OVERVIEW

Epic is an independent third party company that makes software for mid-size and large medical groups, hospitals and integrated healthcare organizations – working with customers that include community hospitals, academic facilities, children’s organizations, safety net providers and multi-hospital systems. Their integrated software spans clinical, access and revenue functions and extends into the home. Epic related printing includes documents for patients, physician communications, and business related communication.

Unlike many environments, Epic printing environments include:

- High sustained volumes of printing
- Multi-process architectures of the print services
- High volumes of concurrent remote print queue connections from a single server
- EPS print jobs submitted under a single admin user account

DESCRIPTION

Printing Paths

In an Epic printing environment, there are two printing paths as shown below. One path is a Citrix printing path while the other is not hosted in Citrix. The non-Citrix path includes the Epic Print Service running on a Windows print server that generates Rich Text Format print jobs for labels, scripts, and medical reports.
The types of Windows printing in an Epic environment include:

- Citrix ICA client based printing
  - Ad-hoc on demand printing requests
- Epic Print Service (EPS) Windows service based printing
  - High volume of printing - 2500+ jobs/hour during peak periods
- Full Windows client printing

### Citrix Printing Overview

When performing Citrix printing in an Epic environment:

- The Epic Hyperspace client is typically deployed using Citrix
- Most customers use the Citrix UPD on their Citrix servers to handle client printing
- Most customers use the HP UPD on client computers for client printing
- Printing through the Citrix printing path with the Epic Hyperspace UI uses the same printing path in Citrix as programs such as MS Word, Excel or Internet Explorer use when published via Citrix.

HP supports the HP UPD in Citrix XenApp and Terminal Server environments and has tested the HP UPD in Citrix XenApp environments.

When the HP UPD is installed on the Terminal Server or Citrix XenApp server in traditional mode, it can be used as the printer driver of choice for the fallback or auto-created printers. For auto created printers, the HP Universal Print PCL driver can be mapped to PCL capable HP client printers that are supported by HP UPD, or the HP UPD postscript emulation driver to postscript-capable HP client printers that are supported by HP UPD through driver mapping in the Citrix management tools.

For further information, see the HP white paper "HP Printers Supported in Citrix Presentation Server Environments" which can be downloaded from [www.hp.com/go/upd](http://www.hp.com/go/upd).
**Epic Print Service Print Path**

The Epic Print Service (EPS) environment is:

- Designed to process a high volume of print jobs
- Multi-process printing service
- Typically 4 to 8 simultaneous print processes
- Resolves Epic metadata into standard Rich Text Format (RTF) print jobs
- Jobs are submitted under the user account of the Epic Print Service
- Multiple load balanced EPS servers are recommended
- Printing can occur to remote print queues on a Windows print server or to local queues on the EPS server
- A single EPS server may host hundreds to a few thousand print queues
- A variety of print drivers are typically used at a single customer site

Epic has collaborated with HP to test select HP printers and the HP Universal Print Drivers (HP UPD) in the Epic printing environment.

When configuring EPS on Windows Server 2008, HP and Epic recommend using local queues for the following reasons:

- The thread management issues with the spooler (512 thread limit)
- Local queues allow drivers to be upgraded and tested on the EPS servers without requiring upgrades to the entire Enterprise printing system
- There are fewer points of failure involved with printing to local queues
- Local queues generally outperform remote queues as far as time to print when printing the same jobs in the same time period with the kinds of volumes typically seen on an EPS server

If you are seeing printing issues within the Epic Print Service path, Epic recommends contacting Epic to help resolve these issues.

**HP UPD**

HP and Epic collaborate closely in the testing and validation of the HP UPD in an Epic environment. When upgrading the HP UPD, HP recommends always upgrading to the latest release of the HP UPD.

When a current Epic environment is successfully printing and not experiencing printer related issues, upgrading is not necessary. Upgrading to the current HP UPD is advised for customers that:

- Need new print driver features introduced in the release.
- Are experiencing symptoms from resolved defects documented in the release notes
- Require support for recent Microsoft operating system releases
  - For example, Windows 7 support was added to the HP UPD v5.0; Windows Server 2008R2 support was added in HP UPD v5.1
- When setting up a new Epic printing environment.

**Predictable Upgrades**

The most consistent and reliable method to obtain predictable results is creation of new printers using the new driver version, forcing settings to installation defaults. HP has provided several tools in the HP Printer Administrator’s Resource Kit (PARK) to enable deployment and administration.

The PARK is available for download at [www.hp.com/go/upd](http://www.hp.com/go/upd). Click the link to the PARK beneath the Universal Print Driver Tools heading to download the PARK zip file.
Benefit of HP UPD version name installation

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

This benefit allows customers to upgrade drivers for newly released HP devices without having to re-test or re-certify legacy devices for every new release of the driver.

For instance, assume a print server has one hundred existing printers installed all bound to the 5.3 version of HP Universal Printing PCL 6 driver. Further, assume that new HP printers have been purchased and only support v5.4 of the HP UPD. The administrator can create new printers using the HP UPD v5.4 version specific install without affecting existing printers that use a previous version of the HP Universal Print Driver.

Testing

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

Additional Information

For additional information on configuring the HP UPD see the HP System Administrator’s Guide which provides information about the HP Universal Print Driver (HP UPD) and the available HP UPD tools. The System Administrator’s Guide can be downloaded from www.hp.com/go/upd.

Microsoft Cluster Environment

In some cases, the Epic print format server and/or print server may be configured on an active/passive cluster for failover to increase the availability of applications and services. HP recommends using the latest version of the driver, which can be found at www.hp.com. The driver needs to be installed onto every physical node in the cluster prior to being installed onto the Virtual Print Server.

- Epic no longer recommends clustering of the Epic Print Service. While it can be configured to work with clustering, Epic recommends that customers do not cluster their EPS servers.

For more information on using the HP UPD in a cluster environment, see the white paper “Using Printer Drivers in Microsoft Cluster Environments” which can be downloaded from www.hp.com/go/upd.

Epic Contact Information

To contact Epic support, call 608-271-9000 and request support for PC Systems.