

# HP Universal Print Driver: Technical F.A.Q.



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# What is the HP Universal Print Driver?

The HP Universal Print Driver is a single driver that supports PCL5, PCL6, and HP postscript; level 2 and 3 emulation. This includes all compatible HP LaserJets and Color LaserJets developed after 1997.

## History of the HP Universal Print Driver

The HP Universal Print Driver has evolved from the HP Mobile Print Driver for Windows. The mobile version of the driver was created for office professionals on the road to easily print to locally connected devices in environments they were temporarily or periodically visiting.

Gradually some customers started to use the mobile driver even in standard office environments as a way to simplify the number of drivers on the client. Other customers chose to take advantage of managed printer lists in standard office environments as a self-service tool.

HP expanded upon this functionality by adding additional features and tools to the point where most users can't tell the difference between the HP Universal Print Driver and standard in-box drivers.

## Main Features of the HP Universal Print Driver

Advanced features discovered through bidirectional communication with the printer/MFP include:

- Automatic two-sided (duplex) printing
- Job Storage (e.g. private print, stored jobs, proof-and-hold, etc)
- Driver watermarks
- Input Trays
- Output bins
- Stapling

Further detail on the HP Universal Print Driver (including free download) available from:

<http://www.hp.com/go/upd>

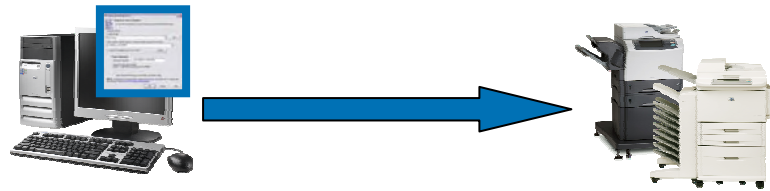
# What are the different setup options?

While organizations may employ several types of print architectures, HP foresees the following:

1. Deploy as a single driver for mobile users
2. Deploy for driver simplification on Windows print servers
3. Deploy as a self-service tool for end-users

## UPD for mobile users?

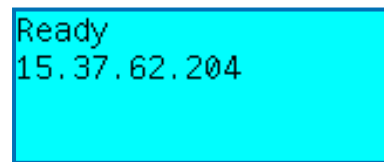
Administrators can silently install the PCL5, PCL6 or PostScript version of the HP Universal Print Driver to the clients directly (e.g. through SMS server). Clients can then discover locally connected devices through mDNS (same protocol used by Apple Computer for "Bonjour", formerly "Rendezvous").



Optionally (and easily) display the IP (or host name even) at device's front panel through tools like HP Web JetAdmin so that users can walk by a device and type in addresses manually (useful for locations where printers are on different subnets or multicasting has been disabled).



Typical HP LaserJet  
Multifunction Control Panel



Typical HP LaserJet Single-  
function Control Panel

## UPD for driver simplification on Windows print servers?

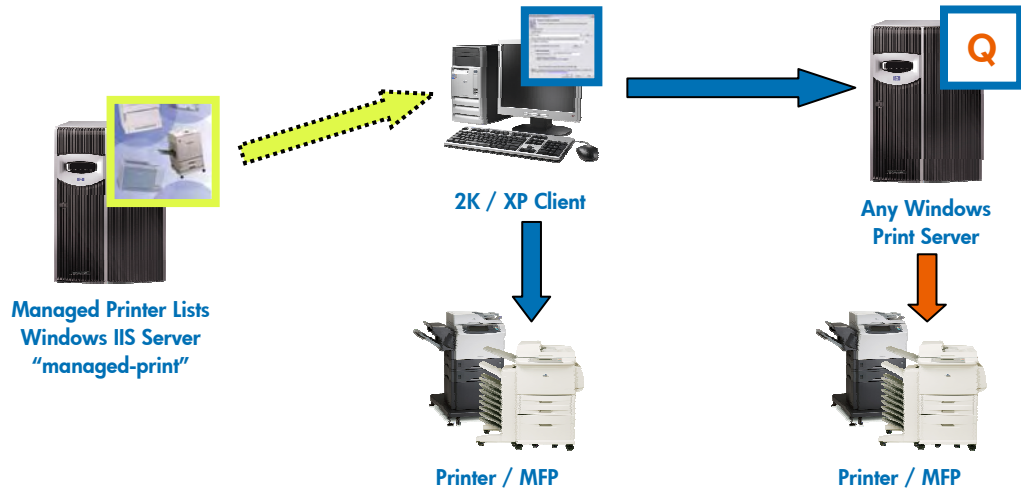
Administrators can install the PCL5, PCL 6 or PostScript version of the HP Universal Print Driver in Static Mode (recommended) on the print servers. Once installed and bound to printers, the UPD can be deployed to the Client PC via Point and Print.



In this setup, the HP Universal Print Driver is installed on the print server in Static Mode and bound to printers. The default operating mode of the UPD when it is installed using the Add Printer Wizard is Static Mode. In this mode the UPD behaves just like the HP product specific printer drivers.

## The UPD as a self-service tool?

Administrators can silently install the PCL5, PCL6 or PostScript version of the HP Universal Print Driver to the clients directly (e.g. through SMS server). Managed printer lists (MPLs) and policies (MPPs) – discussed in greater detail later on – are pulled from the “managed-print” host. These lists can point to direct-IP printers or windows print server printers which makes this method of deployment attractive for these hybrid environments.



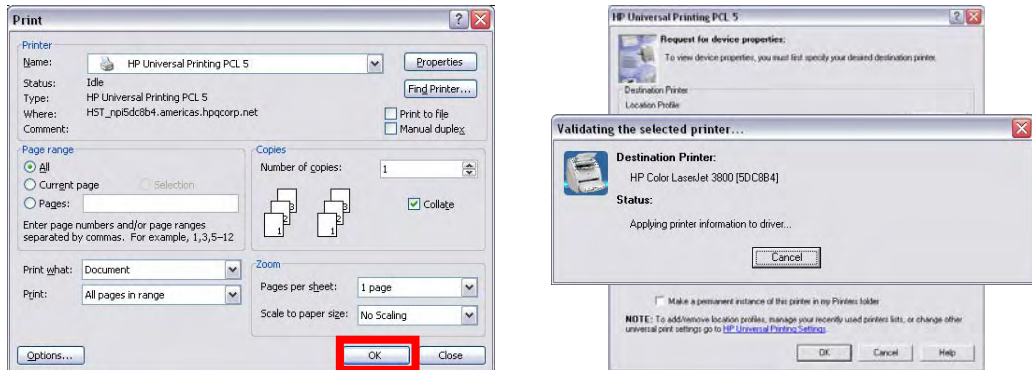
Visit the section titled “Managed Print Administration Technical Details” for more information on Managed Printer Lists, Managed Print Policies and Access Control Lists.

# How does the HP Universal Print Driver Work in Dynamic Mode?

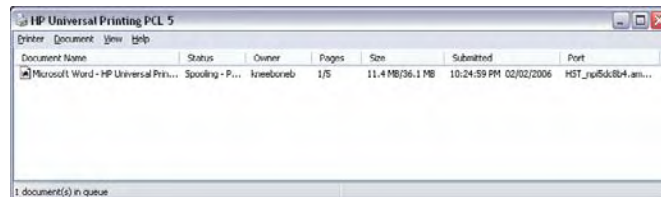
A virtual print queue is created in the "Printers and Faxes" folder for the PCL5, PCL6 or PostScript version of the driver. Basically, the driver interrogates the printer for its existence (and for network printers its capabilities) then either sends the job or presents a driver interface depending on what the user has chosen to do.

## What happens when a user does a "File" -> "Print"?

If a user prints a document directly to the virtual driver ("HP Universal Printing PCL 5 / PCL6" or "HP Universal Printing PS"), the user will see a pop-up window where the driver is interrogating the printer.



Once the interrogation is complete, the print job is sent to the device and is viewed and managed like any other job in the virtual driver.



If a user chose to go into the properties of the virtual print driver, after the interrogation process the user would get a driver interface to choose additional settings.

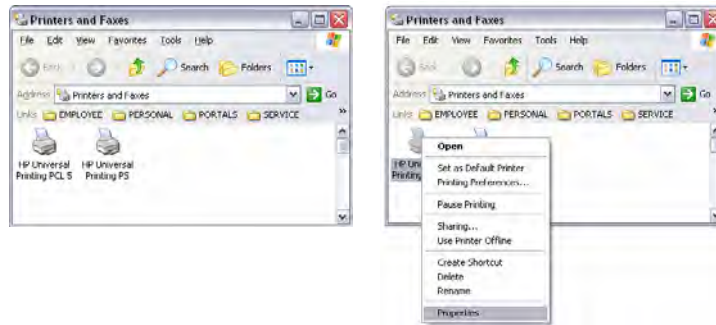


For supported network printers, the driver would present a list of capabilities the device is capable of (e.g. duplexing, stapling, trays, etc). For locally connected printers (LPT, USB, etc) a basic interface is presented (e.g. no duplexing, no stapling, no trays, etc).

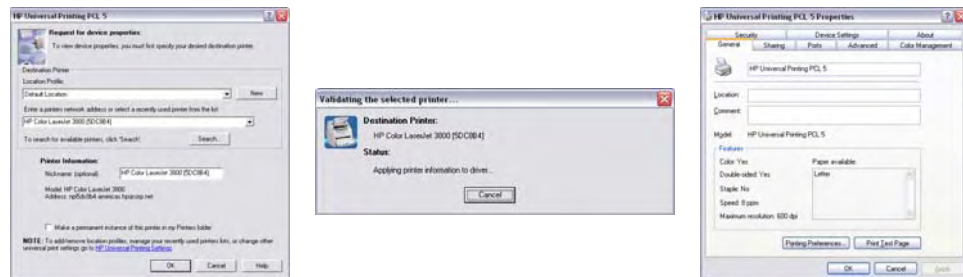


# What happens when a user visits a virtual queue's properties?

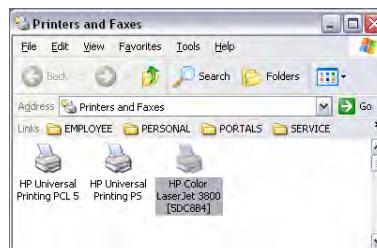
A user can choose to visit a virtual queue's properties ("HP Universal Printing PCL 5" or "HP Universal Printing PS") in the "Printers and Faxes" folder.



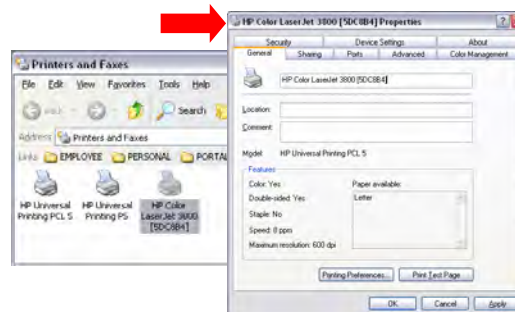
If they do so, the user will see a pop-up window where they will be able to choose a printer from a printer list or search for a device. Once a device is selected, the driver will interrogate the printer for its capabilities (same process as used when printing a document) then present the queue's properties.



If a user chose to "Make a permanent instance of the printer in the Printers folder" they would still be presented with the virtual queue's properties, however a new printer queue would be established in the "Printers and Faxes" folder.



Important: do not be tempted to immediately configure the virtual queue or printing preferences if creating a permanent instance of the driver. This is because you'd be looking at the virtual queue's properties (as opposed to the permanent instance's properties). Exit the queue after creating the permanent instance then go into the properties of the permanent queue that was created in order to manage it further (share it out, define printing defaults, etc).



# Universal Print Driver Technical Details

This section will cover details regarding the HP Universal Print Driver components and behavior.

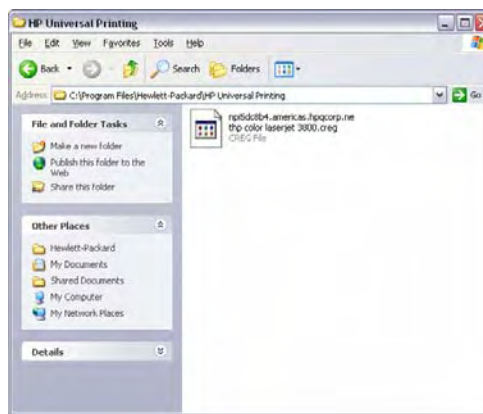
## Can permanent instances be shared out?

Yes. This is the model recommended on page 2 of this document.

## Is the device queried every time it is printed to?

No, in general settings are cached. For cases where a user has chosen to create a permanent instance of a printer, settings are permanently saved to the local registry (like any other printer driver) and the user would continue to print to that permanently created instance.

For cases where a user has not chosen to create a permanent instance of a driver, registry entries are saved in a .CREG (cached registry) file. Initially the driver will attempt to save the CREG files to the "C:\Program Files\Hewlett-Packard\HP Universal Printing" directory.



If that directory is not available or is locked, the driver will attempt to cache settings in the %TEMP% then %TMP% directories. If neither of these directories are available then the HP Universal Print Driver will query the printer every time for non-permanent instances.

## Are permanent instances updated with new drivers too?

Yes, since the HP Universal Print Driver uses the same driver (just different registry entries) for permanent instances, all queues with that driver will be updated.

## How can I have permanent instances re-query a device?

As with other HP drivers, there is the ability to select an "Update Now" button or "Update: Yes" menu.

## Can options and capabilities be manually specified?

No. The difficulty here is that the universal driver talks to so many different devices that the list of options could become quite long and perhaps confuse some users. Some limited functionality is being considered for a future release (e.g. duplexing, stapling, etc for locally connected devices).

## What port monitor is used with the HP Universal Print Driver?

Hewlett-Packard has its own version of the TCP/IP port monitor for communicating with network devices. It is not part of the installer package of the HP Universal Print Driver. However, if the port is

present, the UPD will attempt to create a port using the “HP Standard TCP/IP” port. If not present it will use the Microsoft “Standard TCP/IP” port instead.

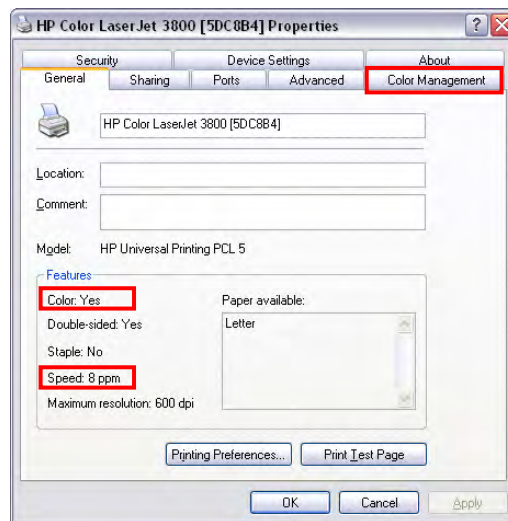
For cases where the HP Universal Print Driver is pointed to an existing print queue shared out from a print server instead of a printer itself, the “HP UNC Port” monitor is used.

For cases where locally installed devices are selected the LPTx or USB00x port would be used.

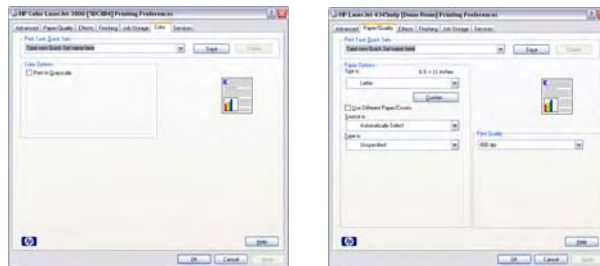
## Why is the queue reporting 8 PPM and “Color” capabilities?

This is expected behavior for both the virtual queues and permanent instance queues. Even though we query a machine on the network for its capabilities, there are certain limitations within the 2000, XP and 2003 operating system that force drivers to report their capabilities (independent of this network discovery).

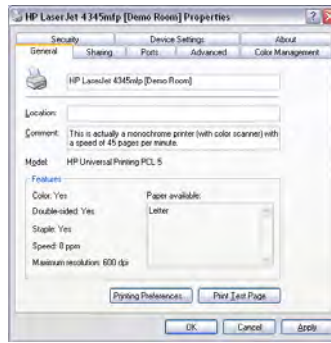
This is a cosmetic concern for most customers as the concern is largely around what the queue properties look like.



The reason this is cosmetic for most companies is because the driver properties themselves (what the user sees when the “File” -> “Print”) are different for color devices versus monochrome only devices. In the example below, the Color LaserJet 3800 driver properties show a color tab, the LaserJet 4345mfp driver properties does not.



There may be cases where customers will care about what the queue reports. Most notably customers using the HP Universal Print Driver for driver simplification on print servers in cases where users locate printers through active directory by capabilities. The only work-around here is to specify actual queue properties in the comments and location field advising users what the capabilities for a given device actually is.



## Other Legacy, Specialty and Non-Windows environments

### What about usage in Microsoft clustered environments?

Yes. The UPD version 3.1 which was released in Feb '07 supports Microsoft Clustered Environments. Note: The UPD must be installed on each of the Nodes that will make up the Cluster server prior to installing the UPD in the Virtual Server.

### What about usage in a Citrix or WTS Environment?

Please review the "HP Printers Supported in Citrix Presentation Server Environments" whitepaper at the following URL (PDF and HTML version available):

<http://activeanswers.compaq.com/ActiveAnswers/Render/1,1027,6464-6-100-225-1,00.htm> (PDF)

[http://h20000.www2.hp.com/bizsupport/TechSupport/Document.jsp?objectID=c00213455&locale=en\\_US](http://h20000.www2.hp.com/bizsupport/TechSupport/Document.jsp?objectID=c00213455&locale=en_US) (HTML)

### What about usage in an Apple Macintosh Environment?

There are no plans for a Macintosh version of the driver at this time. HP Drivers can be used however with the Apple Bonjour™ (formerly Rendezvous™) discovery mechanism. Behaves the same way the Universal Print Driver does when looking for devices on the local subnet (using mDNS).

### What about usage in Windows 98, ME and NT Environments?

There are no plans for a Windows 98, ME or NT versions of the driver at this time. However, there are 98, ME and NT versions of the HP Mobile Print Driver for Windows (the predecessor to the HP Universal Print Driver) at [http://www.hp.com/go/mp4n\\_software](http://www.hp.com/go/mp4n_software). The Mobile Print Driver does not discover as many options (e.g. duplex only) and can only participate in the Default UPD View.

### What about usage in a Windows 64-bit Environment?

Yes, both 32 bit and 64 bit versions of the UPD are available for download.

### What about a DesignJet version of the Driver?

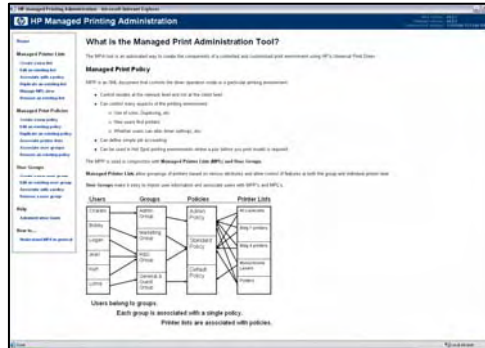
While not officially on the plan-of-record, testing of the PostScript version of the driver is being considered for DesignJets with PostScript capabilities. However, given the level of complexity customers look for in Wide-format printing (roll feeds, ink modes, non-standard paper sizes, etc.) we would recommend customers continue to use their supported DesignJet printer drivers from <http://www.designjet.hp.com/>.

## Does the Universal Print Driver work with non-HP printers?

The UPD has been tested and is supported on HP printers starting with the HP LaserJet 4000 and newer. Please refer to the Service Administrator Guide for a complete list of the printers supported with the UPD.

## What are managed printer lists and policies?

“Managed Printer Lists” (MPLs), “Managed Print Policies” (MPPs) and “Access Control Lists” are created, managed and distributed from the HP Managed Print Administration control panel.

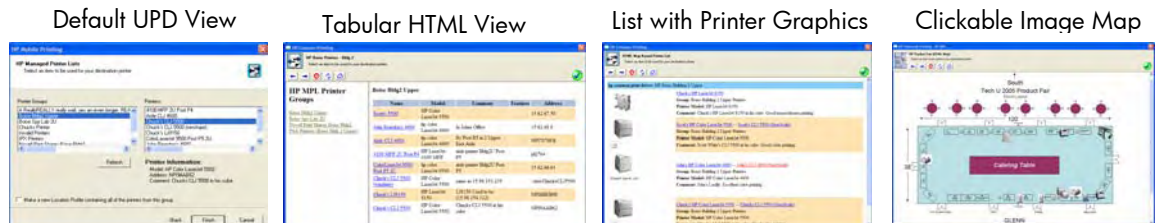


## What is required to run the MPA control panel?

- Windows Server 2000 or Windows Server 2003 with the host name “managed-print”
- Internet Information Services (IIS) version 5 or 6.

## What do printer lists look like on the clients?

Printer lists can be simple lists (“Default UPD View” – like those that were available to the Mobile Print Drivers for Windows), or HTML based for tabular; printer graphics or map views below. The more complex the view, the more time an administrator would need to spend setting up the list.



Each printer list created can have a different type of view. For example in corporate towers it may make sense to invest the time into a clickable map view. For the smaller sites it may make more sense to create printer graphics or a tabular view for less administration.

## How are MPLs and MPPs distributed to the clients?

The HP Universal Print Driver running on the client desktops make a network call for the host-name “managed-print” (where the lists and policies are generated). If there, lists can be pulled down dynamically to the client. This “pull” style of architecture means that concerns with mobile users, unavailable PC’s and scheduling are mitigated.

What are some of the managed print policies that can be enforced?

Does a user have access to color devices? Are users allowed to discover locally connected or network devices? Are users allowed to create permanent instances of printers; what printer lists do they have access too? All these policies and more can be managed with MPPs.

## Customer Specific Questions & Answers

Can I configure the UPD using WJA and the driver configuration plug-in?

Yes! The UPD supports the DMC (driver pre-configuration utility)

How does the UPD communicate with a network printer? Is this SNMP protocol?

When a device is discovered via mDNS, the UPD then resolves the device's hostname. That hostname is then used to verify that the device is able to communicate over SNMP and that the UPD can get a few key PML objects: model name, supported PDL's, PDL versions, whether there is a duplex unit installed, and a few other things...

If my device can be discovered by the UPD via mDNS but cannot communicate via SNMP, what is the issue?

If the device can be discovered via mDNS but cannot communicate via SNMP, it's possible that the JD card is configured so that SNMP is locked down to some degree.

Is it possible to suppress the UPD status notification pop-up messages on the client machine installed from a print server?

There is a white paper available at the following site that explains how to manage the SNP pop-ups for the UPD. Go to <http://www.hp.com/go/upd>, click on the Tech Support link, then click on Manuals. Download the White Paper called "HP UPD Series for Windows, Managing the Status Notification Pop-ups."

How do I set defaults for the driver on the server so all installs have the same defaults?

The UPD supports the HP Driver Pre-configured utility available at the following link [http://h20000.www2.hp.com/bizsupport/TechSupport/SoftwareDescription.jsp?lang=en&cc=us&swItem=bi-10808-4&jumpid=reg\\_R1002\\_USEN](http://h20000.www2.hp.com/bizsupport/TechSupport/SoftwareDescription.jsp?lang=en&cc=us&swItem=bi-10808-4&jumpid=reg_R1002_USEN) This will allow the driver to be configured once and deployed to all clients with the same configuration options.

Will the user need to uninstall the current version 3.0 from the PC to upgrade?

No. There is not a need to uninstall the current version of UPD to upgrade to the newest version.

## How does the static mode install command line switch work?

The way the static mode install command line switch works in version 3.0 is that it uses the port name specified by the /sm switch if that port exists. If that port does not exist the UPD install will create a new port and give it the HST\_ prefix. The HST\_ prefix helps us identify the ports that were created by the UPD, and it also helps the UPD quickly identify the port type.

In the normal operation of printing with the UPD, once the printer is bound to a port, the job will be delivered to that port (and associated port monitor) no matter what it is named.

## In addition to removing the driver using the "Server Properties" menu, is there another way to remove the UPD?

UPD can also be removed by cleaning out the cached UPD registry settings. These are stored under HKEY\_CURRENT\_USER\Software\Hewlett-Packard\HP Print Settings. Simply delete the entire HP Print Settings registry key.

## For More Information

[www.hp.com/go/upd](http://www.hp.com/go/upd)

## Support Statement

Call: 1-800-HP-INVENT

Support for the HP Universal Print Driver is covered the warranty of your HP Hardware. For equipment covered by your existing warranty or extended service (including HP Care Packs), no support costs are incurred. For HP equipment which is out of warranty and not covered by an extended HP service offering a per-incident charge for support will be billed to a major credit card.

## Other Resources

Un-moderated public forums available at the HP IT Resource Center: <http://forums.itrc.hp.com/>

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