



HP JetAdvantage Connect Print Server

Install Guide

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1. Introduction

The HP JetAdvantage Connect Print Server (or the Print Server) provides a front-end to HP Access Control (HP AC), which then exposes “Pull Printing” functionality to mobile devices. When a user prints from a mobile device using the HP JetAdvantage Connect system, the Print Server displays a list of available printers in the user’s interface. After printing to this location, users can then release their print job at any HP AC enabled printer connected to HP AC.

1.1 Technical Overview

The HP JetAdvantage Connect Print Server is comprised of two fundamental components:

- mDNS Responder (running as a Windows Service)
- IPP Handler (running as a web site using Microsoft’s Internet Information Service)

The mDNS Responder allows the Print Server to be discoverable via mDNS queries (aka Bonjour) on the local subnet.

The IPP Handler handles IPP requests from the remote clients and sends print jobs to HP AC. It utilizes IPPS for all communications and requires users to enter valid username and passwords in order to print.

Together, the mDNS Responder and the IPP Handler implement AirPrint™ version 1.6 (certification pending), allowing iOS and OS X clients to print using native OS functionality.

1.2 Server Requirements

The HP JetAdvantage Connect Print Server software is to be installed on a server (or VM) that resides within the same domain as the HP AC Server.

Note: The HP JetAdvantage Connect Print Server must be installed on a server (or VM) that is separate from the HP AC server. It cannot be installed on the same server where the HP AC is installed.

Server Requirements:

- Windows Server 2012 R2
- Internet access is required at install time in order to download IIS components, if desired.

1.3 Firewall Requirements

It is required that firewalls do not block traffic on port 631, as this port is used for IPPS communications between clients and the HP JetAdvantage Connect Print Server. Port 80 should also be left open to allow browsing to static HTML content when troubleshooting.

1.4 User Requirements

It is required that all users who print to the HP JetAdvantage Connect Print Server be valid domain users. When prompted at the client, users must enter their username and password as follows:

Username: <domain name>\<user name>

Password: < domain password>

Note: In some cases, it might be necessary to include the domain name with the user name in order to be authenticated to print to HP AC.

For iOS users: iOS devices will cache your user credentials (username and password) after you have successfully authenticated to a particular instance of the HP JetAdvantage Connect Print Server. This means that you will need to enter your password once and you will not be prompted again on subsequent jobs. If your domain username and password changes, iOS will prompt you to re-enter your credentials again, and the new credentials will be cached (after authentication is successful).

1.5 Certificate Needs of the Print Server

The Print Server utilizes SSL (SSL3/TLS1.2 protocols) when communicating with mobile devices via HTTPS, and thus requires that a Server Certificate be installed as part of the Print Server setup process. This certificate can be a self-signed certificate, or one issued by a certification authority. If you do not wish to use a self-signed certificate, you must obtain a properly issued certificate before setting up the Print Server. The certificate for the Print Server must be created as follows:

- Common Name (CN) must be set to: <print server computer name>.<domain name>
- Certificate Issued to: <print server computer name>.<domain name>
- Cryptographic service provider: Microsoft RSA SChannel
- Key Size: 2048 bits (or higher) using a SHA-256 hash.
- Available to be imported in .pfx format. The password must be available in order to be used.

During the Print Server setup, you will be prompted with the option to either import your certificate (and enter the password) for this server, or to generate a self-signed certificate.

Please note: Client Certificates are not supported.

1.6 HP AC Prerequisites Steps Needed:

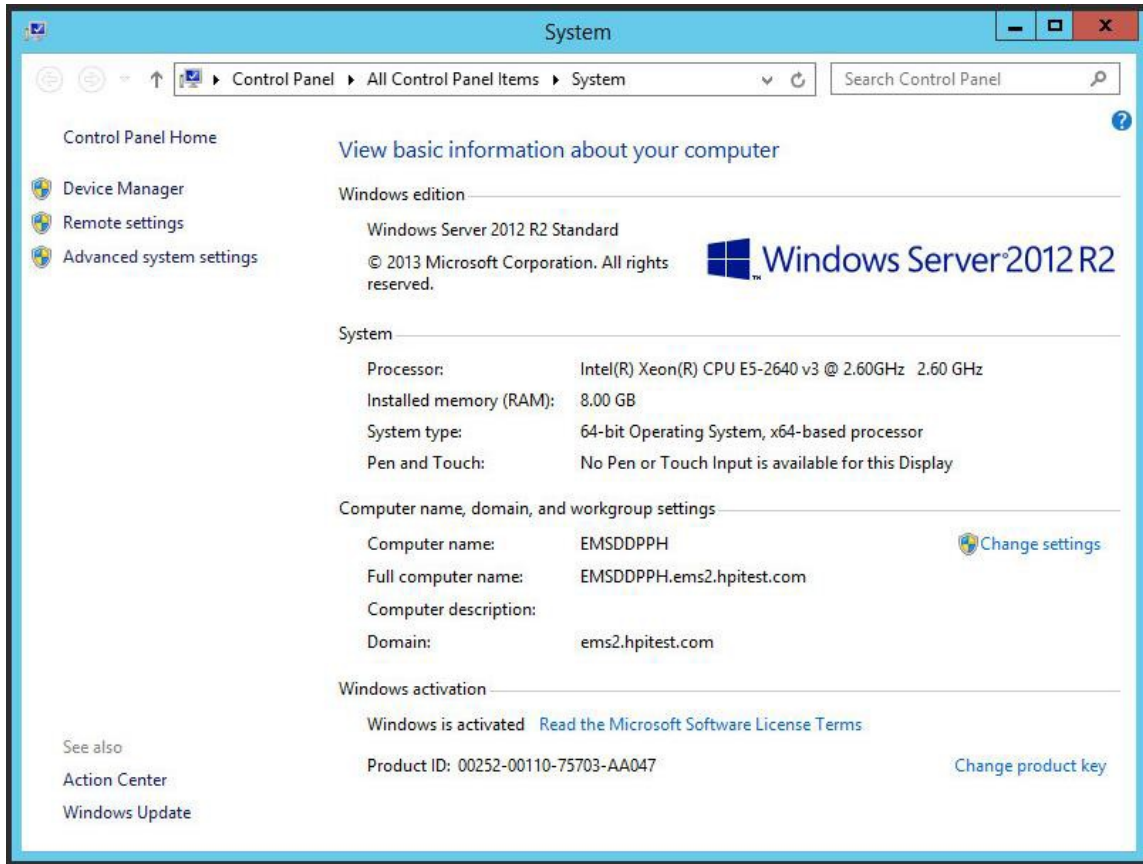
The following prerequisites are required to be in place before starting the Print Server setup:

1. HP AC Setup on a server.
 - a. Make note of the “Full computer name of the HP AC server (Computer name and domain name or “Fully Qualified” computer name). You will need this during Print Server setup.
2. Utilize a “Shared” print queue for HP AC.
 - a. Each instance of the HP JetAdvantage Print Server is limited to only support a single HP AC print queue using an “HP AC Secure Pull Print” port.
 - b. Make note of the shared print queue name. You will need that during Print Server setup.

- c. Make note of the port name as it is required during Print Server setup.

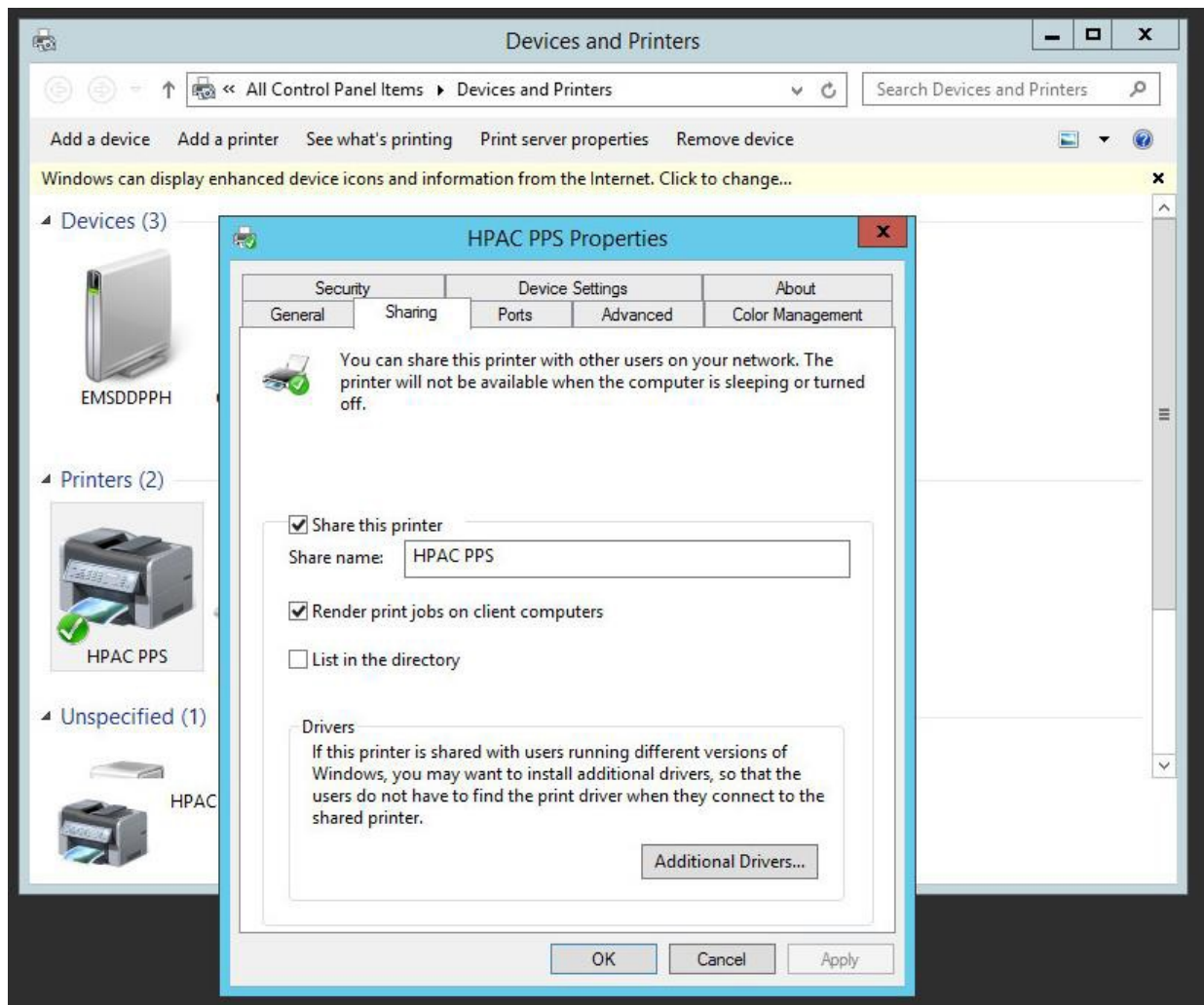
The below screen shows an example if the System Settings of an HP AC Server. In this example, the Full Computer name is “EMSDDPPH.ems2.hpitest.com”.

Figure 1: Full Computer name is “EMSDDPPH.ems2.hpitest.com”



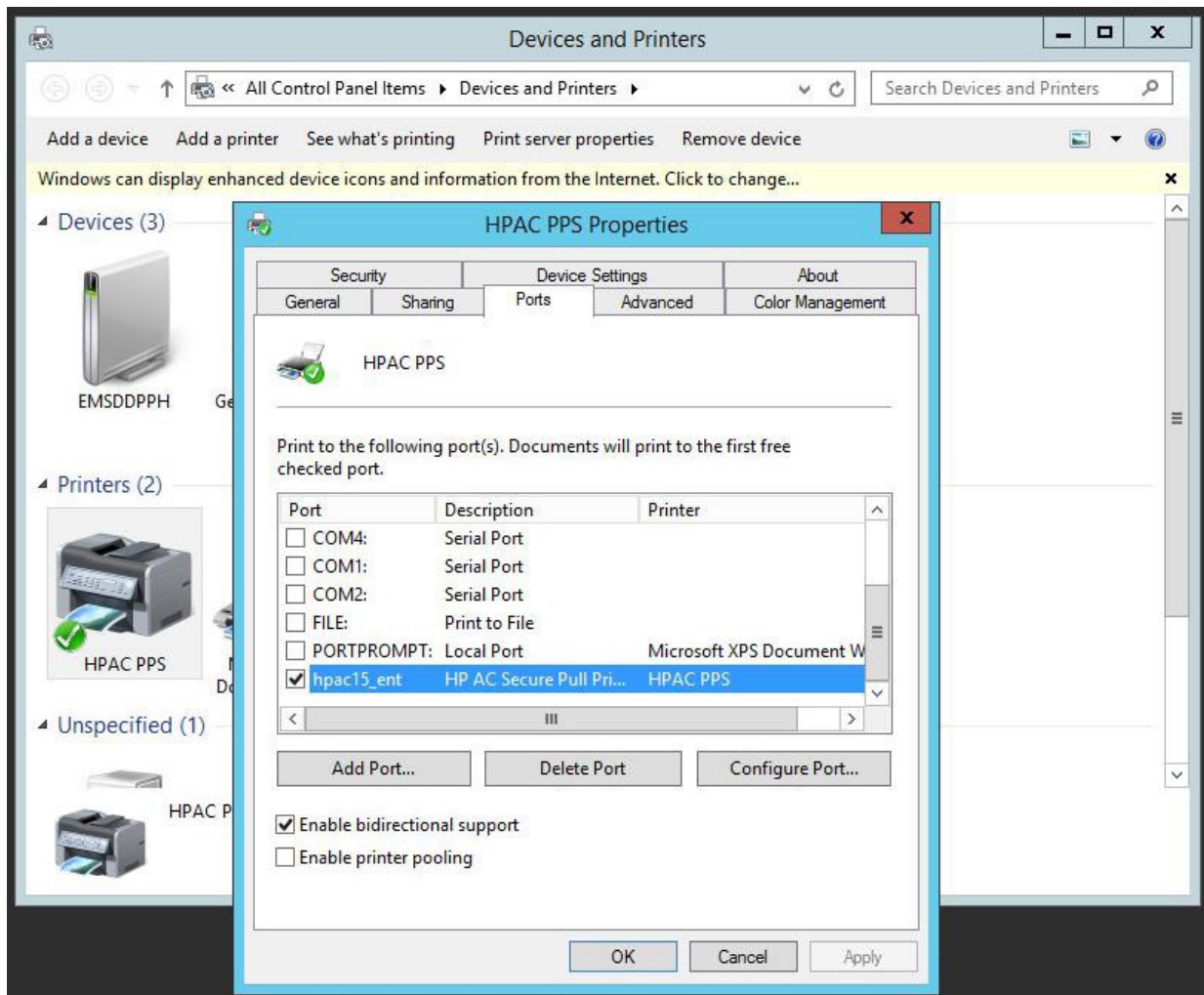
The below screen shows an HP AC print queue (on the HP AC server), including its “Share name” (HPAC PPS).

Figure 2: HP AC PPS Properties



The below screen shows the port name for the HP AC print queue (hpac15_ent).

Figure 3: HP AC print queue

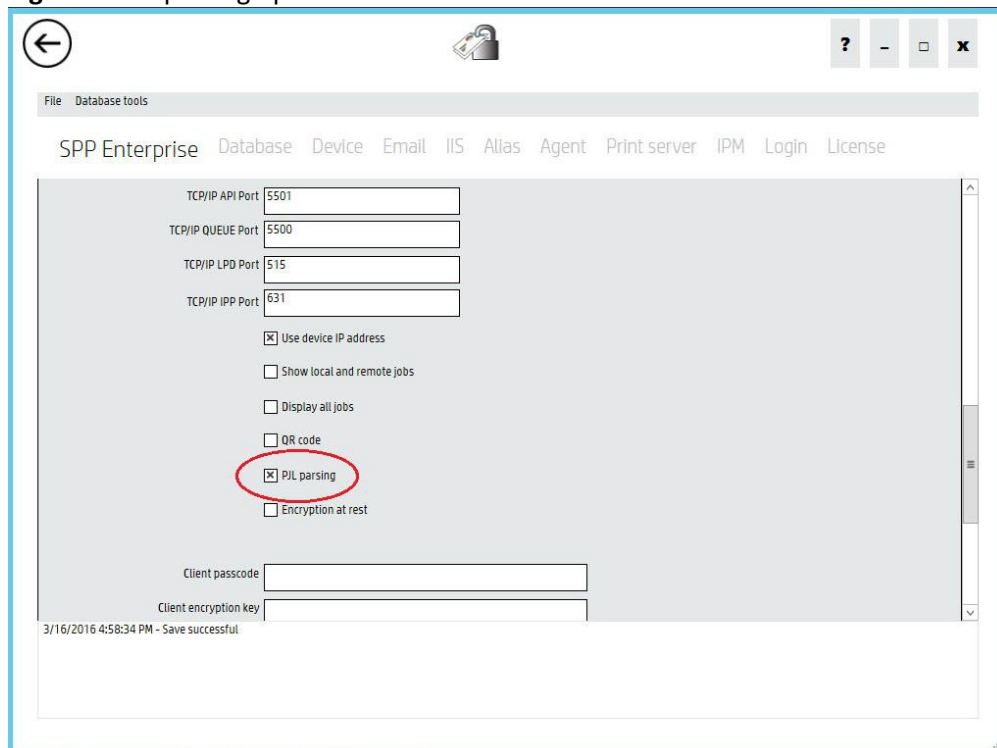


3. Select the “PJP parsing” option in the Settings section of HP Access Control. The below screens show where to find this selection.

Figure 4: HP AC Settings



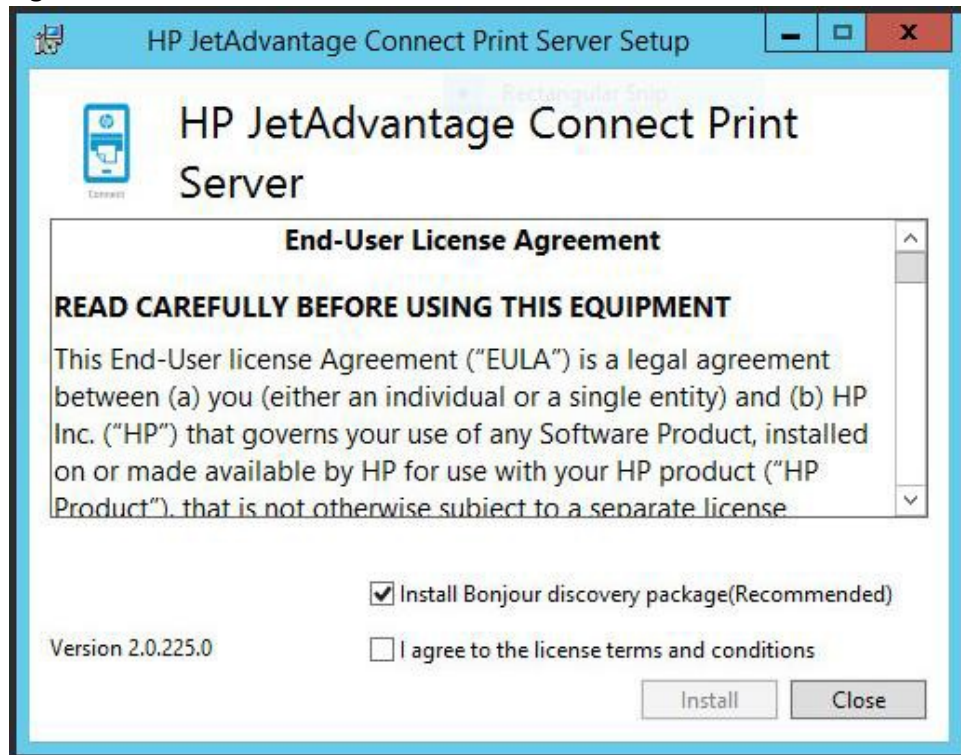
Figure 5: PJP parsing option



2. HP JetAdvantage Connect Print Server Setup

1. Run the Installer to perform the initial setup steps.
 - Installer name: HP_JAC_PrintServerInstall.exe
 - The opening screen of the installer displays.

Figure 6: Installer screen



2. By default, the installer will install the Bonjour discovery service from Apple. It is strongly recommended that you install Bonjour. If the Bonjour discovery service is not installed, the HP JetAdvantage Connect Print Server will not be discoverable on the local subnet. Do not uncheck this selection unless you are certain that Bonjour discovery will not be needed for your configuration.
3. When Bonjour is installed, you must agree to the Bonjour End User License Agreement in order to proceed.

4. During the installation process, you will be prompted with the following screen:

Figure 7: Installation process

HP JetAdvantage Connect Print Server

HP JetAdvantage Connect Print Server Settings

Select a certificate for encrypted communications

Encrypted communications require a certificate for securing information exchanged. Choose an existing certificate or specify to create and use a Self-signed certificate.

☒ Use existing certificate (HP recommends using a certificate issued by a certificate authority)

Select Certificate

Enter Password

☐ Create Self-Signed Certificate

Create Password

Enter client visible server name: hp-ac *

Enter HPAC server name: *

Enter HPAC print queue name: *

Enter HPAC port name: *

*required

Continue

5. Enter the following information:
- If you have a Server Certificate (in PFX format) for the Print Server, enter the path to the certificate, and type in the password for the certificate.
 - If you do not have a Server Certificate for the Print Server, select “Create Self-signed certificate”, and enter a password for the certificate.
 - Make the appropriate entries in the text entries for the following fields:
 - i. Client visible server name (this is what will be displayed to mobile users in their print dialog)
 - ii. HPAC server name (this is the “fully qualified server name” where HP AC is installed, as noted above)
 - iii. HPAC print queue name (this is the “shared print queue name” as noted above)
 - iv. HPAC printer port name (as noted above)

- After the screen shows all the settings have been entered, click “Continue”.

Figure 8: Settings entered

HP JetAdvantage Connect Print Server

HP JetAdvantage Connect Print Server Settings

Select a certificate for encrypted communications

Encrypted communications require a certificate for securing information exchanged. Choose an existing certificate or specify to create and use a Self-signed certificate.

☐ Use existing certificate (HP recommends using a certificate issued by a certificate authority)

Select Certificate

Enter Password

☒ Create Self-Signed Certificate

Create Password

Enter client visible server name: *

Enter HPAC server name: *

Enter HPAC print queue name: *

Enter HPAC port name: *

*required

Continue

6. When the Installer indicates “Installation Successfully Completed”, select “Close”.

The following is for informational purposes only:

After install, the following locations are used by the Print Server:

- a. mDNS Service is installed at:

C:\Program Files (x86)\Hewlett-Packard\HpJetAdvantageConnect

- b. IPP Handler is installed at:

C:\inetpub\wwwroot\HpJetAdvantageConnect

- c. Configuration File is located at:

C:\ProgramData\Hewlett-Packard\Hp JetAdvantage Connect\conf

- d. Log files:

i. Installer Log:

C:\Users\< user name >\AppData\Local\Temp

ii. mDNS Service & IPP Handler logs:

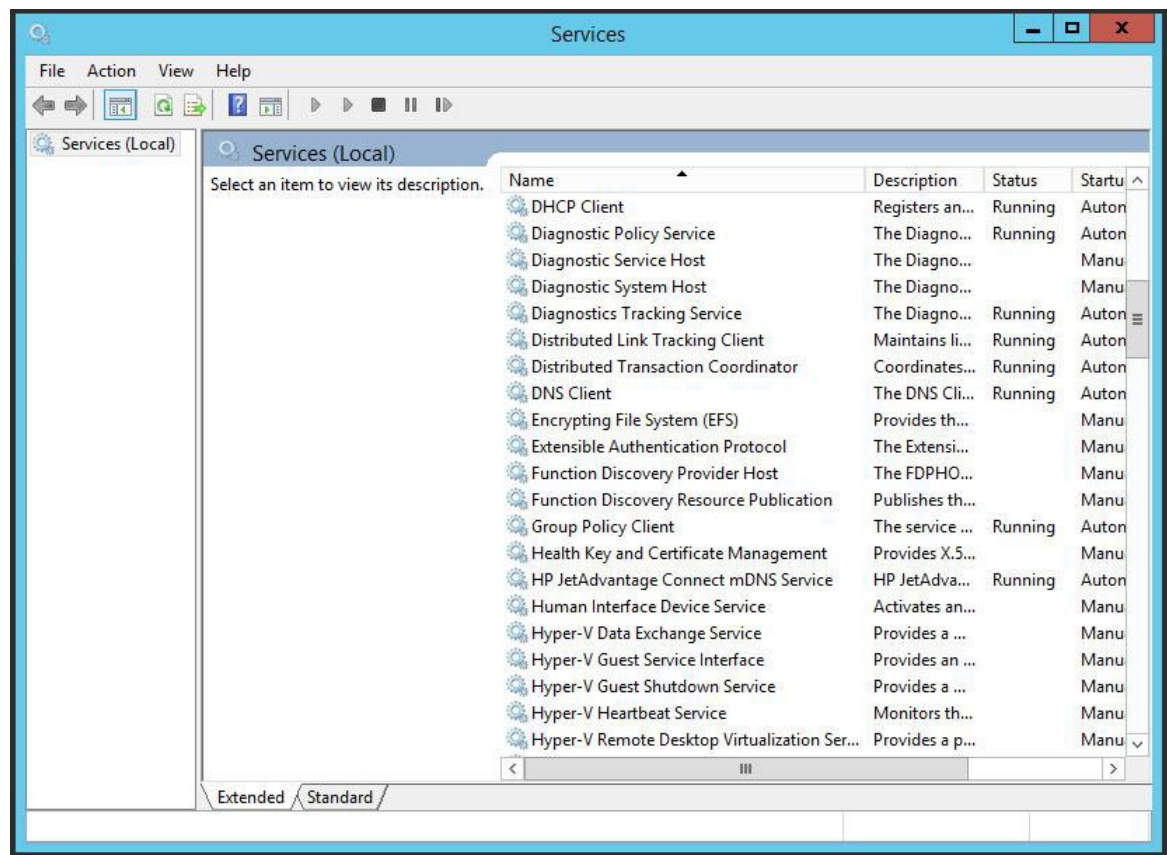
C:\ProgramData\Hewlett-Packard\Hp JetAdvantage Connect\logs

iii. IIS logs:

C:\inetpub\logs

- e. You can verify that the mDNS You can verify that the mDNS Responder (named “HP JetAdvantage Connect mDNS Service”) is running by opening the Windows Services console:

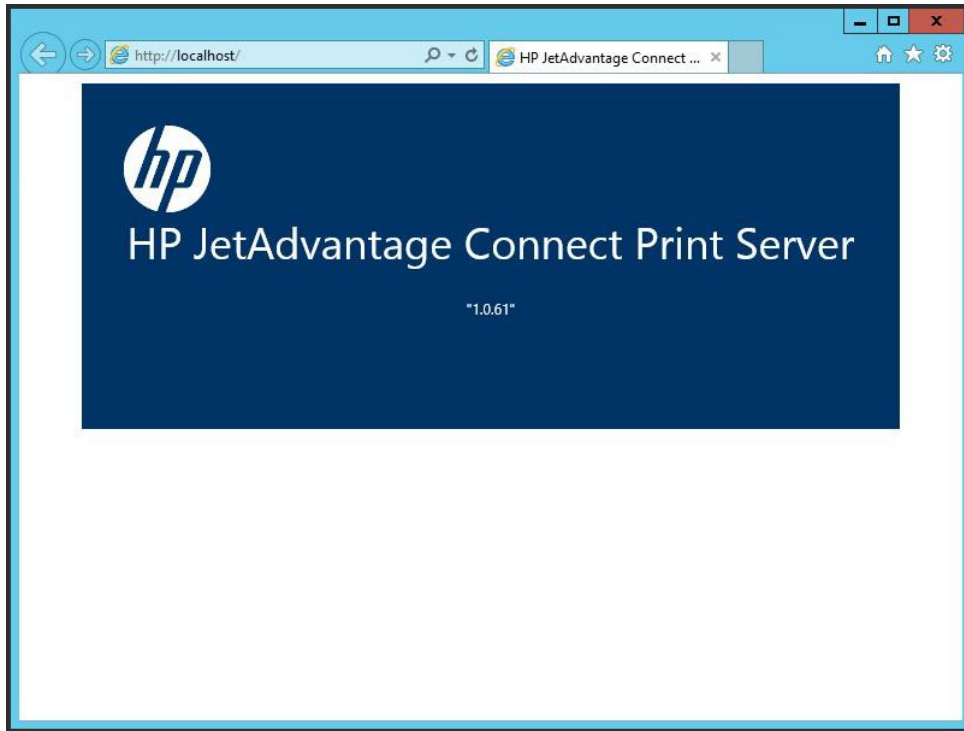
Figure 9: Windows Services console



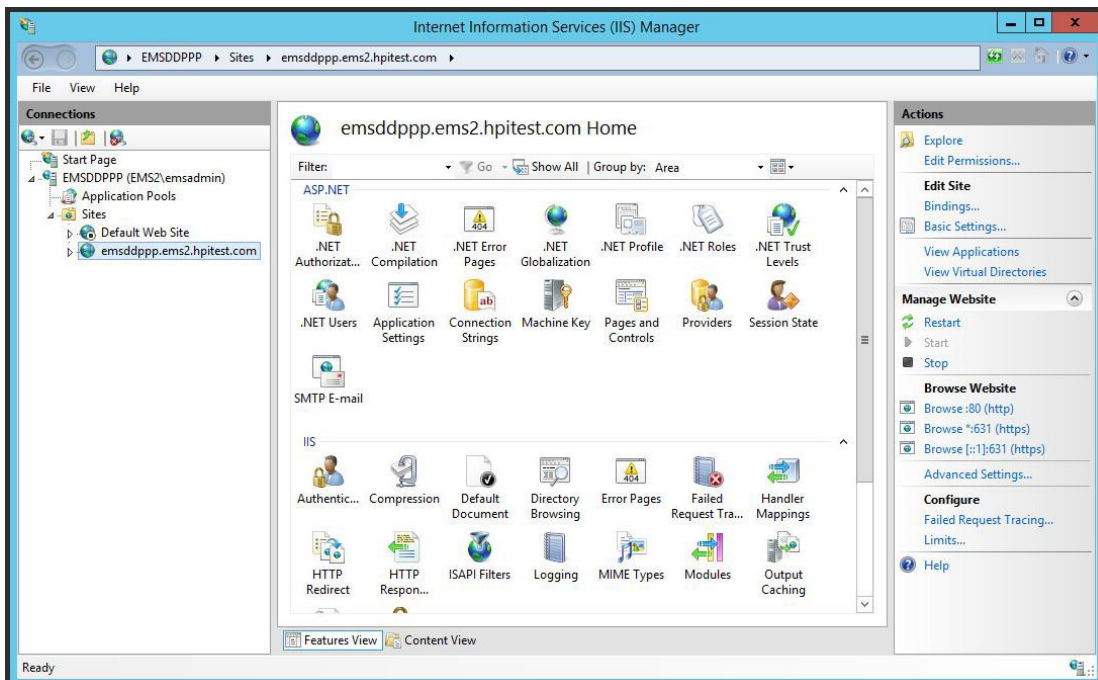
Note that the “HP JetAdvantage Connect mDNS Service” is shown in the Services console as “Running”.

- f. You can verify that IPP Handler is running within IIS as follows:
- Open a web browser, and navigate to: <http://localhost/>

Figure 10: Verify IPP Handler



- Open IIS, and verify that the a “site” with the server name is running:

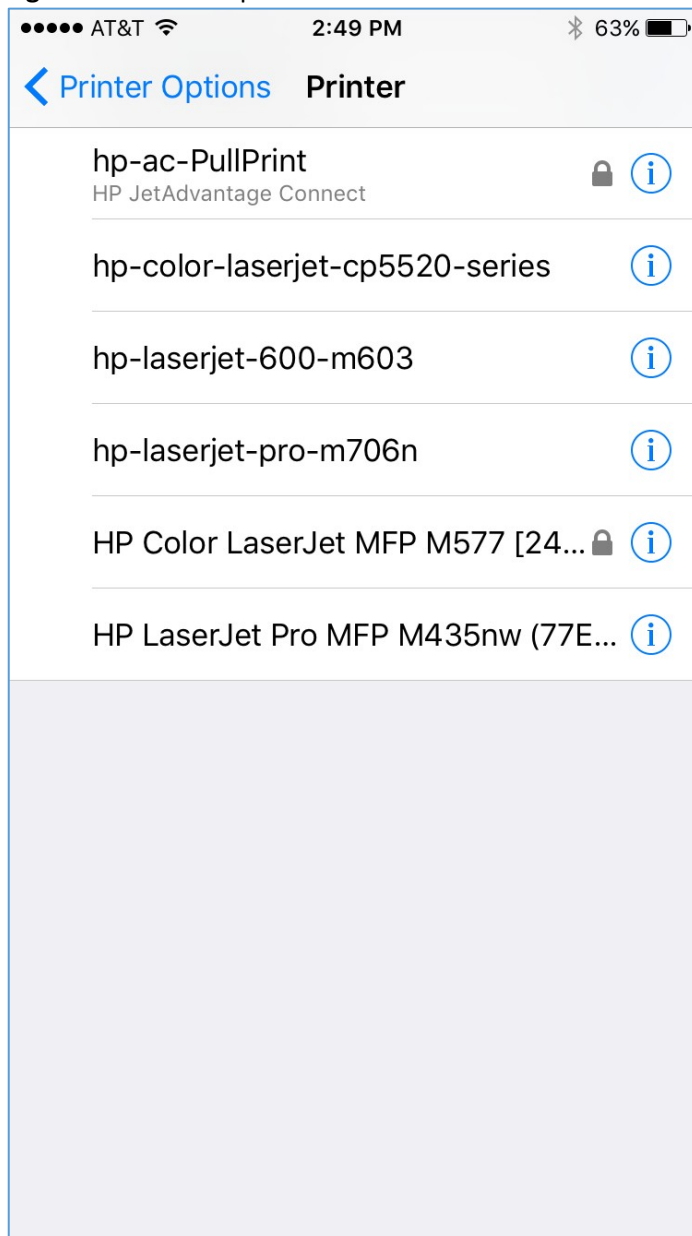


3. Validate the HP JetAdvantage Connect Print Server Setup

The following steps will validate the operation of the Print Server, and are only provided for reference and for troubleshooting purposes.

- 1) Verify installation using iPhone
 - a. Join iPhone to same network as HP JetAdvantage Connect Print Server is running
 - b. Choose to print a .pdf file
 - c. Choose "Select Printer"
 - d. Verify hp-ac (with your custom text) appears in the printer list

Figure 11: Printer Options



- 2) Verify installation using Mac OSX
 - a. Add "Airprint Printer"
 - b. Print to server

3.1 Common server setup failure cases (and the possible reason why).

- 1) Unable to connect (firewall not turned off).
- 2) Repeated incorrect username / password (incorrect HPAC entries made during install).
Action: Edit the configuration file as indicated below.
- 3) Server certificate not trusted (incorrect or invalid certificate installed, incorrectly named certificate).
- 4) Unable to establish a secure connection to host. (Incorrect certificate installed, incorrectly named certificate, or installed at the wrong location).

3.2 Configuration changes

Several configuration items can be changed after installing the HP JetAdvantage Connect Print Server. This is done by editing an XML configuration file on the server. This file can be edited using any text editor. Care must be taken when editing this file, as it is possible to modify the file in such a way that it will be unreadable, which may cause the Print Server to fail.

Configuration file:

```
jac.printserver.settings.xml
```

Configuration file location:

```
C:\ProgramData\Hewlett-Packard\HP JetAdvantage Connect\conf\
```

Only the values of certain configuration items can be changed. Changing the value for a particular configuration item is done by modifying the text within quotes for that item.

After installation, the configuration items listed below can be modified to have different values:

- | | |
|---------------------------------------|-------------------------------------------------------|
| 1. Client visible server name: | <code>product="hp-ac-PullPrint"</code> |
| 2. Client visible server description: | <code>note="HP JetAdvantage Connect"</code> |
| 3. HPAC server name: | <code>hpacInstance="EMSDDPPH.ems2.hpitest.com"</code> |
| 4. HPAC print queue name: | <code>hpacQueueName="HPAC PPS"</code> |
| 5. HPAC port name: | <code>hpacPortName="hpac15_ent"</code> |

Do not change the names of any configuration items.

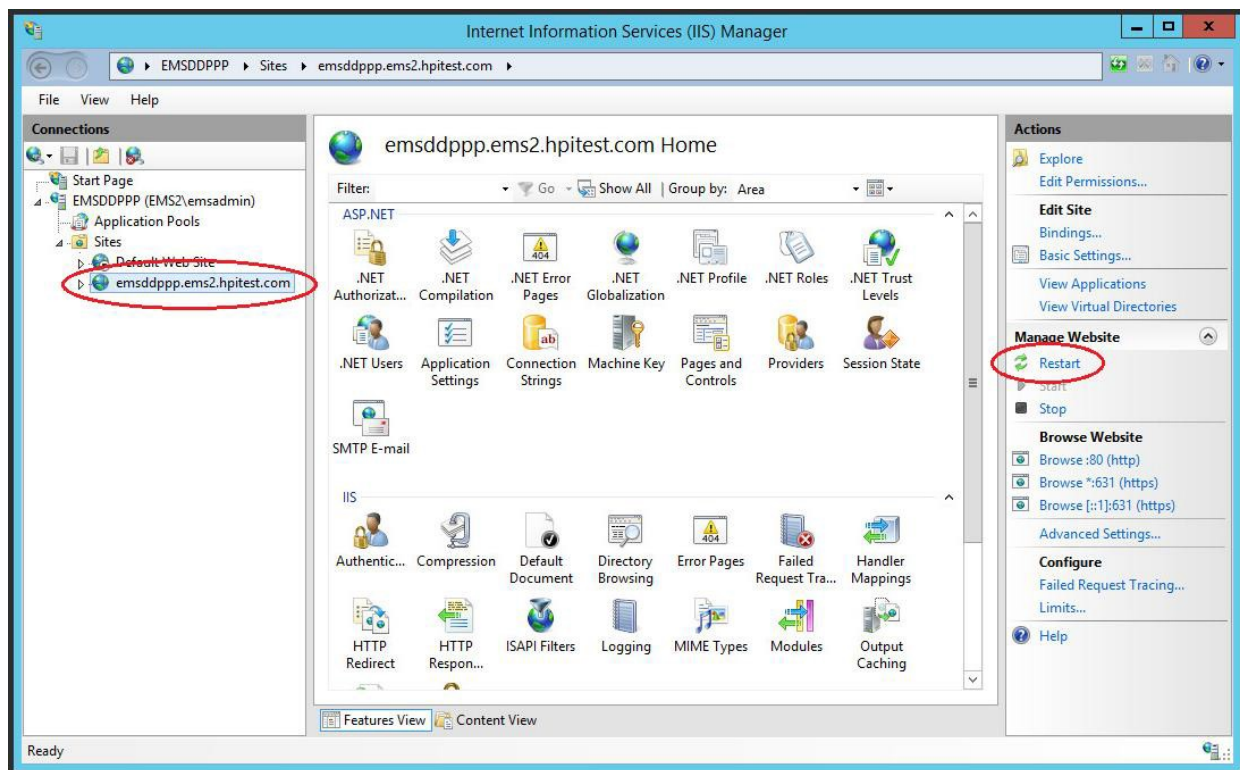
Do not change the values of any configuration items except for the items listed above.

Restart mDNS Responder and IPP Handler

After editing and saving the configuration file, you must do the following:

1. Restart the mDNS Responder from the Windows Services console.
 - a. Open the Windows Services console
 - b. Click on the service named “HP JetAdvantage Connect mDNS Service”
 - c. Click the “Restart the service” link.
2. Restart the IPP Handler “site” in IIS.
 - a. Open IIS
 - b. Select the “Site” that corresponds to the mPrint Server
 - c. Click “Restart”
 - d. See screen shot below for reference.

Figure 12: IIS Manager



4. Pull-Printing to HP AC from an iOS Device

- 1) You must be a domain user on the domain where HP AC is installed (or have access to a user's username and password).
- 2) Connect the iOS device to the network via a wireless access point, or using a supported VPN.
- 3) Select a file to print.
- 4) Select the "hp-ac-..." in the list of printers.
- 5) Select Print.
- 6) You will be prompted to enter a user name and password.
- 7) Enter the username and password.
- 8) If your username and/or password are not valid, you will be re-prompted to enter them again.
- 9) If your username and password are valid, they will be saved on the iOS device forever, until the device is reset. You will not ever need to enter them again.
- 10) Go to the HP AC enabled printer, and select "HP AC Secure Pull Print – Print your documents". Enter your username and password (or swipe your badge on the card reader if they have been setup on the printer).
- 11) Select your job to print.

Note: You can also verify that the iOS printed to HP AC by using the "HP AC Configuration Utility" on the HP AC server. Select the *HPAC SPP Enterprise* button, and you can view all the jobs available for printing.

5. Enabling Print Policy using HP AC rules.

Print Policies can be setup using rules in Intelligent Print Management within HP AC. The policies that can be set are as follows:

- All print jobs will be printed using both sides of the paper (Duplex printing).
- All print jobs will be printed in Black-and-White.
- All print jobs will be printed using both sides of the paper and in Black-and-White.

- 1) Create Rules with the Intelligent Print Management section of HP AC. Rules can reference either color or duplex functionality.
- 2) Edit the file: `C:\inetpub\wwwroot\HpJetAdvantageConnect\web.config`
- 3) Change the value of the “Policy” element to “true” as follows:

```
<add key="Policy" value="true"/>
```

- 4) Restart both:
 - The website (that is running in IIS)
 - The mDNS Service (from the Services Manager)

(See [Restart mDNS Responder and IPP Handler](#) for details on restarting the mDNS Responder and the IPP Handler site.)

6. Enabling Print Policy using XML File entries.

Print Policies can be setup using rules in Intelligent Print Management within HP AC. The policies that can be set are as follows:

- All print jobs will be printed using both sides of the paper (Duplex printing).
- All print jobs will be printed in Black-and-White.
- All print jobs will be printed using both sides of the paper and in Black-and-White.

1) Edit the file:

C:\ProgramData\Hewlett-Packard\HP JetAdvantage Connect\conf\jac.printserver.settings.xml

2) Change the following entries to correspond to the desired policy settings:

```
<Grayscale>0</Grayscale>
<!-- A Value of 1 = All print jobs be forced to print in Grayscale; color is
disabled.
-->
<Duplex>0</Duplex>
<!-- A Value of 1 = All print jobs be forced to be printed two-sided; simplex is
turned off. -->
```

3) Edit the file: C:\inetpub\wwwroot\HpJetAdvantageConnect\web.config

4) Change the value of the "Policy" element to "true" as follows:

```
<add key="Policy" value="true"/>
```

5) Restart both of the following:

- Restart the mDNS Responder from the Windows Services console.
- Restart the IPP Handler "site" in IIS.

(See [Restart mDNS Responder and IPP Handler](#) for details on restarting the mDNS Responder and the IPP Handler site.)

7. Upgrading the HP JetAdvantage Connect Print Server software

After installing one version of the HP JetAdvantage Connect Print Server, it is a simple process to upgrade to a newer version.

1. Run the new installer. Leave all selections as default, accept all agreements when prompted.
2. Observe that the settings entered from the previous install are pre-populated on the Server Settings screen.

HP JetAdvantage Connect Print Server

HP JetAdvantage Connect Print Server Settings

Select a certificate for encrypted communications

Encrypted communications require a certificate for securing information exchanged.
Choose an existing certificate or specify to create and use a Self-signed certificate.

☒ Use existing certificate (HP recommends using a certificate issued by a certificate authority)

Select Certificate

Enter Password

☐ Use the existing Self-Signed Certificate

☐ Create Self-Signed Certificate

Create Password

Enter client visible server name: *

Enter HPAC server name: *

Enter HPAC print queue name: *

Enter HPAC port name: *

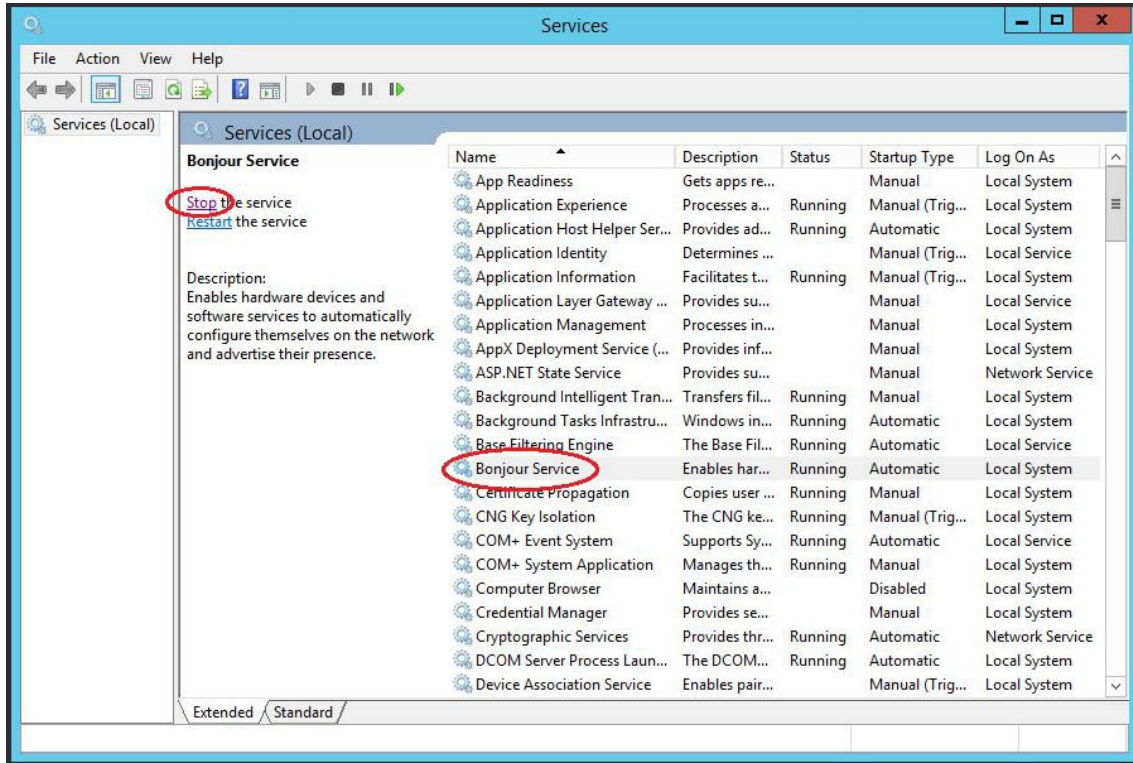
Continue

3. Choose the appropriate certificate selection. Note that if a Self-Signed certificate was created previously, that certificate can be selected again.
4. Click "Continue"
5. When the installation is complete, click "Close".

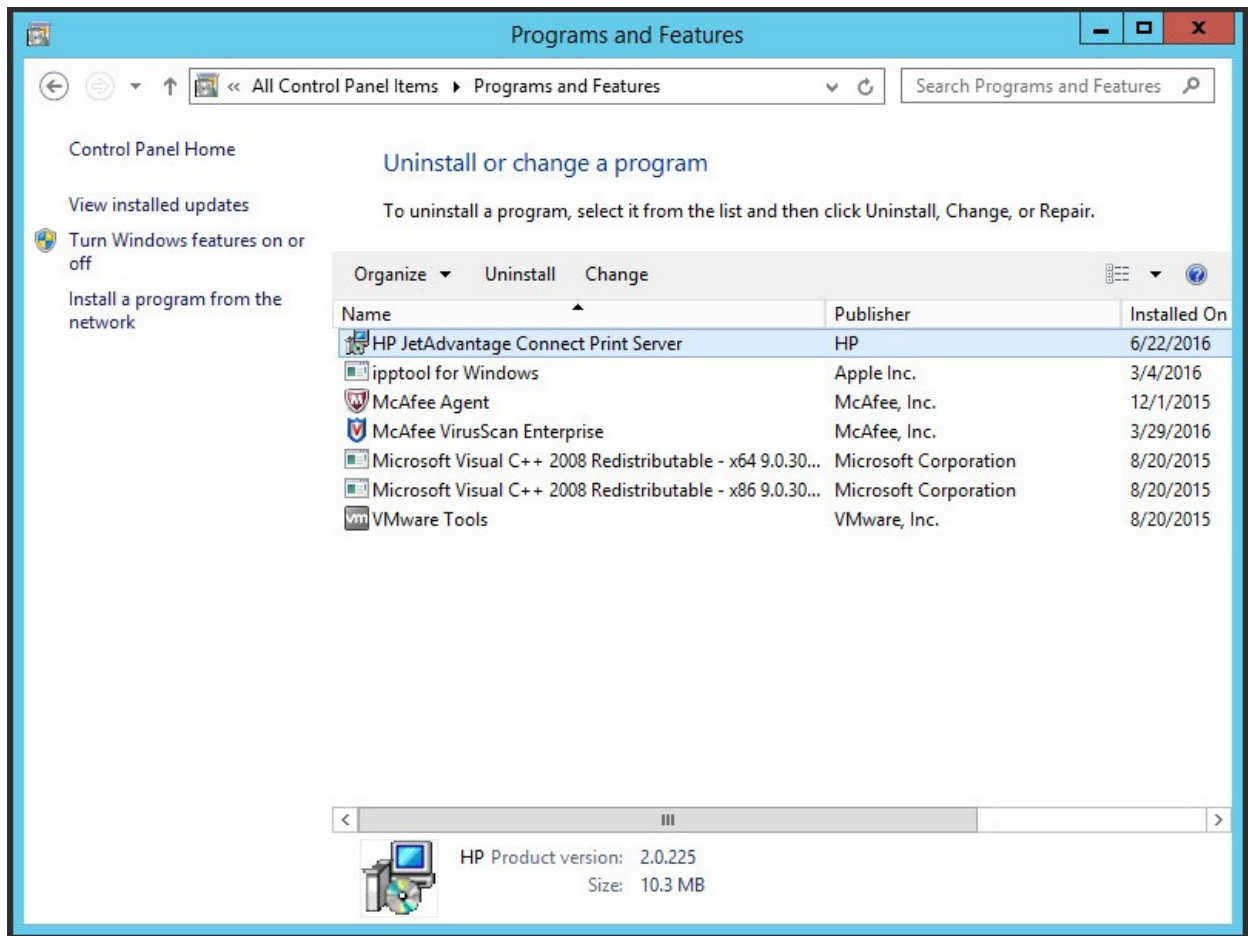
The upgrade is complete.

8. Uninstalling the HP JetAdvantage Connect Print Server software

1. From the Windows Services console, stop the Bonjour Service.



2. From the Windows Control Panel, select “Programs and Features”, Select “HP JetAdvantage Connect Print Server”, and click “Uninstall”.



3. Wait for the uninstall operation to complete.

The uninstall operation is complete.