



HP Web Jetadmin 10.4

Installation and Setup Guide

Copyright and License

© Copyright 2017 HP Development Company, L.P.

Reproduction, adaptation, or translation without prior written permission is prohibited, except as allowed under the copyright laws.

The information contained herein is subject to change without notice.

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Publication Date: 11/2017

Trademark Credits

Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

VMware® is a registered trademark of VMware, Inc.

Table of contents

Install and Set Up HP Web Jetadmin	1
System Requirements	1
HP Web Jetadmin Server Application	1
HP Web Jetadmin Client Application	2
Virtual Machine (Optional Platform)	3
Server Hardware	3
Client Hardware	4
Database	4
Network	4
Installations and Upgrades	5
Client Application	5
Supported Devices	5
Host Access	5
Client/Server Security	6
Install HP Web Jetadmin	6
Install HP Web Jetadmin from the Command Line	6
Install HP Web Jetadmin in Blocking Mode	9
Post-installation Tasks	9
Recommended Initial Configuration Steps	10
Configure the HP Web Jetadmin Service to Restart Automatically	10
Ports	11
Implement SSL	13
Enable Secure Sockets Layer (SSL)	13
Important Points to Remember When Implementing SSL	14
Configure HTTPS (Server Certificates or SSL)	14
Use a Separate Instance of Microsoft SQL Server	15
Deploy the Smart Client	15
Change the Default HTTP or HTTPS Port for the HP Web Jetadmin Smart Client Application	16
Run the Smart Client Application in a Workgroup	16
Start an HP Web Jetadmin Client Session	17
Configure HP Web Jetadmin to Bind to a Specific NIC	17
HP Web Jetadmin Client Connection	18
HP Web Jetadmin Alerts and SNMP Traps Registration	19
HP Web Jetadmin Web Service	20
Configure the Port for Event Notifications	20
Configure the Firewall Software	21

Restart the HP Web Jetadmin Service Manually	21
Back Up and Restore HP Web Jetadmin	22
Upgrade HP Web Jetadmin	22
Import Feature Packs	22
Enable FIPS on the HP Web Jetadmin Server	24
Uninstall HP Web Jetadmin	29
Manage Licenses	30
Appendix A End-User License Agreement	31
Index	32

Install and Set Up HP Web Jetadmin

When you install HP Web Jetadmin, you only need to install it on one hardware platform that meets the recommended minimum requirements ([System Requirements on page 1](#)) and is centrally accessible on the network. You may then access the software from any supported Windows desktop on the network and manage all supported network-connected peripherals.

HP Web Jetadmin offers several installation options. If you have installed a previous version of HP Web Jetadmin, you can choose to upgrade the previous version or install a new copy. Upgrading an older version preserves your settings for discovery options and groups and is most likely the best choice if you have already been using HP Web Jetadmin.

Every release of HP Web Jetadmin contains new features and improvements to existing features. In an environment where a previous release of HP Web Jetadmin is integrated into critical business operations, HP recommends that you fully test and qualify a new release before implementing that release into full production.

Read all of the support materials before you implement HP Web Jetadmin. For current information about HP Web Jetadmin, see the *Late Breaking News for HP Web Jetadmin 10.4* and the *HP Web Jetadmin 10.4 Supported Devices Readme*. These documents are available from the HP Web Jetadmin [support page](#) (click the flag icon on the bottom of the page, and then select your country/region).

System Requirements

HP Web Jetadmin includes network device communication protocols and internal components that manage application and device data. These components extend the capabilities of HP Web Jetadmin and improve usage and performance in device lists, columns, and filtering functions.

HP Web Jetadmin is supported on platforms that have Microsoft Windows and .NET Framework high-priority updates. During each development cycle, HP regularly tests HP Web Jetadmin on platforms that have the current Microsoft updates. HP investigates all post-release software issues that customers report. For more information about the current software issues, see the *Late Breaking News for HP Web Jetadmin 10.4*. This document is available from the HP Web Jetadmin [support page](#) (in English).

HP Web Jetadmin requires the Windows HTTP SSL service. HP Web Jetadmin uses SSL to communicate with newer HP devices through port 8050.

HP Web Jetadmin Server Application

Supported operating systems

- Microsoft Windows Server 2016
- Microsoft Windows Server 2012 R2
- Microsoft Windows Server 2012
- Microsoft Windows Server 2008 R2 SP1
- Microsoft Windows 10 (64-bit edition only)

- Microsoft Windows 8.1 (64-bit edition only)
- Microsoft Windows 8 (64-bit edition only)
- Microsoft Windows 7 SP1 (64-bit edition only)

For more information about a specific Microsoft operating system, go to www.microsoft.com.

Notes

- HP no longer supports or tests HP Web Jetadmin installations on Microsoft operating systems that were released prior to the operating systems that are supported for the current release.
- Beginning with HP Web Jetadmin 10.3 SR6, Microsoft .NET Framework 4.5 or later is required in addition to .NET Framework 3.5 SP1 because HP Web Jetadmin supports Transport Layer Security (TLS) 1.1 and 1.2. Some of the operating systems that are supported for the current release already ship with .NET Framework 4.5 or later.

If the HP Web Jetadmin installer does not detect .NET Framework 3.5 SP1 and .NET Framework 4.5 or later, the installer provides the appropriate installation instructions and Microsoft URL to download .NET Framework.

- The operating systems that are supported for the current release include Windows Installer 4.5. If Windows Installer 4.5 is not already installed, the HP Web Jetadmin installer provides the appropriate Microsoft URL to download Windows Installer 4.5.
- Local administrator access is required to install or upgrade HP Web Jetadmin.
- Production HP Web Jetadmin installations are restricted to dedicated hosts. Running HP Web Jetadmin on systems that are also mail servers, DNS servers, domain controllers, and so on is not supported.

HP Web Jetadmin Client Application

Supported operating systems

- Microsoft Windows Server 2016
- Microsoft Windows Server 2012 R2
- Microsoft Windows Server 2012
- Microsoft Windows Server 2008 R2 SP1
- Microsoft Windows 10
- Microsoft Windows 8.1
- Microsoft Windows 8
- Microsoft Windows 7 SP1

For more information about a specific Microsoft operating system, go to www.microsoft.com.

Notes

- Beginning with HP Web Jetadmin 10.3 SR6, Microsoft .NET Framework 4.5 or later is required in addition to .NET Framework 3.5 SP1 because HP Web Jetadmin supports Transport Layer Security (TLS) 1.1 and 1.2. Some of the operating systems that are supported for the current release already ship with .NET Framework 4.5 or later.

If the HP Web Jetadmin installer does not detect .NET Framework 3.5 SP1 and .NET Framework 4.5 or later, the installer provides the appropriate installation instructions and Microsoft URL to download .NET Framework.

Virtual Machine (Optional Platform)

Recommended requirements

HP recommends the following virtualization solutions:

- VMware ESX
- Microsoft Hyper-V

Notes

- For a VMware server, the virtual machine network must be set to `bridged` to facilitate HP Web Jetadmin communications.
- It is very important to configure VMware so that its guest or virtual systems have enough resources to support HP Web Jetadmin and Microsoft SQL Server. To ensure that the appropriate resources are provisioned, see the support documentation for the version of VMware you are using.

Server Hardware

Recommended requirements

HP recommends the following hardware configuration for the server:

- 4 or more processor cores
- 2.8 GHz or higher processor speed
- 4 GB or more of RAM
- 4 GB of available storage

Minimum requirements

Although you can use the following hardware configuration for the server, HP does not recommend that you use it for production installations. HP does not test HP Web Jetadmin on this hardware configuration and, therefore, cannot guarantee the results.

- 2 processor cores
- 2.33 GHz processor speed
- 5 GB of RAM (2 GB is required for the HP Web Jetadmin Service, and 2 GB is the default SQL memory reservation)

HP Web Jetadmin uses a value of 3,072 MB to qualify a system as having 3 GB of RAM.

- 4 GB of available storage

Notes

- Recent software improvements have increased resource capacity requirements. HP strongly recommends the 64-bit editions of Windows and 4 GB or more of RAM for production HP Web Jetadmin installations.
- Storage requirements vary depending on the implementation, database, and migration from previous versions.
- NTFS is the only supported file system.
- If the HP Web Jetadmin installer determines that less than 1 GB of RAM is installed, the installer displays a message stating that 3 GB of RAM is required.

Client Hardware

Recommended requirements

HP recommends the following hardware configuration for the client:

- PC with 2.4 GHz processor
- 64-bit system with 4 GB of RAM
- Client display with a minimum resolution of 1024 x 768
- Optimized for Normal font size
- Default DPI only

Minimum requirements


Although you can use the following hardware configuration for the client, HP does not recommend that you use it for production installations. HP does not test HP Web Jetadmin on this hardware configuration and, therefore, cannot guarantee the results.

- PC with 1.8 GHz processor
- 32-bit or 64-bit system with 2 GB of RAM
- Client display with a minimum resolution of 1024 x 768
- Optimized for Normal font size
- Default DPI only

Database

For new installations of HP Web Jetadmin 10.3 SR8 or later, the installation package contains and automatically installs the database for Microsoft SQL Server 2012 Express SP2 (product version 11.0.5058.0). Existing installations of HP Web Jetadmin prior to 10.3 SR8 and installations that have been upgraded to 10.3 SR8 or later use the database for Microsoft SQL Server 2008 Express (product version 10.00.2531.00).

 **NOTE:** HP has successfully tested HP Web Jetadmin with Microsoft SQL Server 2014.

 **TIP:** For more information about configuring HP Web Jetadmin to use a separate Microsoft SQL instance, see the *Using Microsoft SQL Server with HP Web Jetadmin* white paper. This white paper is available from the HP Web Jetadmin [support page](#) (in English).

Network

The HP Web Jetadmin installer requires one active IPv4 connection. If an active IPv4 connection is not available, the installer fails.

For firmware upgrades with HP Web Jetadmin, a minimum bandwidth of 1 MB/s is required. If there are multiple devices upgrading at the same time, then the minimum bandwidth of 1 MB/s will be equal to the number of concurrent firmware upgrades. For example, four simultaneous upgrades requires at least 4 MB/s.

Installations and Upgrades

Local administrator access is required to install or upgrade HP Web Jetadmin.

Client Application

The HP Web Jetadmin client application requires the following:

- Internet Explorer 8, 9, 10, or 11
- Display with a minimum resolution of 1024 x 768

Notes

- Internet Explorer is required to start the HP Web Jetadmin client application. For more information about Internet Explorer requirements and limitations, see the support documentation for the Windows operating system that you are using.
- Administrator access is not required to run the HP Web Jetadmin client application.
- A maximum of 15 concurrent client sessions are allowed.

Supported Devices

HP Web Jetadmin supports HP devices and third-party devices that are connected through HP Jetdirect print servers. HP Web Jetadmin also supports third-party devices that are standard printer MIB compliant and are connected to the network. For third-party devices, HP Web Jetadmin provides basic capabilities as well as more robust capabilities if the devices are used with HP-certified plug-ins for HP Web Jetadmin.



IMPORTANT: If the following devices use a Universal Plug-in (UPI), WS-Discovery must be enabled on the devices:

- HP LaserJet Pro
- HP Officejet Pro
- HP FutureSmart with a firmware version earlier than 3.2.3

If WS-Discovery is disabled on HP LaserJet Pro and HP Officejet Pro devices, HP Web Jetadmin uses the correct UPI and displays a status of **Device Communication Error** for the devices after a device discovery or full refresh is performed.

If WS-Discovery is disabled on HP FutureSmart devices with a firmware version earlier than 3.2.3, HP Web Jetadmin uses a generic device model instead of the correct UPI after a device discovery or full refresh is performed.

Host Access

For the application host, local administrator access is required to install or upgrade HP Web Jetadmin.

For the client host, local user access is required to access the HP Web Jetadmin client application and administrator access is required to install Microsoft .NET Framework.

Client/Server Security

Microsoft domain or locally managed Windows users and passwords are required.


Notes

- HP tests HP Web Jetadmin in Microsoft Active Directory domains.
- Users must be a member of an HP Web Jetadmin server administrator group or designated as one of the following in the HP Web Jetadmin User settings:
 - Windows local security group
 - Active Directory security group
 - Local individual user account
 - Active Directory domain user account

Install HP Web Jetadmin

To install HP Web Jetadmin, perform the following steps:

1. Go to www.hp.com/go/webjetadmin, and then download the HP Web Jetadmin software.
2. Double-click the EXE file.
3. Follow the instructions in the wizard.
4. If the installation stops with a warning that a reboot is required, reboot the host on which the HP Web Jetadmin installer is running. Then relaunch the installer to continue the installation.
5. When the installation is complete, click the **Finish** button.

 **IMPORTANT:** If the HP Web Jetadmin installer does not install Microsoft SQL Server Express Edition, the most common reason for the failure is that Windows updates, such as service packs or hotfixes, were installed on the machine and the machine was not restarted after the updates completed. Restart the machine, and then install HP Web Jetadmin again.

Install HP Web Jetadmin from the Command Line

You can install HP Web Jetadmin from a command line, through a script, or through an automated process. The following is the command syntax:

```
<filename>.exe [/L"<LanguageID>"] [/S /v/qn] </V"[Property1=Value1]
[Property2=Value2] [...]">
```

Command-line parameters

- `<filename>.exe`

Specifies the name of the EXE file that you downloaded from www.hp.com/go/webjetadmin.

- `/L"<LanguageID>"`

Specifies the ID of the language the installer uses (Optional). If the language dialog is enabled and you specify a valid language ID, the installer automatically suppresses the language dialog. If you specify an invalid language ID or a language ID that the installer does not support, the installer ignores this parameter.

The following are the language IDs. The default is the local system language.

Language	Language ID
Chinese (Simplified)	2052
Chinese (Traditional)	1028
English (Worldwide)	1033
French (European)	1036
German	1031
Italian	1040
Japanese	1041
Korean	1042
Portuguese (Brazilian)	1046
Russian	1049
Spanish (Mid-Atlantic)	1034

- `/S /v/qn`

Performs a silent installation (Optional).

To perform a silent installation, the following properties are required:

- `WJA_EULA`
- `ENABLE_ANONYMIZED_DATA_COLLECTION`

- `/V"[Property1=Value1] [Property2=Value2] [...]"`

Specifies a list of properties the installer uses (Required). The following are the properties and values.

Property and Value	Description
<code>WJA_EULA=ACCEPT REJECT</code>	Specifies whether you accept or reject the HP Web Jetadmin End User License Agreement (EULA). This property is required for silent installations.
<code>ENABLE_ANONYMIZED_DATA_COLLECTION=TRUE FALSE</code>	Specifies whether the Data Collection feature is enabled or disabled. This feature collects data about your printers and implementation of HP Web Jetadmin and anonymizes the data. HP Web Jetadmin uses an Internet connection to transmit the anonymized data to HP. HP uses the anonymized data to improve products and services. This property is required for silent installations.

Property and Value	Description
	<p>IMPORTANT: HP is committed to protecting your privacy and the integrity of your computer. You can enable and disable this feature at any time. Your name, address, email address, and other sensitive data are not sent to HP.</p>
WJA_BACKUP_CONFIRM=YES NO	<p>Specifies whether a backup of HP Web Jetadmin was performed prior to the installation.</p> <p>This property is required for upgrade installations.</p>
WJA_SUPPLY_GROUP_REMOVAL_CONFIRM=YES NO	<p>Specifies whether the existing Supplies Groups are removed. In HP Web Jetadmin 10.2, the Supplies Groups functionality was removed as a product feature. Regular device groups will not be removed or altered during the installation.</p> <p>This property is required when upgrading from all versions of HP Web Jetadmin 10.1 and earlier.</p> <p>YES—Confirms that you understand and agree that all Supplies Groups functionality as well as existing groups will be removed during the installation.</p> <p>NO—Causes the installation to terminate and end without the software being installed.</p>
WJA_COLUMN_CONFIRM=YES NO	<p>Specifies whether the column data is upgraded, which might affect filters, groups with filters, and device list exporting.</p> <p>This property is required for silent upgrade installations prior to HP Web Jetadmin 10.2 SR 5.</p>
WJA_SKIP_DB_INSTALL=1 0	<p>Specifies whether the database installation is skipped. To skip the database installation, specify 1.</p> <p>This property is required only if you want the installer to skip the database installation.</p>
INSTALLDIR="<>Path>"	<p>Specifies the HP Web Jetadmin installation path. The following is the default path:</p> <p>C:\Program Files\HP Inc\Web Jetadmin 10\</p> <p>This property is optional for silent installations.</p> <p>The path must be enclosed with \ ". In addition, the properties specified for the /v option must be enclosed with quotes. The following is an example of the correct syntax:</p> <pre>/v"WJA_EULA=ACCEPT INSTALLDIR=\"C:\Program Files\HP Inc\Web Jetadmin 10\""</pre> <p>CAUTION: If the path contains spaces and is not enclosed with \ ", the installer fails.</p>
DATABASEDIR="<>Path>"	<p>Specifies the database installation path. The following is the default path:</p> <p>C:\Program Files\Microsoft SQL Server\</p> <p>This property is optional for silent installations.</p> <p>If the directory name contains spaces, you must use the Windows short-path notation. To find the short-path notation, issue the following command:</p> <pre>Dir *. /x</pre> <p>The path must be enclosed with \ ". In addition, the properties specified for the /v option must be enclosed with quotes.</p> <p>The following are examples of the correct syntax:</p> <pre>- /v"WJA_EULA=ACCEPT DATABASEDIR=\"C:\SQLServer\""</pre>

Property and Value	Description
	<pre>- /V"WJA_EULA=ACCEPT DATABASEDIR=\"C:\Program~1\SQLServer\""</pre> <p>CAUTION: If the path contains spaces and is not enclosed with \", the installer fails.</p>

Examples of the command-line syntax

The following examples assume that the name of the installation file is WjaSetup-x64.exe.

- To perform a basic silent installation, enter the following command:

```
WjaSetup-x64.exe /S /v/qn /V"WJA_EULA=ACCEPT
ENABLE_ANONYMIZED_DATA_COLLECTION=TRUE"
```
- To start the installer in Spanish, enter the following command:

```
WjaSetup-x64.exe /L"1034"
```
- To perform a silent installation with HP Web Jetadmin installed on C:\WJA, enter the following command:

```
WjaSetup-x64.exe /S /v/qn /V"WJA_EULA=ACCEPT
ENABLE_ANONYMIZED_DATA_COLLECTION=TRUE INSTALLDIR=\"C:\WJA\""
```
- To perform a silent installation with HP Web Jetadmin installed on C:\WJA and the database installed on C:\WJADB, enter the following command:

```
WjaSetup-x64.exe /S /v/qn /V"WJA_EULA=ACCEPT
ENABLE_ANONYMIZED_DATA_COLLECTION=TRUE INSTALLDIR=\"C:\WJA\"
DATABASEDIR=\"C:\WJADB\""
```
- To perform a silent upgrade, enter the following command:

```
WjaSetup-x64.exe /S /v/qn /V"WJA_EULA=ACCEPT
ENABLE_ANONYMIZED_DATA_COLLECTION=TRUE INSTALLDIR=\"C:\WJA\"
DATABASEDIR=\"C:\WJADB\" WJA_BACKUP_CONFIRM=YES
WJA_SUPPLY_GROUP_REMOVAL_CONFIRM=YES WJA_COLUMN_CONFIRM=YES"
```

Install HP Web Jetadmin in Blocking Mode

You can run a silent installation in blocking mode from the command line. The following is the command syntax:

```
start /wait <ProgramAndArguments>
```

The following examples assume that the name of the installation file is WjaSetup-x64.exe.

- ```
start /wait WjaSetup-x64.exe /S /v/qn /V"WJA_EULA=ACCEPT INSTALLDIR=
"C:\wja\" DATABASEDIR=\"C:\wjadb\""
```
- ```
start /wait "C:\temp\WjaSetup-x64.exe /S /v/qn /V"WJA_EULA=ACCEPT
ENABLE_ANONYMIZED_DATA_COLLECTION=TRUE INSTALLDIR=\"C:\wja\"
DATABASEDIR=\"C:\wjadb\""
```

Post-installation Tasks

The HP Web Jetadmin server will start automatically as a Microsoft Service. The HP Web Jetadmin server cannot accept HP Web Jetadmin client connections until the HP Web Jetadmin server has fully loaded all services into memory. Dependent upon your HP Web Jetadmin server available system resources, it may take 1-2 minutes for all services to completely load after initial server installation or server reboot.

The first time you launch HP Web Jetadmin after installation, a pop-up dialog is displayed stating that no devices have been discovered. You can opt to launch discovery settings at this point.

Once the installation is complete, HP Web Jetadmin can be launched from a supported browser by entering the hostname or IP address of the computer on which it is installed, followed by the port number and path. Typical default port numbers for Web services have a value of 80. Since HP Web Jetadmin may be running simultaneously with another Web service on the same computer, HP Web Jetadmin uses a port number of 8000. If desired, the port value may be altered.

Here is an example of the URL used to activate HP Web Jetadmin on a supported Windows desktop:

```
http://myhost:8000
```

Recommended Initial Configuration Steps

After HP Web Jetadmin is installed, some of the initial steps that you should take to begin managing devices and the print environment include configuring the options that are shared throughout HP Web Jetadmin, running a discovery, and configuring various other features.

Shared configuration options include the database, network (for example, SNMP and HTTPS), discovery, server maintenance, and credentials. To configure these options, go to **Tools > Options > Shared**, and then navigate to the appropriate category. For more information about a specific option, see the online Help for that option.

Finding devices on the network might be as simple as enabling HP Web Jetadmin to passively listen for devices on the network. Finding devices might be as complex as working with the IT team to map the entire IP network, and then running an IP Range discovery to compile a complete inventory of network-connected devices. You can also use many of the same settings and techniques to discover PC-connected devices. Before you plan and implement a device discovery strategy, carefully review the information about discoveries in the HP Web Jetadmin documentation and white papers.

You should configure features such as Roles, Users, Alerts, and Device Groups before you begin using HP Web Jetadmin. For more information about a specific feature, see the appropriate section in the HP Web Jetadmin documentation and the HP Web Jetadmin white papers.

The HP Web Jetadmin documentation and white papers are available from the HP Web Jetadmin [support page](#) (click the flag icon on the bottom of the page, and then select your country/region).

Configure the HP Web Jetadmin Service to Restart Automatically

It is recommended to configure HP Web Jetadmin to restart automatically whenever the HP Web Jetadmin service fails. If, for example, the database is inaccessible, the HP Web Jetadmin service will be stopped and then automatically restarted. The HP Web Jetadmin service will wait for the database to become accessible and then the HP Web Jetadmin service becomes live.

HP Web Jetadmin installs an additional service named HPWSProAdapter. The HPWSProAdapter service facilitates communication with certain HP device models and must be left running. You must also perform the steps in this section for the HPWSProAdapter service.

To configure the HP Web Jetadmin service to restart automatically, follow these steps.

1. Access the **Windows Control Panel** and select **Administrative Tools**.
2. Select **Services** and then select **HPWJA Service**.
3. Right-click and select **Properties** from the menu.
4. Click the **Recovery** tab. For the **First failure**, **Second failure**, and **Subsequent failures**, select **Restart the service**.
5. Click **OK**.

Ports

HP Web Jetadmin listens continuously on several ports and opens other ports for specific functionality. The following table lists the ports that HP Web Jetadmin uses.

 **NOTE:** HP Web Jetadmin uses Internet Control Message Protocol (ICMP) in the discovery process. HP Web Jetadmin sends an ICMP echo request to determine if the IP is active.

Port number	Type	Inbound (I) or Outbound (O) ¹	Description
69	UDP	I	TFTP Incoming Port: HP Web Jetadmin uses this port as a staging area for firmware images during HP Jetdirect firmware updates. Through SNMP, HP Web Jetadmin triggers HP Jetdirect to retrieve firmware through this port.
80	TCP	O	HP Web Jetadmin uses this port to qualify the link to the HP Embedded Web Server on the device and to retrieve the firmware images from the web.
161	UDP	O	SNMP: HP Web Jetadmin and other management applications use SNMP to communicate with and manage devices. HP Web Jetadmin uses this port on the printer to issue <code>Set</code> and <code>Get</code> commands to the SNMP agent.
427	UDP	I	SLP Listen: HP Jetdirect-connected devices use Service Location Protocol (SLP) to advertise their existence. When the passive SLP discovery feature is enabled on HP Web Jetadmin, devices send multicast packets to this port on the HP Web Jetadmin server.
443	TCP	O	HTTPS: The HP Web Jetadmin service and HPWSProAdapter service send device configurations and queries to this port over HTTPS. HPWSProAdapter uses this port to communicate with devices that do not support Web Services and are configured to redirect all of the network traffic to HTTPS.
843	TCP	O	HP Web Jetadmin uses this port to configure some settings, such as fax and digital sending, on some HP MFP device models.
1433	UDP	O	Microsoft SQL Server: By default, HP Web Jetadmin installs the SQL Server database on the same host. Optionally, you can configure HP Web Jetadmin to communicate with a SQL Server database on a different host. HP Web Jetadmin uses this port to facilitate communication with a remote SQL Server database.
2493	UDP	I/O	Build Monitor: This is an HP Web Jetadmin server port that is kept open. Other HP Web Jetadmin servers use this port to discover running instances of HP Web Jetadmin.
3702 ²	UDP	O	WS Discovery: HP Web Jetadmin uses this port to perform a Web Services discovery on newer HP devices.

Port number	Type	Inbound (I) or Outbound (O) ¹	Description
3910 ² , 3911	TCP	O	<p>WS Discovery: HP Web Jetadmin uses this port to retrieve details about the device Web Services during a discovery. HP Web Jetadmin uses these details to establish the WS communication paths that it needs to manage devices.</p> <p>HP Web Jetadmin uses port 3910 to retrieve print requests and uses port 3911 to retrieve the printer status.</p>
4088	TCP	I	Remoting: HP Web Jetadmin uses this port as the primary communication channel between a started HP Web Jetadmin client and its corresponding HP Web Jetadmin server.
4089	TCP	I	Client Event Notification: HP Web Jetadmin uses this port to communicate change events from the HP Web Jetadmin server to the client. These events trigger the client to pull updates from the server through the Remoting interface. In previous releases of HP Web Jetadmin, Windows assigned this port.
7627 ²	TCP	O	<p>Web Services (HTTPS): HP Web Jetadmin uses this port to communicate with HP FutureSmart devices and older laser devices for some operations, such as OXPd.</p> <p>For devices that do not support Web Services, the HPWSProAdapter Service acts as a gateway between HP Web Jetadmin and the devices. The HPWSProAdapter Service receives Web Services requests from HP Web Jetadmin, and then sends the translated requests to the devices over port 8080 (an unsecure connection, an HP Embedded Web Server password is not configured on the devices) or port 443 (a secure connection, an HP Embedded Web Server password is configured on the devices).</p>
8000	UDP	O	HP Web Jetadmin Discovery Listen: HP Web Jetadmin uses this port on remote IP hosts to detect earlier versions of the HP Web Jetadmin software.
8000	TCP	I	Web Server: HP Web Jetadmin provides an HTTP listener for the initial client launch and online Help content.
8050	TCP	I	Device Eventing Callback (HTTPS): Newer HP devices use a WS eventing protocol for management communications.
8080	TCP	O	HPWSProAdapter: HPWSProAdapter uses this port to communicate with devices that do not support Web Services and are not configured to redirect all of the network traffic to HTTPS. HP Web Jetadmin sends device configurations and queries to this port.
8140	TCP	I	OXPM Web Services (HTTP): This is the communication port for HP Open Extensibility Platform (management operations).
8143	TCP	I	OXPM Web Services (HTTPS): This is a secure communication port for HP Open Extensibility Platform (management operations).
8443	TCP	I	Secure Web Server (HTTPS): HP Web Jetadmin provides a secure HTTPS listener for the initial client launch, Help content, and device file transfer operations.
9100	TCP	O	Printer Firmware Upgrade and Test File Operation: HP Web Jetadmin uses this printer port to transfer printer firmware files, test job files, and PJI configuration files.
27892	UDP	I	Traps Listener: HP Web Jetadmin uses this port for SNMP-based alerts and for By User Data Collections.
27893	UDP	I	WS Hello Listener: HP Web Jetadmin monitors this port for incoming WS Hello packets from the HP WS Pro Proxy Agent software that is installed on hosts in the enterprise. When HP Web Jetadmin detects a packet, it follows up to determine whether there are any printers to discover on the sending host. For

Port number	Type	Inbound (I) or Outbound (O) ¹	Description
			more information, see the <i>HP Web Jetadmin 10.4 Proxy Agents Readme</i> . This document is available from the HP Web Jetadmin support page (in English).
59113	TCP	O	Microsoft SQL Server: By default, HP Web Jetadmin installs the SQL Server database on the same host. Optionally, you can configure HP Web Jetadmin to communicate with a SQL Server database on a different host. HP Web Jetadmin uses this port to facilitate communication with a remote SQL Server database.

¹ The I/O column represents the communication direction with respect to the HP Web Jetadmin server host. HP Web Jetadmin uses random source ports when communicating with ports on remote IP addresses.

² HP Web Jetadmin uses ports 7627, 3702, and 3910 internally to communicate with devices. To ensure proper communication, these ports must be kept open for communication directly with the device and with the internal HPWSProAdapter service.

When using WMI discovery (discovering PC-connected printers without an HP proxy installed on the PC), several ports have to be opened for the WMI communication (DCOM ports, WMI ports, and WMI connection applications (UnsecApp or WMI_OUT)). For more information, see: <https://msdn.microsoft.com/en-us/library/aa822854.aspx>

Open the ports in the Windows firewall by using a batch file

HP Web Jetadmin opens the ports listed in the table to communicate with devices. However, the firewall that you are using might block the connection and prevent HP Web Jetadmin from communicating with the network.

Instead of adding firewall rules for these ports one at a time, you can create a batch file that opens all of the ports that HP Web Jetadmin requires for the Windows firewall at one time. For instructions, see the Create a Batch File to Open HP Web Jetadmin Required Ports in the Windows Firewall white paper. This white paper is available from the HP Web Jetadmin [support page](#).

Implement SSL

By default, the HP Web Jetadmin HTTP service runs without certificates. If you add a certificate, the HTTP server runs in HTTPS mode and Secure Sockets Layer (SSL) communication is enforced. In HTTPS mode, the user and the HTTP server are authenticated to one another and the traffic between them is encrypted. This adds an extra layer of security to the Smart Client download and other HTTP transactions.

HP Web Jetadmin does not self-generate certificates. You must obtain a certificate from a certificate authority (CA). CAs can exist inside or outside of an organization. Many companies have their own CAs. The HP Web Jetadmin Signing Request feature generates a file that you can send to the CA. When the CA sends you a certificate, use the Install Certificate feature to enable HTTPS.



IMPORTANT: For new server certificates, you must install 2048-bit certificates. Any previously installed 1024-bit server certificates continue to function correctly.

Enable Secure Sockets Layer (SSL)

HP Web Jetadmin administrators enable SSL by adding a certificate to the HP Web Jetadmin application. This certificate forces the browser to use the more secure HTTPS protocol when a user accesses the client logon page. The administrator must enable SSL from the console or host that runs the application by using the procedure in [Configure HTTPS \(Server Certificates or SSL\) on page 14](#). When a remote administrator accesses **Tools > Options > Shared > Network > HTTPS**, a message appears stating that certificates can only be installed from an HP Web Jetadmin client that runs on the console or server that hosts HP Web Jetadmin.

In some environments, SSL is required when an HTTP interface or service is used for communication. In these cases, SSL can be enabled and enforced by HP Web Jetadmin. SSL provides a high level of assurance regarding the authentication and encryption of HTTP communication. That is, a user who requests access to the HP Web Jetadmin Smart Client download can be reasonably assured that the system hosting HP Web Jetadmin is authentic and the communication between the two systems is encrypted so that it cannot be easily read by eavesdroppers.

The SSL protocol uses certificates to accommodate both authentication and encryption. HP Web Jetadmin can generate a signing request that can be used by a certificate authority (CA) to generate a certificate. Using **Tools > Options > Shared > Network > HTTPS**, the user can generate a **Signing Request**.


Once the request has been fulfilled by the CA, the certificate is ready to be installed on HP Web Jetadmin. Remember, you must be at the application console to use **Tools > Options > Shared > Network > HTTPS**. Use **Install Certificate** to browse and upload the certificate file.

Once the certificate is installed, the HTTP service enforces SSL. Any browser contact with HP Web Jetadmin should indicate HTTPS on the URL when a certificate is installed. Using **Remove Certificate** uninstalls the certificate and SSL is no longer enforced.

Important Points to Remember When Implementing SSL

Client communication with SSL enforced requires one or more of the following considerations.

- For new server certificates, you must install 2048-bit certificates. Any previously installed 1024-bit server certificates continue to function correctly.
- When SSL has been implemented on HP Web Jetadmin with an internal certificate authority (CA), the CA's authorizing certificate must be installed in the client browser. If this certificate is not installed in the client browser the HP Web Jetadmin Smart Client page will fail to load up in SSL mode.
- Proxy servers tend to use the standard SSL port 443. If the HP Web Jetadmin Smart Client page is being called through a proxy server, a redirect error may occur. This is due to the URL being redirected to 443 rather than 8443 which is the port used by the HP Web Jetadmin SSL. The workaround for this is to place the HP Web Jetadmin fully qualified domain name (FQDN) into the browsers exceptions list under **Tools > Internet Options > Connections > LAN Settings > Advanced**. This causes the browser to pull HTTP and HTTPS content directly from the HP Web Jetadmin server.

 **TIP:** HP Web Jetadmin HTTP and HTTPS port numbers can be customized to something other than 8000 and 8443.

- When you have implemented SSL on HP Web Jetadmin, a redirect occurs when the browser URL uses port 8000. Here is an example:

The known URL prior to SSL implementation is `http://servername.domain.xxx:8000`.

After SSL implementation, HP Web Jetadmin will redirect this to a new URL: `https://servername.domain.xxx:8443`.

The URLs shown here use FQDN. In most cases the certificate issued and installed in the HP Web Jetadmin SSL implementation will contain an FQDN for the host on which HP Web Jetadmin is installed. If a non FQDN is used in the browser, certificate failure will occur. As a general rule, form the HP Web Jetadmin URL with FQDN when HP Web Jetadmin is implemented with SSL.

To configure HTTPS, access **Tools > Options > Shared > Network > HTTPS**.

Configure HTTPS (Server Certificates or SSL)

1. To configure HTTPS, access **Tools > Options > Shared > Network > HTTPS**.
2. To associate a certificate with the HP Web Jetadmin server and enable HTTPS, select **Install Certificate**.


 **IMPORTANT:** When using the HP Web Jetadmin client to install a certificate on a Vista host with UAC enabled, you must launch the client from the installer (just after install is finished and from the checkbox that enables client launch) or from an IE that was **Run as Administrator**.

-or-

To remove the installed certificate from the server and disable HTTPS, select **Remove Certificate**.

-or-

To generate a certificate request that can be sent to a signing authority to generate a certificate that can be installed to enable HTTPS, select **Signing Request**.

 **IMPORTANT:** For new server certificates, you must install 2048-bit certificates. Any previously installed 1024-bit server certificates continue to function correctly.

3. To save these settings and continue setting other options, click **Apply**. Then click the next option to configure in the left menu bar. To save these settings and close this window, click **OK**.

Use a Separate Instance of Microsoft SQL Server

By default, HP Web Jetadmin installs and uses a database that runs under Microsoft SQL Server Express. An existing installation of HP Web Jetadmin can be configured to use the full version of SQL Server instead of SQL Server Express. However, HP does not support or test HP Web Jetadmin installations with SQL Server databases other than the version listed in [Database on page 4](#) and, therefore, cannot guarantee the results.

For more information about configuring HP Web Jetadmin to use a separate Microsoft SQL instance, see the *Using Microsoft SQL Server with HP Web Jetadmin* white paper. This white paper is available from the HP Web Jetadmin [support page](#) (in English).

Deploy the Smart Client

HP Web Jetadmin uses the Microsoft ClickOnce Smart Client technology. This technology runs a Microsoft .NET Framework application by automatically downloading and starting the application through a web browser. The Smart Client application runs as a local .NET Framework application on the host and uses .NET Remoting to communicate with the HP Web Jetadmin service. The following describes the interaction between the HP Web Jetadmin server and the Smart Client application:

- The Smart Client application uses HTTP or HTTPS to initially contact the HP Web Jetadmin server. The default HTTP port is 8000. The default HTTPS port is 8443. For instructions on changing the default ports, see [Change the Default HTTP or HTTPS Port for the HP Web Jetadmin Smart Client Application on page 16](#).
- The HP Web Jetadmin server transfers approximately 2 MB of files for the Smart Client application to the client.
- The Smart Client application runs on the client as the user who is logged in to the computer, executes commands that download approximately 50 MB of HP Web Jetadmin client files, and starts the graphical user interface for the HP Web Jetadmin client application. The web browser is now inactive.

After the Smart Client application starts, the web browser is no longer required. Although HP Web Jetadmin also uses the web browser to deliver online Help and proactive Product Update notifications, the HP Web Jetadmin client application runs locally on the computer.

- The HP Web Jetadmin server downloads all of the relevant information to the client. When new information is available, the HP Web Jetadmin server contacts the client and downloads the new information.

The HP Web Jetadmin installer builds a shortcut on the installation host to `http://<ip_address>:8000/`, where `<ip_address>` is the host where HP Web Jetadmin is installed. Use this URL to access HP Web Jetadmin remotely from anywhere on the company's intranet or WAN.

To start the Smart Client session, only a web browser is required. Administrator rights are not required to run Smart Client applications. However, .NET Framework must be installed. Local administrator rights might be required to install .NET Framework.

In most cases, the Smart Client session starts automatically. However, the local security settings on the workstation might prevent the application from starting automatically. For more information about manually starting the Smart Client, see [Start an HP Web Jetadmin Client Session on page 17](#). For more information about changing the local security settings, see the Microsoft documentation.

Change the Default HTTP or HTTPS Port for the HP Web Jetadmin Smart Client Application

Use the following steps to change the default HTTP or HTTPS port that is used to start the HP Web Jetadmin Smart Client application:

1. Use Notepad or a similar text editor to open the `HP.Imaging.Wjp.Core.WebServer.config.xml` file. This configuration file is available in the following directory:

`C:\Windows\ServiceProfiles\NetworkService\AppData\Local\HP Inc\HPWebJetadmin\WjaService\config`

2. Update the `<value>` attribute for the HTTP or HTTPS port in the following entries:

```
<property name="HttpsPort">
  <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString
  </type>
  <value>8443</value>
</property>
<property name="HttpPort">
  <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString
  </type>
  <value>8000</value>
</property>
```

3. Close and save the file.

Run the Smart Client Application in a Workgroup

Use the following steps to change the Microsoft security settings:



TIP: For more information about the security policy settings, see the Microsoft documentation.

1. On the HP Web Jetadmin server, go to **Start > Control Panel > System and Security > Administrative Tools**, and then double-click **Local Security Policy**.
2. In the left navigation pane, expand **Local Policies**, and then select **Security Options**.

3. In the right pane, double-click **Network access: Sharing and security model for local accounts**.
4. From the list, select the **Classic - local users authenticate as themselves** option.
5. Click the **OK** button.

Start an HP Web Jetadmin Client Session

After the HP Web Jetadmin installation is complete, use one of the following methods to start an HP Web Jetadmin client session:

- On the host where HP Web Jetadmin is installed, go to **Start > All Programs > HP Web Jetadmin 10**, and then select **HP Web Jetadmin**.
- In Internet Explorer, browse to the following URL on the host where HP Web Jetadmin is installed:
http://<ip_address>:8000
- From the command line, issue the following command:

```
rundll32 dfshim.dll, ShOpenVerbApplication http://<ip_address>:8000/wja/wja.application?InternalErrorDetails=true
```

To start the HP Web Jetadmin client session in a specific language, use the following URLs. If the corresponding Windows language pack is installed, the HP Web Jetadmin client session displays in that language. If the corresponding Windows language pack is not installed, the HP Web Jetadmin client session displays in a mixture of English and the specified language.

Language	URL
Chinese (Simplified)	http://<ip_address>:8000/wja/wja.application?lang=zh-cn
Chinese (Traditional)	http://<ip_address>:8000/wja/wja.application?lang=zh-tw
English (Worldwide)	http://<ip_address>:8000/wja/wja.application?lang=en-us
French (European)	http://<ip_address>:8000/wja/wja.application?lang=fr-fr
German	http://<ip_address>:8000/wja/wja.application?lang=de-de
Italian	http://<ip_address>:8000/wja/wja.application?lang=it-it
Japanese	http://<ip_address>:8000/wja/wja.application?lang=ja-jp
Korean	http://<ip_address>:8000/wja/wja.application?lang=ko-kr
Portuguese (Brazilian)	http://<ip_address>:8000/wja/wja.application?lang=pt-pt
Russian	http://<ip_address>:8000/wja/wja.application?lang=ru-ru
Spanish (Mid-Atlantic)	http://<ip_address>:8000/wja/wja.application?lang=es-es

In some cases, you might need to add the URL for HP Web Jetadmin to the trusted security zone in the Web browser.

Configure HP Web Jetadmin to Bind to a Specific NIC

HP Web Jetadmin can run on a multi-homed server or on a server 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 server with multiple IP addresses can cause problems because HP Web Jetadmin tends to use only one address for various reasons.

HP Web Jetadmin is a collection of features that administrators can use to manage devices. Each of these features might require communications on the network or convey the IP address through which communications should take place to other features either on or off the HP Web Jetadmin server. These features facilitate learning the HP Web Jetadmin server IP address when the HPWJA service starts. These features do so in isolation and might not select the correct IP address. The following sections describe situations where features might not detect and select the correct IP address and provide a workaround that forces HP Web Jetadmin to select the correct IP address.

HP Web Jetadmin Client Connection

The HP Web Jetadmin client startup is initiated from Internet Explorer using HTTP. Immediately after the startup sequence, the HP Web Jetadmin client sends an HTTP message to the client host. The HTTP message points to a Microsoft .NET Framework remote connection. The client host then initiates a relatively secure connection to the HP Web Jetadmin server based on the HTTP message.

If HP Web Jetadmin is installed on a multihomed server and the HP Web Jetadmin (HPWJA) service selects an incorrect IP address, the .NET Framework remote connection fails because the system that hosts the client cannot communicate by using the IP address provided. Use the following steps to force the HPWJA service to use the correct IP address:

1. Stop the HPWJA service by using Windows Service Manager.

 **CAUTION:** Be careful when stopping the HPWJA service. Critical tasks might be running and clients might be logged in to HP Web Jetadmin. To view the running tasks, go to **Application Management > Overview > Application Management - Active Tasks**. To view the clients that are logged in, go to **Application Management > Overview > Client Management - Active Clients**.

2. Use Notepad or a similar editor to open the System.Remoting.config file. This configuration file is available in the following directory:

C:\Program Files\HP Inc\Web Jetadmin 10\config\WjaService

 **IMPORTANT:** Make sure that Notepad is running with sufficient privileges to update and save the file.

3. Find the following code in the System.Remoting.config file:

```
<application>
  <channels>
    <channel ref="tcp" port="4088" name="CMRemotingChannel"
      rejectRemoteRequests="false"
      tokenImpersonationLevel="Impersonation" secure="true"
      protectionLevel="EncryptAndSign" impersonate="false">
```

4. Add the machineName="xxx.xxx.xxx.xxx" entry, changing the value to the IP address of the HP Web Jetadmin server that facilitates client communication. The following is an example of the edited code:

```
<application>
  <channels>
    <channel ref="tcp" port="4088" name="CMRemotingChannel"
      rejectRemoteRequests="false"
      tokenImpersonationLevel="Impersonation" secure="true"
      protectionLevel="EncryptAndSign" impersonate="false"
      machineName="xxx.xxx.xxx.xxx">
```

⚠ CAUTION: Make sure that the new entry and value are entered exactly as shown here. Use the quotes that the editor generates. Do not copy and paste this text because incorrect characters, such as quotes, cause the HPWJA service to fail at startup. Observe all of the rules for editing XML. If the file is incorrectly formatted, the HP Web Jetadmin XML parser fails.

5. Close and save the file.
6. Start the HPWJA service by using Windows Service Manager.

HP Web Jetadmin Alerts and SNMP Traps Registration

In rare cases, HP Web Jetadmin detects and uses an incorrect IP address for SNMP traps registration at the device. When HP Web Jetadmin alert subscriptions are created, HP Web Jetadmin registers its IP address in the SNMP traps destination table on the HP device. This registration causes the device to send a notification in the form of SNMP trap packets back to the HP Web Jetadmin server. HP Web Jetadmin uses these notifications to trigger alerts for device conditions such as toner out or paper jam.

If an HP Web Jetadmin instance on a multi-homed server populates the SNMP traps destination table with the incorrect IP address, follow these steps to force HP Web Jetadmin to select and use the correct IP address:

1. Stop the HPWJA service by using Windows Service Manager.

⚠ CAUTION: Be careful when stopping the HPWJA service. There might be critical tasks running. To view the running tasks in HP Web Jetadmin, go to **Application Management > Overview > Application Management - Active Tasks**. To view the client logins in HP Web Jetadmin, go to **Application Management > Overview > Client Management - Active Clients**.

2. Open Notepad or a similar text editor that has the appropriate create and edit permissions.
3. Enter the following text:

```
<ipmc:configuration
xmlns:ipmc="www.hp.com/schemas/imaging/ipmc/config/2004/02/24">
  <property name="LocalIPv4Address">
    <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString
    </type>
    <value>xxx.xxx.xxx.xxx</value>
  </property>
</ipmc:configuration>
```

⚠ CAUTION: Make sure that the new field and values are entered exactly as shown here. Use the quote marks that the editor generates. Do not copy and paste from this document because incorrect characters cause the HPWJA service to fail at startup. Observe all the rules regarding XML editing. If the files are incorrectly formatted, the HP Web Jetadmin XML parser fails.

4. Change the `<value>xxx.xxx.xxx.xxx</value>` entry to the correct HP Web Jetadmin server IP address through which the device can communicate.
5. Select **File > Save As**.
6. On the **Save as** window, navigate to the following directory on the HP Web Jetadmin server host:
C:\Windows\ServiceProfiles\NetworkService\AppData\Local\HP Inc\HPWebJetadmin\WjaService\config
7. In the **File name** text box, enter
HP.Imaging.Wjp.Alerts.Library.AlertsHelpers.config.xml.
8. From the **Save as type** drop-down list, select **All Files (*.*)**.


9. Click **Save**.
10. Start the HPWJA service by using Windows Service Manager.

HP Web Jetadmin now uses the IP address specified during SNMP traps registration. You must update any SNMP traps registrations created prior to this procedure by using the HP Web Jetadmin Configuration feature or by creating additional alerts subscriptions.

HP Web Jetadmin Web Service

The HP Web Jetadmin web or HTTP service uses the server IP addresses for various reasons, including communicating with other processes, nodes, services, and the IP address of the actual HTTP server. In rare cases, HP Web Jetadmin detects the incorrect IP address on multi-homed systems. A configuration file that includes the HP Web Jetadmin IP address is built during the first HPWJA service startup. Follow these steps to correct the IP address value in the configuration file:

1. Stop the HPWJA service by using Windows Service Manager.

 **CAUTION:** Be careful when stopping the HPWJA service. There might be critical tasks running. To view the running tasks in HP Web Jetadmin, go to **Application Management > Overview > Application Management - Active Tasks**. To view the client logins in HP Web Jetadmin, go to **Application Management > Overview > Client Management - Active Clients**.

2. Open Notepad or a similar text editor that has the appropriate create and edit permissions.
3. Select **File > Open**.
4. On the **Open** window, navigate to the following directory:
C:\Windows\ServiceProfiles\NetworkService\AppData\Local\HP Inc\HPWebJetadmin\WjaService\config
5. Open the HP.Imaging.Wjp.Core.WebServer.config.xml file.
6. Find the following portion of the file:

```
<property name="HostIPv4Address">
  <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString
  </type>
  <value>xxx.xxx.xxx.xxx</value>
</property>
```

7. Change the `<value>xxx.xxx.xxx.xxx</value>` entry to the correct server IP address.
8. Select **File > Save**.
9. Start the HPWJA service by using Windows Service Control Manager.

HP Web Jetadmin now uses the specified IP address with reference to the HTTP or web services.

Configure the Port for Event Notifications

HP Web Jetadmin directs clients to a TCP connection to receive event notifications. After the client establishes the TCP connection, HP Web Jetadmin sends event notifications that prompt the client to update itself via the standard Microsoft .NET Remoting channel on port 4088. The HP Web Jetadmin server communicates the port number that is established for event notifications to the client when the client first establishes a connection to the HP Web Jetadmin server. The port number that HP Web Jetadmin communicates to the client is somewhat random, which might cause a problem if a firewall is configured on the HP Web Jetadmin server.

If a firewall is configured on the HP Web Jetadmin server, the event notification port must be set to **static** and the firewall must be configured to accept connections through this port. If a firewall is configured on the client, the firewall on the client does not have to be configured to launch the client.

Use the following steps to configure a static port for event notifications:

CAUTION: Be careful when restarting the HP Web Jetadmin service. Critical tasks might be running and clients might be logged in to HP Web Jetadmin. To view the running tasks, go to **Application Management > Overview > Application Management - Active Tasks**. To view the clients that are logged in, go to **Application Management > Overview > Client Management - Active Clients**.

1. Use Notepad or a similar editor to create a file that contains the following XML section:

```
<ipmc:configuration
xmlns:ipmc="www.hp.com/schemas/imaging/ipmc/config/2004/02/24">
  <property name="ClientEventRouter.ServerPort">
    <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString
    </type>
    <value>8099</value>
  </property>
</ipmc:configuration>
```

The port number specified for the `<value>` attribute can be any unused port.

2. From the **File** menu, select **Save**.
3. On the **Save As** window, navigate to the following directory on the HP Web Jetadmin server:
C:\Windows\ServiceProfiles\NetworkService\AppData\Local\HP Inc\HPWebJetadmin\WjaService\config
4. In the **File name** box, enter `Global.config.xml`, and then click the **Save** button.
5. Restart the HP Web Jetadmin service (HPWJAService). For instructions, see [Restart the HP Web Jetadmin Service Manually on page 21](#).
6. Use any firewall application or a similar application to open the port.

Configure the Firewall Software

You must configure the firewall on the HP Web Jetadmin server host to allow client traffic and other traffic to pass through the correct ports. The firewall monitors HP Web Jetadmin for the ports that it uses and allows traffic.

In some firewall applications, such as Microsoft Firewall, you can specify a program or executable file as a firewall exception. In these cases, you can define the following file as an exception:

```
C:\Program Files\HP Inc\Web Jetadmin 10\bin\HPWJAService.exe
```

The firewall on the client system does not require any special consideration because the client application does not listen to a specific port.

Restart the HP Web Jetadmin Service Manually

It may be necessary to stop and restart the HP Web Jetadmin service. An example of this would be when a network is switched from hard-wired to wireless. Once the network is switched, HP Web Jetadmin must be restarted in order for the application to realize the change.

⚠ CAUTION: Restarting HP Web Jetadmin services may interrupt background tasks and user sessions. Always check the application before restarting.

To script the stop of all HP Web Jetadmin services, use these command strings in this order:

- Net stop HPWSProAdapter
- Net stop HPWJAService
- Net stop mssql\$HPWJA

To script the start of all HP Web Jetadmin services, use these command strings in this order:

- Net start mssql\$HPWJA
 - Net start HPWJAService
 - Net start HPWSProAdapter
1. Uninstall HP Web Jetadmin.
 2. Use Windows Service Manager to set the older HP Web Jetadmin service (listed as **HP Web Jetadmin** in the Services MMC) to **activate** and to also start the service.

Back Up and Restore HP Web Jetadmin

Scripts for backing up and restoring HP Web Jetadmin are available. These scripts provide examples of the recommended method for backing up and restoring the HP Web Jetadmin settings and data, including the Microsoft SQL Server database. The WJABackupRestoreInstructions_<language_code>.txt file provides instructions for running the scripts. The scripts and instructions are available in the following directory:

C:\Program Files\HP Inc\Web Jetadmin 10\WJABackupRestore

Upgrade HP Web Jetadmin

The current HP Web Jetadmin installation must be backed up before an upgrade is started. The WJABackupRestoreInstructions_<language_code>.txt file provides instructions for backing up HP Web Jetadmin. This file is located in the following directory on the HP Web Jetadmin server:

C:\Program Files\HP Inc\Web Jetadmin 10\WJABackupRestore

In HP Web Jetadmin, go to **Help > About**, and then write down the current version as 10.4. *nnnnn*, where *nnnnn* is the build number. This version of the installer is required to perform a recovery.

Before you begin an upgrade, go to **Application Management > Overview > Application Management – Active Tasks**, and then check for any paused or pending tasks. You must stop or resolve these tasks before you run the installer.

To upgrade HP Web Jetadmin, obtain the HP Web Jetadmin installation executable from www.hp.com/go/webjetadmin. Then run the executable on the system that hosts HP Web Jetadmin.

Import Feature Packs

Feature Packs provide support for dynamically adding new configuration options and new device images to HP Web Jetadmin. Feature Packs are imported and applied on an existing installation of HP Web Jetadmin. This means that you can gain access to the new functionality without installing and qualifying a new version of the full HP Web Jetadmin application. HP Web Jetadmin Administrator rights are required to apply Feature Packs.

Feature Packs are cumulative. A new Feature Pack includes the new functionality that is being released and all of the functionality that was released in previous Feature Packs.


Each Feature Pack has a minimum version of HP Web Jetadmin that must be installed before the Feature Pack can be imported and applied. If you import a Feature Pack on a version of HP Web Jetadmin that is earlier than the minimum required version, HP Web Jetadmin displays a message that specifies the minimum required version.

Feature Packs are available from www.hp.com/go/webjetadmin as signed HP Binary (HPb) files. After you download an HPb file, you must import the HPb file into the existing installation of HP Web Jetadmin, and then apply the HPb file. You must restart the HP Web Jetadmin service before the new functionality is available in HP Web Jetadmin.

 **CAUTION:** After a Feature Pack is applied, it cannot be removed from HP Web Jetadmin. HP recommends that you back up HP Web Jetadmin before you apply a Feature Pack.

When a Feature Pack is initially released, the software and online Help for the new features are available only in English. The localized software and online Help for the new features will be provided at a later time, either in a new Feature Pack or a new version of HP Web Jetadmin.

Import and apply a Feature Pack

 **CAUTION:** After a Feature Pack is applied, it cannot be removed from HP Web Jetadmin. HP recommends that you back up HP Web Jetadmin before you apply a Feature Pack.

1. Go to www.hp.com/go/webjetadmin, and then download the HP Web Jetadmin Feature Pack file.
2. Go to **Tools > Feature Packs**.
3. Click the **Import** button.
4. On the **Open** window, browse to and select the HPb file, and then click the **Open** button.
5. On the **Success** window, click the **OK** button. The HPb file is listed on the **Feature Packs** window with a status of **Imported (Apply Pending)**.

-or-

If a Feature Pack has already been imported, but has not been applied yet, HP Web Jetadmin displays the **Warning** window.

To overwrite the existing Feature Pack, click the **Yes** button.

To cancel the import process, click the **No** button.

6. Select the Feature Pack from the list, and then click the **Apply** button.
The status of the selected Feature Pack must be **Imported**.
7. On the **Confirm Feature Pack apply** window, click the **OK** button.
8. On the **Success** window, click the **OK** button. The Feature Pack is listed on the **Feature Packs** window with a status of **Applied (Service Restart Required)**.
9. Restart the HP Web Jetadmin service (HPWJAService).

CAUTION: Restarting the HP Web Jetadmin service can interrupt critical processes. Before you restart the HP Web Jetadmin service, use the HP Web Jetadmin Broadcast Message feature to notify the active users, and then make sure that all of the users are logged off and that there are no active tasks running on the HP Web Jetadmin server.

Delete an imported Feature Pack

1. Go to **Tools > Feature Packs**.
2. Select the Feature Pack from the list, and then click the **Delete** button.
The status of the selected Feature Pack must be **Imported**.
3. On the **Delete Feature Pack** window, click the **OK** button.
4. On the **Success** window, click the **OK** button.

Display the Release Notes for a Feature Pack

The Release Notes for Feature Packs are provided only in English.

1. Go to **Tools > Feature Packs**.
2. Select the Feature Pack from the list, and then click the **Details** button. The Release Notes are displayed in Notepad.

Enable FIPS on the HP Web Jetadmin Server

Federal Information Processing Standard (FIPS) can be enabled only after you upgrade to HP Web Jetadmin 10.4 or later. This topic provides instructions for upgrading HP Web Jetadmin, making the required changes to the settings in HP Web Jetadmin, and then enabling FIPS. These instructions must be followed in the order provided.

The MD5 and DES protocols are blocked after FIPS is enabled. Communication over SNMPv1/SNMPv2 is still possible after FIPS is enabled.

Upgrade to HP Web Jetadmin 10.4 or later

1. On the HP Web Jetadmin server, go to www.hp.com/go/webjetadmin, and then download the HP Web Jetadmin software.
2. Double-click the EXE file.
3. Follow the instructions in the wizard.
4. If the installation stops with a warning that a reboot is required, reboot the HP Web Jetadmin server. Launch the installer again to continue the installation.
5. When the installation is complete, click the **Finish** button.


Make the required changes to the settings in HP Web Jetadmin and on the devices

If you omit the following steps, HP Web Jetadmin might not be able to communicate with the devices after FIPS is enabled. HP Web Jetadmin displays a status of **Device Communication Error** for these devices.

1. If HP Web Jetadmin has already discovered devices by using an SNMPv3 credential that specifies the MD5 and DES protocols, SNMP communication with those devices will not work after FIPS is enabled. The SNMPv3 credential for these devices must be changed to the SHA-1 and AES-128 protocols. However, you

cannot use HP Web Jetadmin to determine if the SNMPv3 credential for the devices uses the MD5 and DES protocols.

Use the following steps to update the SNMPv3 credential on all of the devices that use SNMPv3:

- a. In the **Device Management** navigation pane, right-click **Configuration**, and then select **Create configuration template**. The **Create Device Configuration Template** wizard starts.
 - b. On the **Select Template Models** page, select the device models to configure, and then click the right arrow button.
 - c. Select the network cards to configure, and then click the right arrow button.
 - d. Click the **Next** button.
 - e. On the **Specify template options** page, enter a name for the template in the **Name** box (up to 48 characters).
 - f. In the **Device settings** navigation pane, go to **Security > SNMP Version Access Control**.
 - g. Select the **Modify SNMPv3** option.
 - h. In the **Current SNMPv3 Credential** section, enter the user name, authentication protocol, authentication passphrase, privacy protocol, and privacy passphrase that are currently configured for SNMPv3. The current SNMPv3 credentials are required.
 - i. In the **New SNMPv3 Credential** section, select **SHA-1** from the **Authentication Protocol** list, and select **AES-128** from the **Privacy Protocol** list.
 - j. If required, enter the new values for the user name, authentication passphrase, and privacy passphrase.
-
-  **CAUTION:** To change the authentication and privacy passphrases, the current passphrases must be specified in the device configuration template even if global SNMPv3 credentials are stored in HP Web Jetadmin. If the current passphrases are not specified, the configuration fails.
-
- k. Click the **Next** button.
 - l. On the **Confirm** page, verify that the information is correct, and then click the **Create Template** button.
 - m. On the **Results** page, click the **Done** button.
 - n. In the **Device Management** navigation pane, right-click **Configuration**, and then select **Apply configuration template**. The **Apply Device Configuration Template** wizard starts.
 - o. Select the device configuration template that you just created from the list, and then click the **Next** button.
 - p. On the **Select devices** page, select the devices to configure from the **Available devices** list, and then click the **>** button.
 - q. Click the **Next** button.
 - r. On the **Confirm** page, verify that the information is correct, and then click the **Apply Template** button.
 - s. On the **Results** page, click the **Done** button.
2. Use the following steps to delete the SNMPv3 global credentials that use the MD5 and DES protocols:
 - a. Go to **Tools > Options > Shared > Credentials > Device > SNMPv3**.
 - b. Select the SNMPv3 credential that uses the MD5 and DES protocols from the list, and then click the **Remove** button.

- c. On the **Confirm Delete** window, click the **Yes** button.
 - d. Repeat steps b through c for each SNMPv3 credential that uses the MD5 and DES protocols.
3. Run a discovery to rediscover all of the SNMPv3-configured devices.
 4. Trap forwarding that is configured to use SNMPv3 credentials with the MD5 and DES protocols does not work after FIPS is enabled. Use one of the following procedures to update the alert subscriptions that are configured to forward SNMP traps to a server using SNMPv3 credentials with the SHA-1 and AES-128 protocols.



NOTE: Alert subscriptions that are configured to only write alerts to the alert history log or to send email notifications when alerts occur do not need to be updated.

Update the alert subscriptions that were created by using an alert subscription template that is configured to forward SNMP traps

- a. In the **Device Management** navigation pane, go to **Alerts > All Subscriptions**.
- b. At the top of the **All Subscriptions** pane, click the **Expand all** button to display the details for each alert subscription.
- c. To identify the alert subscription templates that must be updated, look for alerts that have **SNMPv3 Trap Forwarding** in the **Notification Type** column and have **Linked** in the **Linked to Template** column. The name of the alert subscription template is shown in the **Subscription Name** column.
- d. In the **Device Management** navigation pane, go to **Alerts > Templates**.
- e. In the **Alerts - Subscription Templates** pane, select the alert subscription template from the list, and then click the **Edit** button. The **Edit Subscription Template** wizard starts.
- f. Click the **Next** button until the **Specify notification settings** page appears.
- g. In the **SNMPv3 credential** section, select **SHA-1** from the **Authentication protocol** list, and select **AES-128** from the **Privacy protocol** list.
- h. If required, enter the new values for the user name, authentication passphrase, and privacy passphrase.
- i. Click the **Next** button until the **Confirm** page appears.
- j. On the **Confirm** page, verify that the information is correct, and then click the **Save Template** button.
- k. On the **Results** page, click the **Done** button.

All of the alert subscriptions that are linked to this alert subscription template are automatically updated with the new SNMPv3 credentials.

- l. Repeat steps c through k for each of the alert subscription templates.

Update the alert subscriptions that were created without using an alert subscription template and are configured to forward SNMP traps

- a. In the **Device Management** navigation pane, go to **Alerts > All Subscriptions**.
- b. In the **All Subscriptions** pane, select the alert subscription from the list, and then click the **Edit Subscription** button. The **Edit Subscription** wizard starts.
- c. Click the **Next** button until the **Specify notification settings** page appears.
- d. In the **SNMPv3 credential** section, select **SHA-1** from the **Authentication protocol** list, and select **AES-128** from the **Privacy protocol** list.

- e. If required, enter the new values for the user name, authentication passphrase, and privacy passphrase.
- f. Click the **Next** button until the **Confirm** page appears.
- g. On the **Confirm** page, verify that the information is correct, and then click the **Edit Subscription** button.
- h. On the **Results** page, click the **Done** button.
- i. Repeat steps b through h for each alert subscription that was created without using an alert subscription template.

-or-

If any future changes are made to the alert subscriptions, all of the alert subscriptions must be changed. To prevent this in the future, HP recommends that you use the following steps to create new alert subscriptions that are linked to alert subscription templates:

- a. In the **Device Management** navigation pane, go to **Alerts > All Subscriptions**.
- b. In the **All Subscriptions** pane, select the alert subscription from the list, and then click the **Unsubscribe** button. The **Delete Alert Subscriptions** wizard starts.
- c. On the **Confirm** page, click the **Unsubscribe** button.
- d. On the **Results** page, click the **Done** button.
- e. In the **Device Management** navigation pane, go to **Alerts > Templates**.
- f. In the **Alerts - Subscription Templates** pane, select the alert subscription template from the list, and then click the **Apply** button. The **Apply Alert Subscription Template** wizard starts.



NOTE: If an alert subscription template is not available, create an alert subscription template that meets your specific needs.

- g. On the **Select devices** page, select the devices from the **Available devices** list, and then click the **>** button.
- h. Click the **Next** button.
- i. To link the selected alert subscription template to this alert subscription, select the **Link template to subscription** option. Changes that are made to the selected alert subscription template are automatically applied to the devices that are associated with this alert subscription.


-or-

To create an alert subscription that is not linked to the selected alert subscription template, select the **Do NOT link template to subscription** option, and then enter a name for this alert subscription in the **Subscription name** box. Changes that are made to the alert subscription template are not applied to the devices that were previously configured with this alert subscription template.

- j. Click the **Next** button.
- k. On the **Confirm** page, verify that the information is correct, and then click the **Apply Template** button.
- l. On the **Results** page, click the **Done** button.
- m. Repeat steps b through l for each of the alert subscriptions that were created without using an alert subscription template.

5. On the client machines where the HP Web Jetadmin client is launched, use the following steps to enable the TLS protocol:

- a. Open an Internet Explorer browser.
 - b. Go to **Tools > Internet options**, and then click the **Advanced** tab.
 - c. Scroll down to the **Security** section, and then select the checkboxes for one or more of the TLS versions (TLS 1.0, TLS 1.1, and TLS 1.2).
6. Use the following steps to verify that the devices are configured to communicate with the TLS protocol:
- a. Select the device from any device list.
 - b. On the **Config** tab, go to **Network > Mgmt Protocol**.
 - c. Verify that any version of TLS (TLS 1.0, TLS 1.1, and TLS 1.2) is enabled.
 - d. Repeat steps a through c for each device.
7. Use the following steps to enable FIPS-140 mode on the devices. Enabling FIPS-140 mode affects only the following device configuration options:
- **SNMP Version Access Control** configuration option: The SHA-1 authentication protocol and AES-128 privacy protocol must be configured.
 - **Mgmt Protocol** configuration option: The TLS 1.0, TLS 1.1, or TLS 1.2 protocol must be enabled.

 **TIP:** The following steps are not required. However, you can use these steps to troubleshoot any FIPS-related problems.

- a. Select the device from any device list.
- b. On the **Config** tab, go to **Security > FIPS-140 Mode**.
- c. Select the **Enabled** option.
- d. Click the **Apply** button.
- e. Repeat steps a through d for each device.

If any of the following device configuration options are configured on a device, enabling FIPS-140 mode fails for that device:

- **SNMP Version Access Control** configuration option: The MD5 authentication and DES privacy protocols must not be specified.
- **IPsec/Firewall Policy** configuration option: The DES-CBC-MD5 algorithm must not be specified for the **Kerberos** setting.
- **Upload Jetdirect Certificate** configuration option: Certificates must not be signed by using MD5 or earlier (MD2 or MD4).
- **Upload CA Certificate** configuration option: Certificates must not be signed by using MD5 or earlier (MD2 or MD4).
- **Mgmt Protocol** configuration option: The SSL 3.0 or earlier protocol must not be enabled.

HP Web Jetadmin does not report the exact reason for the failure. However, if you enable FIPS-140 mode by using the device HP Embedded Web Server (EWS), the EWS does report the exact reason for the failure. The FIPS-140 mode setting is available in the EWS from the **Networking** tab > **Security** link > **Settings** page.

Enable FIPS on the HP Web Jetadmin server

1. Stop the following services. These services must be stopped in the specified order.

- a. HPWSProAdapter
 - b. HPWJAService
 - c. mssql\$HPWJA
2. Use the following steps to enable FIPS on the HP Web Jetadmin server as a local security policy:

 **TIP:** For more information about the **System cryptography** setting, see the “*System cryptography: Use FIPS compliant algorithms for encryption, hashing, and signing*” security setting effects in *Windows XP and in later versions of Windows* document. This document is available from the Microsoft [support page](#).

- a. Go to **Control Panel > Administrative Tools > Local Security Policy > Local Policies > Security Options**.
 - b. Right-click **System cryptography: Use FIPS compliant algorithms for encryption, hashing and signing**, and then select **Properties**.
 - c. On the **Local Security Setting** tab, select the **Enabled** option, and then click the **OK** button.
3. Start the following services. These services must be started in the specified order.
- a. mssql\$HPWJA
 - b. HPWJAService
 - c. HPWSProAdapter
4. Use the following steps to verify that HP Web Jetadmin can communicate with all of the devices:
- a. In the **All Devices** list, look for any devices that have **Device Communication Error** in the **Status** column.
 - b. Verify that you can configure a device by using HP Web Jetadmin.
 - c. In the **All Devices** list, right-click a device, and then select **Refresh Selection (Full)**. Verify that the refresh completed.

If there are any devices that have a status of **Device Communication Error** or you cannot complete step b or c, access the device EWS, and then verify the following settings:

- Click the **Networking** tab, and then click the **Network Settings** link. If SNMPv3 is enabled, verify that the authentication protocol is SHA x and the privacy protocol is AES.
- Click the **Security** tab, and then click the **Certificate Management** link. Select a certificate, and then click the **View Details** button. Verify that the self-signed certificate uses a signature algorithm other than MD5. Repeat this step for each self-signed certificate.

Uninstall HP Web Jetadmin


When you uninstall HP Web Jetadmin, the Microsoft SQL Server Express Edition instance of the HP Web Jetadmin database is also removed. You can restore the HP Web Jetadmin database if you ran the appropriate backup procedures and stored the backup files in a secure location.

To uninstall HP Web Jetadmin, perform the following steps:

1. Go to **Start > Control Panel > Uninstall a program**.
2. Right-click **HP Web Jetadmin 10.4**, and then select **Change**. The **HP Web Jetadmin 10.4 - InstallShield Wizard** starts.
3. Click the **Next** button.

4. Select the **Remove** option, and then click the **Next** button.
5. Follow the instructions in the wizard.
6. Review the MSI <xxxxx>.LOG file, where <xxxxx> is a randomly generated string. The log file is available in the following directory:

C:\Users*<username>*\AppData\Local\Temp

 **TIP:** You can uninstall HP Web Jetadmin from the command line. For instructions, see the *Uninstall HP Web Jetadmin from the Command Line* white paper. This white paper is available from the [HP Web Jetadmin support page](#) (in English).

Manage Licenses

There are some features for HP Web Jetadmin that require a license. After you obtain the license for a feature, you must install the license to enable the functionality.

To manage the licenses, perform the following steps:

1. Go to **Start > All Programs > HP Web Jetadmin 10**, and then select **HP Web Jetadmin License Manager**.
2. To install a license, perform the following steps:
 - a. Click the **Add** button.
 - b. On the **Enter License** window, enter the license key, and then click the **Apply** button.
3. To delete a license, select the license from the list, and then click the **Remove** button.
4. To refresh the list of licenses, click the **Refresh** button.
5. Click the **Exit** button.
6. Restart the HP Web Jetadmin service (HPWJA Service).

A End-User License Agreement

When you download, register, and install HP Web Jetadmin, you must read the End-User License Agreement (EULA) and acknowledge that you agree to the terms.

After HP Web Jetadmin is installed, the EULA is available from the online Help. To view the EULA, go to **Help > About**, and then click the **View the End-User License Agreement** link.

Index

- A**
 - address for certificates 14
 - alerts
 - selecting correct IP address 19
 - authorizing certificate 14
 - automatically restarting 10
- B**
 - backing up HP Web Jetadmin 22
 - binding to specific NIC 17
- C**
 - ClickOnce Smart Client
 - overview 15
 - client application
 - operating system requirements 2
 - other requirements 5
 - client connection
 - selecting correct IP address 18
 - client hardware requirements 4
 - client ports 11
 - client security requirements 6
 - client sessions, HP Web Jetadmin
 - starting 17
 - command line
 - uninstall from 29
 - command-line, installing from
 - in blocking mode 9
 - syntax 6
 - configuration
 - recommended initial steps 10
 - configuration file
 - correcting IP address 20
 - configuring
 - automatic service restart 10
- D**
 - database requirements 4
 - devices
 - supported 5
- E**
 - End-User License Agreement (EULA) 31
- event notifications
 - configuring port 20
- F**
 - Feature Packs
 - importing 23
 - Release Notes 23
 - FIPS
 - enabling on HP Web Jetadmin server 24
 - firewall software, configuring 21
- H**
 - host access requirements 6
 - HP Web Jetadmin client sessions
 - starting 17
 - HP Web Jetadmin server
 - enabling FIPS 24
 - HPWJA service
 - selecting correct IP address 18
 - HTTP
 - changing the default port for the Smart Client application 16
 - HTTPS
 - changing the default port for the Smart Client application 16
 - configuring 15
- I**
 - importing
 - Feature Packs 23
 - Installation
 - one hardware platform 1
 - upgrading 1
 - installation
 - subsequent tasks 10
 - installation requirements 5
 - installing
 - Feature Packs 23
 - installing HP Web Jetadmin
 - from command line 6
 - from command line in blocking mode 9
 - recommended initial steps 10
 - using installer 6
- IP addresses
 - selecting on multi-homed servers 17
- L**
 - license agreement, software 31
 - License Manager 30
- M**
 - manually restarting 21
 - Microsoft SQL Server
 - using separate instance 15
 - multi-homed servers
 - selecting correct IP address 17
- N**
 - network requirements 5
 - NIC, binding to specific 17
- P**
 - port numbers 10
 - standard SSL port 14
 - ports 11
 - event notifications 20
 - post-installation steps 10
- R**
 - Release Notes
 - Feature Packs 23
 - remote ports 11
 - requirements, system 1
 - restart 10, 21
 - restoring HP Web Jetadmin 22
- S**
 - Secure Sockets Layer (SSL)
 - implementing 13
 - secure sockets layer (SSL) 13
 - server application requirements 1
 - server hardware requirements 3
 - server security requirements 6
 - server, HP Web Jetadmin
 - enabling FIPS 24

- service
 - restarting automatically 10
 - restarting manually 21
- Smart Client
 - deploying 15
- Smart Client application
 - changing default HTTP and HTTPS ports 16
 - running in workgroups 16
- SNMP traps registration
 - selecting correct IP address 19
- software license agreement 31
- SQL Server
 - using separate instance 15
- SSL (Secure Sockets Layer)
 - implementing 13
- SSL (secure sockets layer) 13
- supported devices 5
- system requirements 1

U

- uninstalling HP Web Jetadmin
 - from command line 29
 - from Control Panel 29
- upgrade requirements 5
- upgrading 1
- upgrading HP Web Jetadmin 22
- URL for certificates 14

V

- virtual machine requirements 3