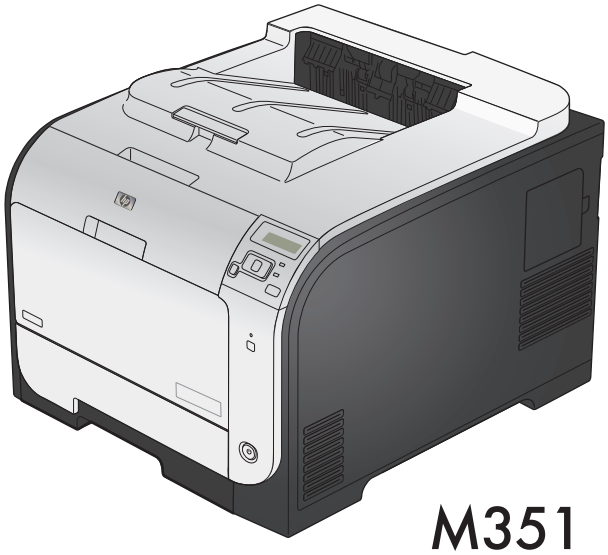
LASERJET PRO 300 COLOR
LASERJET PRO 400 COLOR

Software Technical Reference



M351
M451

HP LaserJet Pro 300 color MFP M375 / HP LaserJet Pro 400 color MFP M475

Software Technical Reference

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1 Document and product basics

- Purpose and scope
- Software availability and localization

Purpose and scope

This software technical reference (STR) provides information about and troubleshooting tips for the printing-system software for the product.

This STR is prepared in an electronic format to serve as a quick-reference tool for Customer Care Center (CCC) agents, support engineers, system administrators, management information systems (MIS) personnel, and end users, as appropriate.

NOTE: This STR describes drivers that are available from the product firmware and shipped on the printing-system software CD that comes with the product. This STR does *not* describe drivers that will become available on the Web.

The following information is included in this STR:

- Descriptions of drivers, operating systems, and system environments
- Descriptions of installing and uninstalling the printing-system software components

For information about the location of information within chapters, see the table of contents. An index is also provided in this STR.

Additional detailed information about the printing-system software is published in an addendum to this STR. The following information is available in the addendum:

- Lists of installed files
- System-modification information, such as files added or modified

Software availability and localization

This section provides information about the availability of the product printing-system software and related software and firmware. Printing-system software on a CD is available from HP fulfillment centers.

Printing-system software on the Web

All software that is contained on the installation CD is also available on the Web.

Web deployment is the preferred method for obtaining the latest software. The Web site offers an option for automatic e-mail notification about new software releases.

NOTE: This STR describes drivers that are shipped with the printing-system software CD. This STR does *not* describe any drivers that might be released for use by support personnel.

To view the product support Web site, complete the following steps.

1. In the main screen of the installer, click the **More Options** button, and then click the **Documentation** button.
2. Click the **HP Help and Learn Center** button.
3. In the **HP Help & Learn Center** screen, click the **Web Support** tab, and then select the product model number.

In-box printing-system software CD

The software CD contains a variety of files for installing the printing-system software on the computer. This section describes the files that are available on the software CD and provides additional information about support and availability.

The product comes with two printing-system software CDs, one for Windows operating systems and one for Mac OS X operating systems.

The files on each CD include documentation files and files that are required in order to install and uninstall the printing-system components.

HP LaserJet Windows software CD

NOTE: For information about the contents of the Mac CD, see Mac software and utilities on page 117.

The root directory of the Windows software CD contains the AUTORUN.EXE file, the SETUP.EXE file, and the following directories:

- Documents
- Installer
- Installer Content
- Languages

- Prerequisites
- Setup
- Utilities

The Utilities folder contains the files to run these stand-alone utilities:

- FileToEmail
- Scrubber
- LogAnalyzer

CD versions and language support

The product printing-system software CD is available with the following components and languages.

Table 1-1 Software CD supported languages

Language	Two-letter abbreviation	HP-preferred name	File designation
Arabic	AR	Arabic	ARWW
Catalan	CA	Catalan	CAWW
Croatian	HR	Hrvatski	HRWW
Czech	CS	Cestina	CSWW
Danish	DA	Dansk	DAWW
Dutch	NL	Nederlands	NLWW
English	EN	English	ENWW
Finnish	FI	Suomi	FIWW
French	FR	Francais	FRWW
German	DE	Deutsch	DEWW
Greek	EL	Greek	ELWW
Hebrew	HE	Hebrew	HEWW
Hungarian	HU	Magyar	HUWW
Italian	IT	Italiano	ITWW
Japanese	JA	Japanese	JAWW
Korean	KO	Korean	KOWW
Norwegian	NO	Norsk	NOWW
Polish	PL	Polski	PLWW
Portuguese	PT	Portugues	PTWW
Romanian	RO	Romanian	ROWW
Russian	RU	Russian	RUWW

Table 1-1 Software CD supported languages (continued)

Language	Two-letter abbreviation	HP-preferred name	File designation
Simplified Chinese	ZHCN	Simplified Chinese	ZHCN
Slovak	SK	Slovak	SKWW
Slovenian	SL	Slovenian	SLWW
Spanish	ES	Espanol	ESWW
Swedish	SV	Svenska	SVWW
Thai	TH	Thai	THWW
Traditional Chinese	ZHTW	Traditional Chinese	ZHTW
Turkish	TR	Turkce	TRWW

Driver languages

The product provides driver support in the following languages.

Table 1-2 Supported printer driver languages

Component	Language list	
HP PCL 6 Print Driver	• Arabic	• Korean
HP PCL 5 Universal Print Driver	• Catalan	• Norwegian
HP PS Universal Print Driver	• Croatian	• Polish
	• Czech	• Portuguese
	• Danish	• Romanian
	• Dutch	• Russian
	• English	• Simplified Chinese
	• Finnish	• Slovak
	• French	• Slovenian
	• German	• Spanish
	• Greek	• Swedish
	• Hebrew	• Thai
	• Hungarian	• Traditional Chinese
	• Italian	• Turkish
	• Japanese	

Installer languages

The product provides installer component support in the following languages.

Table 1-3 Installer component languages

Component	Language list	
Administrator install	• Arabic	• Korean
Installer	• Catalan	• Norwegian
Common Windows installer	• Croatian	• Polish
Web registration[1][2][3]	• Czech	• Portuguese
	• Danish	• Romanian
	• Dutch	• Russian
	• English	• Simplified Chinese
	• Finnish	• Slovak
	• French	• Slovenian
	• German	• Spanish
	• Greek	• Swedish
	• Hebrew	• Thai
	• Hungarian	• Traditional Chinese
	• Italian	• Turkish
	• Japanese	

1 Arabic and Hebrew support in English only
2 Catalan support in Spanish only
3 No support for Bulgarian, Estonian, Japanese, Kazakh, Lithuanian, Latvian, Serbian, Ukrainian, or Vietnamese

Documentation languages

The product provides documentation in the following languages.

Table 1-4 Documentation languages

Component	Language list	
• *User Guide* • Quick Reference Guide • Single Topic Documents (Web) • *Install Notes (Windows)*	• Arabic • Bahasa Indonesian • Catalan • Croatian • Czech • Danish • Dutch • English • Finnish • French • German • Greek • Hebrew • Hungarian • Italian	• Japanese • Korean • Norwegian • Polish • Portuguese • Romanian • Russian • Slovak • Slovenian • Spanish • Swedish • Thai • Turkish • Simplified Chinese • Traditional Chinese

2 Windows software description and installation

Introduction

The product comes with software and installers for Microsoft Windows and Apple Computer, Inc., Mac systems. Linux and UNIX systems are supported, and software is available on the Web. For information about specific system installers, drivers, and components, see the section that corresponds to that system. For information about Mac software, see Mac software and utilities on page 117.

This section contains information about the following topics:

- Install overview
- CD installation and HP Smart Install installation
- Installation for software components from the Web
- HP LaserJet software components for Windows
- Detailed Windows installation instructions
- Remove software

Install overview

The printing-system software CD contains the product software. The printing-system software can also be installed when the product is connected to the computer through Smart Install.

For all supported operating systems, each install option presents a series of screens that guide you through the installation process.

Software installation types for Windows

The following printing-system software installation types are available:

- Select the recommended software (default)
- Select the minimum software

Selecting **Click here for more install options** allows you to choose between the installation types and allows you to view the software components that are installed with each installation type.

Installing the recommended software installs these software components:

- **HP Device Toolbox**
- **HP Help & Learn Center**
- **HP LaserJet Customer Participation Program**
- **HP Printer Status and Alerts**
- **Reconfigure your HP Device**
- **Uninstall Product Software**

The installer guides the installation, whether you are configuring a direct-connected or a network-connected product.

The installer additionally detects hardware and network connections, and helps guide the installation. For example, if the installer detects an HP LaserJet Pro 300 color M351 and HP LaserJet Pro 400 color MFP M451, it automatically configures the software connection to that product. This saves several steps. If the installer detects a network, it also guides setting up those features.

Installation options

The printing-system software can be installed when the product is connected to the computer in the following configurations:

- Directly connected via a USB port
- Connected via a wired or wireless network

CD installation and HP Smart Install installation

- Supported operating systems for Windows
- Software installation types for Windows

Supported operating systems for Windows

The product comes with software for the following Windows operating systems:

- Windows 7 (32-bit and 64-bit)
- Windows Vista (32-bit and 64-bit)
- Windows XP (32-bit, Service Pack 2)
- Windows Server 2003 (32-bit, Service Pack 3)
- Windows Server 2008 and 2008 R2 (32-bit and 64-bit)

Software installation types for Windows

The product printing-system software can be installed in the following ways:

- HP LaserJet Pro 300 color M351 and HP LaserJet Pro 400 color MFP M451 printing-system installer (Recommended)
- Microsoft Found New Hardware Wizard (Plug and Play installation)

NOTE: This option is only available if Smart Install is disabled from the control panel.

Installation for software components from the Web

Supported operating systems for Windows

The product comes with software for the following Windows operating systems:

- Windows 7 (32-bit and 64-bit)
- Windows Vista (32-bit and 64-bit)
- Windows XP (32-bit, Service Pack 2)
- Windows Server 2003 (32-bit, Service Pack 3)
- Windows Server 2008 and 2008 R2 (32-bit and 64-bit)

Software installation types for Windows

The product printing-system software can be installed in the following ways:

- Microsoft Add Printer utility

NOTE: This option only installs the print driver.

- Microsoft Found New Hardware Wizard (Plug and Play installation)

NOTE: This option is only available if Smart Install is disabled from the control panel.

HP LaserJet software components for Windows

Installer

The installer program installs the printing-system software based on the hardware it detects from the host computer.

Uninstaller

The uninstall program removes files and folders that were installed when the printing-system software was originally installed on the computer.

Print drivers

Print drivers provide the printing features and communication between the computer and the product. The software CD includes software for end users and network administrators who are working in the following operating environments:

- Windows XP (32-bit and 64-bit), Windows Server 2003 (32-bit and 64-bit), Windows Server 2008 and 2008 R2 (32-bit and 64-bit), and Windows Vista (32-bit and 64-bit), and Windows 7 (32-bit and 64-bit)
- Apple Mac OS X v10.5 and later

In Windows operating systems, automatic configuration, driver updates after a new product configuration, and preconfiguration features are available with the product.

NOTE: For additional information about installing the printing-system software, see the *HP LaserJet Pro 300 color M351 and HP LaserJet Pro 400 color MFP M451 Install Notes* on the printing-system software CD.

All of the drivers provide access to the paper-handling and print-quality features.

HP PCL 6 Print Driver, PCL 5 Universal Print Driver, and PS Universal Print Driver

All of the Windows drivers are supported by Microsoft 32-bit and 64-bit operating systems. The HP PCL 6 driver is included on the HP LaserJet Pro 300 color M351 and HP LaserJet Pro 400 color MFP M451 printing-system software CD. All UPDs are available for download at the following Web site:

www.hp.com/go/LJColorM351_software or www.hp.com/go/LJColorM451_software

NOTE: If you select the recommended installation by clicking **Next** button on the main screen of the Installer, the HP PCL 6 print driver is installed by default.

Printer-driver version numbers for Windows operating systems

Access to printer-driver version numbers varies, depending on the operating system in which the product is installed.

NOTE: For a list of HP LaserJet Pro 300 color M351 and HP LaserJet Pro 400 color MFP M451 print drivers, updated HP printing-system software, and product-support information, go to:

www.hp.com/go/LJColorM351_software or www.hp.com/go/LJColorM451_software

The Windows XP, Windows Server 2003, Windows Server 2008 and 2008 R2, Windows Vista, and Windows 7 operating systems support the HP PCL 6, PCL 5 Universal Print Driver, and PS Emulation Universal Print Drivers. If you are using an HP print driver in a Windows environment, follow these steps to find driver-version information:

1. In Windows XP, Windows Server 2003, Windows Vista, and Windows 7, click the **Start** button, click **Devices & Printers**.

   In Windows Server 2008 and 2008 R2, click **Start**, click **Settings**, and then click **Printers and Faxes**.

2. Right-click the product icon.
3. Click **Printer Properties**.
4. Click the **About** tab.

You can also gain information about driver versions by clicking the **About** button that appears on most driver tabs.

HP PCL 6 printer driver for Windows

Introduction

You can change the print job settings through the product control panel, the software program, or the print driver.

Generally, for features that are duplicated in more than one location (for instance, you can select the paper input tray from any of them), settings that are established in the software program take precedence over printer-driver settings. Printer-driver settings, in turn, override product control-panel settings.

Access print drivers

Depending on the operating system on which you are installing the print drivers, you can gain access to the print drivers and different print-driver interfaces in several ways.

To gain access to the print driver settings from within most software programs, follow these steps:

1. Click the **File** menu.
2. Click the **Print** item.
3. Click the **Properties** button.

The appearance and names of the driver tabs can vary, depending on the operating system. These driver settings apply only while that software program is open.

You can control the drivers directly from the Printers folder. Here you have access to two sets of driver tabs: the **Printing Preferences** tabs and the **Properties** tabs. The settings that you make on

the **Printing Preferences** driver tabs control the driver default settings for each user profile. Installable options can be configured in **Properties** driver tabs.

Printing Preferences driver tabs

The **Printing Preferences** driver tabs change the default settings that are used across all software programs. To gain access to these tabs, follow these steps:

1. In Windows Vista, Windows XP, Windows Server 2003, and Windows 7, click the **Start** button, click the **Devices and Printers**.

   In Windows Server 2008 and 2008 R2, click the **Start** button, click the **Settings** item, and then click the **Printers and Faxes** item.

2. Right-click the product icon.

3. Click the **Printing Preferences** item.

The following **Printing Preferences** print-driver tabs are available:

- **Advanced**
- **Printing Shortcuts**
- **Paper/Quality**
- **Effects**
- **Finishing**
- **Color**
- **Services**

Properties driver tabs

This set of tabs controls the driver behavior and driver connections. To gain access to the **Properties** tabs, follow these steps:

1. In Windows Vista, Windows XP, Windows Server 2003, and Windows 7, click the **Start** button, click the **Devices and Printers**.

   In Windows Server 2008 and 2008 R2, click the **Start** button, click the **Settings** item, and then click the **Printers and Faxes** item.

2. Right-click the product icon.

3. Click the **Properties** item.

The following **Properties** print-driver tabs are available:

- **General**
- **Sharing**
- **Ports**

- **Advanced**
- **Color Management**
- **Security**
- **Device Settings**
- **About**

Help system

The HP PCL 6 printer driver includes a full-featured Help system to provide assistance with printing and configuration options.

“What's this?” Help

Windows XP, Windows Server 2003, Windows Server 2008 and 2008 R2, Windows Vista, and Windows 7 support **What's this?** Help. You can gain access to What's this? Help messages in any of the following ways:

- Right-click a feature or control. A pop-up Help window appears.
- Click the **?** button in the upper-right corner of the frame, next to the **X**, to change the cursor to an arrow with a question mark. When you use this special cursor to select a control, the pop-up Help window for that feature appears.
- Click a feature or control, and then press the F1 key. The Help window for the currently selected control appears.

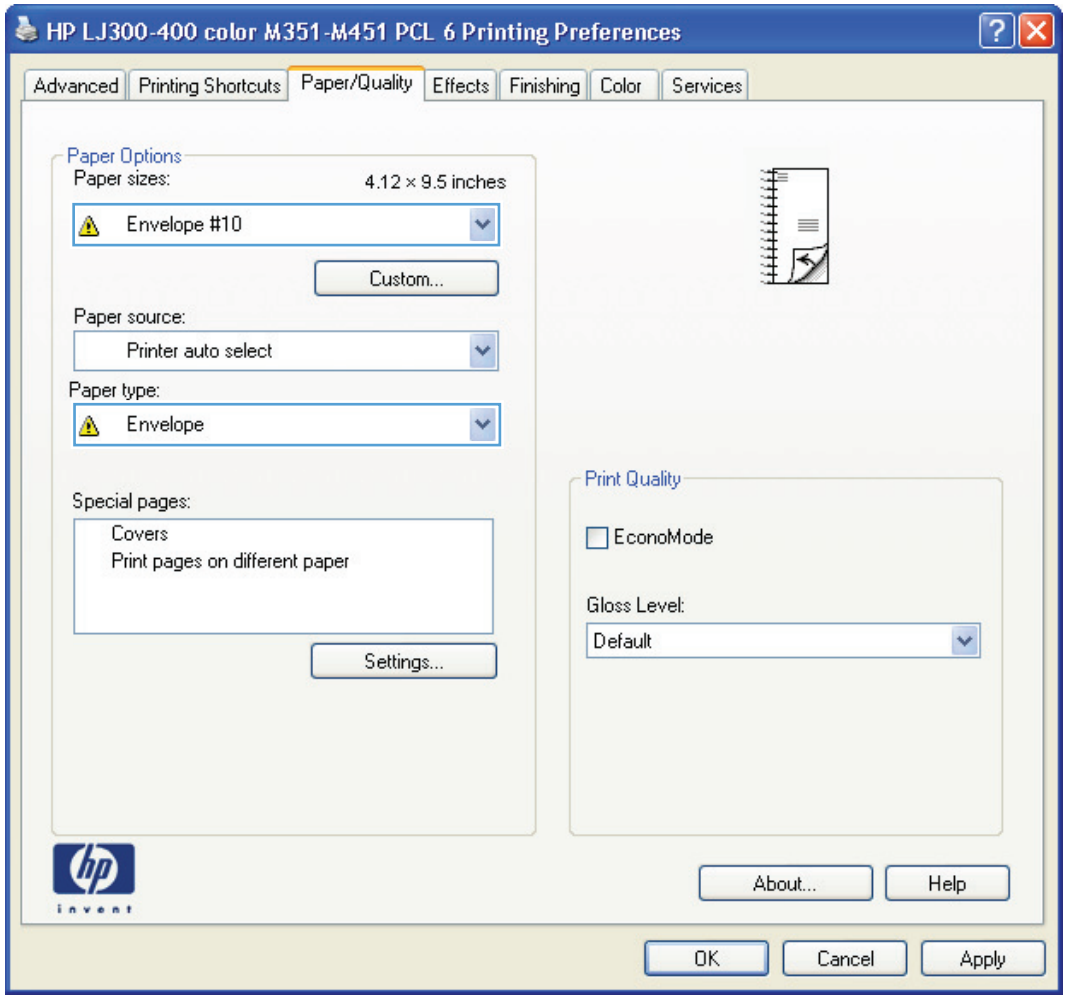
Incompatible print settings messages

Incompatible print settings (constraint) messages are unsolicited messages that appear in response to specific print-driver selections. These messages alert you to selections that are illogical or impossible given the product capabilities or the current settings of other controls.

NOTE: Constraint messages are limited, and the underlying software architecture might accept some settings that are illogical or impossible for the product to perform. Sending a job with incompatible settings can lead to unexpected results. If print jobs do not print as expected, check the product documentation for the product capabilities.

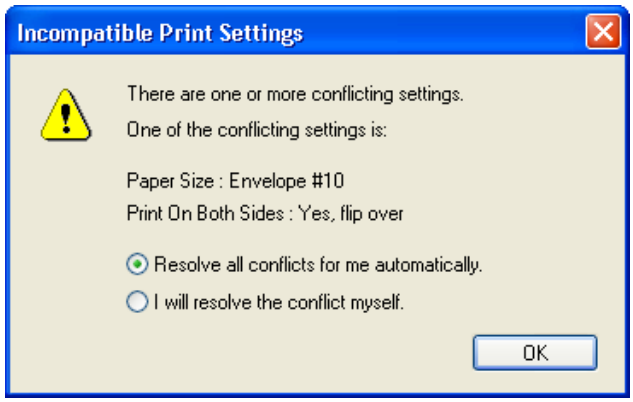
In supported Windows operating environments, some technically invalid print-driver configurations result in warning messages. For example, duplexing is not possible when printing an envelope. The following figure shows an incompatible print settings warning.

Figure 2-1 Incompatible print settings warning



If you click the **OK** button, the **Incompatible Print Settings** dialog appears.

Figure 2-2 Incompatible Print Settings dialog



To resolve the conflicting settings, click the **Resolve all conflicts for me automatically.** option, and then click the **OK** button. The driver resets the conflicting control back to its previous state.

If you want to keep the conflicting setting, click the **I will resolve the conflict myself.** option, and then click the **OK** button.

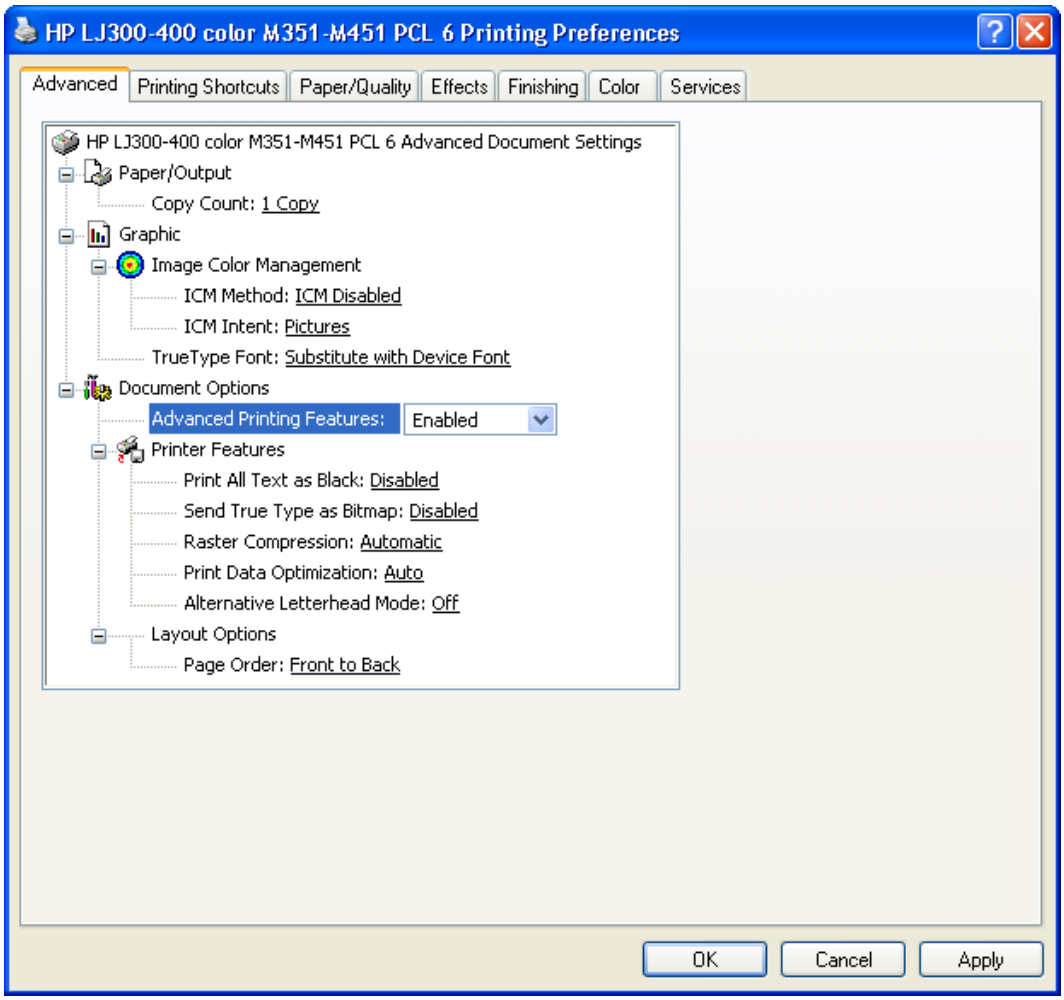
NOTE: In this example, the conflict can be resolved manually. If the conflict is not resolved when the driver is closed, then the same dialog appears again when a print job is sent to the product.

Advanced tab features

NOTE: The **Advanced** tab is located on the **Printing Preferences** tab set. For information about how to access these tabs, see Printing Preferences driver tabs on page 15

Use the **Advanced** tab to change the layout of printed pages. Use this tab to configure special controls that are not commonly used, as well as to control features such as collating and font management in the driver (although most current software programs support these features in the print dialog box or through the page settings in the software program). The following figure shows the **Advanced** tab.

Figure 2-3 Advanced tab



The **Advanced** tab contains the following controls:

- Graphic
- Document Options

Graphic

The **Graphic** setting contains the following controls:

- **Image Color Management** settings
- **True Type Font** settings

Image Color Management

This control lists the available Image Color Management (ICM) options used for printing color graphics. ICM, a set of calculations for color matching, makes it possible for programs to adjust colors before printing so that the color of images on the screen more closely match the color of those images when they are printed.

NOTE: The ICM Method is typically set to **ICM Disabled**.

True Type Font

Use the **Substitute with Device Font** option (the default setting) to print documents that contain TrueType fonts by using equivalent printer fonts. This permits faster printing; however, you might lose special characters that the equivalent printer font does not support. Select the **Download as Softfont** option to download TrueType fonts for printing instead of using printer fonts.

Document Options

The **Document Options** setting contains the following controls:

- Advanced Printing Features
- Printer Features
- Layout Options

Advanced Printing Features

When the **Advanced Printing Features** setting is **Enabled**, metafile spooling is turned on and **Finishing** tab options such as **Page Order**, **Booklet Layout**, and **Pages per Sheet** are available, depending on the product.

Enhanced metafile spooling is used to greatly reduce the amount of time that elapses between a request to print (initiated by a software program) and the return of control to the software program by the operating system.

For normal printing, leave the **Advanced Printing Features** setting at the default (**Enabled**). If compatibility problems occur, you can disable the feature. However, some advanced printing features might still appear in the print driver, even though they have been disabled. If you select an advanced printing feature in the print driver that has been disabled on the **Advanced** tab, the feature is automatically re-enabled.

Printer Features

The **Printer Features** setting contains the following controls:

- **Print All Text as Black**

  The feature is **Disabled** by default. When **Enabled** is selected, the driver prints all text as black regardless of the original document text color. Color text is printed as black, except for white text, which remains white. (White text is a reliable method of printing reverse typeface against a dark background.) This setting does not affect graphic images on the page, nor does it affect any text that is part of a graphic.

- **Send True Type as Bitmap**

  Send True Type as Bitmap provides an alternative for software programs that have trouble using TrueType fonts for special graphic aspects such as shading, rotation, or slanting. The setting is **Disabled** (off) by default. The TrueType fonts are converted to bitmap soft fonts before downloading. The **Enabled** setting causes the driver to send TrueType fonts to the product as outlines, which retains the standard format (outline) of the fonts.

- **Raster Compression**

  Use the **Raster Compression** feature to select the graphics-compression method:

  - **Automatic**. The software determines the best compression method to use.
  - **Best Quality**. This option forces the software to use a lossless compression method. (Lossless means that no data is lost during compression.)
  - **Maximum Compression**. Where applicable, this option requires the software to always use a lossy compression method (some data is lost).

- **Print Data Optimization**

  When selected, this feature allows the print job to use the host memory to ensure quick and high-quality printing. The print speed increases without any print quality degradation.

  When this option is selected, you must use one of the following settings:

  - **Auto** (the default setting)
  - **Optimize for Raster**
  - **Optimize for Text and Vector**

- **Alternative Letterhead Mode**

  Alternative Letterhead Mode feature affects the way you load letterhead or preprinted paper. This setting is turned off by default.

  When selected, this option eliminates the need to flip or reload letterhead or preprinted paper in a tray, whether you are printing on one or both sides of the sheet. Load the paper the same as for printing on both sides. If the printer tray has an icon that indicates whether to load paper either face-up or facedown, load the paper in opposite orientation of that shown.

When this option is selected, you must select one of the following options in the **Paper type** setting on the **Paper/Quality** tab:

- Letterhead
- Preprinted

Layout Options

The **Layout Options** setting contains the **Page Order** setting.

Page Order specifies the order in which the pages of your document are printed. **Front to Back** prints the document so that page 1 prints first. **Back to Front** prints the document so that page 1 prints last.

NOTE: The page-ordering operation works on whole sheets of paper rather than on individual logical pages. Accordingly, if you set **Pages per Sheet** (on the **Finishing** tab) to be greater than one, the ordering of logical pages on a physical sheet of paper does not change.

Printing Shortcuts tab features

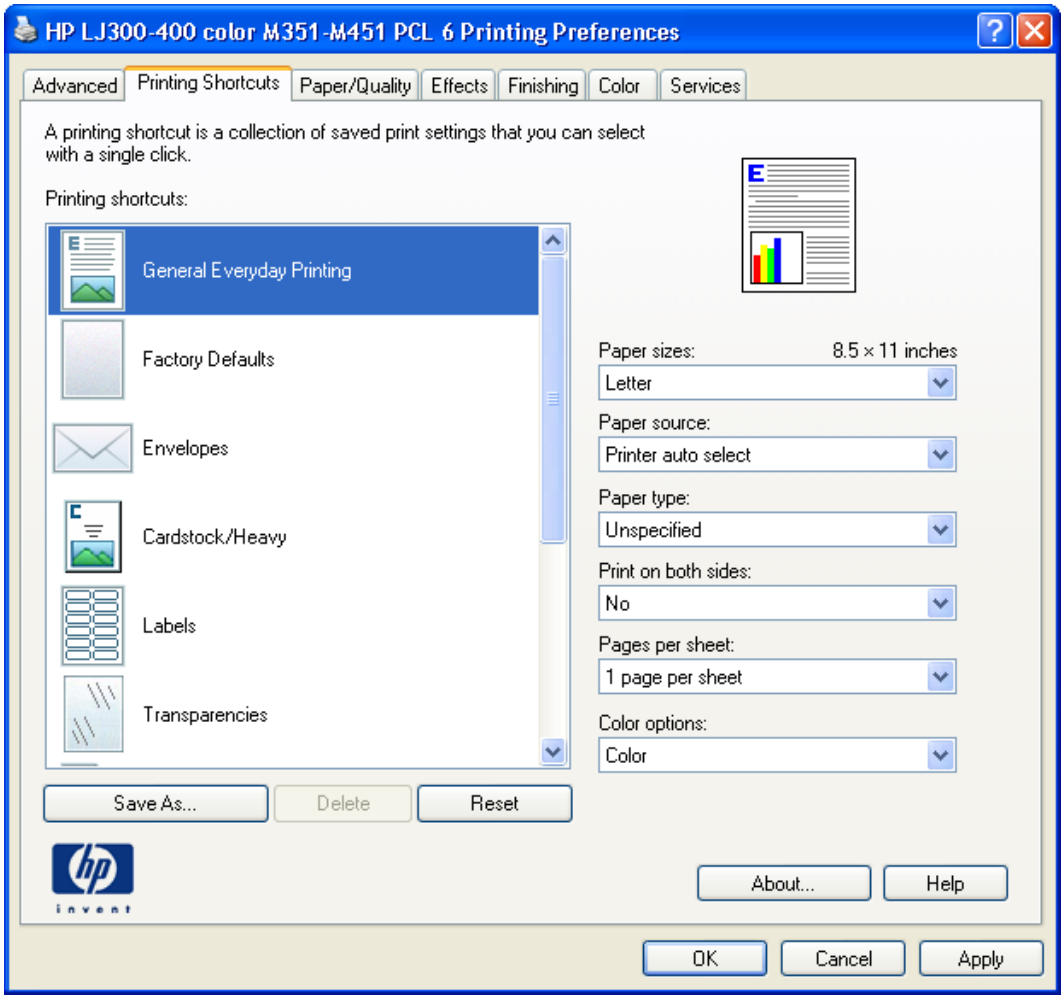
- Use defined printing shortcuts
- Create a custom printing shortcut

NOTE: The **Printing Shortcuts** tab is located on the **Printing Preferences** tab set. For information about how to access these tabs, see Printing Preferences driver tabs on page 15,

Use the **Printing Shortcuts** tab to store specific combinations of driver settings for easy use.

The following figure shows the **Printing Shortcuts** tab.

Figure 2-4 Printing Shortcuts tab



The **Printing Shortcuts** tab saves commonly used driver settings under a shortcut name.

- Use defined printing shortcuts
- Create a custom printing shortcut

Use defined printing shortcuts

The **Printing Shortcuts** tab contains the following pre-defined shortcuts:

- General Everyday Printing
- Factory Defaults
- Envelopes
- Cardstock Heavy
- Labels
- Transparencies
- EcoSMART Settings

- Booklet Printing
- Snapshot Photos
- Glossy/Presentation

General Everyday Printing

When **General Everyday Printing** is selected, the following controls are available:

- **Paper sizes:**
- **Paper source:**
- **Paper type:**
- **Print on both sides:**
- **Pages per sheet:**
- **Color options:**

When options other than the defaults are selected, the **Save as...** and **Reset** buttons become active.

Click **Save as...** to create a custom printing shortcut.

Click **Reset** to change customized settings back to the default settings.

Paper sizes

The following options are available:

- **Letter** (default)
- **Legal**
- **Executive**
- **8.5x13**
- **11x17**
- **4x6**
- **5x8**
- **A3**
- **A4**
- **A5**
- **A6**
- **B4 (JIS)**
- **B5 (JIS)**

- **10x15cm**
- **8K 270x390 mm**
- **16k 195x270 mm**
- **8K 260x368 mm**
- **16k 184x260 mm**
- **8K 273x394 mm**
- **16k 197x273 mm**
- **Japanese Postcard**
- **Double Japan Postcard Rotated**
- **Envelope #10**
- **Envelope Monarch**
- **Envelope B5**
- **Envelope C5**
- **Envelope DL**

Paper source

The following options are available:

- **Automatically Select** (default)
- **Printer auto select**
- **Manual Feed in Tray 1**
- **Tray 1**
- **Tray 2**

Paper type

The following options are available:

- **Unspecified** (default)
- **Plain**
- **HP EcoSMART Lite**
- **HP LaserJet 90g**
- **HP Color Laser Matte 105g**
- **HP Premium Choice Matte 120g**

- **HP Premium Presentation Matte 120g**
- **HP Brochure Matte 150g**
- **HP Cover Matte 200g**
- **HP Matte Photo 200g**
- **HP Premium Presentation Glossy 120g**
- **HP Brochure Glossy 150g**
- **HP Tri-fold Brochure Glossy 150g**
- **HP Brochure Glossy 200g**
- **Intermediate 85–95g**
- **Mid-Weight 96-110g**
- **Heavy 111-130g**
- **Extra Heavy 131-175g**
- **Heavy Glossy 111-130g**
- **Extra Heavy Glossy 131-175g**
- **Card Glossy 176-220g**
- **Color Laser Transparency**
- **Labels**
- **Letterhead**
- **Envelope**
- **Heavy Envelope**
- **Preprinted**
- **Prepunched**
- **Colored**
- **Bond**
- **Recycled**
- **Rough**
- **Heavy Rough**
- **HP Tough Paper**
- **Opaque Film**

Print on both sides

The following options are available:

- **No** (default)
- **Yes, Flip Over**
- **Yes, Flip Up**

Pages per sheet

The following options are available:

- **1 page per sheet** (default)
- **2 pages per sheet**
- **4 pages per sheet**
- **6 pages per sheet**
- **9 pages per sheet**
- **16 pages per sheet**

Color options

The following options are available:

- **Color** (default)
- **Black & White**

Factory Defaults

When **Factory Defaults** is selected, the customizable options are grayed out, locking in those default options.

The **Factory Defaults** are as follows:

- **Paper sizes: Letter** (This setting changes according to country/region.)
- **Paper source: Automatically Select**
- **Paper type: Unspecified**
- **Print on both sides: No**
- **Pages per sheet: 1 page per sheet**
- **Color options: Color**

Envelopes

These settings are automatically selected:

- **Paper sizes: Envelope #10** (This setting changes according to country/region.)
- **Paper source: Automatically Select**
- **Paper type: Envelope**
- **Color options: Color**

Cardstock Heavy

These settings are automatically selected:

- **Paper sizes: Letter** (This setting changes according to country/region.)
- **Paper source: Automatically Select**
- **Paper type: HP Cover Matte 200g**
- **Print on both sides: No**
- **Color options: Color**

Labels

These settings are automatically selected:

- **Paper sizes: Letter** (This setting changes according to country/region.)
- **Paper source: Automatically Select**
- **Paper type: Labels**
- **Color options: Color**

Transparencies

These settings are automatically selected:

- **Paper sizes: Letter** (This setting changes according to country/region.)
- **Paper source: Automatically Select**
- **Paper type: Color Laser Transparency**
- **Color options: Color**

EcoSMART Settings

- **Paper sizes: Letter** (This setting changes according to country/region.)
- **Paper source: Automatically Select**

- **Paper type: Unspecified**
- **Print on both sides: Yes, flip over**
- **Pages per sheet: 1 page per sheet**
- **Color options: Color**

Booklet Printing

These settings are automatically selected:

- **Paper sizes: Letter** (This setting changes according to country/region.)
- **Paper source: Automatically Select**
- **Paper type: Unspecified**
- **Booklet Layout: Left binding**

Snapshot Photos

These settings are automatically selected:

- **Paper sizes: 4x6** (This setting changes according to country/region.)
- **Paper source: Automatically Select**
- **Paper type: HP Brochure Glossy 200g**
- **Color theme: Photo (sRGB)**

Glossy/Presentation

- **Paper sizes: Letter** (This setting changes according to country/region.)
- **Paper source: Automatically Select**
- **Paper type: HP Brochure Glossy 200g**
- **Print on both sides: No**
- **Color theme: Photo (sRGB)**

Create a custom printing shortcut

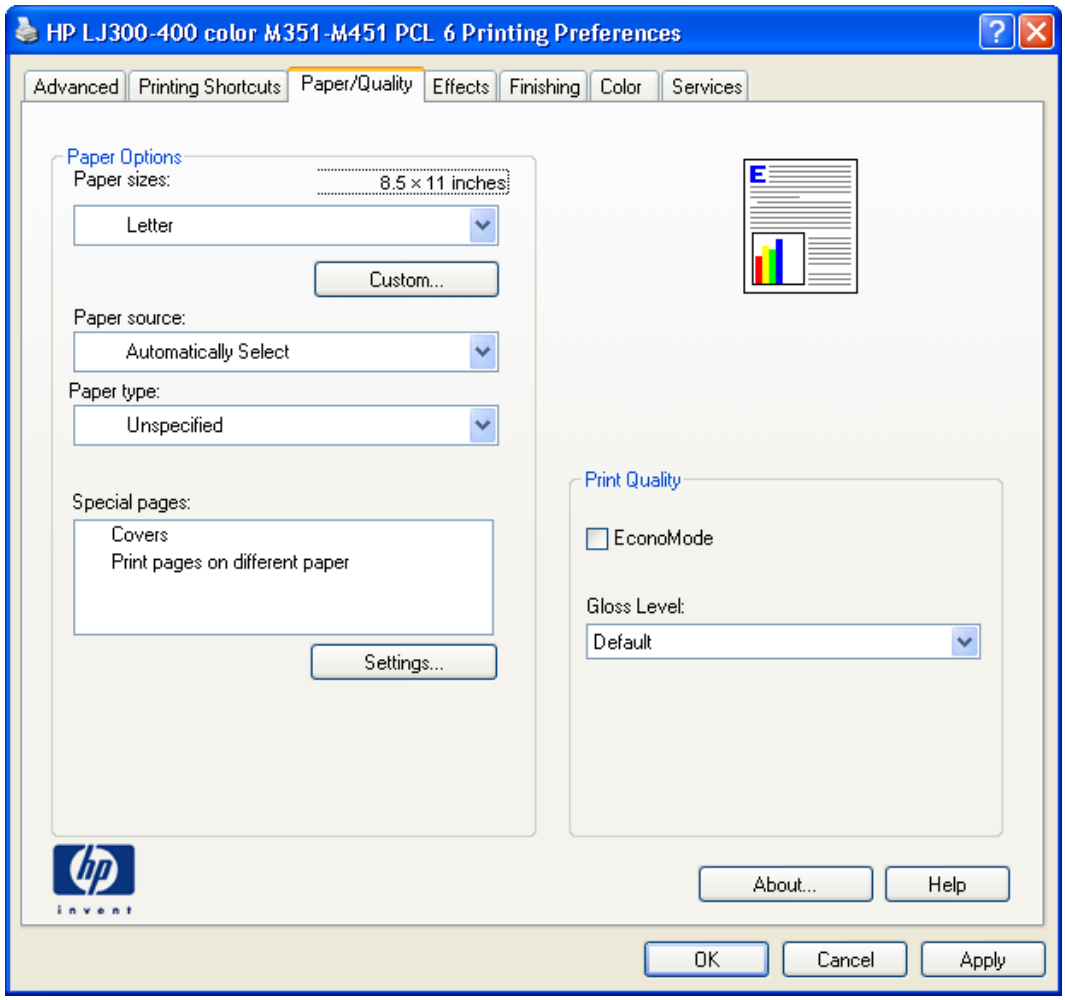
1. Select **General Everyday Printing** as a base.
2. Select the appropriate print settings on the **Printing Shortcuts** tab or use the settings on any of the **Printing Preferences** tabs.
3. On the **Printing Shortcuts** tab, click **Save As...**. The **Printing Shortcuts** dialog box appears.
4. Type a name for the custom printing shortcut, and then click the **OK** button. The custom printing shortcut appears in the **Printing Shortcuts** list.
5. To delete a custom printing shortcut, click the custom shortcut, and then click the **Delete** button.

Paper/Quality tab features

NOTE: The **Paper/Quality** tab is located on the **Printing Preferences** tab set. For information about how to access these tabs, see Printing Preferences driver tabs on page 15,

Use the **Paper/Quality** tab to specify paper size, type, and source. You can also use this tab to specify different paper selections for the front cover, first page, other pages, last page, and back cover of the document. The following figure shows the **Paper/Quality** tab.

Figure 2-5 Paper/Quality tab



The **Paper/Quality** tab contains the following control sets:

- Paper Options
- Document preview image
- Print Quality

Paper Options

The settings specified in the **Paper Options** group box on the **Paper/Quality** tab apply to all of the pages of the document.

The settings in the **Paper Options** group box are described in the following order:

- Paper sizes
- Custom Paper Size
- Paper source
- Paper type
- Special pages

Paper sizes

The **Paper sizes** setting is a drop-down menu that lists all of the supported paper sizes.

When you move the mouse over the dimensions label, the mouse cursor changes from an arrow to a gloved hand. Click the dimensions label to toggle between English and metric units.

Because paper-size settings in most software programs override driver settings, it is generally best to use the driver to set paper size only when you are printing from software programs that do not include a paper-size setting, such as NotePad, or when you are producing a book or a booklet that does not require different paper sizes.

NOTE: Certain software programs can override the size command and specify different paper sizes within a single document.

When you change the print-driver setting to a paper size that is not currently loaded in the product, a control-panel message appears that prompts you to load the paper size or select another tray.

When the **Settings** under the **Special Pages** section have been changed, the **Paper sizes**, **Paper source**, and **Paper type** menus change also, offering a variety of options.

Custom Paper Size

The **Custom Paper Size** dialog box appears when you click the **Custom…** button on the **Paper/ Quality** tab. The following figure shows the initial appearance of the **Custom Paper Size** dialog box.

NOTE: The HP LaserJet Pro 300 color M351 and HP LaserJet Pro 400 color MFP M451 support custom paper sizes up to 14 inches in length. To use this paper size, set the custom paper size to match the custom paper size that you are using, up to 14 inches in length.

Name

Use the **Name** text box to type a new name for a custom paper size. When you change the name to something other than **Custom**, the **Save** and **OK** buttons become active.

The name that appears in the **Name** text box depends on the following conditions:

- If a saved custom paper size has been selected from the drop-down menu on the **Paper/Quality** tab, then the **Name** text box shows the name of the selected custom paper size.
- If a standard paper size has been selected on the **Paper/Quality** tab, then the **Name** text box shows the default name of **Custom** .
- If a new name has been typed into the **Name** text box for the purpose of saving a new size or renaming an existing size, then that new name will remain in the text box until the new size is saved or the dialog box is closed.

If you type a new name into the **Name** text box, but then do not click **Save**, you can change the width and height values without losing the name. However, if you close the dialog box without clicking **Save**, any unsaved name or size values are lost without warning.

Paper size

The width and height values can be changed by typing numeric strings into the edit boxes in the **Paper Size** group box.

Any entry that is greater than the maximum limits of the width and height control is rounded down to the maximum valid entry, while any entry that is smaller than the minimum limits of the width and height control is rounded up to the minimum valid entry.

If units are in millimeters, the custom paper-size range minimum is the limit rounded up to the nearest whole millimeter. The custom paper-size range maximum is the limit rounded down to the nearest whole millimeter. Any non-numerical entry reverts to the minimum value. Width and height entries are validated when the focus has changed.

The resolution of each control is 1 millimeter or 1/10 of an inch, depending on the current measurement units.

Units

To change measurement units, click one of the options in the **Units** group box (either **Inches** or **Millimeters**).

Custom width and height control limits

The minimum paper size for the product is 76 x 127 mm (3 x 5 in) and the maximum is 215.90 x 355.60 mm (8.50 x 14.0 in).

Paper source

The **Paper source** setting specifies the source tray to use for printing a document. The list of source trays depends on the product accessories that are installed. Any optional source trays that are installed through the **Device Settings** tab also appear here.

The **Paper source** drop-down menu can contain the following options, depending on what has been installed on the product:

- **Automatically select**
- **Printer Auto Select**
- **Manual Feed in Tray 1**
- **Tray 1**
- **Tray 2** (100-sheet multipurpose tray)

The default setting is **Automatically Select**. When this setting is selected, the product uses the source tray that supports the paper size that you have selected. If you select a source tray other than **Automatically select**, make sure that the correct paper size is loaded in the source tray.

Paper type

The **Paper type** drop-down menu shows the first few paper types that the product supports and an entry for **More**. Clicking **More** opens the **Type Is** dialog box. Click the **+** next to **Type Is** and its subcategories to view all of the paper types that the product supports, listed in the following categories.

- **Unspecified**
- **Everyday <96g**
  - **Plain**
  - **HP EcoSMART Lite**
  - **HP LaserJet 90g**
  - **Intermediate 85–95g**
  - **Bond**
  - **Recycled**
- **Presentation 96–130g**
  - **HP Color Laser Matte 105g**
  - **HP Premium Choice Matte 120g**
  - **HP Premium Presentation Matte 120g**
  - **HP Premium Presentation Glossy 120g**
  - **Mid-Weight 96–110g**
  - **Heavy 111–130g**
  - **Heavy Glossy 111–130g**

- **Brochure 131–175g**
  - **HP Brochure Matte 160g**
  - **HP Brochure Glossy 160g**
  - **HP Tri-fold Brochure Glossy160g**
  - **Extra Heavy 131–175g**
  - **Extra Heavy Glossy 131–175g**
- **Photo/Cover 176–220g**
  - **HP Cover Matte 200g**
  - **HP Matte Photo 200g**
  - **HP Brochure Glossy 200g**
  - **Card Glossy 176–220g**
- **Other**
  - **Color Laser Transparency**
  - **Labels**
  - **Letterhead**
  - **Envelope**
  - **Heavy Envelope**
  - **Preprinted**
  - **Prepunched**
  - **Colored**
  - **Rough**
  - **Heavy Rough**
  - **HP Tough Paper**
  - **Opaque Film**

The default setting is **Unspecified**.

No mechanism exists for manually adding custom paper types through the driver. Use HP Web Jetadmin to add custom paper types. Custom types can be added only by using bidirectional communication, so they must already exist in the product when the bidirectional query occurs. If bidirectional communication is enabled, then an updated list of paper types is returned. If bidirectional communication is not enabled, then the driver looks for custom paper types that have been saved from a previous bidirectional communication query, and uses those. Otherwise, no custom paper types are available through the driver.

NOTE: To download a current version of HP Web Jetamin and for the latest list of supported host systems, go to the following Web site:

www.hp.com/go/webjetadmin

If you select a setting other than the default, make sure that the correct paper type is loaded in the tray that you selected in the **Paper source** setting.

When you change the print-driver setting to a paper type that is not currently loaded in the product, a control-panel message appears that prompts you to load the paper type or select another tray.

Special pages

To specify special pages to be used, click the **Settings** button under the **Special Pages** list.

Covers

To use specific cover settings, click the **Covers** item in the **Special Pages** list, and then click the **Settings** button.

Use the **Covers** options to include a blank or preprinted cover on a document, or to include a front/back cover from a source tray that is different from the one used for the remainder of the document.

The following are the **Covers** options:

- **Add a blank or preprinted cover:** Select which cover is customized: **Front**, **Back**, or **Both**.
- **Paper source:** The **Paper source** setting specifies the source tray to use for adding a front and/or back cover to the document. The list of source trays depends on the accessories that are installed. Any optional trays that are installed through the **Device Settings** tab also appear here.
- **Paper type:** The **Paper type** setting specifies the paper size to use for front and/or back covers. Changes made to the **Paper type** setting here override any previous **Paper type** settings using the same paper source.

NOTE: The same size of paper will be used for the entire print job.

When you change the type and source of the paper and covers, the settings remain configured until you close the software program.

Print pages on different paper

Use the **Print pages on different paper** options to select an alternative paper type or source for the first, last, or other pages of a document.

The following are the **Print pages on different paper** options:

- **Pages in document.** Select which pages are customized: the **First** page, the **Last** page.
- **Paper source:** The **Paper source** setting specifies the source tray to use for printing a document. The list of source trays depends on the accessories that are installed. Any optional trays that are installed through the **Device Settings** tab also appear here.
- **Paper type:** The **Paper type** drop-down menu shows all of the paper types that the HP LaserJet Pro 300 color M351 and HP LaserJet Pro 400 color MFP M451 support.

NOTE: The same type of paper is used for the entire print job.

When you change the type and source of the paper and covers, the settings remain configured until you close the software program.

Document preview image

The document preview image is a line-drawn image of a page that represents graphics and text. The document preview image is always oriented so that the contents of the page are right-side-up. The document preview image appears in the upper-right corner of the following **Printing Preferences** driver tabs:

- **Printing Shortcuts**
- **Paper/Quality**
- **Effects**
- **Finishing**
- **Color**

Switching between tabs does not change the location or appearance of the document preview image. When you move the mouse over the document preview image, the mouse cursor changes from an arrow to a gloved hand. You can toggle between portrait and landscape page orientation by clicking the image.

Print Quality

The **Print Quality** group box contains the following controls:

- EconoMode check box
- Print Quality group box

EconoMode check box

Select the **EconoMode** checkbox to use less toner, which might extend the life of the toner cartridge.

HP does not recommend the full-time use of **EconoMode**. If **EconoMode** is used full-time, the toner supply might outlast the mechanical parts in the toner cartridge. If print quality begins to degrade and is no longer acceptable, consider replacing the toner cartridge.

Print Quality group box

Use this control to select print quality. ImageREt settings precisely control colors by combining up to 4 colors and varying the amount of toner in a given area to create many smooth colors, sharp images, and crisp text.

The **Gloss Level** drop-down menu contains the following resolution options.

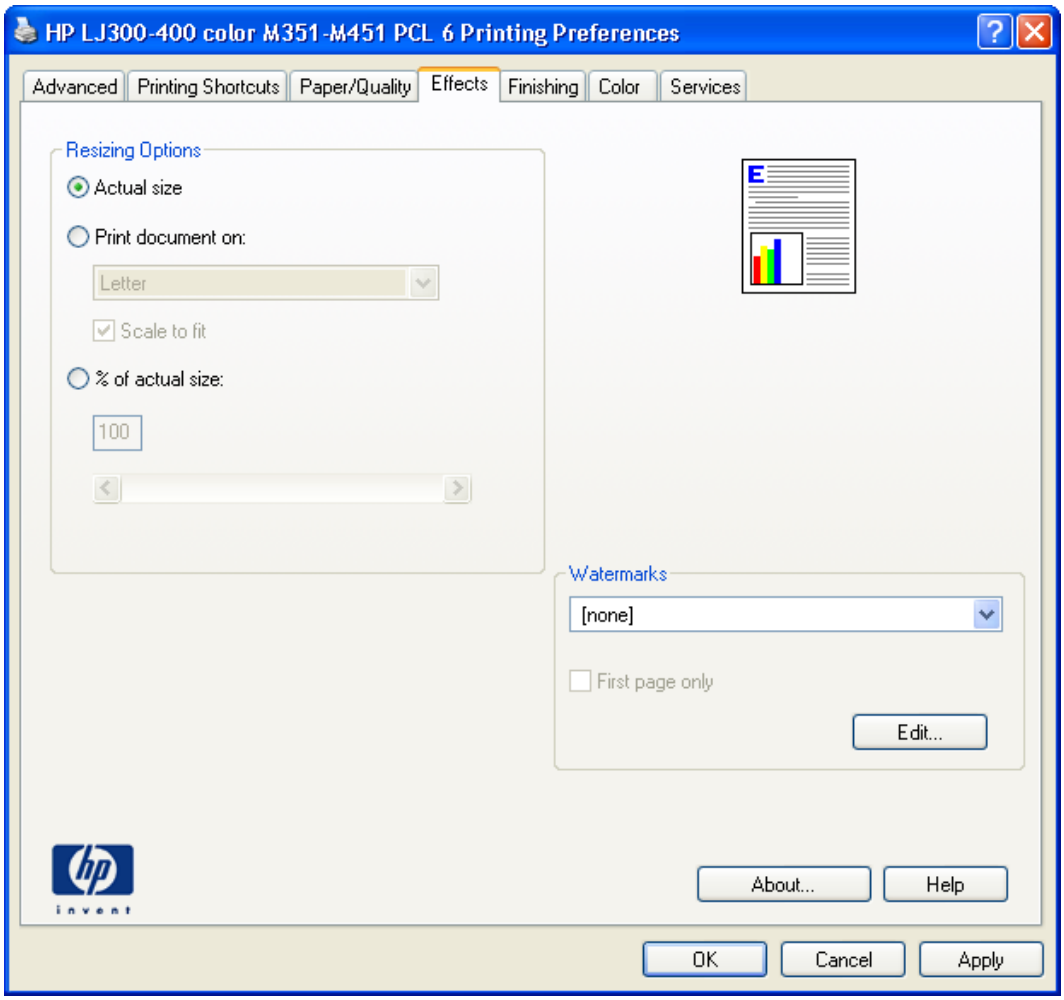
- **Default**
- **Best**
- **Standard**

Effects tab features

NOTE: The **Effects** tab is located on the **Printing Preferences** tab set. For information about how to access these tabs, see Printing Preferences driver tabs on page 15,

Use the **Effects** tab to create unique paper effects such as scaling and watermarks. The following figure shows the **Effects** tab.

Figure 2-6 Effects tab



The **Effects** tab contains the following controls:

- Resizing Options
- Document preview image
- Watermarks

Resizing Options

The **Resizing Options** group box consists of the following controls:

- **Actual size** (default)
- **Print document on**
- **Scale to fit**
- **% of actual size**

Actual size

Actual size is the default setting. It prints the document without changing the document size.

Print document on

Click the **Print document on** option to format the document for one paper size and then print the document on a different paper size, with or without scaling the image to fit the new paper size.

The **Print document on** control is disabled by either of the following conditions:

- The **% of actual size** value is not 100.
- The **Pages per sheet** value (on the **Finishing** tab) is not 1.

When **Print document on** is selected, the drop-down menu shows the paper sizes on which you can print. The list contains all of the standard paper sizes that the selected paper source supports. When **Print document on** is selected, **Scale to fit** is automatically selected. Clear this check box if you do not want your document reduced or enlarged to fit on the selected paper.

Scale to fit

The **Scale to fit** option box specifies whether each formatted document page image is scaled to fit the target paper size. By default, **Scale to fit** is selected when **Print document on** is selected. If the setting is turned off, then the document page images will not be scaled, and are instead centered at full size on the target paper. If the document size is larger than the target paper size, then the document image is clipped. If it is smaller, then it is centered within the target paper.

When the size for which the document is formatted (that is, the logical size) differs from the target size, the preview image uses a dashed gray line to show the boundaries of the logical page in relation to the target paper size.

% of actual size

The **% of actual size** option provides a slider bar and input box to use for scaling the percentage setting. The default setting in the entry box is 100% of actual size. Actual size is defined as the paper size that is selected within the driver or what the driver receives from the software program (if the software program does not negotiate the paper size with the driver). The driver scales the page by the appropriate factor and sends it to the product.

The limits of the range are from 25% to 400%, and any values outside the range are adjusted to those limits as soon as the focus is removed from the control (that is, when the Tab key is pressed or another control is selected).

Any change to the scale also changes the page preview, which increases or decreases from the upper-left corner of the preview.

The slider bar controls the scale directly. The value in the edit box changes as the slider-bar indicator is dragged, and the document preview image is updated to the new image scale. Each click on the arrows increases or decreases the scale by 1%. Each click on the slider bar affects the scale by 10%.

You cannot achieve an exact value by dragging the slider-bar indicator. Instead, either use the slider-bar indicator to approximate the value that you want and then use the arrows to refine the value, or type the value into the entry box.

The following settings disable **% of actual size**:

- **Print document on** (on the **Effects** tab) is selected
- **Pages per sheet** (on the **Finishing** tab) is not 1

Document preview image

The document preview image is a line-drawn image of a page that represents graphics and text. The document preview image is always oriented so that the contents of the page are right-side-up. The document preview image appears in the upper-right corner of the following **Printing Preferences** driver tabs:

- **Printing Shortcuts**
- **Paper/Quality**
- **Effects**
- **Finishing**
- **Color**

Switching between tabs does not change the location or appearance of the document preview image. When you move the mouse over the document preview image, the mouse cursor changes from an arrow to a gloved hand. You can toggle between portrait and landscape page orientation by clicking the image.

Watermarks

Use the **Watermarks** feature to select a watermark, create a new watermark (text only), or edit an existing watermark. The following watermarks are preset in the driver:

- **(none)**
- **[Username]**
- **Confidential**

- **Draft**
- **SAMPLE**

The Watermarks feature can be configured using the Driver Configuration Utility.

If the **[Username]** watermark is selected, the driver will use the network username of the logged in user for the watermark.

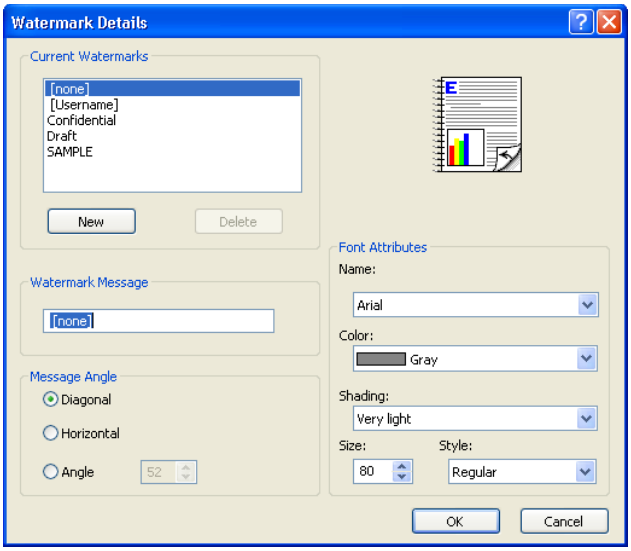
The drop-down menu shows alphabetically sorted watermarks that are currently available on the system, plus the string "(none)," which indicates that no watermark is selected. This is the default setting. Any watermark that is selected from this list appears in the preview image.

When the **First Page Only** check box is selected, the watermark is printed only on the first page of the document. The **First Page Only** check box is disabled when the current watermark selection is "(none)."

Watermarks are applied to logical pages. For example, when **Pages per Sheet** is set to "4" and **First Page Only** is turned off, four watermarks appear on the physical page (one on each logical page).

Click **Edit**, and the **Watermark Details** dialog box appears.

Figure 2-7 Watermark Details dialog box



The dialog box shows a preview image and provides options for creating a new watermark and controlling the message angle and font attributes.

Click **OK** to accept all of the changes that are made in the **Watermark Details** dialog box. However, clicking **Cancel** does not cancel all of the changes. If you make changes to a watermark and then select a different watermark or click **New**, all of the changes are saved, and only the current, unsaved changes can be canceled.

Current watermarks

The **Current Watermarks** group box in the **Watermark Details** dialog box contains a list of available watermarks, both predefined watermarks that are available in the driver and any new watermarks that you have created.

To create a new watermark, click **New**. The new watermark appears in the **Current Watermarks** list and in the **Watermark Message** edit box as "**Untitled**" until you name it. The name that you type in the **Watermark Message** field appears in the **Current Watermarks** group box in the **Watermark Details** dialog box and in the **Watermarks** group box on the **Effects** tab.

To name the new watermark, type the selected watermark text in the **Watermark Message** edit box.

To delete a watermark, select the watermark in the **Current Watermarks** list, and then click **Delete**. A warning appears asking whether you are sure you want to delete the selected item. Click **Cancel** if you want to keep the watermark. Click **OK** to delete the selected watermark.

NOTE: You can have no more that 30 watermarks in the **Current Watermarks** list at one time. When you reach the limit of 30 watermarks, the **New** button is disabled.

To edit an existing watermark, select the watermark in the **Current Watermarks** list. If you change the **Watermark Message** for that watermark, you are, in effect, creating a new watermark.

Watermark Message

The **Watermark Message** is also the name that identifies the watermark in the **Current Watermarks** list, except when more than one watermark has the same message. For example, you might want several different watermarks with the message DRAFT, each with a different typeface or font size. When this occurs, the string is appended with a space, a pound sign, and a number (for example, **Draft #2**). When a number is added, the number two is used first, but if the resulting name is also in the list, then the number increases until the name is unique (**Draft #3**, **Draft #4**, and so on).

Message Angle

Use the controls in the **Message Angle** group box to print the watermark in different orientations on the page. All settings center the watermark string within the page; the selection of a particular setting affects only the angle of the string placement. The following settings are available:

- **Diagonal**. This is the default setting. Select this setting to place the text along a line that spans the lower-left to upper-right corners of the page.
- **Horizontal**. Select this setting to place the text along a line that spans the mid-left and mid-right edges of the page.
- **Custom**. Select this setting to place the text at the specified angle across the page. Use the numeric spin box to select the angle.

Font Attributes

Use the controls in the **Font Attributes** group box to change the font and the shading, size, and style of the font.

The **Font Attributes** group box contains the following controls:

- **Name**

  The **Name** drop-down menu lists fonts that are currently installed on the system. The default is language-dependent.

- **Color**

The **Color** drop-down menu contains the following selections:

- **Gray**
- **Red**
- **Yellow**
- **Green**
- **Cyan**
- **Blue**
- **Magenta**

- **Shading**

  The default **Shading** setting for new and preset watermarks is **Very Light**. The following range of shades is available from the **Shading** drop-down menu:

  - **Lightest**
  - **Very light** (default)
  - **Light**
  - **Medium light**
  - **Medium**
  - **Medium dark**
  - **Dark**
  - **Very dark**
  - **Darkest**

  These values represent the intensity of the gray that is used. Select **Light** to produce a lightly saturated gray watermark. Select **Lightest** to produce the lightest shade of watermark. Select **Darkest** to produce a black watermark.

- **Size**

  Font sizes from 1 to 999 points are available from the **Size** menu. The default point size is language-dependent.

- **Style**

  The following settings are available:

  - **Regular**
  - **Bold**
  - **Italic**
  - **Bold Italic**

The default **Style** setting for new and preset watermarks is **Regular**.

Default watermark settings

The following table shows **Font Attribute** settings for new and preset watermarks.

Table 2-1 Font Attribute settings for new and preset watermarks

Setting	New watermark	Preset watermark
Name	**Arial**	Varies by language
Color	**Gray**	**Gray**
Shading	**Very Light**	**Very Light**
Size	**80**	Varies by language
Style	**Regular**	**Regular**

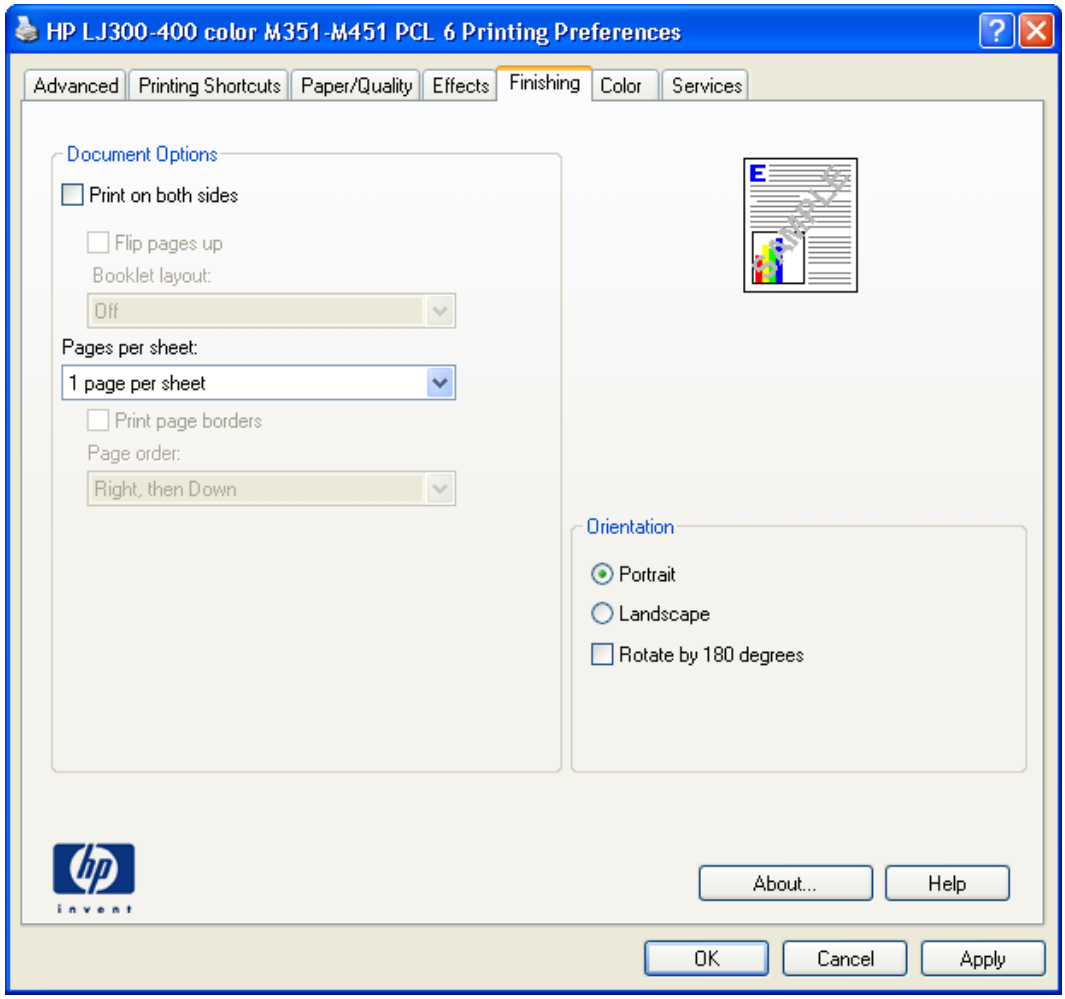
Click the **OK** button to accept all of the changes that have been made in the **Watermark Details** dialog box. Clicking the **Cancel** button does not cancel all of the changes. If you make changes to a watermark and then select a different watermark or click **New**, all of the changes are saved, and only the current, unsaved changes can be canceled.

Finishing tab features

NOTE: The **Finishing** tab is located on the **Printing Preferences** tab set. For information about how to access these tabs, see Printing Preferences driver tabs on page 15.

Use the **Finishing** tab to print booklets and control the paper output. The following figure shows the **Finishing** tab.

Figure 2-8 Finishing tab



The **Finishing** tab contains the following controls:

- Document Options
- Document preview image
- Orientation

Document Options

The **Document Options** group box contains the following controls:

- Print on both sides
- Flip Pages Up
- Booklet layout
- Pages per sheet
- Print page borders
- Page order

Print on both sides

The default setting for the **Print on both sides** option is off (not selected). **Print on both sides** is available when the following conditions exist:

- **Paper type** on the **Paper/Quality** tab is set to any paper type *except for* the following types:
  - **Labels**
  - **Color Laser Transparency**
  - **Envelope**
  - **Heavy envelope**
- **Paper sizes** is set to any paper size *except for* the following sizes:
  - **Envelope #10**
  - **Envelope Monarch**
  - **Envelope B5**
  - **Envelope C5**
  - **Envelope DL**

Print on both sides

Select the **Print on Both Sides** check box to print on the second side of the paper.

Printing on the second side of a page is available when you are using the HP PCL 6 printer driver.

Select the paper type that corresponds to the paper that you are using for the print job. The following paper types have a different print modes when you manually print on the second side:

- Plain
- Preprinted
- Letterhead
- Prepunched
- Bond
- Recycled
- Colored
- Rough

NOTE: To make the **Print on both sides** check box available in the document options, verify the **Duplex Unit (for 2–sided printing)** is set to **Installed** on the **Device Settings** tab in the print-driver **Properties** tab set.

Cardstock paper can be manually printed on the second side, but no change occurs to the print mode. Transparencies and labels should *never* be manually printed on the second side.

To print a multiple-page document, follow these steps:

1. Select the **Print on both sides** check box.
2. Click the **OK** button.

Flip Pages Up

Use the **Flip pages up** check box to specify the duplex-binding option. By default, the **Flip pages up** check box is not available. It is available only when **Print on both sides** is selected. The following table demonstrates the results of selecting this check box, depending on the paper orientation selected on the **Finishing** tab.

Table 2-2 Page orientation

Orientation (Finishing tab)	Flip pages up selected	Flip pages up not selected
Portrait	Short-edge binding	Long-edge binding
Landscape	Long-edge binding	Short-edge binding

When **Print on both sides** is selected, the document preview image changes to show a spiral binding along either the left edge or the top edge of the page. In addition, a folded-over corner appears in the lower-right portion of the preview image, indicating that printing occurs on the back side. An arrow on the folded-over corner points in the direction that the pages would be flipped if they were bound together.

Short-side binding is for print jobs with pages that read by flipping over like the pages of a calendar. Long-side binding is for print jobs with pages that read by turning like the pages of a book.

Booklet layout

The **Booklet layout** drop-down menu, visible when **Print on both sides** is selected, offers choices that are based on the current paper size. The default setting for the **Booklet layout** drop-down menu is **Off**. The other settings have the following format, where **[paper size]** depends on the paper size that is set on the **Paper/Quality** tab:

- **Left binding**
- **Right binding**

When you select **Left binding** or **Right binding**, the document preview image changes to show the location of the binding. If the **Pages per sheet** setting is on the default setting of 1, it automatically changes to **2 pages per sheet**. If you change the **Pages per sheet** setting manually to 4, 6, 9, or 16 pages per sheet, the booklet setting is disabled.

Book and Booklet Printing

The HP LaserJet Pro 300 color M351 and HP LaserJet Pro 400 color MFP M451 support book and booklet printing.

A book is a print job consisting of at least two pages. It can have a different paper type for the front cover, first page, other pages, last page, or back cover. Use the **Covers** and **Print pages on**

different paper settings on the **Paper/Quality** tab to select different paper for the front cover, first page, other pages, and back cover.

A booklet is a print job that places two pages on each side of a sheet that can then be folded into a booklet that is half the size of the paper. Use the **Booklet layout** drop-down menu on the **Finishing** tab to control booklet settings.

Print a booklet

1. Open the driver **Printing Preferences** tab set and click the **Printing Shortcuts** tab. For information about how to access the **Printing Preferences** tab set, see Printing Preferences driver tabs on page 15.
2. Click to select **Booklet Printing**.

NOTE: Typically, you select the size of each page of the booklet in your software program by clicking **File**, clicking **Page**, and then clicking **Setup**. If your software program does not allow you to set the paper size, use the **Paper sizes** drop-down menu on the **Printing Shortcuts** tab.

3. Select the appropriate settings from the following drop-down menus on the **Printing Shortcuts** tab.
   - **Paper sizes**
   - **Paper source**
   - **Paper type**
   - **Booklet Layout**
4. Click **OK** to print.

Pages per sheet

Use the **Pages per Sheet** option to select the number of pages that you want to print on a single sheet of paper. If you choose to print more than one page per sheet, the pages appear smaller and are arranged on the sheet in the order that they would otherwise be printed. The **Pages per sheet** drop-down menu provides six settings:

- **1 page per sheet** (this is the default)
- **2 pages per sheet**
- **4 pages per sheet**
- **6 pages per sheet**
- **9 pages per sheet**
- **16 pages per sheet**

NOTE: When you select an option other than **2 pages per sheet**, booklet printing is unavailable.

Related controls indented beneath **Pages per sheet** are **Print page borders** and **Page order**, which become active when **Pages per sheet** is greater than 1.

Print page borders

Print page borders sets a line around each page image on a printed sheet to help visually define the borders of each logical page.

Page order

The **Page order** drop-down menu contains four selections:

- **Right, then Down**
- **Down, then Right**
- **Left, then Down**
- **Down, then Left**

Document preview image

The document preview image is a line-drawn image of a page that represents graphics and text. The document preview image is always oriented so that the contents of the page are right-side-up. The document preview image appears in the upper-right corner of the following **Printing Preferences** driver tabs:

- **Printing Shortcuts**
- **Paper/Quality**
- **Effects**
- **Finishing**
- **Color**

Switching between tabs does not change the location or appearance of the document preview image. When you move the mouse over the document preview image, the mouse cursor changes from an arrow to a gloved hand. You can toggle between portrait and landscape page orientation by clicking the image.

Orientation

Orientation refers to the layout of the image on the page, and does not affect the way that paper feeds into the product. You can specify the orientation of the print job. The three available orientations are portrait, landscape, and rotated. The default orientation is **Portrait**.

NOTE: Nearly all software programs establish the orientation for the printed page, so the page orientation in the driver is useful only for the few software programs that do not set an orientation.

The **Orientation** group box contains the following options:

- **Portrait**. The top edge of the document is the shorter edge of the paper.
- **Landscape**. The top edge of the document is the longer edge of the paper.
- **Rotate by 180 degrees**. This creates a landscape or portrait orientation in which the image is rotated 180°. This setting is useful for printing prepunched paper.

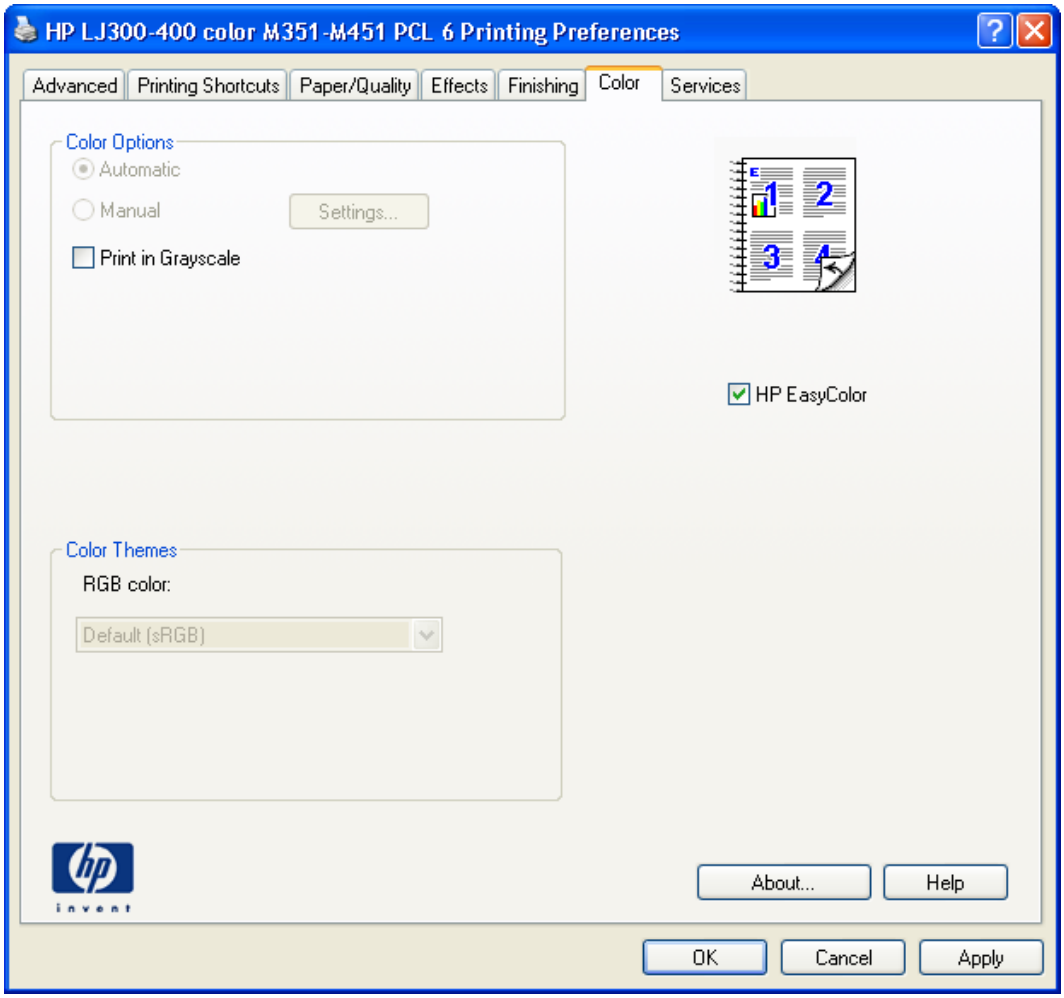
You can toggle orientation between portrait and landscape by clicking the document preview image. If you select the **Rotate by 180 degrees** check box, no change occurs in the document preview image.

Color tab features

NOTE: The **Color** tab is located on the **Printing Preferences** tab set. For information about how to access these tabs, see Printing Preferences driver tabs on page 15,

Use the **Color** tab to specify predefined color-option settings or to fine-tune the color treatments and halftoning. Color output can also be converted to grayscale. The **Color** tab is shown in the following figure.

Figure 2-9 Color tab



The **Color** tab contains the following sets of controls:

- Color Options
- Color Themes
- Document preview image
- HP EasyColor

Color Options

Use the **Color Options** group box to adjust the independent color controls. The settings affect the print job color rendering and print quality. The **Color Options** group box contains the following controls:

- **Automatic** option (default)
- **Manual** option
- **Settings** button (Click this button to open the **Color Settings** dialog box.)
- **Print in Grayscale** check box

Automatic

Use the **Automatic** option for color settings that automatically fine-tune the printed output. The **Automatic** color settings provide high-quality output while maintaining product performance for most color printing needs.

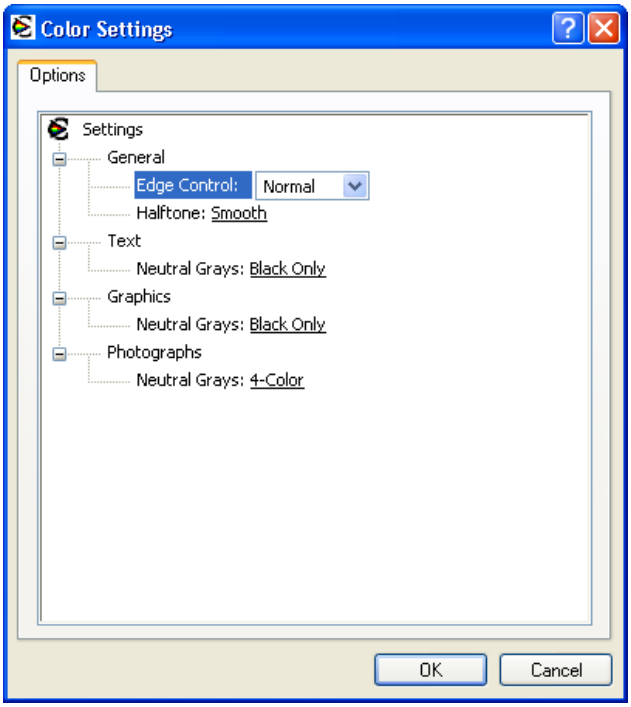
Manual

To change the color settings, select the **Manual** option, and then click the **Settings** button. The **Color Settings** dialog box appears.

NOTE: To activate the **Color Options** controls, clear the **HP EasyColor** check box.

To change the settings, make your selections by using the drop-down menus in the **Color Settings** dialog box, and then click **OK**. The following figure shows the **Color Settings** dialog box with "Custom" settings.

Figure 2-10 Color Settings dialog box



The **Color Settings** dialog box contains the following controls:

- **General**
  - **Edge Control**
- **Text**
  - **Neutral Grays**
- **Graphics**
  - **Neutral Grays**
- **Photographs**
  - **Neutral Grays**

Neutral Grays

The **Neutral Grays** drop-down menu controls the selection of a device-dependent color table that is embedded in the product firmware. You can adjust the **Neutral Grays** setting independently for text, graphics, or photographs. The following options are available:

- **Black Only**. This option generates neutral colors (grays and black) by using only black toner. This option guarantees that neutral colors do not have a color cast. **Black Only** is the default setting for the **Text** and **Graphics** components.
- **4-Color**. This option generates neutral colors by combining all four colors of toner, which produces smoother gradients and transitions to non-neutral colors. It also produces the darkest possible black. **4-Color** is the default setting for **Photographs**.

Color Themes

The **Color Themes** group box contains the following **RGB color** options, which determine how colors are rendered:

- Default (sRGB)
- Photo (sRGB)
- Photo (Adobe RGB 1998)
- Vivid (sRGB)
- None

Default (sRGB)

NOTE: To activate the **Color Themes** controls, clear the **HP EasyColor** check box.

Select **Default (sRGB)** for most printing needs. This setting instructs the product to interpret RGB color as sRGB, which is the accepted standard of Microsoft and the World Wide Web Consortium (W3C). Colors are matched to optimize the RGB colors on the screen and to provide vivid images and graphics.

Photo (sRGB)

Select **Photo (sRGB)** to enhance documents in which the content is mainly bitmap images, such as .GIF or .eps files. This setting instructs the product to use the best color matching for rendering sRGB bitmap images. This setting affects only raster data; it has no effect on text or vector-based graphics. Using glossy paper in combination with this setting provides the maximum enhancement.

Photo (Adobe RGB 1998)

Select **Photo (AdobeRGB 1998)** for documents that use the AdobeRGB color space rather than sRGB. For example, some digital cameras capture images in Adobe RBG, and documents that are produced with Adobe PhotoShop use the Adobe RGB color space. When printing from a professional software program that uses Adobe RGB, it is important that you turn off the color management in the software program and allow the product software to manage the color space.

Vivid (sRGB)

The **Vivid (sRGB)** feature instructs the printer to increase the color saturation in the midtones. Less colorful objects are rendered more colorfully. This value is recommended for printing business graphics.

None

Select **None** to instruct the printer to print RGB data in raw device mode. To render documents properly when this option is selected, you must manage color in the program in which you are working or in the operating system.

CAUTION: Use this option only if you are familiar with the procedures for managing color in the software program or in the operating system.

Document preview image

The document preview image is a line-drawn image of a page that represents graphics and text. The document preview image is always oriented so that the contents of the page are right-side-up. The document preview image appears in the upper-right corner of the following **Printing Preferences** driver tabs:

- **Printing Shortcuts**
- **Paper/Quality**
- **Effects**
- **Finishing**
- **Color**

Switching between tabs does not change the location or appearance of the document preview image. When you move the mouse over the document preview image, the mouse cursor changes from an arrow to a gloved hand. You can toggle between portrait and landscape page orientation by clicking the image.

HP EasyColor

The HP EasyColor feature automatically improves mixed-content documents that are printed from Microsoft Office programs. By default, the **HP EasyColor** check box is checked.

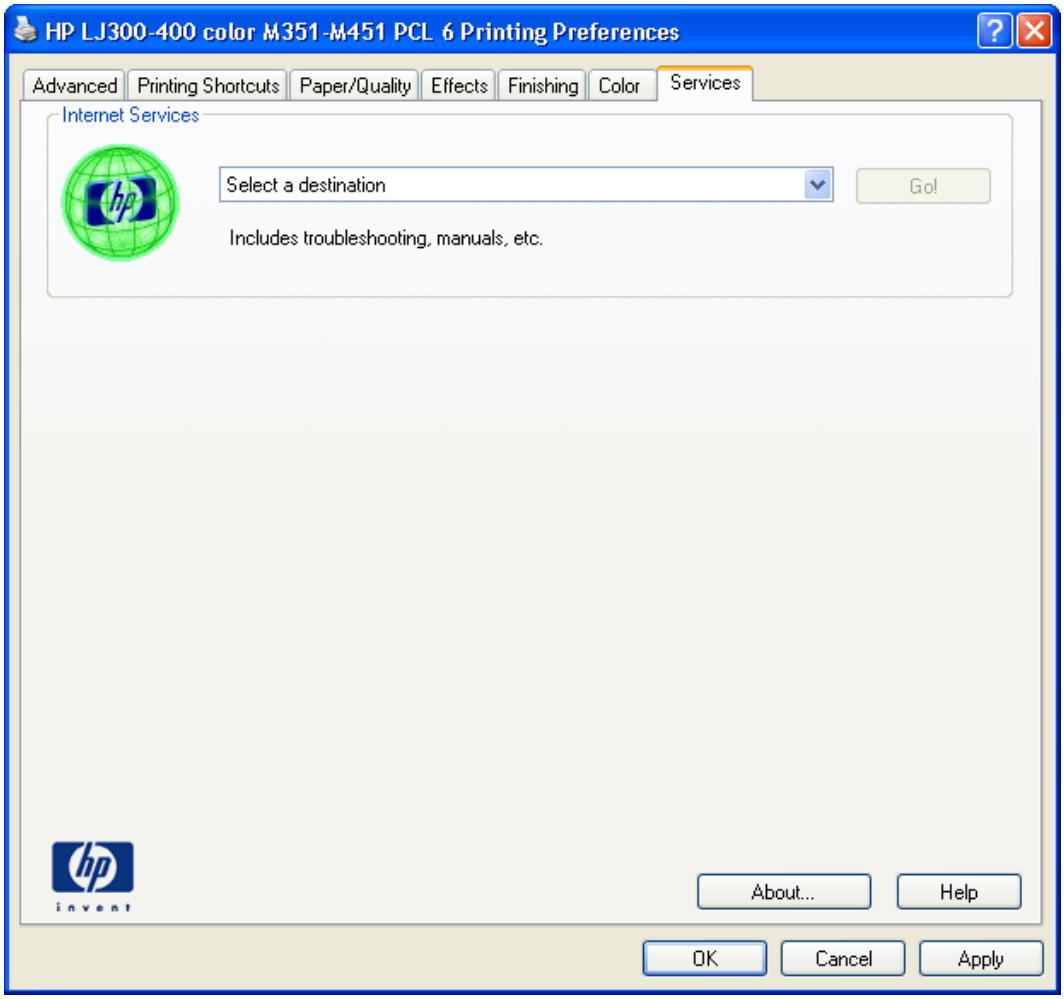
This check box must be cleared in order to manually adjust color settings on this tab.

Services tab features

NOTE: The **Services** tab is located on the **Printing Preferences** tab set. For information about how to access these tabs, see Printing Preferences driver tabs on page 15.

The **Services** tab is shown in the following figure.

Figure 2-11 Services tab



The **Services** tab contains the following group boxes:

- Internet Services

Internet Services

The **Internet Services** group box contains the **Select a destination** drop-down menu with the following selections:

- **Online diagnostic tools**. Download diagnostic tools
- **Support and troubleshooting**. This is the main Web site for HP LaserJet Pro 300 color M351 and HP LaserJet Pro 400 color MFP M451 product support.
- **Product manuals**. View or download product manuals.
- **Check for driver updates**. Automatically check your print drivers to see whether the correct and most up-to-date print drivers are installed.

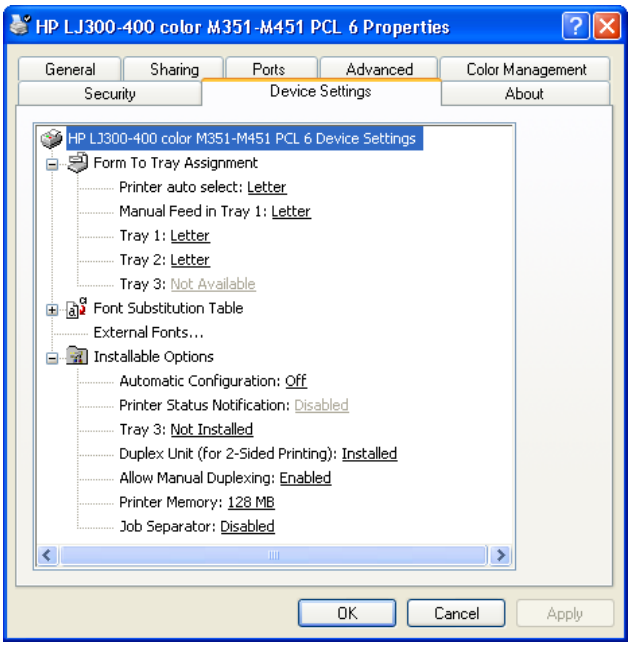
If you have Internet access, select any of these items and click the **Go!** button to open the corresponding HP Web page.

Device Settings tab features

NOTE: The **Device Settings** tab is located on the **Printer Properties** tab set. For information about how to access these tabs, see Printing Preferences driver tabs on page 15,

Available options depend on the feature. The following figure shows the **Device Settings** tab.

Figure 2-12 Device Settings tab



The **Device Settings** tab contains controls for paper-handling devices and controls for managing the product.

The **Device Settings** tab contains the following controls:

- Form to Tray Assignment
- Font Substitution Table

- Installable Options

Form to Tray Assignment

A network administrator can use **Form to Tray Assignment** to specify the paper size in each input tray.

The product supports more than one source of paper. You can assign a form (which defines the paper size and margins) to each paper source. When a form is matched to a source, you can select the form when you print. The product prints from the tray to which that form is assigned.

Network administrators can use the **Form to Tray Assignment** setting to specify, in the driver, the paper size that is loaded into each available input tray. The use of forms constrains the choices that are available in the paper-size list on the **Paper/Quality** tab in the **Printing Preferences** driver tabs. This constraint prevents (or reduces the likelihood of) tying up the product with paper-mount messages that occur when users request sizes or types that are not available.

The trays listed in the **Form to Tray Assignment** setting include standard trays and optional accessory trays. Generally, items that are installed separately have a separate **Installable Options** setting.

The input trays listed here are also listed as paper sources on the **Paper/Quality** tab.

Configuring the trays

1. Select the appropriate tray in the **Form to Tray Assignment** list.
2. Use the drop-down menu to select the paper size (or form) that is loaded in that tray.
3. Repeat steps 1 and 2 for the remaining trays.
4. Click the **OK** button or the **Apply** button to enable your settings, or, if necessary, click the **Cancel** button to reconfigure all the trays, and remove the size and type constraints that have been imposed on the **Paper/Quality** tab.

Font Substitution Table

Use the **Font Substitution Table** settings to change the TrueType to printer font mapping and to install and remove external fonts for the product through the **External Fonts** option. External fonts can be soft fonts or DIMM fonts.

Click the **Font Substitution Table** option to open a list of fonts. Use the settings to change the TrueType-to-product font mappings.

External Fonts

Use the **External Fonts** option to install and remove external fonts for the product. External fonts can be soft fonts or DIMM fonts.

Click the **External Fonts** option to make the **Properties** button available. Click the **Properties** button to open the **HP Font Installer** dialog box..

Installing external fonts

From the **HP Font Installer** dialog box, follow these steps to install external fonts.

1. Type the name and path of the font metric file in the **Printer Font File Location** text box, or click **Browse** to locate the file on the computer. The font file names appear in the **Font(s) to be Added** window.
2. Select the fonts that you want to add, and then click **Add**. The fonts are installed and the file names appear in the **Installed Font(s)** window.
3. Click **OK** to close the **HP Font Installer** dialog box.

Removing external fonts

From the **HP Font Installer** dialog box, follow these steps to remove external fonts.

1. The external fonts that are installed appear in the **Installed Fonts** dialog box. Select the fonts that you want to remove, and then click **Remove**. The fonts are removed.
2. Click **OK** to close the **HP Font Installer** dialog box.

Installable Options

Items under **Installable Options** are automatically populated and their default settings are set when the driver is installed.

The product has printing options that you can install and configure in this section. The following controls are available:

- Automatic Configuration
- Printer Status Notification
- Tray 3
- Duplex Unit (for 2–Sided Printing)
- Allow Manual Duplexing
- Printer Memory
- Job Separator

Automatic Configuration

The feature automatically updates the registry and changes the configuration information that appears on the **Device Settings** tab.

This setting is disabled by default.

Printer Status Notification

Use this control to enable or disable the product feature that sends printer status notification pop-up messages for certain product events.

This setting is disabled by default.

Tray 3

Select **Installed** if this input tray is installed under the product.

Duplex Unit (for 2–Sided Printing)

Select **Installed** if the duplex unit is installed in the product. The duplex unit allows printing on both sides of the paper.

Allow Manual Duplexing

Select the **Allow Manual Duplexing** item to print on both sides of any supported size and most types of paper (except transparencies, envelopes, and labels). To use this feature, you must reinsert the paper stack into the input tray to print the second side. The product pauses while you make this adjustment.

This setting is enabled by default.

Printer Memory

Specifies the amount of memory in the product.

Job Separator

Use this control to specify whether a print job identifier page should be printed between print jobs.

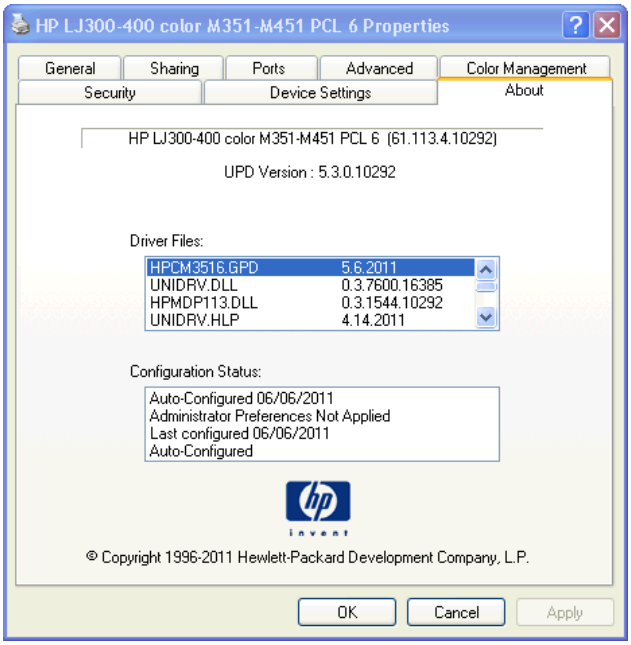
This setting is disabled by default.

About tab features

NOTE: The **About** tab is located on the **Properties** tab set. For information about how to access these tabs, see Properties driver tabs on page 15.

The **About** tab provides detailed information about driver component versions. It contains an overall build version number (in parentheses after the model name) together with specific information about each of the components. The information varies according to the product model number, driver, date, and versions. The **About** tab is shown in the following figure.

Figure 2-13 About tab



The **About** tab lists driver installation file names and their version numbers. The **About** tab also indicates whether the driver was autoconfigured, whether administrator preferences were set, the date the driver was last configured, and whether the configuration is autoconfigured or user-configured.

The **About** button is also available on most driver screens. The **About** button provides a driver version number and creation date.

Driver configuration for Windows

The HP print drivers feature bidirectional communication technology which, in supported environments, provide automatic discovery and driver configuration for product accessories at the time of installation.

Some accessories that are automatically discovered and configured include the duplexing unit, optional paper trays, product hard disk, and dual inline memory modules (DIMMs).

Driver autoconfiguration

Automatic discovery and driver configuration through bidirectional communication occurs in the following circumstances:

- When a print driver is installed by using the installer
- When using the Update Now feature for a driver that is already installed

However, as shown in the following table, driver autoconfiguration and Update Now are *not* available in Windows XP, Windows Server 2003, Windows Server 2008 and 2008 R2, Windows Vista, or Windows 7 operating systems over a direct connection when the product is installed by using the Add Printer Wizard.

Table 2-3 Automatic discovery and driver configuration through bidirectional communication[1]

Connection type	Add Printer Wizard install	Common installer
Network	Yes	Yes
Direct connection	No	Yes

[1] The table applies to Windows XP, Windows Server 2003, Windows Server 2008 and 2008 R2, Windows Vista, and Windows 7.

Bidirectional communication

In environments that support bidirectional communication, the computer communicates with the product during installation, determines the physical configuration, and then configures the driver accordingly.

Bidirectional communication is the capability of the product to respond to data inquiries from the computer and report information back, such as what type of print paper is available or what accessories are connected to the product. Bidirectional communication depends on the network operating system and on the type of connection that exists between the computer and the product. If the connection does not have this capability (that is, if it has no bidirectional mode), it can only accept commands from the host and cannot report information back to the host computer.

Enterprise AutoConfiguration

Enterprise AutoConfiguration (EAC) uses bidirectional communication to provide autoconfiguration functionality for installation of the print driver over a network, whether you use the installer on the printing-system software CD or the Add Printer Wizard to install the driver. Driver installation that includes EAC is configured with the same settings as the physical configuration of the product. Configuration occurs without user interaction.

If bidirectional-communication software has been installed previously, EAC is not activated, and the pre-existing bidirectional-communication software is used to configure the print driver.

If bidirectional communication software has not been installed, EAC installs bidirectional-communication software that allows it to communicate with the product and automatically match the print driver with the actual product configuration. EAC is activated during installation of the driver or whenever the Update Now feature is used.

If the product configuration changes after installation, the driver can be automatically updated with the new configuration in environments that support bidirectional communication by using the Update Now feature.

The following tables show the availability of EAC for various operating systems and network environments that support bidirectional communication.

Table 2-4 EAC availability in Microsoft Windows and Microsoft Share

Method	Connection type			Microsoft Share[1]		
				2000	XP	2000/XP host with 2000/XP client/ Windows Server 2008 and 2008 R2/ Windows Vista
		USB				
	Network	Jetdirect	TCP/IP	x	x	x
			IPX/SPX	x	x	x
		Standard	TCP/IP (HP)	x	x	x
			TCP/IP (MS)	x	x	x
			IPX/SPX (HP)	x	x	x
Add Printer	Direct connect	Parallel				
		USB				
	Network	Jetdirect	TCP/IP	x	x	x
			IPX/SPX	x	x	x
		Standard	TCP/IP (HP)	x	x	x
			TCP/IP (MS)	x	x	x
			IPX/SPX (HP)	x	x	x

[1] This column represents the following Microsoft Share configurations: Windows 2000, Windows XP, Windows Server 2003, Windows Server 2008 and 2008 R2, or Windows Vista host with Windows 2000, Windows XP, Windows Server 2003, Windows Server 2008 and 2008 R2, or Windows Vista client.

Table 2-5 EAC availability in Novell Netware environments

Method	Connection type			Novell		
				Netware 4.x		Netware 5.x
				Bindery queue	NDS queue	Bindery queue
		USB				
	Network	Jetdirect	TCP/IP	x	x	x
			IPX/SPX			
		Standard	TCP/IP (HP)			
			TCP/IP (MS[1])			
			IPX/SPX (HP)			

[1] Bidirectional functionality is supported only with the client software from Novell. It is not supported with Microsoft Client Service for NetWare.

Update Now

If you have modified the configuration of the HP LaserJet Pro 300 color M351 or HP LaserJet Pro 400 color M451 product since installation, the driver can be automatically updated with the new configuration in environments that support bidirectional communication. Use the Update Now feature to automatically reflect the new configuration in the driver.

For example, if the product is installed and an optional paper-handling accessory is added later, use the Update Now feature to query the product and update the settings to match the new product configuration.

The feature automatically updates the registry and changes the configuration information that appears on the **Device Settings** tab.

NOTE: Depending on which settings were updated, the Update Now feature might change the configuration information that displays on the print-driver tabs, instead of (or in addition to) changing the information on the **Device Settings** tab.

NOTE: The Update Now feature is not supported in environments where shared Windows XP clients are connected to Windows XP hosts.

To activate the Update Now feature, follow these steps:

1. In Windows Vista, Windows XP, Windows Server 2003, and Windows 7, click the **Devices & Printers** item.

   In Windows Server 2008 and 2008 R2, click the **Start** button, click the **Settings** item, and then open the **Printers and Faxes** item.

2. Right-click the product name.

3. Click the **Properties** item.

4. Click the **Device Settings** tab.

5. If necessary, click the **Installable Options** list to expand it and show the options.
6. In the **Automatic Configuration** drop-down menu, select the **Update Now** item.
7. Click the **OK** button to save the setting.

HP Driver Configuration

HP Driver Configuration is a software architecture and set of tools that permits HP printing-system software to be customized and distributed in managed corporate printing environments. Using HP Driver Configuration, information technology (IT) administrators in corporate and enterprise environments can preconfigure the printing and device defaults for HP print drivers before installing the drivers in the network environment.

HP Driver Configuration is most beneficial when configuring print drivers for multiple workstations or print servers for print queues that share the same configuration. Two types of features can be configured:

- Product settings
- Printing-preferences settings

The driver is configured to match the product hardware so that access to all of the product accessories through the driver is enabled correctly (for example, for duplexing units and additional input trays). Most driver-feature settings can also be configured.

HP Driver Configuration configures the driver to match the accessories that are installed on the product, or to match the settings that IT administrators make in the configuration (.CFG) file (for example, optional trays, total amount of memory, job-storage settings, or mopier settings).

The configuration process consists of three basic steps:

- Driver acquisition
- Driver configuration
- Driver installation and deployment

These steps can be accomplished in different ways, depending on the tool that is being used to define the configuration.

The driver configuration process is supported through three distinct tools. All three are designed with the same basic user-interface (UI) controls for interacting with the .CFG file, but are packaged

differently, either to support established product installation workflows or to leave the deployment and installation of the driver entirely up to the user. The following tools support driver preconfiguration:

- **HP Driver Configuration Utility**. The HP Driver Configuration Utility is a small, standalone, Windows-software program that the administrator can use to open the .CFG file that is associated with a particular driver and make modifications that are applied when that driver is installed on the target computer. It is intended for use in environments that have an established process for deploying drivers. This is the preconfiguration tool of choice to support any Novell or HP Print Server Appliance (PSA) and Point and Print environments. It is used in the way that any ordinary Windows software program is used.

  The HP Driver Configuration Utility is available at the following Web site:

  www.hp.com/go/dcu

- **HP Web Jetadmin Driver Configuration Plugin**. HP Web Jetadmin provides a queue-creation program that can be used to create printer queues on Windows 2000, Windows XP, Windows Server 2003, or Windows Server 2008 and 2008 R2. The HP Web Jetadmin Driver Configuration Plugin adds a number of screens to the existing queue-creation workflow from which the drivers that are being installed for the queues can be customized as part of the process. The plug-in is limited to Internet Explorer browsers. Netscape Navigator is not supported.

  HP Web Jetadmin is supported by the following:

  - Windows XP (Professional only)
  - Windows Server 2003 (R2 only)
  - Windows Server 2008 and 2008 R2
  - Windows Vista (Business and Enterprise Editions)

  The HP Web Jetadmin print management features are supported by the following:

  - Windows XP Professional (with Service Pack 2 or higher)
  - Windows Server 2003

- **HP Driver Deployment Utility**. The HP Driver Deployment Utility (HP DDU) was created to simplify the deployment of print drivers onto a client computer. It is a simple utility that packages the print-driver files, and the code needed to deploy them, into two files: an .EXE file and a .CAB file. These files are run on the client computer to copy the print-driver files to the Windows driver store and, for network packages, to install the product. This utility is supported on Windows XP, Windows Server 2003, Windows Server 2008 and 2008 R2, and Windows Vista operating systems.

To gain access to the HP DDU, insert the software CD into the CD-ROM drive, and then navigate to the Driver Deployment Utility folder.

For more information about the HP DDU, refer to HP Driver Deployment Utility on page 156.

For detailed information about gaining access to and installing these tools, see the **HP Driver Configuration Support Guide** at the following Web site and click on the **Manuals** link.

www.hp.com/go/dcu

Continuous export

The term "continuous export" refers to the ability of the print driver to copy the latest print-driver settings back to the working copy of the preconfiguration file. Using this feature, the exported values can be transferred when a compatible version of the print driver is used to upgrade the print driver. For instance, if the orientation is set to **Landscape** for a driver originally installed in Windows XP, then the orientation setting automatically remains **Landscape** when the operating system is upgraded to Windows Vista, Windows 7, Windows Server 2003, or Windows Server 2008 and 2008 R2. The continuous export feature functions transparently from the user's perspective and works only between print drivers of identical product models.

NOTE: Not all of the driver parameters can be exported; however, the exportable components are always the same as the components that can be preconfigured.

The following table shows drivers and operating systems that support HP Driver Configuration.

Table 2-6 Operating systems that support HP Driver Preconfiguration

Driver	Windows XP	Windows Server 2003	Windows Server 2008 and 2008 R2	Windows Vista	Windows 7	Mac OS X v10.5 and later	Linux
HP PCL 6 Print Driver	Yes	Yes	Yes	Yes	Yes	NA	NA
HP PCL 5 Universal Print Driver	Yes	Yes	Yes	Yes	Yes	NA	NA
HP PS Universal Print Driver	Yes	Yes	Yes	Yes	Yes	NA	NA

[1] NA: Not applicable; the driver is not supported in this operating system.

Font support

The basic fonts listed here are included with Microsoft Windows software.

Basic fonts

Microsoft Windows software includes these basic fonts, which can be used with any HP printing product:

- Arial
- Courier New Italic
- Times New Roman Italic
- Arial Italic
- Courier New Bold
- Times New Roman Bold

- Arial Bold
- Courier New Bold Italic
- Times New Roman Bold Italic
- Arial Bold Italic
- Symbol
- Wingdings
- Courier New
- Times New Roman

Default fonts

The following default fonts are installed through a full (Easy) installation of the printing-system software.

Table 2-7 Default fonts

Font name	Font style	File name
Albertus Extra Bold	Regular	ALBR85W.TTF
Albertus Medium	Regular	ALBR55W.TTF
Antique Olive	Regular	OLVR55W.TTF
Antique Olive	Bold	OLVR75W.TTF
Antique Olive	Italic	OLVR56W.TTF
CG Omega	Regular	CGOR45W.TTF
CG Omega	Bold	CGOR65W.TTF
CG Omega	Bold Italic	CGOR66W.TTF
CG Omega	Italic	CGOR46W.TTF
CG Times	Regular	CGTR45W.TTF
CG Times	Bold	CGTR65W.TTF
CG Times	Bold Italic	CGTR66W.TTF
CG Times	Italic	CGTR46W.TTF
Clarendon Condensed	Bold	CLAR67W.TTF
Coronet	Regular	CORONET.TTF
CourierPS	Regular	CPSR45W.TTF
CourierPS	Bold	CPSR65W.TTF
CourierPS	Bold Oblique	CPSR66W.TTF
CourierPS	Oblique	CPSR46W.TTF

Table 2-7 Default fonts (continued)

Font name	Font style	File name
Garamond	Antiqua	GARR45W.TTF
Garamond	Halbfett	GARR65W.TTF
Garamond	Kursiv	GARR46W.TTF
Garamond	Kursiv Halbfett	GARR66W.TTF
Helvetica	Regular	HELR45W.TTF
Helvetica	Bold	HELR65W.TTF
Helvetica	Bold Oblique	HELR66W.TTF
Helvetica Narrow	Regular	HELR47W.TTF
Helvetica Narrow	Bold	HELR67W.TTF
Helvetica Narrow	Bold Oblique	HELR68W.TTF
Helvetica Narrow	Oblique	HELR48W.TTF
Helvetica	Oblique	HELR46W.TTF
ITC Avant Garde Gothic	Book	AVGR45W.TTF
ITC Avant Garde Gothic	Book Oblique	AVGR46W.TTF
ITC Avant Garde Gothic Demi	Regular	AVGR65W.TTF
ITC Avant Garde Gothic Demi	Oblique	AVGR66W.TTF
ITC Bookman Light	Regular	BOKR35W.TTF
ITC Bookman Light	Italic	BOKR36W.TTF
ITC Bookman Demi	Regular	BOKR75W.TTF
ITC Bookman Demi	Italic	BOKR76W.TTF
ITC Zapf Chancery	Medium Italic	CHANC___.TTF
ITC Zapf Dingbats	Regular	DINGS___.TTF
Letter Gothic	Regular	LETR45W.TTF
Letter Gothic	Bold	LETR65W.TTF
Letter Gothic	Italic	LETR46W.TTF
Marigold	Regular	MARIGOLD.TTF
New Century Schoolbook	Bold	NCSR75W.TTF
New Century Schoolbook	Bold Italic	NCSR76W.TTF
New Century Schoolbook	Italic	NCSR56W.TTF
New Century Schoolbook	Roman	NCSR55W.TTF
Palatino	Bold	PALR65W.TTF
Palatino	Bold Italic	PALR66W.TTF

Table 2-7 **Default fonts (continued)**

Font name	Font style	File name
Palatino	Italic	PALR46W.TTF
Palatino	Roman	PALR45W.TTF
SymbolPS	Regular	SYMPS__.TTF
Times*	Bold	TIMR65W.TTF
Times	Bold Italic	TIMR66W.TTF
Times	Italic	TIMR46W.TTF
Times	Roman	TIMR45W.TTF
Univers	Bold	UNVR65W.TTF
Univers	Bold Italic	UNVR66W.TTF
Univers Condensed	Bold	UNVR67W.TTF
Univers Condensed	Bold Italic	UNVR68W.TTF
Univers Condensed	Medium	UNVR57W.TTF
Univers Condensed	Medium Italic	UNVR58W.TTF
Univers	Medium	UNVR55W.TTF
Univers	Medium Italic	UNVR56W.TTF

HP ePrint

With HP ePrint , you can print anywhere, anytime, from a mobile phone, laptop, or any other mobile device. HP ePrint works with any email-capable device. If you can e-mail, you can print to an HP ePrint-enabled product. For more details, go to www.hpeprintcenter.com.

NOTE: The product must be connected to a network and have Internet access to use HP ePrint.

HP ePrint is disabled as a default setting in the product. Use this procedure to enable it.

1. Type the product IP address into the address line of a Web browser to open the HP Embedded Web Server.
2. Click the **HP Web Services** tab.
3. Select the option to enable Web Services.

HP Update

The HP Update (HPU) is a program that delivers and installs drivers, fixes, and software updates for computers and HP products. When you install the HPU on your computer, the software proactively prompts you to check for updates, and then notifies you when an update is available.

HP Update notifies you when it is time to check for updates at specific intervals, usually weekly. When the HP Update notification window displays, follow these steps to check for and install any available updates:

1. When the HP Update notification window displays in the lower-right corner of the computer, click **Continue**. The Welcome to HP Update Window opens.

NOTE: If you cannot click **Continue** in Windows Vista, right-click any area of the Windows desktop directly above the Software Update message, and then select **Close Sidebar**. Windows Sidebar minimizes, and then you can click **Continue** .

2. Click **Next** to check for updates.

   - If new updates are available, select the check box next to each update you want to install, and then click **Next** to download and install the updates.
   - If no updates are available, click **Finish**.

Help & Learn Center

The HP Help & Learn Center and other documentation are on the CD that came with the product or in the HP Program folder on your computer. The HP Help & Learn Center is a product help tool that provides easy access to product information, HP product Web support, troubleshooting, and regulatory and safety information.

Click the **Help and Learn Center** button on the **Documentation** screen of the installer to open an HTML help system that provides step-by-step instructions for performing specific tasks, including clearing jams and loading trays.

Figure 2-14 Help & Learn Center

The Help & Learn Center can also be opened from the Windows **Start** menu.

1. Click the **Start** button, select the **Programs** or **All Programs** item, and then click the **HP** item.
2. Click the product name item, and then click the **Help & Learn Center** item.

Toner Cartridge Authentication

The HP Toner Cartridge Authentication software verifies that Original HP LaserJet toner cartridges are being used in the printer. Specific countries/regions can reward customers for using Original HP LaserJet toner cartridges. This software was developed for home, micro, and small business environments.

Customer downloads the HP Toner Authentication software from HP.com and installs it on his or her PC.

The software checks to see if the product needs software or firmware upgrades.

- Software or firmware upgrades can be installed by the customer.

The software checks the e-labels on the toner cartridges and displays the results.

- By default the software checks every 60 minutes, but can be changed on the Settings tab.
- The correct versions of software, firmware, e-labels, and an active internet connection are required for HP Toner Authentication to work properly.

HP Device Toolbox

The HP Device Toolbox allows users to control settings on the product through a Web browser.

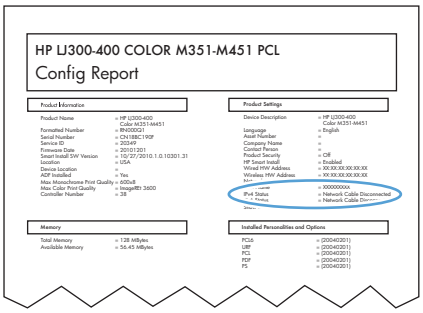
To access the HP Device Toolbox, complete one of the following procedures:

- Click the Windows **Start** button, click the **Programs** or **All Programs** item, click the **HP** item, click the product group, and then click the **HP Device Toolbox** item.
- On network-connected products, you can open a Web browser and type the product IP address in the address bar.

The product IP address displays on the product control panel. If that feature is disabled, the IP address is documented on a configuration page. Print a configuration page by following these steps on the product control panel.

1. Use the arrow buttons to select the **Reports** menu, and then press the OK button.
2. Use the arrow buttons to highlight the **Config Report** option, and then press the OK button.
3. Find the IP address on the configuration page.

Figure 2-15 IP address location on the configuration page



The following tabs are available in the HP Device Toolbox:

- Status tab
- System tab
- Print tab
- Networking tab
- HP Web Services tab

Status tab

Use the **Status** tab to access and print detailed information regarding product and supply status, product configuration, network configuration, and usage.

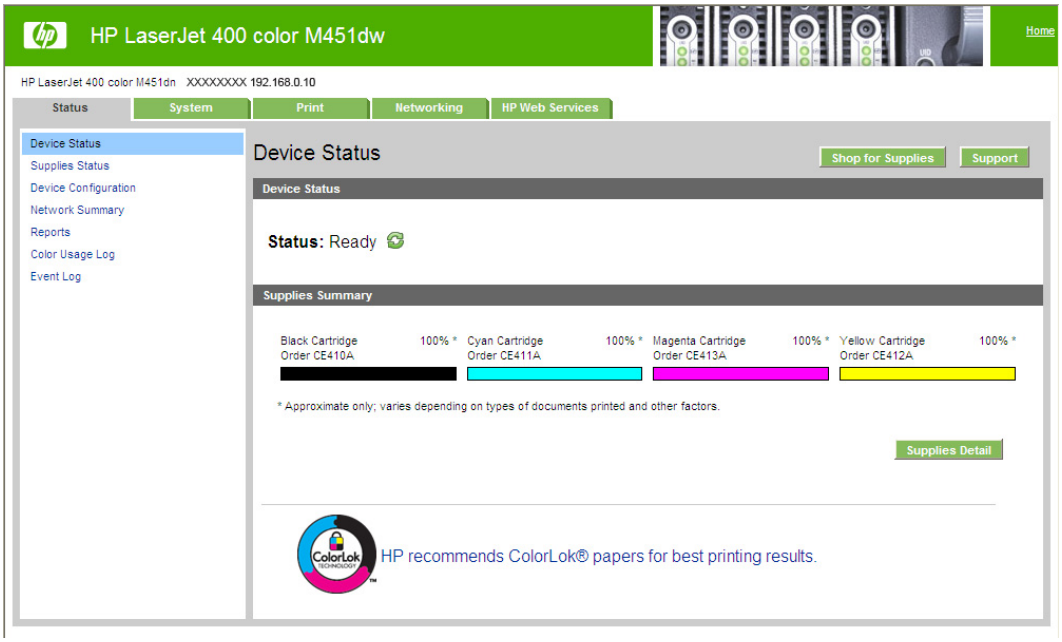
The **Status** tab contains the following pages:

- Device Status
- Supplies Status
- Device Configuration page
- Network Summary page
- Reports
- Color Usage Log
- Event Log page

Device Status

The **Device Status** page shows product status messages. The **Device Status** page also contains some pertinent product information and settings.

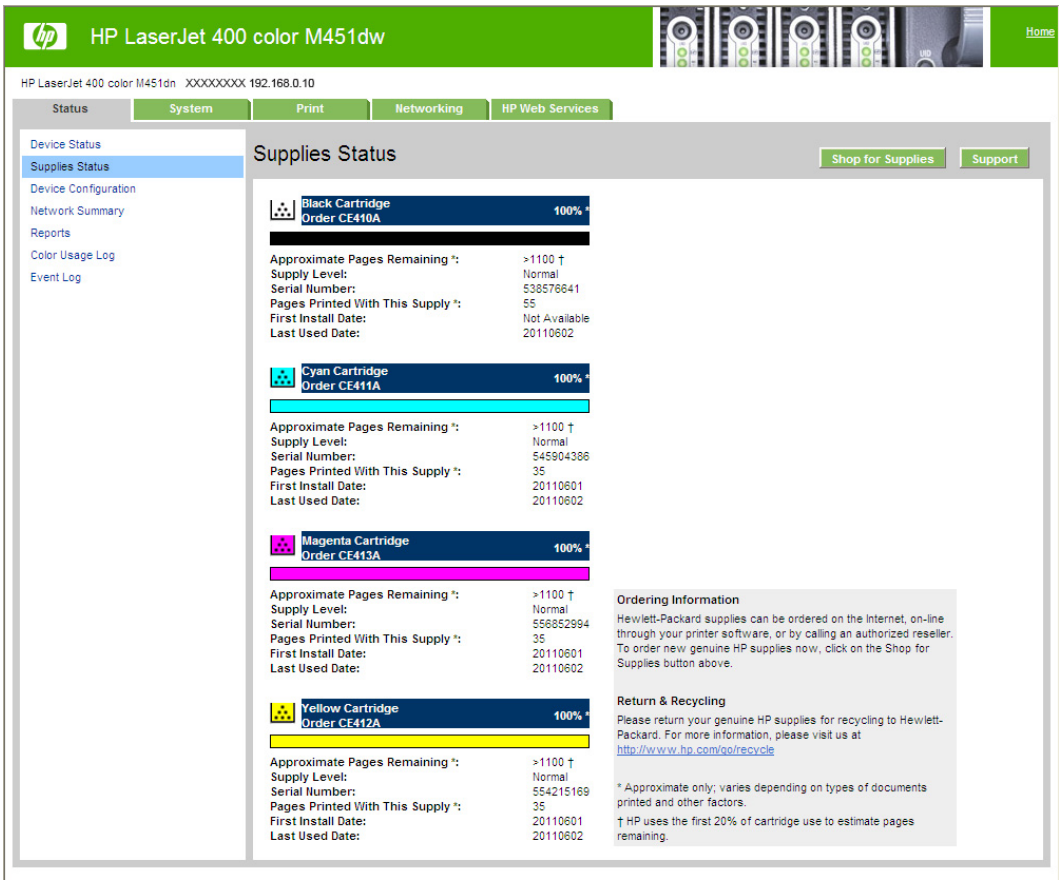
Figure 2-16 HP Device Toolbox, Status tab – Device Status page



Supplies Status

The **Supplies Status** page shows the status of all of the product supplies, including the print cartridges.

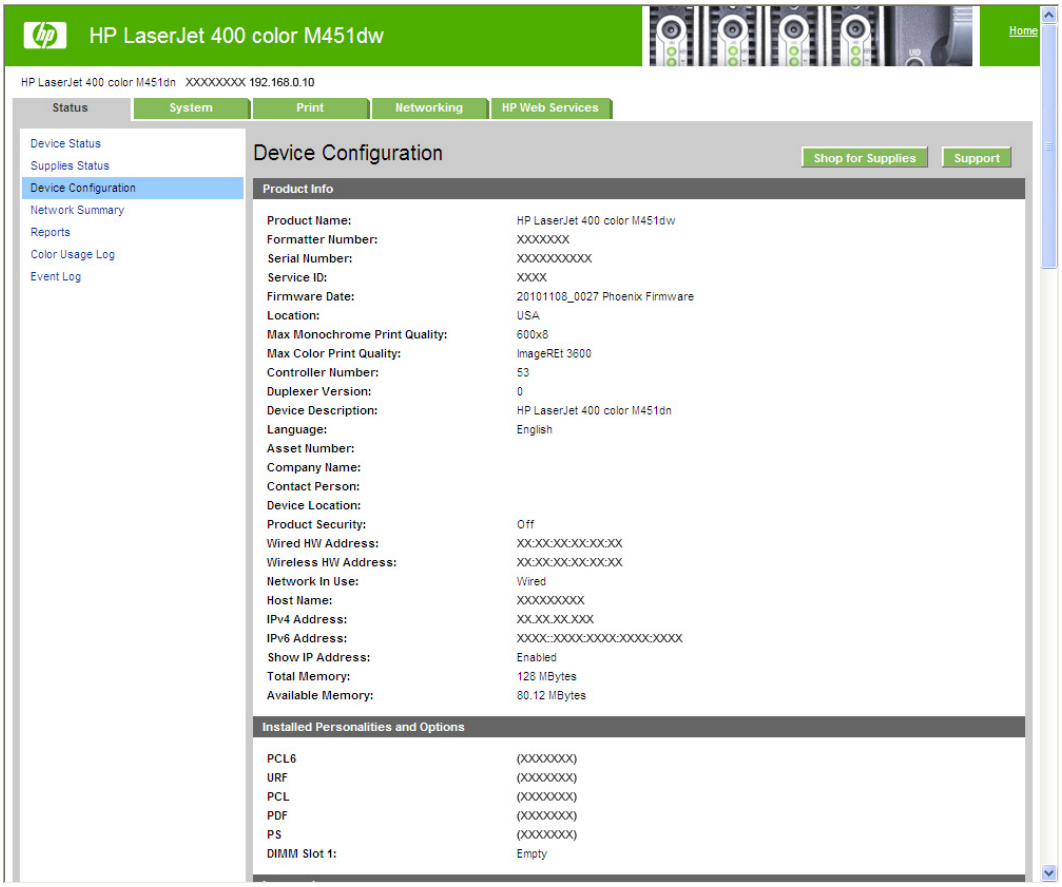
Figure 2-17 HP Device Toolbox, Status tab – Supplies Status page



Device Configuration page

The **Device Configuration** page shows the values of all of the settings that are available in the product. The contents of this page are consistent with the configuration page that the firmware generates.

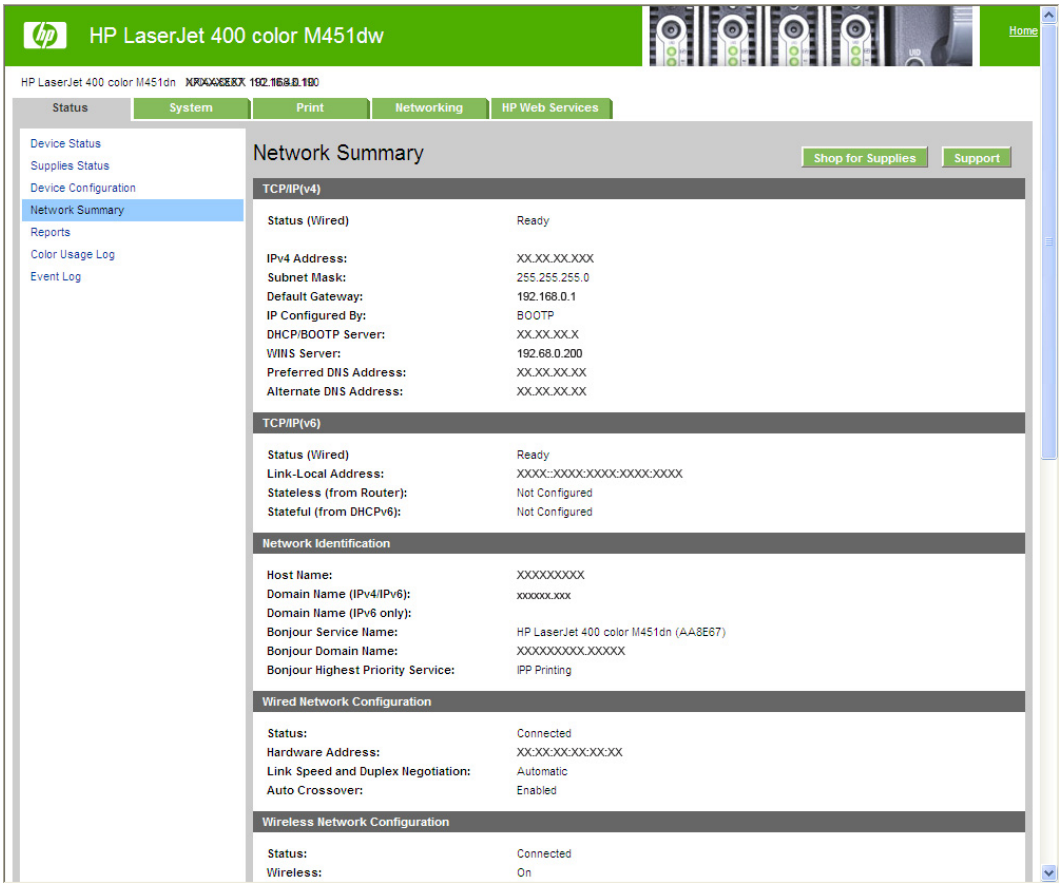
Figure 2-18 HP Device Toolbox, Status tab – Device Configuration page



Network Summary page

The **Network Summary** page contains information about the network and its enabled features.

Figure 2-19 HP Device Toolbox, Status tab – Network Summary page



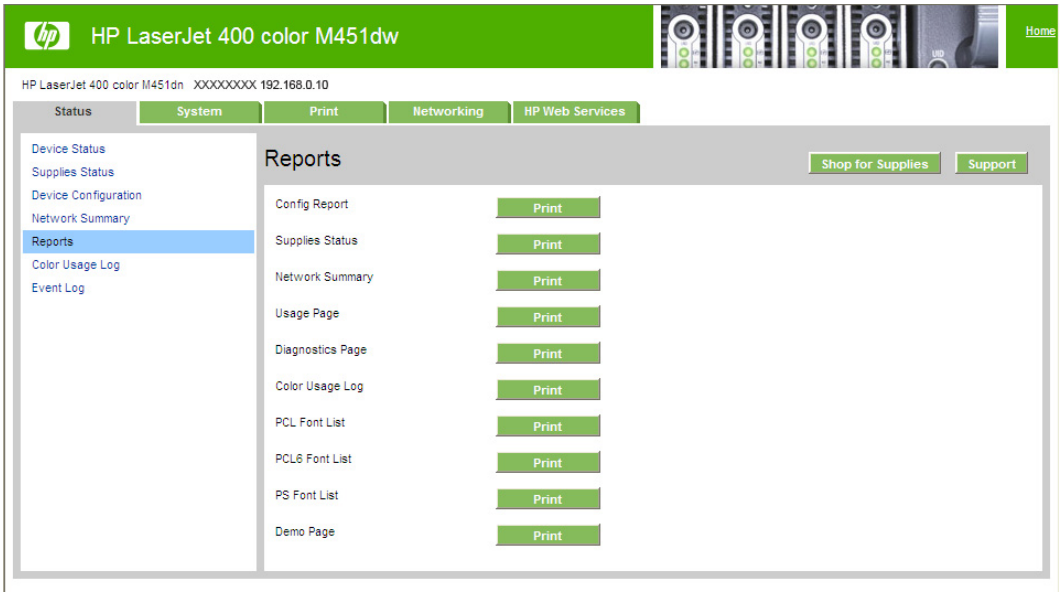
Reports

Use the **Reports** page to print the internal special pages the product generates. The following information pages are available:

- **Config Report**
- **Supplies Status**
- **Network Summary**
- **Usage Page**
- **Diagnostics Page**
- **Color Usage Log**
- **PCL Font List**
- **PCL6 Font List**

- **PS Font List**
- **Demo Page**

Figure 2-20 HP Device Toolbox, Status tab – Reports page

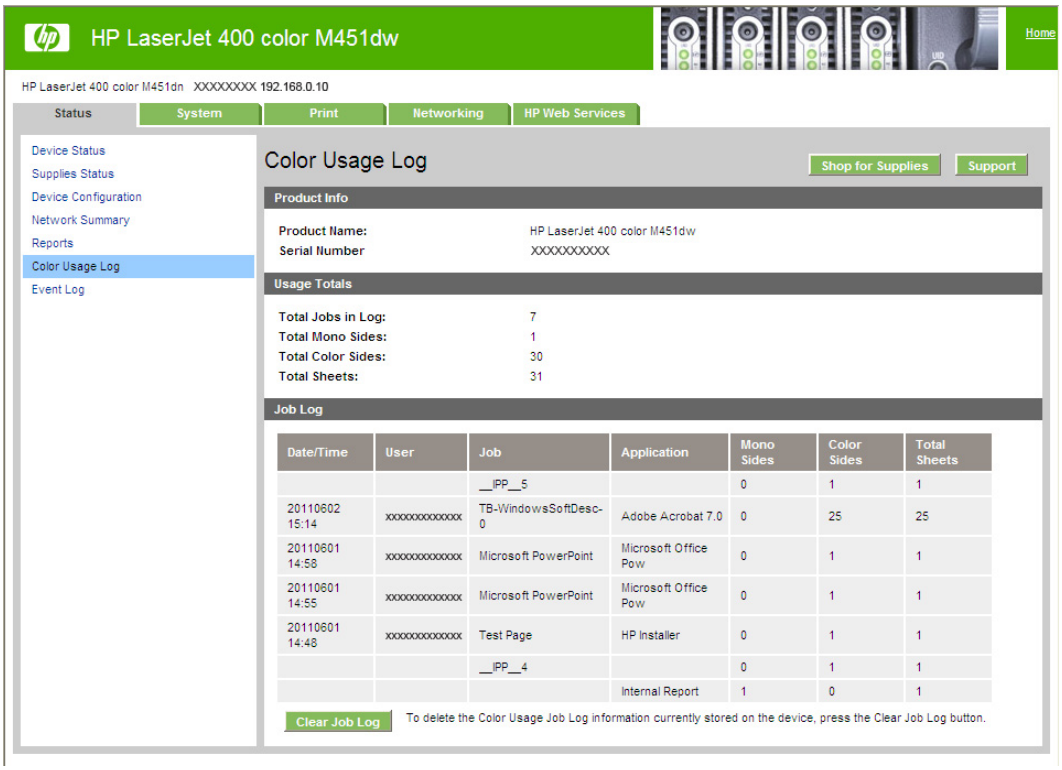


Color Usage Log

Click the **Color Usage Log** page to perform the following tasks:

- Find the **Product Name** and **Serial Number**, which are listed under the **Product Info** subheading.
- Check the number of print jobs stored, which is listed under the **Usage Totals** subheading. The log also includes information about how much color the product has used.
- Delete the currently stored color usage log information by clicking **Clear Job Log**.

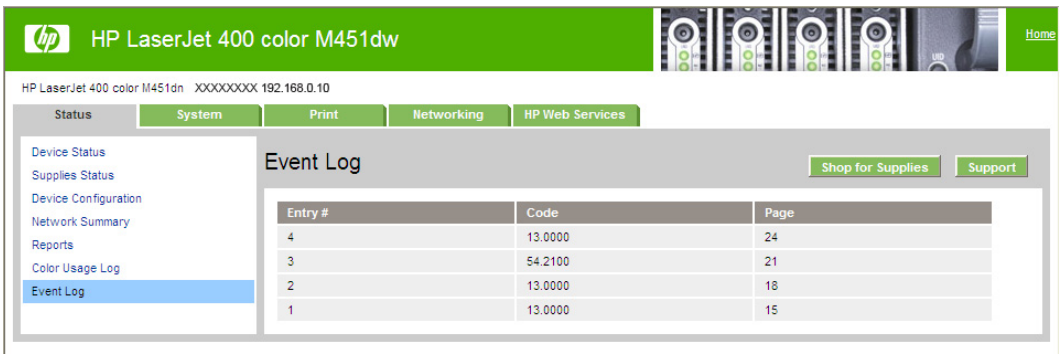
Figure 2-21 HP Device Toolbox, Status tab – Color Usage Log page



Event Log page

Use the **Event Log** page to track the events that occur on the product.

Figure 2-22 HP Device Toolbox, Status tab – Event Log page



System tab

Use the **System** tab to view and change settings for the following features:

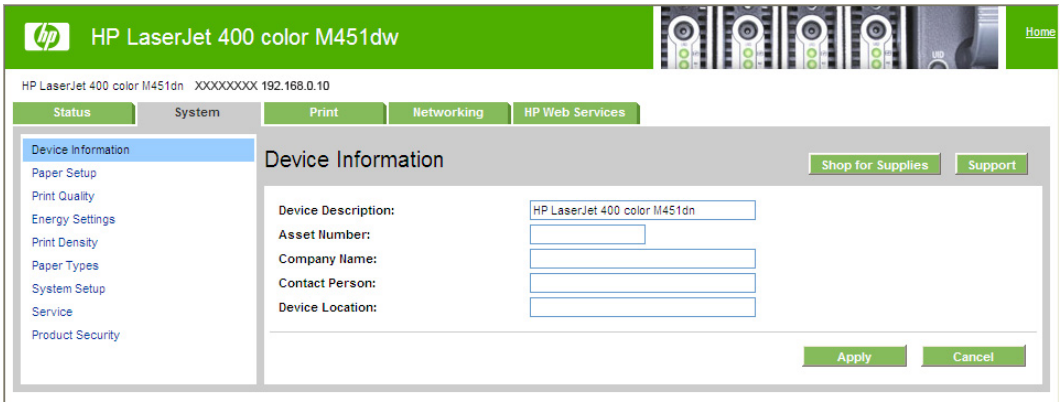
- Device Information page
- Paper Setup page
- Print Quality page
- Energy Settings page
- Print Density page
- Paper Types page
- System Setup page
- Service page
- Product Security page

Device Information page

The **Device Information** page contains identifying information about the product:

- **Device Description**. This field shows the version of the HP LaserJet Pro 300 color M351 or HP LaserJet Pro 400 color M451 product that is installed.
- **Asset Number**. Use this field to assign an identifying asset control number to the product.
- **Company Name**.
- **Contact Person**.
- **Device Location**

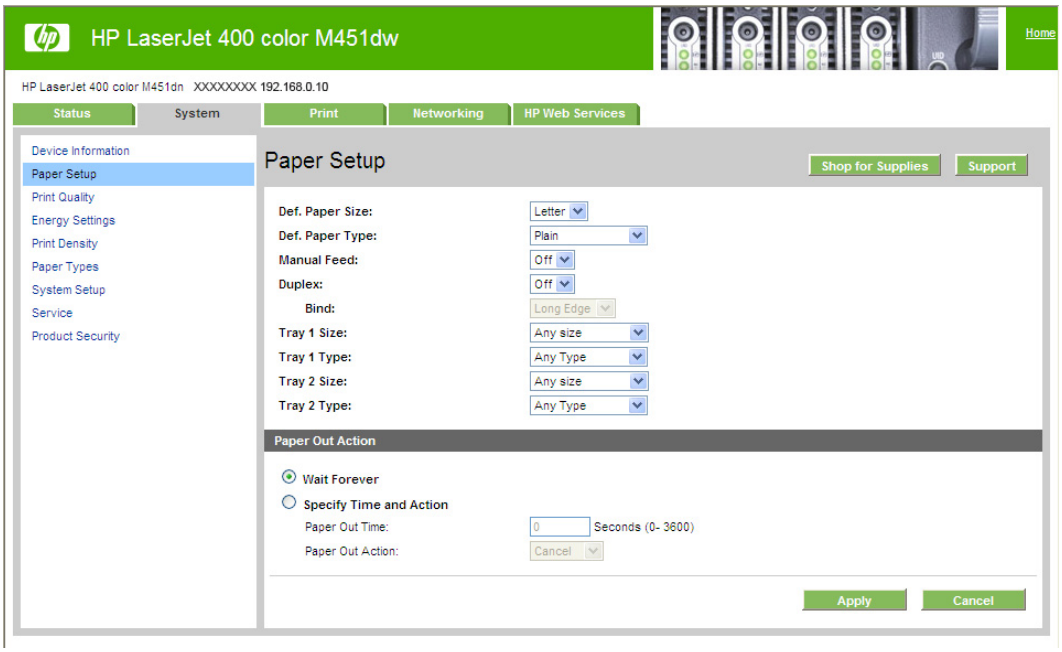
Figure 2-23 HP Device Toolbox, System tab – Device Information page



Paper Setup page

Use **Paper Setup** page to configure the paper-setup settings for the product. Change the default settings by clicking the blue arrow next to each option and highlighting the selection.

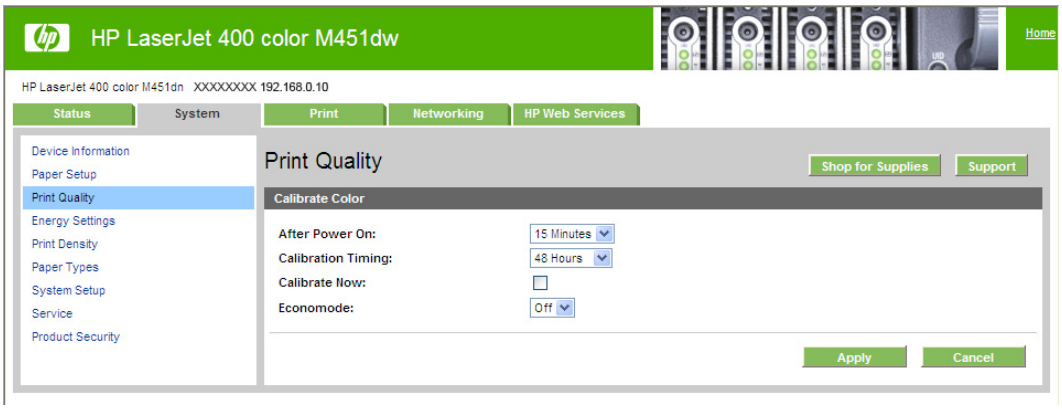
Figure 2-24 HP Device Toolbox, System tab – Paper Handling page



Print Quality page

Use the **Print Quality** page to change the print quality default settings for the product.

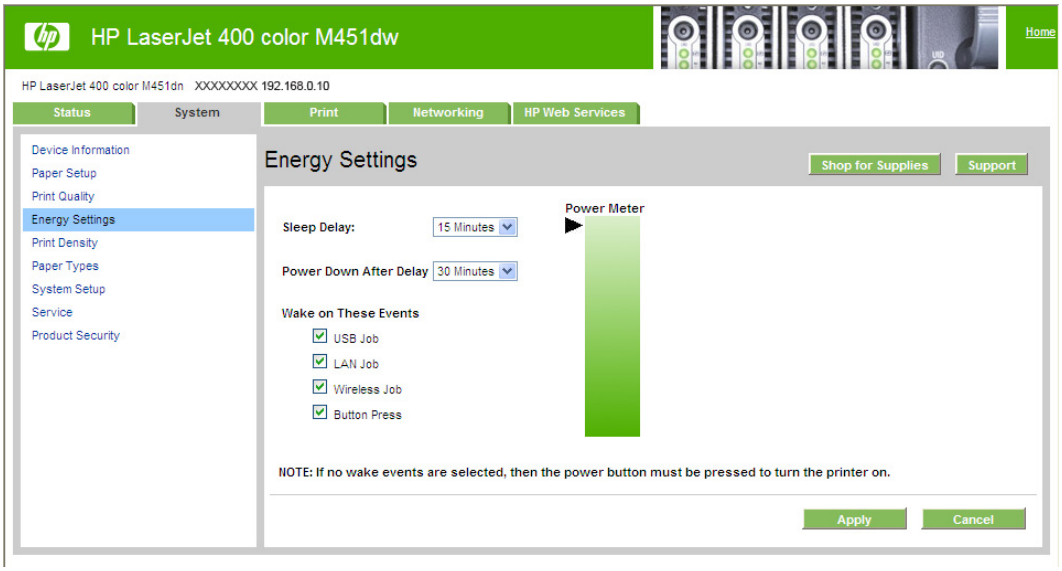
Figure 2-25 HP Device Toolbox, System tab – Print Quality page



Energy Settings page

Use the **Energy Settings** page to control the energy-saving settings on the product.

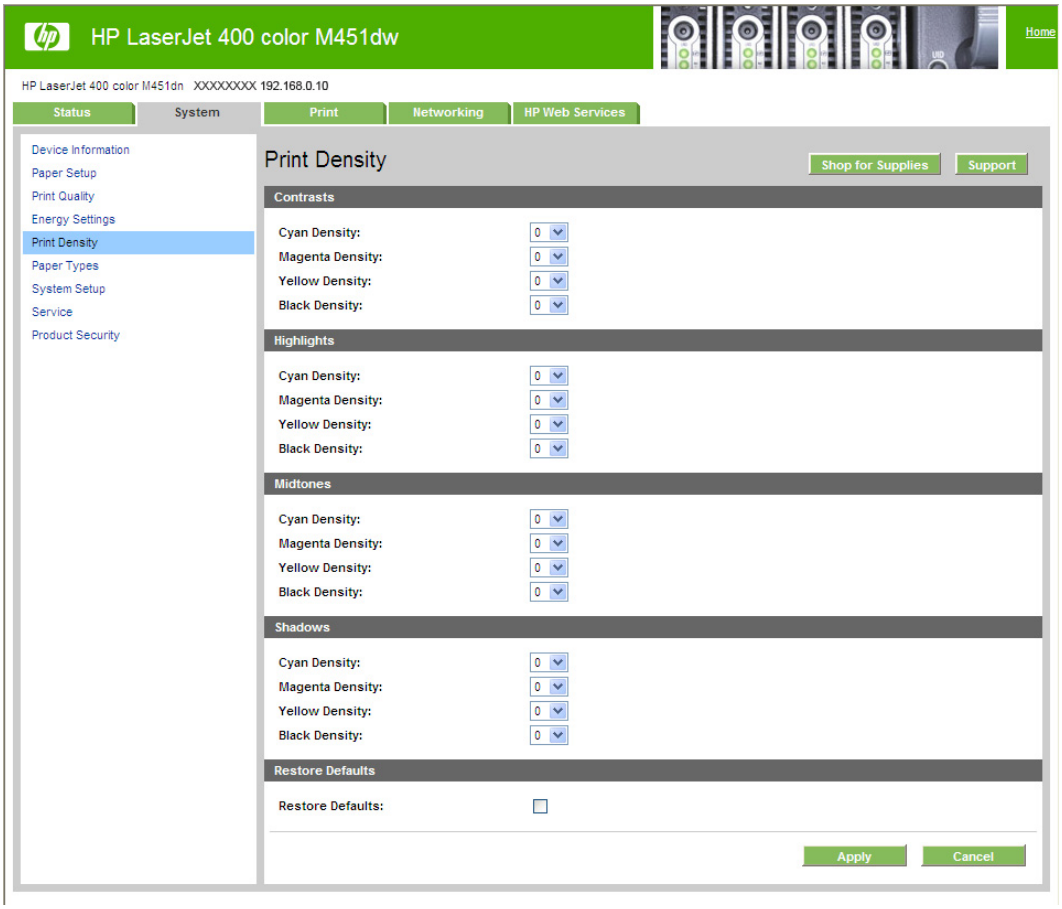
Figure 2-26 HP Device Toolbox, System tab – Energy Settings page



Print Density page

Use the **Print Density** page to control the print density of each toner cartridge on the product.

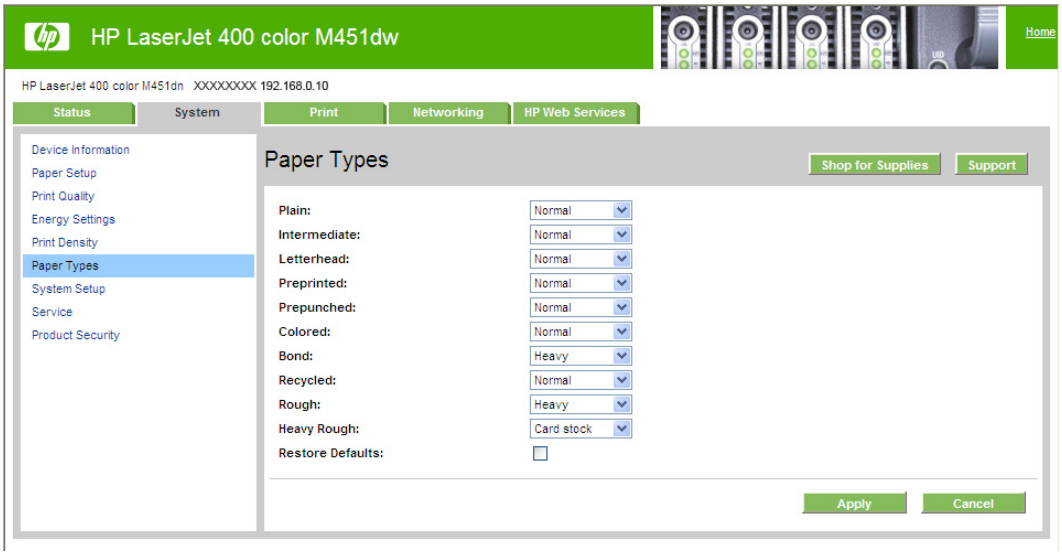
Figure 2-27 HP Device Toolbox, System tab – Print Density page



Paper Types page

Use the **Paper Types** page to set the default paper type settings for the product.

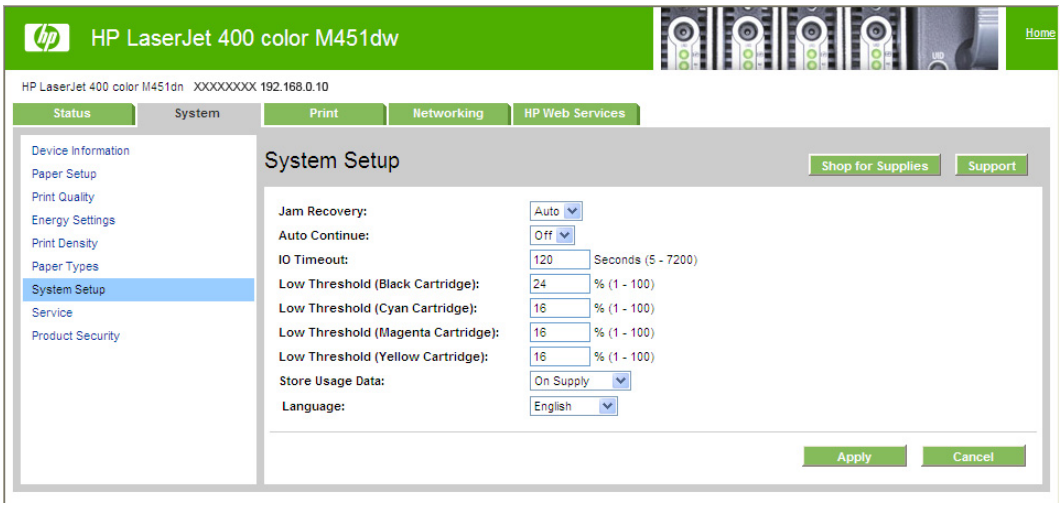
Figure 2-28 HP Device Toolbox, System tab – Paper Types page



System Setup page

Use the **System Setup** page to change settings on the product such as Jam Recovery and Auto Continue.

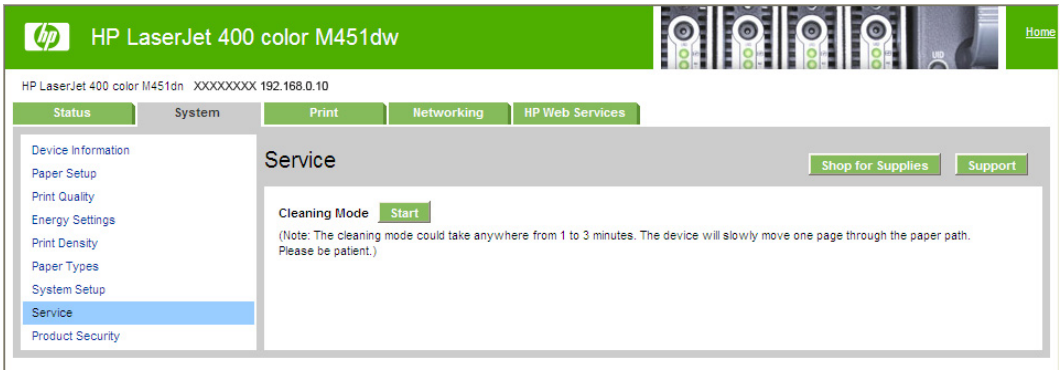
Figure 2-29 HP Device Toolbox, System tab – System Setup page



Service page

Use the **Service** page to start the cleaning procedure on the product.

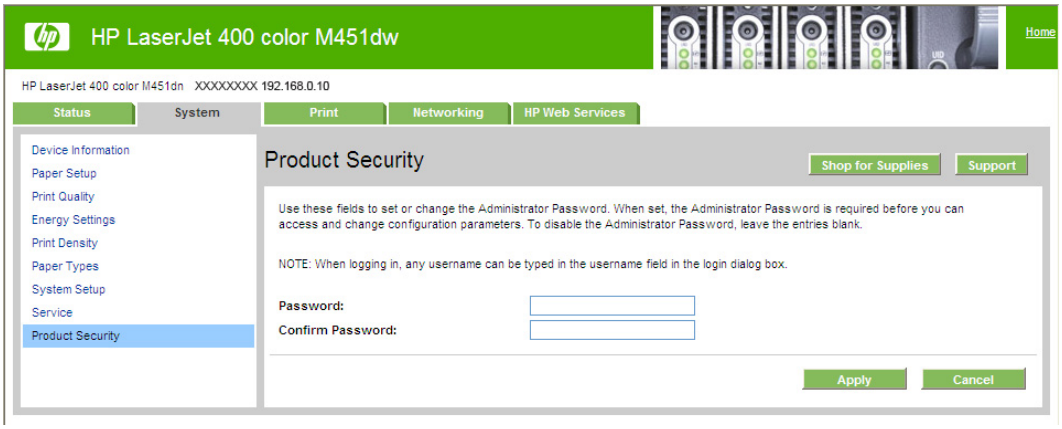
Figure 2-30 HP Device Toolbox, System tab – Service page



Product Security page

Use the **Product Security** page to set or change the administrator password.

Figure 2-31 HP Device Toolbox, System tab – Product Security page



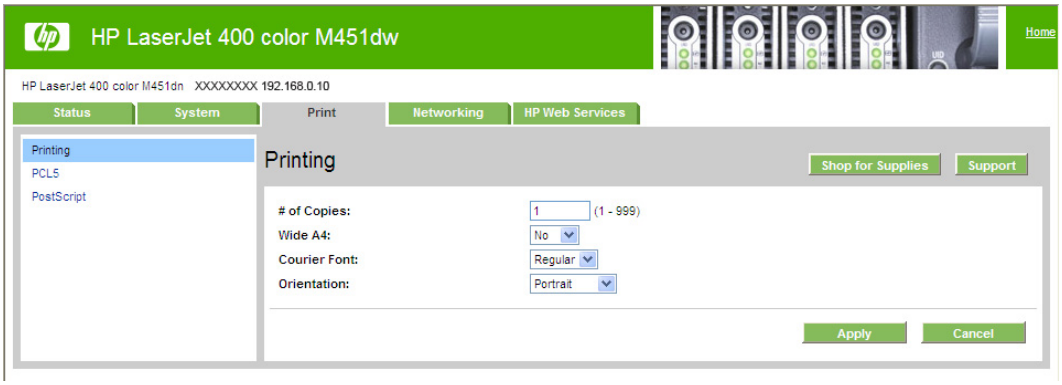
Print tab

- Printing
- PCL5
- PostScript

Printing

Use the **Printing** page to change the printing defaults for the product.

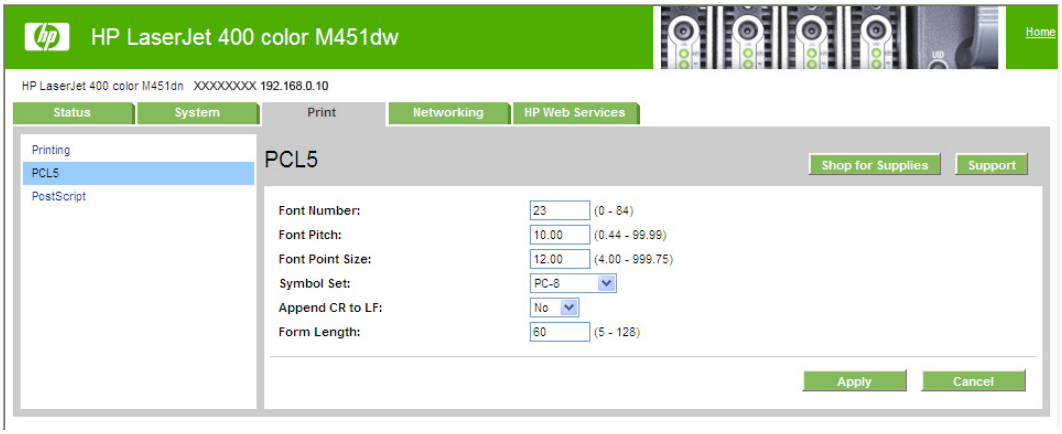
Figure 2-32 HP Device Toolbox, Print tab – Printing page



PCL5

Use the **PCL5** page to change the PCL defaults for the product.

Figure 2-33 HP Device Toolbox, Print tab – PCL5 page



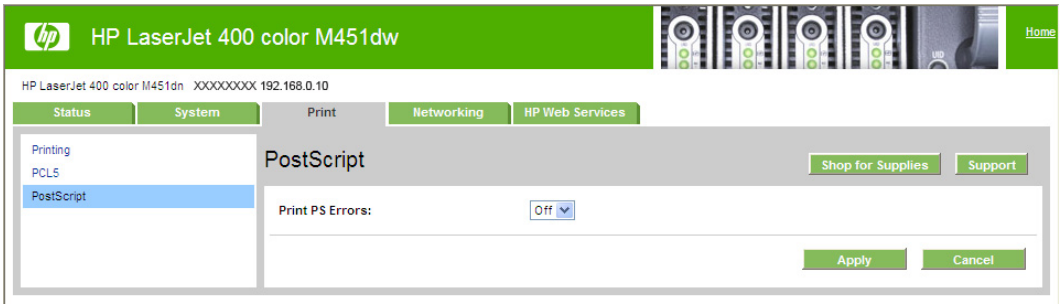
PostScript

Use the **PostScript** page to turn off/on PostScript printing notification.

If **Print PS Errors** is set to **On**, the product will print multiple pages of PostScript characters when an error is encountered.

If **Print PS Errors** is set to **Off** (default), the product suppresses this printing behavior.

Figure 2-34 HP Device Toolbox, Print tab – PostScript page



Networking tab

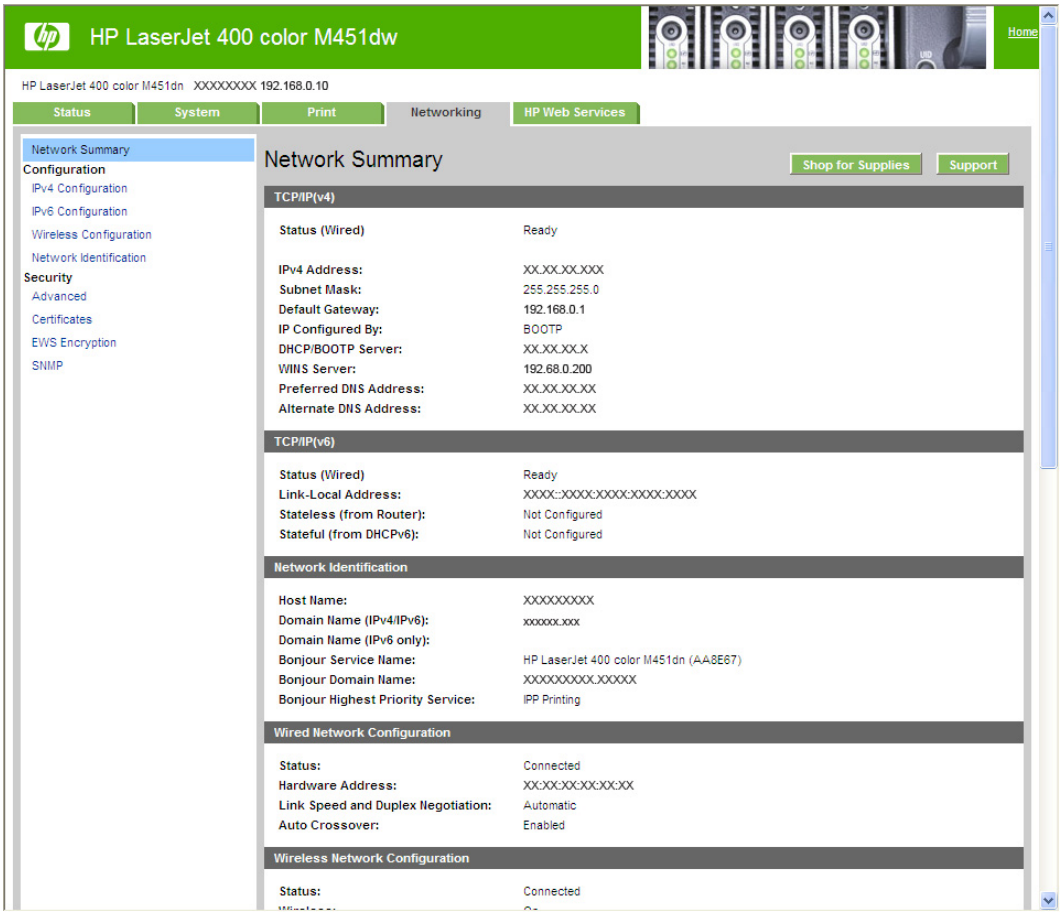
Use the **Networking** tab to view and change settings for the network connection and communication with the product. The following pages are available:

- Network Summary
- IPv4 Configuration
- IPv6 Configuration
- Wireless Configuration
- Network Identification
- Advanced page
- Certificates page
- EWS Encryption page
- SNMP page

Network Summary

The **Network Summary** page contains all the information about the network and its enabled features.

Figure 2-35 HP Device Toolbox, Networking tab – Network Summary page



IPv4 Configuration

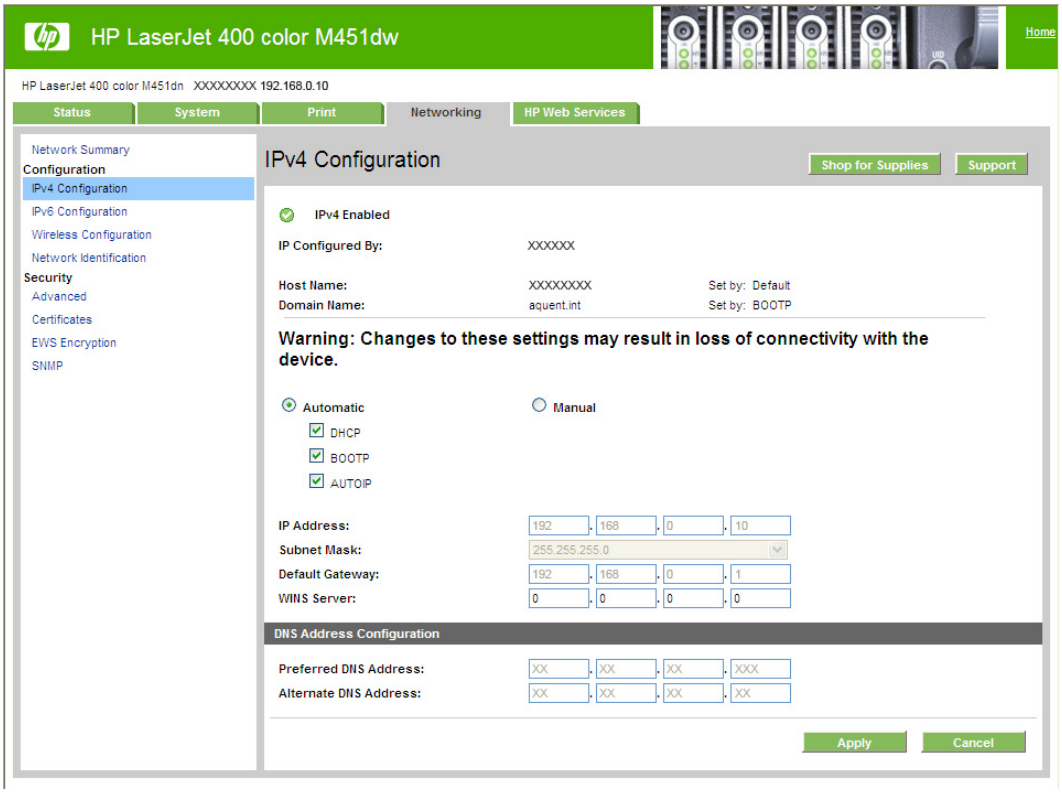
Use the **IPv4 Configuration** page to modify settings for basic TCP/IPv4 Network configuration.

If **Automatic IP** is configured, the **Manual IP** address configuration settings are disabled, but the values for these settings are still displayed if they have been set.

If the configuration is switched from **Automatic IP** to **Manual IP**, the **IP Address** fields are cleared, and the desired IP address must be entered before continuing.

Click the **Apply** button to keep changes. When you click the **Apply** button, a confirmation dialog appears. Click the **Yes** button to continue.

Figure 2-36 HP Device Toolbox, Networking tab – IPv4 Configuration page

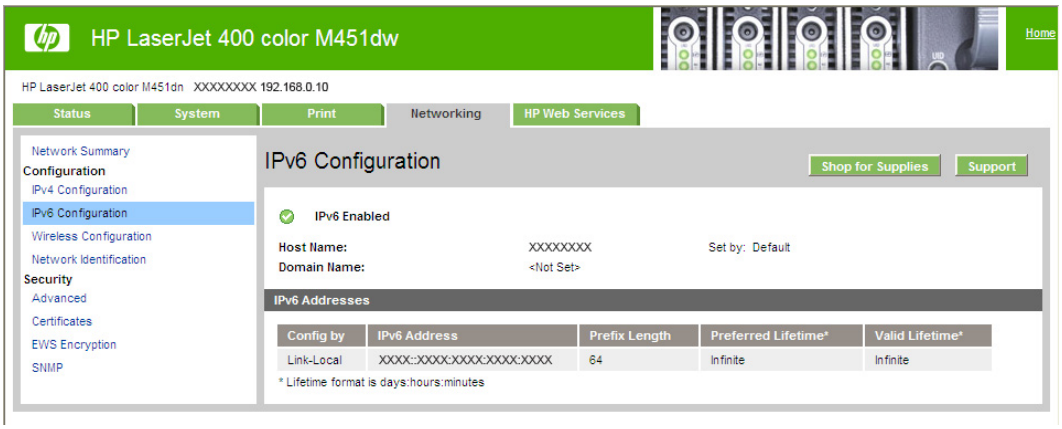


IPv6 Configuration

The **IPv6 Configuration** page shows the status of the IPv6 network configuration settings. This page is read-only and no settings can be modified here.

Up to seven IPv6 addresses can be shown on this page, depending upon the automatic configuration of the networking firmware. All available IPv6 addresses are shown.

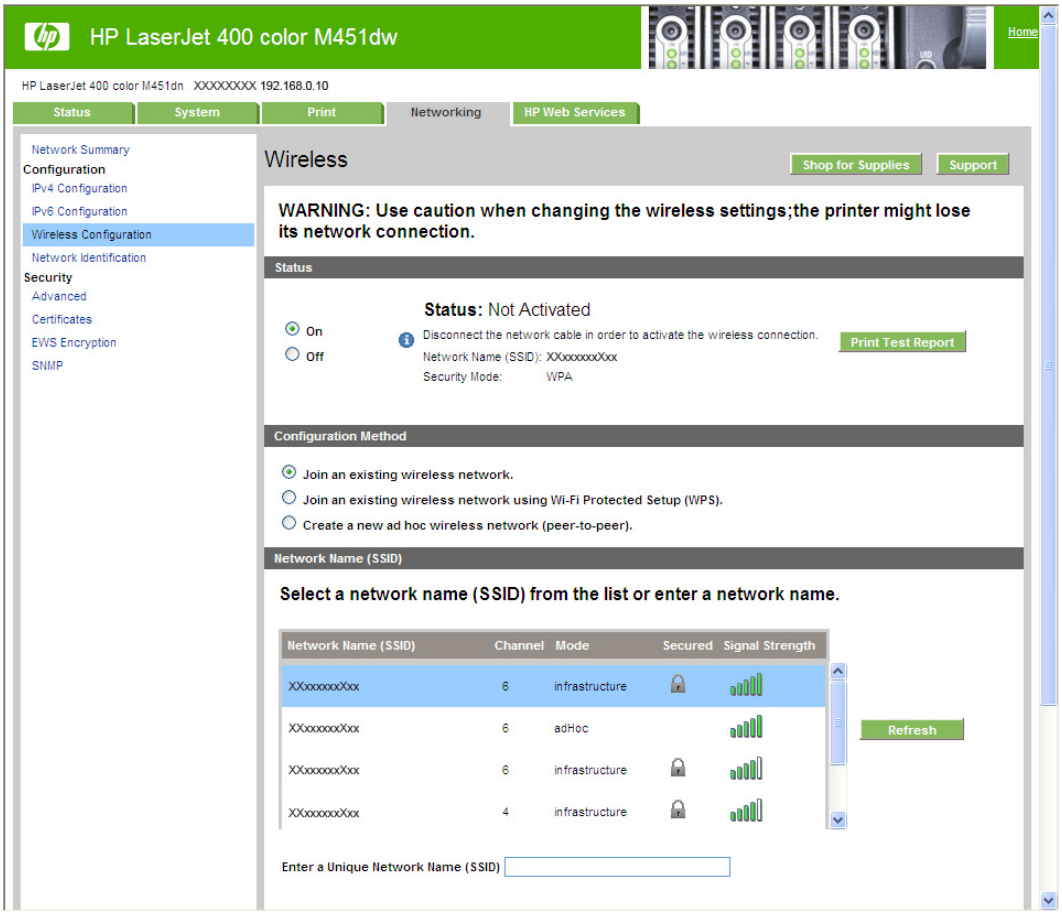
Figure 2-37 HP Device Toolbox, Networking tab – IPv6 Configuration page



Wireless Configuration

Use the **Wireless Configuration** page to turn off/on the wireless capabilities for the product.

Figure 2-38 HP Device Toolbox, Networking tab – Wireless Configuration page



Network Identification

Use the **Network Identification** pane to configure the host name and domain name(s) used to identify the product on the network.

The values for host name and domain names are retrieved from the firmware, and displayed on this pane. The Networking firmware determines what host name and domain name(s) to use.

The information under **Available Host name / Domain names** is for information only and cannot be modified.

The text entries are disabled under certain circumstances. The following table defines when the entities are disabled:

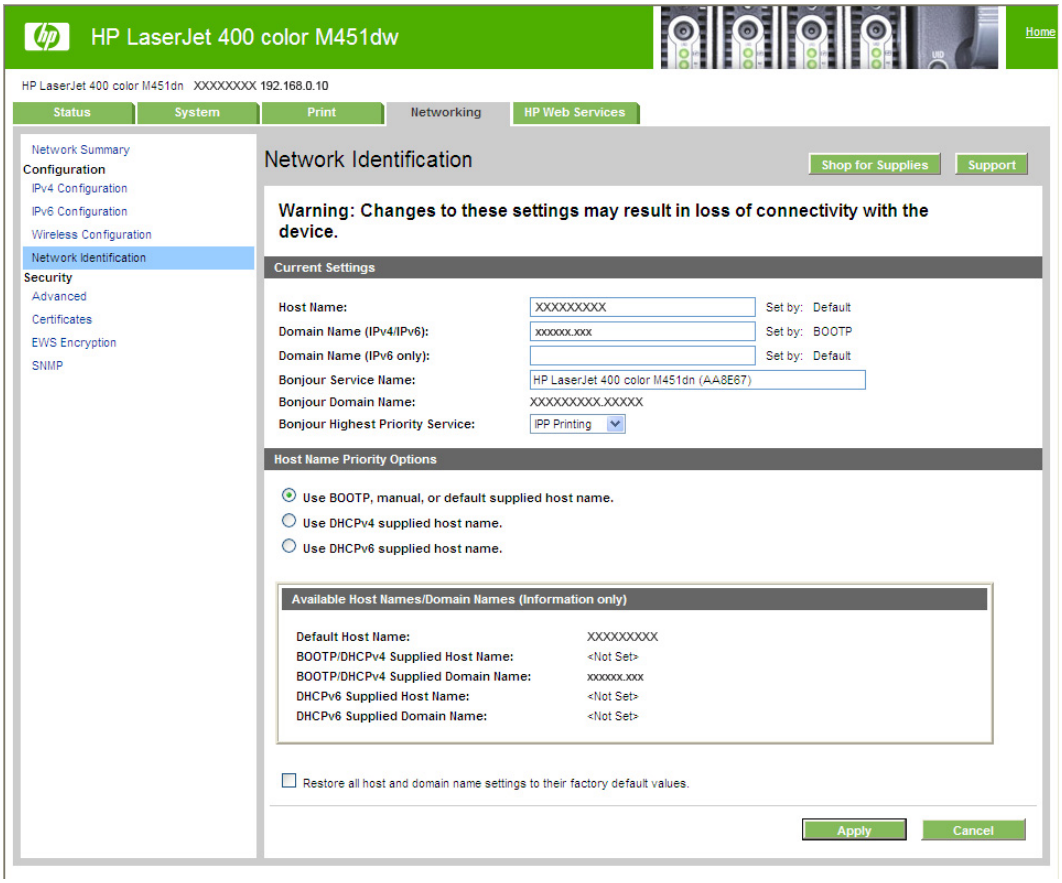
Table 2-8 **Network Identification page – Text Entities**

Text Entity	Disabled status
Host name	Disabled if configured by BOOTP
Domain name (IPv4/IPv6)	Disabled if configured by BOOTP, DHCPv4, or DHCPv6

Table 2-8 Network Identification page – Text Entities (continued)

Text Entity	Disabled status
Domain name (IPv6)	Disabled if configured by DHCPv6
Bonjour Service name	Disabled if Bonjour is disabled

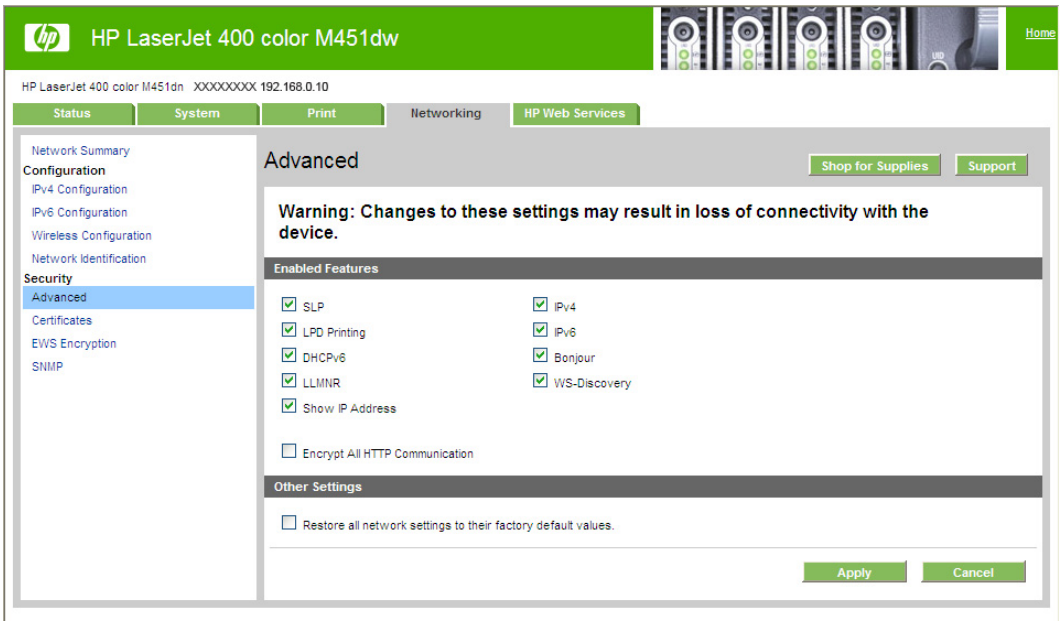
Figure 2-39 HP Device Toolbox, Networking tab – Network Identification page



Advanced page

Use the **Advanced** page to configure the enabled settings and other settings, such as restoring factory default settings, for the product.

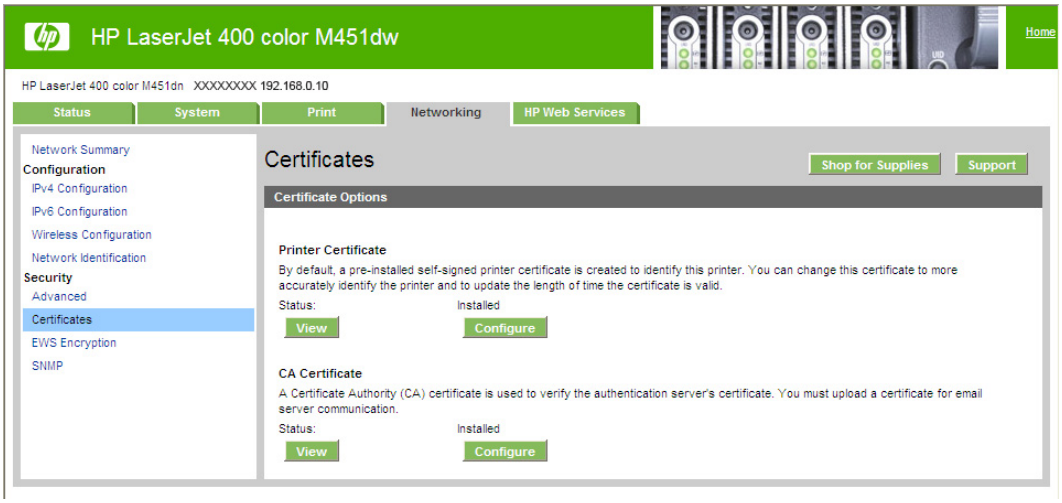
Figure 2-40 HP Device Toolbox, Networking tab – Advanced page



Certificates page

Use the **Certificates** page to view and configure the printer certificates.

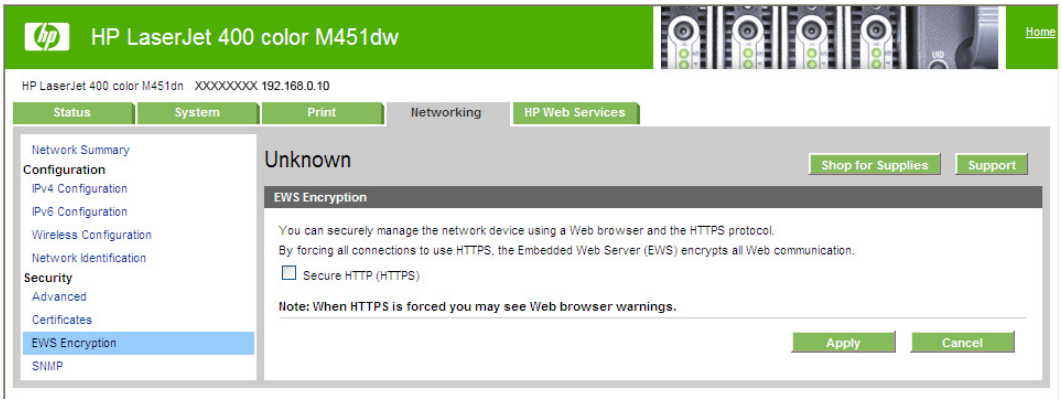
Figure 2-41 HP Device Toolbox, Networking tab – Certificates page



EWS Encryption page

Use the **EWS Encryption** page to configure Web encryption.

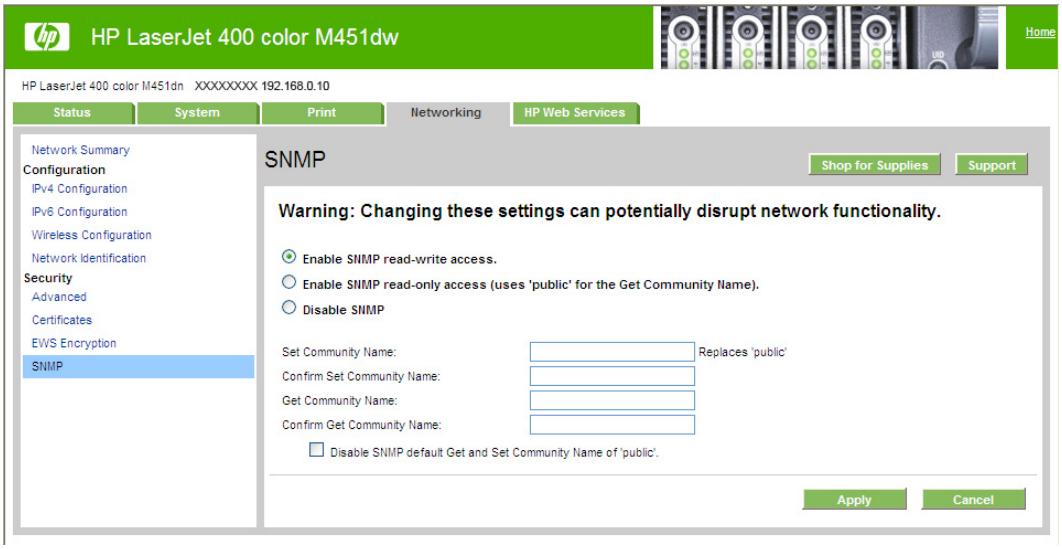
Figure 2-42 HP Device Toolbox, Networking tab – EWS Encryption page



SNMP page

Use the **SNMP** page to configure the SNMP settings for the product.

Figure 2-43 HP Device Toolbox, Networking tab – SNMP page

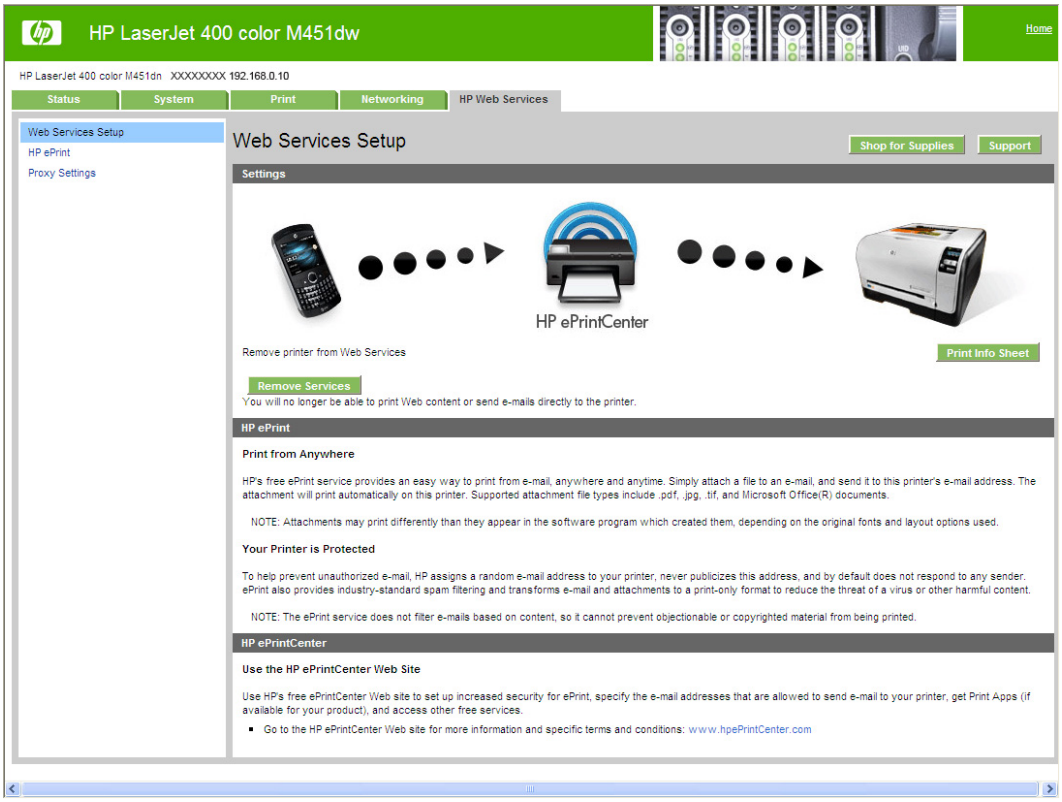


HP Web Services tab

Web Services Setup page

Use the **Web Services Setup** page to enable or disable the HP Web Services feature.

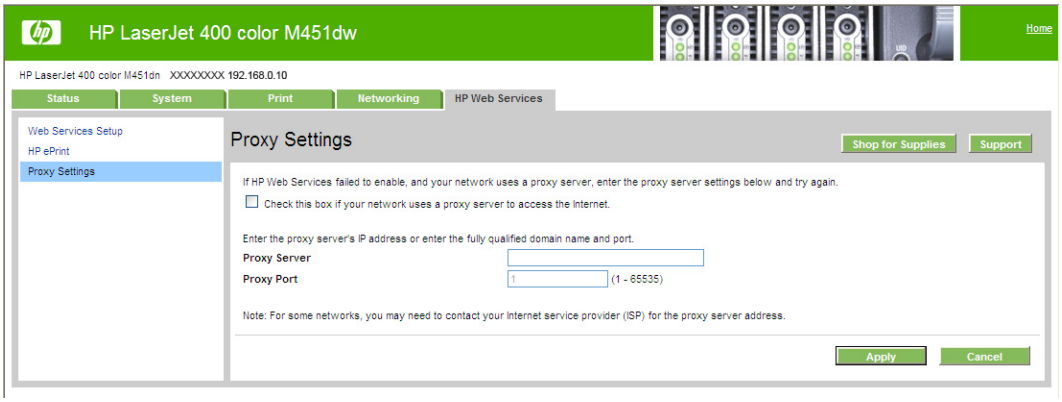
Figure 2-44 HP Device Toolbox, Web Services Setup page



Proxy Settings page

Use the **Proxy Settings** page to set the HP Web Services proxy server.

Figure 2-45 HP Device Toolbox, Proxy Settings page



HP Web Jetadmin

HP Web Jetadmin is a browser-based management tool for HP Jetdirect-connected printers within your intranet, and it should be installed only on the network administrator's computer.

To download a current version of HP Web Jetadmin and for the latest list of supported host systems, visit www.hp.com/go/webjetadmin.

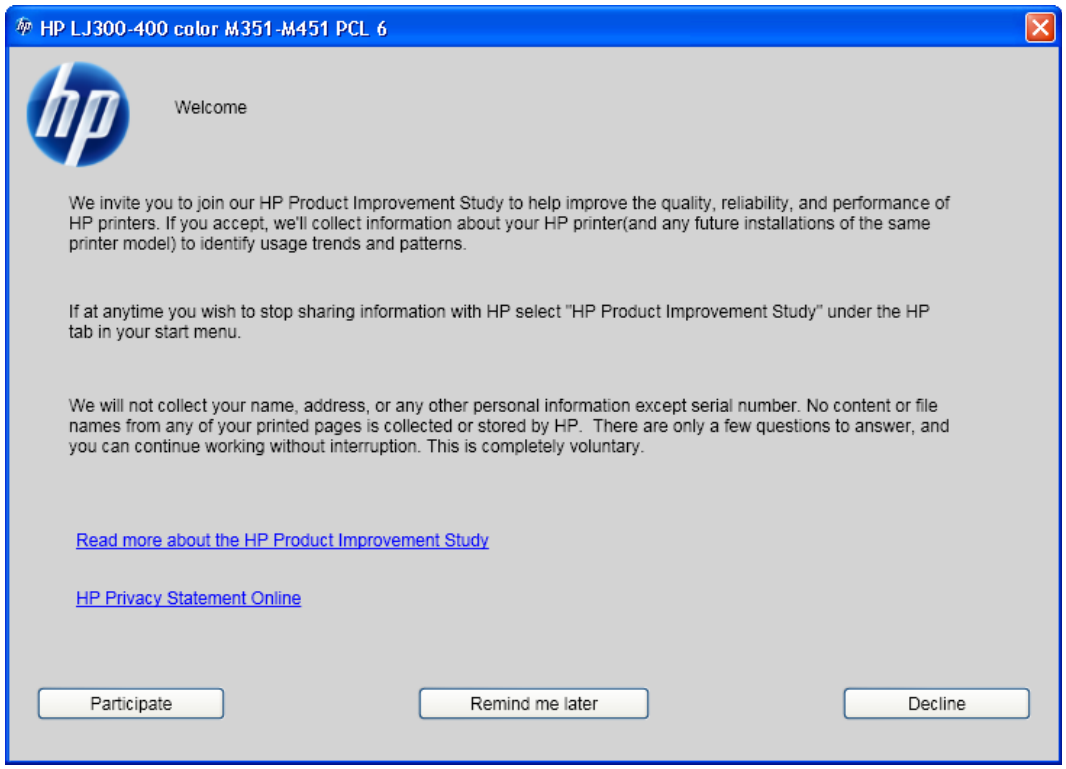
When installed on a host server, a Windows client can gain access to HP Web Jetadmin by using a supported Web browser (such as Microsoft® Internet Explorer 4.x or Netscape Navigator 4.x or later) to navigate to the HP Web Jetadmin host.

HP Product Improvement Program

After the product is installed, you have the option of participating in HP's voluntary program for communication between your system and HP. This feature, available through software that is included on the printing-system software installation CD, helps HP monitor toner usage.

At the time of the invitation, about two weeks after installation, full disclosure of the information to be communicated is provided. Participation is entirely voluntary, and the impact on processing and connection speeds is negligible. Personal information is never sent to HP unless permission is given.

Figure 2-46 Welcome screen



If you decline the invitation, the dialog box does *not* appear again and no data will be gathered.

Online product registration

When the product has been successfully installed and configured, and when an active Internet connection exists, you can select the option to register the product with HP on the final installation screen. Enter the product information and click **Done** when finished.

Detailed Windows installation instructions

The dialog boxes shown here appear in the Windows XP Professional installation sequence. The order and appearance of dialog boxes can vary among operating systems.

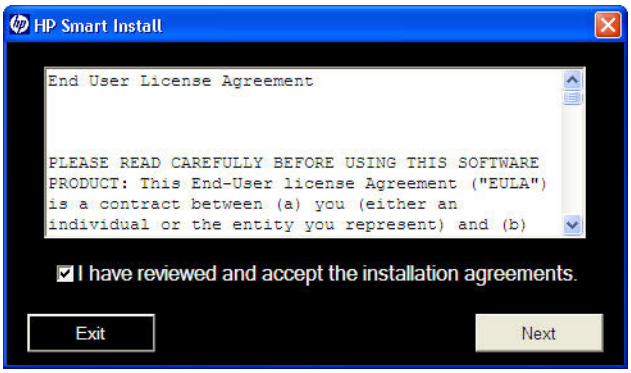
Use the Recommended installation with HP Smart Install or the CD

NOTE: If HP Smart Install does not start automatically, AutoPlay might be disabled on your computer. Browse to the computer and double-click the HP Smart Install CD drive. Double-click the Setup.exe file to run the program to install the product. If you cannot find the HP Smart Install CD drive, use the software CD to install the product.

NOTE: The full software install requires the Microsoft .NET Framework 3.51 to be installed on the computer. If the correct .NET framework is not installed, only the print and scan drivers will be installed.

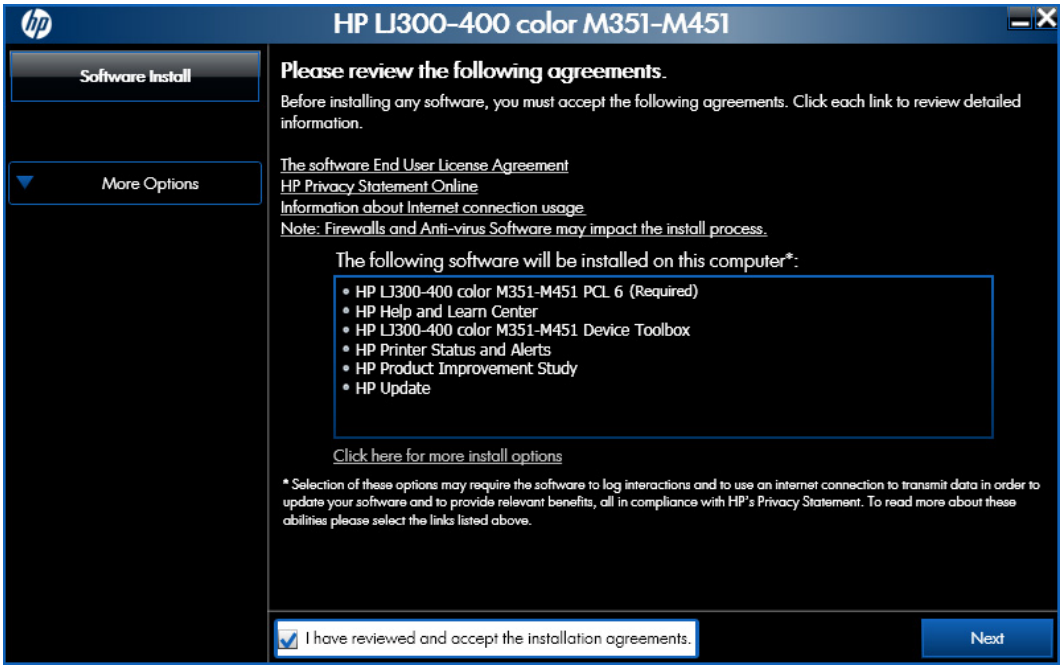
1. Connect the product to the computer using a USB cable. The HP Smart Install program will start, and a licensing agreement dialog will open.

Figure 2-47 HP Smart Install — License agreement screen



2. Click the **I have reviewed and accept the installation agreements** check box, and then click the **Next** button. Wait a few minutes while the program sets up, and then the **Software Install** screen appears.

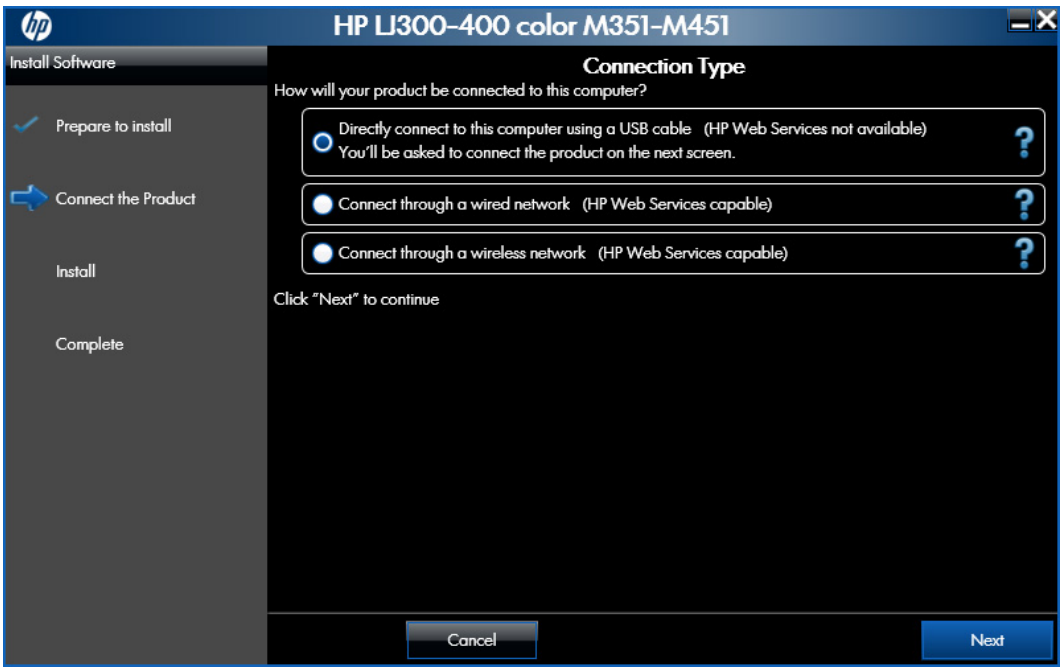
Figure 2-48 HP Smart Install — Software Install screen



3. Select a connection type option on the **Connection Type** screen, based on how the product connects to the computer.

NOTE: If you are installing a base unit (which does not have a network connection option), this screen does not appear. Proceed to the next step.

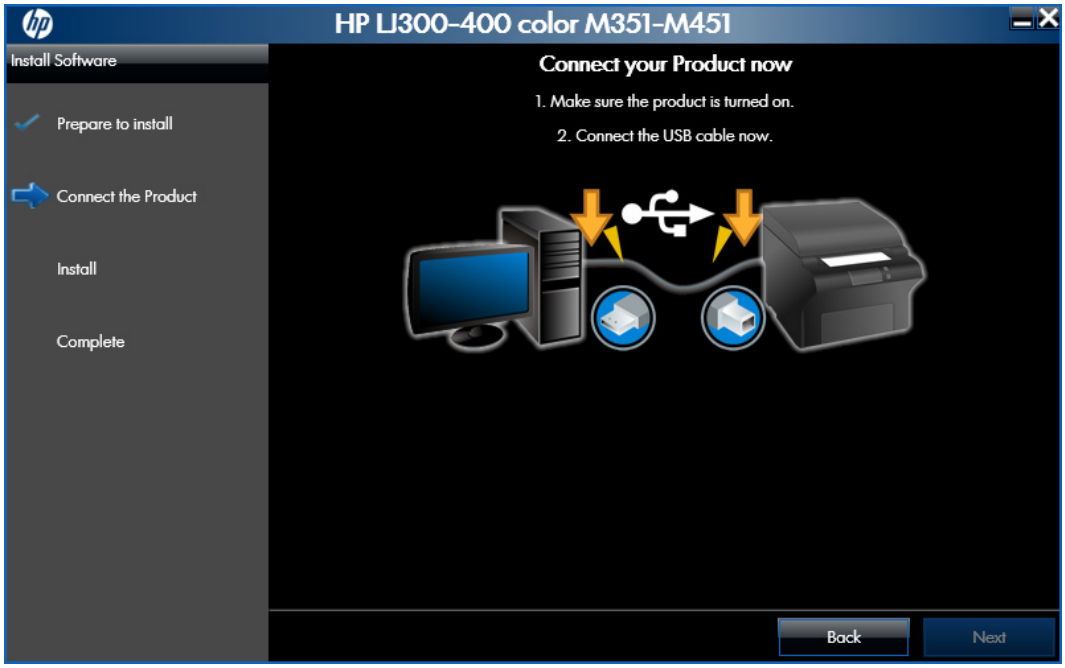
Figure 2-49 Software installation — Connection Type screen



- For USB-connected products, follow these steps:

  ▲ Connect the product to the computer when prompted at the **Connect the Product** screen. The installer program opens a progress bar as it automatically starts the software installation.

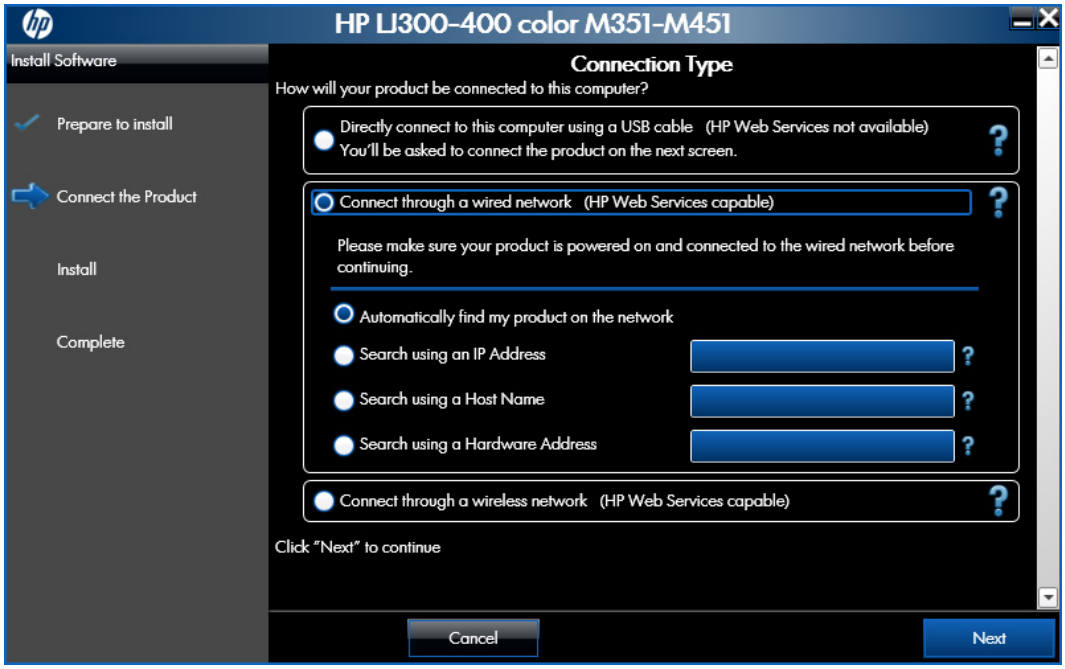
  Figure 2-50 Software installation — Connect the Product screen



- For wired network connected products, follow these steps:

  a. Select the **Connect through a wired network** option.

  Figure 2-51 Software installation — Connection Type screen for wired network installation



  b. If the product's network settings *are not* known, select the **Automatically find my product on the network** option.

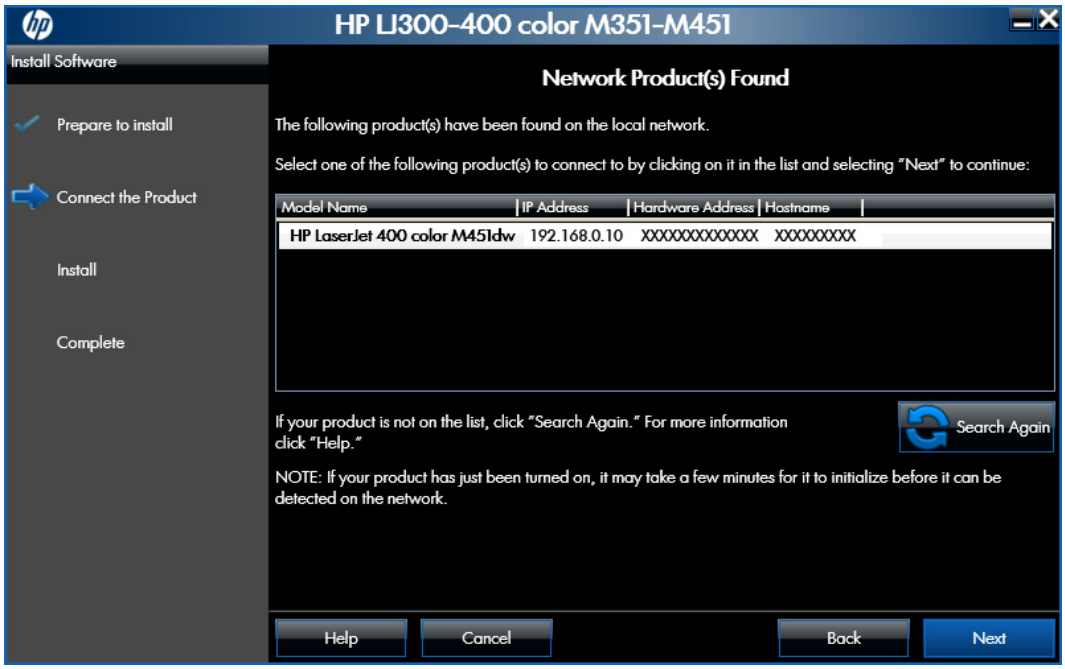
  c. If the product's networking settings *are* known, enter either the product's host name, IP address, or hardware address.

  NOTE: At the product control panel, record the product network IP address.

  d. Click the **Next** button.

e. A list of products is displayed on the **Network Product(s) Found** screen. Select the product to install and then click the **Next** button

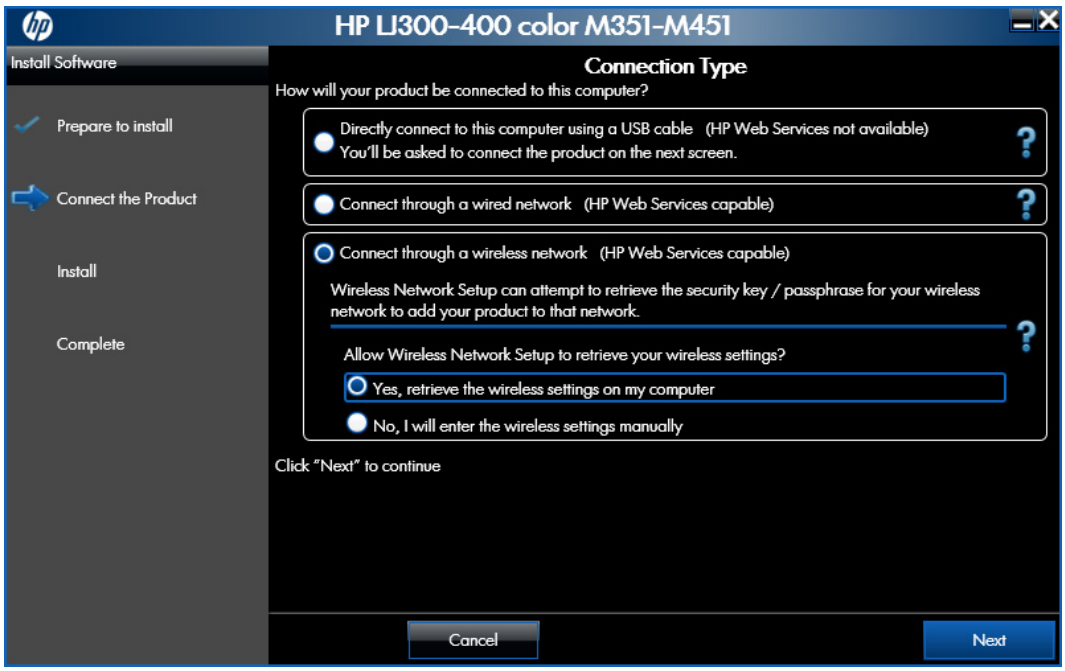
Figure 2-52 Software installation — Network Product(s) Found screen



- For wireless network connected products, follow these steps:

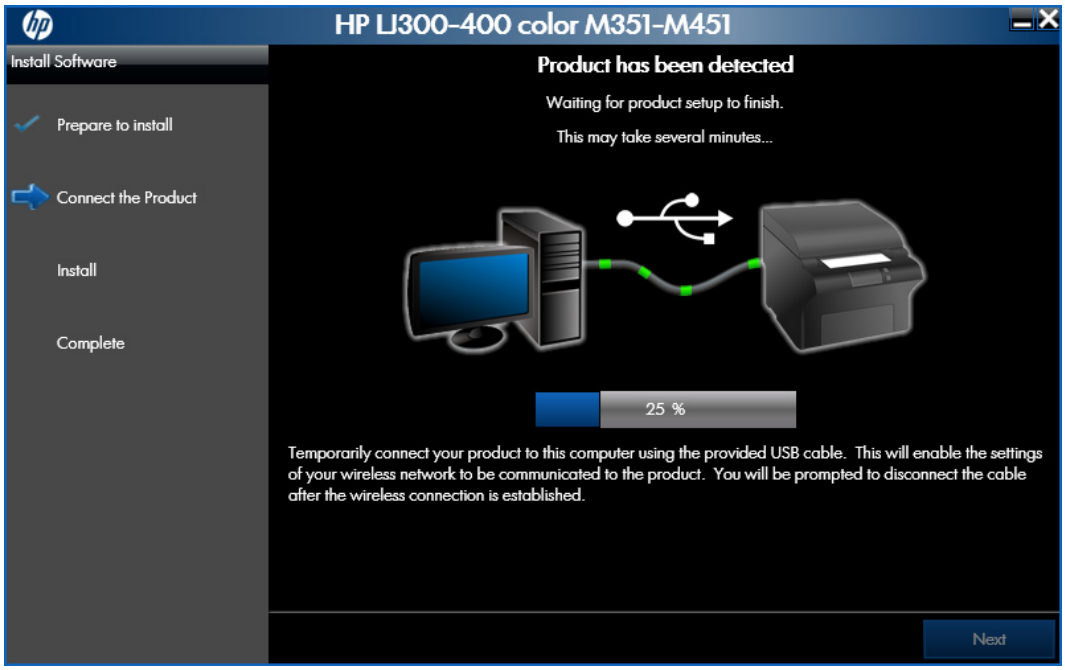
  a. Select the **Connect through a wireless network** option, and then click the **Next** button.

  Figure 2-53 Software installation — Connection Type screen for wireless connected installation



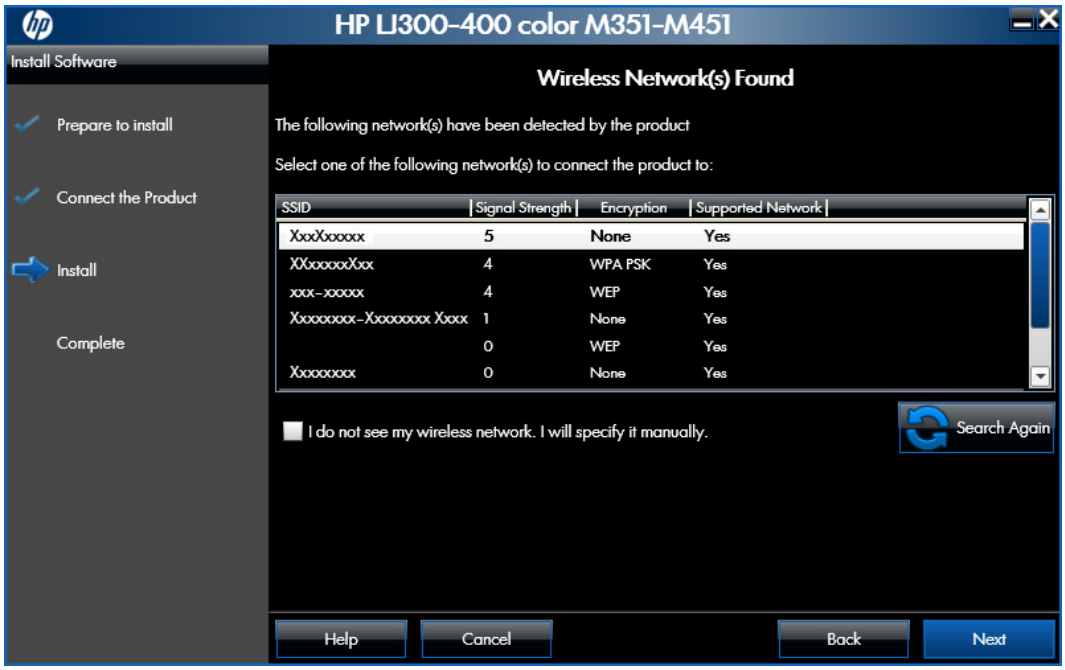
b. The installer program prompts you to connect the USB cable, momentarily, between the computer and the product. Connect the cable and the installer program continues automatically.

Figure 2-54 Software installation — Connect USB screen for wireless connected installation



c. In the **Wireless Network(s) Found** screen, select the correct network, and then click the **Next** button.

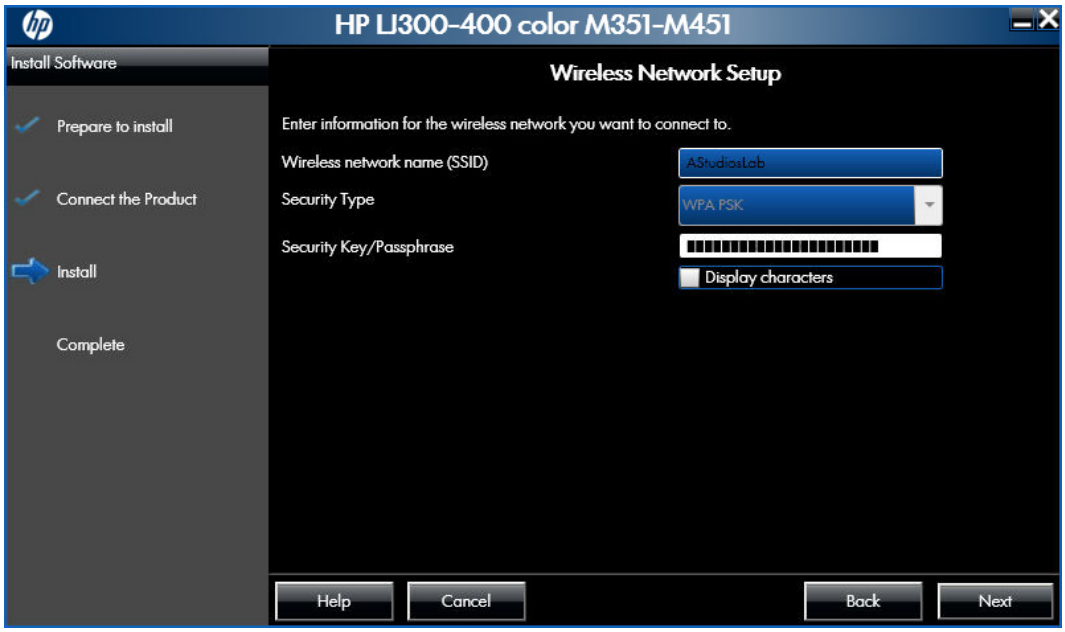
Figure 2-55 Software installation — Wireless Network(s) Found screen for wireless connected installation



NOTE: If the correct network does not appear, click the **Search Again** button, or click the **I do not see my wireless network. I will specify it manually.** check box and manually enter the network information.

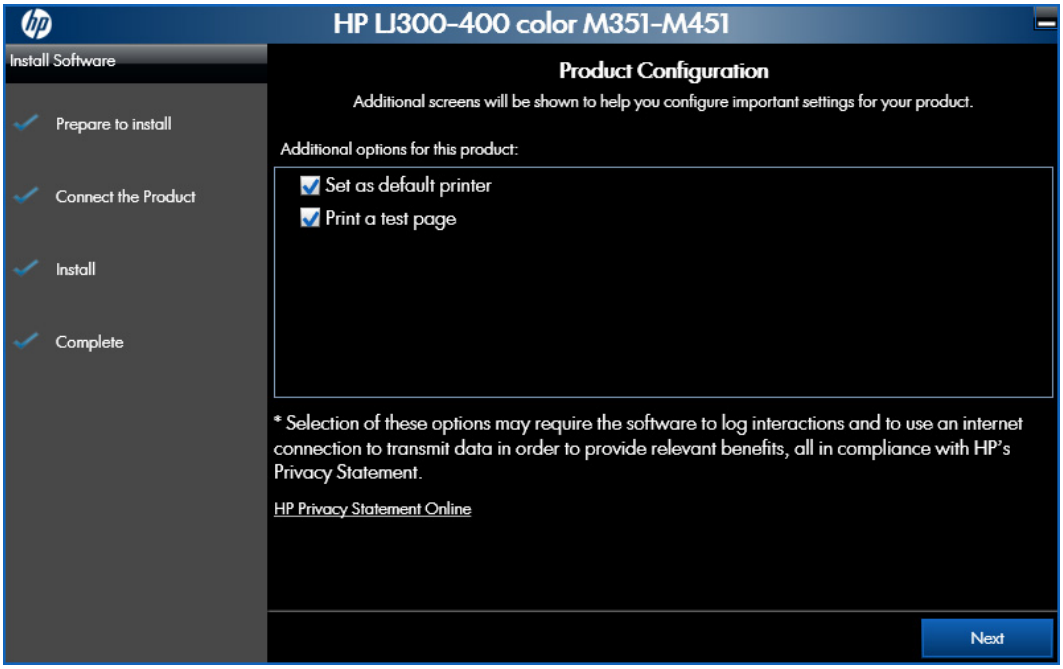
d. In the Wireless Network Setup screen, provide the wireless network security key, and then click the Next button.

Figure 2-56 Software installation — Wireless Network Setup screen for wireless connected installation



4. When the installation completes, the **Complete** screen appears.

Figure 2-57 Software installation — Complete screen



- Make this product the default printer by selecting the **Set as default printer** check box.
- Send a test page to the product by selecting the **Print a test page** check box.

Perform a custom installation with HP Smart Install or the CD

The custom installation allows you to customize the software installed with your product.

The dialog boxes shown here appear in the Windows XP Professional installation sequence. The order and appearance of dialog boxes can vary among operating systems.

NOTE: You can return to the previous dialog box by clicking the **Back** button, or exit the printing-system software installation by clicking the **Cancel** button.

1. Close all programs.
2. Insert the printing system software CD into the CD-ROM drive. The software installer detects the language of the operating system, and then displays the main menu of the installation program in the same language.

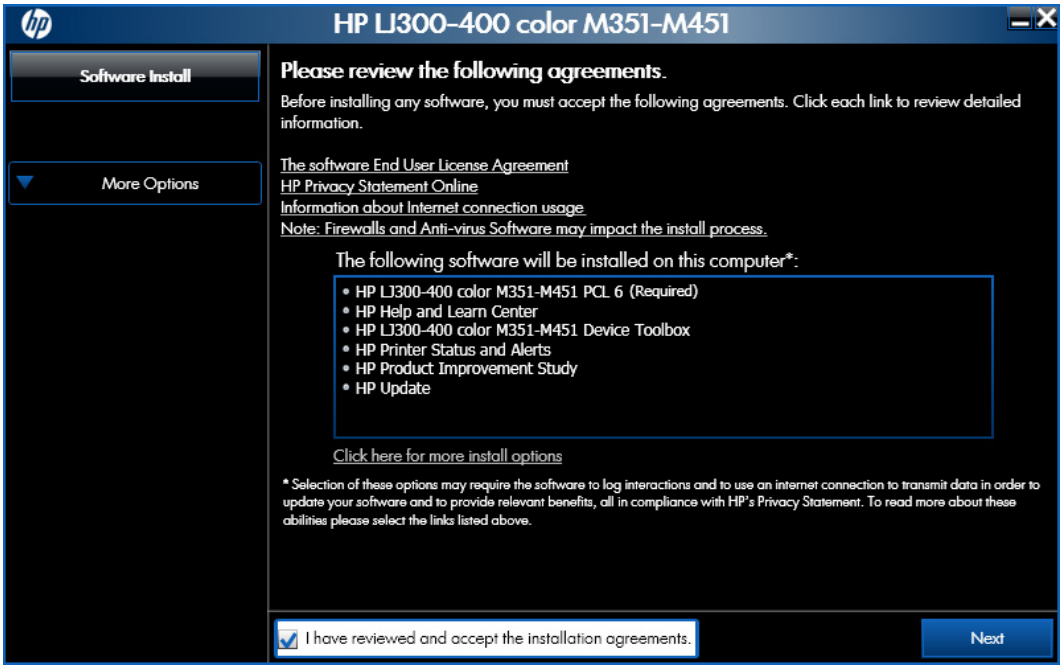
   If the installer program has not started after 30 seconds, complete these steps:

   a. On the **Start** menu, click the **Run** option.

   b. Type the following: `X:\SETUP.EXE` (where X is the letter of the CD-ROM drive).

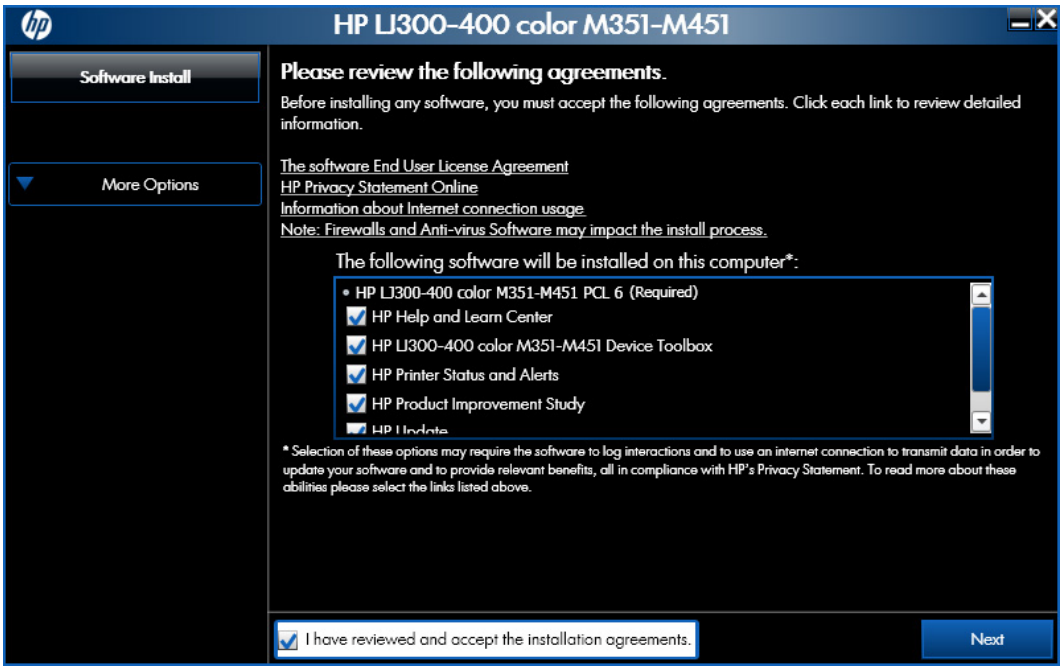
   c. Click the **OK** button. The installer program starts.
3. Read the license agreement, click the **I have reviewed and accept the installation agreements** check box.

Figure 2-58 Software installation — License agreement screen



4. Select **Click here for more install options** to customize the software components that are installed with the product. When you are finished customizing the installation, click the **Next** button to continue to the **Connection Type** screen.

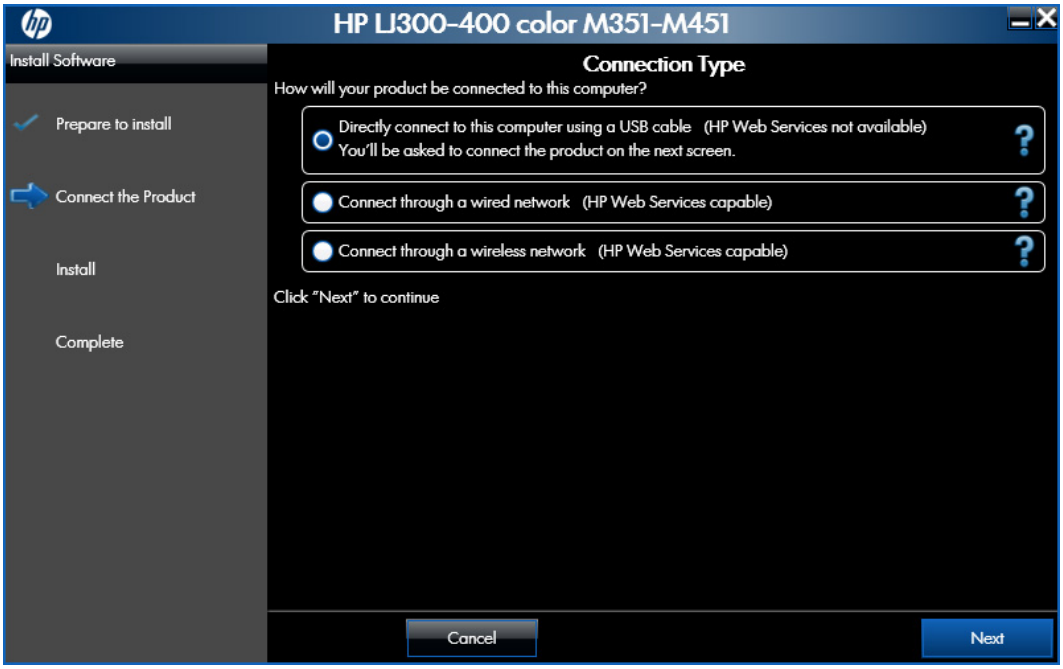
Figure 2-59 Software installation — Customize software instllation



5. Select a connection type option on the **Connection Type** screen, based on how the product connects to the computer.

NOTE: If you are installing a base unit (which does not have a network connection option), this screen does not appear. Proceed to the next step.

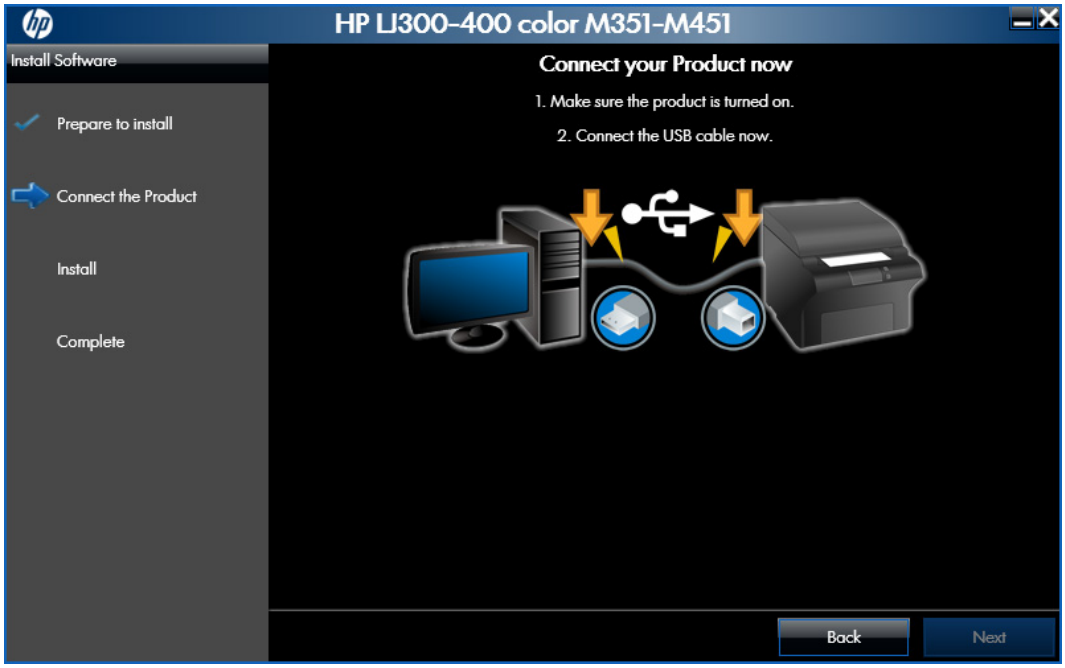
Figure 2-60 Software installation — Connection Type screen



- For USB-connected products, follow these steps:

  ▲ Connect the product to the computer when prompted at the **Connect the Product** screen. The installer program opens a progress bar as it automatically starts the software installation.

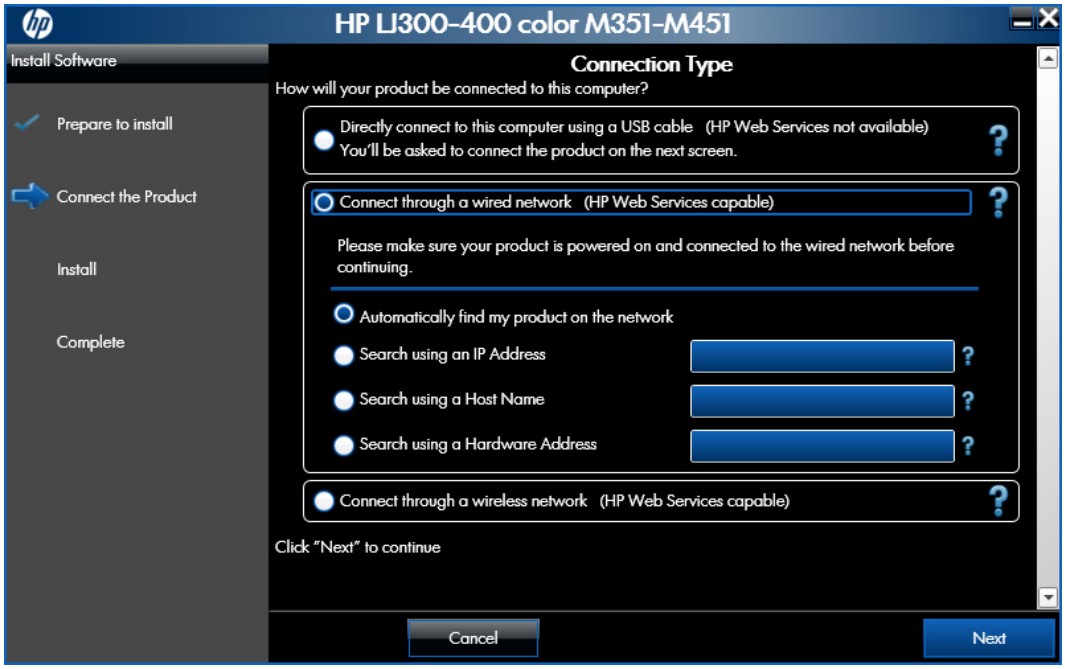
  Figure 2-61 Software installation — Connect the Product screen



- For wired network connected products, follow these steps:

  a. Select the **Connect through a wired network** option.

  Figure 2-62 Software installation — Connection Type screen for network connected installation



  b. If the product's network settings *are not* known, select the **Automatically find my product on the network** option.

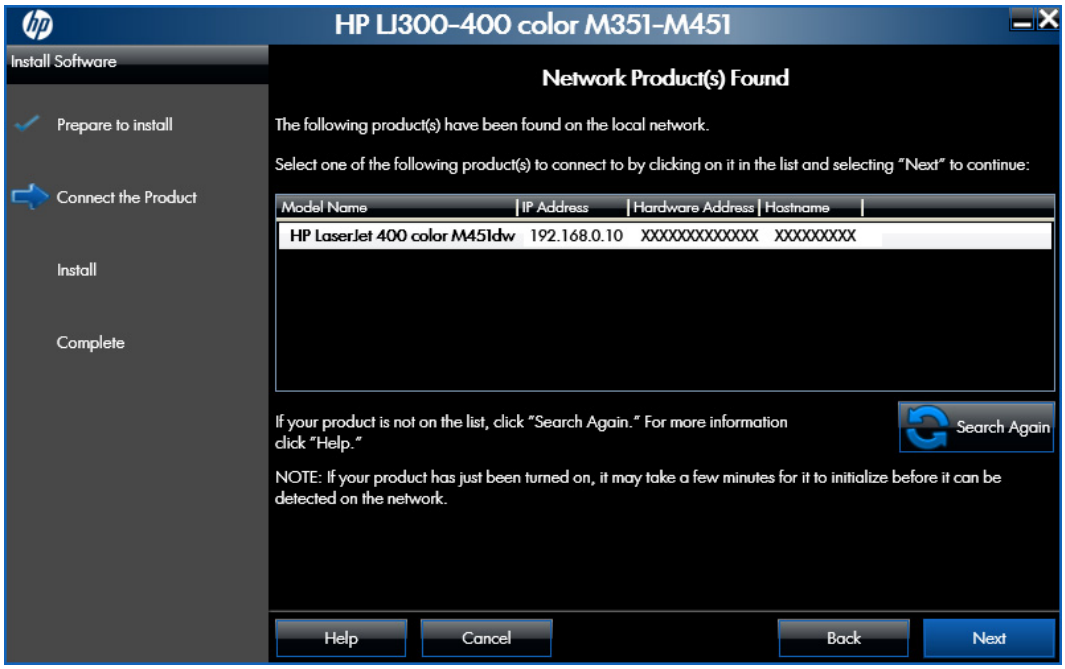
  c. If the product's networking settings *are* known, enter the product's host name, IP address, or hardware address.

  NOTE: At the product control panel, record the product network IP address.

  d. Click the **Next** button.

e. A list of products is displayed on the **Network Product(s) Found** screen. Select the product to install and then click the **Next** button

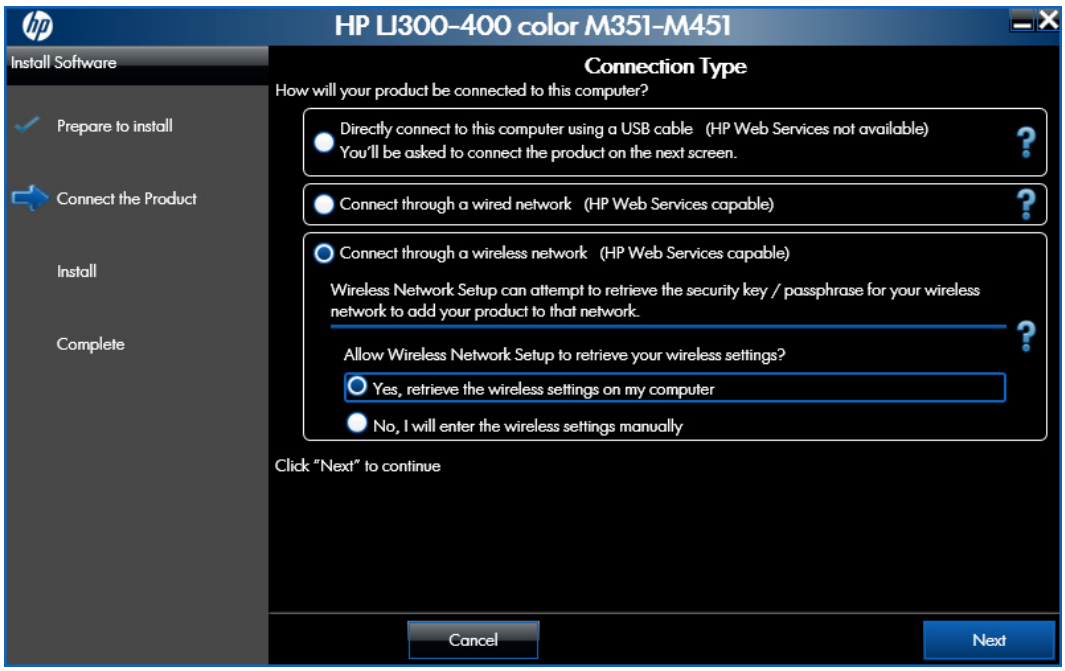
Figure 2-63 Software installation — Network Product(s) Found screen



- For wireless network connected products, follow these steps:

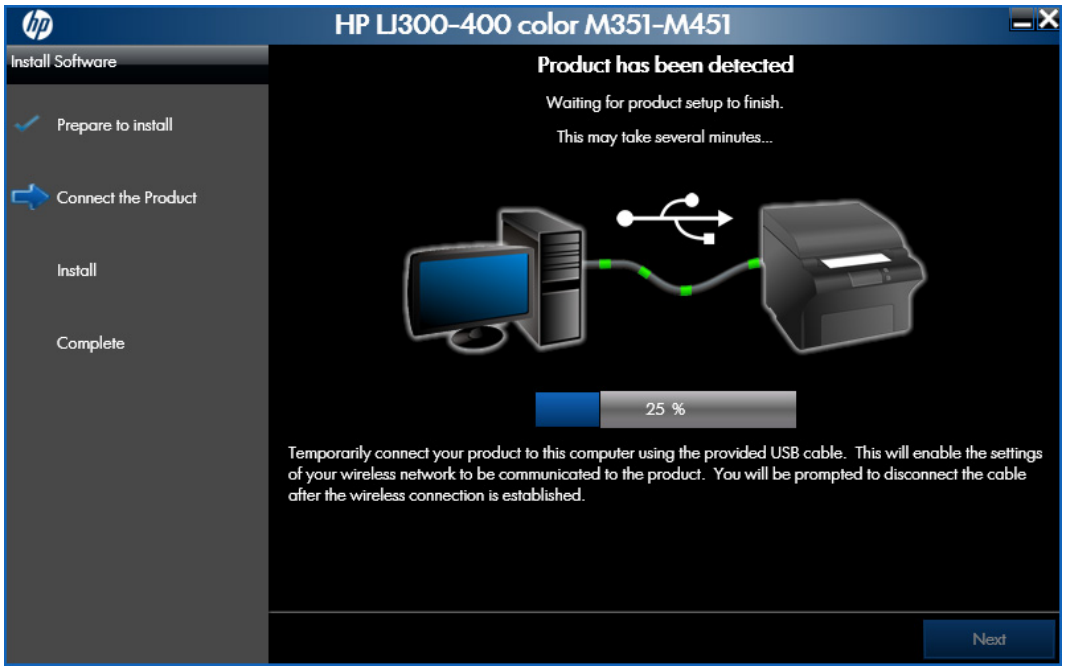
  a. Select the **Connect through a wireless network** option, and then click the **Next** button.

  Figure 2-64 Software installation — Connection Type screen for wireless connected installation



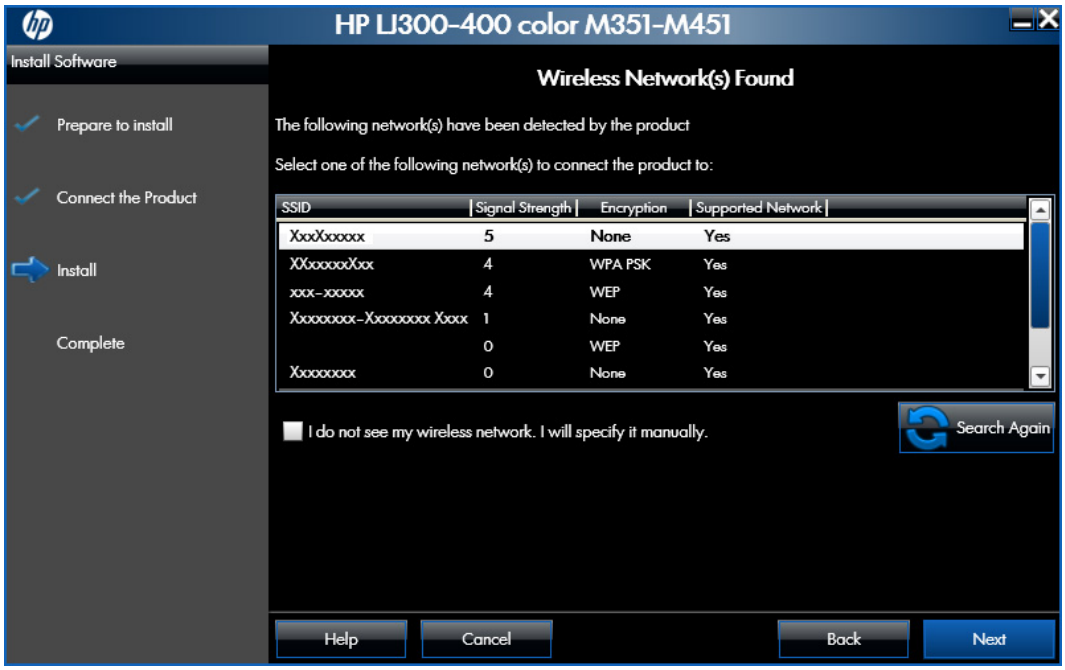
b. The installer program prompts you to connect the USB cable, momentarily, between the computer and the product. Connect the cable and the installer program continues automatically.

Figure 2-65 Software installation — Connect USB screen for wireless connected installation



c. In the **Wireless Network(s) Found** screen, select the correct network, and then click the **Next** button.

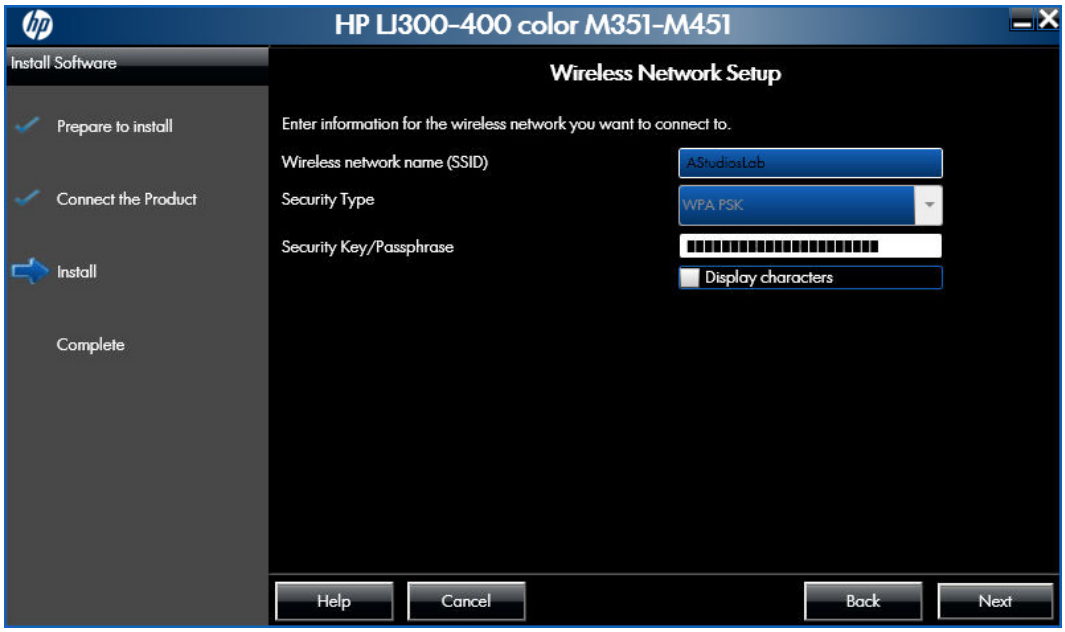
Figure 2-66 Software installation — Wireless Network(s) Found screen for wireless connected installation



NOTE: If the correct network does not appear, click the **Search Again** button, or click the **I do not see my wireless network. I will specify it manually.** check box and manually enter the network information.

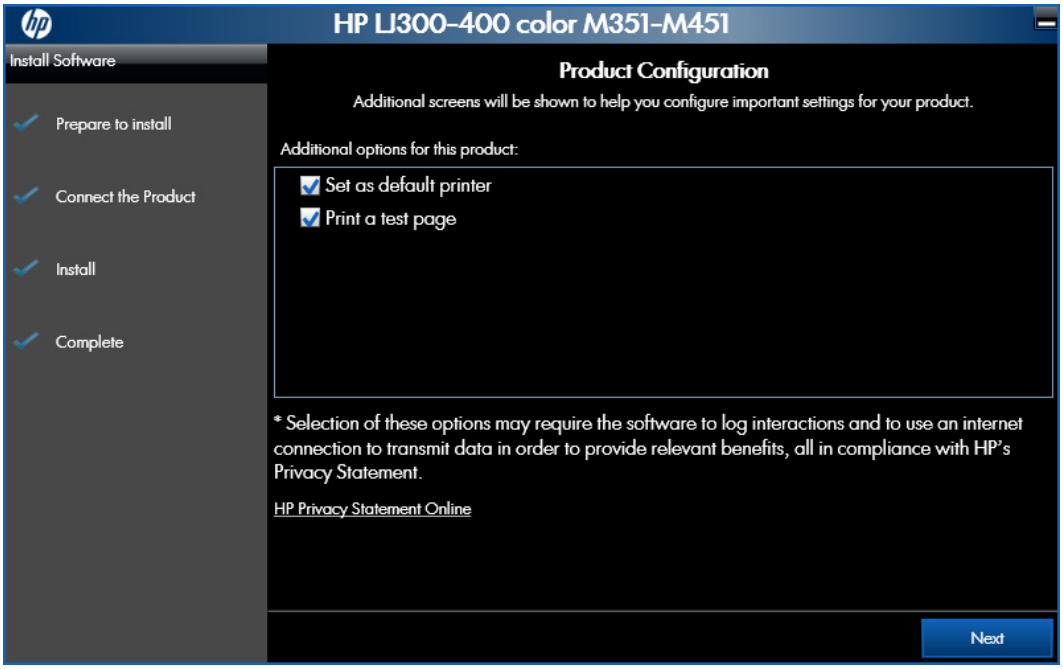
d. In the Wireless Network Setup screen, provide the wireless network security key, and then click the Next button.

Figure 2-67 Software installation — Wireless Network Setup screen for wireless connected installation



6. When the installation completes, the **Complete** screen appears.

Figure 2-68 Software installation — Complete screen



- Make this product the default printer by selecting the **Set as default printer** check box.
- Send a test page to the product by selecting the **Print a test page** check box.

Click the **Finish** button to perform either of these two options and to close the installer program.

Remove software

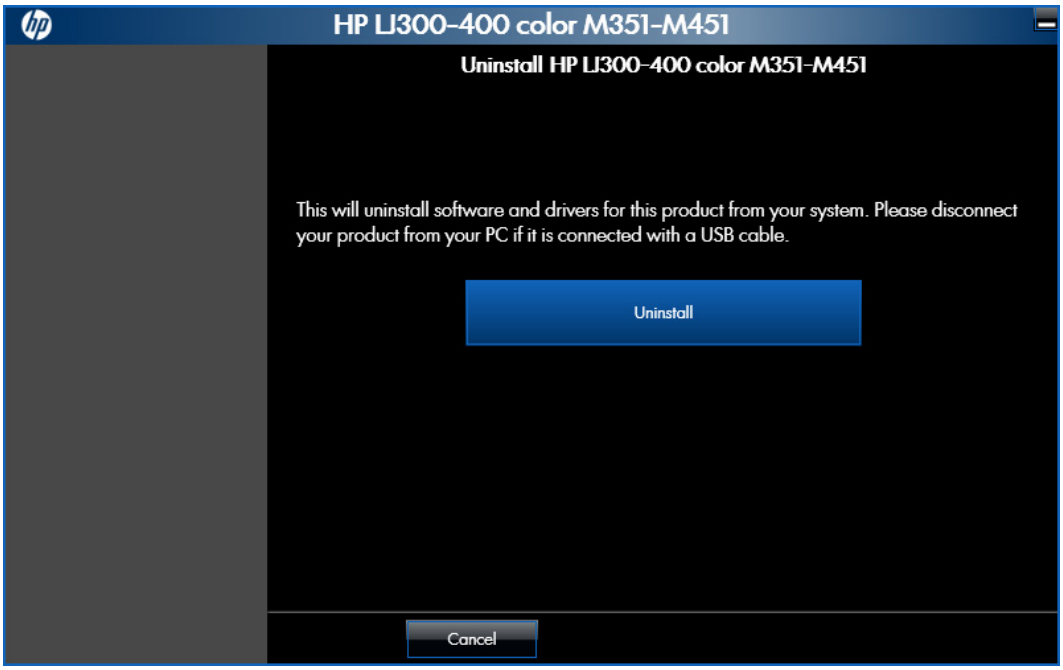
NOTE: If the printer driver was installed by using the HP Driver Installation Utility, follow the instructions in the Remove the print driver by using the Windows Add or Remove Programs feature on page 114. If the driver was installed using the Add Printer Wizard, follow the instructions in the Uninstall the print driver by using the Server Properties feature on page 116.

Use the HP Uninstall utility to remove the product software

The installed software includes a utility to remove the product software.

1. Click the Windows **Start** button, click the **Programs** or **All Programs** item, and then click the **HP** item.
2. Click the product name, and then click the **Uninstall Product Software** item. The HP Uninstaller utility opens.

Figure 2-69 HP Uninstaller utility — Uninstall button



3. Click the **Uninstall** button to begin the removal process. When the process is complete, either click the **Reboot Now** button, or clear the check box and click the **Reboot Later** button.

Figure 2-70 HP Uninstaller utility — Reboot Now button

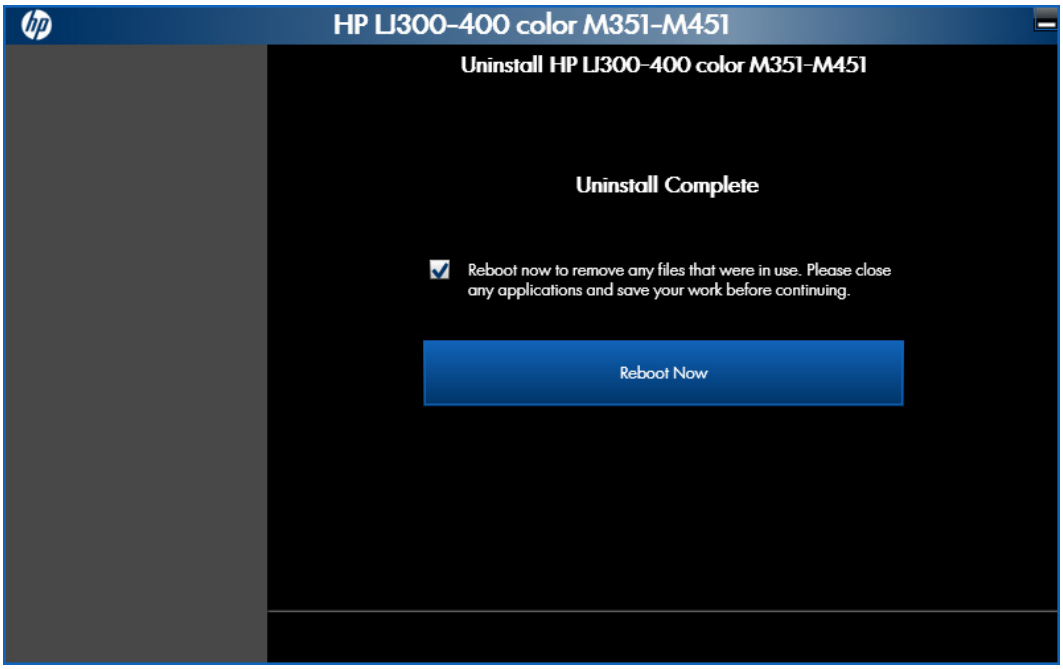
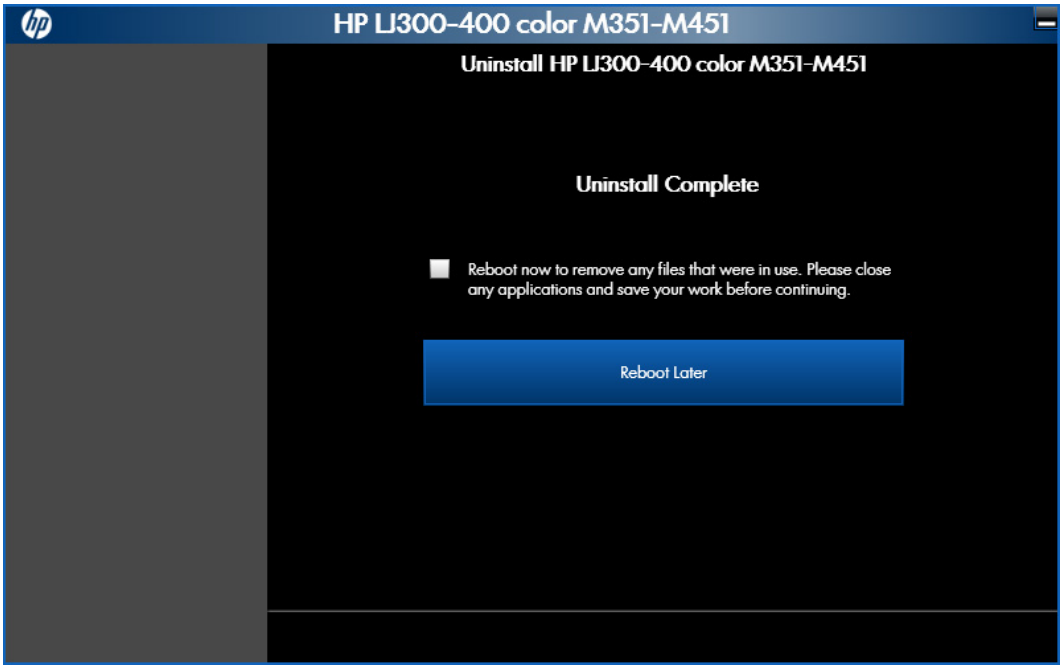


Figure 2-71 HP Uninstaller utility — Reboot Later button



Use the software CD to remove the product software

The installer program on the software CD includes a utility to remove the product software.

1. Insert the printing system software CD into the CD-ROM drive. The software installer detects the language of the operating system, and then displays the main menu of the installation program in the same language.

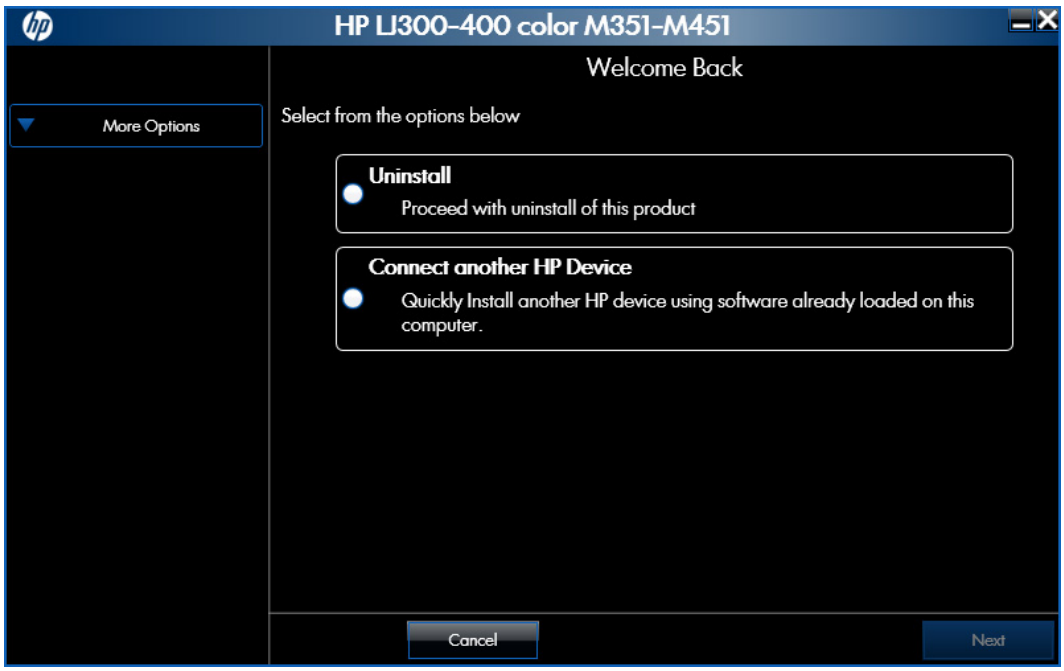
   If the installer program has not started after 30 seconds, complete these steps:

   a. On the **Start** menu, click the **Run** option.

   b. Type the following: `X:\SETUP.EXE` (where X is the letter of the CD-ROM drive).

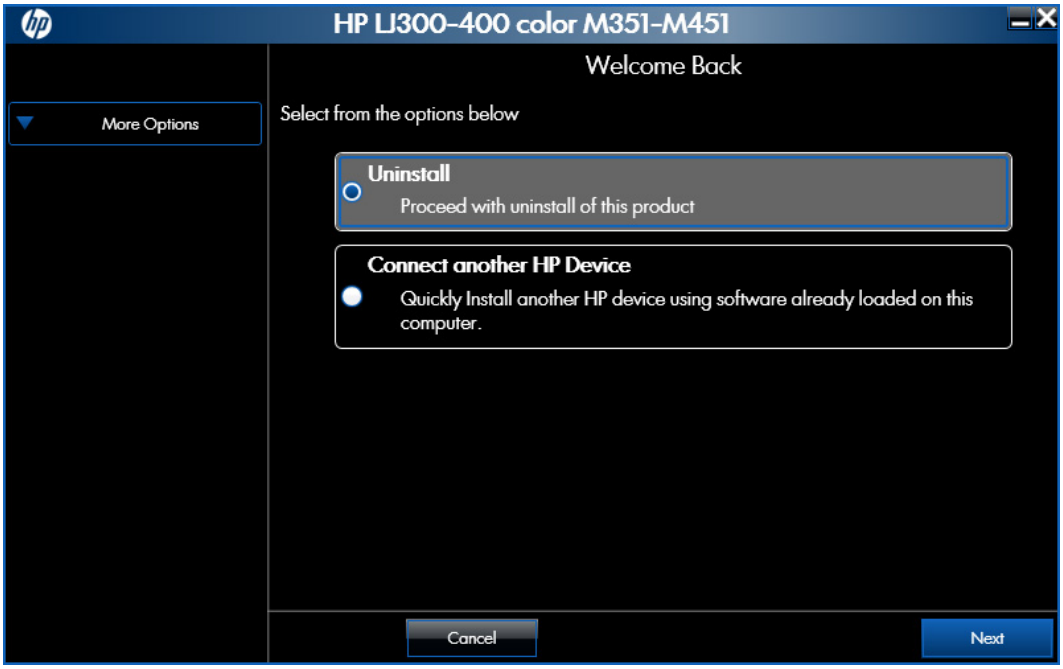
   c. Click the **OK** button. The installer program starts and opens the **Welcome Back** screen.

   Figure 2-72 Software installation — Welcome Back screen



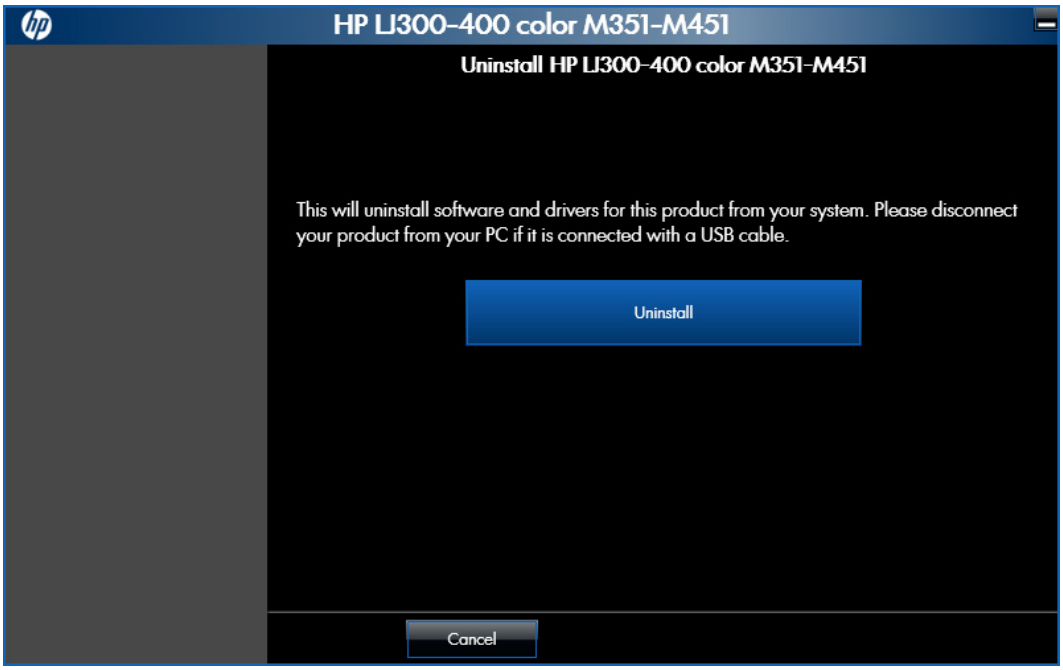
2. Click the **Uninstall** option, and then click the **Next** button.

Figure 2-73 Software installation — Uninstall option selected



3. Click the **Uninstall** button, and then follow the onscreen instructions to complete the process.

Figure 2-74 Software uninstall — Uninstall button



4. Click the **Uninstall** button to begin the removal process. When the process is complete, either click the **Reboot Now** button, or clear the check box and click the **Reboot Later** button.

Figure 2-75 Software uninstall — Reboot Now button

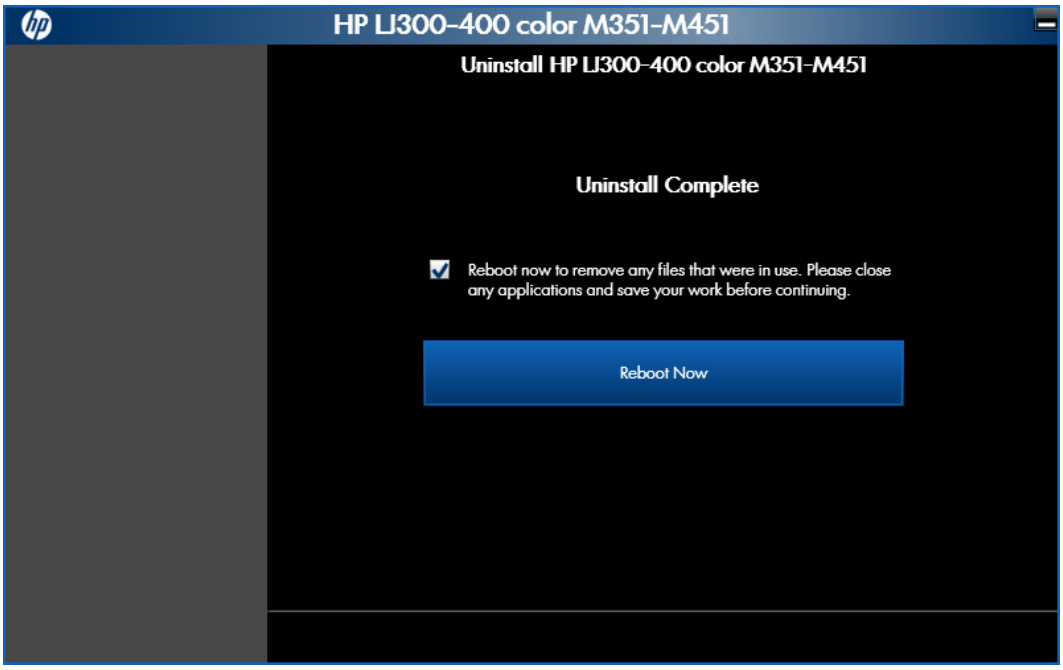
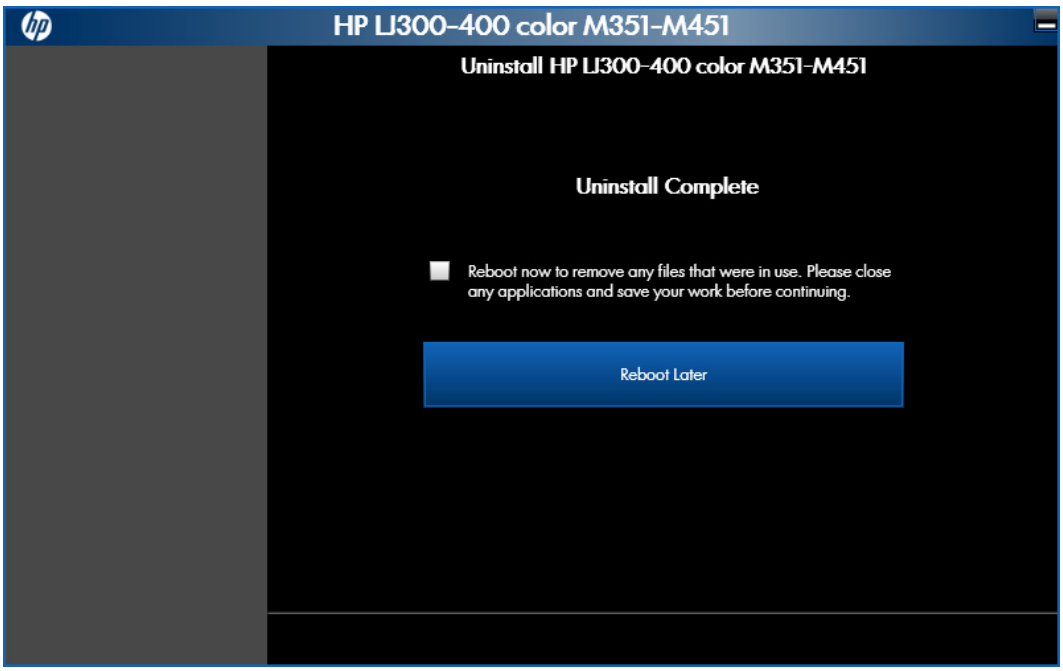


Figure 2-76 Software uninstall — Reboot Later button



Remove the print driver by using the Windows Add or Remove Programs feature

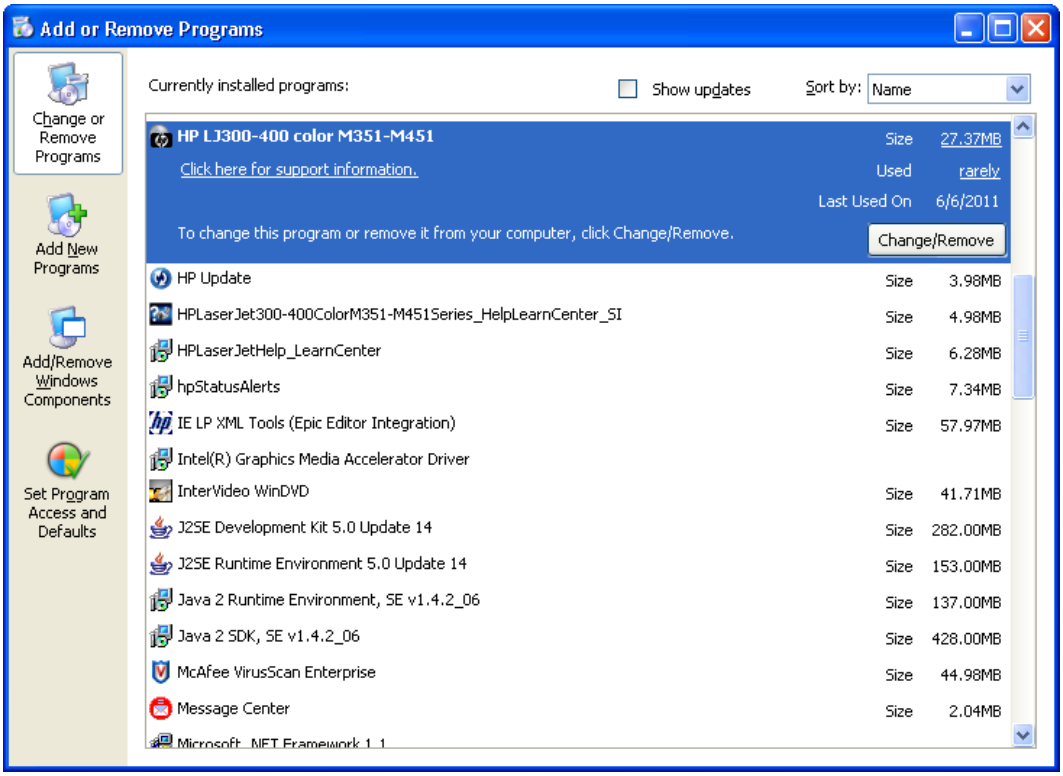
If the print driver was installed by the HP Driver Installation Utility (HP DIU), perform the following to remove the driver:

NOTE: You do not need the printing-system software CD to use this method.

NOTE: To remove the software, you must log on with administrator privileges.

1. Close all programs.
2. Complete one of the following steps.
   - **Windows XP and Windows Server 2003**: On the **Start** menu, click the **Control Panel** item, and then double-click the **Add/Remove programs** item.
   - **Windows Vista and Windows 7**: On the **Start** menu, click the **Control Panel** item, and then under the **Programs** menu click the **Uninstall a program** item.

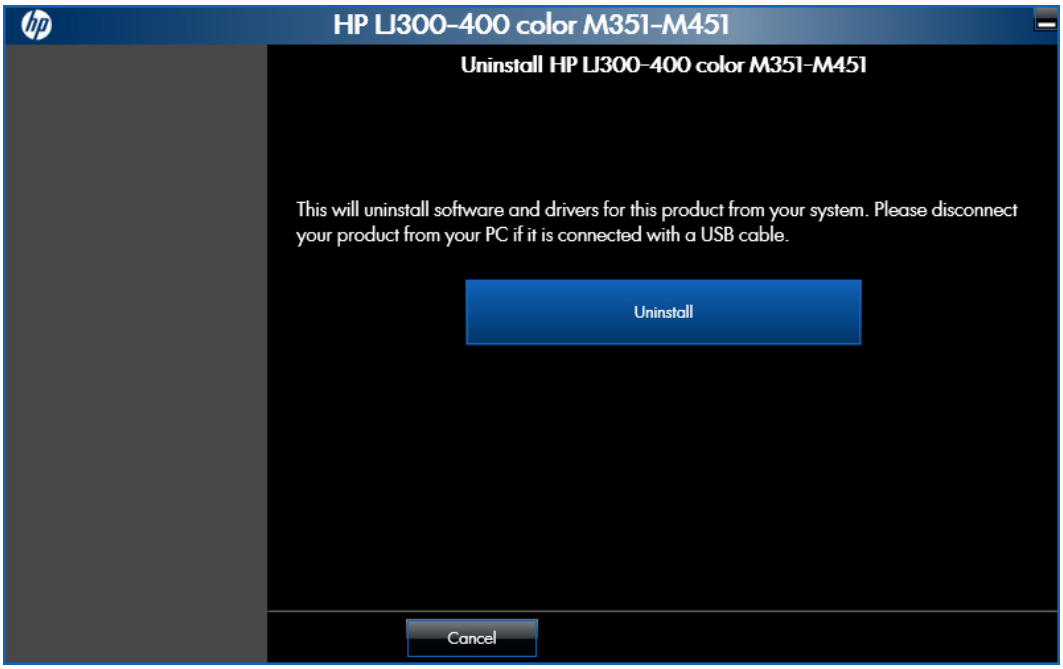
Figure 2-77 Windows Control Panel screen



3. Click **Change or Remove Programs**, select the component you want to remove, and then click **Change/Remove**. The following components might appear in the list of programs:
   - HP LaserJet Pro 300 color M351 or HP LaserJet Pro 400 color M451 PCL 6 driver

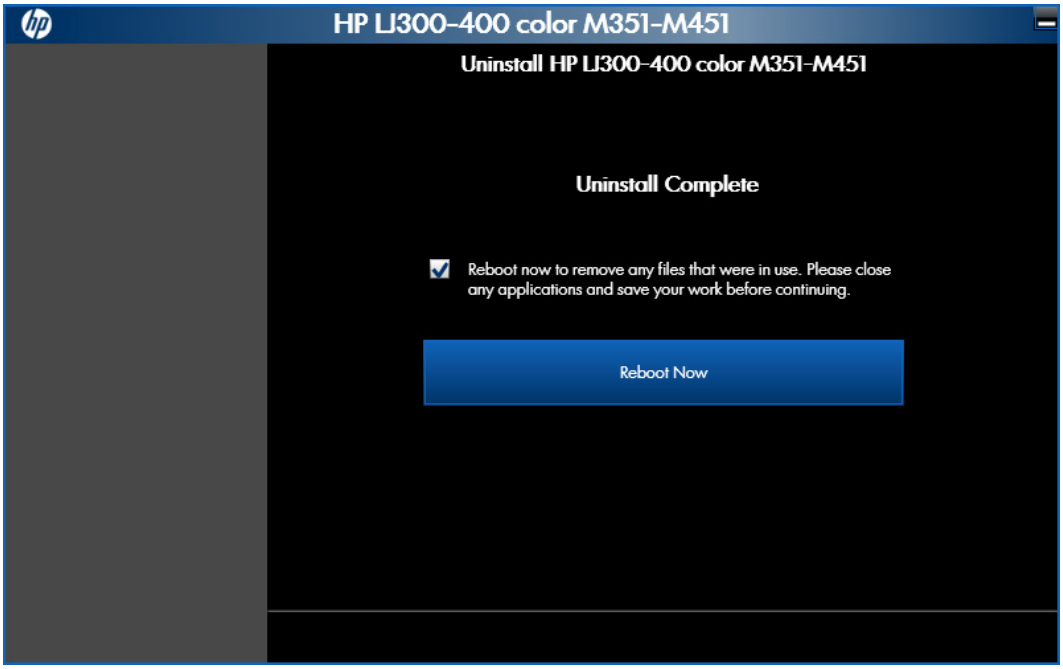
4. The HP Driver Uninstall Utility launches. Click the **Uninstall** button to start the uninstall process. Click **Cancel** to exit the HP Uninstall Utility.

Figure 2-78 HP Driver Uninstall Utility screen



5. When the removal is complete, you will be prompted to reboot the computer. De-select the check box to reboot at a later time.

Figure 2-79 HP Driver Uninstall Complete screen



Uninstall the print driver by using the Server Properties feature

If the print driver was installed by the Add Printer Wizard, perform the following procedure to remove the driver:

NOTE: To remove the software, you must log on with administrator privileges.

1. Close all programs.
2. On the **Start** menu, do one of the following steps:
   - **Windows XP and Windows Server 2003**: Click the **Settings** item, and then open the **Printers and Faxes** item.
   - **Windows Server 2008 and 2008 R2**: Click the **Control Panel** item, and then open the **Printers** folder.
   - **Windows Vista**: Click the **Control Panel** item. Under the **Hardware and Sound** category, click the **Printer** item.
   - **Windows 7**: Click the **Devices and Printers** item.
3. Right-click the icon for your product and then click the **Delete** button. This removes the icon for the product only, but it does not remove the associated files.
4. To remove the associated files, do one of the following steps:
   - **Windows XP and Windows Server**: Click the **File** menu from inside the **Printers** or **Printers and Faxes** dialog, and then click the **Server Properties** menu item.
   - **Windows Vista**: Right-click the list pane, and then click the **Server Properties** menu item.
   - **Windows 7**: Click another item in the **Printers and Faxes** group, and then at the top of the list click the **Printer server properties** button.
5. Click the **Drivers** tab, click the name of the product, and then click the **Remove** button. When you are prompted to confirm the deletion, click the **Yes** button.
6. Click the **OK** button to close the **Print Server Properties** dialog, and then close the **Printers** or **Printers and Faxes** dialog .

3 Mac software and utilities

- Software installation methods
- Install the Mac printing-system software
- Remove the printing-system software from Mac operating systems

Software installation methods

CD installation

Supported operating systems for Mac

The product supports the following Mac operating systems:

- Mac OS X 10.5, 10.6, and 10.7

NOTE: For Mac OS X 10.5 and later, PPC and Intel® Core™ Processor Macs are supported. For Mac OS X 10.6, Intel Core Processor Macs are supported.

Supported languages

Table 3-1 Mac installation supported languages

Language	Two-letter abbreviation	HP-preferred name	File designation
Danish	DA	Dansk	DAWW
German	DE	Deutsch	DEWW
English	EN	English	ENWW
Spanish	ES	Espanol	ESWW
Finnish	FI	Suomi	FIWW
French	FR	Francais	FRWW
Italian	IT	Italiano	ITWW
Japanese	JA	Japanese	JAWW
Korean	KO	Korean	KOWW
Dutch	NL	Nederlands	NLWW
Norwegian	NO	Norsk	NOWW
Polish	PL	Polski	PLWW
Portuguese	PT	Portugues	PTWW
Russian	RU	Russian	RUWW
Swedish	SV	Svenska	SVWW
Simplified Chinese	ZHCN	Simplified Chinese	ZHCN
Traditional Chinese	ZHTW	Traditional Chinese	ZHTW

Installed software components for Mac

The printing-system software for Mac is composed of an HP-created postscript (PS) printer definition file (PPD) and a Printer Dialog Extension (PDE) file that work together with the Mac OS printing

system. These files are used by the Mac OS printing system to determine default printer-driver settings and to allow the user to select between the various print options and settings. An HP-supplied Mac printer configuration utility is provided, which allows the user to access the HP Embedded Web Server (HP EWS) for additional configuration and product status monitoring. The following are provided on the printing-system CD:

- The HP LaserJet Installer for Mac

The following components are installed by the HP LaserJet Installer for Mac:

- HP LaserJet Pro 300 color M351 and HP LaserJet Pro 400 color MFP M451 PPD
- HP LaserJet Pro 300 color M351 and HP LaserJet Pro 400 color MFP M451 PDE
- HP USB EWS Gateway
- HP Utility

HP LaserJet software components and utilities for Mac

The printing-system software for Mac is composed of an HP-created postscript (PS) printer definition file (PPD) and a Printer Dialog Extension (PDE) file that work together with the Mac OS printing system. These files are used by the Mac OS printing system to determine default printer-driver settings and to allow the user to select between the various print options and settings. An HP-supplied Mac printer configuration utility is provided, which allows the user to access the HP Embedded Web Server (HP EWS) for additional configuration and product status monitoring. The following are provided on the printing-system CD:

- The HP LaserJet Installer for Mac

The following components are installed by the HP LaserJet Installer for Mac:

- HP LaserJet Pro 300 color M351 or HP LaserJet Pro 400 color M451 PPD
- HP LaserJet Pro 300 color M351 or HP LaserJet Pro 400 color M451 PDE
- HP USB EWS Gateway
- HP Utility

HP LaserJet Pro 300 color M351 and HP LaserJet Pro 400 color MFP M451 PPD

A postscript printer description (PPD) file is a text file that contains keywords and other information to specify printer features, options, and settings. PPD files are created by printer vendors for a specific postscript printer or printer family. PPD files are created by printer vendors to describe the set of printer features available for their postscript printers. On the Mac, PPD files provide all the information necessary to describe a postscript printer's features, including options and default settings. They also contain the postscript code used to invoke those features.

HP LaserJet Pro 300 color M351 and HP LaserJet Pro 400 color MFP M451 PDE

A Print Dialog extension file can specify one or more PDEs to load in the Print dialog box to provide HP printer specific features. A printing dialog extension (PDE) is a way to extend the Print dialog box in Mac OS X with custom printer features.

A PPD file and printing dialog extension (PDE) for a printer are bound to a printer queue when the queue is created.

HP USB EWS Gateway

For network-connected printers, the EWS can be accessed directly by typing the network IP address or DNS name of the product into the Web browser. HP USB EWS Gateway software, which is automatically installed, allows a Web browser to access the product's EWS if the product is connected using a USB cable. Click the **Utility** button when using a USB connection to access the EWS though the Web browser.

HP Utility for Mac

The HP Utility is a software program that gives you access to the product in Mac OS X.

The HP Utility does not work when it is installed by using the AppleTalk protocol. Use IP, Bonjour, or Rendezvous to enable the HP Utility.

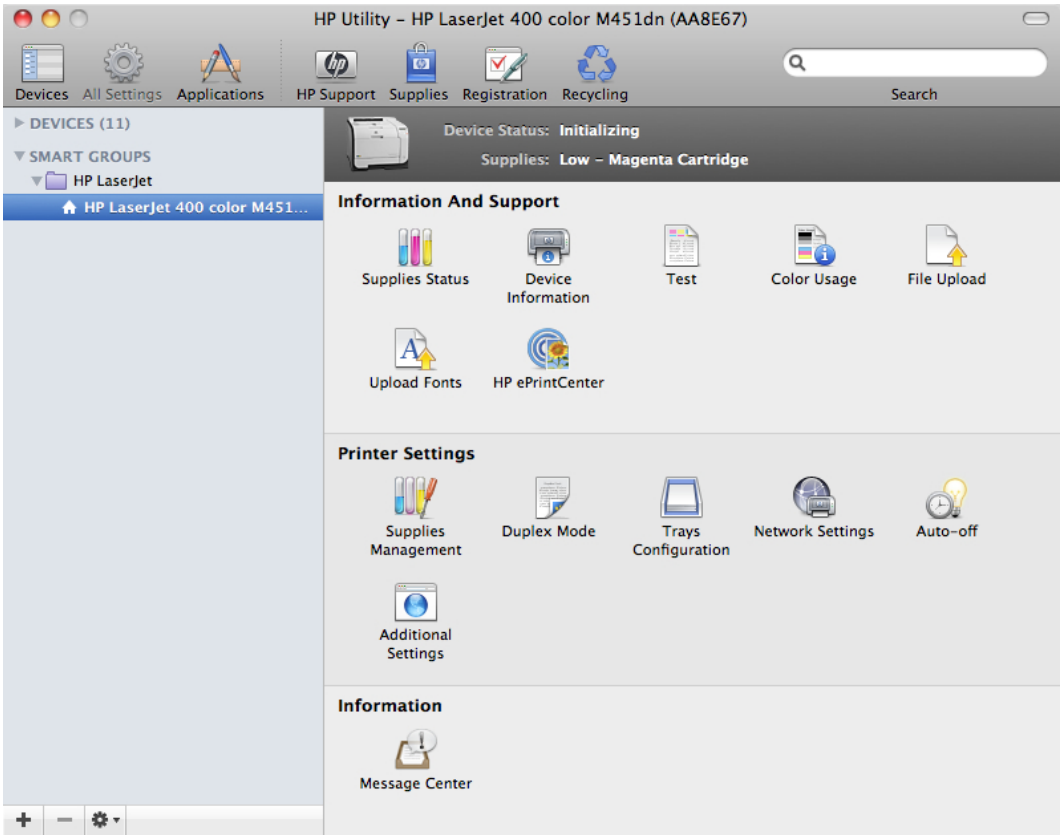
Click the **HP Support** button to go to the **HP Online Support** Web site for more help on any of these topics.

Open the HP Utility

1. Perform one of the following steps:
   - From the **Printer Browser** menu, click the **Printer Utility** button.
   - From the **Print Queue**, click the **Utility** icon.

2. The main HP Utility screen appears. Click the product in the **Printers** list.

Figure 3-1 HP Utility main screen



The following sections describe the screens and features that are available in the HP Utility.

HP Utility toolbar

Figure 3-2 HP Utility toolbar

The HP Utility toolbar includes the following controls.

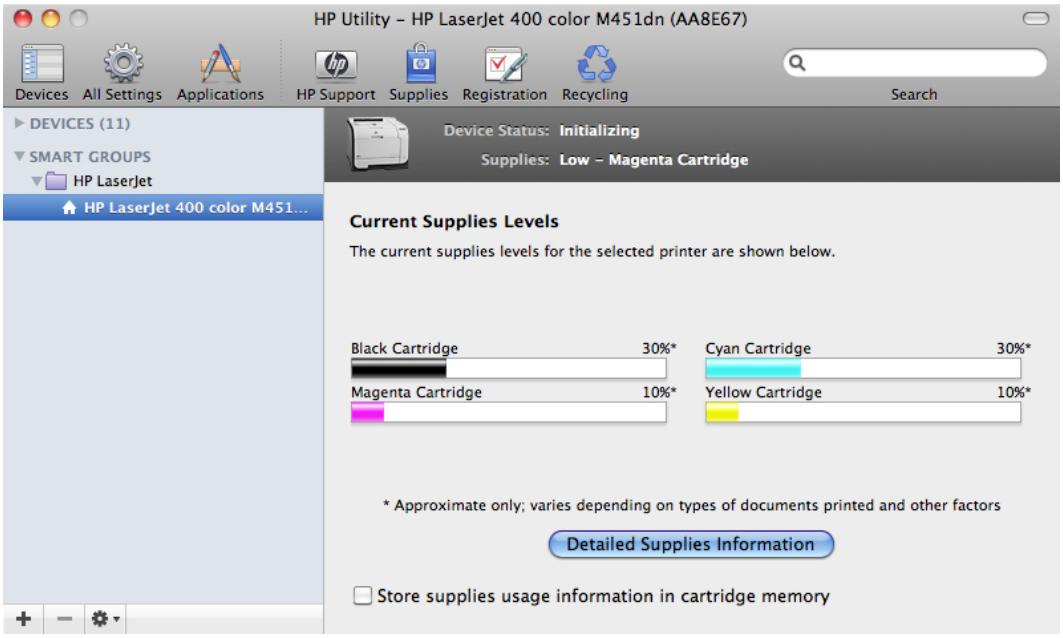
- **Devices**: Click this button to show or hide Mac products found by the HP Utility in the **Printers** pane at the left side of the screen.
- **All Settings**: Click this button to return to HP Utility main page.
- **Applications**: Click this button to manage which HP tools or utilities appear in the Dock.
- **HP Support**: Click this button to open a browser and go to the HP support Web site for the product.
- **Supplies**: Click this button to open the HP SureSupply Web site.

- **Registration**: Click this button to open the HP registration Web site.
- **Recycling**: Click this button to open the HP Planet Partners Recycling Program Web site.

Supplies Status

In the **Information And Support** section, click the **Supplies Status** icon to open the **Supplies Status** screen.

Figure 3-3 Supplies Status screen



Click the **Detailed Supplies Information** button to open the **Supplies Status** details screen.

Use the scroll button to see information about the print cartridges.

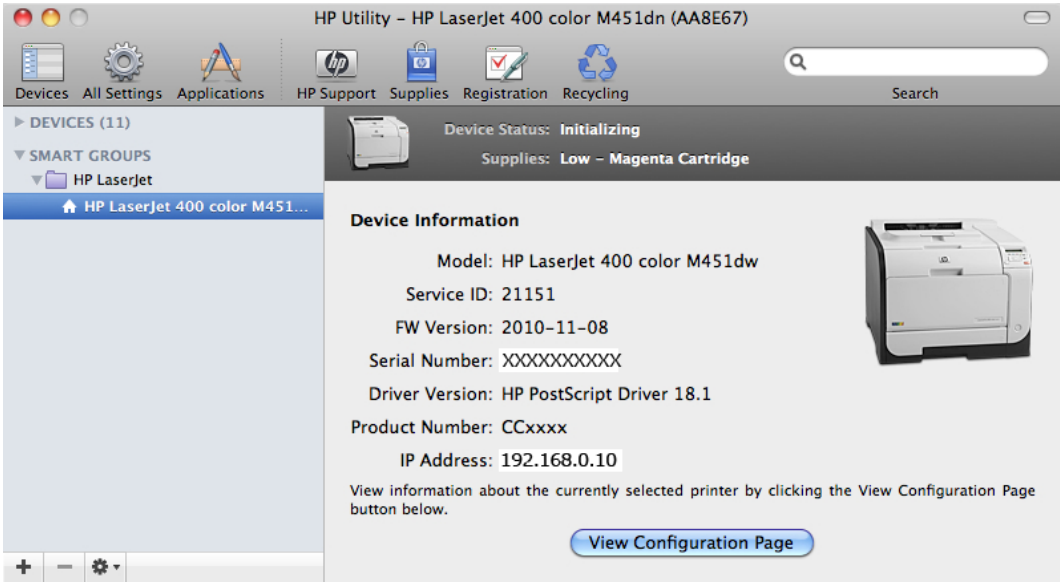
On the **Supplies Status Details** screen, click the **Media** button to see the status of the trays.

You can also order supplies by clicking the **Supplies** link in the toolbar on the HP Utility main screen.

Device Information

In the **Information And Support** section, click the **Device Information** icon to find the product **Service ID** (if assigned), the firmware version (**FW Version**), and the **Serial Number**.

Figure 3-4 Device Information screen

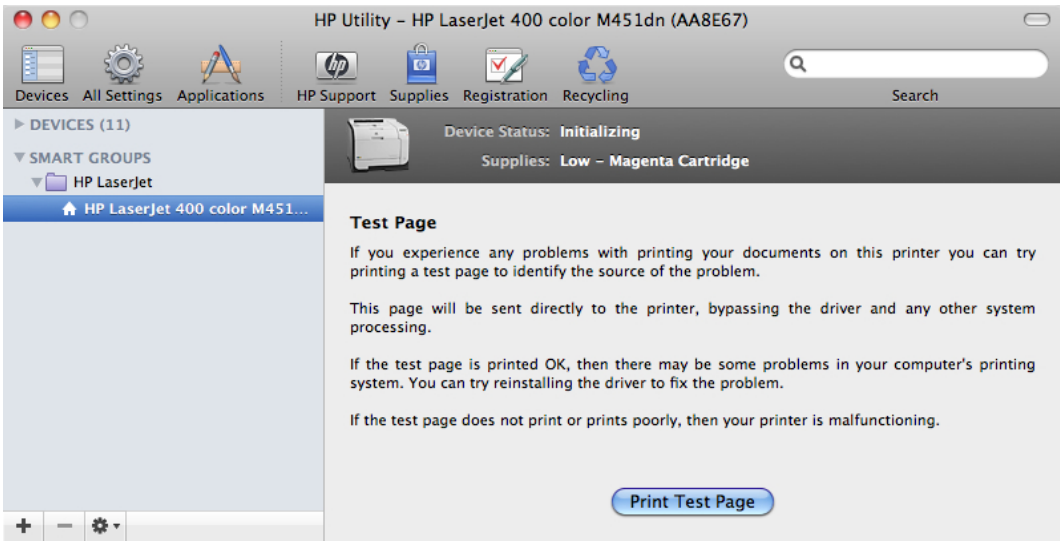


The product configuration page shows other settings; click the **View Configuration Page** button.

Test

In the **Information And Support** section of the HP Utility, click the **Test** icon to open a Test Page screen and print a Test Page on the printer.

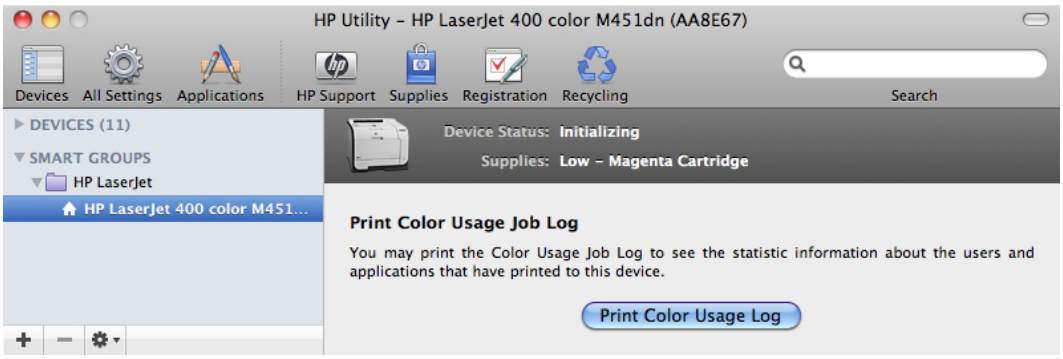
Figure 3-5 Test Page screen



Color Usage

In the **Information And Support** section of the HP Utility, click the **Color Usage** icon to open a screen and print a color-usage log.

Figure 3-6 Color Usage screen



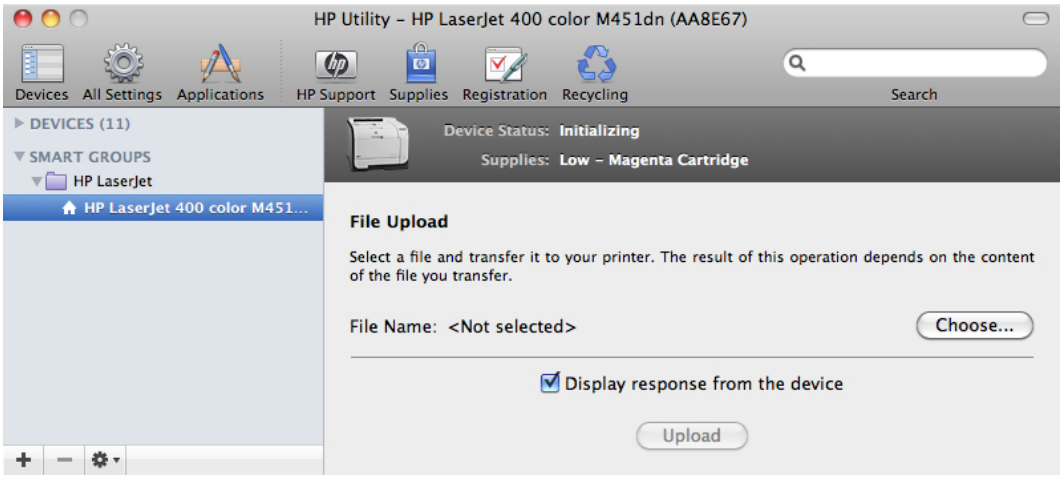
The color usage log provides the following information.

- Date and time
- Total number of jobs
- Mono (monochrome, or black-and-white) sides
- Color sides
- Paper sheets

File Upload

In the **Information And Support** section, click the **File Upload** icon to open the **File Upload** screen.

Figure 3-7 File Upload screen



The **File Upload** command is supported for file types that can be sent directly to the product without first being opened through a software program. Some files can be uploaded to the product, but some cannot.

Documents in the following file formats can be printed by using a command line. That is, they do not need to be opened in a software program that supports the file format (such as the Adobe Acrobat or

Acrobat Reader programs for .PDF files), but can be sent directly to the product by using the **File Upload** command.

- HP LaserJet printer command language (.PRN)
- Portable document format (.PDF)
- Postscript (.PS)
- Text (.TXT)

On the **File Upload** screen, click the **Choose** button to open a navigation screen. Locate the file you want to upload and click the **Open** button.

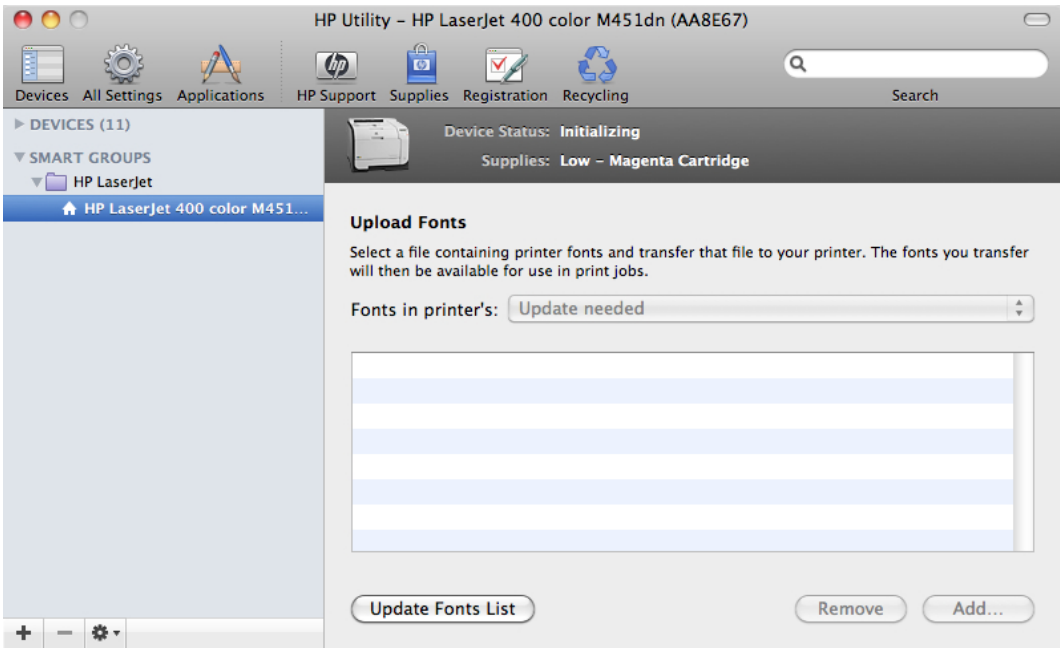
On the **File Upload** screen, click the **Display response from the device** option to verify that the upload was successful. If the file loads successfully, no message appears.

On the navigation screen, select the file and click the **Open** button. The file name appears in the **File Upload** screen. Click the **Upload** button.

Upload Fonts

In the **Information And Support** section, click the **Upload Fonts** icon to gain access to fonts that you can upload to the product.

Figure 3-8 Upload Fonts screen



The drop-down menu in the **Upload Fonts** pane has the following options:

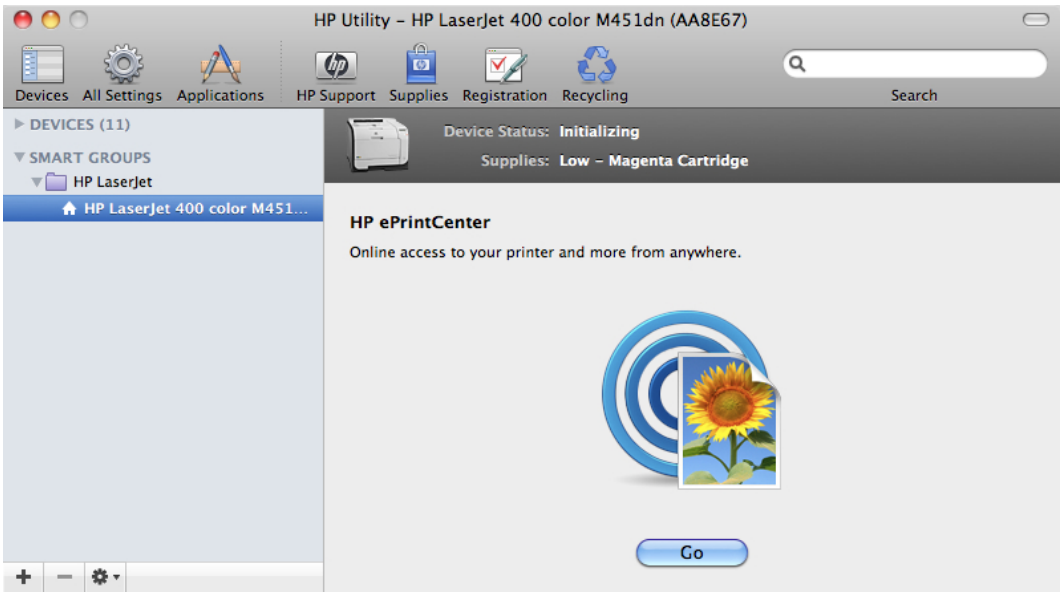
- **Memory**. Fonts that are available in the product memory are listed.
- **Disk**. Select this option to show any fonts that are installed on the product hard disk or flash disk. By default, no fonts are stored on either of these disks. To upload fonts, select the font name, and then click the **Add** button.

HP ePrintCenter

In the **Information And Support** section, click the **HP ePrintCenter** icon to enable ePrint, allowing you to print to your printer from anywhere.

Click the **Go** button to launch the HP ePrintCenter.

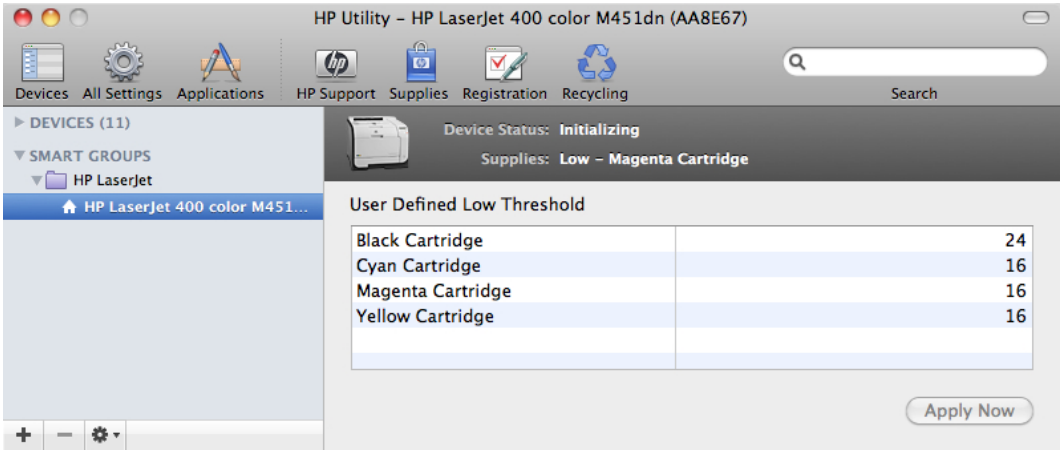
Figure 3-9 HP ePrintCenter screen



Supplies Management

In the **Printer Settings** section, click the **Supplies Management** icon to set the threshold for low ink in the individual cartridges.

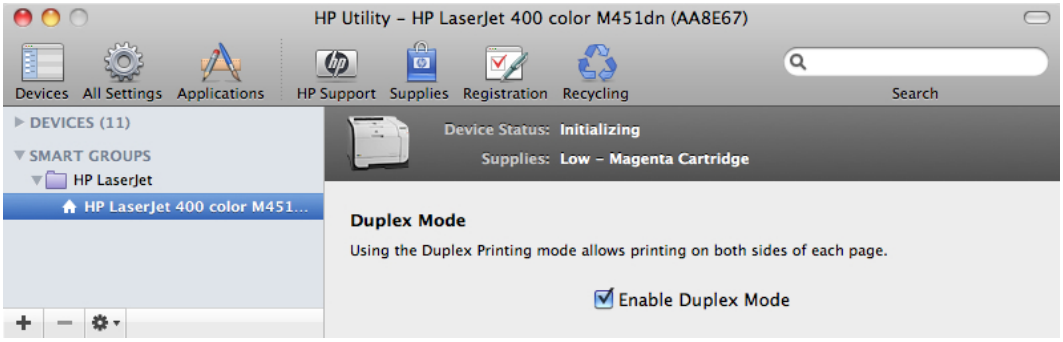
Figure 3-10 Supplies Management screen



Duplex Mode

In the **Printer Settings** section, click the **Duplex Mode** icon to enable printing on both sides of each page.

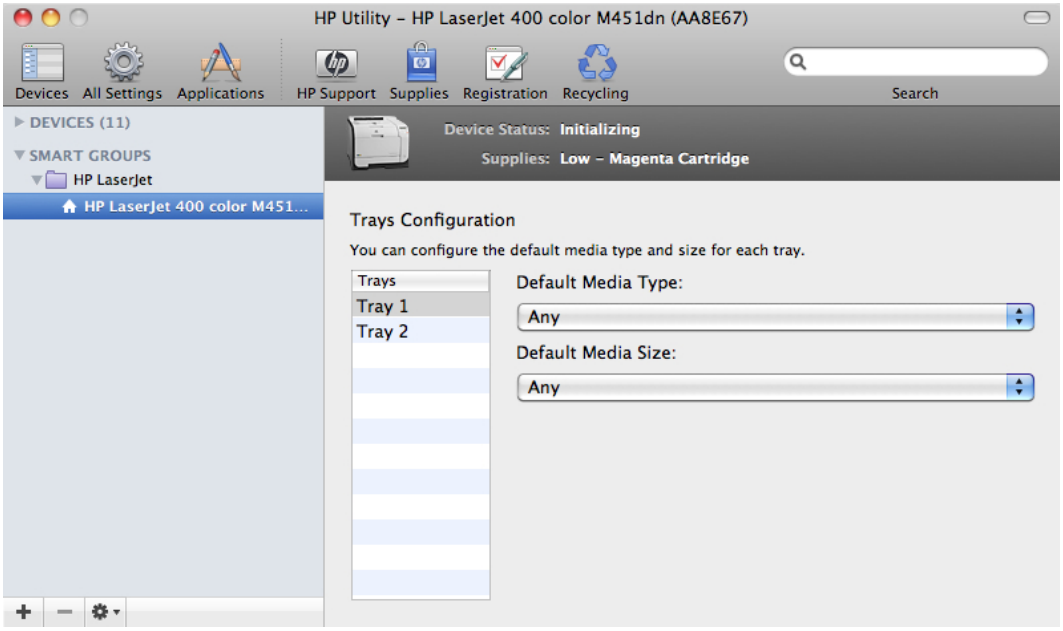
Figure 3-11 Duplex Mode screen



Trays Configuration

In the **Printer Settings** section, click the **Trays Configuration** screen to change paper size and type for each of the trays installed on the product.

Figure 3-12 Trays Configuration screen

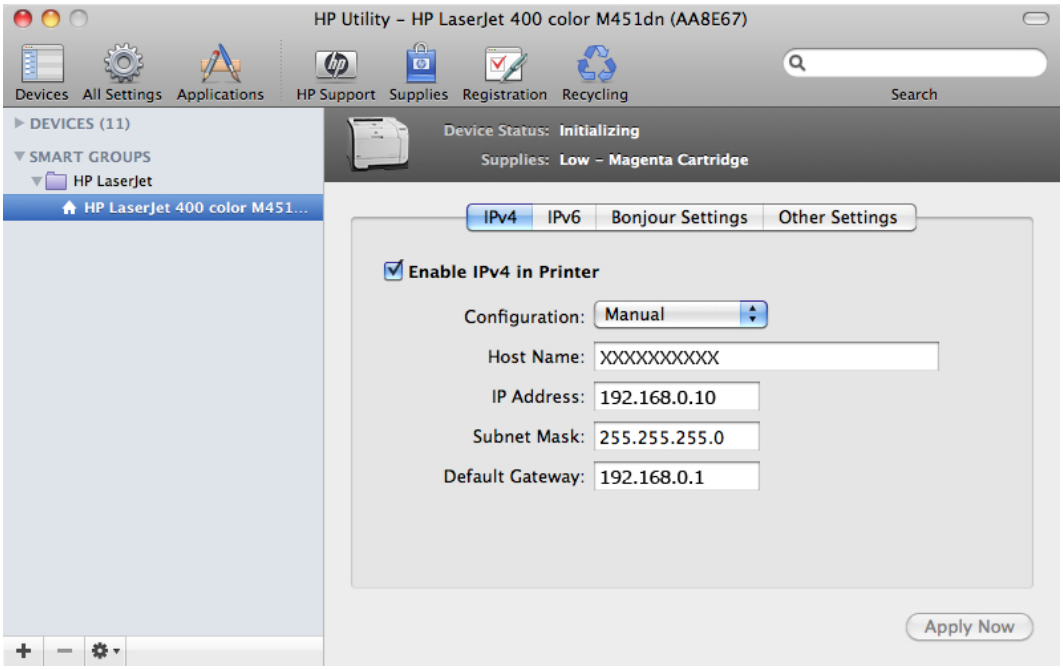


1. In the **Printer Settings** section, click the **Trays Configuration** icon.
2. To change the paper type, select a tray and then select a different paper type in the **Default Media Type** drop-down menu.
3. To change the paper size, select a tray and then select a different paper size in the **Default Media Size** drop-down menu.
4. Click the **Apply Now** button to save the settings.

Network Settings

In the **Printer Settings** section, click the **Network Settings** icon to open the **IPv4 Settings** screen.

Figure 3-13 IPv4 Settings screen



This screen provides access to **IPv4**, **IPv6**, **Bonjour Settings**, and **Other Settings**.

Click the **Configuration** drop-down menu to modify the following settings:

- **DHCP**
- **BootP**
- **Manual**

You can also use this screen to modify the following settings:

- **Host Name**
- **IP Address**
- **Subnet Mask**
- **Default Gateway**

To save new settings, click the **Apply Now** button.

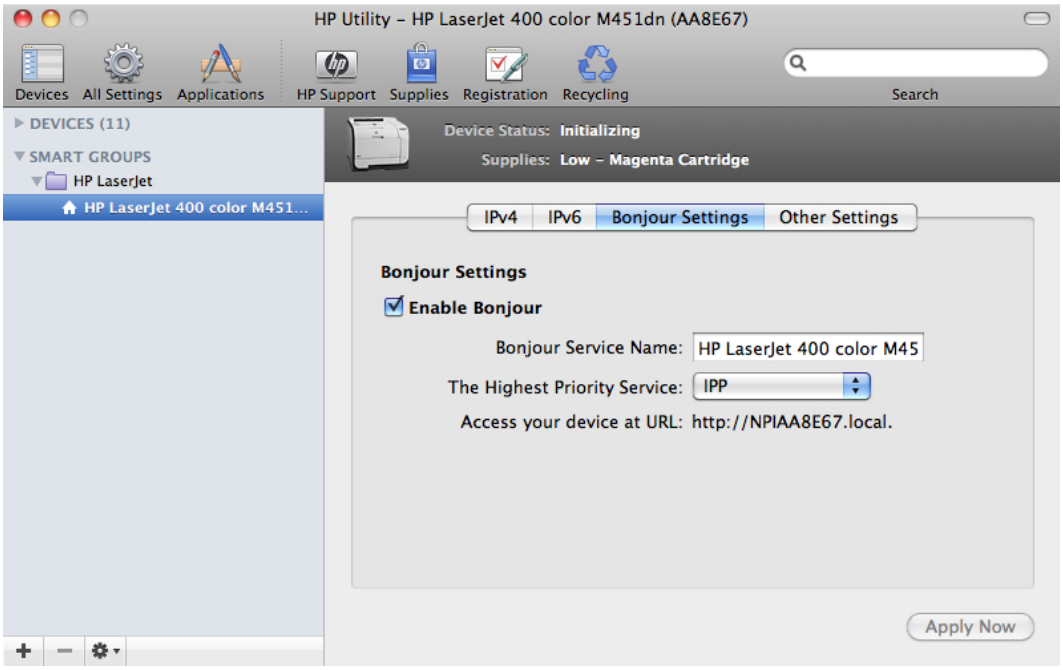
To view and change other network settings, click the **Other Settings** button.

If a user name and password have been set, you might need to obtain them from an IT administrator. For more information, see the HP EWS online help.

The HP EWS opens to the **Network Settings** screen.

To view and change the Bonjour network settings, click the **Bonjour Settings** button.

Figure 3-14 Bonjour Settings screen

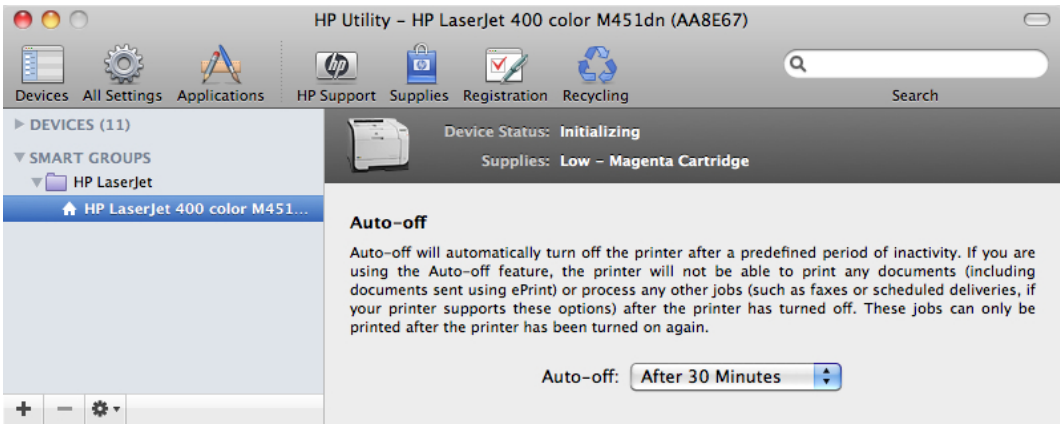


Bonjour is enabled by default. To disable Bonjour, click to clear the **Enable Bonjour** check box, and then click the **Apply Now** button.

Auto-off

In the **Information And Support** section, click the **Auto-off** icon to configure the printer to automatically turn off after a predetermined time of inactivity.

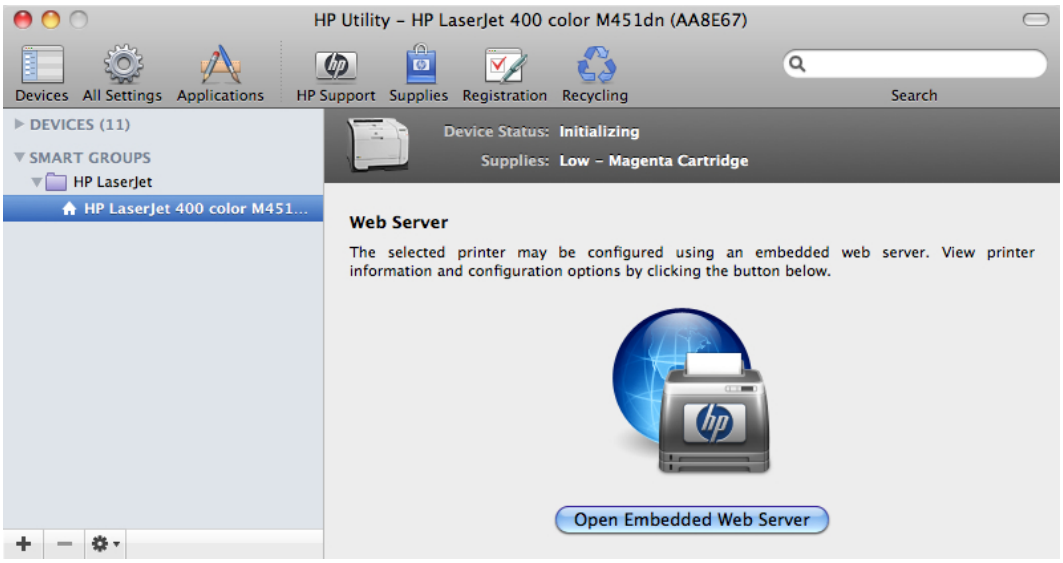
Figure 3-15 Auto-off screen



Additional Settings

In the **Printer Settings** section, click the **Additional Settings** icon to open the HP EWS access screen.

Figure 3-16 Additional Settings screen



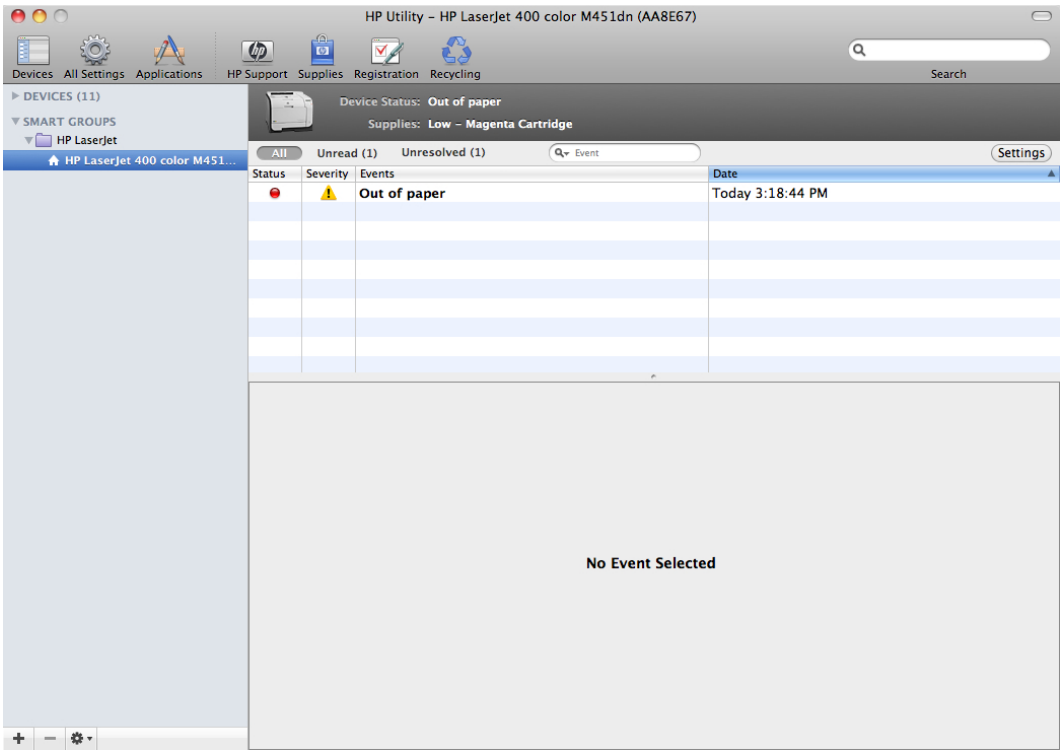
To open the HP EWS, click the **Open Embedded Web Server** button.

For information about HP EWS settings, consult the HP EWS online help.

Message Center

In the **Information** section, click the **Message Center** icon to open the **Message Center** screen. The screen shows any error events that have occurred with the product.

Figure 3-17 Message Center screen



Supported print drivers for Mac

The HP installer provides Postscript Printer Description (PPD) files, Printer Dialog Extensions (PDEs), and the HP Printer Utility for use with Mac computers.

The PPDs, in combination with the Apple postscript print drivers, provide access to product features. Use the Apple postscript printer driver that comes with the computer.

Priority for print settings for Mac

Changes to print settings are prioritized depending on where the changes are made:

NOTE: The names of commands and dialog boxes might vary depending on your software program.

- **Page Setup dialog box**: Click **Page Setup** or a similar command on the **File** menu of the program you are working in to open this dialog box. Settings changed here might override settings changed anywhere else.
- **Print dialog box**: Click **Print**, **Print Setup**, or a similar command on the **File** menu of the program you are working in to open this dialog box. Settings changed in the **Print** dialog box have a lower priority and do *not* override changes made in the **Page Setup** dialog box.

- **Default printer driver settings**: The default printer driver settings determine the settings used in all print jobs, *unless* settings are changed in the **Page Setup**, **Print**, or **Printer Properties** dialog boxes.
- **Product control-panel settings**: Settings changed at the product control panel have a lower priority than changes made anywhere else.

Install the Mac printing-system software

On a Mac computer, the printing-system software installation procedures are the same for a network administrator, a network client, or a single user. Install the printing-system software on any computer that has access rights to the product. The computer user must also have administrative rights on the computer to install the printing-system software.

- General installation for Mac operating systems
- Detailed Mac installation
- Setup instructions

General installation for Mac operating systems

1. If you are connecting the product to a network, connect the network cable to the network port. If you are connecting the product to a computer by using the USB cable, connect the USB cable.
2. Insert the Mac printing-system software CD into the CD-ROM drive.

   NOTE: If the **HP LaserJet** installer browser screen does not open automatically when the CD is inserted into the CD-ROM drive, double-click the product CD image on the desktop to open the installer browser screen.
3. In the **HP LaserJet** installer browser screen, double-click the product .dmg icon, then double-click the .pkg icon. This begins the printing-system installation.

   NOTE: In the HP LaserJet installer browser screen, double-click the **Documentation** icon to gain access to the manuals. Select a language folder and locate the available guides which are in .PDF format. The user guide is a .PDF file that is named LJCM1130–M1210_use_xxww.pdf, where “xx” is a language abbreviation
4. The **Introduction** screen appears. Click **Continue** and then follow the onscreen instructions to complete the printing-system software installation.

   NOTE: When the printing-system software is installing, be patient. The installer must perform an initial search of the computer, which can take up to 1 minute. During this time, the installer might appear to be stalled.
5. When the printing-system software installation is complete, click **OK**.
6. Continue with the steps for setting up a product.

Detailed Mac installation

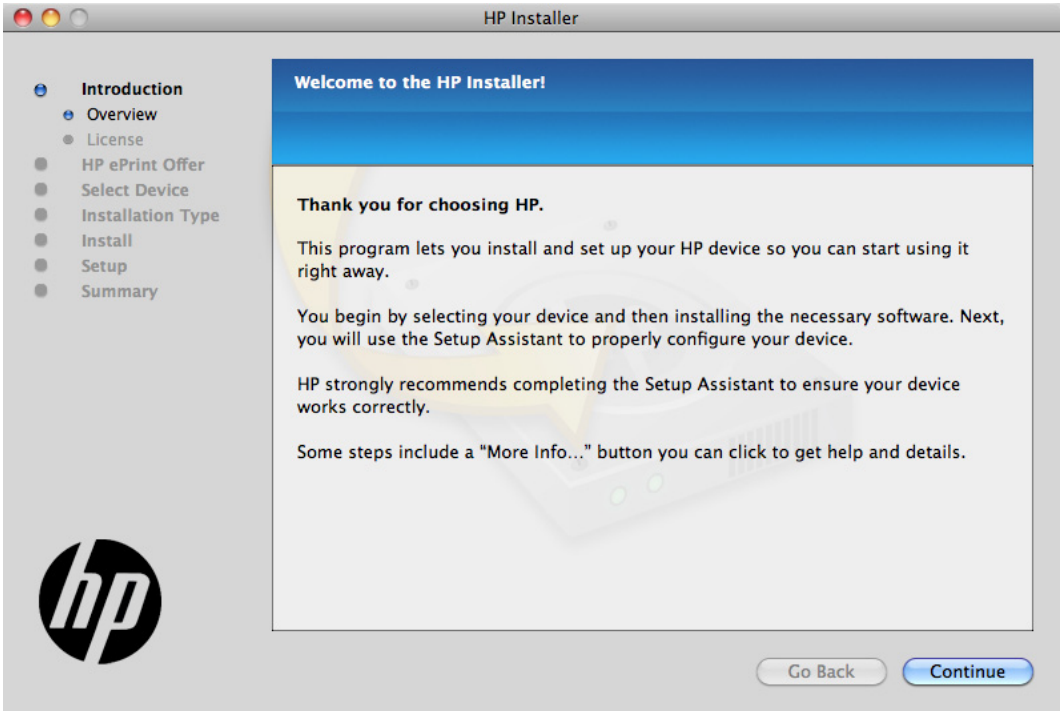
NOTE: This section covers installing the print driver for USB, wired network, and wireless network connections.

1. Close all programs.
2. In the case of a network connection, connect the network cable and make sure the product in turned on. For an USB connection, connect the USB cable between the product and the computer, and make sure that the product is turned on.
3. Insert the printing system software CD into the Mac CD-ROM drive.

   NOTE: If the installer screen does not open automatically when the CD is inserted into the CD-ROM drive, double-click the product CD image on the desktop to open the installer browser screen, and then double-click the installer icon.

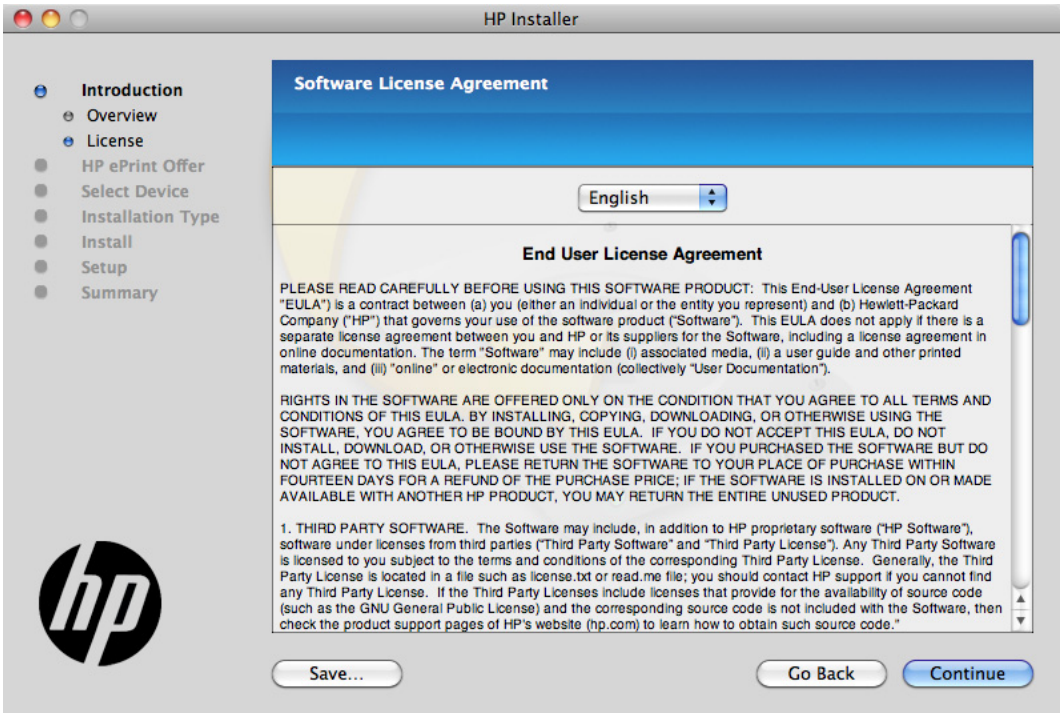
4. The **Overview** screen is the first screen to open. Click the **Continue** button to proceed.

   Figure 3-18 Mac installation — Overview screen



5. In the **License** screen, select the correct language in the drop-down box, read the license agreement, and then click the **Continue** button.

Figure 3-19 Mac installation — License screen

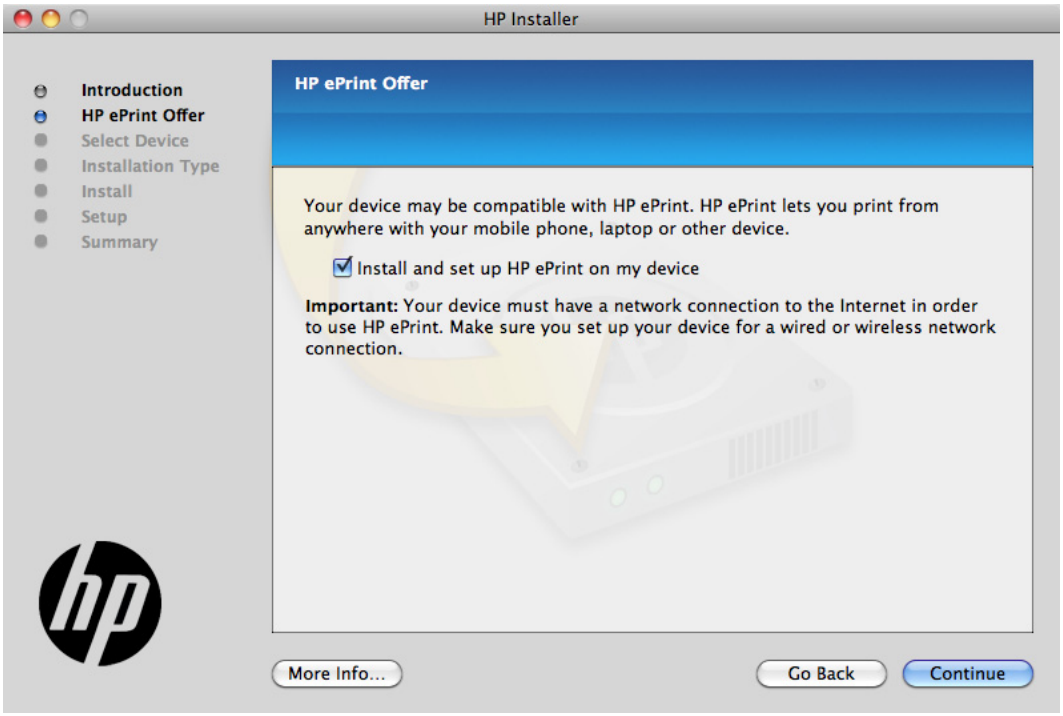


6. In the pop-up that appears, click the **Agree** button to confirm that you accept the license agreement.

Figure 3-20 Mac installation — License pop-up

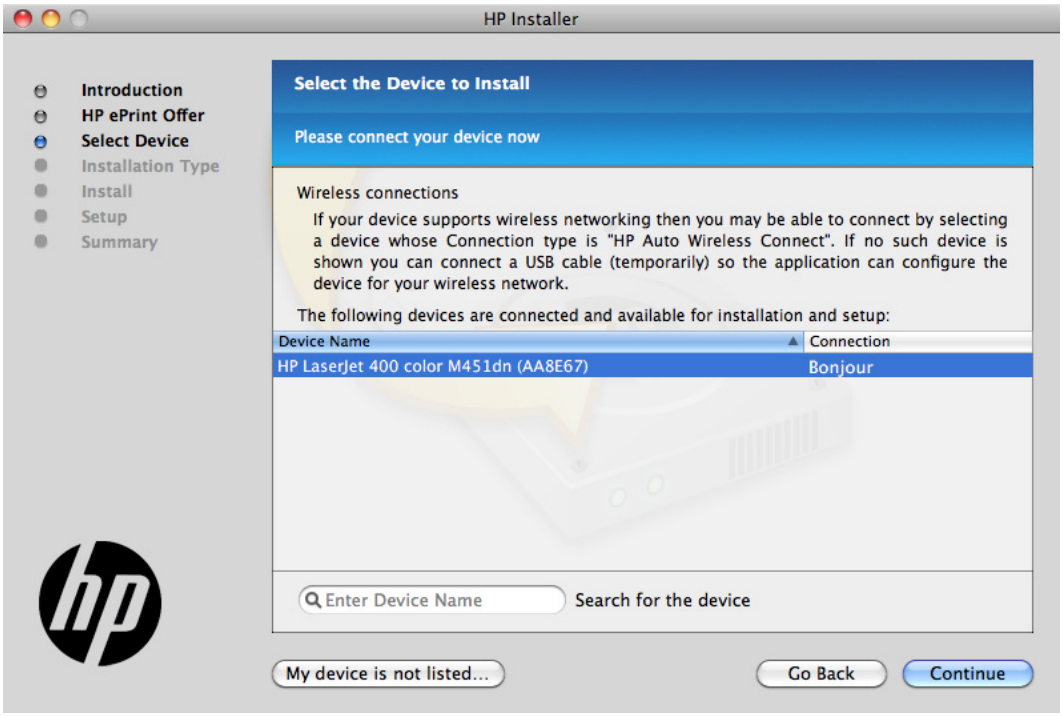
7. In the **HP ePrint Offer** screen, click the check box to install ePrint software, or clear it to decline the software. Click the **Continue** button.

Figure 3-21 Mac installation — HP ePrint Offer screen



8. In the **Select Device** screen, select the product to be installed, and then click the **Continue** button.

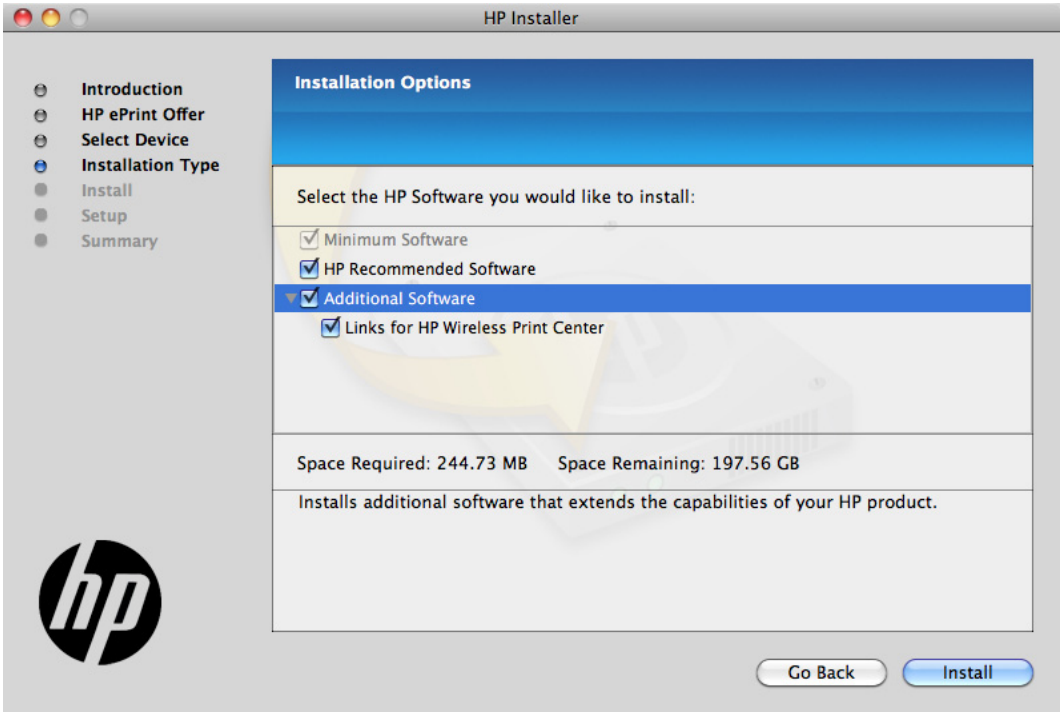
Figure 3-22 Mac installation — Select Device screen



If the product does not appear, make sure that the network or USB connection is correct, click the **My device is not listed...** button, follow the prompts to select your product, and then click the **Continue** button.

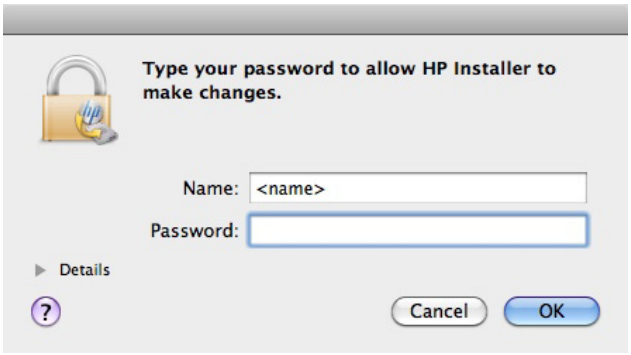
9. In the **Installation Type** screen, click the **HP Recommended Software** button to perform the recommended full software installation. Click the **Additional Software** button to select the additional software components to install.

Figure 3-23 Mac installation — Installation Type screen



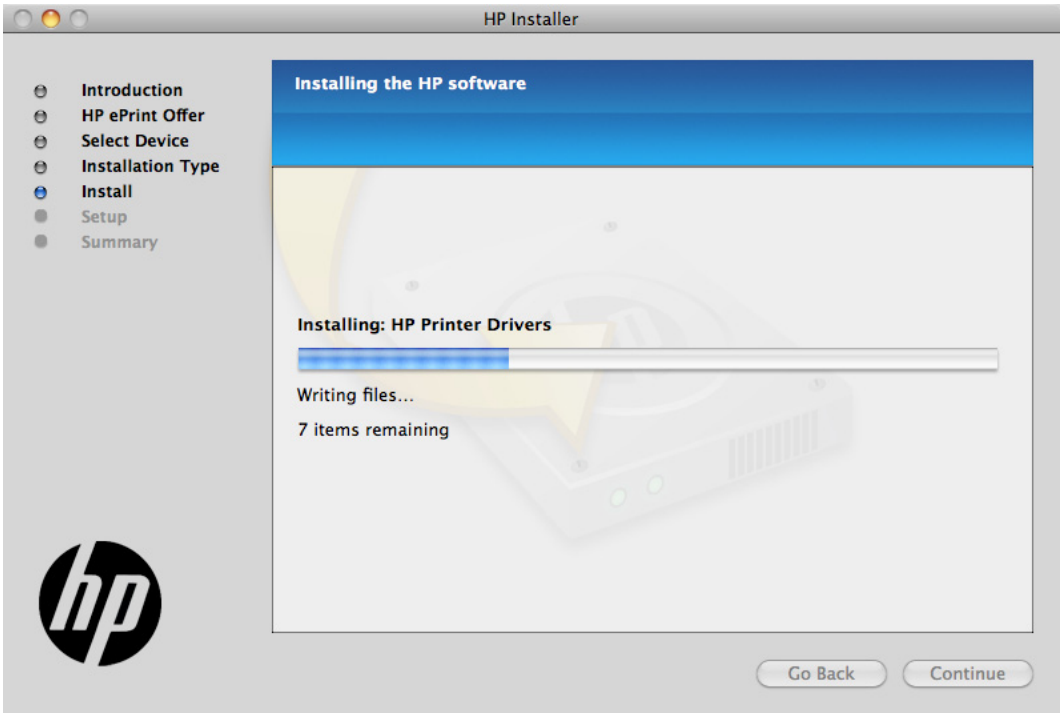
10. In the **Password** popup that opens, enter the user name and password, and then click the **OK** button.

Figure 3-24 Mac installation — Password popup



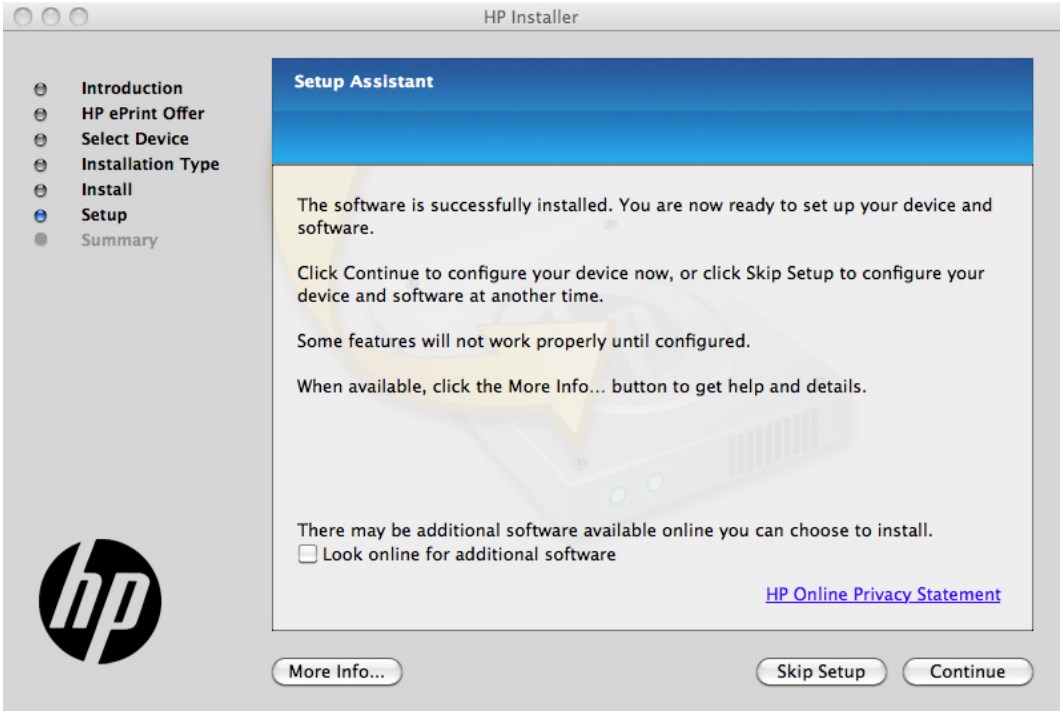
11. The installer program shows a progress bar as the installation process starts. This process can take several minutes.

Figure 3-25 Mac installation — Progress bar



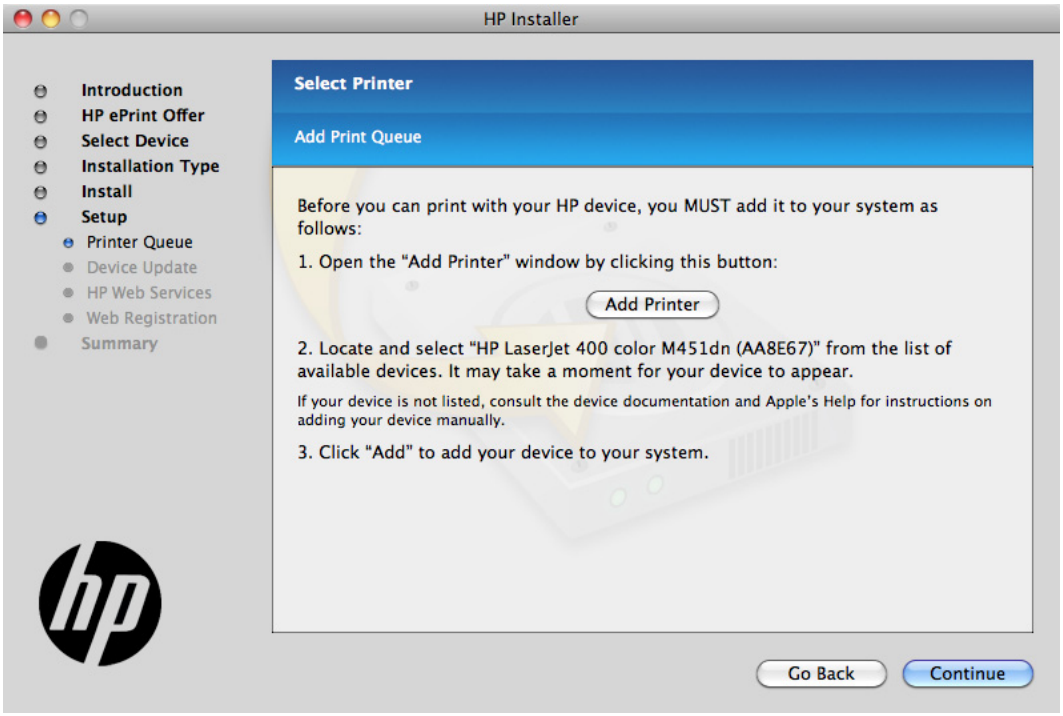
12. In the **Setup** screen, you can click **More Info** button or click the check box to look online for optional software. There is also an **HP Online Privacy Statement** link. When finished, click the **Continue** button or click the **Skip Setup** to run the setup wizard at a later time.

Figure 3-26 Mac installation — Setup screen



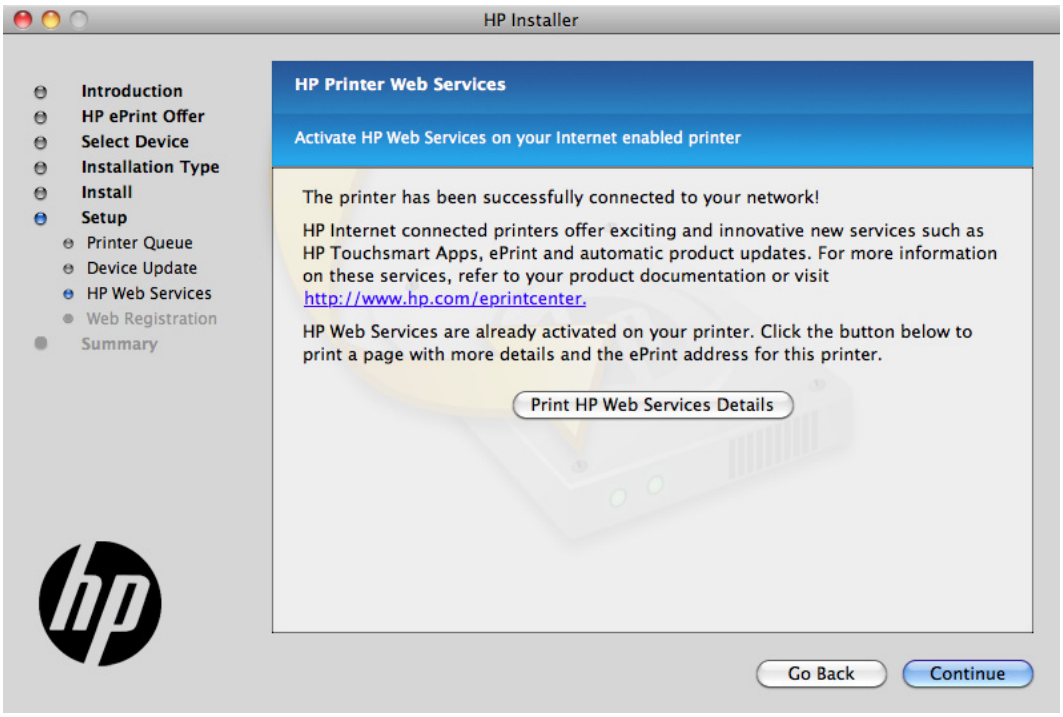
13. Click the **Add Printer** button to add the printer to the print queue. When finished, click the **Continue** button.

Figure 3-27 Mac installation — Add Print Queue screen



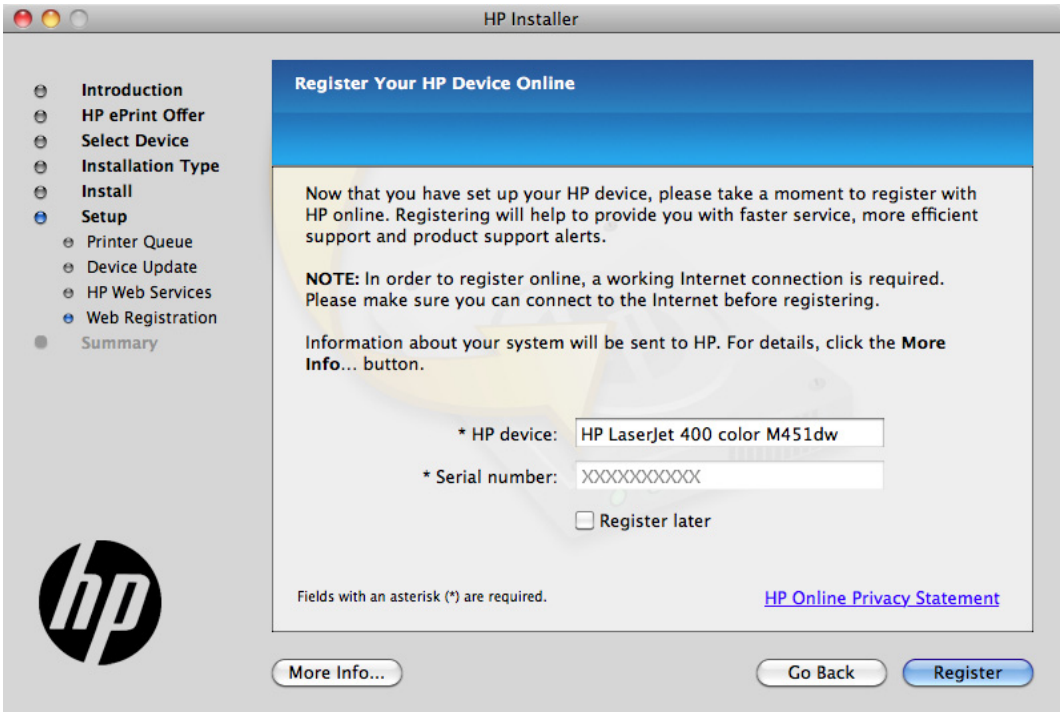
14. The installer program automatically performs the Device Update and then opens the **HP Web Services** screen: For more information on ePrint, click the web link to the ePrint Center. For details and the ePrint address for the printer, click the **Print HP Web Services Details** button. When finished, click the **Continue** button.

Figure 3-28 Mac installation — HP Printer Web Services



15. Click the **Register** button, or click the **Register later** check box, and then click **Continue**.

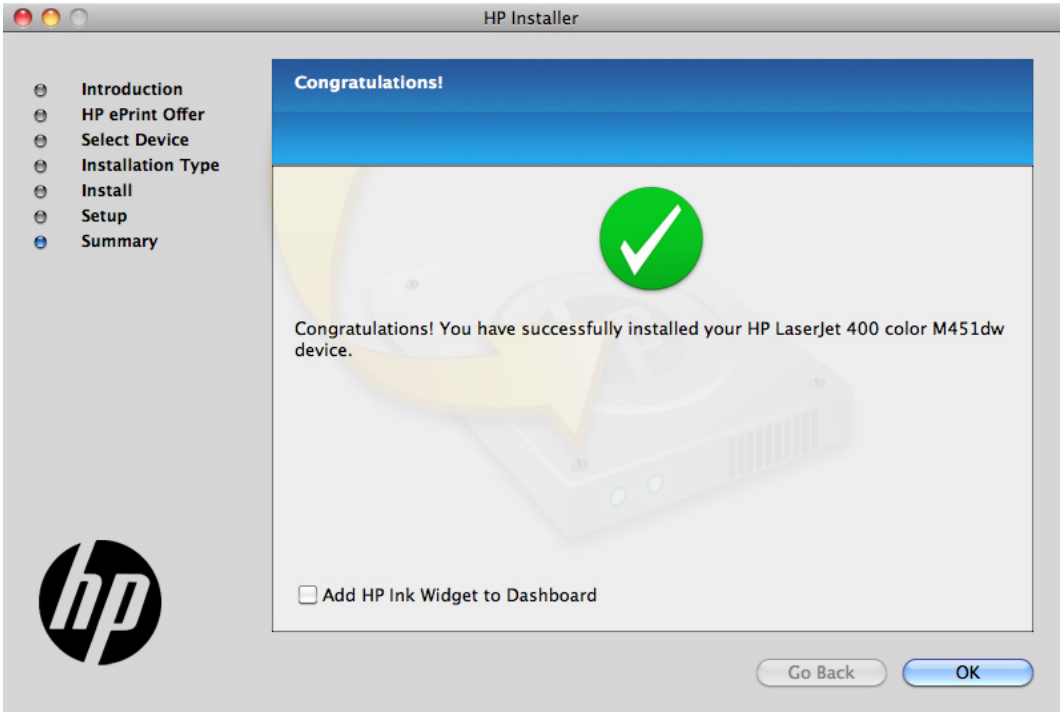
Figure 3-29 Mac installation — Web Registration screen



- If you clicked the **Register** button, the installation program opens the HP registration program. Provide the necessary information.
- If you clicked the **Register later** check box and then clicked the **Continue** button, a popup appears for confirmation that you want to register at a later time. Click the **Continue** button.

16. When the installation completes, the **Summary** screen appears. To add the HP Ink Widget to the dashboard, click the **Add HP Ink Widget to Dashboard** checkbox Click the **OK** button to close the installer program.

Figure 3-30 Mac installation — Summary screen



Setup instructions

If you clicked the Skip Setup button during the initial installation process, you must set up the product manually.

This section contains information about the following topics:

- Set up a printer with a Mac
- Troubleshoot the product setup

Set up a printer with a Mac

Complete these steps *after* completing the printing-system software installation.

1. If you are installing the product using a USB connection, verify the USB cable is connected between the product and the computer. Turn on the product. If you are installing using a network connection, verify that the network cable is connected to the product and that the product is on.
2. In the **Applications** folder (in the **Finder** utility), open the **System Preferences** folder, and then open **Printer & Fax**.

3. If you are installing the product using a USB connection, verify that the product appears in the printer list. The **Name** column in the printer list should display the product name. If this is the case, the USB setup is complete.

   If the product does not appear, or if the correct information does not appear in the field, see Troubleshoot the product setup on page 143.

   If you are installing the product using a network connection, continue with the following steps.

4. Click the add **+** icon beneath the **Printer List** to open the **Printer Browser** screen.

5. Select your product model from the list of printers with Bonjour as the Kind. Click the **Add** button.

Troubleshoot the product setup

If the product does not appear in the printer list after an installation:

Complete each one of these solutions in the order given, and restart the setup process after each one to see if the issue has been resolved.

- Verify that the USB or network cable is connected between the product and the computer and that the product is powered on.
- Try disconnecting and reconnecting the cable. If the computer has more than one USB port, try a different USB port.
- Turn the product off and then back on.
- Turn the computer off and then back on.
- If you are using a USB hub on the computer, disconnect any other USB devices from the hub.
- Try forcing the product into USB Full Speed mode by using the control panel.

If the wrong PPD appears in the Kind column in the printer list after installation:

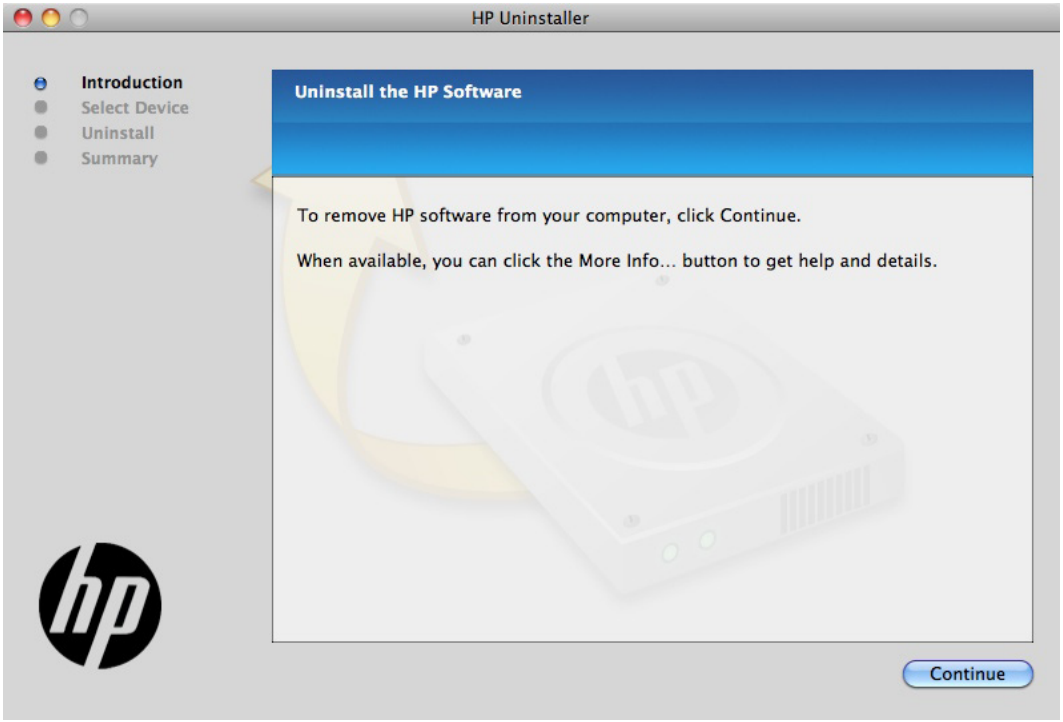
1. Unplug the USB cable.
2. Delete the print queue with the incorrect type (for example, Generic PostScript Printer).
3. Reinstall the printing-system software.
4. Turn the computer off and then on.
5. Reconnect the USB cable from the computer to the product.

If these steps do not resolve the problem, delete the incorrect print queue, click **Add**, choose the product from the list, and then browse manually for the product PPD.

Remove the printing-system software from Mac operating systems

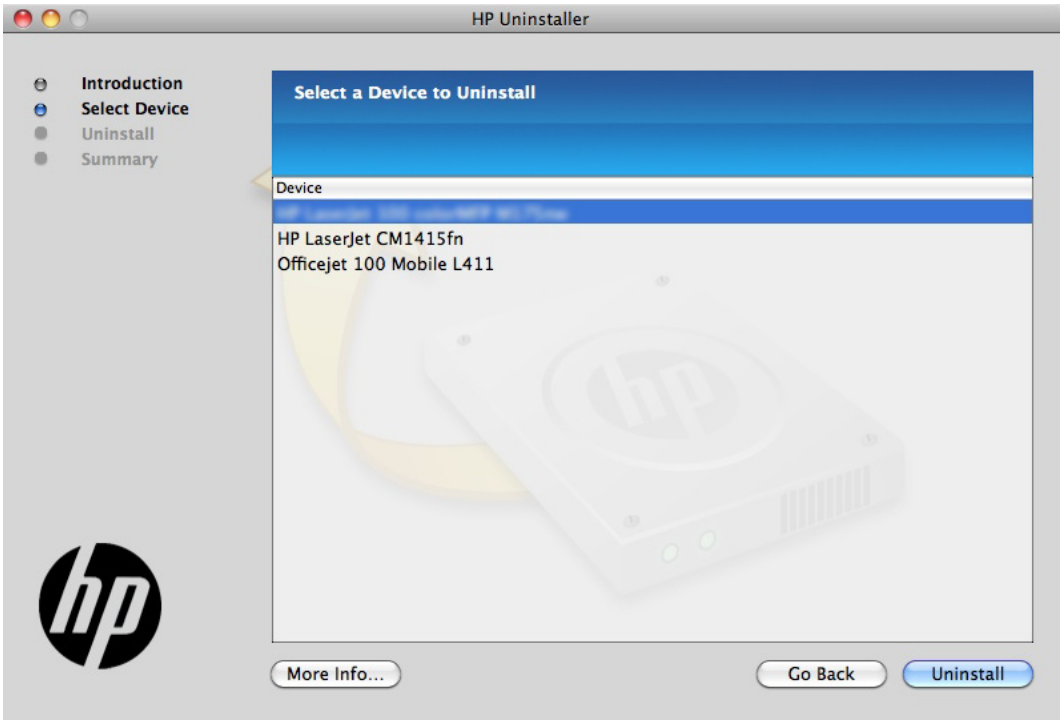
1. Open the **Finder** program.
2. Go to the **Applications** group, and then open the **Hewlett-Packard** item.
3. Double-click the **HP Uninstaller** item.
4. In the **Introduction** screen, click the **Continue** button.

Figure 3-31 Mac software removal — Introduction screen



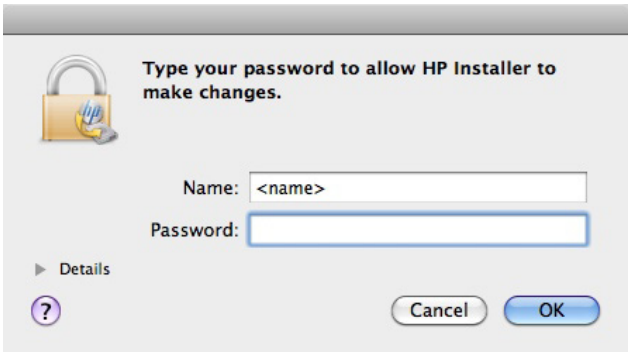
5. In the **Select Device** screen, select the product, and then click the **Uninstall** button.

Figure 3-32 Mac software removal — Select Device screen



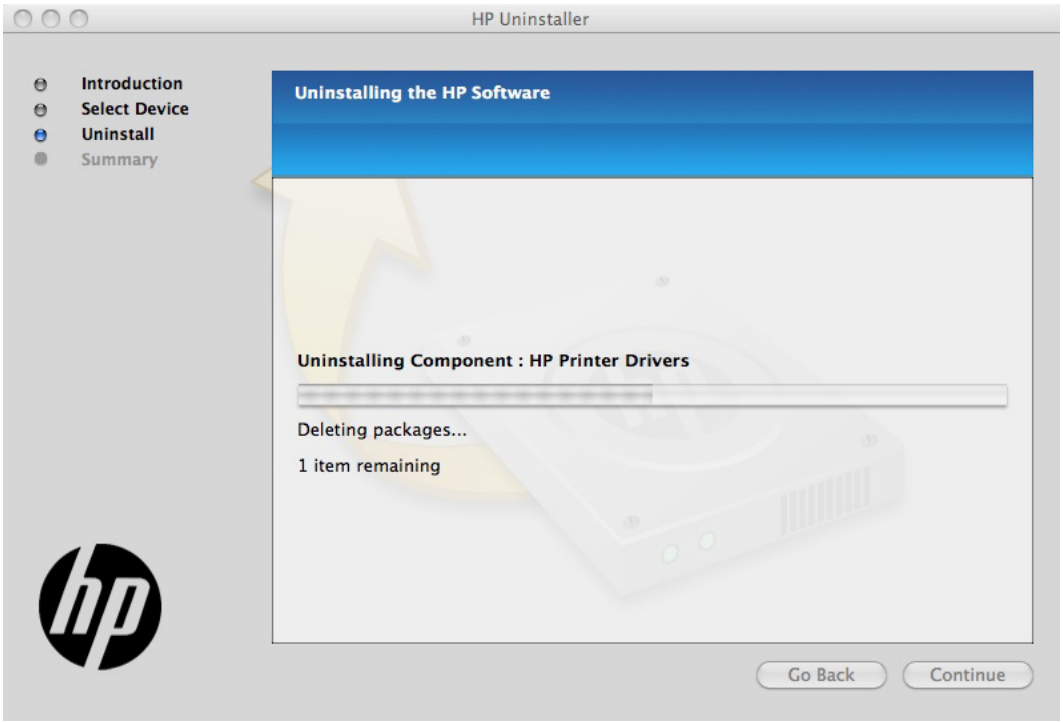
6. In the password popup, provide a user name and password, and then click the **OK** button.

Figure 3-33 Mac software removal — Password popup



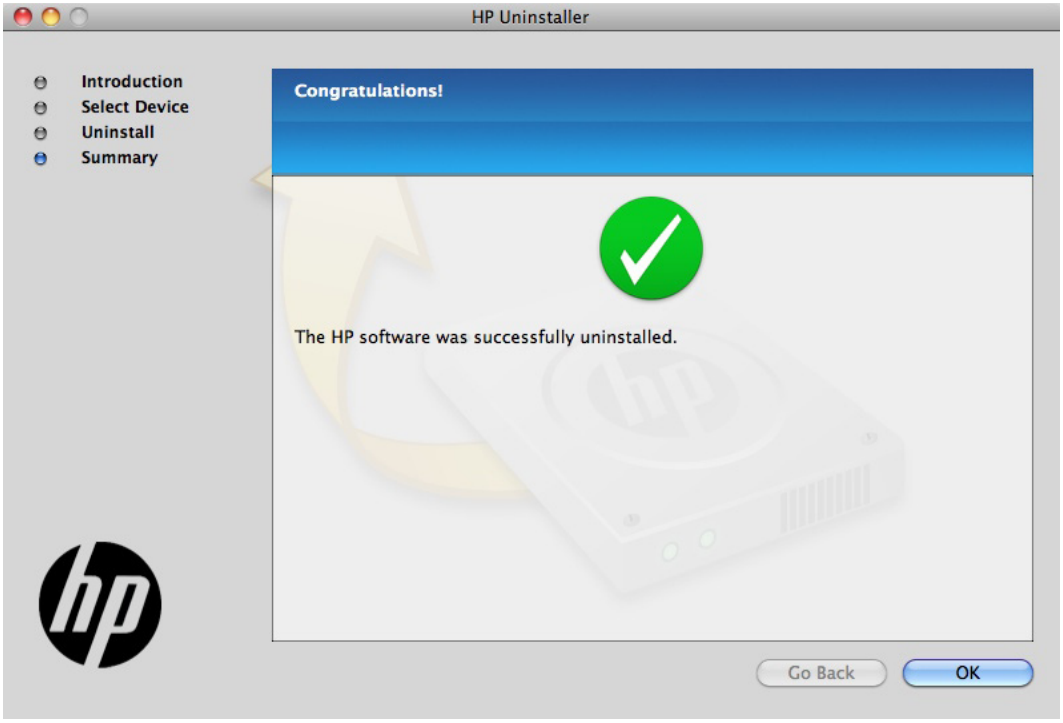
The HP Uninstaller shows a progress bar as the removal process begins.

Figure 3-34 Mac software removal — Progress bar



7. When the process is completed, the **Summary** screen appears. Click the **OK** button to close the HP Uninstaller.

Figure 3-35 Mac software removal — Summary screen



4 Linux and Unix

- Linux information
- Unix information

Linux information

HPLIP (Hewlett-Packard Linux Imaging & Printing) is an HP-developed solution for printing, scanning, and faxing with HP inkjet and laser based printers in Linux, distributed under the MIT, BSD, and GPL license.

HPLIP supports most HP printers and MFPs sold over the past 20 years. More specifically, HPLIP currently supports Deskjet, Officejet, Photosmart, PSC, Business Inkjet and LaserJet products. For a complete list of supported devices, go to http://hplipopensource.com/hplip-web/supported_devices/combined.html.

HPLIP consists of several distinct but interconnected pieces of software and is available as either a single compressed (tar) file or as a single auto-install (run) file. As installed, HPLIP's primary elements are device drivers, setup and installation utilities, and a device manager (aka: a toolbox) which provides access to maintenance tools, supplies levels, and status information.

HPLIP works succesfully across a wide breadth of Linux distributions (distros). It does not work on Windows or other non-Linux operating systems. The latest HPLIP release is tested with the following major distros:

- Ubuntu
- openSUSE
- SUSE Linux Enterprise Desktop (SLED)
- Red Hat Enterprise Linux (RHEL)
- Fedora

For more information and to download HPLIP, go to: http://hplipopensource.com.

Unix information

UNIX systems require a Model Script to set up the UNIX environment to be able to print to the product. The HP LaserJet IIISi, or any generic HP LaserJet printer Model Script, should work. These files are written and provided by the individual UNIX vendor. Contact a UNIX Vendor to obtain copies of these files.

For more information on Unix support, go to http://h20000.www2.hp.com/bizsupport/TechSupport/Document.jsp?objectID=bpl02398

HP provides the model script files for an HP LaserJet product provided it is being used over a network with an HP Jetdirect print server and is using HP-UX or Sun Solaris. The model script files are installed by using the HP Jetadmin utility for the respective version of UNIX.

For more information and to download the model scripts, go to: www.hp.com/pond/modelscripts/index2.html

5 Engineering details

Introduction

This chapter presents engineering detail for the following topics:

- File to E-mail utility
- Capture PRN for Mac (CUPS capture)
- HP Driver Deployment Utility
- Network Diagnostic Utility (NDU)
- Printer Diagnostic Utility (PDU)
- SAP Printing
- Citrix
- Print troubleshooting

File to E-mail utility

The File to E-mail utility collects the data specified in an .INI file and then attaches the data files to an e-mail that can be sent to HP Customer Support to assist troubleshooting. The utility runs on the computer, but does not interact with the product.

The tool is included on the installer CD, but is *not* copied to the computer during the software installation. HP Customer Support can also send the utility by e-mail or by posting it to an HP Web site.

The tool is compatible with Windows XP, Windows Vista, and Win 7.

The File to E-mail utility runs with any MAPI-compliant e-mail applications. It does not run with Web-based e-mail services such as Yahoo, Hotmail, or AOL.

Depending on the speed of the computer, it might take a few minutes for the utility to gather the log files and attach them to an e-mail message.

The File to E-mail utility consists of two files that are located in the util folder on the product printing-system software CD:

- <CD-ROM drive>Utilities\FileToEmail.exe
- <CD-ROM drive>Utilities\FileToEmail.ini

To use the File to E-mail utility, copy these files to the desktop, navigate to them in Explorer, and double-click **FileToEmail.exe** to open the utility. The utility generates files, opens an e-mail message, and attaches the files so that you can send them to the system administrator.

If the File to E-mail utility is not successful for any reason (for instance, if you cancel the new message or you are using Web-based e-mail software), all the files are copied to a folder on the desktop that is named HpCCC, possibly with strings of zeros attached to the end. You can zip these files and e-mail them separately.

Capture PRN for Mac (CUPS capture)

CUPS is the standards-based, open source printing system developed by Apple Inc. for Mac OS X and other UNIX-like operating systems.

CUPS is the software you use to print from applications like Web browsers. It converts the page descriptions produced by the software application into something the product can understand and then sends the information to the product for printing.

For more information go to www.cups.org/documentation.php/overview.html

HP Driver Deployment Utility

The HP Driver Deployment Utility (HP DDU) was created to simplify the deployment of print drivers onto a client computer. It is a simple utility that packages the printer-driver files, and the code needed to deploy them, into 2 files: an .EXE file and a .CAB file. These files are run on the client computer to copy the printer-driver files to the Windows driver store, and for network packages, to install the product.

The HP DDU works with print drivers that can be installed by an .INF file. It is designed to work with print drivers that have their files contained in one directory structure. Because this utility is generic, it does not detect how specific print drivers are packaged. It packages all files in the directory (and subdirectories) where the print driver .INF file is found. The print driver must be expanded so that the HP DDU can process the .INF file. If you download an .EXE file with the print-driver files, you need to run it first to unpack all of the files. Then, run the HP DDU to package it for deployment on the client system.

HP DDU can be used to pre-configure a print driver for deployment. When the package is run on the client computer, the new configuration file is used to configure the print driver after it is installed. This does not break WHQL certification.

If the print driver was WHQL certified, and the print-driver files are organized within one directory structure, then HP DDU will not break WHQL certification. HP DDU packages all of the files found in the printer-driver directory structure without modifying them. If printer-driver pre-configuration is done, the new configuration file is used to configure the print driver after it is installed. This does not break WHQL certification.

NOTE: If you need the ability to configure unique settings for printer-driver deployment, the Universal Print Driver installer may be a better choice as an install tool. The Universal Print Driver installer allows the configuration of settings from the command line.

The HP DDU can be used with the Universal Print Driver installer, but the Universal Print Driver command line will not be accessible. The HP DDU is designed to package and stage/install print drivers. Print-driver specific features, like those found in the Universal Print Driver installer, are specific to the Universal Print Driver installer and not supported by the HP DDU.

The HP DDU installer could be used with the Universal Print Drivers to deploy a direct connect driver in traditional mode or a network install in traditional mode.

NOTE: Administrative rights are necessary on the client system where the install is being performed. For a direct connect, administrative rights are only required to run the .EXE package. The user can then connect the product without administrative rights. For a network connection, the .EXE package will copy files to the driver store, create the port, install the print driver and create the printer object.

Supported operating systems

- Microsoft Windows XP
- Microsoft Windows XP 64-Bit Edition
- Microsoft Windows Server 2003
- Microsoft Windows Server 2003 64-Bit Edition

- Microsoft Windows Server 2008 and 2008 R2
- Microsoft Windows Server 2008 and 2008 R2 64-Bit Edition
- Microsoft Windows Vista
- Microsoft Windows Vista (64-bit)
- Microsoft Windows 7

Install and run the HP DDU

Install the HP DDU

Copy the files to the administrative computer. If using the self-extracting .EXE file, just copy it to the administrative computer, then double click – it will expand the files into the proper directory structure.

DDU does not require an installation program. All of the files are contained in the “Driver Deployment Utility” directory. DDU does not require any registry entries.

Run the HP DDU

1. Create the printer-driver package to deploy by opening the HP DDU application. This can be done by double clicking HPDDU.EXE, which is found in the Driver Deployment Utility root directory. This utility packages the print driver and the code needed to stage/install the print driver into an .EXE file and a .CAB file. An informational .XML file is also created and can be used to identify the package selections.
2. Run the new printer-driver package (created in step 1) on the client computer. It can be copied to the client computer and run by double clicking, or it can be run from a server by pointing to it and double clicking. The package can also be run in a batch file.

For a **direct connect package**, the HP DDU will silently copy the printer-driver files into the Windows driver store and exit. Prior to exiting, an optional dialog can be shown to prompt the user to connect their product after the files are copied. Upon completion of the package executable, when the user connects the product to the computer, the operating system will install the product using Plug and Play software.

NOTE: If the product is never connected to the computer, the product will not be installed.

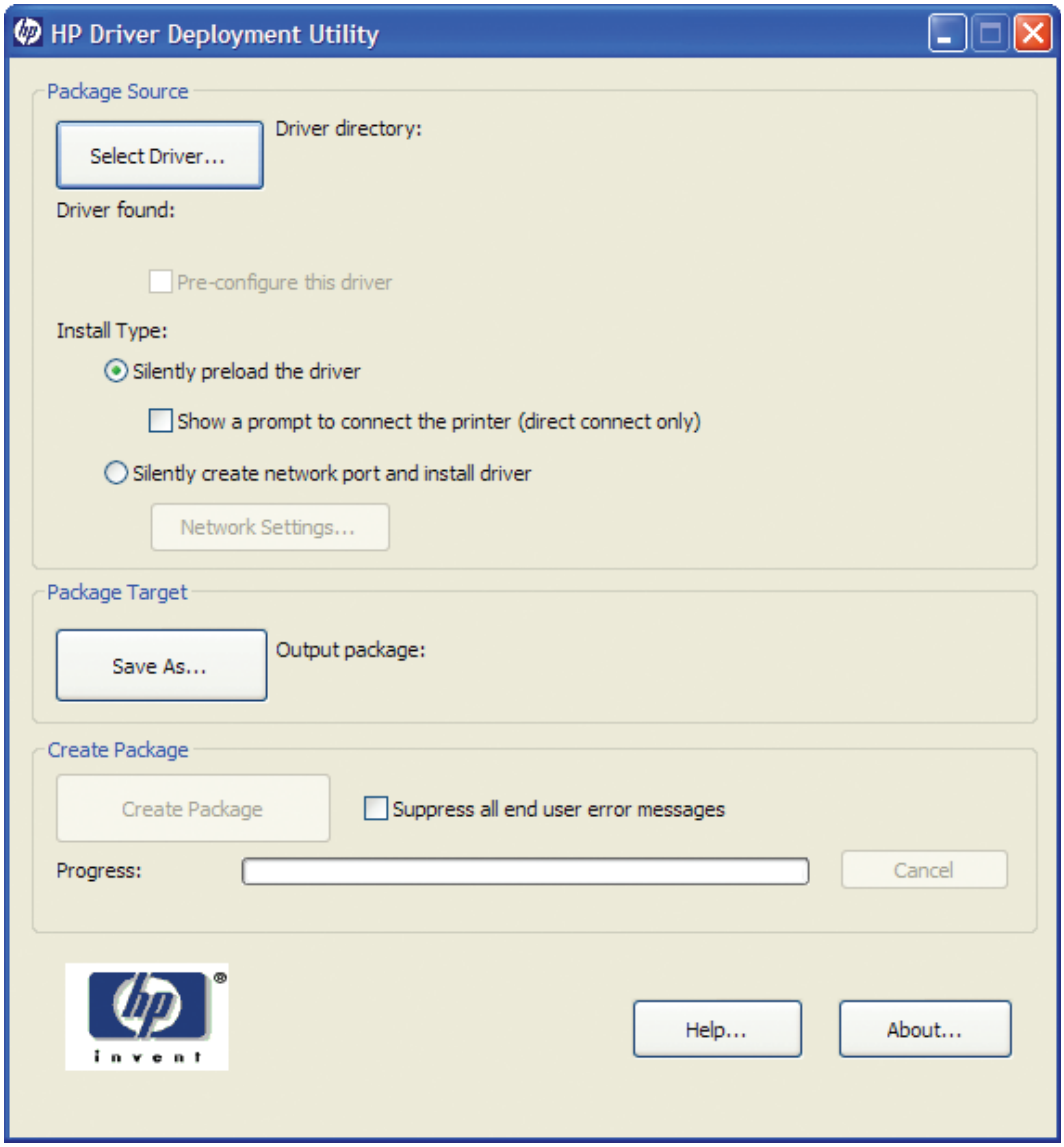
For a **network package**, the HP DDU will silently copy the printer-driver files into the Windows driver store, and then install the product using the network information entered by the administrator.

Use the HP DDU

The HP DDU user interface is divided into the following sections:

- **Package Source** describes the package type and printer-driver location that you want to create.
- **Package Target** identifies the name and location of the installation package.
- **Create Package** initiates the package creation process.

Figure 5-1 Package Source



Driver Directory — Use the **Select Driver** button to enter the directory where the print driver resides by browsing or typing the path. You should only have one printer-driver package in this directory because this utility will package all the files found in this directory (and sub directories) into the executable file. If you have downloaded a compressed printer-driver package, you must expand it before using this utility.

In some cases, you may have multiple print-driver .INF files in the directory (sometimes one is for color and another for monochrome products). In this case, an additional dialog will allow you to select which printer driver to package.

You will also get a warning if the directory is large. This is to help prevent packaging more than one print driver. You can choose to continue or not at this point.

Once the printer-driver directory is selected, and one print driver has been found, the printer-driver information is displayed below the directory selection box.

For print drivers that support preconfiguration, the check box below will be enabled. Selecting this will run a configuration dialog after clicking the **Create Package**.

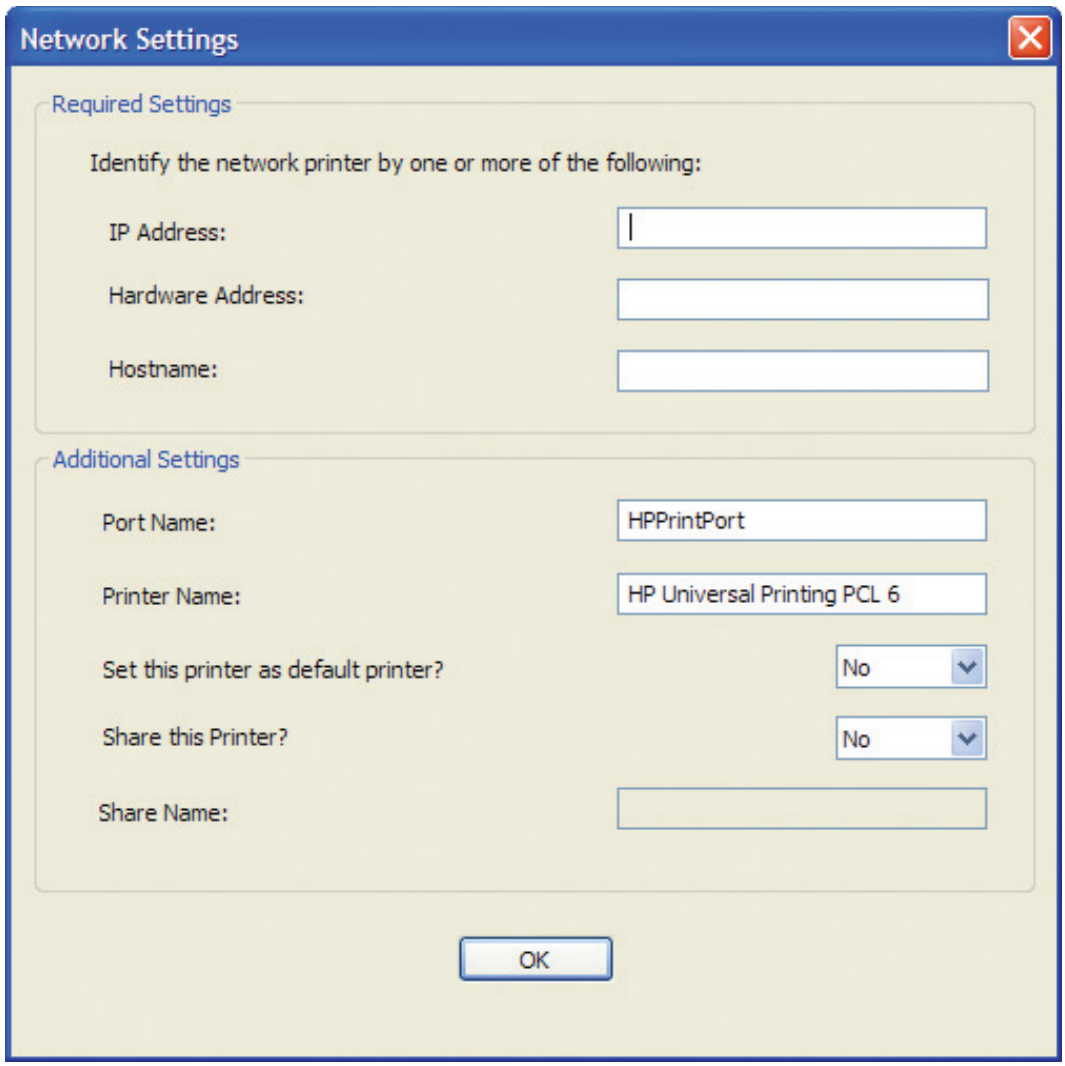
Install Type — For direct connections, use the **Silently preload the driver** option. A future Plug and Play event will be necessary to install the print driver, but all the files will be installed in the Windows driver store by this package for future use.

By default the executable file runs silently. If you would like to prompt the end user to connect the product at the end of the install, select the **Show a prompt to connect the printer** checkbox.

For products using a network connection, select the **Silently create the network port and install driver** option. The **Network Settings** button will become enabled, and you should click on it to enter the required network settings.

NOTE: If you do not select the print driver first, an error dialog box appears. You must select the print driver first so that the product name can be derived from the printer-driver name.

Figure 5-2 Network Settings



You must identify the network product by one of the following methods. This utility does not communicate with the product to determine if the settings are valid, but it does perform syntax

checking. The administrator is responsible for identifying the product using either the correct IP address, the Hardware address, or the Hostname.

- **IP Address** — enter the IPv4 or IPv6 address of the product.
- **Hardware Address** — enter the hardware address of the product.
- **Hostname** — enter the hostname of the product.

The following network settings are additional. You may accept the default values pre-entered or change any of them.

- **Port Name**: This is the network port name that will be created. If the name already exists, a number will be appended to make it unique.
- **Printer Name**: This is the product name that will appear in the printers' folder. If the name already exists, a number will be appended to make it unique.
- **Set this printer as default**:
  - Yes - will make this product the default when printing from other applications.
  - No - will retain the current default, unless this is the only product installed.
- **Share this printer**: Yes - will allow others to use this product.
- **Share Name**: Share name for the product. Only enabled if 'Share this printer' is Yes. If the name already exists, a number will be appended to make it unique.

To exit the Network Settings dialog without saving, use the Windows close button in the upper corner.

Package Target

Use the **Save as** button to enter the name and location for the output package by browsing or typing it in. The utility will create the package in the temp directory and then move it to the final location.

Create Package

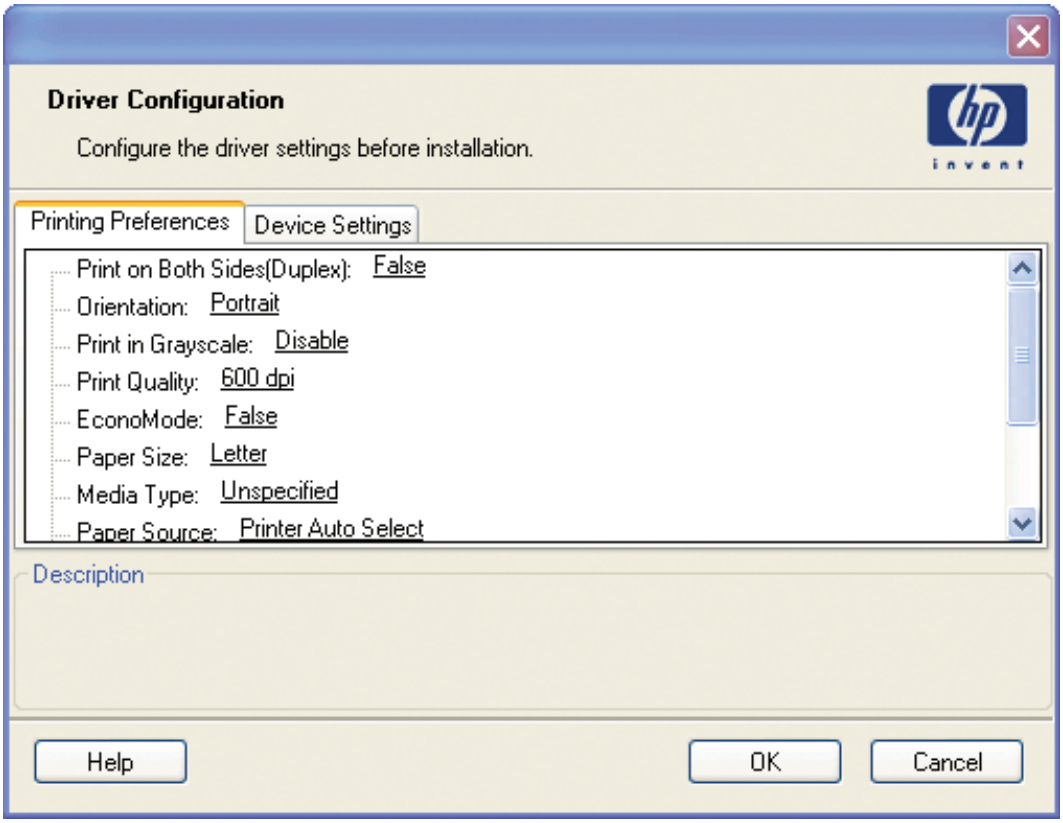
Click the **Create Package** button when you have entered all the above information. This button will be disabled until you have entered the required information. After you click the button, the **Cancel** button and Progress bar will be enabled.

To stop the package creation, click the **Cancel** button.

The executable file runs silently, unless a user prompt is requested for a direct-connect product. If an error is encountered during execution, an error dialog will appear. To suppress the error dialog, select the **Suppress all end user error messages** check box.

If you selected the **Pre-configure this driver** check box, the print driver configuration dialog will open when you click the **Create Package** button. Once you have configured the print driver, select **OK** to save the new configuration settings and continue creating the package. Clicking **Cancel** will cancel the entire package creation process.

Figure 5-3 HP DDU Driver Configuration settings



HP DDU Frequently Asked Questions

How do I use the HP DDU to deploy a direct connect driver with preconfiguration?

If you load multiple PDLs for one product, the operating system will determine which one satisfies the Plug and Play event. The operating system will create one printer object for that PDL.

1. Run HPDDU.EXE to start the package creation.
2. From Package Source section:
   a. Select the print driver to package by browsing to the .INF file in the directory.
   b. Select the **Pre-configuration** checkbox. This checkbox is enabled only for print drivers that support preconfiguration.
   c. Select the **Silently preload the driver** install type.
   d. Select the **Show a prompt to connect the printer** check box if you want to prompt the user after the files are copied.
3. From **Package Target** section:

   Select the output name and location. Three files will be written here: an .EXE file, a .CAB file, and an .XML file with information about the package.

4. From **Create Package** section:

    a. If you want to suppress any error messages, select the **Suppress all end user error messages** check box.

    b. Click the **Create Package** button

5. Run the new .EXE file from the client computer. You must have administrator rights to run the .EXE file because it will be copying files into the Windows driver store. Now the printer-driver files are on the system, and any user can connect the product to trigger the Plug and Play event.

    NOTE: The printer object is not created until the product is connected.

NOTE: If you deploy multiple direct connect print drivers, with preconfiguration, and they all use a pre-config file with the same name, the first one connected will be the only one configured properly. This might happen if you deploy the PCL6 and PCL5 print drivers for the same product. The reason is that the config file is copied to the \3 directory awaiting the product being connected. Each deployment will just copy over the same config file since they all use the same name. Once the product is connected, this config file gets consumed and deleted. Future Plug and Play events will not have the config file available.

How do I use the HP DDU to deploy a network product with preconfiguration?

NOTE: Before running the HP DDU, you must download the driver you want to package, expand the driver, and place the driver in its own directory on the computer where the HP DDU will run.

1. Run HPDDU.EXE to create the package.
2. From **Package Source** section:

    a. Select the print driver to package by browsing to the .INF file in the directory.

    b. Select the **Pre-configuration** checkbox. This checkbox is enabled only for print drivers that support preconfiguration.

    c. Select the **Silently create network port and install driver** install type.

    d. Click the **Network Settings** button to enter the network settings.

3. From **Network Settings** dialog:

    a. From the **Required Settings** section, enter at least one way of identifying the product (IP address, Hardware address, or Hostname).

    b. Make any changes to the **Additional Settings** section (port name, product name, default printer, sharing and share name). You can leave the default settings if you don’t need to make changes.

4. From **Package Target** section:

    Select the output name and location. Three files will be written here: an .EXE file, a .CAB file and an .XML file with information about the package.

5. From **Create Package** section:

    a. If you want to suppress any error messages, select the **Suppress all end user error messages** checkbox.

    b. Click the **Create Package** button.

    c. The configuration dialog will open and allow you to set configuration details for this print driver. After accepting the configuration changes, the package will be created.

6. Run the new .EXE file from the client computer. You must have administrator rights to run the .EXE file because it will be copying files into the Windows driver store. A port and printer object will be created with the information provided above.

Common Problems

I get a warning when I select the print driver.

If there are too many files in the driver directory, or the directory is really large, a warning appears so that the user doesn't accidentally package up something they didn't intend to (like the root directory). Some print drivers are really large, and you can choose to ignore this warning and continue.

To minimize package size, each print driver should be in it's own directory. This is usually the default behavior when you expand a print driver.

I get an error when I try to open the "Network Settings" dialog.

You need to first select a print driver before opening the "Network Settings" dialog. This populates the product name field based on the printer-driver name.

The Create Package button is not enabled.

This button will not be enabled until you have:

1. Selected the print driver.
2. If network connect – filled out one of the required network settings.
3. Selected the **Save as** name and directory.

How do I exit the HP DDU?

Use the Windows close button in the upper corner.

The Network Settings dialog keeps displaying an error, and I just want to close the program.

If you do not want to save settings, or change your mind and don't want a network install, you need to close the network settings dialog with the Windows close button in the upper corner. Using the **OK** button causes the HP DDU to try to validate the settings, and that is what is causing an error.

What if the user connects the printer before the HP DDU package is run?

If the user connects the product, but then cancels the Plug and Play event before it finishes, this creates an incomplete Plug and Play event. After copying the printer-driver files to the Windows driver store, the HP DDU code will cleanup incomplete Plug and Play events for products supported by this print driver. Then it will refresh the bus, causing the operating system to Plug and Play the product (installing the print driver and creating the printer object.)

How do I uninstall HP DDU?

Delete all the files in the root HP DDU directory.

NOTE: No registry changes have been made with this utility.

Network Diagnostic Utility (NDU)

Network Diagnostic Utility is a downloadable tool to help identify and fix common problems when installing or using HP products on your home network. The NDU guides you through the following troubleshooting steps:

- Identify network and Internet connection problems.
- Identify communication problems between the product and the network.
- Check for required HP software to connect your product over the network.
- Troubleshoot firewalls blocking communication.

For detailed instructions and to download the NDU, go to http://h10025.www1.hp.com/ewfrf/wc/document?docname=c02037530&lc=en&dlc=en&cc=us

Printer Diagnostic Utility (PDU)

HP Print Diagnostic Utility is a downloadable tool created to help users troubleshoot and correct many common problems on Windows-based computers that can prevent printing.

To download the PDU, go to: http://h10025.www1.hp.com/ewfrf/wc/softwareDownloadIndex?cc=us&lc=en&lang=en&softwareitem=mp-91788-1

SAP Printing

A device type is a configuration file for the SAP print driver that ensures proper functionality between the SAP data stream and the printer or output device where the data is sent. When a new printer is defined in the SAP environment, a device type must be specified to enable direct printing from the SAP applications to this new device. Device types are created for the HP LaserJet product family on the basis of PCL5 and PostScript.

For more information and to dowload the drivers, go to: www.hp.com/go/sap/drivers

Citrix

This chapter contains information on the following topics:

- Using the HP Universal Print Driver for Windows in Citrix environments
- The difference between the Citrix and HP UPDs

Using the HP Universal Print Driver for Windows in Citrix environments

The HP Universal Print Driver (UPD) for Windows is supported by HP in Citrix and Terminal Server environments.

Traditional mode

The HP Universal Print Driver can be installed in static or traditional mode on the Citrix server and perform as a print driver for all compatible auto-created printers or redirected printers.

For auto-created printers, the HP Universal Print PCL 5 driver can be mapped to print to all PCL 5-capable HP client printers or the HP Universal Print postscript (PS) emulation driver to all postscript-capable HP client printers through driver mapping in the Citrix management tools. To install the HP Universal Print Driver in static or traditional mode, run install.exe from the command line on the server and then configure the mapping from within the Citrix Server. Alternatively, you can use Add Printer Wizard or Add Printer Driver Wizard to install and configure the UPD.

For more information and to download the UPD, go to: www.hp.com/go/upd

Dynamic mode

Installing and using UPD in dynamic mode on Citrix and Terminal Server clients, and using it as an auto-created printer in a Citrix or Terminal Services session is a supported configuration. However, there are a few things to be aware of.

- When a job is printed from within the Citrix or Terminal Services session, no dynamic mode UI is presented. The print job will automatically print to the last printer that was selected on the client.
- If the UPD dynamic mode installation is new and no printing was ever done, UPD dynamic mode will default to LPT1. If there is no printer connected to LPT1, the print job will fail.

If the user wants to change the physical printer that the job will go to, there are two options:

1. HP UPD is installed on clients in dynamic mode, and the Citrix auto-create policy is configured so that the Citrix UPD is the driver that is mapped to the HP UPD on the client. This is the recommended configuration. These steps can be performed from within a Citrix session:
    - When the user selects **Print** from within an application, select **Preferences**.
    - When the Citrix UPD UI appears, select **Local Driver**.

- The UPD dynamic mode UI will be displayed. The user can then select the desired printer.
- When the UPD print preferences UI is displayed, the user can click **Cancel**.

2. If the HP UPD is installed as a driver on the Citrix or Terminal server and mapped to the dynamic mode UPD on the clients, the user must perform these steps prior to logging in to a Citrix session or published application:
   - Open the **Printers** folder and select the dynamic mode UPD printer.
   - Right click the printer and select **Printing Preferences**.
   - The UPD dynamic mode UI will be displayed. The user can then select the desired printer.
   - When the UPD print preferences UI is displayed, the user can click **Cancel**.

Installation of the HP Universal Print Driver in dynamic mode on the Citrix server is not supported in a multi-user environment. The Windows operating system limits a print queue to one port at a time. Multiple users will compete for the single port bound to the HP Universal Print Driver queue if installed in dynamic mode.

For more information and to download the UPD, go to: www.hp.com/go/upd

Running the Citrix StressPrinters test using default settings

Citrix Knowledge base article CTX109374 suggests that you use the default setting LPT1 as the Printer port name when running the StressPrinters test. However, using LPT1 will give erroneous results.

The HP UPD needs to make queries to the printer during the auto-creation process to obtain the printer's configuration. If an invalid printer port like LPT1 is selected, these queries will time out and fail. The indication is either exceptionally long auto-create times or test failure.

To get results that are accurate and reflect actual performance, use a valid auto-created port instead. These ports can be easily identified because the name is preceded by the string “CLIENT:”.

The difference between the Citrix and HP UPDs

The Citrix UPD for Citrix Presentation Server 4.0, 4.5, XenApp 5.0 or XenApp 6.0 works well for auto-created client printers and Microsoft Windows XP, or Windows Vista® clients. The Citrix UPD cannot be used for auto-created session printers configured by a Citrix policy that are network print shares connected at login. Discrete print drivers must be installed on the Citrix server for any session printer. The Citrix UPD also requires Windows 2000, XP, or Vista on the client. The Citrix UPD is not supported with thin clients that utilize embedded operating systems because the Citrix UPD works in conjunction with the Windows print driver installed on the client for communication of print settings and rendering of the print jobs locally.

The HP UPD works well for mapping to any HP PCL or Postscript client print driver for auto-created client printers. It works well for any client, including thin clients with embedded operating systems.

The Citrix UPD has the ability to provide all printer configurations and user settings from the client printer, such as print on both sides as default, to the auto-created printer within the Citrix user session. The HP UPD has the ability, if the client printer is a network printer, to communicate with the printer and determine its configuration, such as tray configuration. But the HP UPD cannot determine

user settings of the client printers from the client. The auto-created printers using the HP UPD will have default print settings, such as print single-sided as default.

HP and Citrix UPD recommendations

	Citrix UPD	HP UPD
Citrix MetaFrame XP FR 1, 2, 3	Available for Windows Clients only	Best choice for printing to any client
Citrix Presentation Server 3.0	Available for Windows Clients only	Best choice for printing to any client
Citrix Presentation Server 4.0/4.5	Best choice for Windows Clients	Best choice for non-Windows clients or thin clients
Citrix XenApp 5.0/6.0	Best choice for Windows Clients	Best choice for non-Windows clients or thin clients

Known limitation of the UPD when used for auto-created printers or redirected printers with client printers that are directly attached

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

Currently, version 5.1 of the UPD has the limitation that, when installed on the server and mapped for auto-created printers, it cannot communicate with the printer installed on the client if the client's printer is directly attached to the client machine, such as via USB. If the printer is networked, automatic configuration is supported. For directly attached printers on the client, such as USB-connected printers, the UPD PCL driver defaults to black and white with no extra trays and no device-specific paper handling. The UPD PS driver defaults to color, no extra trays, and no device-specific paper handling.

NOTE: Printers that are attached to the client via network ports are not affected. The UPD, installed on the server, can communicate with client printers that are available on the network.

Client printer settings not reflected in auto-created printers

This is a limitation of Citrix MetaFrame 3.0 and older versions. Driver settings, such as tray configuration, duplex unit, printer memory, and quick sets are not read at auto-creation. Paper size and orientation are the only client settings that are read during auto-creation. The remaining settings are determined by the default settings of the driver installed on the server.

Citrix has provided this functionality in Presentation Server 4.0 and beyond by using the Citrix UPD for client printers. The Citrix server must be at least 4.0 and the client must be a Windows client (Windows 2000, XP, Vista) with at least ICA® version 9.0.

Driver settings can be configured manually if Feature Release 1 and Service Pack 1 or later is installed on a MetaFrame XP Server. To configure the driver manually, go to the properties of the auto-created printer. There, you can set the tray configuration, duplex unit, and hard disk settings. The settings will be saved to the user's profile when the user logs out and these printer settings will be restored the next time the user logs in.

Print troubleshooting

Print-quality troubleshooting tools

Repetitive image defects ruler

If the product output has a consistent, repetitive defect, then use the table in this section to determine which part needs to be cleaned or replaced based on the measured distance between the repetitions of the defect.

NOTE: Spots can be dark or white (dropouts), bands can be all shapes and sizes.

Component	Distance between defects (mm)	Type of defects
Developing roller[1]	About 22	Dropouts Dark, sharp bands
Primary charging roller[1]	About 26	Dropouts
RS roller	About 29	Dropouts
Secondary transfer roller	About 47	Dropouts Dirt on the back of page
Fuser film	About 58	Dropouts Dirt on page Loose toner
Pressure roller	About 63	Dirt on page Dirt on the back of page Loose toner
ITB drive roller	About 76	Spots
Photosensitive drum[1]	About 95	Dropouts Dirt on page

[1] The primary charging roller, photosensitive drum, and developing drum cannot be cleaned. If these rollers cause a repetitive defect, replace the corresponding cartridge, either the imaging-drum cartridge, or developing cartridge.

Calibrate the product

1. Use the arrow buttons to select the **System Setup** menu, and then press the **OK** button.
2. Use the arrow buttons to select the **Print Quality** menu, and then press the **OK** button.
3. Use the arrow buttons to select the **Calibrate Color** item, and then press the **OK** button.
4. When the display shows the **Calibrate Now** message, and press the **OK** button.

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