0.

Figure D-4 Solution



There are two solutions to this problem: One is to make sure that every client and every server in the enterprise is using the same version of driver. However, given the size of most networks this solution is impractical. The other is to use the version management feature of the HP UPD.

Starting with version 4.7, HP UPD has the ability to be installed either using a generic name, (HP Universal Printing), or a version specific name, (HP Universal Printing (v4.7)). The recommended practice is to install HP UPD on clients using the generic name, and to install it on servers using the version specific name. The diagram above describes this. Printer C Plugs and Plays with the driver named HP Universal Printing. This driver can be version 4.7, 5.X, or even 4.5. Server A downloads HP Universal Printing (v4.7) and Server B downloads HP Universal Printing (v5.0). The net result is that there are now 3 drivers installed on the client, and no unintended driver upgrades/downgrades taking place.

When Server A is upgraded to HP UPD 5.X, it will see that HP UPD 5.X is already installed on the client (from the connection to Server B) and use it.

Automating the process through scripting

Get queue and port information from old server or client

The Microsoft tools prnmngr.vbs and prnport.vbs can simplify the task of gathering information such as queue names, driver names, port names, IP addresses, etc, from the old server. This information can be used later to create the new queues either manually or to automate the process by scripting.

Creating print queues and ports

The Microsoft tools prnport.vbs, prnmngr.vbs and printUI.dll can simplify the task of creating print queues and printer ports.

The [Microsoft Windows 2003 Resource Kit](#) contains the prnadmin.dll which can be used to automate many printing tasks.

Other scripting examples

There is a wealth of information and scripting examples available on the Microsoft web site at [Microsoft Script Repository: Printing](#).

E Glossary of terms

Term	Definition as related to the HP UPD
Bidirectional Communication (bidi)	See printer automatic configuration
hpcpuXXX.cf_file	Driver Configuration Utility file used for pre-configuration of the HP UPD driver
hpcpuXXX.cfm file	Driver Configuration Utility file used for pre-configuration of the UPD driver
Device	The physical output device at the end of the print connection (i.e. a printer or MFP).
Driver Deployment Utility (DDU)	Enables print administrators to create driver packages that include the printer driver files and code needed for deployment to run on a client computer.
Product-specific driver	The driver is specific to a particular model of print product and not universal.
Driver Configuration Utility (DCU)	Now referred to as HP Driver Configuration Utility.
DOT4	DOT4 is based on the IEEE 1284.4 protocol that allows a multicomunication through single port; often associated with USB ports.
Driver Name	<p>The Driver name is defined by the vendor and read by the Microsoft operating system from the driver's *.inf file. To view the "Driver" name, from the Printer's folder select an installed printer, right mouse click and select Properties or Printer Properties, go to the Advanced Tab, and locate field name "Driver." By default, the HP UPD install sets the printer name to match the driver name for the first installed printer. See "Printer Name" for details.</p> <p>Example HP UPD driver names include the following:</p> <ul style="list-style-type: none">• HP Universal Printing PCL 6 (v5.1)• HP Universal Printing PCL5• HP Universal Printing PCL5 (4.7)• HP Universal Printing PS (5.0)
Driver Store	After a print driver has been installed onto the system, the print driver is added to the Windows driver store. The driver store facilitates installation of a new printer without requiring the user to specify driver file location using "Browse" , "Have Disk" or other Microsoft supported methods.

Term	Definition as related to the HP UPD
Duplex	Printing on both sides of a single sheet; opposite of the terms Simplex or Single Side.
Dynamic mode	Selected during installation of HP UPD and opposite of traditional mode. Dynamic mode locates network printers within your subnet or by providing the printer name or address on any subnet of the network. Dynamic mode is not directly tied to one product connection.
Enterprise Auto Configuration (EAC)	See printer automatic configuration.
Embedded Web Server (EWS)	Embedded Web Server in the HP printing product accessible by browser over HTTPS that allows status and configuration access to the product.
Graphics Device Interface (GDI)	The Microsoft® Windows® graphics device interface (GDI) enables applications to use graphics and formatted text on both the video display and the printer. Windows-based applications do not access the graphics hardware directly. Instead, GDI interacts with device drivers on behalf of applications. http://msdn.microsoft.com/en-us/library/dd145203(VS.85).aspx
Generic Printer Description (GPD)	Microsoft's Generic Printer Description that uses Microsoft Unidrv architecture to present printer features in the user interface allowing configuration of the printer. The GPD also contains the commands that allow Unidrv to generate printer data for output from Windows based applications.
Group Policy Management Console (GPMC)	Microsoft tool used for management of group policy objects in an Active Directory.
In Box Driver	HP provided print drivers distributed with the Microsoft operating system.
[filename].inf	Driver information file designed within required Microsoft operating system specification used during installation of the Windows print driver. http://msdn.microsoft.com/en-us/library/aa506024.aspx
Job Capability Ticket (JCT)	
LEDM	Low End Device Model
Multicast Domain Name Service (mDNS)	Multicast DNS (aka Zeroconf, aka Apple Rendezvous, aka Apple Bonjour), effectively allowing name resolution by common Unix/Linux programs in the ad-hoc mDNS domain.local. Used by the HP UPD to discover printers in dynamic mode and by the Managed Print Administrator tool.
HP Managed Printing Administration (HP MPA)	Separate stand alone utility used for managing HP UPD policies and created printer lists.
Managed Printer List (MPL)	Printer list created within HP MPA for printer discovery in HP UPD dynamic mode.
Manage Print Policy (MPP)	Created in HP MPA, user based policies that control HP UPD functionality.

Term	Definition as related to the HP UPD
Model	Windows XP, Windows Server 2003, Windows Server 2008, and Windows Vista printer folders display a "Model" field for installed printer names. The "Model" field is the same as the "Driver" name assigned to the printer. Starting with Windows 7 and Windows Server 2008R2, Microsoft removed the "Model" field from display within the Printer's folder and Print Management Console.
Net Driver HPZ12 service	HP UPD installed service that provides bi-directional I/O for the HP UPD, outside the context of the user, application, or print job.
PCL	Printer Control Language
PML Driver HPZ12 service	HP UPD installed service that provides bi-directional I/O for the HP UPD, outside the context of the user, application, or print job.
PNG	Portable Network Graphics
PnP	Point and Print. Context dependent, sometimes used to refer to as Plug and Play.
Port Monitor	
PPD	Postscript Printer Description
Printer automatic configuration	Executed at installation or using the feature Update Now within the HP UPD driver user interface from the Device Settings tab, the HP UPD will communicate with the device to retrieve device capabilities directly from the device. Information passed to the device can be in the form of a Job Capability Ticket over HTTP, SNMP response over the HP UPD, Dot4 or LEDM.
Printers Folder	The Windows folder that contains listing of all installed printers, providing access to administrator functions to define a printer's settings, install new printers, or delete installed printers.
Printer Name	An arbitrary name assigned to identify a print queue. During application FILE-Print operation, end users select the printer name. By default, the HP UPD install sets the HP UPD printer name to be the same as the driver name. HP recommends administrator's change the default printer name to not match the driver's name. If the installed printer is the default print device for the system, it will have a check next to the printer's "Name".
Print Queue	The print queue refers to an instance of an installed printer with a driver name and printer port assigned.
PSCRIPT5.DLL	Microsoft postscript specific printer driver file used for Microsoft Universal Print driver functionality.
SAG	System Administrator Guide
Scrubber	HP internal test tool that removes all print drivers from the Windows system.
Share Name	An installed printer name that is shared on the network for connecting clients for Point and Print connectivity.
Simplex	Single sided printing, opposite of the term duplex.

Term	Definition as related to the HP UPD
SNP	Status Notification Pop-up.
Traditional Mode/Static Mode	Selected at the time of HP UPD installation and opposite of dynamic mode method, traditional mode (sometimes referred Static mode) behaves like a product-specific driver. During installation, the driver is associated to a specific printer, creating a permanent instance of the driver.
HP Special Offers Program	Displayed via the driver user interface Status Notification Pop-ups, the HP Special Offers Program allows HP to present HP customers with targeted offers to buy HP and HP partner products, use HP and HP partner services, and learn more about HP and HP partner offerings. For example, a printer with low toner 'triggers' a toner offer to the customer.
Unidrv	The Universal Printer Driver (Unidrv) is the Microsoft Corporation's standard printer driver for non-PostScript printers
UPD Version Specific	HP installed universal print driver that contains the HP UPD's release version as part of the "Driver" name string. For example, "HP Universal Printing PCL 6 (v5.1)". Placing the version of the HP UPD the Driver name allows more than one version of the HP UPD to be installed onto the same system. The features of the driver are the same as the UPD Non-Version Specific.
UPD Non-Version Specific	HP installed universal print driver that does not contain the HP UPD's release version as part of the driver name string. For example, "HP Universal Printing PCL 6". The features of the driver are the same as the UPD Version Specific.
Update Now	See EAC
WHQL	Windows Hardware Quality Lab is a testing process required to receive the "Certified for Windows" logotype. This certifies the HP UPD driver has completed testing by Microsoft before HP released the driver. Drivers that do not have WHQL certification at time of installation will prompt The software you are installing for this hardware [DEVICE] has not passed Windows Logo testing... Continue Anyway / Stop Installation.
WJA	HP Web Jetadmin software is a print and imaging peripheral management software tool that helps optimize product utilization, control color costs, secure products, and streamline supplies management by enabling remote configuration, proactive monitoring, security, troubleshooting, and reporting of printing and imaging products.

F Support information to collect

Efficient troubleshooting leading to issue resolution requires collection of basic and extended information related to the reported incident. Use this worksheet as the first step to contacting technical support.

1) Symptoms

- a. What is the reported issue?
- b. What are the symptoms?
- c. Location of the issue (client, server, printer)?
- d. Provide error messages and location source?
- e. How often does problem occur?
- f. Exact steps that produced the reported issue?

2) Printer driver

a. Determine the HP UPD driver version

1. In the **Printers** folder, right-click on the HP UPD driver/queue and then select **Properties**.
 - For a traditional mode installation, select the **About** tab. The version displays at the top.
 - For a dynamic mode installation, the version displays on the lower left.
2. Test the latest version of the HP UPD available from www.hp.com/go/upd
Does the error occur with the latest version of the driver from hp.com?

b. Determine the installation details

1. What is the printer description language, PS, PCL5, PCL6, or XPS?
2. Is this a new installation of the HP UPD, or an upgrade of an existing HP UPD installation?
3. Is the installation HP UPD onto the server, the print client, or vended from print server to client (PnP)?

4. What is the method of installation? Does each method produce the same result?
 1. Add Printer Wizard
 2. Install.exe
 - a. Dynamic mode or traditional mode?
 - b. Optional switches?
 3. Point and Print vended from Microsoft Print Server
 4. Other
 - a. **Printers** folder- **Properties** - **Advanced** - **New Driver**
 - b. **Printers** folder- **Server Properties**- **Drivers** tab - **Add or Reinstall**
 - c. Custom printUI.dll.
 5. Determine which port is in use (TCP, LPT1 etc). Open the **Printers** folder, right-click the printer name, select **Properties** and then click the **Ports** tab. Which **Port** is selected? What settings are defined for the port (select **Configure Port**)?
 6. Determine which print processor is in use. Open the **Printers** folder, right-click the printer name, select **Properties**, select the **Advanced** tab, and then click **Print Processor** button. Which **Print processor** is highlighted/selected?
 7. Was the driver pre-configured before the HP UPD installation?
 1. **Device Configuration Utility**. What settings were altered compared to the HP default *.cf_.
 2. **Driver Deployment Utility**. What settings were altered compared to the HP default.
- c. Is Printer Automatic Configuration enabled (default)? Printer Properties-Device Settings tab-Installable Options-Automatic Configuration-Update Now.**
- d. What is the “Configuration Status” provided on the About tab? Printer Properties-About, see “Configuration Status”.**
- e. Management Tools**
1. **Driver Configuration Utility version?** Select file `hpbcfgre.dll`, **Properties-Details tab-Product Version**.
 2. **HP MPA version?**
 3. **AD Template?** Version is part of the template’s file name.
 4. **DDU version?** Select the **About** button.

3) Environment specifications

- a. **Version of Microsoft operating system (print server and print client)**

To obtain system information, use any of the following methods.

1. Brief—click **Start**, click **Run**, and then type `WINVER.EXE`
2. Extended—click **Start**, click **Run**, and then type `cmd.exe` to open the command prompt window. Type `/k systeminfo.exe` at the command prompt.
3. Complete—click **Start**, click **Run**, and then type `MSINFO32`.

b. Microsoft Event log (spooler errors, etc)?

Click **Start**, click **Run**, and then type `Eventvwr.msc`.

c. Printer connectivity

1. Is the printer USB direct connected?
2. Network and connectivity settings
 1. IP addresses
 - a. Printer server
 - b. Print client
 - c. Print product
 2. Print path network availability (client/server/printer)
 - a. `ping ip_address`
 - b. `telnet ip_address`
 - c. `Tracert ip_address`
 - d. `http://device_ip_address`
`https://device_ip_address`
 3. Is SNMP enabled?
 - a. Is it routable in your network?
 - b. SNMP Community Name. `prnport -l`

d. Citrix

1. **Server**—Citrix server version
2. **Client**—operating system and Citrix client version
3. Auto created printers configuration
 1. Client printers or session printers?
 2. If client printers, what driver is mapped to the client for autocreation (Citrix UPD; HP UPD; HP model specific driver)?

e. Microsoft Terminal Services

1. Version of the Terminal Server.
2. RDP client version.
3. Operating system version of client.
4. What driver is mapped to be redirected to the printer?
5. Does the same issue exist outside of a Terminal Server session?

f. Novell

1. Version of Novell print server.
2. Installation method of print queue on server (i.e.- iManager).
3. Version of iPrint client.
4. Does same issue exist printing to a non-Novell print queue?

4) Printer information

a. Printer model name

b. Printer model firmware. Methods to obtain:

1. Printer control panel (print a configuration page).
2. Embedded Web Server (http://ip_of_print_device). See Device Configuration “Firmware Datecode”.
3. Web Jetadmin.

c. Error information displayed or printed out from the product

1. Error message content
2. Event log
 - Displayed from the control panel or Embedded Web Server.
 - Printed on the configuration page (last 3 items).
 - Printed from the control panel or Embedded Web Server (entire log).

d. Device configuration page. The product configuration can be obtained with either of the following methods.

- Printing at the printer control panel.
- By printing a test page. Open the **Printers** folder, right-click the printer name, select **Properties**, and then click the **Print Test Page** button.

5) Application

- Application(s) affected and application version number. Open the **Help** menu in the application and select **About** to find the application version number.
- Test documents specific to reproducing the issue.

6) Files to collect

The following list contains information that may be requested to continue troubleshooting for the purpose of debugging, analyzing and creating reproducible test cases.

- MSINFO32:** Click **Start**, click **Run**, and then type `MSINFO32.exe`. Save the *.NFO file to disk.
- System Information:** From a command prompt, pipe the output to file: `C:\>systeminfo.exe >systeminfo.txt`.
- Microsoft Product Support Reports:** For details and information refer to [Microsoft Product Support Reports](#)
- Microsoft Event Viewer Logs:** Click **Start**, click **Run**, and then type "Eventvwr.msc". Select the tree node, and from the **Action** menu select **Save Log File As...** to save the log file.
- PRN file:** Application dependent. Example: `START-RUN-WRITE.EXE`, select **FILE-PRINT** and select **Print To File** to save `FILENAME.PRN`
- Application file:** Provide a sample file from the application which created the reported issue.
- Print a test page:** Open the **Printers** folder, right-click the printer name, select **Properties**, and then click the **Print Test Page** button. Scan the output page to a distributable computer file format. Options to create the page include the following.
 - Device Configuration Page:** Print from the printer control panel.
 - Printers folder- Properties - Print Test Page.**
- Scan of printed document:** After printing a page, use a colored pen to mark up and identify the issue with the printed output. Scan the marked up page back to a distributable computer file format.
- Driver Configuration Utility (DCU):** Provide the pre-configuration files *.cf_ or *.cfm
- Device Network Settings:** Methods available to capture information
 - Telnet to the product, output all information to console, select upper left icon and right mouse, `EDIT-SELECT-ALL`. Repeat right mouse, `EDIT-COPY`. Paste into file and save.
 - Use Web Jetadmin views to create an export file
 - Embedded web server to printer:** `http://ip_of_printdevice`
- Screen shots:** Error dialogs, user interface, etc.

i. Microsoft crash dump file

- 1. XP/Server 2000, 2003 and 2008:** <http://support.microsoft.com/kb/254649> (dump files, when enabled, are stored by default in %SystemRoot%\Minidump folder).
- 2. VISTA:** <http://support.microsoft.com/kb/931673> (dump files, when enabled, are stored by default in Drive:\Users\UserName\AppData\Local\Temp)

m. Directory file listing:

```
C:\>DIR %SYSTEMROOT\system32\spool\drivers /s >C:\w32x86.tx
```

n. SetupAPI.log: Located in %SYSTEMROOT%

o. Screen shots: Error dialogs, user interface, etc.

p. Registry exports (three targets)

```
regedit.exe /e c:\updreg1.txt
```

```
"HKEY_LOCAL_MACHINE\SOFTWARE\Hewlett-Packard\HP Print Settings"
```

```
"HKEY_LOCAL_MACHINE\SOFTWARE\Hewlett-Packard\HP SSNP"
```

```
"HKEY_CURRENT_USER\Software\Hewlett-Packard\HP Print Settings"
```

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