HP Web Jetadmin Proxy Agents

Readme

Table of contents

1 Proxy agents

Proxy agents are client-side software that allow HP Web Jetadmin to discover and manage devices connected directly to the network. Proxy agents pass the same types of queries to PC-connected devices that are typically passed to network-connected devices. Therefore, HP Web Jetadmin can gather additional device information about PC-connected devices, such as toner levels and status.

NOTE: The current version of this Readme is available from the HP Web Jetadmin support page (in English).

HP provides the following proxy agents:

- HP SNMP Proxy Agent works by exposing object identifiers (OIDs) in the printer management information base (MIB) to the Microsoft® SNMP service that runs on the host PC where the device is connected through a USB port.

- HP WS Pro Proxy Agent is a Web service that runs under the network service account on a PC workstation and replicates a device's services from the host computer's USB interface to its network interface.

While most devices support HP SNMP Proxy Agent, a few devices require HP WS Pro Proxy Agent.

The HP Proxy Agents package includes the following:

- HP SNMP Proxy Agent—Separate MSI installers for the 32-bit and 64-bit operating systems

- HP WS Pro Proxy Agent—A single EXE installer for both the 32-bit and 64-bit operating systems

To download the HP Proxy Agents package, go to www.hp.com/go/webjetadmin, click **Download now**, and then follow the instructions.

As a general rule, you should install both HP SNMP Proxy Agent and HP WS Pro Proxy Agent. However, be aware that there are a few devices that HP Web Jetadmin can discover through both HP SNMP Proxy Agent and HP WS Pro Proxy Agent. If you install both proxy agents on a machine where HP Web Jetadmin discovers one of these devices, the device appears in the device list twice.

For more information about the proxy agents, see the Discovering PC-Connected Devices in HP Web Jetadmin white paper (in English).

2 HP SNMP Proxy Agent 10.4.0

HP SNMP Proxy Agent is installed on a desktop client PC. HP Web Jetadmin uses HP SNMP Proxy Agent to discover and manage HP printers and scanners that are connected locally (for example, through a USB connection). HP SNMP Proxy Agent exposes management objects through the Microsoft SNMP service on the client PC.

In HP Web Jetadmin, a simple PC-connected discovery finds the locally attached devices. HP Web Jetadmin can then gather additional device information—such as remaining toner levels, page counts, and status—through the proxy.

Features

HP SNMP Proxy Agent includes the following functionality:

- HP Web Jetadmin queries the HP-proprietary and standard management objects in the supported devices. Different devices offer varying levels of support, but many devices expose the model name, engine page count, supplies levels, serial number, and so on.

- HP Web Jetadmin supports reading and writing information on PC-connected devices.

- HP Web Jetadmin detects status changes in a PC-connected device by polling or manually refreshing the device. HP Web Jetadmin does not support traps for PC-connected devices.

- A discovery must complete successfully before a PC-connected device is available in HP Web Jetadmin.

- HP SNMP Proxy Agent and HP Web Jetadmin support multiple PC-connected devices (for example, through a USB connection) on a single desktop client PC.

- HP SNMP Proxy Agent adds support for some HP Officejet Pro devices through the HP Officejet Basic Driver - IT Professional Use Only driver package.

- HP Web Jetadmin can perform a PC-connected discovery by using the IP broadcast method.
HP Web Jetadmin uses an SNMP query for the IP broadcast packet. However, this discovery method yields limited results because some systems and many networks block IP broadcast traffic for security and overall management reasons. The workstation or server that HP Web Jetadmin sends the IP broadcast to must have an SNMP service that responds to these packets. For a comprehensive and scaled discovery plan, HP recommends that you also use other discovery methods, such as IP range and Specified addresses.

System requirements

HP SNMP Proxy Agent is supported on the following Microsoft operating systems:

NOTE: If 32-bit and 64-bit versions of an operating system are available, both versions are supported.

- Windows 7
- Windows 8.1
- Windows 10
- Windows Server 2008

To allow queries from the HP Web Jetadmin server, HP Universal Print Driver (UPD) must be installed.

To allow queries from the HP Web Jetadmin server, the Windows SNMP service must be installed, configured, and running as follows:

- Install Microsoft .NET Framework 3.5x on the proxy client PC for HP SNMP Proxy Agent. Microsoft .NET Framework 3.5x is not required for HP Web Jetadmin 10.4 SR7 or later.

- Configure the SNMP service Properties so that **Accepted community names** includes **public** with **READ ONLY** rights.

- Enable a configuration so that it can be modified by choosing and configuring a **READ WRITE** community name.

- Configure the SNMP service Properties to accept SNMP packets from any host or from HP Web Jetadmin.

NOTE: Microsoft does not include the SNMP service with the Home editions of Windows. The exact mechanism for installing the SNMP service varies depending on the Windows version. In Windows 7, go to **Control Panel** > **Programs and Features**, click **Turn Windows features on or off** on the sidebar, and then enable the **Simple Network Management Protocol (SNMP)** feature.

Firewall settings must permit HP Web Jetadmin to query the proxy agent using SNMP. UDP port 161 should be open.

NOTE: Not all versions of Windows automatically enable UDP port 161 when you install the SNMP service. If the SNMP service is running, but cannot be accessed from a remote machine, the firewall on the PC might be blocking SNMP traffic.

Install HP SNMP Proxy Agent

- Standalone installation
- Silent installation/network installation

Two installation modes are available through standard tools such as Microsoft Systems Management Server (SMS)—standalone mode and silent/network mode.

You must install the Microsoft SNMP service prior to installing HP SNMP Proxy Agent. You can install HP SNMP Proxy Agent either before or after you install the HP printer driver.

Standalone installation

The standard (non-silent) installation takes input in the form of responses to dialog boxes.

To initiate a standalone installation of HP SNMP Proxy Agent, run one of the following commands:

- `Msiexec /i "HP SNMP Proxy_32_10_4_0.msi"`

- `Msiexec /i "HP SNMP Proxy_64_10_4_0.msi"`

The installer then guides you through a series of dialogs.

Silent installation/network installation

The silent mode (without a UI) is provided for push-based installations.

To initiate a silent installation of HP SNMP Proxy Agent, run one of the following commands:

- `Msiexec /i "HP SNMP Proxy_32_10_4_0.msi" /qn`

- `Msiexec /i "HP SNMP Proxy_64_10_4_0.msi" /qn`

The following switches are also available with this installer:

- `/s`

  Executes a silent extraction of the packaged binaries on the client system.

- `/qn`

  Executes the MSI in silent mode. Specifying `/s` applies this setting.

- `/i`

  Installs the package.

- `/fv`

  Ugrades an existing package.

- `/x`

  Uninstalls an existing package.

- `PERMITTEDMANAGERS="ipaddress1;ipaddress2;...;ipaddressn"`

  Sets up the SNMP service to respond to requests only from the specified IP addresses. This parameter is used from the command line. An empty string, such as `PERMITTEDMANAGERS=""`, removes all existing entries that the proxy installer previously made. A value of `"*"` indicates that the SNMP service should be able to receive values from any server.

- `VALIDCOMMUNITIES="communityname1;communityname2;...communitynamen"`

  Sets up the SNMP service to respond only to servers that send a request with one of the specified community names. This parameter is used from the command line.

Error logging

By default, the installer creates the snmpprinst.log file in the Windows folder. This is a hardcoded aspect of the installer and currently cannot be overridden.

Supported devices

For a complete list of the devices that can be discovered with HP SNMP Proxy Agent, see the *Discovering PC-Connected Devices in HP Web Jetadmin* white paper.

This white paper is available from the HP Web Jetadmin support page (in English).

Questions and answers

This table provides the answers to some common questions about HP SNMP Proxy Agent.

Table 2-1 Questions and answers for HP SNMP Proxy Agent

Question	Answer

Why does HP Web Jetadmin fail to discover my locally attached device?	The following troubleshooting steps might help analyze this problem:
	
	• On the HP Web Jetadmin server, verify basic network connectivity with the PC client. Substitute the IPv4 address of the client PC for `IPAddr` in the following command:
	`ping IPAddr`
	
	• On the HP Web Jetadmin server, use a third-party tool, such as Net-SNMP `snmpget`, to verify a successfully installed, configured, and running SNMP service and firewall on the client PC. Substitute the IPv4 address of the client PC for `IPAddr` in the following command:
	`snmpget -v1 -c public IPAddr 1.3.6.1.2.1.1.1.0`
	
	• On the HP Web Jetadmin server, use a third-party tool, such as Net-SNMP `snmpget`. Substitute the IPv4 address of the client PC for `IPAddr` in the following command:
	`snmpget -v1 -c public IPAddr 1.3.6.1.4.1.11.2.4.3.13.1.0`
	If SNMP and the proxy agent are functioning, the proxy agent responds with an INTEGER value greater than zero. If the proxy agent was not installed successfully, the response is `NO SUCH NAME`.
	
	• The following registry key identifies the proxied devices on the client PC:
	HKLM\SOFTWARE\Hewlett-Packard\HP SNMP Proxy\PrnId
	If the device does not appear in this list, restart the SNMP service or reboot the PC. If the device is installed, powered on, and working (for example, you can print to it), but the device still does not appear in this list, the device's driver might not implement an enterprise device management interface.

After I run a PC-connected discovery and the locally attached devices are discovered, how do I know which devices are PC-connected devices?	Discovered PC-connected devices are displayed in the device lists with the network-connected devices. To display a device list that includes only those devices that were discovered as PC-connected devices, enable a filter. Go to **View** > **Preferences**, select **Device Filters**, double-click **PC-Connected Devices**, and then click **OK**. To display the **PC Connected** column, which identifies the devices that are PC-connected, on any device list, display the device list, right-click in a column header, and then select **Customize**. In the **Select Columns** wizard, select **All** from the **Category** list, double-click **PC Connected** in the **Available Columns** list, and then click **OK**.
Can I generate reports about my locally attached devices by using the HP Web Jetadmin Reports feature?	Yes. Reports about PC-connected devices should be possible. However, the data that HP Web Jetadmin can collect differs from device to device.

Table 2-1 Questions and answers for HP SNMP Proxy Agent (continued)

Question	Answer
What happens when the IP address of the client PC changes?	HP Web Jetadmin finds the proxied devices on the new IP address during the next successful discovery.
Can I use any version of HP Web Jetadmin to manage PC-connected devices?	HP SNMP Proxy Agent requires HP Web Jetadmin 10.2 or later for full functionality.

Revision history (partial)

This table provides a partial history of the improvements and fixes made for HP SNMP Proxy Agent.

Table 2-2 Revision history for HP SNMP Proxy Agent (partial)

Proxy version	Release date	Improvements and fixes
10.4.0	HP Web Jetadmin 10.4 (10.4.98174) 28-October-2015	HP SNMP Proxy Agent 10.4.0 now supports HP Universal Print Driver (UPD) 6.1 and earlier. Previous versions of HP SNMP Proxy Agent only supported versions of UPD earlier than 6.1.
10.3.0010	HP Web Jetadmin 10.3 SR1 (10.3.85669) 26-November-2012	HP SNMP Proxy Agent now uses the latest language monitor DLL in HP Universal Print Driver (UPD) 5.6 or later. If UPD 5.6 or later is used, HP SNMP Proxy Agent 10.3.0010 is required to display the toner levels.

3 HP WS Pro Proxy Agent 10.4.9

-
-
-
-
-
-
-
-
-
-

HP WS Pro Proxy Agent supports HP printers that use Web Services (WS) to communicate with HP Web Jetadmin and do not support enough of SNMP for HP SNMP Proxy Agent to discover them. HP WS Pro Proxy Agent runs under the less-privileged network service account when it is installed on workstations.

System requirements

HP WS Pro Proxy Agent is supported on Microsoft operating systems.

The supported operating systems include the following:

NOTE: If 32-bit and 64-bit versions of an operating system are available, both versions are supported.

- Windows 7
- Windows 8.1
- Windows 10
- Windows Server 2008

NOTE: If User Account Control (UAC) is enabled on the Windows client, you must run the installation for HP WS Pro Proxy Agent as an administrator.

HP WS Pro Proxy Agent requires Microsoft .NET Framework 4.5 or later. The installer verifies that the correct version is installed.

Install HP WS Pro Proxy Agent

-
-
-

Two installation modes are available through standard tools such as Microsoft Systems Management Server (SMS)—standalone mode and silent mode.

Standalone installation

The standalone installation takes input in the form of responses to dialog boxes.

To initiate a standalone installation of HP WS Pro Proxy Agent, run the following command:

```
HPWSProxyService_10_4_9.exe WJAHOSTIP=xxx.xxx.xxx.xxx
WJADISCOVERYPORT=xxxxx LEDMDISCOVERYPORT=xxxxx
```

- `WJAHOSTIP=xxx.xxx.xxx.xxx`

  (Optional) The host IP address of the HP Web Jetadmin server where HP WS Pro Proxy Agent sends WS Probe Hello packets when the service starts and when the service detects that the host machine changed IP addresses. This parameter keeps PC-connected devices up-to-date in HP Web Jetadmin device lists without requiring another discovery. If this parameter is not specified, the HP Web Jetadmin host IP address is not configured for HP WS Pro Proxy Agent to use.

- `WJADISCOVERYPORT=xxxxx`

  (Optional) The port where HP WS Pro Proxy Agent sends WS Probe Hello packets. The port specified for this parameter must be the same as the port on which HP Web Jetadmin is configured to listen for PC-connect WS Hello messages. The default is port 27893.

- `LEDMDISCOVERYPORT=xxxxx`

  (Optional) The UDP port on which HP WS Pro Proxy Agent listens for discovery probe requests. The port specified for this parameter must be the same as the port on which HP Web Jetadmin is configured to send PC-connect WS probes. The default is port 27893.

The installer then guides you through a series of dialogs.

The following are examples of the standalone installation command:

- To install HP WS Pro Proxy Agent with the default values for the optional parameters, enter the following command:

  ```
  HPWSProxyService_10_4_9.exe
  ```

- To install HP WS Pro Proxy Agent by specifying values for the optional parameters, enter the following command:

  ```
  HPWSProxyService_10_4_9.exe WJAHOSTIP=1.2.3.4 WJADISCOVERYPORT=27893
  LEDMDISCOVERYPORT=27893
  ```

Silent installation

The silent mode (without a UI) is provided for push-based installations. A silent installation can be initiated when User Account Control (UAC) is enabled.

To initiate a silent installation of HP WS Pro Proxy Agent, run the following command:

```
HPWSProxyService_10_4_9.exe /S /v/qn /V"WJAHOSTIP=xxx.xxx.xxx.xxx
WJADISCOVERYPORT=xxxxx LEDMDISCOVERYPORT=xxxxx"
```

For more information about the optional parameters and default values, see .

The following is an example of the silent installation command that uses the default values for the optional parameters:

- `HPWSProxyService_10_4_9.exe /S /v/qn /V`

The following are examples of the silent installation command that specify values for the optional parameters:

- `HPWSProxyService_10_4_9.exe /S /v/qn /V"WJADISCOVERYPORT=27893"`

- `HPWSProxyService_10_4_9.exe /S /v/qn /V"WJAHOSTIP=1.2.3.4 WJADISCOVERYPORT=27983 LEDMDISCOVERYPORT=27983"`

Install HP WS Pro Proxy Agent with User Account Control enabled

If User Account Control (UAC) is enabled, you must run the installation command from the elevated (administrator) Command Prompt.

Uninstall HP WS Pro Proxy Agent from the command line

You can uninstall HP WS Pro Proxy Agent from the command line.

The following is the command syntax:

`msiexec.exe /qn /uninstall <ProductCode>`

The following is the command-line parameter:

- `<ProductCode>`

  Specifies the product code for the version of HP WS Pro Proxy Agent that you are uninstalling. The following are the product codes.

  Table 3-1 Product code for the uninstallation command

HP WS Pro Proxy Agent version	Product code
HP WS Pro Proxy Agent 10.3.6	{3BF03BC8-8B49-4082-AF2D-F159A827FD74}
HP WS Pro Proxy Agent 10.3.8	{E1A6D281-7D99-4946-ACD7-C1A3D60B9E03}
HP WS Pro Proxy Agent 10.4.1	{716FB540-940E-4A8F-92C0-2B063C480251}
HP WS Pro Proxy Agent 10.4.2	{358F8677-A281-424A-81B4-0B03B3AAC849}
HP WS Pro Proxy Agent 10.4.3	{014D70E8-B0CB-4E59-99E4-17FBC69075FA}
HP WS Pro Proxy Agent 10.4.5	{2F9CFB69-8B68-4505-9DB0-329CE47FC0F4}
HP WS Pro Proxy Agent 10.4.7	{46F466D4-A8A7-4569-BA01-C7773734A457}
HP WS Pro Proxy Agent 10.4.8	{519BC246-F92C-4275-B350-A36A3F6154DB}
HP WS Pro Proxy Agent 10.4.9	B7B817BC-4881-46B7-9577-702AB74ACE4B

The following is an example of the uninstallation command:

`msiexec.exe /qn /uninstall {B7B817BC-4881-46B7-9577-702AB74ACE4B}`

Error logging and troubleshooting

The settings in the ProxyService.config.xml file determine the behavior of HP WS Pro Proxy Agent. You can use this file for error logging and troubleshooting.

The ProxyService.config.xml file and the corresponding log files (HPWSProxyServiceLog.log and DeviceManager.log) are located in one of the following directories:

- On a 32-bit operating system:

  C:\Program Files\HP Inc\HPWSProxy\bin\

- On a 64-bit operating system:

  C:\Program Files (x86)\HP Inc\HPWSProxy\bin\

📝 NOTE: For HP WS Pro Proxy Agent 10.3.8 and earlier, these files are located in one of the following directories:

- On a 32-bit operating system:

  C:\Program Files\Hewlett-Packard Company\HPWSProxy\bin\

- On a 64-bit operating system:

  C:\Program Files (x86)\Hewlett-Packard Company\HPWSProxy\bin\

Validate that HPWSProxyService can communicate with a USB-connected printer

If the HPWSProxyServiceLog.log file contains endpoints, the proxy server can communicate with a USB-connected device.

The following is an example of the endpoints that must be in the log:

```
ProcessID:1944, Time:6/14/2016 6:26:58 PM, MustWrite] Hosted Endpoints are
[ProcessID:1944, Time:6/14/2016 6:26:58 PM, MustWrite] https://
10.10.10.20:8020/564E4333-4230-3032-3538-308D99AD1AE6
[ProcessID:1944, Time:6/14/2016 6:26:58 PM, MustWrite] http://
10.10.10.20:8021/564E4333-4230-3032-3538-308D99AD1AE6/transfer
```

Validate that the EWS password is cleared

The HP Embedded Web Server (EWS) admin password must be cleared to guarantee communication between the device and HP WS Pro Proxy Agent.

If the device is protected with an admin password, some items—such as the device status—might not be shown completely. In this case, the HPWSProxyServiceLog.log file has endpoints that do not have a UUID. The following is an example of an endpoint:

```
[ProcessID:1352, Time:1/14/2019 1:58:48 PM, MustWrite] Hosted Endpoints
are
[ProcessID:1352, Time:1/14/2019 1:58:48 PM, MustWrite] https://
10.10.10.20:8020/
[ProcessID:1352, Time:1/14/2019 1:58:48 PM, MustWrite] http://
10.10.10.20:8021//transfer
```

Validate the hosted IP address in an environment with multiple network interfaces

HP WS Pro Proxy Agent can run on a multi-homed PC or on a PC that has multiple network interfaces. In many cases, a multi-homed server is connected to more than one network and has multiple IP addresses. A multi-homed PC with multiple IP addresses might cause problems because HP WS Pro Proxy Agent uses only one address for various reasons.

HP WS Pro Proxy Agent runs on primary network interfaces, which means the lowest priority order of network adapters. The HPWSProxyServiceLog.log file shows the network interfaces and IP address that HP WS Pro Proxy Agent hosts. The following is an example of the log message that contains the hosted IP address:

```
ProcessID:1944, Time:6/14/2016 6:26:58 PM, MustWrite] Hosted Endpoints
are [ProcessID:1944, Time:6/14/2016 6:26:58 PM, MustWrite] https://
10.10.10.10:8020/564E4333-4230-3032-3538-308D99AD1AE6
```

```
[ProcessID:1944, Time:6/14/2016 6:26:58 PM, MustWrite] http://
10.10.10.10:8021/564E4333-4230-3032-3538-308D99AD1AE6/transfer
```

To run HP WS Pro Proxy Agent on different network interfaces, you can change the priority order of the network adapters. For more information, see the Configure the Order of Network Interfaces document on the Microsoft support page.

Validate that remote communication with USB-connected HP LaserJet Pro and HP Officejet Pro devices is possible outside of HP Web Jetadmin

To test whether the endpoint for HP LaserJet Pro and HP Officejet Pro devices is accessible via the network, add /DevMgmt/ProductConfigDyn.xml to the URL provided in the example in the previous section.

The following is an example of the URL:

https://10.10.10.20:8020/564E4333-4230-3032-3538-308D99AD1AE6/DevMgmt/ProductConfigDyn.xml

A user name and password are requested. The user name and password must be for a user who has access to the PC to which the device is connected. For this example, the PC has an IP address of 10.10.10.20. If no data is displayed, the network is blocking the traffic or HPWSProxyService has been stopped.

The endpoint contains the device UUID that the printer generates. The last digits of the UUID are the MAC address of the printer.

Validate that the devices HP WS Pro Proxy Agent does not support and non-HP devices are connected to the proxy agent PC via USB

HP WS Pro Proxy Agent tries to communicate with all USB-connected printers on the PC where HP WS Pro Proxy Agent is installed. HP does not recommend that you have multiple USB-connected printers on the same PC.

If there are any devices that HP WS Pro Proxy Agent does not support or non-HP devices connected via USB, some pages with the following message might be printed from those devices periodically:

```
GET /DevMgmt/DiscoveryTree.xml HTTP1.1
HOST:  localhost
```

If this occurs, unplug the USB cable from those devices.

Default ProxyService.config.xml file

The following is the default ProxyService.config.xml file:

```
<?xml version="1.0" encoding="utf-8"?>
<ProxyServiceConfig>
  <SimulatedMode>false</SimulatedMode>
  <UseAug2004Addressing>true</UseAug2004Addressing>
  <EnableHTTPS>true</EnableHTTPS>
  <!--Log levels are : Error, Message, Warning,All -->
  <LogLevel>Error</LogLevel>
  <DefaultRegistryPath>SOFTWARE\Wow6432Node\Hewlett-Packard
\HPLedmProxyAgent</DefaultRegistryPath>
  <RegistryPath>SOFTWARE\Hewlett-Packard\HPLedmProxyAgent</RegistryPath>
  <RegistryPathToGetWJAHostIP>SOFTWARE\Hewlett-Packard\HPLedmProxyAgent</
RegistryPathToGetWJAHostIP>
  <EnableTestingIPAddressChange>false</EnableTestingIPAddressChange>
  <DefaultPort>8082</DefaultPort>
  <DefaultWSTransferPort>8083</DefaultWSTransferPort>
  <AssignedPort>8020</AssignedPort>
```

```
      <EnableCustomDiscovery>true</EnableCustomDiscovery>
      <UIOVersion>2.0.0.533</UIOVersion>
      <EnableActiveDeviceDetection>true</EnableActiveDeviceDetection>
      <!-- Extra Debug Settings -->
      <LogDetectedPrinterInfo>false</LogDetectedPrinterInfo>
      <LogLedmAdapterClientIPLogging>false</LogLedmAdapterClientIPLogging>
</ProxyServiceConfig>
```

- `LogLevel` (all versions of HP WS Pro Proxy Agent)

  The default log level is `Error`. To change the log level, edit the ProxyService.config.xml file in one of the directories listed previously. After the log level is changed, HPWSProxyService must be restarted.

  If the log level is set to `All`, HPWSProxyService creates a second log file called DeviceManager.log.

- `EnableActiveDeviceDetection` (HP WS Pro Proxy Agent 10.4.1 and later)

  The default value is `true`. HPWSProxyService actively checks to detect whether printers are attached to the PC. This functionality is new in HP WS Pro Proxy Agent 10.4.1. Earlier versions of HP WS Pro Proxy Agent use only passive listening for Windows events to detect newly attached printers.

  The following is an example of a log message:

  ```
  [ProcessID:4516, Time:6/27/2016 3:16:09 PM, Message]
  OnDevicePresenceCheckEvent() fired
  ```

  When HP WS Pro Proxy Agent detects a new printer, HPWSProxyService is restarted and the following log messages are in the log file:

  ```
  DetectedDeviceCount = 1 HostedDeviceCount = 0
  Detected mismatch in detected device count and Proxy hosted device
  count. Restarting proxy...
  ```

- `LogDetectedPrinterInfo` (HP WS Pro Proxy Agent 10.4.1 and later)

  If the value of `LogDetectedPrinterInfo` is changed to `true`, the value of `LogLevel` must be changed to `All`. After the changes are made and HPWSProxyService is restarted, the information about the USB-connected printer that is received from Windows is logged in the DeviceManager.log file.

  The following is an example of the log data:

  ```
  [ProcessID:5136, Time:6/27/2016 5:54:11 PM, Message] USB Printer
  Name : HP LaserJet Pro M402-M403 n-dne PCL.6
  [ProcessID:5136, Time:6/27/2016 5:54:11 PM, Message] USB Printer
  Port : USB002
  [ProcessID:5136, Time:6/27/2016 5:54:11 PM, Message] USB Printer
  Driver Name : HP LaserJet Pro M402-M403 n-dne PCL.6
  [ProcessID:5136, Time:6/27/2016 5:54:11 PM, Message] USB Printer
  Printer Status : Ready
  ```

- `LogLedmAdapterClientIPLogging` (HP WS Pro Proxy Agent 10.4.1 and later)

  After the value of `LogLedmAdapterClientIPLogging` is changed to `true` and HPWSProxyService is restarted, the HPWSProxyLog.log file shows the IP address of the requestor, which is normally HP Web Jetadmin. `LogLedmAdapterClientIPLogging` is set to the off state by default because IP address resolution *might* cause a delay on an LEDM adapter that receives a lot of requests.

  Due to the nature of various network setups, the IP address might not reflect the true IP address of the source. For example, the address in the log might not be the actual address of the HP Web Jetadmin host.

  The following is an example of a message:

```
[ProcessID:5136, Time:6/27/2016 4:58:16 PM, All] Received request from
the (may not be accurate) IP : 10.20.18.196
```

UIO test tool

HPWSProxyService uses Universal I/O DLLs (UIO DLLs) to communicate with PC-connected devices over USB. You can use the UIO test tool to determine if a problem is caused by the UIO DLLs, device, or other proxy components.

Use the following steps to execute the UIO test tool:

1. Double-click the UIOTest.exe file. This file is located in the HPWSProxy\bin\ directory.

2. From the **Select Printer** list, select the USB-connected printer. This list includes the printers that were previously connected, but are now disconnected. This list is the same as the list shown in **Control Panel** > **Hardware and Sound** > **Devices and Printers**.

3. Choose one of the following printer types:

    ● **LEDM** (for non-FutureSmart devices): Continue with step 4.

    ● **FutureSmart**: Continue with step 6.

4. From the **Select LEDM Tree** list, select a tree element.

5. Click the **Get On All the Trees** or **Get On A Selected Tree** button.

6. Select a service URN from the drop-down list.

    📝 **NOTE:** The drop-down list might show elements that are not supported or available on the device, such as **/copy** because it is not available on a single-function device.

7. Click **Get**.

The results are written in the UIOLog.txt file. This file is in the same directory as the UIOTest.exe file. Prior to HP WS Pro Proxy Agent 10.3.8, this file was created in the C:\temp directory. For HP WS Pro Proxy Agent 10.4.1 and later, the results are also written in the display pane.

The following are examples of log entries:

```
Time:24/06/2016 11:11:08,    The tree is: /DevMgmt/MediaHandlingDyn.xml
And The Response is null
Time:24/06/2016 11:09:26,    The tree is: /DevMgmt/DiscoveryTree.xml
And The Response Status Code is : 200
Time:24/06/2016 11:09:33,    The tree is: /TestNode/ExpectFailure    And
The Response Status Code is : 404

Response Status Code null means: printer is connected
Response Status Code 200 means: printer is responding correctly
Response Status Code 404 means: endpoint not existing (while printer is
connected)
Other Response Status Code might be different per device model.
```

Configure the HP WS Pro Proxy Agent service behind a firewall

For the HP WS Pro Proxy Agent service to work behind a firewall, you must add the proxy service and/or the ports the proxy service uses to the firewall exception list. The proxy service uses two TCP ports for HTTP or HTTPS communication with HP Web Jetadmin and one UDP port for discovery.

📝 NOTE: At this time, the two TCP ports are dynamic. The HP WS Pro Proxy Agent service requests the two TCP ports on the first startup.

To add the proxy service and its ports to the firewall exception list, perform the following steps:

1. Add the HPDeviceProxyService.exe file from the proxy installation directory to the firewall exception list. The HPDeviceProxyService.exe file is located in one of the following directories:

   ● For a default installation on a 32-bit operating system:

   C:\Program Files\HP Inc\HPWSProxy\bin\

   ● For a default installation on a 64-bit operating system:

   C:\Program Files (x86)\HP Inc\HPWSProxy\bin\

   In many cases, adding an exception or rule to the firewall to allow a specific service also allows an HP Web Jetadmin discovery to take place. If the additional step of adding ports is required, proceed to step 2.

2. Add the TCP and UDP ports that the HP WS Pro Proxy Agent service uses to the firewall exception list. The TCP and UDP port numbers are defined in the following registry entries:

   ● For a 32-bit operating system:

   HKEY_LOCAL_MACHINE\SOFTWARE\Hewlett-Packard\HPLedmProxyAgent

   ● For a 64-bit operating system:

   HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Hewlett-Packard\HPLedmProxyAgent

   The values of Port and WSTransferPort must be added to the firewall exception list as TCP ports. The values for Port and WSTransferPort might vary from one host PC to another, depending on the availability of free ports on the host system. By default, the HP WS Pro Proxy Agent service finds free ports starting at port 8020.

   The value of LEDMDiscoveryPort must be added to the firewall exception list as the UDP port. The value of LEDMDiscoveryPort is the same as the value the administrator set while installing HP WS Pro Proxy Agent.

Supported devices

For a complete list of the devices that can be discovered with HP WS Pro Proxy Agent, see the *Discovering PC-connected Devices in HP Web Jetadmin* white paper.

This white paper is available from the HP Web Jetadmin support page (in English).

Questions and answers

This table provides the answers to some common questions about HP WS Pro Proxy Agent.

Table 3-2 Questions and answers for HP WS Pro Proxy Agent

Question	Answer
How do I detect whether a proxy is installed and which proxy is installed?	You can access Add/Remove Programs to see which proxy is installed, but Add/Remove Programs might not provide the version of the installed proxy.
Does HP Web Jetadmin use ICMP to discover devices through HP WS Pro Proxy Agent?	Yes. HP Web Jetadmin does an initial test on the IP address to determine if it is active. The hosting system must respond or HP Web Jetadmin cannot discover devices. In some cases, ICMP can be blocked by a firewall, but should be enabled to ensure that the discovery works. You can issue a simple Windows command at the administrator command window to add ICMP to the protocols that the Windows firewall allows. The following is an example:

Table 3-2 Questions and answers for HP WS Pro Proxy Agent (continued)

Question	Answer
	`"netsh firewall set icmpsetting type = all mode = enable"`
	CAUTION: Before you issue a Windows command to change the firewall settings, make sure that you read and understand all the related Windows documentation.

Why can I see the following message in the `DeviceManager.log` file?
 	
`WIA dll Access denied.`
`Kindly run the WS proxy`
`service in Local user mode.`
	When running HP WS Pro Proxy Agent as a network service, HP WS Pro Proxy Agent cannot access the HP Web Jetadmin DLL. HP WS Pro Proxy Agent does not detect the USB-connected HP ScanJet 8500 and HP ScanJet N9120 devices. All the other devices that HP WS Pro Proxy Agent supports can be discovered when HP WS Pro Proxy Agent runs as a network service.

I successfully discovered my device with HP WS Pro Proxy Agent. However, in the **Engine Cycle Count** column, HP Web Jetadmin displays **<Not supported>**. How can I see the page counts?	USB-connected devices that are discovered in HP Web Jetadmin with HP WS Pro Proxy Agent use the WS* communication protocol. The engine cycle count is an SNMP object and cannot be queried via HP WS Pro Proxy Agent. To obtain the printer page counts in HP Web Jetadmin via HP WS Pro Proxy Agent, use other counters, such as Total Impressions (Print Usage Counters), Total Equivalent Impressions (Print Usage Counters), or Total Equivalent Mono Impressions (Print Usage Counters).

Why are garbage pages printed out a USB-connected printer after HP WS Pro Proxy Agent is installed?	HP WS Pro Proxy Agent tries to communicate with all USB-connected printers on the proxy agent installed PC. HP does not recommend that you use multiple USB-connected printers on the same PC.
	
	If there are any devices that HP WS Pro Proxy Agent does not support or non-HP devices connected via USB, some pages with the following message might be printed from those devices periodically:
	
	`GET /DevMgmt/DiscoveryTree.xml HTTP1.1`
	`HOST: localhost`
	
	If this occurs, unplug the USB cable from those devices.

Revision history (partial)

This table provides a partial history of the improvements and fixes made for HP WS Pro Proxy Agent.

Table 3-3 Revision history for HP WS Pro Proxy Agent (partial)

Proxy version	Release date	Improvements and fixes

10.3.6	HP Web Jetadmin 10.3 SR6 (10.3.93671)
	
	16-May-2014
		• Updated the UIO version to fix device communication errors that occur for the following PC-connected devices:
		
		  – HP LaserJet Pro 200 color M251
		
		  – HP LaserJet Pro 400 Printer M401
		
		  – HP LaserJet Pro 400 MFP M425
		
		  – HP LaserJet Pro 200 color MFP M276
		
		• Added the ability to manage the new HP Officejet Pro 8610, HP Officejet Pro 8620, and HP Officejet Pro 8630 devices with the HP Officejet Pro MFP Universal Plug-in (UPI).
		
		• Updated HP WS Pro Proxy Agent to detect a printer when the VMware Workstation is installed on the same machine.

10.3.8	HP Web Jetadmin 10.3 SR8 (10.3.96073) 25-February-2015	• HP WS Pro Proxy Agent is now delivered as an EXE file instead of an MSI file. • The HP WS Pro Proxy Agent service can now be started or reinstalled via a silent installation when User Account Control (UAC) is enabled.
10.4.1	HP Web Jetadmin 10.4 SR1 (10.4.99821) 7-September-2016 NOTE: This version of HP WS Pro Proxy Agent was released independently of HP Web Jetadmin.	• Fixed the issue with HP WS Pro Proxy Agent crashing. • Changed the installation directory path from Hewlett-Packard Company\HPWSProxy to HP Inc\HPWSProxy. • Changed the directory where the UIOlog.txt file is saved to the same directory as the UITest.exe file. • Added additional logging. • HP WS Pro Proxy Agent now actively and passively checks for USB-connected printers. Previously HP WS Pro Proxy Agent only passively checked for USB-connected printers.
10.4.2	HP Web Jetadmin 10.4 SR2 (10.4.101715) 28-April-2017	• Added support for FutureSmart 4 devices with firmware 24.5 or later. • Support of HP WS Pro Proxy Agent with USB-connected FutureSmart devices requires HP Web Jetadmin 10.4 SR2 or later.
10.4.3	HP Web Jetadmin 10.4 SR3 (10.4.103054) 16-November-2017	• Support for HP ScanJet 8500 fn2 and HP ScanJet Flow N9120 fn2 devices has been added. • Support of HP WS Pro Proxy Agent with USB-connected HP ScanJet 8500/9120 devices requires HP Web Jetadmin 10.4 10.4 SR3 or later and special configuration steps. For more information, see Appendix A: Required configuration steps for the HP ScanJet 8500/N9120 device on page 18.

Proxy version	Release date	Improvements and fixes
10.4.5	HP Web Jetadmin 10.4 (10.4.105723) 28-January-2019	● 11810: HP Web Jetadmin now shows the actual MAC address of a USB-connected device instead of EXIT when HP WS Pro Proxy Agent runs on Microsoft Windows 10. ● 11841: During the startup of HP WS Pro Proxy Agent, the proxy creates the default ProxyServiceConfig.xml file again if the file was corrupted.
10.4.7	HP Web Jetadmin 10.4 SR7 (10.4.106859) 12–December–2019 NOTE: In Microsoft Windows, version 10.4.00.70 is displayed in the **Add/Remove Programs** section.	● 12618: During the HP WS Pro Proxy Agent installation, the installer no longer blocks the installation if Microsoft .NET Framework 3.5x is not present. Microsoft .NET Framework 3.5x is required for HP SNMP Proxy Agent. ● 12659: TLS was not working on HP WS Pro Proxy Agent port 8020 port because HP WS Pro Proxy Agent did not uninstall the self-signed certificate correctly during an uninstallation or upgrade. ● REQ 7140: HP WS Pro Proxy Agent no longer requires Microsoft .NET Framework 3.5x.
10.4.8	HP Web Jetadmin 10.4 SR8 (10.4.110231) 10-July-2020	REQ 7208: A PC-connected firmware upgrade over USB is now available for the following devices: ● HP PageWide Pro 477dn MFP, HP PageWide Pro 477dw MFP, HP PageWide Pro 577dw MFP, HP PageWide Pro 577z MFP ● HP PageWide Pro 452dn Printer, HP PageWide Pro 452dw Printer, HP PageWide Pro 552dw Printer ● HP Officejet Pro 8730 (PDL), HP Officejet Pro 8740 (PDL Hi) ● HP Officejet Pro 8210, HP Officejet Pro 8216 ● HP Officejet Pro 8630 ● HP Officejet Pro 9010, HP Officejet Pro 9020 IMPORTANT: HP has not tested other devices and they are not supported for USB upgrades using the HP WS Pro Proxy Agent server.
10.4.9	HP Web Jetadmin 10.4 SR9 (10.4.111315)	REQ 7509: HP WS Pro Proxy Agent now supports the firmware upgrade functionality without HP Web Jetadmin. The following devices have been verified: ● HP PageWide Pro 477dn MFP, HP PageWide Pro 477dw MFP, HP PageWide Pro 577dw MFP, HP PageWide Pro 577z MFP ● HP PageWide Pro 452dn Printer, HP PageWide Pro 452dw Printer, HP PageWide Pro 552dw Printer ● HP Officejet Pro 8730 (PDL), HP Officejet Pro 8740 (PDL Hi) ● HP Officejet Pro 8210, HP Officejet Pro 8216 ● HP Officejet Pro 8630 ● HP Officejet Pro 9010, HP Officejet Pro 9020

Appendix A: Required configuration steps for the HP ScanJet 8500/N9120 device

The HP ScanJet 8500/N9120 device requires specific configuration steps.

1. If HP WS Pro Proxy Agent runs under the local account, perform the following steps:

   a. Open **Services**, right-click **HPWSProxyService**, and then select **Stop**.

   b. Right-click **HPWSProxyService**, and then select **Properties**.

   c. On the **Log On** tab, select **Local System Account**, and then click **OK**.

   d. Restart HPWSProxyService.

2. If HP Universal Print Driver (UPD) 6.4 or later is installed and the HP ScanJet is listed under devices, perform the following steps:

   a. Install UPD 6.4 or later.

   b. After the UPD driver installed, wait until the Digital Sender displays on Windows in Devices and Printers.

3. If all the hardware NULL drivers for the HP ScanJet devices have been updated (no more NULL drivers are available), perform the following steps:

   a. In the **Devices and Printers** folder, right-click the **Digital Sender** icon, and then select **Properties**.

   b. On the **Hardware** tab, select the first HP Digital Sender (NULL) driver in the list, and then click **Properties**.

   c. In the **Properties** window, select the **Driver** tab, and then click **Update Driver**.

   d. In the **Update Driver** window, click **Browse My Computer for Driver Software**.

   e. Select **HP Printer (BIDI)**. If this option is not listed, continue with step j.

   f. Clear the **Show compatible hardware** check box.

   g. Under **Manufacturer**, select **HP Inc**.

   h. Under **Model**, select the first model in the list that has HP Printer (BIDI).

   i. Click **Next**.

   j. Click **Close**.

   k. Repeat steps a through j for all the HP Digital Sender (NULL) drivers.

      When all the HP Digital Sender (NULL) drivers are updated, communication with HP WS Pro Proxy Agent is possible.