

HP Device Manager 4.7 SP3

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## **Overview**

A new mechanism called "Automated Repository Management" has been implemented to improve the efficiency of HPDM and ensure the consistency of resources in all repositories through automated synchronization. Automated Repository Management makes it easier to associate a payload with templates, manage multiple Child Repositories, synchronize content between repositories, and remove content from repositories.

A repository is a file server that stores payloads used in HPDM tasks, like software components, system images, tools, and agent files. There can be multiple repositories in an HPDM setup. One repository contains the master copy of the payloads and is called the Master Repository. The other repositories replicate the contents of the Master Repository and are called Child Repositories.

The following tasks need to transfer payloads through repositories:

- Agent
  - \_Update Agent
- File and Registry
  - \_File and Registry > Capture Files, Deploy Files
- Settings
  - \_Apply Easy Tools Configurations
  - \_Apply Easy Tools Settings
- Imaging
  - \_Capture Image
  - \_Deploy Image
  - \_PXE Capture
  - \_PXE Deploy

## Mechanism

On the Master Repository, a component named the Master Repository Controller manages the content in the Master Repository and synchronizes that content to the Child Repositories as requested by the HPDM Server. The HPDM Server works with the Master Repository Controller to prepare the payload for tasks

The overall structure of the Automated Repository Management feature is shown in the following diagram.





To use this feature, users must set up the file servers and configure them as either the Master Repository or a Child Repository before introducing the payload to the system and using it.

## **Preparation**

### **File server preparation**

#### **Selecting a protocol**

HPDM supports the following kinds of protocol: HTTPS, FTP/FTPS, SFTP, and SMB (Shared Folder, Samba). You can use a single protocol or all protocols in one repository. There are two limitations as follows:

- FTP family protocols must be chosen for Linux non-cached imaging.
- SMB must be chosen for WES non-cached file-based imaging.

If multiple protocols are used for one repository, they should all point to the same location on the computer. In this document, three protocols will be used as an example.

#### **Configuring the FTP server**

These instructions assume that you have installed an FTP server service on the computer.

- 1. Go to the root path of the FTP server. For this example, the FTP root path is c:\inetpub\Ftproot.
- 2. Create a directory called HPDM in the root path folder. Do not use an existing directory that was created for an older version of HPDM. If you do use an old directory, copy the files in it to another location and then delete them from the old directory. Be sure that the folder for the Master Repository is empty before installation.

#### **Configuring the Shared Folder**

Configure the HPDM directory you created as an SMB shared folder with full control permissions.

#### **Configuring the HTTPS server**

See the HP Device Manager 4.7 white paper HPDM Embedded HTTPS Server Deloyment Guide.

#### Validating the configuration

The configuration should look similar to Figure 2 when you finish. The local path and the path of each protocal must point to the same location. For HTTPS, configure the file <HPDM root folder>\Embedded HTTPS Server/conf/repository.ini as shown in the following figure.

#### Figure 1. HTTPS path

🕎 C:\Progran	n Files\HP\HP	P Device Mar	ager\Embedd	ed HTTPS Sei	rver\conf\repos	itory.ini - N	otepad++ [Admin	istrat 💶 🗖 🗙
File Edit Sea	irch View Er	ncoding Lang	uage Settings	Macro Run	Plugins Window	1 ?		X
🔓 🚽 🗐	🖻 🔓 🖗	😂   🐇 📭	h) > C	🛗 🏂 🔍	* < 🛙 🖪 🖻	🗄 🛛 🗌	토 🐷 🔊   I	• • •
😑 repository.in	×	InstallP	ath\Embe	dded HTT	PS Server\co	onf\repo	sitory.ini	
1 📮 🚺	epository	<u>, 1</u>						
2 <b>- p</b> a	th=C:\FTP	)						
Modify the path value here if you moved Repository content after installation.								
length : 24 line	es : 2	Ln : 1	Col:1 Sel:0	0	UNI	X	UTF-8 w/o BOI	M INS //



<u>File E</u> dit <u>V</u> iew F <u>a</u> vorit	es <u>T</u> ools <u>H</u> elp	-
Ġ Back 🝷 🕥 👻 🦻 🔎	🤇 Search 🌔 Folders 🛛 🕼 🌛 🗙 💆	) »
Address C:\Inetpub\HPD	M <sup>i</sup> Repository 🗾	→ Go
Name 💌	Size Type	Date N
Tools	File Folder	3/26/2
🛅 Images	File Folder	3/26/2
HP_EasyTools	File Folder	3/26/2
🛅 Gateways	File Folder	3/26/2
🛅 Files	File Folder	3/26/2
BIOS	File Folder	3/26/2
C Agents	File Folder	3/26/2
ftp://dm_ftp@192.168.1.10	1/HPDM \\192.168.1.101\HPD	M

On another device, use the following method to test whether you can access the repository with full control. HP recommends that you test your access from a thin client, especially if the repository will be used in a domain environment.

#### Note

HTTPS does not support access through third-party clients such as Internet Explorer; however, you can verify access using the following command: telnet host port.

Go to **Start > Run** and enter the FTP path name. Repeat this process with the Shared Folder path.

Figure 3. Testing access to the FTP

Run	? ×
-	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	ftp://dm_ftp@192.168.1.101/HPDM
	OK Cancel <u>B</u> rowse

Figure 4. Testing access to the Shared Folder

Run	? ×
-	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	\\192.168.1.101\HPDM
	OK Cancel <u>B</u> rowse

Use the following steps to test that your access to the repository is with full control. All operations must succeed; otherwise, you need to fix the mistakes in the repository settings.

- 1. Create two folders in the HPDM directory.
- 2. Delete one of them.
- 3. Access the repository with the Shared Folder.
- 4. Verify that you can see the folder created in step 1.
- 5. Create another folder.
- 6. Delete both folders.

If you use a Shared Folder with domain credentials, make sure that the group policy does not block access from devices not in the domain, because the devices will be out of domain during the imaging process.

## **Master Repository configuration**

After preparing the file servers, select one to serve as the Master Repository. On the same file server, install the Master Repository Controller. See the *Administrator Guide* for HP Device Manager 4.7 for more information on installing the Master Repository Controller. When the following wizard opens, select the HPDM directory you created as the destination folder.

Figure 5. Selecting the Destination Folder

	sitory Root Path
Please set the target root path into whi HPDM tools, the Gateway and Agent i templates such as . File and Registry, and the Gateway and Agent install pac previous versions. Please keep in minic Console, Gateway, and Agents to acc- accessible via the specified file transfe	ich the Master Repository will store the necessary install files, and all payload files associated with Deploy Image, etc. Once set, the latest HPDM tools ickages will be copied into this location, replacing any d when selecting this location that for the HPDM ess the Master Repository, the path you specify must be tring protocol (FTP, FTPS, SFTP, or Shared Folder).
Defection Data	
Destination Folder C: Vinetpub/Fitproot/HPDM	BIowse

After the installation, the destination folder is stored in the Master Repository Controller configuration file located here:

C:\Program Files\HP\HP Device Manager\MasterRepositoryController\Controller.conf

#### Note

If you change the Master Repository root path after this installation, you must manually change the path of the configuration file and then restart the Master Repository Controller.

After the Master Repository is set up, configure it on the HPDM Console. The name of the directory you created is displayed in the **Path** field.

#### Note

Do not modify or delete the files in the Master Repository without HPDM, because the system might stop working.

Figure 6. HTTPS path in the Repository Configuration Wizard

Repository Configuration Wizar	d second s	x
Intialization Steps Basic Information Protocol Settings HTTPS Settings Shared Folder Settings Summary	HTTPS Protocol Settings         HPDM Master Repository Controller installer puts a "Repository" folder in the specified path. There should be a "Repository" folder in the URL below if the Master Repository is correctly configured here.         Port:       443         Username:       admin         Password:       *******         URL:       https://192.168.1.101/	
	< Back Next > Finish Cancel	

Figure 7. FTP path in the Repository Configuration Wizard

Repository Configuration Wizard	×
Initialization Steps Basic Information Protocol Settings HTTPS Settings Shared Folder Settings Summary	FTP/FTPS Protocol Settings         HPDM Master Repository Controller installer puts a "Repository" folder in the specified path. There should be a "Repository" folder in the URL below if the Master Repository folder in the ILRL below if the Master Repository folder in the URL below if the Master Repository folder in the Master Repository folder in the URL below if the Master Repository folder in the URL below if the Master Repository folder in the URL below if the Master Repository folder in the URL below in the Master Repository folder in the URL below in
	< Back Next > Finish Cancel

Figure 8. Shared Folder Path in the Repository Configuration Wizard

Repository Configuration Wizard		×
Repository Configuration Wizard Initialization Steps Basic Information Protocol Settings HTTPS Settings FTP/FTPS Settings Shared Folder Settings Summary	Shared Folder Protocol Settings         HPDM Master Repository Controller installer puts a "Repository" folder in the specified path. There should be a "Repository" folder in the URL below if the Master Repository is correctly configured here.         Username:       administrator         Password:       ********         URL:       [V192.188.1.101]	×
11	< Back Next > Finish Cancel	1

After you finish the configuration of the protocols, select the Summary tab, and then select Test. For each protocol, a URL appears. You can select the URL to test access. For HTTPS, the URL link is invalid.

Figure 9. Summary tab of the Repository Configuration Wizard

Repository Configuration Wizard				x
Initialization Steps	Summary			
Basic Information	Use the Test button below to	o check the protocol setting, test	result will be reflected in this page.	
Protocol Settings				
HTTPS Settings	Protocol	Port	URL	Username
FTP/FTPS Settings	HTTPS	443	https://192.168.1.101/	admin
Shared Folder Settings	FTP	21	ftp://192.168.1.101/HPDM	admin
Summary	SMB	N/A	<u>\\192.168.1.101\HPDM</u>	administrator
	Test Result Verifying the Remote Acc For SMB, successful For FTP, successful Remote access verificatic Verifying the remote acce For SMB, successful For FTP, successful For HTTPS, successful	ess for selected protocols on ends. ess is aligned with Master Repos	itory Controller access	La constante de la constante d
			< Back	Next > Finish Cancel

#### **Child Repository configuration**

There is almost no difference between configuring a Child Repository and the Master Repository, except that the Master Repository Controller does not need to be installed with a Child Repository.

## **Customized package introduction**

#### **HPDM** package

An HPDM package contains two required parts: payload files and a description file. For example, there could be a package called Test, in which there are the following folder and file, and the folder contains the payload files.

- Folder: Test
- File: Test-D653B4C263C399E924FF5F70AE5BD9EF.desc

The description file is named by combining the payload name and the MD5 hash value for the payload, separated by a "-" character. The content of the description file includes detailed information about the package, such as payload size, operating system type, and device models that the package can be applied to. The information comes from either the Package Description Editor UI input or other sources such as imported HP FTP components.

#### **Capture Image task**

- 1. Send a Capture Image task to a device. For details about the Capture Image task, see the HP Device Manager 4.7 white paper *Imaging with HP Device Manager 4.7*.
- After the Capture Image task finishes, an image template is generated and the package uploads to the Master Repository automatically.

#### Importing a file to generate a package

Import one of Image Files, Easy Tools Configuration, or Easy Tools Settings to generate a package.

- 1. Select **Template > Import** from the menu of the HPDM Console, and then select one of **Image Files**, **Easy Tools Configuration**, or **Easy Tools Settings**.
- 2. Select the file that you want to import. Image Files can import .ibr, .img, .hpimg, .dd, and .dd.gz files; Easy Tools Configuration can import .hpcfg files; and Easy Tools Settings can import .hpset files.
- 3. Click Import. Then, enter the payload information in the Package Description Editor dialog.
- 4. Click Generate. The file is added as a new template. Payload files are uploaded to the Master Repository automatically.

## Importing a file from an HP FTP Browser

Use the HP FTP Browser to import a package from the HP public FTP site automatically. For details, see the *Administrator Guide* for HP Device Manager 4.7.

## Synchronizing repositories

All HPDM packages that include built-in packages and customized packages reside on the Master Repository before synchronzing. There are three ways to synchronize the packages from the Master Repostory to Child Repositories.

#### Synchronzing on demand

When a task that needs payloads is sent, the payloads are synchronized automatically in the background with the following logic. The HPDM Server maps target devices to proper Child Repositories. Then, the Master Repository Controller synchronizes required payloads to the chosen Child Repositories. The task is not sent out before the synchronization is accomplished.

#### Note

For tasks that capture files or image from a device, the captured content goes to the Master Repository, regardless of the mapping policy for that device.

## Synchronzing manually

You can manually synchronize all content to all child repositories at any time. The Master Repository Controller validates content with all child repositories. Up to five child repositories can be synchronized at a time. Any other child repositories can be queued. For more information, see the *Administrator Guide* for HP Device Manager 4.7.

### Synchronzing on schedule

HPDM supports a periodic, automated synchronization schedule. For more information, see the *Administrator Guide* for HP Device Manager 4.7

## Notes

### Using PASV mode on an FTP or FTPS server

When an FTP or FTPS server receives a PASV command, it replies with an IP address and a port using an xx,xx,xx,xy,yyy string to the FTP or FTPS client. xx,xx,xx,xx is the IP address and yy,yy is the port. Then, the client connects to xx.xx.xx.xx:yyyy. Both the Master Repository Controller and outside devices need access to the FTP or FTPS server. This is similar to the child repository address issue; however, the FTP or FTPS server only can be set to IP address in PASV mode.

The HPDM 4.6 SP5 or HPDM 4.7 file client library can resolve this issue. The HPDM file client does not use xx.xx.xx in reply to a PASV command, but does use the original address for the control socket.

For example, if an HPDM file client connects to hpdm-dmz.hp.com:21 and sends PASV, it receives the reply 192,168,10,20,10,01. Then, its data socket connects to hpdm-dmz.hp.com:2561 (10\*256 + 01 = 2561).

## **Setting the FTPS port**

By default, HPDM uses 990 as the FTPS port. You might want to modify the default FTPS port of the FTP server and HPDM. Note that different FTP servers might behave differently if you change the FTPS port setting.

FileZilla Server and IIS FTP Server showed the following behavior in testing:

- FileZilla Server can be set FTPS port using its configuration GUI. HPDM can supports this configuration.
- The active data port for FileZilla Server is one less than the FTPS control port. For example, if you set the FTPS port in FileZilla Server to 660, its data port is 659. If you are not using PASV mode, ensure that your firewall allows both the control port and data port.
- If IIS FTP Server is set FTPS port to 990, the server treats it as implicit FTPS. If the FTPS port is set to any other number, the server treats it as explicit FTPS. HPDM does not support explicit FTPS. If you are using IIS FTP Server, you must use the default FTPS port of 990.

## **Troubleshooting steps**

### **Connectivity of the repository**

 Verify that the devices on the network can connect to the repository through the FTP/FTPS, SFTP, or Shared Folder and can read/write files and create/delete folders.

#### Note

HTTPS does not support access through third-party clients such as Internet Explorer; however, you can verify access using the following command: telnet host port.

For the Shared Folder on a Linux device, use the following command to check access to the repository. If you do not have
a domain, remove the relative parameter.

```
mount -t cifs -o username=XXX,passwd=XXX,domain=XXX //192.168.1.101/HPDM
/tmp/HPDMSamba
```

- Verify that the FTP access is enabled if you have any devices with an older version of HPDM, because they might not work with any new repositories until the HPDM Agent updates.
- Verify that the HPDM Console can connect to the Master Repository through the HTTPS, FTP/FTPS, SFTP, or Shared Folder and can read/write files. Use the **Test** button in the Repository Configuration Wizard.
- Check if the following firewall ports are opened:
  - 20 and 21: FTP server
  - 22: SFTP server
  - 443: HTTPS server
  - 990: FTPS server
  - 137: NetBIOS Name Service
  - 138: NetBIOS Datagram Service
  - 139: NetBIOS Session Service
  - 445: Microsoft Directory Services

#### Log level setting of the Master Repository Controller

Modify the configuration file of the Master Repository Controller to get detailed log information for debugging. If you use the default path during the installation, the file is located as follows:

C:\Program Files\HP\HP Device Manager\MasterRepositoryController\Controller.conf

Log level options are as follows:

- 0:Error
- 1:Warn
- 2 : Infomation

After changing the log level, restart the Master Repository Controller in the Services Control Panel for the changes to take effect.

### **Connection between the HPDM Server and the Master Repository Controller**

• Check that the HPDM Server can connect to the Master Repository Controller.

If the HPDM Server cannot connect to the Master Repository Controller after you have configured the Master Repository information using the Master Repository Editor, the following error dialog appears. Verify that the server address for the Master Repository is correct and that the 40012 port is allowed through the firewall. If the server address is not correct, click the **Edit** button in the error dialog, enter the correct server address, and then try to connect. If the port is not allowed through the firewall, change your firewall's permissions, and then click the **Reconnect** button in the error dialog.

#### Figure 10. System Check Failed dialog

System	n Check Failed	×			
8	Error occurred when connecting to the Master Repository Controller. Any operation requiring payload will fail.				
	Click "Edit" to modify the Master Repository settings, or verify the status of the Master Repository Controller and then click "Reconnect".				
	(Error Details: Failed to connect the Master Repository Controller. Maximum number of retries reached.)				
	Edit Reconnect Close				

• Make sure that the connection passes the authentication.

SSL authenticates the connection between the HPDM Server and the Master Repository Controller. After the configuration finishes successfully for the first time, an authentication certificate and private key are generated between the HPDM Server and the Master Repository Controller.

- A. Go to the installation folder of the HPDM Server and find the keystore file hpdmskey.keystore in the folder InstallerFolder/Server/bin. This file stores the HPDM Server's private key, the HPDM Server's certificate, and the Master Repository's certificate.
- B. Go to the installation folder of the Master Repository Controller and find the following three files:
- Controller.key—Master Repository Controller's private key
- Controller.crt—Master Repository Controller's certificate
- Client.crt—HPDM Server's certificate

The Master Repository Controller refuses any connection requests that do not include the authentication certificate. Also, the HPDM Server refuses the Master Repository Controller if it does not pass the authentication. If the authentication fails, the following message appears.

Figure 11. System Check Failed dialog

5 <b>ys</b> tem	Check Failed	×				
8	Error occurred when connecting to the Master Repository Controller. Any operation requiring payload will fail.					
	Click "Edit" to modify the Master Repository settings, or verify the status of the Master Repository Controller and then click "Reconnect".					
	(Error Details: SSL Master Repository Controller Certificate verification failed.)					
	Edit Reconnect Close					

HPDM supports only one server and only one Master Repository Controller in the system. If you use another server or Master Repository Controller, the authentication fails.

Use the following steps to delete the authentication file and reset the authentication between the HPDM Server and Master Repository Controller. The new authentication file will be created when the HPDM Server and the Master Repository Controller connect for the first time. Before you reset the authentication, make sure that there is only one HPDM Server and only one Master Repository Controller in your system. Also, make sure that the system clocks are same if the HPDM Server and the Master Repository Controller are installed on different machines. Otherwise, the authentication might fail.

- 1. Stop the HPDM Server and Master Repository Controller. You can stop Master Repository Controller in the Services Control Panel.
- 2. Delete all authentication files.
- 3. Start the Master Repository Controller. You can start the Master Repository Controller in the Services Control Panel.
- 4. Start the HPDM Server.
- 5. Open the HPDM Console again. The system now authenticates successfully.

## For more information

To read more about HP Device Manager, go to <u>http://www.hp.com/go/hpdm</u>.

## Sign up for updates hp.com/go/getupdated

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