



white paper

HP Print Server
Appliance 4250

July 2003

Migration Strategies and Tools for the HP Print Server Appliance

(Web Jetadmin version 7.2 and above; PSA Firmware version 2.4.x and above)

Overview

Migrating a fleet of desktops from one print infrastructure to another can be the most expensive part of implementing a new print environment. The key to reducing this cost is to avoid making changes to each PC individually. This can be accomplished by using automated tools to move clients from print shares on a Windows server to print shares on an HP Print Server Appliance.

To integrate the HP Print Server Appliance 4250 (PSA) into your existing printing environment, the Server and Client Migration Tools work with Web Jetadmin to help you migrate selected print shares from Windows servers to the PSA. The Server Migration Tool migrates print shares from a Windows-server to the PSA. The Client Migration Tool migrates PC clients to the print shares on the PSA.

The Migration Tools work with Web Jetadmin version 7.2. (For more information about installing and configuring Web Jetadmin, see the Web Jetadmin documentation.)

Description of the HP Print Server Appliance

The PSA is a network device used to manage and monitor printing over a network (Figure 1). It has been designed to provide a quick and easy way to add print capacity without affecting the general-purpose server. It off-loads print spooling and printing services from general purpose file servers. The latest firmware version is 2.4.x and includes support for Web Jetadmin plug-ins which provide centralized management of the printing environment and infrastructure.



Figure 1 – HP Print Server Appliance 4250

PSA's Migration Tools for Web Jetadmin

The Migration Tools for the PSA consist of two components: the Server Migration Tool and the Client Migration Tool. The Server Migration Tool migrates print shares from a Windows-server to the PSA while the Client Migration Tool migrates PC clients to the print shares on the PSA.

The Server Migration Tool takes selected print shares from a specified server or servers and migrates them to a PSA. A print share will be migrated to the PSA if:

- it has an IP address.
- the printer supports LPD.
- it doesn't already exist on the PSA to which it's being migrated.
- it uses TCP/IP to send print jobs to the physical printer.
- appropriate authorization is in place. The account being used for the migration must have administrator rights on the server running Web Jetadmin, the Windows server from which print shares are being migrated, and on the PSA to which print shares are being migrated.

After the Server Migration Tool is run, the Client Migration Tool can be used to migrate print shares on a client PC from an existing print server to the PSA.

Requirements for Using the Migration Tools

The following requirements must be in place before using the Migration Tools:

- ❑ The server from which the print shares are being migrated is one of the following:
 - NT Server 4.0 (service pack 3 and higher)
 - MS Windows 2000 Professional (service pack 2 or higher)
 - MS Windows 2000 Server
 - MS XP Professional (service pack 1)
- ❑ The server running Web Jetadmin is one of the following:
 - Windows NT 4.0 Workstation (service pack 3 and higher)
 - Windows NT 4.0 Server (service pack 3 and higher)
 - Windows 2000 Professional
 - Windows 2000 Server (any service pack)
 - MS XP Professional (service pack 1)
- ❑ Web Jetadmin is accessed through one of the following browsers:
 - Netscape Navigator 7.0 or greater
 - Microsoft (R) Internet Explorer 5.5 or greater
- ❑ The administrator running the Migration Tools has administrator rights on all of the following:
 - the server running Web Jetadmin
 - the Windows server from which print shares are to be migrated
 - the PSA to which print shares are being migrated

Getting Started with the Migration Tools

The Migration Tools are a plug-in for Web Jetadmin. Once the plug-in is installed, there are two ways to access the Migration Tools:

- through the drop-down menu under **Navigation**
- through **At a Glance (Quick Device Find)**

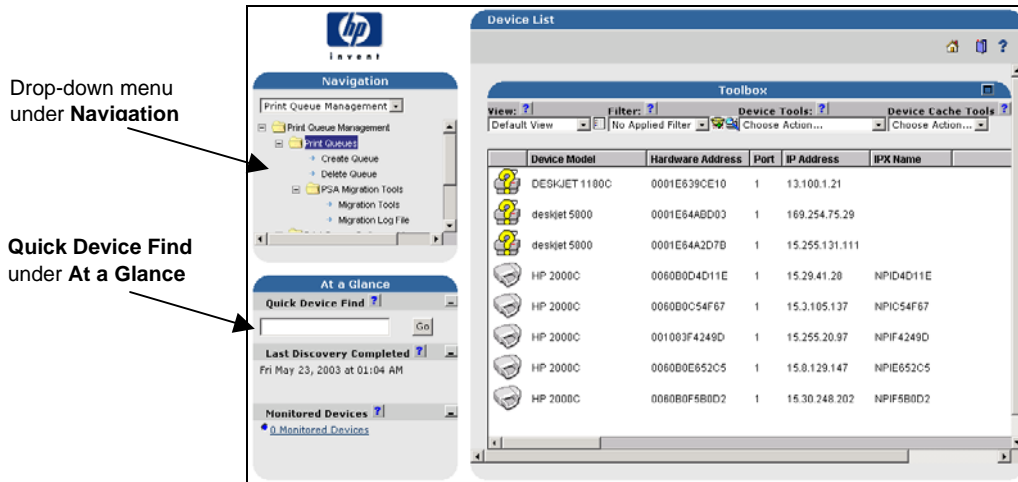


Figure 2 – Web Jetadmin Page with Quick Find Feature

To use the **Quick Device Find** feature under **At a Glance** (Figure 2):

1. Access Web Jetadmin using your browser.
2. On the left side of the page, type the PSA's name in **Quick Device Find**. Then click **Go**. The **Device Properties** page is displayed (Figure 3).

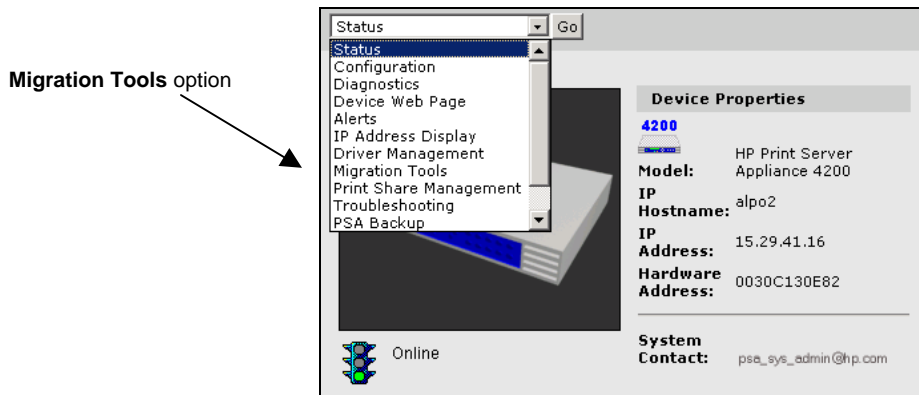


Figure 3– Initial Page for Migration Tools

3. Select **Migration Tools** from the drop-down menu at the top of the page (Figure 3).
4. The **Welcome** page for the Migration Tools is displayed (Figure 4).

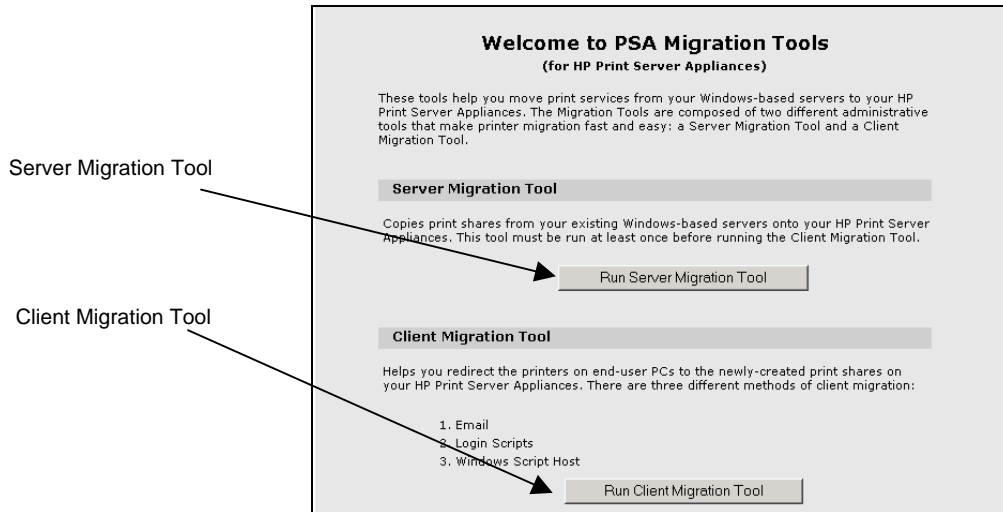


Figure 4– Initial Page for Migration Tools

5. See the section “Using the Server Migration Tool” below.

To use the drop-down menu under **Navigation**:

1. Access Web Jetadmin using your browser (Figure 2).
2. On the left side of the page, select **Print Queue Management → Print Queues → PSA Migration Tools → Migration Tools** from the drop-down menu (Figure 2 above).
3. The **Welcome** page for the Migration Tools is displayed (Figure 4 above). If you selected **Run Server Migration Tool**, the first page for the Server Migration Tools is displayed (Figure 5). If you selected **Run Client Migration Tool**, see the section “Client Migration Tool”.

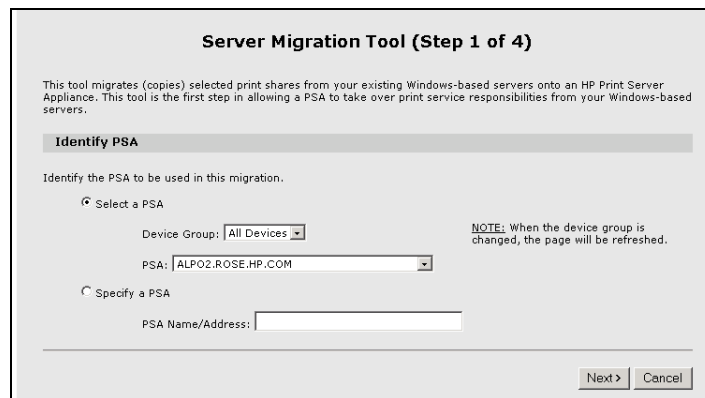


Figure 5 – Specify a Destination PSA for the Migrated Print Shares

4. Select or specify the PSA to which the print shares will be migrated. Then click Next.
5. See the section “Using the Server Migration Tool” below.

Server Migration Tool

The Server Migration Tool migrates print shares from a Windows server to a PSA. It also migrates drivers associated with the print shares (if the driver is not on the PSA), and, if desired, security settings on the print share. This tool must be run more than once if:

- print shares need to be migrated to more than one PSA, or
- there are more than 50 print shares to migrate.

Note: Before the Migration Tools are run, make sure the printer driver for the HP LaserJet 4 is on the PSA. This is the default driver for the print shares on the PSA. If it has been removed, download the driver from hp.com.

Once the servers have been migrated, the Client Migration Tool can be used. The Client Migration Tool uses the information about which print shares have been migrated to specific PSAs; it also prepares a map file listing the migrated shares.

Note: Servers must be migrated before clients.

Using the Server Migration Tool

Depending upon how the Server Migration Tool was accessed, the **Authorization** page is displayed at different points. After this page is displayed, follow these steps to proceed with the Server Migration Tool.

Note: If the **Authorization** page is not displayed go to Step 2 in this section.

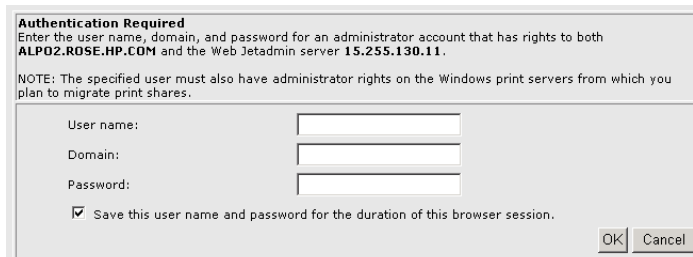


Figure 6 – Authorization Page

1. Type your user name, domain, and password and click **OK**. The account must have administrator rights on:
 - the server running Web Jetadmin.
 - the Windows server from which print shares are being migrated.
 - the PSA to which print shares are being migrated.

If you check the appropriate box on this page, you only have to provide these credentials once per browser session.

Note: For information about authentication and the PSA, see the document “Understanding Authentication and Authorization with the HP Print Server Appliance” (http://www.hp.com/go/psa_whitepapers).

2. Select the print shares to be migrated from the Windows server to the PSA (Figure 7).
Print shares being migrated:

- must have no more than 12 characters in the print share name.
- can contain letters (a-z and A-Z), numbers (0-9), and the following special characters: underscore (_), dash (-), plus sign (+), comma (,), and period (.).
- must be unique in the list of print shares to migrate (two print shares in the list cannot have the same name).
- must not already exist on the PSA to which they're being migrated.

If a print share name is invalid, it will be displayed later and its name can be changed or it can be removed from the list of print shares to migrate (Step 5, Figure 9).

The security settings for print shares can also be migrated (select **Migrate security settings for these print shares**). By default, a print share allows members of the Microsoft Domain group "Everyone" the ability to print. Any user assigned to the print shares that are being migrated will also be migrated to the new shares but the PSA must be configured to support the domain to which the users belong.

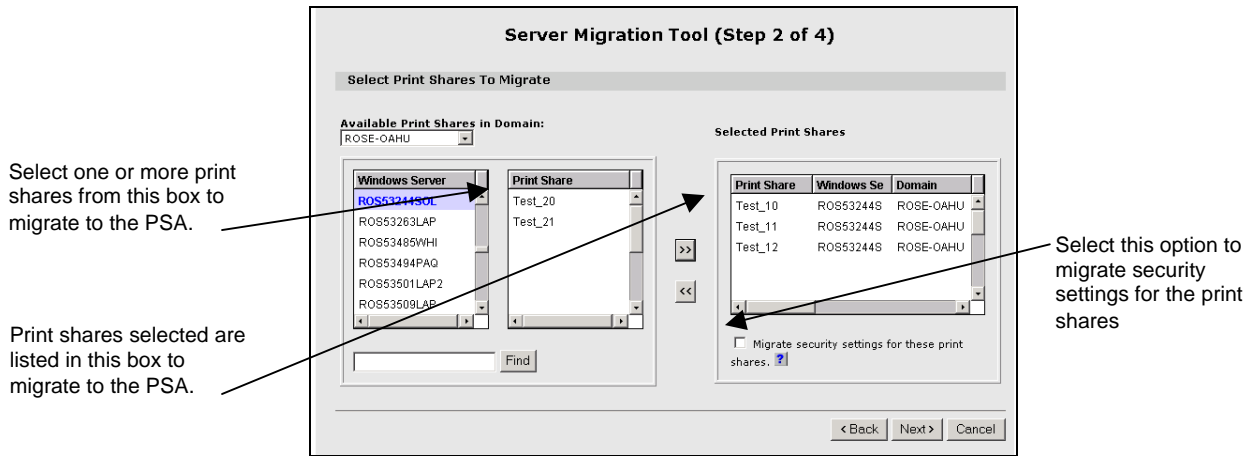


Figure 7 – Select Print Shares to Migrate

Note: Even though the Server Migration Tool allows numerous print shares to be migrated from the Windows server to the PSA, HP recommends a maximum of 50 print shares configured per PSA.

3. After the shares to be migrated are selected, the map file for the migrated print shares can be specified (Figure 8). The map file lists the old name of the print share and its new name and is used by the Client Migration Tool.

There are two options for the map file: append to an existing one or create a new one. If the print shares are to be appended to an existing map file, new print shares are checked against those that are already in the map file. Consider the size of the map file before appending to it; using a large map might increase the time it takes for the migration to complete. If a map file is not available to be selected, one must be created.

The map file can also be deleted or viewed by clicking the corresponding button on this page; if the file is viewed, a separate browser window will be opened.

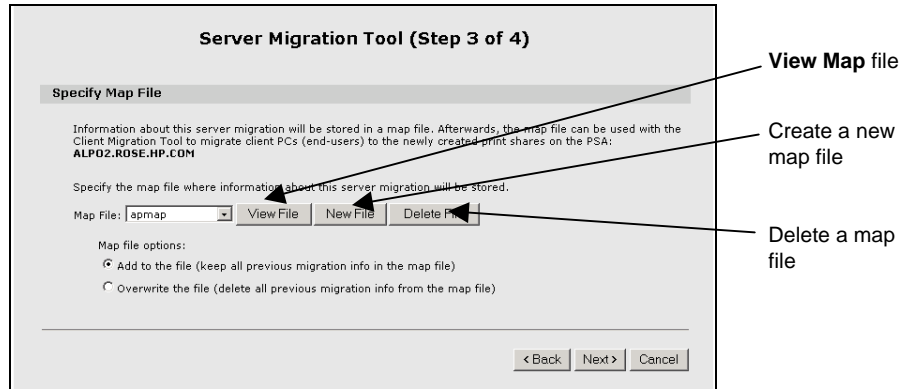


Figure 8 – Specifying the Map File for the Migrations

If a print share has been previously migrated to a PSA other than the one selected for this migration, it is displayed for review in its own window. In these cases, the print share can be re-mapped to a new PSA or the existing mapping can be retained. If the existing mapping is retained, the print share is removed from the list to be migrated. If it is re-mapped, its new location is reflected in the map file.

4. If any print share has an invalid name (and therefore cannot be migrated), the **Invalid Share Name** page is displayed (Figure 9). (See Step 2 above for more information about invalid print share names.)
5. The print share can be corrected or can be removed from the list to be migrated. After all print share names have been corrected or removed, click **OK**.

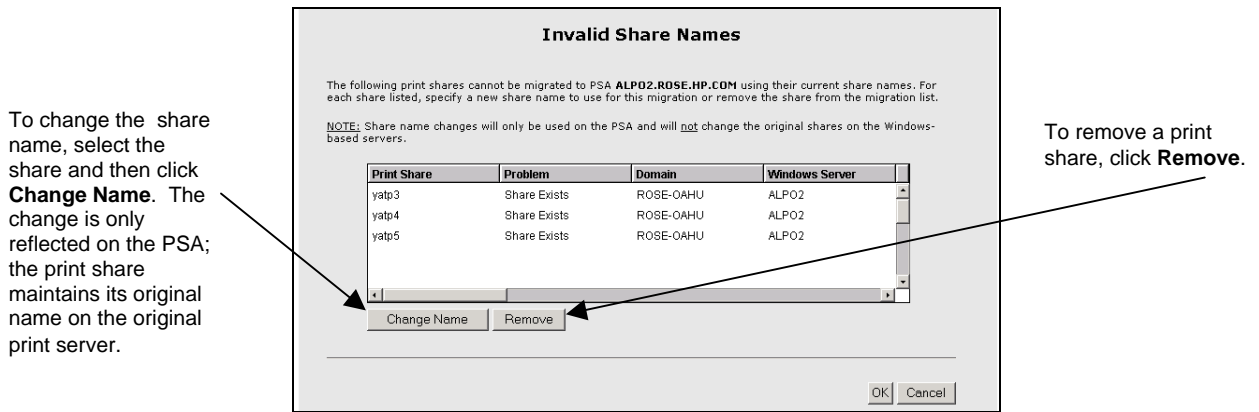


Figure 9 – Invalid Share Name Page

6. A confirmation page is displayed, listing print shares that were selected to be migrated to the PSA (Figure 10). After reviewing the selections, click **Finish**.

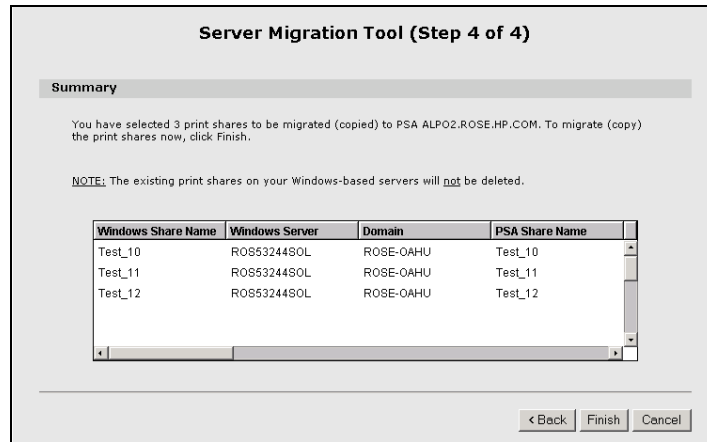


Figure 10 – List of Print Shares to be Migrated to the PSA

7. The migrated and unmigrated print shares are displayed (Figure 11).

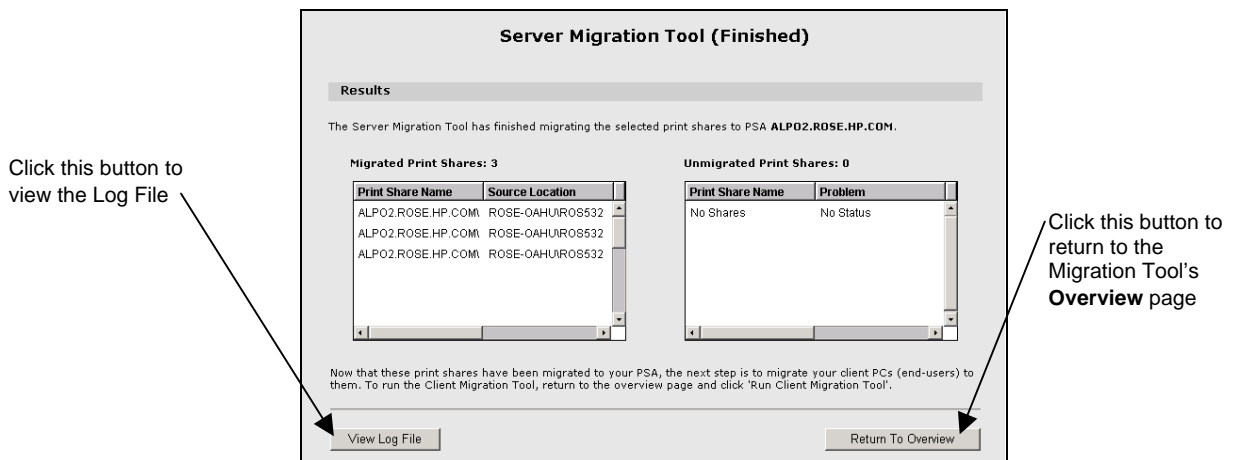


Figure 11 –Summary Page

The log file displays the results of the print share migration. It shows you which shares migrated successfully and which shares failed the migration. If desired, click **View Log File** to view the log file (Figure 12).

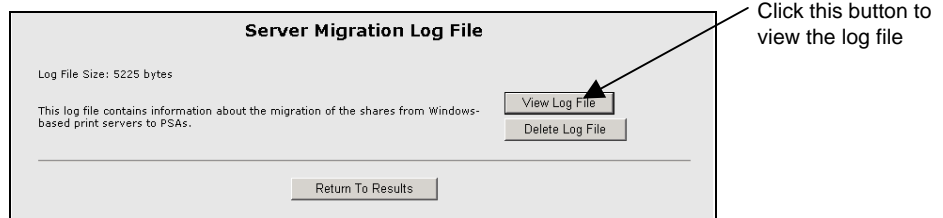


Figure 12 –Log File

When the Server Migration Tool has completed migrating print shares from the Windows server, the Client Migration Tool can be run (see the next section, Client Migration.)

Client Migration Tool

The Client Migration Tool migrates PC clients to print shares on the PSA. There are three methods of client migration (Figure 13):

- **Email:** If this option is selected, email must be configured in Web Jetadmin. A URL is sent to clients pointing them to a web page with the migration executable. The executable is actually run on the client PC and performs the print share migration. This method might be preferred if there is no security configured for the server running Web Jetadmin.
- **Login Script:** A login script will be created for the migration. Before the Client Migration Tool is run, you must modify the clients' profiles to use the migration batch file when the clients log in the next time. You will also have to place the batch file in the correct folder on the primary and secondary domain controllers of that domain. This method might be preferred if a Login Script environment is already set up, or if your environment includes clients running Windows 9x.
- **Windows Script Host:** A Visual Basic Script (VBS) is created to be used with the Windows Script Host to run the print share migration. You can use this with the Windows Script Host environment however you choose. This method might be preferred if you only have clients running Windows 2000 or above or if you want a custom implementation.

The Client Migration Tool consists of a console executable file (hpjmig32.exe) and a dll file (ntports.dll). These run on the client and read in the map file (created while running the Server Migration Tool). If any of the old print shares are installed on the client, the old print share is deleted and the new share is installed.

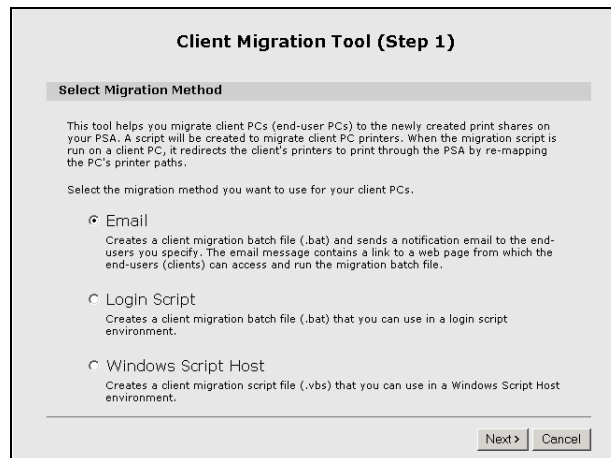


Figure 13 – Selecting the Method for Client Migration

Email Migration

Email migration offers a convenient way to migrate clients using common office productivity tools, but does require some planning with regards to how the Web Jetadmin server is configured.

The Email Migration sends the users an email with a URL that points back to the Web Jetadmin server. If security has been configured on the Web Jetadmin server that requires the user to enter a password, a password must be entered before the shares can be migrated.

The easiest ways to accomplish this is to configure the Web Jetadmin server with no security at all, or to set up a profile for clients to use (see the following section). If these are not desirable, use the Login Script or Windows Script Host method (discussed in sections below).

Adding a Client Migration User Profile to Web Jetadmin

To add a Client Migration user profile to Web Jetadmin, follow these steps:

1. In Web Jetadmin on the **User Profiles** page, add a new Profile by clicking **Add Profile**.
2. Access the **Authentication** page and supply authorization. If you want to use Domain Authentication, select **NT/Domain User** from the first drop-down list. Select the client migration profile created in Step 1 and add the group name **Domain Users**. You might also choose to add selected users from the domain by supplying just the individual domain user names.
3. Access the **Permissions/Disable Pages** page and disable any component of Web Jetadmin for the Client Migration Profile to which clients should not have access.
4. When you run the Client Migration Tool, explain in the email message (Figure 15 below) that users need to supply their domain user name and password when prompted by Web Jetadmin.
5. When the user receives the email, it has a note with a URL. When the user clicks on the URL, the page where they need to supply their credentials is displayed. The user clicks on the link and types their credentials.

Using Email Migration

Follow these steps to use the Email Migration method:

1. Select **Email** on the first page of the Client Migration Tools (Figure 13 shown above). The Email Migration Info page is displayed (Figure 14).
2. On this page, the map file is identified or created and then all of the other necessary files are copied (executables, DLLs, map file) to a specified share. Specify the following:
 - the name of the migration (used as the batch file name during the migration).
 - the name of map file to be used.
 - where the migration files should be stored (usually the "netlogon" share on the domain controller). Migration files must be stored on a network share on which clients have read access. This can be any share on the network, or they can be stored on a specific PSA.
 - the end-user language (default is English).

Client Migration Tool (Step 2 of 3)

Email Migration Info

Specify a name for this migration and select the map file that will be used.

Migration Name:

Map File:

Options:

End-User Language:

Specify the location where client migration files will be saved.

On a PSA

Device Group: NOTE: When the device group is changed, the page will be refreshed.

PSA:

On a Network Share

Network Share Path:

Example: \\servername\share

NOTE: All end-users for this migration must have "Read" access to the specified path.

Figure 14 – Specify a Migration Name and File Location

3. An Authorization page might be displayed (Figure 6 above). If so, enter your user name, domain, and password and click **OK**.
4. On the next page, write the message to send to users and indicate their email addresses (Figure 15). Include the email addresses of users to receive this email message, your email address (in the **From** field), the subject, and the message.

Note: If you already have a distribution list set up, it might be easier to address the email only to yourself and then, after you receive it, forward it out to the distribution list.

Client Migration Tool (Step 3 of 3)

Client (End-User) Notification

An email will be created to notify clients about this printer migration.

The email message will contain a link to a web page from which a recipient can access and run the client migration batch file.

To:

SMTP addresses only
Use semi-colons to separate addresses

From:

Subject:

Message:

ATTENTION - Several network printers have recently been moved to new servers. To ensure that you can continue to use these network printers, you will need to perform a network printer migration on your PC. For more information about migrating the printers on your PC, go to the URL below. Thank you.

Figure 15 – Email Message Page

5. After the message is typed, click **Finish**. The last page for the Client Migration Tools is displayed (Figure 16).

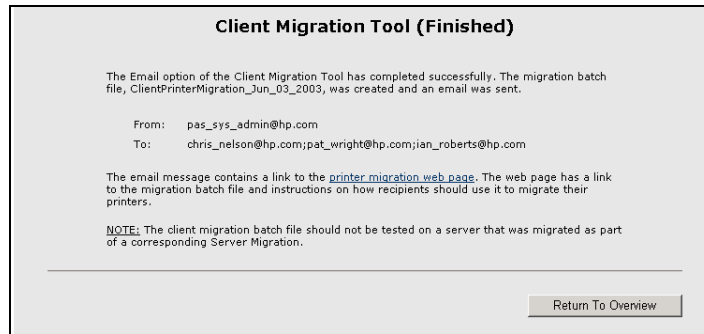


Figure 16 – Last Page for the Client Migration Tools (Email Method)

To review the message that will be sent, click on the URL indicated on the page (Figure 16). The following is an example of a message displayed (Figure 17).

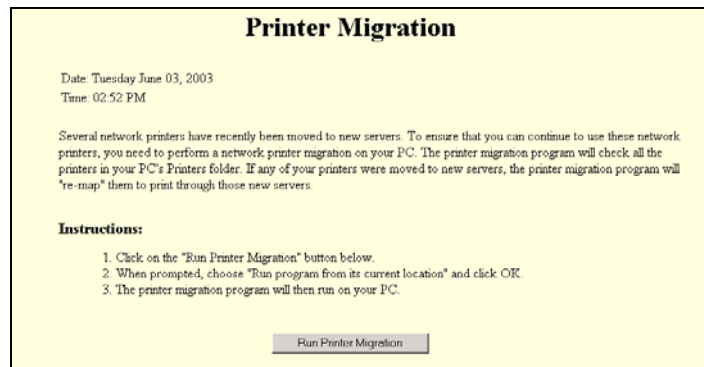


Figure 17 – Example of an Email Message for Client Migration

After running the Migration Tool the old printers will be migrated to the new ones.

Login Script Migration

The Login Script migration method allows domain clients to have their printers migrated automatically with no interruption to the user's normal operations. Within this method is a **silent client migration** option that offers the option of not interrupting users.

Before the Client Migration Tool is run, clients' profiles must be modified to use the migration batch file when the clients log in the next time. The batch file must be placed in the correct folder on the primary and secondary domain controllers of that domain.

Using the Login Script Migration

Follow these steps to use the Login Script migration method:

1. Select **Login Script** on the first page of the Client Migration Tool (Figure 13 shown above). The Login Script Info page is displayed (Figure 18).

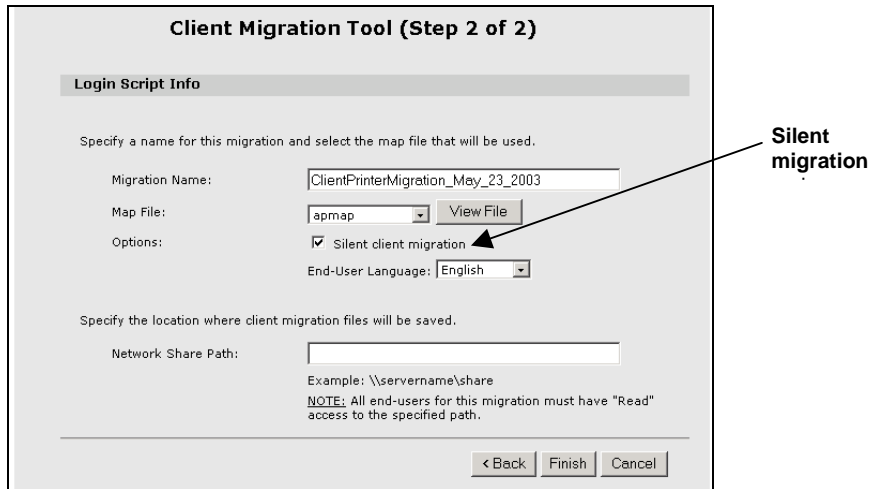


Figure 18 – Login Script Info Page

2. Specify the following on this page:

- the name of the migration (used as the batch file name during the migration).
- the name of map file to be used.
- where the migration files should be stored (usually the "netlogon" share on the domain controller). Migration files must be stored on a network share on which clients have "read" access.
- whether clients should be migrated silently (if this box is not checked, users will be asked if they want to migrate their printers).
- the end-user language (the default is English).

This creates the map file and copies all of the other necessary files (executables, DLLs, map file) to a specified share.

3. After the files are copied, the final page for Login Script Migration is displayed (Figure 19). Add the .bat file (as indicated on this page) to the user's logon script.

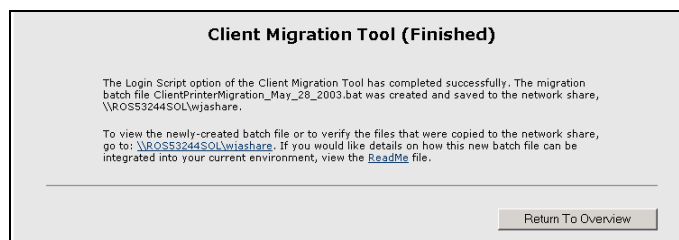


Figure 19 - Successful Completion Using the Login Scripts Option

Windows Script Host

The Windows Script Host option is almost identical to the Login Script method. The main difference is that the command line tool is written in Microsoft's Visual Basic Script (VBS) instead of the traditional "bat" file format. VBS is included by default with Windows 2000 and above. There are downloads for other MS operating systems available.

Manually Configuring the Client Migration

In some cases, the Client Migration Tool might be more useful when manually configured. To manually configure this tool, follow these steps:

1. Copy two files to a network share the client will be able to access:
 - c:\program files\hp web jetadmin\doc\plugins\hpjmgtools\hpjmg32.exe
 - c:\program files\hp web jetadmin\doc\plugins\hpjmgtools\addportnt.dll
2. Write a map file, which is a text file listing the name of each old print share and the name of each new print share. For the Migration Tools, the file hpjmg32.exe reads in the map file and, if the old print share is installed, migrates the share to the new one on the PSA.

A map file line consists of UNC -> UNC, where the first UNC name is the old print share and the second UNC name is the new share on the PSA. For example:

```
\\DomainName\ServerName\ShareName -> \\PSA\ShareName
```

When creating scripts to call hpjmg32.exe, full path names should be used. For example:

```
\\ServerName\Share\hpjmg32.exe \\ServerName\Share\MapFile.map
```

Hpjmg32.exe takes the "-s" switch. If the "-s" switch is used, the client will not be asked if they want to migrate the shares; the migration will occur automatically in the background. Following is an example of how the "-s" switch is used:

```
\\ServerName\Share\hpjmg32.exe \\ServerName\Share\mapfile.map -s
```

Sample Migration

This section describes a typical migration scenario for an NT 4.0 server with network print shares.

In the domain Test_Company there is a Primary Domain Controller (Server_1) and a Backup Domain Controller (Server_2). There is also a Web Jetadmin server (WJA_1). On Server_1 there are 25 print shares. There are 300 users in this domain with access to the 25 printers on server_1. A PSA was just added (PSA_1) to this domain. The 25 print shares on Server_1 need to be migrated to PSA_1. Figure 20 shows this scenario.

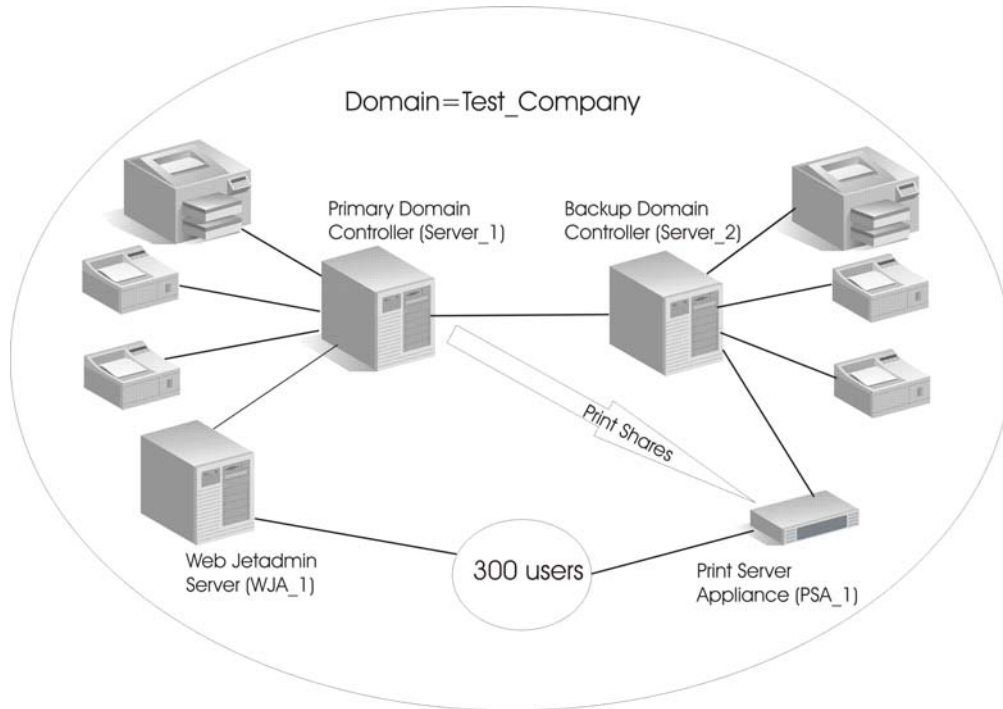


Figure 20 – Scenario for Migration Example

First, check to ensure the following are in place:

- ❑ Server_1 (being used to migrate the 25 print shares from) is one of the following:
 - NT Server 4.0 (service pack 3 and higher)
 - MS Windows 2000 Professional (service pack 2 or higher)
 - MS Windows 2000 Server
 - MS XP Professional (service pack 1)
- ❑ WJA_1 (the Web Jetadmin server) is one of the following:
 - Windows NT 4.0 Workstation (service pack 3 and higher)
 - Windows NT 4.0 Server (service pack 3 and higher)
 - Windows 2000 Professional
 - Windows 2000 Server (any service pack)
 - MS XP Professional (service pack 1)
- ❑ The system WJA_1 is running on has one of the following browsers:
 - Netscape Navigator 7.0 or greater
 - Microsoft (R) Internet Explorer 5.5 or greater
- ❑ The administrator running the Migration Tools has administrator rights on:
 - the server running Web Jetadmin.
 - Server_1 (the Windows server from which print shares are to be migrated).
 - PSA_1 (to which print shares are bring migrated).

Now, follow these steps for a successful migration:

1. Install PSA_1 using the procedure in the PSA's Quick Start poster (shipped with the PSA). In summary, these steps are:
 - a. Remove PSA_1 from the box.
 - b. Connect the power and network cables.
 - c. Assign an IP address for PSA_1 either through the front panel or through DHCP.
 - d. Use the PSA's web interface to:
 - assign the rest of the TCP/IP parameters and the device name (on the **TCP/IP and DNS Settings** page and on the **Microsoft Network Settings** page).
 - assign and configure either share level or domain security models (on the **Administrators** page).
 - e. Create a print share (print_share_1) on PSA_1 and test it.
2. Install and configure Web Jetadmin (version 7.2 or later supports the Migration Tools).
3. Install the Migration Tools through Web Jetadmin.
4. Run Web Jetadmin and browse to the Server Migration Tool page.
5. Specify the destination PSA (PSA_1), the domain (Test_Company), and the print shares (printer_1 through printer_25).
6. After the print shares are migrated to PSA_1, view which print shares were migrated successfully. The print shares that could not be migrated will be listed in the log file, along with the error each encountered. Possible errors are:

Server Migration Error	Possible Resolution
No PSAs have been found on the network	On the Server Migration (Step 1 of 4) page, choose "Specify a PSA" instead of "Select a PSA"
Unsupported hardware	On the Server Migration (Step 1) page, choose "Specify a PSA" and type the IP address for a different PSA.
Communication error	On the Server Migration (Step 1) page, check the name of the PSA and make sure it is correct. Or , specify a different PSA.
Unsupported firmware	On the Server Migration (Step 1) page, the PSA specified does not have the current firmware installed. Upgrade the firmware on the PSA and then run the Migration Tools again, or specify a different PSA.
PSA not found	On the Server Migration (Step 1) page, check the name of the PSA and make sure it is correct or type a different PSA.
Not enough memory	Restart Web Jetadmin. If the problem persists, call HP Support.
Map file in use	Specify a different map file.
Share not migrated because: <ul style="list-style-type: none"> • No IP • No LPD support • Share exists already • Access denied • Couldn't add the NT driver • Can't set printer data/ initialization copy failed • General error (unknown) • Couldn't communicate with PSA 	Print shares encountering these problems will not be migrated. You can migrate these shares later and proceed with the migration, Or, you can select a different PSA for migration at this time.

Client Migration Error	Possible Resolution
PSA Communication error	Make sure the PSA is available for migration (turned on, attached to the network, etc.)
Sharing violation	One or more of the files being migrated are in use. Try this migration later.
Network name not available	The server is no longer available. Select a different PSA for migration.
Access denied	This might be an authentication issue or a file/hardware issue.
PSA not found	On the Server Migration (Step 1 of 4) page, check the name of the PSA and make sure it is correct, or specify a different PSA.
Disk full	Delete some files on this share and try again.
Server not found	Verify the address for the server is correct and try again.
Unable to copy files to network drive	Call HP for support if this problem persists.
Error sending email message	Make sure the SMTP mail server is up and running and then run the Client Migration Tool again.

Summary

The HP Print Server Appliance (PSA) is a less expensive alternative to using an NT, 2K, or Novell Server as a print server. Now, with the PSA Migration Tools and Web Jetadmin, print shares can be migrated quickly and easily from existing print environments to a printing environment based on the PSA.

The Server Migration Tool allows administrators to migrate print shares from Windows servers. This tool enumerates all of the shares installed on the servers and enables the administrator to select which shares to migrate to a PSA. The tool then creates those print shares on the designated PSA.

The migration file created by the Server Migration Tool can then be used to migrate those print shares to clients. This can be done in the background or with input from clients, whichever the administrator feels best suits the work environment.

For More Information

<http://www.hp.com/support/printappliance>

http://www.hp.com/go/psa_whitepapers

http://www.hp.com/go/wja_whitepapers