Technical white paper

Using Microsoft SQL Server with HP Web Jetadmin

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Overview

HP Web Jetadmin 10.x automatically installs and uses a database that runs under Microsoft SQL Express. However, it might be more convenient for HP Web Jetadmin to use a full version of Microsoft SQL Server to gain performance benefits and avoid the SQL Express 4 GB database limitation (pre 2008 R2). Fortunately, HP Web Jetadmin can be configured to use SQL Server instead of SQL Express either on the same machine or on a remote machine. This document describes how to create a named instance on an installation of SQL Server, configure HP Web Jetadmin to use that instance, and migrate an HP Web Jetadmin database from SQL Express to SQL Server if required.

IMPORTANT: For HP Web Jetadmin 10.4 and earlier, the folder name in the installation directory path is *Hewlett Packard*. For HP Web Jetadmin 10.4 SR1 and later, the folder name in the installation directory path has been changed from *Hewlett Packard* to *HP Inc*.

Introduction

Whether you are installing a local or remote SQL Server, the steps to configure an HP Web Jetadmin installation to use SQL Server are essentially the same.

1. Create a SQL instance.

2. Create a new SQL database.

3. Modify HP Web Jetadmin to point to the new instance and database.

Each HP Web Jetadmin installation must point to its own unique database. HP Web Jetadmin allows for a connection to SQL Server on the same machine or to a SQL Server instance on a remote machine.

NOTE: Releases of HP Web Jetadmin prior to 10.3 SR3 required the installation of a license to use a remote SQL database. This restriction has been lifted starting with HP Web Jetadmin 10.3 SR3. Customers are no longer required to obtain the Database Connectivity Module and install a license to use a remote SQL database. To connect an older version of HP Web Jetadmin to a remote SQL database, visit www.hp.com/go/webjetadmin for more information about obtaining a license for the Database Connectivity Module, and then see Appendix A—Install the license for the Database Connectivity Module for HP Web Jetadmin 10.3 SR3 and earlier on page 32 for instructions on how to install the license.

First time installation of HP Web Jetadmin

As a convenience, HP Web Jetadmin automatically installs SQL Server 2012 Express SP2 because a SQL database is required to run HP Web Jetadmin. However, you might prefer newer versions of SQL Server, such as SQL Server 2014. While HP thoroughly tests the SQL Express version that HP Web Jetadmin automatically installs, you are certainly welcome to use other versions of SQL Server, including older versions.

For a first time installation of HP Web Jetadmin where you want to use a remote SQL database from the beginning, the following options are available:

*   Allow the HP Web Jetadmin installer to install SQL Server Express, and then point the installation to a remote SQL instance.

*   Run a command-line installation of HP Web Jetadmin and choose to bypass the SQL Express installation, and then point the installation to a remote SQL instance. Use the following command to run the installer from a command line so that it skips the SQL database installation:

```
WjaSetup.exe /V"WJA_SKIP_DB_INSTALL=1"
```

The directory of files for HP Web Jetadmin that are created under the NetworkService folder are incomplete (only a handful of files) until a successful connection is made to a SQL database.

Migrate the HP Web Jetadmin data

If you want to point an existing installation of HP Web Jetadmin to use a remote SQL instance, consider whether the existing HP Web Jetadmin data stored in the SQL Express database needs to be migrated to what will now be a blank database on a remote SQL instance when the conversion is complete. The most common technique for migrating the database involves copying and pasting the database files from one location to another. SQL Server Management Studio contains tools for backing up the database. HP Web Jetadmin also offers a backup.bat script that backs up the database as well as other files. The script file resides in the following directory:

C:\Program Files\HP Inc\Web Jetadmin 10\bin\WJABackupRestore\backup.bat [1]

It might be necessary to assign Network Service write permissions in the directory where the database is being saved.
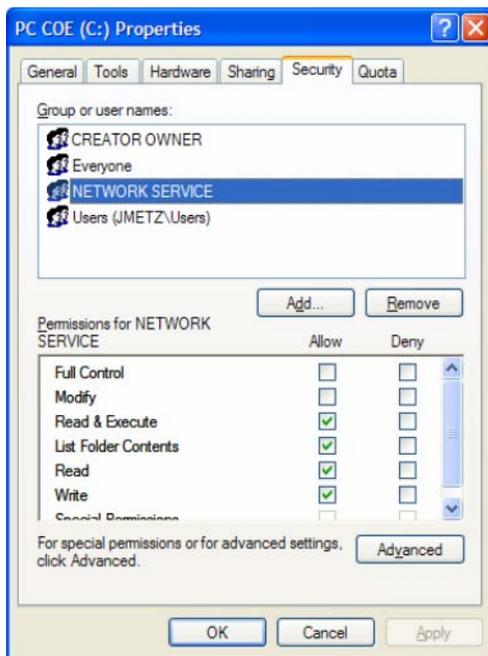
For Microsoft® Windows® Vista and Server 2008 R2, scripts that require administrative access and are run from the Command Prompt must be executed using the **Run as administrator** option.

Remember, to truly migrate an entire HP Web Jetadmin installation from one machine to another, more than just the database must be migrated. For more information, see the *Back Up, Restore, and Clone an HP Web Jetadmin Installation* white paper. This white paper is available from the HP Web Jetadmin support page (in English).

IMPORTANT: When restoring the settings and database information to the HP Web Jetadmin host, encrypted data no longer functions if the host or Windows OS instance is different from the instance that was used to

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[1] For HP Web Jetadmin 10.4 and earlier, the folder name in the installation directory path is *Hewlett Packard*. For HP Web Jetadmin 10.4 SR1 and later, the folder name in the installation directory path has been changed from *Hewlett Packard* to *HP Inc*.

process the original file-set. A few examples of encrypted data include device passwords, SMTP user/password settings, and HTTP proxy user/password settings. Credential store passwords and saved configuration file templates are encrypted to secure any passwords that might be stored. To unlock the encryption, a key that is applicable only to the machine where it was created must be used. Passwords are too important not to be protected as securely as possible. Therefore, items pertaining to passwords in configuration file templates must be recreated on the new HP Web Jetadmin installation because the old files cannot be unlocked or unencrypted on the new machine if they are manually copied there.

Use a local SQL Server database

The following sections describe the steps required to instruct HP Web Jetadmin to use a full SQL Server database that resides on the same machine as the HP Web Jetadmin installation.

Install SQL Server

During the installation, HP Web Jetadmin launches a SQL Express installer executable and runs commands to create a new instance named HPWJA and a database named HPWJA. If that instance does not exist, SQL creates it. If the instance already exists, it must be in a serviceable state or SQL posts an error.

The SQL Express installer command being run includes:

```
sqlexpr.exe -q /norebootchk /qb REBOOT=ReallySuppress ADDLOCAL=ALL
INSTANCENAME=HPWJA SCCCHECKLEVEL=IncompatibleComponents:1;MDAC25Version:0
INSTALLSQLDIR="DRIVE:\Program Files\Microsoft SQL Server"
INSTALLSQLDATADIR="DRIVE:\Program Files\Microsoft SQL Server"
INSTALLSQLSHAREDDIR="DRIVE:\Program Files\Microsoft SQL Server"
```

If the SQL Express installer returns an error, HP Web Jetadmin posts an error. For example, if the HPWJA instance is disabled or cannot be started, an error occurs.

After HP Web Jetadmin and SQL Server are successfully installed on the same machine, perform the steps in the following section to instruct HP Web Jetadmin to use SQL Server instead of SQL Express.

Create a named SQL instance

The HP Web Jetadmin installer creates a SQL Express instance named HPWJA and a database named HPWJA to store its information. In order to instruct HP Web Jetadmin to use SQL Server instead, a named instance and new database must be created.

Although creating a named instance can be accomplished in several ways, this document discusses how to run the SQL installer to create the instance.

Run the SQL Server installer on the machine where HP Web Jetadmin is running. The installer asks to create a default instance or a named instance.
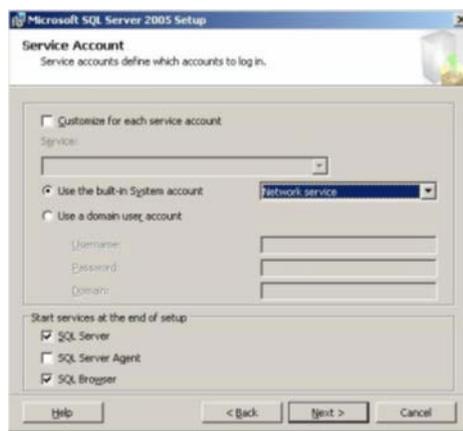
Use a named instance, such as HPWJA_FULL. The SQL service can run under either a built-in system account, such as Network Service because HP Web Jetadmin runs under Network Service, or a domain user account.

The SQL installer asks if Windows Authentication Mode or SQL Server Authentication Mode is to be used.
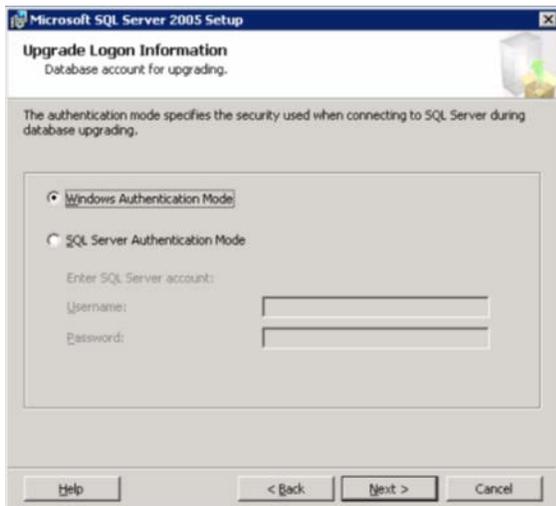
Create a new database

After the installer is completed and a named instance is created, it is time to create a new database for HP Web Jetadmin to use. To create a new database, launch SQL Server Management Studio, and then open the named instance (HPWJA_FULL) that was just created. Right-click the **Databases** folder, select **New Database**, and then enter the database name as **HPWJA**. For SQL Server on the same machine as HP Web Jetadmin, the database name *must* be HPWJA.
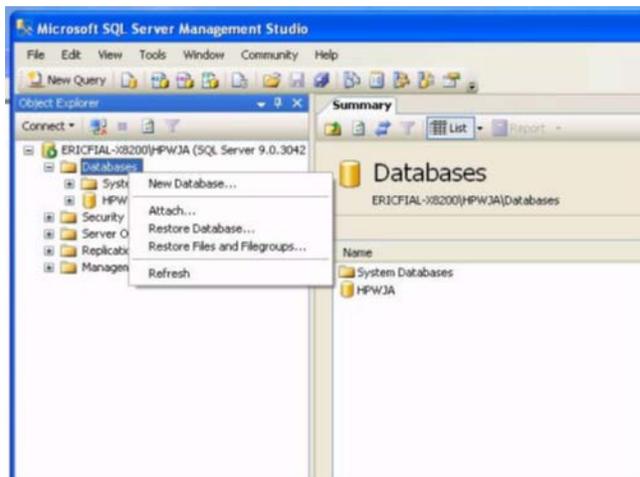
If Windows Authentication was selected, the credentials of the user who is running the HP Web Jetadmin service (Network Service) must have Database Owner (DBO) rights on the database. If SQL Authentication was selected, create a user that has DBO rights on the database, and write down the name and password because they will be used later.

Configure HP Web Jetadmin to use the new database

To configure HP Web Jetadmin to use a new SQL Server database, edit the following file:

C:\Windows\ServiceProfiles\NetworkService\AppData\Local\HP Inc\HPWebJetadmin\WjaService\config\DatabaseSettings.config.xml [2]

Be careful when editing these XML files. Extraneous carriage returns can create problems. Make sure that the carriage returns reside as indicated in the following examples. Typical symptoms that indicate the file has not been edited correctly include the inability to connect to the HP Web Jetadmin server after restarting the service, which occurs because the server cannot connect to the database.

CAUTION: It is imperative that you open the existing file and copy and paste the content as it is displayed here to maintain the user rights. The file must have read/write rights for Network Service in order for HP Web Jetadmin to use the file. If a new file is created instead of opening the existing file, the new file assumes the user's rights. If this happens, HP Web Jetadmin does not attempt to use the new database and defaults to the old database. Make sure that Network Service has read/write rights. Some older versions of HP Web Jetadmin might not contain the DatabaseSettings.config.xml file by default. In this case, you must create the file. Make sure that the rights are assigned as mentioned previously when creating the new file. Also, if file extensions are hidden in Windows Explorer, make sure that the file does not have a .txt or .xml.xml extension. This is a common mistake when using a text editor to create this file.

For SQL Server running on the same machine as HP Web Jetadmin, if Windows Authentication Mode was selected during the SQL installer and HPWJA was specified as the database name, the only required item in this configuration file is the name of the named instance.

```
<ipmc:configuration xmlns:ipmc="www.hp.com/schemas/imaging/ipmc/config/2004/02/24">
    <property name="DatabaseConnectionFactory.CommandTimeoutInSeconds">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value>120</value>
    </property>
```

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[2] For HP Web Jetadmin 10.4 and earlier, the folder name in the installation directory path is *Hewlett Packard*. For HP Web Jetadmin 10.4 SR1 and later, the folder name in the installation directory path has been changed from *Hewlett Packard* to *HP Inc*.

```
        <property name="DatabaseConnectionFactory.InstanceName">
            <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
            <value>HPWJA_FULL</value>
        </property>
    </ipmc:configuration>
```

Copy the content of this example and paste it into the configuration file, replacing HPWJA_FULL with the name of the named instance.

If SQL Authentication was selected during the installation of the instance, add the SQL user credentials that were given DBO rights on the database to the file as follows:

```
<ipmc:configuration xmlns:ipmc="www.hp.com/schemas/imaging/ipmc/config/2004/02/24">
    <property name="DatabaseConnectionFactory.CommandTimeoutInSeconds">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value>120</value>
    </property>
    <property name="DatabaseConnectionFactory.InstanceName">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value>HPWJA_FULL</value>
    </property>
    <property name="DatabaseConnectionFactory.UserName">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value>insert username here</value>
    </property>
    <property name="DatabaseConnectionFactory.PlainTextPassword">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value>insert plain text password here</value>
    </property>
</ipmc:configuration>
```

Restart the HP Web Jetadmin Service

Stop and restart the HP Web Jetadmin Service (HPWJA Service) under **Administrative Tools**, **Services**. If a password was entered in the file, the password is encrypted after the service is restarted for security purposes.

NOTE: The inclusion of a user name and password in this file instructs HP Web Jetadmin to use SQL Authentication. The lack of a user name and password instructs HP Web Jetadmin to use Integrated Security (Windows Authentication). When HP Web Jetadmin and SQL Server are on the same machine, HP Web Jetadmin runs under Network Service and expects Network Service to have DBO rights (or read/write at a minimum) on the database.

If the option to not install a SQL database was used during the installation, after HP Web Jetadmin connects to the SQL database for the first time, many files and directories are created in the same area as where the database.Settings.config.xml file was edited. Launch HP Web Jetadmin to verify that the new blank database is now in use. The **All Devices** list should display zero devices.

Use a remote SQL Server database

The following sections describe the steps required to instruct HP Web Jetadmin to use a SQL Server database that resides on a different machine than the HP Web Jetadmin installation. For versions of HP Web Jetadmin prior to 10.3 SR3, an optional license must be installed in HP Web Jetadmin before the use of a SQL Server database on a separate server is allowed. For instructions on installing the optional license, see Appendix A— Install the license for the Database Connectivity Module for HP Web Jetadmin 10.3 SR3 and earlier on page 32. HP Web Jetadmin 10.3 SR3 and later no longer requires a license to be installed to use a remote SQL database.

Create a named or default instance

Both a named and default instance are supported when instructing HP Web Jetadmin to use a remote SQL Server database. Therefore, remember which instance is chosen because HP Web Jetadmin must be instructed later whether to use a named or default instance. The SQL service can run under either a built-in system account, such as Network Service because HP Web Jetadmin runs under Network Service, or a domain user account.

For SQL Server running on a remote machine, either SQL Server Authentication or Windows Authentication can be used. Select the authentication mode.
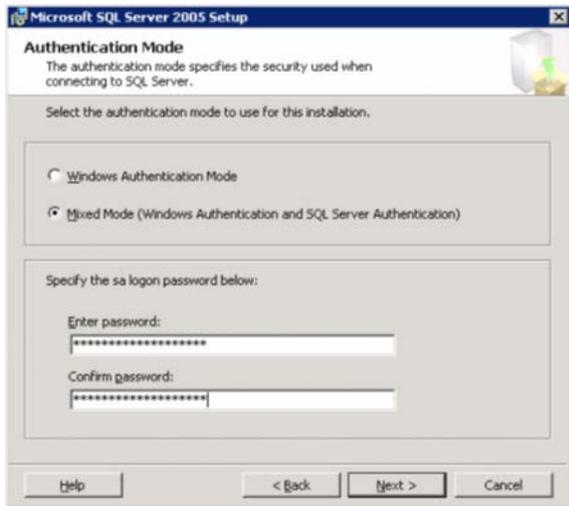
After the instance is configured, a new database for HP Web Jetadmin to use must be used. To create a new database, launch SQL Server Management Studio, and then open the instance (default or named) that was just configured for HP Web Jetadmin use. Right-click the **Databases** folder, select **New Database**, and then enter a database name. When using a remote SQL Server, you can use any database name that you want. However, it is quite common to use the name HPWJA for the database.
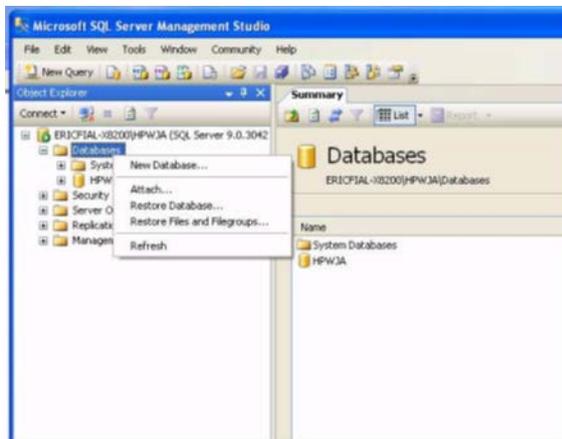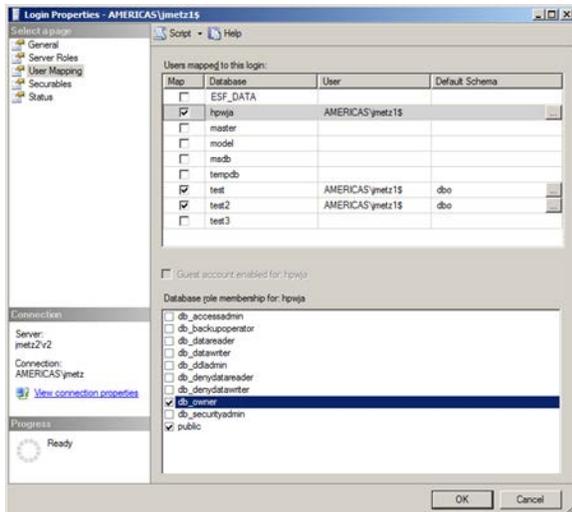

SQL Authentication

If SQL Authentication was selected, create a user and make sure that user has DBO rights (or read/write/execute at a minimum, see Database rights on page 20) on the database.

Windows Authentication

If Windows Authentication was selected, the user who is running the HP Web Jetadmin service must have DBO rights (or read/write/execute at a minimum, see Database rights on page 20). By default, HP Web Jetadmin runs under Network Service, but the HPWJA service only identifies itself locally as a network service. When Windows Authentication (Integrated Security) is used, HP Web Jetadmin identifies itself remotely as **Domain\Machine$**. In this case, create a new login under **Security**, **Logins**, and make sure that the **Domain\Machine$** account (where Machine$ is the name of the HP Web Jetadmin machine followed by a dollar sign) has DBO rights (or read/write/execute at a minimum, see Database rights on page 20) on the HP Web Jetadmin database under **User Mapping**.

IMPORTANT: To use a Windows User account instead of a Windows Machine account, the properties of the HP Web Jetadmin service must be changed from Network Service to the Windows User account. After that is done, HP Web Jetadmin identifies itself to the remote SQL Server as the Windows User account. Therefore, make sure that the Windows User account has DBO rights (or read/write/execute at a minimum, see Database rights on page 20) on the database. Remember, encrypted data, such as global credentials, are locked to the user/machine account and must be re-entered.

Now SQL Server is prepared for HP Web Jetadmin to begin using it. The next step involves instructing HP Web Jetadmin to use this new database.

Configure HP Web Jetadmin to use the new database

The final step in configuring HP Web Jetadmin to use a new SQL Server database is to edit the DatabaseSettings.config.xml file to instruct HP Web Jetadmin where to look for the SQL database and how to log in. These instructions are different for SQL Authentication and Windows Authentication.

SQL Authentication

Because HP Web Jetadmin runs under Network Service for SQL Authentication, edit the following file:

C:\Windows\ServiceProfiles\NetworkService\AppData\Local\HP Inc\HPWebJetadmin\WjaService\config\DatabaseSettings.config.xml [3]

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[3] For HP Web Jetadmin 10.4 and earlier, the folder name in the installation directory path is *Hewlett Packard*. For HP Web Jetadmin 10.4 SR1 and later, the folder name in the installation directory path has been changed from *Hewlett Packard* to *HP Inc.*

Be careful when editing these XML files. Extraneous carriage returns can create problems. Make sure that the carriage returns reside as indicated in the following examples. Typical symptoms that indicate the file has not been edited correctly include the inability to connect to the HP Web Jetadmin server after restarting the service, which occurs because the server cannot connect to the database.

CAUTION: It is imperative that you open the existing file and copy and paste the content as it is displayed here to maintain the user rights. The file must have read/write rights for Network Service in order for HP Web Jetadmin to use it. If a new file is created instead of opening the existing file, the new file assumes the user's rights. If this happens, HP Web Jetadmin does not attempt to use the new database and defaults to the old database. Make sure that Network Service has read/write rights. Some older versions of HP Web Jetadmin might not contain the DatabaseSettings.config.xml file by default, and you must create the file. Make sure that the rights are assigned as mentioned previously when creating the new file. Also, if file extensions are hidden in Windows Explorer, make sure that the file does not have a .txt or .xml.xml extension. This is a common mistake when using a text editor to create this file.

```
<ipmc:configuration xmlns:ipmc="www.hp.com/schemas/imaging/ipmc/config/2004/02/24">
    <property name="DatabaseConnectionFactory.CommandTimeoutInSeconds">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value>120</value>
    </property>
    <property name="DatabaseConnectionFactory.MachineName">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value>insert machine name here</value>
    </property>
    <property name="DatabaseConnectionFactory.UserName">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value>insert sql username here</value>
    </property>
    <property name="DatabaseConnectionFactory.PlainTextPassword">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value>insert plain text password here</value>
    </property>
    <property name="DatabaseConnectionFactory.DefaultInstance">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value></value>
    </property>
    <property name="DatabaseConnectionFactory.CatalogName">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value>insert database name here</value>
    </property>
</ipmc:configuration>
```

Configuration file for remote SQL Server using a default instance and SQL Authentication

NOTE: As the value for the `DefaultInstance` is empty in the above configuration file, the following section can also be removed from the DatabaseSettings.config.xml file.

The following special symbols: `<, >, &, ', "` are used when editing a query in Expert Mode or when manually entering SQL code into XML files between CDATA tags. Hence the same should not be used for creating SQL authentication passwords.

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

<ipmc:configuration xmlns:ipmc="www.hp.com/schemas/imaging/ipmc/config/2004/02/24">
    <property name="DatabaseConnectionFactory.CommandTimeoutInSeconds">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value>120</value>
    </property>
```

```
            <property name="DatabaseConnectionFactory.MachineName">
                <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
                <value>insert machine name here</value>
            </property>
            <property name="DatabaseConnectionFactory.UserName">
                <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
                <value>insert sql username here</value>
            </property>
            <property name="DatabaseConnectionFactory.PlainTextPassword">
                <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
                <value>insert plain text password here</value>
            </property>
            <property name="DatabaseConnectionFactory.InstanceName">
                <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
                <value>insert named instance here</value>
            </property>
            <property name="DatabaseConnectionFactory.CatalogName">
                <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
                <value>insert database name here</value>
            </property>
        </ipmc:configuration>
```

Configuration file for remote SQL Server using a named instance and SQL Authentication

For SQL Authentication, copy the content of these examples and paste it into the configuration file for either a named instance or default instance, replacing the machine name, instance name (only when using named instance), database (catalog), and account credentials with the proper ones. Note that the plain text password is encrypted in this file after the HP Web Jetadmin service is restarted and that the property name is changed from `DatabaseConnectionFactory.PlainTextPassword` to `DatabaseConnectionFactory.Password` so there is no compromise of security. Because a user and password are present in the file, HP Web Jetadmin knows to use SQL Authentication in the connection string to the SQL Server.

If you can connect to the remote database with SQL Management Studio by only providing Server name, Authentication, Login and Password, then the remote SQL Server is configured with a default instance.

Connection to remote SQL Server with a default instance and SQL Authentication

If you can ONLY connect to the remote database with SQL Management Studio by providing Server name\InstanceName, Authentication, Login and Password, then the remote SQL Server is configured with a named instance.

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Connection to remote SQL Server with a named instance and SQL Authentication

Windows Authentication running HP Web Jetadmin services as Network service

Remember that HP Web Jetadmin is identified remotely as `Domain\Machine$` when Windows Authentication (Integrated Security) is used. In this case, make sure that the `Domain\Machine$` account has DBO rights (or read/write/execute at a minimum, see Database rights on page 20) on the database. The DatabaseSettings.config.xml file must be changed to point to the remote database. The default file location is:

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

The required changes in this file are the same changes when running HP Web Jetadmin service as Network service and when running HP Web Jetadmin as a domain user with local admin rights. The changes are listed in Changing DatabaseSettings.xml for Windows Authentication on page 15.

Running HP Web Jetadmin service as a user with local admin rights

IMPORTANT: HP recommends to always run HP Web Jetadmin as a Network Service. When the service is changed from running as Network Service to Domain User, sensitive data could be lost—such as EWS password settings in templates, losing all global credentials. HP Web Jetadmin upgrades are executed with Network Service and require several additional manual steps to prevent data loss. These steps are described in the *HP Web Jetadmin Installation and Setup Guide.*

To use a Windows User account instead of a Windows Machine account, the properties for the HP Web Jetadmin service must be changed from Network Service to the Windows User account. After this is done, HP Web Jetadmin identifies itself to the remote SQL Server as the Windows User account. Therefore, make sure that the Windows User account has DBO rights (or read/write/execute at a minimum, see Database rights on page 20) on the database. Remember, encrypted data, such as global credentials, are locked to the user/machine account and must be re-entered.

When the HP Web Jetadmin service runs under a domain user account instead of Network Service for Windows Authentication and when the HP Web Jetadmin service is started for the first time, crucial HP Web Jetadmin files are copied from the old Network Service location to the new Domain User Account location. It is also possible to copy the files before starting the HP Web Jetadmin service when configured to run as a domain user:

On Windows copy the files and directories from:

C:\Windows\ServiceProfiles\NetworkService\AppData\Local\HP Inc\HPWebJetadmin [4]

To:

C:\Users*user_account*\AppData\Local\HP Inc\HPWebJetadmin [4]

Now that the necessary HP Web Jetadmin files reside under the correct User Account instead of Network Service, edit the following file on Windows:

C:\Users*user_account*\AppData\Local\HP Inc\HPWebJetadmin\WjaService\config\DatabaseSettings.config.xml [5]

The required changes in this file are the same changes when running HP Web Jetadmin service as a Network Service and are listed in the section.

Changing DatabaseSettings.xml for Windows Authentication

Be careful when editing XML files. Extraneous carriage returns can create problems. Make sure that the carriage returns reside as indicated in the following examples. Typical symptoms that indicate the file has not been edited correctly include the inability to connect to the HP Web Jetadmin server after restarting the service, which occurs because the server cannot connect to the database.

CAUTION: It is imperative that you open the existing file and copy and paste the content as it is displayed here to maintain the user rights. The file must have read/write rights for the domain user account that is used to run the HP Web Jetadmin service in order for HP Web Jetadmin to use it. If a new file is created instead of opening the existing file, the new file inherits the user's rights from the user who created the file. If this happens, HP Web Jetadmin does not attempt to use the new database and defaults to the old database. Some older versions of HP Web Jetadmin might not contain the DatabaseSettings.config.xml file by default. In this case, you must create the file. Make sure that the rights are assigned as mentioned previously when creating the new file. Also, if file extensions are hidden in Windows Explorer, make sure that the file does not have a .txt or .xml.xml extension. This is a common mistake when using a text editor to create this file.

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[4] For HP Web Jetadmin 10.4 and earlier, the folder name in the installation directory path is *Hewlett Packard*. For HP Web Jetadmin 10.4 SR1 and later, the folder name in the installation directory path has been changed from *Hewlett Packard* to *HP Inc*.

[5] For HP Web Jetadmin 10.4 and earlier, the folder name in the installation directory path is *Hewlett Packard*. For HP Web Jetadmin 10.4 SR1 and later, the folder name in the installation directory path has been changed from *Hewlett Packard* to *HP Inc*.

For a remote instance of SQL Server, there are several items that must be defined in the configuration file, such as the remote machine name, database name, and named instance.

For Windows Authentication, if you are using a named instance instead, copy the content of the following examples and paste it into the configuration file. Replace the machine name, instance name, and database (catalog). Without a user name and password in the file, HP Web Jetadmin knows to use Integrated Security (Windows Authentication) in the connection string to SQL Server.

For Windows Authentication, if you are using a named instance instead, copy the content of the following example and paste it into the configuration file. Replace the machine name, instance name, and database name (catalog) with the actual values.

```
<ipmc:configuration xmlns:ipmc="www.hp.com/schemas/imaging/ipmc/config/2004/02/24">
  <property name="DatabaseConnectionFactory.CommandTimeoutInSeconds">
      <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
      <value>120</value>
  </property>
  <property name="DatabaseConnectionFactory.MachineName">
      <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
      <value>insert machine name here</value>
  </property>
  <property name="DatabaseConnectionFactory.InstanceName">
      <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
      <value>insert named instance here</value>
  </property>
  <property name="DatabaseConnectionFactory.CatalogName">
      <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
      <value>insert database name here</value>
  </property>
</ipmc:configuration>
```

Configuration file for remote SQL Server using a named instance and Windows Authentication

For Windows Authentication, if you are using a default instance (on a remote SQL server), copy the content of the following example and paste it into the configuration file. Replace the machine name and database name (catalog) with the actual values.

```
ipmc:configuration xmlns:ipmc="www.hp.com/schemas/imaging/ipmc/config/2004/02/24">
  <property name="DatabaseConnectionFactory.CommandTimeoutInSeconds">
      <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
      <value>120</value>
  </property>
  <property name="DatabaseConnectionFactory.MachineName">
      <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
      <value>insert machine name here</value>
  </property>
  <property name="DatabaseConnectionFactory.DefaultInstance">
      <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
      <value></value>
  </property>
  <property name="DatabaseConnectionFactory.CatalogName">
      <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
      <value>insert database name here</value>
  </property>
</ipmc:configuration>
```

Configuration file for remote SQL Server using a default instance and Windows Authentication

Reminder: The same settings in the DatabaseSetttings.xml file are used when running the HP Web Jetadmin service as a network service, or when running the HP Web Jetadmin service as a domain user account. The location of the DatabaseSettings.xml file is different. Also, the account that Web Jetadmin uses to access the

SQL server is different (either the domain machine account, which is **Domain\Machine$** when running HP Web Jetadmin as a network service, or the domain user account when running HP Web Jetadmin as a user account).

NOTE: HP Web Jetadmin is always using the Network Service while upgrading HP Web Jetadmin to a newer version and is identified remotely as **Domain\Machine$**. Make sure that the account **Domain\Machine$** has DBO rights (or read/write/execute at a minimum, see Database rights on page 20) on the Database during an upgrade of HP Web Jetadmin.

For Windows Authentication, if you are using a default instance (on the same server as HP Web Jetadmin), copy the content of the following example and paste it into the configuration file. Replace the database name (catalog) with the actual value.

```
ipmc:configuration xmlns:ipmc="www.hp.com/schemas/imaging/ipmc/config/2004/02/24">
  <property name="DatabaseConnectionFactory.CommandTimeoutInSeconds">
      <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
      <value>120</value>
  </property>
  <property name="DatabaseConnectionFactory.DefaultInstance">
      <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
      <value></value>
  </property>
  <property name="DatabaseConnectionFactory.CatalogName">
      <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
      <value>insert database name here</value>
  </property>
</ipmc:configuration>
```

Configuration file for local SQL Server using a default instance and Windows Authentication

Flow diagram for authentication to SQL server based upon DatabaseSettings.config.xml configuration
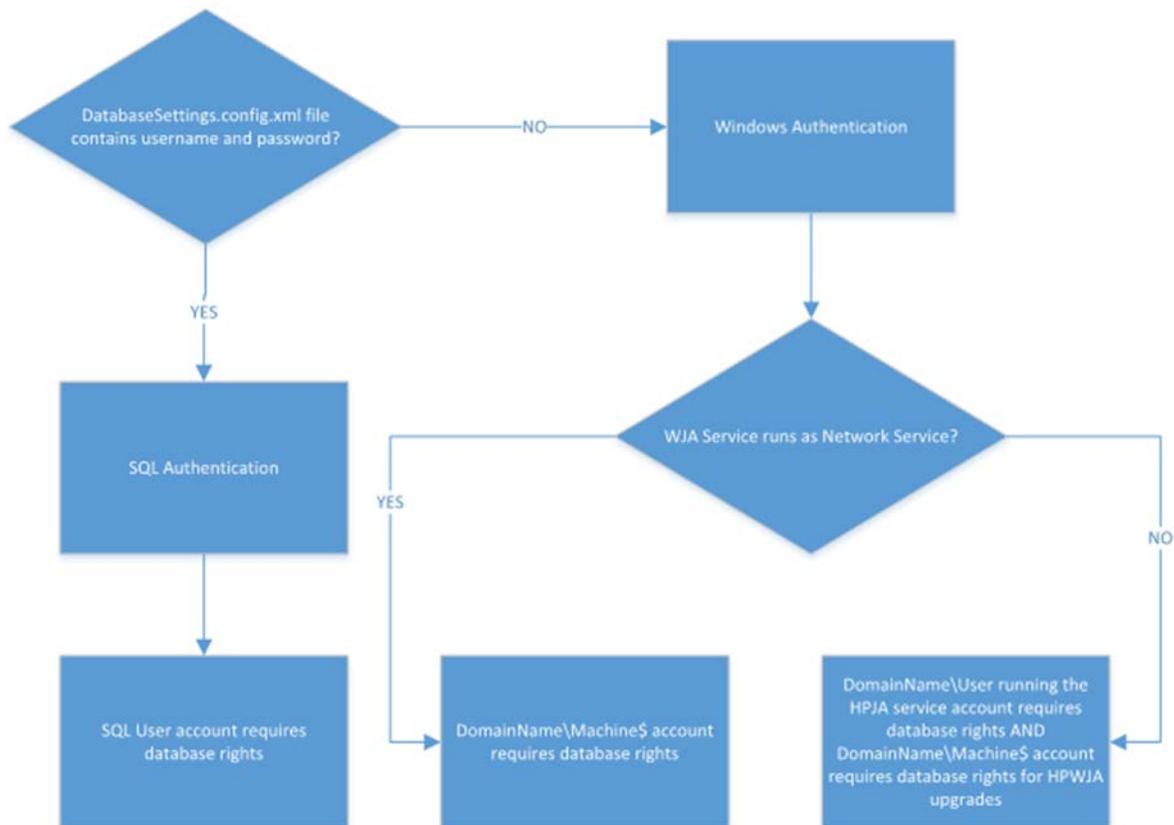
Restart the HP Web Jetadmin service

Stop and restart the HP Web Jetadmin Service (HPWJA Service) under **Administrative Tools**, **Services**.

Launch HP Web Jetadmin to verify that the new blank database is now in use. The **All Devices** list should display zero devices.

IMPORTANT: After the HP Web Jetadmin service is restarted, the plain text password in the configuration file is hashed (grayed) if SQL Authentication is used and the heading of the password section is changed from PlainTextPassword to Password. If the password in the file must be edited, remember to change the heading back to PlainTextPassword for that section. Otherwise, the service will have difficulty connecting to the database. The password is also hashed when passed over the network to log in to the remote SQL database. However, certificates are not used to provide the strongest level of security. Future versions of HP Web Jetadmin might use certificates to provide the strongest level of security possible.

If the option to not install a SQL database was used during installation, after HP Web Jetadmin connects to the SQL database for the first time, many files and directories are created in the same area as where the database.Settings.config.xml file was edited.

Migrate the HP Web Jetadmin database

When HP Web Jetadmin is launched after a successful connection to the remote database, no devices display in the device lists. You can migrate the devices from the previous local database to the new remote database.

Method 1

One technique to migrate the existing HP Web Jetadmin database from the old instance to the new instance involves manually copying the database files from the old location to the new location. Database files are located in the following directory:

C:\Program Files\Microsoft SQL Server\MSSQL.*x*\data (where *x*=1, 2, 3, and so on)

Directories are named MSSQL.1, MSSQL.2, and so on, depending upon how many instances are installed under SQL Server. Locate the directory that contains the HP Web Jetadmin database files named HPJWJA.mdf and HPJWJA_log.ldf. These files must be copied to the same location under the MSSQL.1, MSSQL.2, and other directories for the new instance.

Stop the HP Web Jetadmin service before copying the files. Back up the current blank database files as a precaution. It is very likely that the previous database files must be detached from the old instance before copying them to the new instance. Stopping the SQL Server service should allow the files to be copied.

SQL Server Management Studio can also be used to back up and restore or detach and attach the databases. Stop the HP Web Jetadmin service before copying the files or manipulating the databases in SQL Server Management Studio.

After the files are copied or the database is restored by using SQL Server Management Studio, start the HP Web Jetadmin service and use a client to verify success. Verify that the **All Devices** list contains the same number of devices that HP Web Jetadmin contained before the migration.

Method 2

If the HP Web Jetadmin database was backed up by using the backup.bat script prior to pointing to the new instance and database, SQL Server Management Studio can be used to restore the database from the HPWJA_DB_BACKUP.dat file that was created using the HP Web Jetadmin backup.bat script.

To restore the database using this method, stop the HP Web Jetadmin service under **Administrative Tools**, **Services**. Start SQL Server Management Studio, and connect to the new HPWJA_FULL SQL instance (or the name that was chosen for the new instance). Locate the database catalog named HPWJA listed in the navigation tree under **Databases**. Using the right-click menu, run **Tasks**, **Restore**, **Database**. This launches a dialog for selecting **From Device** as the source of the restore data. Use the dialog launched through the **...** button to navigate to the HPWJA_DB_BACKUP.dat file that the backup.bat script created. After the file is selected in the **Restore Database** dialog, select the **Restore** box in the listing of **...backup sets to restore**. At this point a backup.dat file that is used to restore data from the original database instance to the new database is identified.

The HPWJA_DB_BACKUP.dat file also contains the paths to key database files on the old SQL database instance. These file paths must be changed. The path might be ...\MSSQL.1\Data\... for the initial HP Web Jetadmin SQL database instance. The path might be ...\MSSQL.2\Data\... for the new SQL database created in this procedure. Set the path to the latter in the **SQL Restore Database** dialog. To perform this operation, change the settings page from **General** to **Options**, select the **Overwrite the existing database** check box, and then set the paths listed under **Restore the database file as**. Remember, these paths should be changed from the old SQL instance file paths to the new paths. In this example, the following new paths are used:

C:\Program Files\Microsoft SQL Server\MSSQL.2\MSSQL\Data\HPWJA.mdf

C:\Program Files\Microsoft SQL Server\MSSQL.2\MSSQL\Data\HPWJA_log.ldf
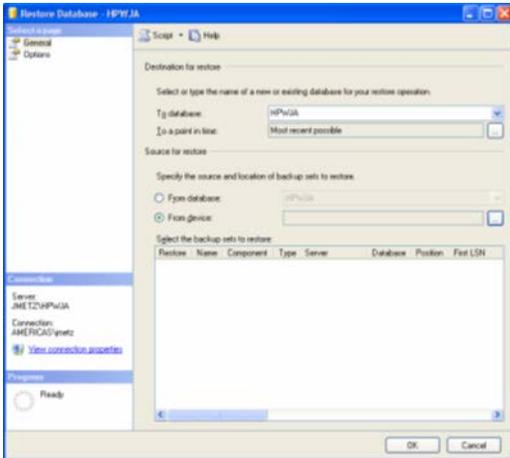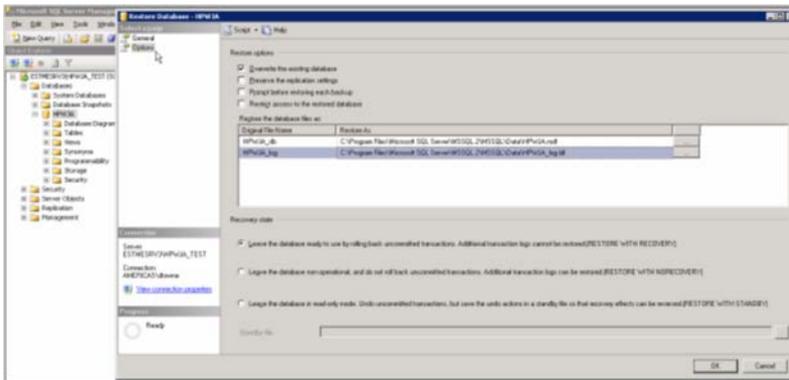
Click **OK** in the **Restore** dialog, and watch the results. The restore runs for some time, depending on the amount of data in the backup file, but should complete with a 100% indication. When the restore is complete, start the HP Web Jetadmin Service, and then use a client to verify that the **All Devices** list contains the same number of devices that HP Web Jetadmin contained when it was originally backed up.

Database rights

HP Web Jetadmin was designed with the expectation that the HPWJA service has complete control over the database it creates (DBO rights). As this document describes, when a remote SQL database is desired, the SQL administrator creates a blank database and provides authentication to the user who is running the HPWJA service to use the database. Because the database is blank, the first time the HPWJA service connects to the database, tables must be created that require elevated rights to create. Therefore, DBO rights on the database are expected so that HP Web Jetadmin can properly set up the database for use. When upgrades are performed on HP Web Jetadmin or Feature Packs are installed, it is not uncommon for schemas to be changed, tables to be created, and so on. Therefore, elevated rights, such as DBO, are expected when upgrades are performed.

DBO rights provide complete control over a single database. Providing DBO rights on the HP Web Jetadmin database does not provide access to any other databases and does not allow any administrative tasks on the SQL instance. DBO right just allow HP Web Jetadmin to perform the tasks it needs to perform on the one database it creates and uses.

That being said, there still might be cases where it is against company policy to assign elevated rights, such as DBO rights, on **any** database that is contained on the company SQL farm. Fortunately, HP Web Jetadmin can run with less than DBO rights after it is installed and the service creates the required tables. However, keep in mind that under some circumstances, which are described in the following, elevated rights might need to be reinstated temporarily to perform certain tasks.

HP Web Jetadmin requires the use of the following SQL operations:

- EXECUTE

- SELECT

- DELETE

- INSERT

- UPDATE

- ALTER (See the following description of when these elevated rights are needed.)

- CREATE TABLE (See the following description of when these elevated rights are needed.)

Therefore, the following minimal rights must be assigned:

- db_datareader – Granted: SELECT

- db_datawriter   – Granted: DELETE, INSERT, UPDATE

- db_ddladmin   – Granted: ALTER, CREATE TABLE

- EXECUTE

Although EXECUTE is not a built-in role, several techniques can be used to assign EXECUTE rights to the HP Web Jetadmin user. A simple script can be run to assign EXECUTE to the user or a new role can be created that applies EXECUTE rights on the database schemas. For more information about applying EXECUTE rights, see the SQL documentation. EXECUTE is required for the Stored Procedures that HP Web Jetadmin runs, especially in the areas of adding and deleting devices. Discoveries can fail without the ability to run these stored procedures.

The db_ddladmin role runs any Data Definition Language (DDL) command in a database. HP Web Jetadmin can use this role for the following:

- The CREATE, DROP, and ALTER commands are required when HP Web Jetadmin is upgraded to a new version or a new Feature Pack is installed. New functionality is added in new versions so schemas change, tables change, new tables are added, and so on.

- These rights might be required the first time a discovery is run if tables must be created. All subsequent discoveries run without the elevated rights.

- These rights might be required the first time a firmware update is performed if tables must be created. All subsequent firmware upgrades run without the elevated rights.

- These rights might be required the first time a data synchronization is performed if tables must be created because no discoveries have been performed, such as on a brand new installation. All subsequent data synchronizations run without the elevated rights.

It is possible that the db_ddladmin role is considered an elevated role and violates company policies. If so, this role must be granted at least temporarily in these cases. Hopefully this role is not considered elevated and can be assigned permanently. If so, DBO rights are likely permanently removed after the installation and the HPWJA service initially creates the tables.

HP recommends granting DBO rights for the HPWJA service to completely control its own database. However, in rare cases where company policy prohibits it, these roles and rights can allow HP Web Jetadmin to run without DBO rights.

Troubleshooting

If HP Web Jetadmin is unable to start after attempting to connect to a new database or the original database continues to appear on startup, use the following troubleshooting steps.

Original database appears on startup

If the original local database still appears on startup, HP Web Jetadmin might not be reading the DatabaseSettings.config.xml file. To confirm that the file is not being read and processed, open the file in a text editor and check the Password section. This section should take the password and encrypt it for security purposes. If the password is still in plain text and the header claims to be PlainTextPassword, the file is not being read. The reasons that the file is not being read include the following:

- The filename is incorrect. The filename might have an .xml.xml or .xml.txt extension. If Windows Explorer is set to hide known extensions, there is a strong chance that the file is named incorrectly and it is not apparent.

- The file might be missing characters, such as the opening character, and HP Web Jetadmin does not recognize it as being a valid file.

- The file might not have the correct rights for HP Web Jetadmin to process the file. It is imperative that you open the existing DatabaseSettings.config.xml file and copy and paste the content as it is displayed in this document to maintain the user rights. The file must have read/write rights for Network Service for HP Web Jetadmin to use the file. If a new file is created instead of opening the existing file, the new file assumes the user's rights. If this happens, HP Web Jetadmin does not attempt to use the new database and defaults to the old database. Make sure that Network Service has read/write rights.

- Verify that the HP Web Jetadmin service was restarted after the configuration file was edited.

Microsoft SQL Server is stopped
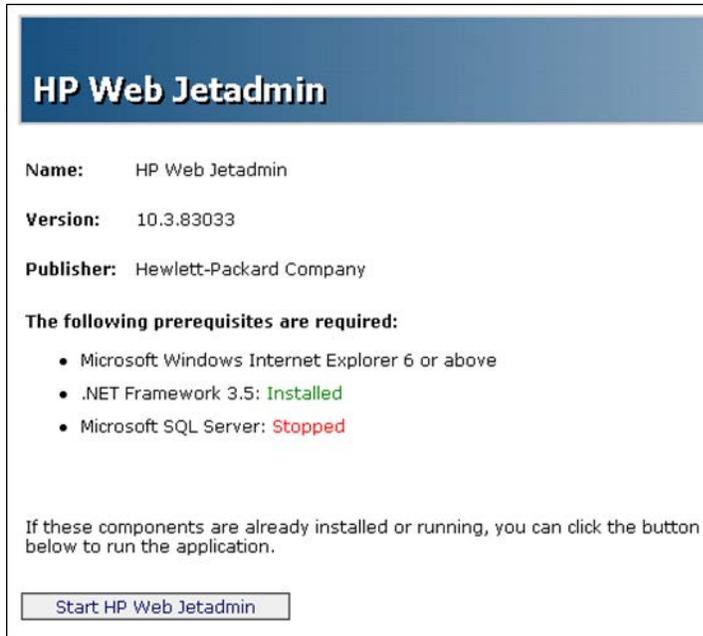
If HP Web Jetadmin indicates that Microsoft SQL Server is Stopped after the HP Web Jetadmin service is restarted, there are issues connecting to the SQL server.

If this occurs right after the initial installation of HP Web Jetadmin, there might be policies or permissions that restrict SQL Server Express from being installed completely. Many times in this scenario, HP Web Jetadmin could not create all of the necessary files in its directories. In this case, try running the command-line installer mentioned previously to bypass the SQL Express database installation. This should ensure that all the HP Web Jetadmin files are present.

This message is also quite common if HP Web Jetadmin was installed from the command line to bypass the SQL Express installation. This message subsequently disappears after the configuration file is edited to point to the remote SQL instance and database and the HP Web Jetadmin service is restarted.

If this issue occurs only after attempting to point to a remote SQL Server, the DatabaseSettings.config.xml file is probably being read, but something is preventing HP Web Jetadmin from connecting to the remote database. For clues on why the connection is failing, check the trace logs in one of the following directories:

C:\Windows\ServiceProfiles\NetworkService\AppData\Local\HP Inc\HPWebJetadmin\WjaService\tracing [6]

C:\Windows\ServiceProfiles\NetworkService\AppData\Local\HP Inc\HPWebJetadmin\WjaService\tracing [6]

The files named HPWJAService-*xxx*.itl (where *xxx* represents a series of numbers) might contain helpful troubleshooting information.

The following are some common conditions and resulting errors in the trace log:

- disabled TCP/IP on the remote SQL server instance – Could not connect to the database.

  Message: A network-related or instance-specific error occurred while establishing a connection to SQL Server. The server was not found or was not accessible. Verify that the instance name is correct and that SQL Server is configured to allow remote connections. (provider: SQL Network Interfaces, error: 28 – Server doesn't support requested protocol)

- wrong server name – Could not connect to the database.

  Message: A network-related or instance-specific error occurred while establishing a connection to SQL Server. The server was not found or was not accessible. Verify that the instance name is correct and SQL Server is configured to allow remote connections. (provider: SQL Network Interfaces, error: 26 – Error Locating Server/Instance Specified)

- wrong instance name – Could not connect to the database.

  Message: A network-related or instance-specific error occurred while establishing a connection to SQL Server. The server was not found or was not accessible. Verify that the instance name is correct and SQL Server is configured to allow remote connections. (provider: SQL Network Interfaces, error: 26 – Error Locating Server/Instance Specified)

- wrong catalog (database) name – Could not connect to the database.

  Message: Cannot open database "hpwja2" requested by the login. The login failed. Login failed for user 'jimesf'.

- wrong user name/password – Could not connect to the database.

  Message: Login failed for user 'jimesf2'. (Notice that the user name is incorrect.)

---

[6] For HP Web Jetadmin 10.4 and earlier, the folder name in the installation directory path is *Hewlett Packard*. For HP Web Jetadmin 10.4 SR1 and later, the folder name in the installation directory path has been changed from *Hewlett Packard* to *HP Inc*.

- no license installed (for versions of HP Web Jetadmin prior to 10.3 SR3) - Could not connect to the database.

  Message: Login failed for user 'jimesf'. (Notice that the user name is correct.)

Another technique for displaying the connection status is to add /instrumentable at the end of the URL used to launch HP Web Jetadmin from a browser. Click **DatabaseManager** to view the connection status.

The following example shows a case where a TCP/IP connection could not be made to the remote SQL Server:

The following example shows a successful connection to a remote SQL Server. Notice that Integrated Security is true in this case, which means that Windows Authentication was used for the Windows machine account.
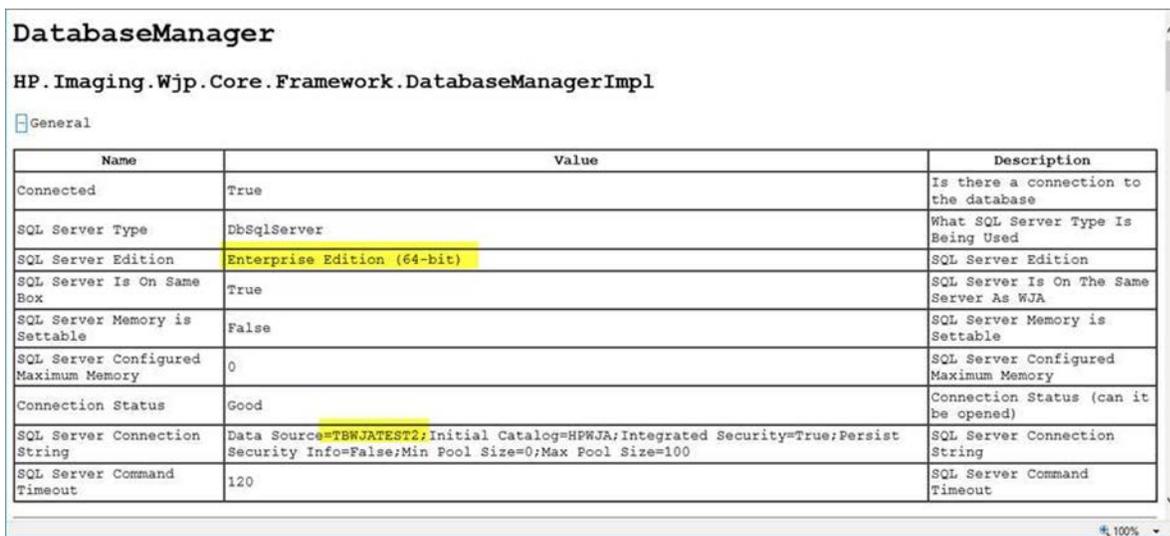
The following example shows a successful connection to a local SQL Server using a named instance.

The following example shows a successful connection to a (local) SQL server using a default instance.

The following are common troubleshooting steps:

1. For remote SQL Server databases on versions of HP Web Jetadmin prior to 10.3 SR3, a license must be installed in HP Web Jetadmin (see Appendix A—Install the license for the Database Connectivity Module for HP Web Jetadmin 10.3 SR3 and earlier on page 32). Even though the license might have been installed previously, the license might need to be reinstalled after HP Web Jetadmin is upgraded to a new version. It is also possible that although License Manager indicates that the license is installed, HP Web Jetadmin is not recognizing the license. A more reliable method for making sure that the license is installed is to go to **Help** > **About** > **Details** in HP Web Jetadmin. Remember to restart the HP Web Jetadmin service after the license is installed.

2. If name resolution issues occur, fully qualify the server name in the configuration file or use the IP address instead of the hostname.

3. If the user password was edited in the configuration because it changed, remember to change the heading back to PlainTextPassword for that section.

4. Use SQL Server Configuration Manager to confirm that TCP/IP is enabled on the remote SQL server.

5. Check the firewall settings to make sure that the port used for the remote connection is open. The default port is 1433, but this port can be changed as described later in this document.

6. SQL Server 2008 R2 defaults to using a dynamic port. Either configure SQL Server to use a fixed port or start the SQL Browser service to allow for remote connections.

7. Confirm that the user HP Web Jetadmin is using to connect to the database has at minimum (or read/write/execute at a minimum, see Database rights on page 20) rights (DBO rights are preferred) on the database. An excellent technique to test that the user login is correct is to use SQL Server Management Studio to log in to the instance. If the same credentials entered in the DatabaseSettings.config.xml file cannot successfully log in to the instance through SQL Server Management Studio, HP Web Jetadmin will have the same problems. One of the following command-line utilities can also be used to determine if the login is correct:

```
osql –U(user name) –P(password) –S(server name\instance)

sqlcmd –U myName –P myPassword –S theServerName\instance
```

If the login succeeds, confirm that the login has the correct rights on the HP Web Jetadmin database.

Change the port used for the remote connection

It is possible to configure HP Web Jetadmin to use a different port to connect to the remote SQL instance instead of the default port of 1433. Security concerns might dictate that a port other than the well-known port 1433 be used. Use the steps in the following sections to change the port.

SQL Server configuration changes

1. Stop the HPWJA Client and Service.

2. Go to **Start** > **Program Files** > **Microsoft SQL Server 2005**, and select **SQL Server Configuration Manager**.

3. Expand **SQL Server 2005 Network Configuration**, and select **Protocols for HPWJA**.
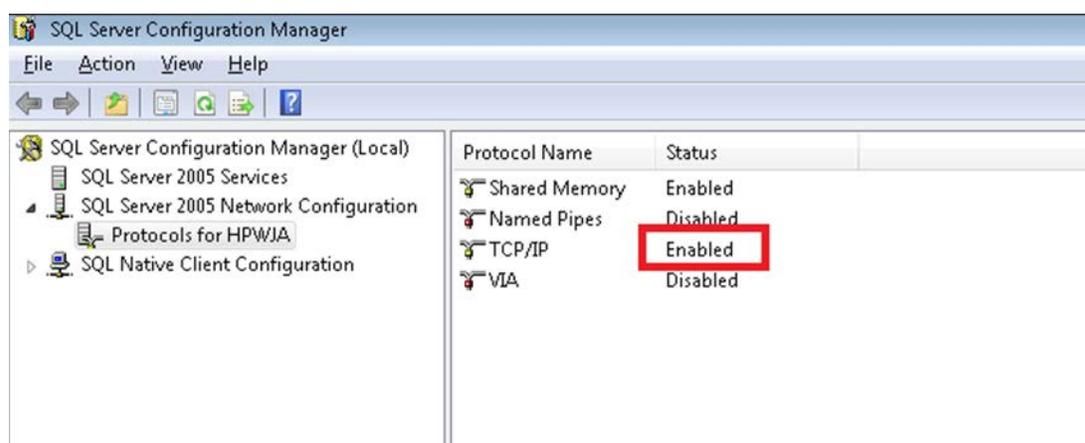
4. Double-click **TCP/IP**, and click the **IP Addresses** tab.

5. Scroll down to the **IP All** group. Remove the value in the **TCP Dynamic Ports** field. Specify the static port in the **TCP Port** field. In the following example, the static port is changed to **1432**.
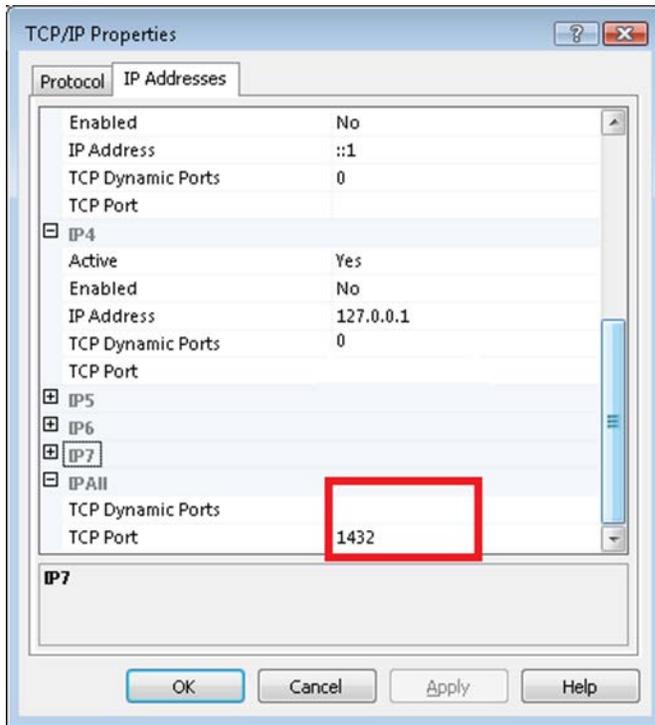
6. After the changes are done, click **OK** or **Apply**.

7. In the warning dialog, confirm the service restart.

8. Restart the SQL Server (HPWJA) service.

HP Web Jetadmin configuration changes

1. Create or open the file DatabaseSettings.config.xml file.

2. Add the following XML block, which deals with the Custom Port Configuration, to the existing configuration settings:

```xml
<property name="DatabaseConnectionFactory.MachinePort">
   <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString
   </type>
   <value>Enter SQL Server Custom/Static Port here</value>
</property>
```

3. Save the file.

4. Start the HPWJA Service.

Firewall settings

Add the defined custom port to the firewall exception list.

Database failover—SQL mirroring

HP Web Jetadmin supports a mirrored configuration for SQL Server 2005 and 2008 by allowing you to add parameters to the DatabaseSettings.config.xml file. However, a clustered configuration for SQL is not supported at this time. The mirrored configuration is supported only if the remote database option is licensed.

The following parameters can be added to the DatabaseSettings.config.xml file to support the failover for mirrored SQL configurations:

- `DatabaseConnectionFactory.FailoverPartner.MachineName`—Specifies the mirror partner for the database.

- `DatabaseConnectionFactory.FailoverPartner.InstanceName`—Specifies the instance name of the mirror partner database

- `DatabaseConnectionFactory.FailoverPartner.DefaultInstance`—Forces the default instance of the mirror partner database to be used.

```
<ipmc:configuration xmlns:ipmc="www.hp.com/schemas/imaging/ipmc/config/2004/02/24">
    <property name="DatabaseConnectionFactory.FailoverPartner.MachineName">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value>db2.SomeDomain.com</value>
    </property>
    <property name="DatabaseConnectionFactory.FailoverPartner.InstanceName">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value>HPWJA_MY_INSTANCE</value>
    </property>
    <property name="DatabaseConnectionFactory.CatalogName">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value>HPWJA</value>
    </property>
    <property name="DatabaseConnectionFactory.InstanceName">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value>HPWJA_MY_INSTANCE</value>
    </property>
    <property name="DatabaseConnectionFactory.MachineName">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value>db1.SomeDomain.com</value>
    </property>
    <property name="DatabaseConnectionFactory.PlainTextPassword">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value>MyPassword</value>
    </property>
    <property name="DatabaseConnectionFactory.UserName">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value>MyDBUser</value>
    </property>
    <property name="DatabaseConnectionFactory.CommandTimeoutInSeconds">
        <type>HP.Imaging.Wjp.Sdk.Core.Framework.ConfigurationItemString</type>
        <value>120</value>
    </property>
</ipmc:configuration>
```

Example of the DatabaseSettings.config.xml file for using a mirrored database

Although HP Web Jetadmin supports database mirroring, the behavior of the HP Web Jetadmin service and connected clients might vary when a failover occurs on the database. The HP Web Jetadmin service might sometimes stop as Microsoft fails over to the alternate database. When a failure with the database connection occurs, Microsoft switches the HP Web Jetadmin database connection to the alternate database and reports the failed database transaction to HP Web Jetadmin with an exception. Depending on where HP Web Jetadmin accesses the database, the exception might cause the HP Web Jetadmin service and attached clients to fail.

HP recommends that you configure the HP Web Jetadmin service to automatically restart after an abnormal termination, such as a failover, so that no manual intervention is required to get the service back up and running again on the new primary database. The service and clients still fail, but only temporarily because the service should be up and running again on its own, and the clients can be restarted.

When a failover occurs, further connection attempts go to the failover partner. If those connection attempts are successful, the service continues to run. If those connection attempts are not successful, the service shuts down. When the service is restarted, the service should function normally if the failover partner node is available. Otherwise waits for a successful database connection before the service comes up all the way.

Performance settings

The following properties can also be set in the DatabaseSettings.config.xml file:

- `DatabaseConnectionFactory.MinimumPoolSize`—Sets the minimum number of connections to the database that are kept open. The default is 0.

- `DatabaseConnectionFactory.MaximumPoolSize`—Sets the maximum number of connections to the database that can be opened. The default is 100.

- `DatabaseConnectionFactory.CommandTimeoutInSeconds`—Sets how long to wait for results to start being returned in a query. The default is 120.

These settings can be used to improve performance when reading from and writing to the database.

Configure the HP Web Jetadmin backup for a remote database

Administrators might want to run scheduled backups of an HP Web Jetadmin installation that points to a remote SQL database. HP Web Jetadmin provides scripts to back up the default SQL Server Express database instance that is installed with the base product. The script also backs up the HP Web Jetadmin configuration settings.

If the backup and restore scripts from the HP Web Jetadmin installation directory (WJABackupRestore directory) were used previously to back up the local HP Web Jetadmin installation, you might need to consider the following options to make sure that the remote SQL database is backed up:

- **Option 1**—Do not use HP Web Jetadmin to back up and restore the remote SQL database. There might already be other processes in place for backing up the remote SQL database and the HP Web Jetadmin settings directory. In this case, the HP Web Jetadmin script is not required.

- **Option 2**—Continue to use the HP Web Jetadmin backup script, but remove or comment out the lines in the script that back up the remote SQL database. This allows the script to continue backing up the HP Web Jetadmin settings directory. There might already be other processes in place for backing up the remote SQL database. In this case, you do not need to use HP Web Jetadmin to back up the remote SQL database.

- **Option 3**—Modify the HP Web Jetadmin script to back up the remote SQL database as well as the HP Web Jetadmin settings directory. The lines in the scripts that back up the default SQL Server Express database instance can be replaced with custom commands that back up the remote SQL database. For example, the HP Web Jetadmin backup.bat file runs the following SQL script on the same machine to back up the database:

```
%OSQL% -S localhost\HPWJA -E -i osql_backup.sql > osql_backup.log
```

To run the script on the remote SQL server, change this line to the following:

```
%OSQL% -H wksta_server -S SQL_server\Instance -U user -P password -i osql_backup.sql > osql_backup.log
```

The following SQL script backs up a database named HPWJA to the specified DRIVE:\:

```
BACKUP DATABASE HPWJA TO DISK = 'DRIVE:\HPWJA_DB_BACKUP\HPWJA_DB_BACKUP.dat'
```

To back up any database name to a shared UNC path, change this line to the following:

```
BACKUP DATABASE database_name TO DISK = '\\WJA
_server\shared_directory\HPWJA_DB_BACKUP\HPWJA_DB_BACKUP.dat'
```

The backup.bat file creates a temporary directory to write the .dat file, and then removes the temporary directory after the .dat file is copied to the Program Files location. Because the backup.bat file looks for the .dat file in this temporary directory and it is impossible to share out this temporary directory because it does not always exist, an additional permanent directory can be created and shared. The SQL script can be modified by adding an additional line to the backup.bat file to copy the .dat file from this shared directory to the HP Web Jetadmin temporary directory. Now the backup.bat script is never disrupted and can continue from that point.

Summary

An existing installation of HP Web Jetadmin can be configured to use SQL Server instead of SQL Express for the database. For example, it might be more convenient for HP Web Jetadmin to use SQL Server because it is already installed or to avoid the SQL Express 4 GB database limitation.

Appendix A—Install the license for the Database Connectivity Module for HP Web Jetadmin 10.3 SR3 and earlier

A license for the Database Connectivity Module must be installed in HP Web Jetadmin to unlock the ability to attach to a remote SQL Server database for versions of HP Web Jetadmin prior to 10.3 SR3. The licenses are node-locked to an IP address. A separate license is required for each HP Web Jetadmin server. An order number is supplied when you request a license from HP. This order number is used to generate the actual licenses during the licensing process describe in the following section. License versions must match the appropriate HP Web Jetadmin server version.

IMPORTANT: HP Web Jetadmin 10.2 SR1 (10.2.62227) or later is **required** for the license to install successfully.

License process

1. Browse to www.hp.com/go/webjetadmin.
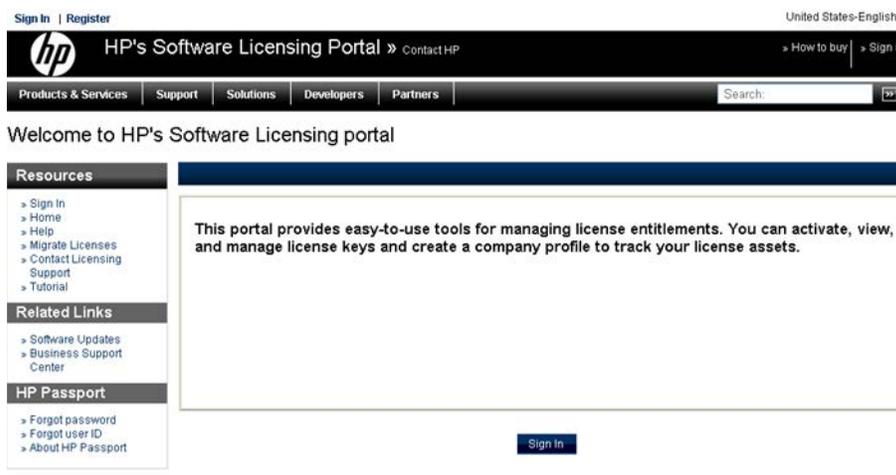
2. Click the **Web Jetadmin Extended Modules** link, follow the instructions on the screen, and click **Finish**.

3. When the registration is complete, a license number is returned. Copy that license number using CTRL+C.

4. Go to Windows **Start** > **Programs** > **HP Web Jetadmin 10**. Right-click **HP Web Jetadmin License Manager**, and select **Run as administrator**.

5. Click **Add**.

6. On the **Enter License** window, paste the license number in the **License Key** box, and click **Apply**. The license is installed and displayed in the **License Manager** window.
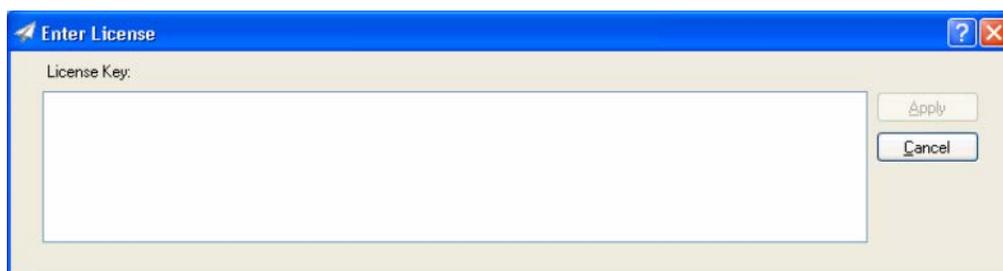
7. Restart the HP Web Jetadmin service (HPWJA Service).

The features of the Database Connectivity Module are now activated.