



# Pentaho Business Analytics Graphical Installer Guide



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# Contents

Installation Overview.....	4
The Pentaho Directory Structure: Graphical Installer.....	6
Installation Checklist.....	8
Prerequisites.....	9
Obtaining the Pentaho Business Analytics Graphical Installer.....	10
How to Check Your Java Version.....	10
Graphical Installer Procedures.....	11
Installing on Linux.....	11
Local User Accounts on Linux.....	11
Using the Graphical Installer on Linux.....	12
Preparing a Headless Linux or Solaris Server.....	13
Starting the Servers At Boot Time On Linux.....	13
Using the Graphical Installer on Mac Operating Systems.....	14
Using the Graphical Installer on Windows Operating Systems.....	15
Installing an Enterprise Edition Key on Linux (CLI).....	16
Installing an Enterprise Edition Key on Windows (CLI).....	17
Installing the Analysis Enterprise Edition Plugin.....	17
Switching to Memcached.....	18
Adding Linux and OS X Support for Printing Analyzer Geo Maps.....	19
Adding Windows Support for Printing Analyzer Geo Maps.....	19
Workstation Installation Procedure.....	20
Testing and Using Your Server.....	20
Post-install Configurations.....	21
Creating Directories and Accounts.....	21
Master Service Control Scripts From the Graphical Installer.....	27
Default Pentaho Business Analytics Port Numbers.....	28
Uninstalling Pentaho Business Analytics.....	29
Compatibility Matrix: Supported Components.....	30
JDBC Drivers.....	34
Troubleshooting.....	53
Evaluation Licenses are Not Granted.....	53
Mac OSX Error When Running Apps.....	54

# Installation Overview

Pentaho provides several installation paths to address a variety of computing environment requirements. These instructions show you how to install Pentaho Business Analytics. They will also inform you of the products provided by Pentaho and the software and data sources you must supply. Typically, the Business Analytics and Data Integration Server, as well as the Pentaho Enterprise Console will go on the server, and each workstation will have its own copy of the tools and plugins.

Use this guide if you prefer to ...

- Install using a graphical installer
- Install quickly and/or for evaluation purposes
- Use the default PostgreSQL database
- Use the Tomcat application server

Or, if you would rather ...

- Use your own application server
- Implement single sign-on through a Central Authentication Service

Use the *Archive-based Installation Guide*.

Alternatively, if you prefer to ...

- Use your own application server
- Implement single sign-on through a Central Authentication Service

Use the *Pentaho BA Server Manual Deployment Guide*

To ensure that your installation goes smoothly, refer to the *Compatibility Matrix: Supported Components* for details about the versions of databases, application servers, software, and browsers that are compatible with Pentaho Business Analytics Enterprise Edition.

## Components

This table shows the products included in the graphical installation and the databases and software you must supply on your own.

Included in The Pentaho Business Analytics Graphical Installation	You Must Supply
<b>Application server:</b> Tomcat <b>Solution database:</b> PostgreSQL <b>BA Server:</b> <ul style="list-style-type: none"> <li>• Pentaho User Console</li> <li>• Analyzer</li> <li>• Dashboard Designer</li> <li>• Interactive Reporting</li> <li>• Pentaho Enterprise Console</li> <li>• Mobile</li> </ul> <b>Design tools:</b> <ul style="list-style-type: none"> <li>• Schema Workbench</li> <li>• Pentaho Data Integration</li> <li>• Metadata Editor</li> <li>• Report Designer</li> <li>• Design Studio</li> <li>• Aggregation Designer</li> </ul> <b>Data Integration (DI) Server</b> <b>Hadoop support for PDI</b>	<b>A supported operating system:</b> <ul style="list-style-type: none"> <li>• Linux</li> <li>• Windows</li> <li>• Mac OS</li> </ul> <b>One or more data sources:</b> <ul style="list-style-type: none"> <li>• Any JDBC-compliant database</li> <li>• A spreadsheet</li> <li>• A flat file containing comma-separated values</li> </ul>

Included in The Pentaho Business Analytics Graphical Installation	You Must Supply
<b>Hive support for Pentaho Metadata</b> <b>A Sun JRE</b> on the server, and on each workstation that you will install data preparation or design tools to	

# The Pentaho Directory Structure: Graphical Installer

## Overview

The Pentaho Business Analytics installer lays down a specific directory structure for Pentaho software. Below is a diagram showing the entire structure, though your specific installation will be different if you only install parts of Pentaho Business Analytics.



**Note:** This structure differs slightly from an archive-based installation or manual deployment. The graphical installer includes a Java Runtime Environment and some service control scripts.

## Directory hierarchy

Below is an abridged Pentaho directory structure. The purpose of this diagram is to help you easily find some of Pentaho's important files and locations, which are explained below this diagram.

```
/pentaho
../server
../.../biserver-ee
../.../data
../.../licenses
../.../pentaho-solutions
../.../tomcat
../.../data-integration-server
../.../data
../.../licenses
../.../pentaho-solutions
../.../tomcat
../.../enterprise-console
../design-tools
../.../aggregation-designer
../.../data-integration
../.../design-studio
../.../metadata-editor
../.../report-designer
../.../schema-workbench
../common
../documentation
../java
../licenses
../postgresql
../scripts
```

## Top-level files

These files are found in the top-level Pentaho directory:

- **ctlscript:** (.sh or .bat) Starts, stops, restarts, and shows the status of Pentaho services.
- **installation-summary.txt:** Contains the information from the summary screen at the end of the installation process.
- **pentaho.log:** The Tomcat log file for the Pentaho Web application.
- **uninstall:** A script that removes Pentaho Business Analytics.

## Locations of specific programs

- **BA Server:** /pentaho/server/biserver-ee/
- **DI Server:** /pentaho/server/data-integration-server/
- **Pentaho Enterprise Console:** /pentaho/server/enterprise-console/
- **Report Designer:** /pentaho/design-tools/report-designer/
- **Schema Workbench:** /pentaho/design-tools/schema-workbench/
- **Data Integration (PDI):** /pentaho/design-tools/data-integration/
- **Design Studio:** /pentaho/design-tools/design-studio/
- **Metadata Editor:** /pentaho/design-tools/metadata-editor/
- **Aggregation Designer:** /pentaho/design-tools/aggregation-designer/

- **Dashboard Designer:** /pentaho/server/biserver-ee/pentaho-solutions/system/dashboards/
- **Analyzer:** /pentaho/server/biserver-ee/pentaho-solutions/system/analyzer/
- **Interactive Reporting:** /pentaho/server/biserver-ee/pentaho-solutions/system/pentaho-interactive-reporting/
- **License installer:** /pentaho/server/enterprise-console/license-installer/
- **Pentaho Mobile:** /pentaho/server/biserver-ee/pentaho-solutions/system/pentaho-interactive-reporting/Pentaho-mobile-plugin



**Note:** The license installer can also be found in the report-designer, data-integration, and metadata-editor directories. All of these license installers perform the same functions, but are available in separate places to account for instances where only specific parts of Pentaho Business Analytics are installed to a particular machine. It does not matter which one you use. You can also install licenses through the Pentaho Enterprise Console.

# Installation Checklist

The Installation Checklist is a concise list of instructions intended to show a high-level overview of the installation and configuration process. It also serves as a quick reference for administrators and developers who have performed several installations in the past and only need a brief rehash of the necessary steps. If you need more details than are provided in this checklist, consult the appropriate section in the verbose instruction set that comprises the rest of this guide.

Step	Procedure	Done
Step 1	Download Pentaho Business Analytics 4.5 .exe, .bin, or .app installer from the Pentaho Customer Support Portal. Check your Java version if necessary.	
Step 2	If you are installing the BA Server and DI Server on Linux, create a local user account called <b>pentaho</b> , then switch to that user and run the Pentaho Business Analytics installation utility from it. If you are installing one or both of the servers on a Windows system, ensure you are logged in as the <b>Administrator</b> user.	
Step 3	Use the graphical installer to install the BA Server, DI Server, and the Pentaho Enterprise Console on the machine that will act as your server.	
Step 5	Log into the Pentaho Enterprise Console, which by default is located at <code>http://localhost:8088</code> to install Enterprise Edition keys, and establish users, roles, data sources, and any other configuration information.	
Step 6	Add support for printing Analyzer Geo Maps.	
Step 7	Run the Pentaho Business Analytics installer on each workstation, and install any client tools that you have licenses for.	
Step 8	Test the installation by accessing the BA Server from a workstation and verifying that you can log in as a normal user, and create reports and analysis views. Also access the DI Server from a Pentaho Data Integration workstation and ensure that you can create or connect to an enterprise repository.	
Step 9	You may perform post-install configuration, such creating directories and accounts, removing pentaho sample data, etc.	



## Prerequisites

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In order to install Pentaho Business Analytics, you must be very familiar with technical concepts.

- You must be familiar with system administration operations pertaining to network services, including modifying your firewall to open specific ports, and adding services to the system startup and shutdown scripts.
- You must feel comfortable using the operating system command line interface and/or graphical system administration tools.
- You or a system administrator must have the ability to install software, open firewall ports, and start and stop system services on the machine you are installing on.

Installing Pentaho Business Analytics client tools onto end-user workstations is a much simpler process which requires running the graphical installation utility and customizing it slightly to fit your needs.

# Obtaining the Pentaho Business Analytics Graphical Installer

---

Consult the Welcome Kit email that was sent to you after completing the sales process. This email contains user credentials for the Pentaho Customer Support Portal, and download instructions that tell you where to find the installer once you've logged in. There are self-contained installation utilities available for the Windows, Linux, and OS X platforms. You will use the same installation utility to install the BA Server, DI Server, and Pentaho Enterprise Console on your server, and the Pentaho client tools on your end-user workstations.

## How to Check Your Java Version

---

Pentaho Business Analytics requires a Java Runtime Environment (JRE) or Java Development Kit (JDK). Follow this procedure to see which version of Java is installed on your system and configured to be the default Java executable. There may be multiple JREs or JDKs on your system, but only one can be set as the global default. If a particular JRE or JDK is not specified by an application on startup, the default is used. Pentaho establishes a specific system variable named **PENTAHO\_JAVA\_HOME** to declare which Java instance it will use.

1. Open a terminal or command prompt window.
2. Type this command in: **java -version** and press **Enter**.

Along with the Java version, the bit-ness, 32-bit or 64-bit, and patch level also shows in the output. For example ...

```
java version "1.6.0_21"  
Java(TM) SE Runtime Environment (build 1.6.0_21-b06)  
Java HotSpot(TM) 64-Bit Server VM (build 17.0-b16, mixed mode)
```

# Graphical Installer Procedures

To install and configure the Pentaho BA Server, DI Server, and Pentaho Enterprise Console from the Pentaho Business Analytics installer, follow all procedures in the order they are presented. Do not use the following characters in passwords: ' " & < > \ ` . The installation utility is unable to process these characters.

**If upgrading, ensure previous versions have been uninstalled to avoid errors.**

## Installing on Linux

The licensing technology in the BA Server requires that you take all of the steps below to ensure that all system users have access to content and tools through the Pentaho User Console. If you used the graphical installation utility to evaluate the Pentaho Business Analytics on Linux before you purchased a subscription, you did not have to establish a new user account or worry much about licensing. However, the procedure is more involved on a production server, where more than one user will be accessing the Pentaho User Console or managing BA Server licenses.



**Note:** Pentaho strongly discourages administrators from installing to the `/opt/` directory due to its complicated permissions requirements and general isolation from the rest of the system.

## Local User Accounts on Linux

If you create a new local user account called **pentaho** as described in *Creating a Pentaho System User (Linux/Solaris)*, you must put the `pentaho-solutions` directory and store license information recorded by the Pentaho Enterprise Console in that directory. You must also adjust your `init` scripts to start your Web application server (which will run the BA Server) and the Pentaho Enterprise Console as this user. If you are unable to do this, you must modify the instructions in the rest of this guide to support your own custom user and directory configuration.

If you do not run the Pentaho Enterprise Console and the application server that runs the BA Server as the same system user, the BA Server will not be able to find the appropriate license information and will not operate with full functionality. If you need to launch the Pentaho Enterprise Console and the BA Server as separate users or services, you will have to set a **-D** parameter in your web application server's service configuration or startup scripts to specify a static location for your Pentaho license file. The Java parameter is **-Dpentaho.installed.licenses.file=/pentaho/.installedLicenses.xml**, though you will need to change this example to match your configuration.

### Creating a Pentaho System User on Linux

You may be able to use a different local user account, however you will have to modify all of the instructions to match that configuration.

Pentaho licenses are installed to an XML file in the home directory of the user that starts the Pentaho Enterprise Console. While you can use any system user to install licenses, it is easier to create a new user to start and stop the Pentaho Enterprise Console, and to install and update licenses with.

1. Open a local terminal on, or an OpenSSH session to the server you are hosting the BA Server on.

```
ssh pgibbons@192.168.1.133
```

2. With root permissions, create a new user account called **pentaho**.

Bash is not a requirement, but it is typically the shell that Linux users want to standardize on. On many Linux distributions, the default new user shell is `/bin/sh` or some equivalent (such as Dash) that may not use the `~/.bashrc` configuration file that you will work with later. If you don't have or want to use Bash, adjust the instructions throughout this guide accordingly.

```
sudo useradd -s /bin/bash -m pentaho
```

3. Set a password for the `pentaho` user (note that when using the **sudo** command, you must first supply the root password).

```
sudo passwd pentaho
```

4. Verify that you can log in using the credentials you specified.

```
su pentaho -
```

You now have a user account created specifically for running the BA Server and controlling Pentaho Enterprise Console start and stop scripts. You should stay logged into this new account to create the pentaho directory and perform all other installation tasks that do not explicitly require root access.

You must use this new user account for starting and stopping the Pentaho Enterprise Console, and for installing and updating licenses if you use the command line tool to manage them instead of the graphical interface in Pentaho Enterprise Console. If you create any RC or init scripts to start Pentaho Enterprise Console automatically at boot time, then you will have to write those scripts such that they start the service with the **pentaho** user credentials.

## Using the Graphical Installer on Linux



**Note:** Ensure that your shared memory settings are set as described in <http://www.postgresql.org/docs/devel/static/kernel-resources.html>. PostgreSQL may fail to start up if the kernel shared memory settings are too low.



**Important:** If you do not have an X server installed, you can run the installation utility in text mode by invoking the **--mode text** switch. You can also perform the installation on a Linux workstation, then transfer over the `/pentaho/` and `~/pentaho/` directories to your server after installation.



**Note:** The installation utility's graphical mode defaults to the GTK graphics toolkit. If you do not have the requisite GTK libraries on your system, you can run the installer with the **--mode xwindow** switch to use OpenMotif instead.

Follow these step-by-step instructions for using the installer. You may need to adjust the instructions for your specific situation.

1. Open a terminal window.
2. If it is not already there, copy the installation utility to the **pentaho** home directory.

```
cp /home/rwilco/Desktop/pentaho-bi-suite-4.8.0-GA-i386.bin /home/pentaho/
```

3. Switch to the **pentaho** user account.

```
su pentaho -
```

4. Set execute permissions on the installation utility.

```
chmod +x ./pentaho-bi-suite-4.8.0-GA-i386.bin
```

5. Run the installation utility.

```
/home/rwilco/Desktop/pentaho-bi-suite-4.8.0-GA-i386.bin
```

6. When the installation utility starts, you'll see a Pentaho splash screen. Click Next.
7. Accept the license agreement to continue.
8. When prompted for which setup type you'd like to perform, select **Default** if you want to install the entire Pentaho Business Analytics on one machine, or **Custom** if you only want to install selected components. If you selected Custom, you'll be asked which Pentaho applications you want to install. For a server installation, uncheck all options except **BA Server** and **Data Integration Server**. If you have any of the following licensed, you may check these options at this time.
  - a) For **Pentaho Dashboards Enterprise Edition**, check **Dashboard Designer**.
  - b) For **Pentaho Analysis Enterprise Edition**, check **Pentaho Analyzer**.
  - c) For **Pentaho Mobile Enterprise Edition**, check **Pentaho Mobile**.
  - d) For **Pentaho Interactive Reporting Enterprise Edition**, check **Interactive Reporting**

If you do not have the requisite licenses, the additions mentioned above will not work, but they will appear in your Pentaho User Console. There is no direct harm in installing these plugins if you do not have the licenses. However, you will have disabled features in the Pentaho User Console. If necessary, it is possible to install these plugins later by using archive packages.

9. If you selected Custom, then you'll be asked if you would like to install the Pentaho sample data. Select **No** if this is a production installation.  
The sample data is useful for testing and evaluating Pentaho Business Analytics, but is probably not necessary for a production environment.
10. Next, you'll be asked to choose a directory to install to. You may select a new path, but for documentation continuity and support purposes, you should leave the actual directory name alone. The default directory is `~/pentaho/`

You cannot install into a directory that already exists.

11. In the next screen, type in a master password for the solution repository, Enterprise Console admin user, and the BA Server publish function.

Pentaho Business Analytics installer provides a PostgreSQL database to store your reports and analysis views. The root password is for the internal database root user, not the global system root (administrator) user. The admin password is for the Pentaho Enterprise Console (username **admin**). The publish password is used whenever you publish content from a workstation (via Pentaho design tools) to the BA Server.

12. Optional: If any of the default Pentaho BA and DI Server ports (**8088, 8080, 8012, 9092, 9080, 8443, 8143, and 5432**) are not available on your system, the default numbers will increment by one until an available port is found.
13. If you chose a custom installation, a summary screen will show you an overview of which of the Pentaho Business Analytics components you've chosen to install, and the ports that all of the necessary services will run on. Click **Next** to leave this screen, then **Next** again to commence installation. If you chose the default installation, you only have to click **Next** once here.

Once the installation wizard is complete, the BA Server and DI Server should be up and running with default parameters. You have the option of viewing an installation summary and starting the Pentaho User Console during the last step of the installation process. If you choose to go to the Pentaho User Console, your default Web browser will open and display the BA Server login screen.

## Preparing a Headless Linux or Solaris Server

There are two headless server scenarios that require special procedures on Linux and Solaris systems. One is for a system that has no video card; the other is for a system that has a video card, but does not have an X server installed. In some situations -- particularly if your server doesn't have a video card -- you will have to perform both procedures in order to properly generate reports with the BA Server.

### Systems without video cards

The **java.awt.headless** option enables systems without video output and/or human input hardware to execute operations that require them. To set this application server option when the BA Server starts, open the `/pentaho/server/biserver-ee/start-pentaho.sh` script with a text editor, then add the following item to the list of CATALINA\_OPTS parameters: **-Djava.awt.headless=true**.

The entire line should look something like this:

```
export CATALINA_OPTS="-Djava.awt.headless=true -Xms256m -Xmx768m -XX:MaxPermSize=256m
-Dsun.rmi.dgc.client.gcInterval=3600000 -Dsun.rmi.dgc.server.gcInterval=3600000"
```



**Note:** If you do not have an X server installed, you must also follow the below instructions.

### Systems without X11

In order to generate charts, the Pentaho Reporting engine requires functionality found in X11. If you are unwilling or unable to install an X server, you can install the **xvfb** package instead. The **xvfb** package provides X11 framebuffer emulation, which performs all graphical operations in memory instead of sending them to the screen.

Use your operating system's package manager to properly install xvfb.

## Starting the Servers At Boot Time On Linux

This procedure assumes that you will be running your BA Server, DI Server, and Pentaho Enterprise Console server under the **pentaho** local user account, as recommended by Pentaho and explained earlier in this guide. If you are using a different account to start these services, use it in place of the pentaho user account in the script below.

You can start and stop the BA and DI Servers at any time by running the **start-pentaho.sh** and **stop-pentaho.sh** scripts in the `/pentaho/server/biserver-ee/` and `/pentaho/server/data-integration-server/` directories, respectively, or you can start and stop the entire stack -- PostgreSQL, Tomcat, DI Server, and the Pentaho Enterprise Console -- with the provided `ctlscript.sh` script in the `/pentaho/` directory. To start the Tomcat server automatically at boot time, and stop automatically during shutdown, follow the below procedure.

1. With root permissions, create a file in `/etc/init.d/` called **pentaho**.

- Using a text editor, copy the following content into the new pentaho script, changing **postgresql** to the name of the init script for your database if it is running on the remote machine, or remove **postgresql** entirely if you are using a remote database. Secondly, you must adjust the paths to the BA Server, DI Server, and Pentaho Enterprise Console scripts to match your situation.

```
#!/bin/sh -e
### BEGIN INIT INFO
# Provides: pentaho
# Required-Start: networking postgresql
# Required-Stop: postgresql
# Default-Start: 2 3 4 5
# Default-Stop: 0 1 6
# Description: Pentaho BA Server
### END INIT INFO

case "$1" in
"start")
su - pentaho -c "/home/pentaho/pentaho/postgresql/scripts/ctl.sh start"
su - pentaho -c "/home/pentaho/pentaho/server/biserver-ee/start-pentaho.sh"
su - pentaho -c "/home/pentaho/pentaho/server/data-integration-server/start-pentaho.sh"
su - pentaho -c "cd /home/pentaho/pentaho/server/enterprise-console && ./start-pec.sh"
;;
"stop")
su - pentaho -c "/home/pentaho/pentaho/postgresql/scripts/ctl.sh stop"
su - pentaho -c "/home/pentaho/pentaho/server/biserver-ee/stop-pentaho.sh"
su - pentaho -c "/home/pentaho/pentaho/server/data-integration-server/stop-pentaho.sh"
su - pentaho -c "cd /home/pentaho/pentaho/server/enterprise-console && ./stop-pec.sh"
;;
*)
echo "Usage: $0 { start | stop }"
;;
esac
exit 0
```

- Save the file and close the text editor.
- Make the init script executable.

```
chmod +x /etc/init.d/pentaho
```

- Add the pentaho init script to the standard runlevels so that it will run when the system starts, and stop when the system is shut down or rebooted, by using the update-rc.d command.

This command may not exist on your computer if it is not Debian-based. If that is the case, consult your distribution documentation or contact your distribution's support department to determine how to add init scripts to the default runlevels.

```
update-rc.d pentaho defaults
```

The Pentaho BA Server will start at boot time, and shut down when the system stops or restarts.

## Using the Graphical Installer on Mac Operating Systems



**Note:** Ensure that your shared memory settings are set as described in <http://www.postgresql.org/docs/devel/static/kernel-resources.html>. PostgreSQL may fail to start up if the kernel shared memory settings are too low.

Step-by-step instructions for using the installer are below. You may need to adjust the instructions for your specific situation.

- Double-click the **pentaho-bi-suite-4.8.0-GA-x64.app** file.
- When the installation utility starts, you'll see a Pentaho splash screen. Click **Next**.
- Accept the license agreement to continue.

4. When prompted for which setup type you'd like to perform, select **Default** if you want to install the entire Pentaho Business Analytics on one machine, or **Custom** if you only want to install selected components. If you selected Custom, you'll be asked which Pentaho applications you want to install. For a server installation, uncheck all options except **BA Server** and **Data Integration Server**. If you have any of the following licensed, you may check these options at this time.
  - a) For **Pentaho Dashboards Enterprise Edition**, check **Dashboard Designer**.
  - b) For **Pentaho Analysis Enterprise Edition**, check **Pentaho Analyzer**.
  - c) For **Pentaho Mobile Enterprise Edition**, check **Pentaho Mobile**.
  - d) For **Pentaho Interactive Reporting Enterprise Edition**, check **Interactive Reporting**

If you do not have the requisite licenses, the additions mentioned above will not work, but they will appear in your Pentaho User Console. There is no direct harm in installing these plugins if you do not have the licenses. However, you will have disabled features in the Pentaho User Console. If necessary, it is possible to install these plugins later by using archive packages.
5. If you selected Custom, then you'll be asked if you would like to install the Pentaho sample data. Select **No** if this is a production installation.
 

The sample data is useful for testing and evaluating Pentaho Business Analytics, but is probably not necessary for a production environment.
6. Next, you'll be asked to choose a directory to install to. You may select a new path, but for documentation continuity and support purposes, you should leave the actual directory name alone. The default directory is `/Applications/pentaho/`.
 

You cannot install into a directory that already exists.
7. In the next screen, type in a master password for the solution repository, Enterprise Console admin user, and the BA Server publish function.
 

Pentaho Business Analytics installer provides a PostgreSQL database to store your reports and analysis views. The root password is for the internal database root user, not the global system root (administrator) user. The admin password is for the Pentaho Enterprise Console (username **admin**). The publish password is used whenever you publish content from a workstation (via Pentaho design tools) to the BA Server.
8. Optional: If any of the default Pentaho BA and DI Server ports (**8088, 8080, 8012, 9092, 9080, 8443, 8143, and 5432**) are not available on your system, the default numbers will increment by one until an available port is found.
9. If you chose a custom installation, a summary screen will show you an overview of which Pentaho Business Analytics components you've chosen to install, and the ports that all of the necessary services will run on. Click **Next** to leave this screen, then **Next** again to commence installation. If you chose the default installation, you only have to click **Next** once here.

Once the installation wizard is complete, the BA Server and DI Server should be up and running with default parameters. You have the option of viewing an installation summary and starting the Pentaho User Console during the last step of the installation process. If you choose to go to the Pentaho User Console, your default Web browser will open and display the BA Server login screen.

## Using the Graphical Installer on Windows Operating Systems

You must disable any anti-spyware software before installing Pentaho Business Analytics. Some types of software firewalls and anti-virus scanners may also block the BA Server or prevent it from operating normally.

Some Windows systems have expanded user access and permissions restrictions that change the way Pentaho Analytics is installed and accessed by system users. The graphical installation utility or license installation script must be executed with elevated permissions (Run Elevated status) in order for the BA Server and DI Server to be accessible to all users.

Use these instructions if you are using the **Windows** graphical installer.

1. Double-click the **pentaho-bi-suite-4.5.0-GA-x64.exe** file.
2. When the installation utility starts, you will see a Pentaho splash screen. Click **Next**.
3. Accept the license agreement to continue.
4. When prompted for which setup type you'd like to perform, select **Default** if you want to install the entire Pentaho Business Analytics on one machine, or **Custom** if you only want to install selected components. If you select Custom, you will be asked which Pentaho applications you want to install. For a server installation, uncheck all



options except **BA Server** and **Data Integration Server**. If you have any of the following licensed, then include checking those options in your selections at this time.

- a) For **Pentaho Dashboards Enterprise Edition**, check **Dashboard Designer**.
- b) For **Pentaho Analysis Enterprise Edition**, check **Pentaho Analyzer**.
- c) For **Pentaho Mobile Enterprise Edition**, check **Pentaho Mobile**.
- d) For **Pentaho Interactive Reporting Enterprise Edition**, check **Interactive Reporting**

If you do not have the requisite licenses, the additions mentioned above will not work, and they will appear in your Pentaho User Console. There is no direct harm in installing these plugins if you do not have the licenses. However, you will have disabled features in the Pentaho User Console. If necessary, it is possible to install the additions later by using archive packages.

5. If you selected Custom, then you'll be asked if you would like to install the Pentaho sample data. Select **No** if this is a production installation.

The sample data is useful for testing and evaluating Pentaho Business Analytics, but is probably not necessary for a production environment.

6. Next, you'll be asked to choose a directory to install to. You may select a new path, but for documentation continuity and support purposes, you should leave the actual directory name alone. The default directory is `C:\Program Files\pentaho\`

You cannot install into a directory that already exists.

7. In the next screen, type in a master password for the solution repository, Enterprise Console admin user, and the BA Server publish function.

Pentaho Business Analytics installer provides a PostgreSQL database to store your reports and analysis views. The root password is for the internal database root user, not the global system root (administrator) user. The admin password is for the Pentaho Enterprise Console (username **admin**). The publish password is used whenever you publish content from a workstation (via Pentaho design tools) to the BA Server.

8. Optional: If any of the default Pentaho BA and DI Server ports (**8088, 8080, 8012, 9092, 9080, 8443, 8143, and 5432**) are not available on your system, the default numbers will increment by one until an available port is found.
9. If you chose a custom installation, a summary screen will show you an overview of which Pentaho Business Analytics components you've chosen to install, and the ports that all of the necessary services will run on. Click **Next** to leave this screen, then **Next** again to commence installation. If you chose the default installation, you only have to click **Next** once here.

Once the installation wizard is complete, the BA Server and DI Server should be up and running with default parameters. You have the option of viewing an installation summary and starting the Pentaho User Console during the last step of the installation process. If you choose the Pentaho User Console option, your default Web browser will open to the Pentaho User Console login screen. A PDF copy of the *Getting Started With Pentaho* evaluation document appears once you click the **Finish** button on the last screen of the installer.



**Note:** Terminal windows may remain open after installation. Closing them will terminate the BA Server and DI Server processes for this session.



**Note:** The BA Server and DI Server are now installed as system services in Windows, meaning they will start and stop when Windows starts up and shuts down. The Pentaho Enterprise Console must be manually run from the Start menu, however.

## Installing an Enterprise Edition Key on Linux (CLI)

To install a Pentaho Enterprise Edition Key from the command line interface, follow the below instructions.



**Note:** Do not open your LIC files with a text editor; they are binary files, and will become corrupt if they are saved as ASCII.

1. Navigate to the `/pentaho/server/enterprise-console/license-installer/` directory, or the `/license-installer/` directory that was part of the archive package you downloaded.
2. Run the **install\_license.sh** script with the **install** switch and the location and name of your license file as a parameter. You can specify multiple files, separated by spaces, if you have more than one license key to install.





**Note:** Be sure to use backslashes to escape any spaces in the path or file name.

```
install_license.sh install /home/pgibbons/downloads/Pentaho\ BI\ Platform\
Enterprise\ Edition.lic
```

Upon completing this task, you should see a message that says, "The license has been successfully processed. Thank you."

## Installing an Enterprise Edition Key on Windows (CLI)

To install a Pentaho Enterprise Edition Key from the command line interface, follow the below instructions.



**Note:** Do not open your LIC files with a text editor; they are binary files, and will become corrupt if they are saved as ASCII.

1. Navigate to the `\pentaho\server\enterprise-console\license-installer\` directory, or the `\license-installer\` directory that was part of the archive package you downloaded.
2. Run the **install\_license.bat** script with the **install** switch and the location and name of your license file as a parameter.

```
install_license.bat install "C:\Users\pgibbons\Downloads\Pentaho BA Platform
Enterprise Edition.lic"
```

Upon completing this task, you should see a message that says, "The license has been successfully processed. Thank you."

## Installing the Analysis Enterprise Edition Plugin

Follow the instructions below to install the Pentaho Analysis Enterprise Edition package, which contains Analysis engine enhancements for large ROLAP deployments. This procedure does not cover Pentaho Analyzer installation.



**Note:** If you are performing a manual WAR build and deployment, and you want to add the Pentaho Analysis Enterprise Edition JARs into the WAR pre-build, you can substitute `/biserver-manual-ee/build-resources/custom-pentaho-webapp/WEB-INF/` for `/WEB-INF/` references below.

1. If you have not already done so, retrieve the **pentaho-analysis-ee-4.8-GA** package from the Pentaho Customer Support Portal (login credentials were emailed to you with your Welcome Kit).
2. Unpack the archive to a temporary location.
3. If it is currently running, shut down the BA Server.
4. Copy only the following JARs from the `/pentaho-analysis-ee/lib/` directory to the `/tomcat/webapps/pentaho/WEB-INF/lib/` directory.
  - infinispn-core- 4.2.1.FINAL
  - jboss-transaction-api-1.0.1.GA
  - jcip-annotations-1.0
  - jgroups-2.12.0.CR5
  - marshalling-api-1.2.3.GA
  - memcached-0.0.1-PENTAHO
  - pentaho-analysis-ee-3.4.0-GA-obf
  - river-1.2.3.GA
5. Copy all of the configuration files from `/pentaho-analysis-ee/config/` to the `/tomcat/webapps/pentaho/WEB-INF/classes/` directory.
6. Depending on the installation type; there would not be a **pentaho.war** (in archive based installations and executable based installations the **pentaho.war** is already deployed and the application will show as: `/tomcat/webapps/pentaho/`).
7. Remove the temporary **pentaho-analysis-ee** directory.

Pentaho Analysis Enterprise Edition is now installed with the default Infinispan configuration.

If you need to switch from Infinispan to Memcached, continue to the next section.

## Switching to Memcached

In order to complete this procedure, you must have your own pre-configured Memcached instance. You should have also installed the Analysis Enterprise Edition package to your BA Server or standalone Mondrian engine.

If you already use the Memcached cache framework in your organization and would like to hook it up to the Pentaho Analysis ROLAP engine, follow the directions below to switch from the default Infinispan cache framework configuration.



**Caution:** Pentaho and Mondrian developers recommend against using Memcached. You are almost certain to have better performance with Infinispan.

1. If the BA Server or standalone Mondrian engine are running, shut them down now.
2. If you performed a default install of the Pentaho Analysis Enterprise Edition package, then you should have all of the required JARs installed to the BA or Mondrian server. If you aren't sure, verify now that the following JARs are present in the `/WEB-INF/lib/` directory inside of your deployed pentaho.war or Mondrian engine:

- pentaho-analysis-ee
- commons-lang
- commons-io
- commons-codec
- pentaho-ee-dsc-core
- memcached

3. Edit the **pentaho-analysis-config.xml** in the `/WEB-INF/classes/` directory inside the deployed pentaho.war or Mondrian engine, and change the value of **SEGMENT\_CACHE\_IMPL** to match the class name referenced below:

```
<entry key="SEGMENT_CACHE_IMPL">com.pentaho.analysis.segmentcache.impl.memcached.MemcachedSegmentCache</entry>
```

4. Edit the **memcached-config.xml** in the `/WEB-INF/classes/` directory inside the deployed pentaho.war or Mondrian engine, and change the values of **SALT**, **SERVERS**, and **WEIGHT** to match your preference:

```
<entry key="SALT">YOUR SECRET SALT VALUE HERE</entry>
<entry key="SERVERS">192.168.0.1:1642,192.168.0.2:1642</entry>
<entry key="WEIGHTS">1,1</entry>
```

Your Pentaho Analysis Enterprise Edition instance is now configured to use Memcached for ROLAP segment caching.

### Memcached Configuration Options

These properties control Memcached settings, and are set in the **memcached-config.xml** file in the `/WEB-INF/classes/` directory inside of your deployed pentaho.war or Mondrian engine.



**Note:** This is not a comprehensive list of the potential Memcached settings; the options explained below are the ones most critical to Memcached configuration for Pentaho Analysis.

Property	Purpose
SERVERS	A comma-separated list of servers and port numbers representing the Memcached nodes usable by the plugin.
WEIGHTS	A comma-separated list of numbers representing the relative caching capacity of the servers defined in the SERVERS property. There must be exactly as many values of WEIGHTS as there are values of SERVERS. As an example, if the first server has a capacity of 128 megabytes, and the second has a capacity of 256 megabytes, the correct values for the WEIGHTS property should be "1,2", indicating that the first server has a relative size of half of the second one.
SALT	A secret key prefix to be used when saving and loading segment data from the Memcached nodes. This property

Property	Purpose
	must be the same for all Mondrian nodes that share their caches. If the SALT value is different from one node to the next, the nodes will not be able to share their cache data.

## Adding Linux and OS X Support for Printing Analyzer Geo Maps

There is an experimental function in Analyzer that enables you to print Geo Map visualizations. Follow the directions below to enable support on Linux and OS X. Windows configuration is covered in [Adding Windows Support for Printing Analyzer Geo Maps](#) on page 19.



**Note:** Pentaho requires a specific version of **wkhtmltoimage** in order for this print function to work correctly. Even if you have wkhtmltoimage installed on your machine, install the Pentaho-supplied version as explained below. It will be explicitly called by Analyzer, and will not interfere with your existing wkhtmltoimage instance.



**Note:** If you used the Business Analytics graphical installer, **skip all steps except the last two.**

1. Navigate to the **wkhtmltoimage** directory in your Pentaho installation. For archive installations, this is `/pentaho/biserver-ee/third-party-tools/wkhtmltoimage/`, and for manual deployments it is `/biserver-manual-ee/build-resources/third-party-tools/wkhtmltoimage/`.
2. For OS X, unpack the **wkhtmltoimage\_mac.tar.bz2** package; for 32-bit Linux, unpack the **wkhtmltoimage\_linux\_i386.tar.bz2** package; for 64-bit Linux, unpack the **wkhtmltoimage\_linux\_amd64.tar.bz2** package.
3. There is only one file in this archive: the executable **wkhtmltoimage**. If the executable has an extension, such as **i386** or **amd64**, rename the file to **wkhtmltoimage**.
4. Move the executable to: `/home/pentaho/pentaho/server/biserver-ee/wkhtmltoimage.` directory.
5. Edit the `/pentaho-solutions/system/pentaho.xml` file and set the value of `<html-to-image-tool>` to the full path to the **wkhtmltoimage** executable that you just unpacked.

```
<html-to-image-tool>/home/pentaho/pentaho/server/biserver-ee/third-party-tools/
wkhtmltoimage/wkhtmltoimage</html-to-image-tool>
```

6. Save and close the file, then edit the `/pentaho-solutions/system/analyzer/settings.xml` file and uncomment the following line:

```
<!--open_layers>geomapexport</open_layers-->
```

7. Save and close the settings.xml file.

You have enabled the experimental print feature for Analyzer Geo Map visualizations.

## Adding Windows Support for Printing Analyzer Geo Maps

There is an experimental function in Analyzer that enables you to print Geo Map visualizations. Follow the below directions to enable support on Windows. Linux and OS X configuration are covered in [Adding Linux and OS X Support for Printing Analyzer Geo Maps](#) on page 19.



**Note:** Pentaho requires a specific version of **wkhtmltoimage** in order for this print function to work correctly. Even if you have wkhtmltoimage installed on your machine, install the Pentaho-supplied version as explained below. It will be explicitly called by Analyzer, and will not interfere with your existing wkhtmltoimage instance.



**Note:** If you used the Business Analytics graphical installer, **skip all steps except the last two.**

1. Navigate to the **wkhtmltoimage** directory in your Pentaho installation. For archive installations, this is `\pentaho\biserver-ee\third-party-tools\wkhtmltoimage\`, and for manual deployments it is `\biserver-manual-ee\build-resources\third-party-tools\wkhtmltoimage\`.
2. Run the **wkhtmltoimage\_windows\_installer.exe** executable.
3. Accept the license agreement to continue.

4. Uncheck the **wkhtmltopdf** option, then click **Next**.
5. For the **Destination folder**, type in or navigate to the following path, creating the directories if they do not exist: `C:\pentaho\biserver-ee\third-party-tools\wkhtmltoimage\`. Once you have navigated to the path, click **Install**.
6. When the installation is complete, click **Close**, then edit the `\pentaho-solutions\system\pentaho.xml` file and set the value of **<html-to-image-tool>** to the full path to the **wkhtmltoimage** executable that you specified in the installer, including the executable name of the package, which is **wkhtmltoimage**.

```
<html-to-image-tool>C:\pentaho\biserver-ee\third-party-tools\wkhtmltoimage\wkhtmltoimage</html-to-image-tool>
```

7. Close that file, then edit the `\pentaho-solutions\system\analyzer\settings.xml` file and uncomment the following line:

```
<!--open_layers>geomapexport</open_layers-->
```

8. Save and close the settings.xml file.

You have enabled the experimental print feature for Analyzer Geo Map visualizations.

## Workstation Installation Procedure

You must disable any anti-spyware software before installing Pentaho Business Analytics. Some types of software firewalls and anti-virus scanners may also block the Pentaho Business Analytics or prevent it from operating normally.

The Pentaho Business Analytics client tools are:

- Report Designer
- Metadata Editor
- Schema Workbench
- Design Studio
- Data Integration
- Aggregation Designer

These programs are easily installed on Windows-, OS X- and Linux-based workstations by running the Pentaho Business Analytics graphical installer.

1. Double-click the installation utility to run it.  
On Linux systems, you may have to set execute permissions on the installer before trying to run it.
2. When the installation utility starts, you see a Pentaho splash screen. Click **Forward**.
3. Accept the license agreement to continue.
4. When prompted for which installation scenario you want, select **Custom** and click **Next**.
5. Remove the check from these options: **BA Server**, **Analyzer**, **Dashboard Designer**, **Interactive Reporting**, **Pentaho Mobile**, **Pentaho Enterprise Console**, and **Data Integration Server**, and ensure that all of the Pentaho design tools you want to install are checked.
6. A summary screen will show you an overview of which Pentaho Business Analytics components you've chosen to install. Click **Forward** to leave this screen, then **Forward** again to commence installation.

The selected client tools should now be installed and ready to use. On Windows, they'll be available through the Start menu; on Linux systems, they'll be available through the command line, or you can create your own shortcuts on your desktop or in the GNOME or KDE panels. The default installation directory is `C:\Program Files\pentaho\design-tools\` on Windows, `/Applications/pentaho/design-tools/` on OS X, and `~/pentaho/design-tools/` on Linux.

## Testing and Using Your Server

To verify that the BA Server is installed and running, open a Web browser on a workstation and navigate to **http://example.com:8080/pentaho/** (substituting **example.com** for your BA Server's hostname, IP address, or domain name). You should see a Web page similar to the below picture:



When your system is properly configured, log in with your administrator account, then verify that you can do the following, assuming your data has been prepared for reporting and analysis:

- Create a new analysis view.
- Create a new ad hoc report.
- If you are a Dashboards Enterprise Edition customer, create a new dashboard with the Dashboard Designer plugin.
- If you are a Pentaho Analysis Enterprise Edition customer, create a new analysis report with the Pentaho Analyzer plugin.
- In Pentaho Data Integration, create or connect to an enterprise repository and a data source.
- Schedule a report to run at a regular interval.
- Using Pentaho Report Designer, publish a report to the BA Server.

## Post-install Configurations

After you have completed the basic installation, you may wish to perform some post-installation configurations. Performing post-install configurations allows you the opportunity to customize Pentaho Business Analytics to more closely meet your needs.

### Creating Directories and Accounts

After you've successfully installed the BA Server on your server, you must set up your configuration information and other details. All of this is done through the Pentaho Enterprise Console.

1. Open a Web browser and navigate to **http://localhost:8088** (change **localhost** to the IP address, hostname, or domain name of your BI Platform).
2. Log in as **admin** with the password you set during installation.
3. Ensure that all license keys are installed.
4. In the **Solution Directory** field, enter `/pentaho/server/biserver-ee/pentaho-solutions/`, or whatever the path to your pentaho-solutions directory is.
5. In the **Backup Directory** field, type in the location that you'd like to save Pentaho Enterprise Console backup data to.

This can be any local directory that your application server has permissions to write to. You cannot, however, use relative paths in this or any other configuration field in this screen -- **all paths must be absolute**.

6. In the **Pentaho Web-App Path** field, enter `/tomcat/webapps/pentaho/`, or whatever the path to the unpacked pentaho.war directory is for your application server.
7. In the **Platform Administrator User Name** field, type in **admin**, or if you already have Pentaho User Console accounts established, type in the account name that you will use to manage reports and schedules.  
This user account does not have to exist yet, and you can change this value later.

8. Click **OK**.

The rest of the settings in this screen do not need to change right now.

9. Click **Configuration** in the menu on the left side of Pentaho Enterprise Console.

10. Click the **Web Settings** tab at the top of the screen.

11. Change the **Fully Qualified Server URL** setting to match your server's hostname, domain name, or IP address. Do not change the directory or port number.

Your Pentaho BA Server now has a minimal configuration. If you need to return to this screen, click on the wrench/screwdriver icon in the upper right corner of the screen.

Your administration work is only beginning; you should now consult the *Pentaho Business Analytics Administrator's Guide* to learn your way around the Pentaho Enterprise Console.

### Preparing for Production

The default condition of the BA Server is designed to support quick and easy evaluation by new customers. Once you move from evaluation to production, you may want to remove some of the evaluation-specific features in the BA Server. The instructions in this section explain how to remove them.

### Removing Pentaho Sample Data and Solutions

By default, Pentaho provides a sample data source and a solution directory filled with example content. These samples are provided for evaluation and testing. Once you are ready to move from an evaluation or testing scenario to development or production, you can remove the sample content. Follow the instructions below to completely remove the Pentaho sample data and solutions.

1. Stop the BA Server.
2. If they exist, delete the `/pentaho/server/biserver-ee/pentaho-solutions/steel-wheels/` and `/pentaho/server/biserver-ee/pentaho-solutions/bi-developers/` directories.  
These directories contain sample content for CDF and BA Server plugins. They are not present in typical manual deployment scenarios.
3. Edit the `/pentaho/WEB-INF/web.xml` file inside of the deployed pentaho.war.  
As laid down by the Pentaho graphical installer and archive packages, this path should be `/pentaho/server/biserver-ee/tomcat/webapps/pentaho/WEB-INF/web.xml`. If you performed a manual WAR build and deployment, then you must adjust the path to fit your configuration.
4. Remove the sample servlets by commenting them out or removing them from the file:

```
<!-- [BEGIN SAMPLE SERVLETS] -->
<servlet>
  <servlet-name>UpdateSampleEmails</servlet-name>
  <jsp-file>/jsp/UpdateSampleEmails.jsp</jsp-file>
</servlet>

<servlet>
  <servlet-name>Widgets</servlet-name>
  <jsp-file>/jsp/Widgets.jsp</jsp-file>
</servlet>

<servlet>
  <servlet-name>SampleDashboard</servlet-name>
  <jsp-file>/jsp/SampleDashboard.jsp</jsp-file>
</servlet>

<servlet>
  <servlet-name>ChartSamplesDashboard</servlet-name>
  <jsp-file>/jsp/ChartSamplesDashboard.jsp</jsp-file>
```



```

</servlet>

<servlet>
  <servlet-name>SampleDrill</servlet-name>
  <jsp-file>/jsp/SampleDrill.jsp</jsp-file>
</servlet>

<servlet>
  <servlet-name>SWDashboard</servlet-name>
  <jsp-file>/jsp/SWDashboard.jsp</jsp-file>
</servlet>

<servlet>
  <servlet-name>Map</servlet-name>
  <jsp-file>/jsp/Map.jsp</jsp-file>
</servlet>

<servlet>
  <servlet-name>SampleFlashDashboard</servlet-name>
  <jsp-file>/jsp/SampleFlashDashboard.jsp</jsp-file>
</servlet>
<!-- [END SAMPLE SERVLETS] -->

```

##### 5. Remove the sample servlet mappings in the same fashion:

```

<!-- [BEGIN SAMPLE SERVLET MAPPINGS] -->
<servlet-mapping>
  <servlet-name>UpdateSampleEmails</servlet-name>
  <url-pattern>/UpdateSampleEmails</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>Widgets</servlet-name>
  <url-pattern>/Widgets</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>SampleDashboard</servlet-name>
  <url-pattern>/SampleDashboard</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>ChartSamplesDashboard</servlet-name>
  <url-pattern>/ChartSamplesDashboard</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>SampleDrill</servlet-name>
  <url-pattern>/SampleDrill</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>SWDashboard</servlet-name>
  <url-pattern>/SWDashboard</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>Map</servlet-name>
  <url-pattern>/Map</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>SampleFlashDashboard</servlet-name>
  <url-pattern>/SampleFlashDashboard</url-pattern>
</servlet-mapping>
<!-- [END SAMPLE SERVLET MAPPINGS] -->

```

## 6. Remove the **SampleDataStartupListener**:

```
<listener>
  <listener-class>org.pentaho.platform.web.http.context.HsqldbStartupListener</
listener-class>
</listener>
```

## 7. Remove the **hsqldb-databases** section:

```
<!-- [BEGIN HSQLDB DATABASES] -->
  <context-param>
    <param-name>hsqldb-databases</param-name>
    <param-value>sampdata@../../data/hsqldb/sampdata</param-value>
  </context-param>
<!-- [END HSQLDB DATABASES] -->
```

## 8. Remove the **SystemStatusFilter** filter:



**Note:** This is not part of the Pentaho samples; it provides error status messages that are only useful for development and testing purposes, and should be removed from a production system.

```
<filter>
  <filter-name>SystemStatusFilter</filter-name>
  <filter-class>com.pentaho.ui.servlet.SystemStatusFilter</filter-class>
  <init-param>
    <param-name>initFailurePage</param-name>
    <param-value>InitFailure</param-value>
    <description>This page is displayed if the PentahoSystem fails to properly
initialize.</description>
  </init-param>
</filter>
```

## 9. Remove the filter mapping for the **SystemStatusFilter**:

```
<filter-mapping>
  <filter-name>SystemStatusFilter</filter-name>
  <url-pattern>/*</url-pattern>
</filter-mapping>
```

## 10. Save and close the web.xml file.

## 11. Delete the `/pentaho/server/biserver-ee/data/` directory.

This directory contains a sample database, control scripts for that database and the environment settings it needs to run, and SQL scripts to initialize a new Pentaho solution repository.

Your BA Server instance is now cleaned of samples and development/testing pieces, and is streamlined for production.

Continue to [Migrating Your Solutions](#) to finish the upgrade process.

### Switching to a Production Login Screen

The default Pentaho User Console login screen contains information and instructions for evaluators. Pentaho allows this extra information to be hidden via configuration; follow the directions below to hide the extra information. If you have chosen to perform a manual deployment, this information is hidden by default.

1. Shut down the BA Server and Enterprise Console if they are currently running.
2. Open a terminal or file browser window and navigate to the `/pentaho-solutions/system/` directory.  
If you installed via the archive package or the graphical installer, the full path is `/pentaho/server/biserver-ee/pentaho-solutions/system/`.
3. Edit the **pentaho.xml** file.
4. Find the **login-show-sample-users-hint** node and change its value to **false**.
5. Start the BA Server and Pentaho Enterprise Console.

You now have a login screen that has been scrubbed of evaluation content.

### Customizing Port Numbers

If you want to customize port numbers, follow the below procedure.



1. Navigate to the `/pentaho/server/biserver-ee/tomcat/conf/` directory
2. Edit the **server.xml** file found there, and search for **Define a non-SSL HTTP/1.1 Connector**. Change the port number in the **Connector port** element below that from **8080** to your preferred port number.

```
<!-- Define a non-SSL HTTP/1.1 Connector on port 8080 -->
<Connector port="8080" maxHttpHeaderSize="8192"
    maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
    enableLookups="false" redirectPort="8443" acceptCount="100"
    connectionTimeout="20000" disableUploadTimeout="true" />
```

3. Save and close the file, then navigate to the `/pentaho/server/biserver-ee/tomcat/webapps/pentaho/WEB-INF/` directory and edit the **web.xml** file found there.
4. Change the **fully-qualified-server-url** entry to match the new port number you specified in **server.xml**.

```
<context-param>
  <param-name>fully-qualified-server-url</param-name>
  <param-value>http://localhost:8080/pentaho/</param-value>
</context-param>
```

5. Save and close the file, then navigate to the `/pentaho/server/enterprise-console/resource/config/` and edit the **console.properties** file found there.
6. Change the **console.start.port.number** and **console.stop.port.number** values to match the port numbers you want to run Enterprise Console on.

```
console.start.port.number=8088
console.stop.port.number=8033
```

### Dashboard Printing in a Headless Linux Environment

To enable dashboard printing for headless Linux operating systems, you must implement an Xvnc server. Implementing an Xvnc server requires additional installation steps.

For step-by-step instructions, see [Enabling Dashboard Printing on Headless CentOS and Red Hat](#) or [Enabling Dashboard Printing on Headless Ubuntu](#).

#### Enabling Dashboard Printing on Headless CentOS and Red Hat

These instructions apply to both CentOS and Red Hat, and use CentOS for exemplary purposes.

To implement headless dashboard printing, you need access to the SWT library that is shipped with the dashboards plugin. The WebKit library depends on this library. The relevant packages on CentOS are `webkitgtk-devel-1.2.6-2.el6_0` and `webkitgtk-1.2.6-2.el6_0`.

1. Install the relevant CentOS packages by entering `$ yum install webkitgtk-devel-1.2.6-2.el6_0 webkitgtk-1.2.6-2.el6_0`.
2. If the VNC server is not installed, run `$ yum install tigervnc-server`.
3. To install a desktop environment, run `$ yum groupinstall Desktop`. If you need more information, see the CentOS website and search for *virtual network computing (VNC)*.
4. Start the VNC server with this command: `$ vncserver :1 -geometry 1600x1200 -localhost $ export DISPLAY=localhost:1`.
5. Start the BA Server with this command: `$ ./start-pentaho.sh`. The VNC server and the BA Server must be started by the same user.

Set the `-geometry` option to the width and height of the largest supported client resolution.

You can add the commands to run and configure the VNC server to the Pentaho startup script, or you can start the VNC server as a regular service, whichever you prefer.

#### Enabling Dashboard Printing on Headless Ubuntu

These instructions show how to enable headless dashboard printing on Ubuntu Linux.

1. Install the relevant Ubuntu packages.

```
$ sudo apt-get install libwebkit-dev
$ sudo apt-get install libwebkit-1.0-2
```

```
$ sudo apt-get install libswt-gtk-3.5-jni
```

2. If the VNC server is not installed, run `$ sudo apt-get install vnc4server` to install it.
3. To install a desktop environment, run `$ sudo apt-get install ubuntu-desktop`.
4. Start the VNC server with this command: `$ vncserver :1 -geometry 1600x1200 -localhost $ export DISPLAY=localhost:1`.
5. Start the BA Server with this command: `$ ./start-pentaho.sh`. The VNC server and the BA Server must be started by the same user.

Set the `-geometry` option to the width and height of the largest supported client resolution.

You can add the commands to run and configure the VNC server to the Pentaho startup script, or you can start the VNC server as a regular service, whichever you prefer.

## Master Service Control Scripts From the Graphical Installer

---

If you installed Pentaho Business Analytics on a single machine through Pentaho's graphical installation utility, then there is a global service control script in the top-level directory that you installed to: **ctlscript** (.sh on Linux, .bat on Windows). This will start the BA Server, DI Server, Enterprise Console, solution database, and hsqldb sample database. ctlscript takes the following arguments:

- start
- stop
- restart
- status
- help

## Default Pentaho Business Analytics Port Numbers

The table below lists all of the important Pentaho Business Analytics port numbers and the services they correspond to. If you manually changed any port numbers, or if the default numbers were not available when you used the graphical installer, then these numbers will be different. The graphical installer increments port numbers by 1 until it finds free ports; typically it does not have to go beyond one increment if it detects an occupied port.



**Note:** The numbers below represent a complete Pentaho Business Analytics installation. If you only install the BA Server or the DI Server, some port numbers may not apply.

Port number	Service
5432	PostgreSQL Server
8080	BA Server (Tomcat)
8012	BA Server shutdown
8088	Enterprise Console
9080	DI Server
9092	Embedded H2 database

## Uninstalling Pentaho Business Analytics

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Uninstalling the BA Server and the client tools is easy -- simply shut down all Pentaho services and programs, then run the **uninstall** utility in the `/pentaho/` directory. For Windows users, this script can also be accessed through the Pentaho folder in the Windows **Start** menu.

## Compatibility Matrix: Supported Components

Pentaho aims to accommodate our clients' diverse computing environments. This list provides details about the environment components and versions we support. If you have questions about your particular computing environment, please contact Pentaho support.

### Client

Pentaho client software is hardware-independent and runs on client-class computers that comply with these specifications for minimum hardware and required operation systems.

Pentaho Software	
Pentaho Aggregation Designer	
Pentaho Data Integration	
Pentaho Design Studio	
Pentaho Metadata Editor	
Pentaho Report Designer	
Pentaho Schema Workbench	

  

Hardware—32 or 64 bit	Operating System—32 or 64 bit
<b>Processors:</b> <ul style="list-style-type: none"> <li>Apple Macintosh Dual-Core</li> <li>Intel EM64T or AMD64 Dual-Core</li> </ul> <b>RAM:</b> 2 GB RAM <b>Disk Space:</b> 2 GB free after installation	<ul style="list-style-type: none"> <li>Apple Macintosh OS 10.7 &amp; 10.8</li> <li>Microsoft Windows 7</li> <li>Ubuntu Server 10.X and 12.X</li> </ul>

### Server

Pentaho server software is hardware-independent and runs on server-class computers that comply with these specifications for minimum hardware and required operation systems.

Pentaho Software	
Pentaho Business Analysis Server	
Pentaho Data Integration Server	
Pentaho Enterprise Console	

  

Hardware—64 bit	Operating System—64 bit
<ul style="list-style-type: none"> <li>Apple Macintosh Pro Quad-Core or Macintosh Mini Quad-Core</li> <li>Intel EM64T or AMD64 Dual-Core</li> </ul> <b>RAM:</b> 8 GB with 4 GB dedicated to Pentaho servers, 1 GB to Pentaho Enterprise Console <b>Disk Space:</b> 20 GB free after installation	<ul style="list-style-type: none"> <li>Apple Macintosh OS X Server 10.6 &amp; 10.7</li> <li>CentOS Linux 5 &amp; 6</li> <li>Microsoft Windows 2008 Server R1 &amp; R2</li> <li>Red Hat Enterprise Linux 5 &amp; 6</li> <li>Solaris 10</li> <li>Ubuntu Server 10.X &amp; 12.X</li> </ul>

### Embedded Software

When embedding Pentaho software into other applications, the computing environment should comply with these specifications for minimum hardware and required operation systems.

Pentaho Software
Embedded Pentaho Reporting
Embedded Pentaho Analysis
Embedded Pentaho Data Integration

Hardware—32 or 64 bit	Operating System—32 or 64 bit
<b>Processors:</b> <ul style="list-style-type: none"> <li>Apple Macintosh Pro Quad-Core or Macintosh Mini Quad-Core</li> <li>Intel EM64T or AMD64 Dual-Core</li> </ul> <b>RAM:</b> 8 GB with 4 GB dedicated to Pentaho servers <b>Disk Space:</b> 20 GB free after installation	<ul style="list-style-type: none"> <li>Apple Macintosh OS X Server 10.6 &amp; 10.7</li> <li>CentOS Linux 5 &amp; 6</li> <li>Microsoft Windows 2008 Server R1 &amp; R2</li> <li>Microsoft Windows 7</li> <li>Red Hat Enterprise Linux 5 &amp; 6</li> <li>Solaris 10</li> <li>Ubuntu Server 10.X &amp; 12.X</li> </ul>

### Application Servers

Servers to which you deploy Pentaho software must run one of these application servers.

Pentaho Software	Application Server
Pentaho Business Analysis Server	<ul style="list-style-type: none"> <li>Jboss 5.1.x</li> <li>Tomcat 6.0.x</li> </ul>
Pentaho Data Integration Server	Tomcat 6.0.x

### Solution Database Repositories

Pentaho software stores processing artifacts in these solution database repositories.

Pentaho Software	Database Repository
Pentaho Business Analysis Server	<ul style="list-style-type: none"> <li>MySQL 5.x</li> <li>Oracle 10g/11i</li> <li>PostgreSQL 8.x &amp; 9.1.x*</li> </ul>
Pentaho Data Integration Server	Integrated Pentaho-specific, H2 1.2.131

\*Default installed solution database

### Data Sources

Pentaho software connects to these relational and non-relational data sources.

Pentaho Software	Data Source
Pentaho Reporting	<ul style="list-style-type: none"> <li>JDBC 3**</li> <li>ODBC</li> <li>OLAP4J</li> <li>XML</li> <li>Pentaho Analysis</li> <li>Pentaho Data Integration</li> <li>Pentaho Metadata</li> </ul>
Pentaho Business Analysis Server, Action Sequences	<ul style="list-style-type: none"> <li>Relational (JDBC)</li> <li>Hibernate</li> <li>Javascript</li> </ul>

Pentaho Software	Data Source
	<ul style="list-style-type: none"> <li>• Metadata (MQL)</li> <li>• Mondrian (MDX)</li> <li>• XML (XQuery)</li> <li>• Security User/Role List Provider</li> <li>• Data Integration Steps (PDI)</li> <li>• Other Action Sequences</li> <li>• Web Services</li> <li>• XMLA</li> </ul>
Pentaho Data Integration	<ul style="list-style-type: none"> <li>• JDBC 3**</li> <li>• OLAP4J</li> <li>• Salesforce</li> <li>• XML</li> <li>• CSV</li> <li>• Microsoft Excel</li> <li>• Pentaho Analysis</li> <li>• Apache Hadoop 0.20.2 &amp; 0.20.203.0***</li> <li>• Cloudera CDH3u4***</li> <li>• CDH4***</li> <li>• MapR 1.1.3 &amp; 1.2.0</li> <li>• Cassandra distributions <ul style="list-style-type: none"> <li>• Apache 1.1.2</li> <li>• DataStax 1.1.2</li> </ul> </li> <li>• MongoDB 2.0.4</li> </ul>

\*\*Use a JDBC 3.x compliant driver that is compatible with SQL-92 standards when communicating with relational data sources. For your convenience, we provide a list of drivers used to get data from relational JDBC databases.

\*\*\*From one of these distributions: HBase 0.90.5 and Hive 0.7.1

### SQL Dialect-Specific

Pentaho software generates dialect-specific SQL when communicating with these data sources.

Pentaho Software	Data Source
Pentaho Analysis	<ul style="list-style-type: none"> <li>• Access</li> <li>• DB2</li> <li>• Derby</li> <li>• Firebird</li> <li>• Greenplum</li> <li>• Hive</li> <li>• Hsqldb</li> <li>• Infobright</li> <li>• Informix</li> <li>• Ingres</li> <li>• Interbase</li> <li>• LucidDb</li> <li>• MicrosoftSqlServer</li> <li>• MySql</li> <li>• Neoview</li> <li>• Netezza</li> <li>• Oracle</li> <li>• PostgreSQL</li> </ul>



Pentaho Software	Data Source
	<ul style="list-style-type: none"> <li>• SqlStream</li> <li>• Sybase</li> <li>• Teradata</li> <li>• Vectorwise</li> <li>• Vertica</li> <li>• Other SQL-92 compliant****</li> </ul>
<b>Pentaho Metadata</b>	<ul style="list-style-type: none"> <li>• DB2</li> <li>• Firebird</li> <li>• H2</li> <li>• Hypersonic</li> <li>• Ingres</li> <li>• MS Access</li> <li>• ASSQL</li> <li>• MSSQLNative</li> <li>• MySQL</li> <li>• Netezza</li> <li>• Oracle</li> <li>• PostgresSQL</li> <li>• Sybase</li> <li>• Other SQL-92 compliant****</li> </ul>
<b>Pentaho Data Integration</b>	<ul style="list-style-type: none"> <li>• Apache Derby</li> <li>• AS/400</li> <li>• InfiniDB</li> <li>• Exasol 4</li> <li>• Firebird SQL</li> <li>• Greenplum</li> <li>• H2</li> <li>• Hypersonic</li> <li>• IBM DB2</li> <li>• Infobright</li> <li>• Informix</li> <li>• Ingres</li> <li>• Ingres VectorWise</li> <li>• LucidDB</li> <li>• MaxDB (SAP DB)</li> <li>• MonetDB</li> <li>• MySQL</li> <li>• MS SQL Server</li> <li>• Neoview</li> <li>• Netezza</li> <li>• Oracle</li> <li>• Oracle RDB</li> <li>• PostgreSQL</li> <li>• SQLite</li> <li>• Teradata</li> <li>• UniVerse database</li> <li>• Vertica</li> <li>• Other SQL-92 compliant****</li> </ul>

\*\*\*\*If your data source is not in this list and is compatible with SQL-92, Pentaho software uses a generic SQL dialect.

## Security

Pentaho software integrates with these third-party security authentication systems.

Pentaho Software	Authentication System
Pentaho Business Analysis Server Pentaho Enterprise Console	<ul style="list-style-type: none"> <li>• Active Directory</li> <li>• CAS</li> <li>• Integrated Microsoft Windows Authentication</li> <li>• LDAP</li> <li>• RDBMS</li> </ul>
Pentaho Data Integration Server	<ul style="list-style-type: none"> <li>• Active Directory</li> <li>• LDAP</li> <li>• RDBMS</li> </ul>

## Java Virtual Machine

All Pentaho software, except the Pentaho Mobile App, requires the Sun/Oracle version 1.6 (6.0) distribution of the Java Runtime Environment (JRE) or Java Development Kit (JDK).

## Web Browsers

Pentaho supports these major versions of Web browsers that are publicly available six weeks prior to when Pentaho begins to finalize a release. We also support the preceding major version.

Pentaho Software	Web Browser
Pentaho User Console Pentaho Enterprise Console Pentaho Report Designer*****	<ul style="list-style-type: none"> <li>• Apple Safari 5.x</li> <li>• Google Chrome 19</li> <li>• Microsoft Internet Explorer 8 &amp; 9</li> <li>• Mozilla Firefox 13 &amp; 14</li> </ul>

\*\*\*\*\*Requires a web browser to preview the exported HTML reports.

## Mobile Apps

Pentaho mobile apps run on the Apple iPad 2 and 3 using iOS 5.x and 6.

## JDBC Drivers

### JDBC Drivers

This reference is a continuous work in progress. If you are viewing it in the Pentaho InfoCenter and see something that is not correct, know of a driver that is not listed here, or have a tip you want to share, please let us know by using the comments fields found in the bottom right corner.

Database	Vendor	URL
<a href="#">Apache Derby</a>	IBM	<a href="http://db.apache.org/derby/derby_downloads.html">http://db.apache.org/derby/derby_downloads.html</a>
<a href="#">Cache'</a>	InterSystems	<a href="http://www.cachemonitor.de/intersystems-documentation/cache-jdbc-driver">http://www.cachemonitor.de/intersystems-documentation/cache-jdbc-driver</a>
<a href="#">CUBRID</a>	CUBRID	<a href="http://www.cubrid.org/?mid=downloadsitem=jdbc_driver">http://www.cubrid.org/?mid=downloadsitem=jdbc_driver</a>
<a href="#">Daffodil DB</a>	Daffodil Software	<a href="http://sourceforge.net/projects/daffodildb/">http://sourceforge.net/projects/daffodildb/</a>

Database	Vendor	URL
<i>DB2 AS/400</i>	IBM	<a href="http://www-03.ibm.com/systems/i/software/toolbox/">http://www-03.ibm.com/systems/i/software/toolbox/</a>
<i>DB2 Universal Database</i>	IBM	<a href="http://www-306.ibm.com/software/data/db2/java">http://www-306.ibm.com/software/data/db2/java</a>
<i>Firebird</i>	Firebird Foundation	<a href="http://www.firebirdsql.org/en/jdbc-driver/">http://www.firebirdsql.org/en/jdbc-driver/</a>
<i>FrontBase</i>	FrontBase	<a href="http://www.frontbase.com/cgi-bin/WebObjects/FBWebSite">http://www.frontbase.com/cgi-bin/WebObjects/FBWebSite</a>
<i>Greenplum</i>	EMC2	<a href="http://jdbc.postgresql.org/download.html">http://jdbc.postgresql.org/download.html</a>
<i>H2 Database</i>	H2	<a href="http://www.h2database.com">http://www.h2database.com</a>
<i>Hive</i>	Apache	<a href="http://hive.apache.org/">http://hive.apache.org/</a>
<i>HSQldb</i>	HyperSQL	<a href="http://sourceforge.net/projects/hsqldb/">http://sourceforge.net/projects/hsqldb/</a>
<i>Informix</i>	IBM	<a href="http://www-01.ibm.com/software/">http://www-01.ibm.com/software/</a>
<i>Ingres</i>	Action	<a href="http://esd.action.com/product/drivers/JDBC/java">http://esd.action.com/product/drivers/JDBC/java</a>
<i>InterBase</i>	Embarcadero	<a href="http://edn.embarcadero.com">http://edn.embarcadero.com</a>
<i>jTDS Free MS Sybase</i>	jTDS	<a href="http://jtds.sourceforge.net/">http://jtds.sourceforge.net/</a>
<i>LucidDB</i>	DynamoDB	<a href="http://www.dynamobi.com/c/downloads/stable/">http://www.dynamobi.com/c/downloads/stable/</a>
<i>MaxDB</i>	SAP	<a href="http://maxdb.sap.com">http://maxdb.sap.com</a>
<i>Mckoi</i>	Mckoi SQL Database	<a href="http://www.mckoi.com/originalmckoisql/index.html">http://www.mckoi.com/originalmckoisql/index.html</a>
<i>Mimer</i>	Mimer Information Technology	<a href="http://www.mimer.com">http://www.mimer.com</a>
<i>MonetDB</i>	MonetDB	<a href="http://www.monetdb.org/">http://www.monetdb.org/</a>
<i>MySQL</i>	Oracle	<a href="http://dev.mysql.com/downloads/connector/j/">http://dev.mysql.com/downloads/connector/j/</a>
<i>Neoview</i>	HP	<a href="https://h20392.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=NEO10">https://h20392.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=NEO10</a>
<i>Netezza</i>	IBM	<a href="http://www.netezza.com">http://www.netezza.com</a>
<i>OpenBase SQL</i>	OpenBase International	<a href="http://www.openbase.com/index.php/products/downloads">http://www.openbase.com/index.php/products/downloads</a>
<i>Oracle</i>	Oracle	<a href="http://www.oracle.com/technetwork/database/features/jdbc/index.html">http://www.oracle.com/technetwork/database/features/jdbc/index.html</a>
<i>Pervasive</i>	Pervasive	<a href="http://www.pervasivedb.com/download/Pages/PDBDownloads.aspx">http://www.pervasivedb.com/download/Pages/PDBDownloads.aspx</a>
<i>PostgreSQL</i>	PostgreSQL Global Development Group	<a href="http://jdbc.postgresql.org/">http://jdbc.postgresql.org/</a>
<i>SAP DB</i>	SAP DB	<a href="http://www.sapdb.org/sap_db_jdbc.htm">http://www.sapdb.org/sap_db_jdbc.htm</a>
<i>SQLite</i>	Xerial	<a href="http://www.xerial.org/trac/Xerial/wiki/SQLiteJDBC">http://www.xerial.org/trac/Xerial/wiki/SQLiteJDBC</a>

Database	Vendor	URL
<a href="#">SQL Server</a>	Microsoft	<a href="http://msdn.microsoft.com/en-us/sqlserver/aa937724.aspx">http://msdn.microsoft.com/en-us/sqlserver/aa937724.aspx</a>
<a href="#">Sybase ASE</a>	SAP	<a href="http://www.sybase.com/products/allproductsa-z/softwaredeveloperkit/jconnect">http://www.sybase.com/products/allproductsa-z/softwaredeveloperkit/jconnect</a>
<a href="#">Sybase SQL Anywhere</a>	SAP	<a href="http://www.sybase.com/products/allproductsa-z/softwaredeveloperkit/jconnect">http://www.sybase.com/products/allproductsa-z/softwaredeveloperkit/jconnect</a>
<a href="#">SmallSQL</a>	SmallSQL	<a href="http://www.smallsql.de/download.html">http://www.smallsql.de/download.html</a>
<a href="#">Teradata</a>	Teradata	<a href="http://downloads.teradata.com/download/connectivity/jdbc-driver">http://downloads.teradata.com/download/connectivity/jdbc-driver</a>
<a href="#">Vertica</a>	HP	<a href="http://www.vertica.com">http://www.vertica.com</a>

**Apache Derby**

Vendor Name		Details	
Recommended Native Driver			
IBM	<b>Company URL</b> <a href="http://www.ibm.com">http://www.ibm.com</a>		
	<b>Driver URL</b> <a href="http://db.apache.org/derby/derby_downloads.html">http://db.apache.org/derby/derby_downloads.html</a>		
	<b>JDBC URL Syntax by Type</b> Server—jdbc:derby://<server>[:<port>]/<databaseName>[:<URL attribute>=<value>] Embedded—jdbc:derby:<databaseName>[:create=true]		<b>Default Port</b> 1527
	<b>JDBC Class</b> org.apache.derby.jdbc.ClientDriver org.apache.derby.jdbc.EmbeddedDriver		<b>JDBC JAR File Name</b> derby.jar
	<b>Shipped with Pentaho Products</b> Pentaho Data Integration		
	<b>Comments</b> Open source database		

**Caché**

Vendor Name	Details
Recommended Native Driver	
InterSystems	<b>Company URL</b> <a href="http://www.cachemonitor.de">http://www.cachemonitor.de</a>
	<b>Driver URL</b> <a href="http://www.cachemonitor.de/interSystems-documentation/cache-jdbc-driver">http://www.cachemonitor.de/interSystems-documentation/cache-jdbc-driver</a>

Vendor Name	Details	
	<b>JDBC URL Syntax by Type</b> Server—jdbc:Cache:// <server>[:<port>]/<namespace>	<b>Default Port</b> 1972
	<b>JDBC Class</b> com.intersys.jdbc.CacheDriver	<b>JDBC JAR File Name</b> cachedb.jar

**CUBRID**

Vendor Name	Details	
Recommended Native Driver		
CUBRID	<b>Company URL</b> <a href="http://www.cubrid.org">http://www.cubrid.org</a>	
	<b>Driver URL</b> <a href="http://www.cubrid.org/?mid=downloads&amp;item=jdbc_driver">http://www.cubrid.org/?mid=downloads&amp;item=jdbc_driver</a>	
	<b>JDBC URL Syntax by Type</b> Server— jdbc:cubrid:<server>:<port>:<databaseName>:<username>:<password> : [?<URL attribute>=<value>[&<URL attribute>=<value>] ... ]	<b>Default Port</b> 33000
	<b>JDBC Class</b> cubrid.jdbc.driver.CUBRIDDriver	<b>JDBC JAR File Name</b> N/A
	<b>Comments</b> Open source database highly optimized for Web applications.	

**Daffodil DB**

Vendor Name	Details	
Recommended Native Driver		
Daffodil Software	<b>Company URL</b> <a href="http://db.daffodilsw.com">http://db.daffodilsw.com</a>	
	<b>Driver URL</b> <a href="http://sourceforge.net/projects/daffodildb/">http://sourceforge.net/projects/daffodildb/</a>	
	<b>JDBC URL Syntax by Type</b> Server—jdbc:daffodilDB:// <server>[:<port>]/<databaseName> Embedded— jdbc:daffodilDB_embedded:<databaseName>	<b>Default Port</b> 3456 N/A
	<b>JDBC Class</b> in.co.daffodil.db.rmi.RmiDaffodilDBDriver	<b>JDBC JAR File Name</b> DaffodilDB_client.jar DaffodilDB_Embedded.jar,

Vendor Name	Details	
	in.co.daffodil.db.jdbc.DaffodilDBDriver	DaffodilDB_Common.jar
	<b>Comments</b> Open source database	

**DB2 AS/400**

Vendor Name		Details	
Recommended Native Driver			
IBM	<b>Company URL</b> <a href="http://www.ibm.com">http://www.ibm.com</a>		
	<b>Driver URL</b> <a href="http://www-03.ibm.com/systems/i/software/toolbox/">http://www-03.ibm.com/systems/i/software/toolbox/</a>		
	<b>JDBC URL Syntax by Type</b> Server—jdbc:as400:// <server>naming=sql;errors=full		<b>Default Port</b> N/A
	<b>JDBC Class</b> com.ibm.as400.access.AS400JDBCDriver		<b>JDBC JAR File Name</b> as400.jar
	<b>Shipped with Pentaho Products</b> Pentaho Data Integration		

**DB2 Universal Database**

Vendor Name		Details	
Recommended Native Driver			
IBM	<b>Company URL</b> <a href="http://www.ibm.com">http://www.ibm.com</a>		
	<b>Driver URL</b> <a href="http://www-306.ibm.com/software/data/db2/java">http://www-306.ibm.com/software/data/db2/java</a>		
	<b>JDBC URL Syntax by Type</b> Server—jdbc:db2://<server>[:<port>]/<databaseName>[:<URL attribute>=<value>]		<b>Default Port</b> 50000
	<b>JDBC Class</b> com.frontbase.jdbc.FBJDriver		<b>JDBC JAR File Name</b> frontbasejdbc.jar

**Firebird**

Vendor Name	Details
Recommended Native Driver	
Firebird Foundation	<b>Company URL</b>

Vendor Name	Details	
	<a href="http://www.firebirdsql.org">http://www.firebirdsql.org</a>	
	<b>Driver URL</b> <a href="http://www.firebirdsql.org/en/jdbc-driver/">http://www.firebirdsql.org/en/jdbc-driver/</a>	
	<b>JDBC URL Syntax by Type</b> Server—jdbc:firebirdsql:<server>[/<port>]/<database-file> (JDBC Type 4, official format) Server—jdbc:firebirdsql://<server>[:<port>]/<database-file> (JDBC Type 4, compatibility format) Server—jdbc:firebirdsql:native//<server>[/<port>]/<database-file> (JDBC Type 2, compatibility format) Server—jdbc:firebirdsql:native://<server>[:<port>]/<database-file> (JDBC Type 2, compatibility format. Requires libraries) Embedded— jdbc:firebirdsql:embedded:/<local-database-file> (JDBC Type 2, compatibility format. Requires libraries)	<b>Default Port</b> 3050 3050 3050 3050 N/A
	<b>JDBC Class</b> org.firebirdsql.jdbc.FBDriver	<b>JDBC JAR File Name</b> jaybird-full-xxx.jar
	<b>Shipped with Pentaho Products</b> Pentaho Data Integration	

### FrontBase

Vendor Name	Details	
Recommended Native Driver		
FrontBase	<b>Company URL</b> <a href="http://www.frontbase.com">http://www.frontbase.com</a>	
	<b>Driver URL</b> <a href="http://www.frontbase.com/cgi-bin/WebObjects/FBWebSite">http://www.frontbase.com/cgi-bin/WebObjects/FBWebSite</a>	
	<b>JDBC URL Syntax by Type</b> Server— jdbc:FrontBase://<host>[:<port>]/<databaseName>	<b>Default Port</b> N/A
	<b>JDBC Class</b>	<b>JDBC JAR File Name</b>

Vendor Name	Details	
	com.frontbase.jdbc.FBJDriver	frontbasejdbc.jar

## Greenplum

Vendor Name	Details	
Recommended Native Driver		
Greenplum	<b>Company URL</b> <a href="http://www.greenplum.com">http://www.greenplum.com</a>	
	<b>Driver URL</b> <a href="http://jdbc.postgresql.org/download.html">http://jdbc.postgresql.org/download.html</a>	
	<b>JDBC URL Syntax by Type</b> Server—jdbc:postgresql:// <server>[:<port>]/<databaseName>	<b>Default Port</b> 5342
	<b>JDBC Class</b> org.postgresql.Driver	<b>JDBC JAR File Name</b> postgresql-8.x-xxx.jdbc4.jar
	<b>Comments</b> Greenplum uses the Postgresql JDBC driver	

## H2 Database

Vendor Name	Details	
Recommended Native Driver		
H2	<b>Company URL</b> <a href="http://www.h2database.com">http://www.h2database.com</a>	
	<b>Driver URL</b> <a href="http://www.h2database.com">http://www.h2database.com</a>	
	<b>JDBC URL Syntax by Type</b> Server—jdbc:h2:tcp://server[:port]/file-path Embedded—jdbc:h2:file-name	<b>Default Port</b> 9092 N/A
	<b>JDBC Class</b> jdbc:h2:tcp://server[:port]/file-path org.h2.Driver	<b>JDBC JAR File Name</b> h2-x.x.xxx.jar
	<b>Shipped with Pentaho Products</b> <ul style="list-style-type: none"><li>• Pentaho Business Analysis Server</li><li>• Pentaho Data Integration</li><li>• Pentaho Metadata-Editor</li></ul> Pentaho Report-Designer	
	<b>Comments</b>	



Vendor Name	Details
	Open source Java SQL database

**Hive**

Vendor Name	Details
Recommended Native Driver	
Apache	<b>Company URL</b> <a href="http://hive.apache.org/">http://hive.apache.org/</a>
	<b>Driver URL</b> N/A
	<b>JDBC URL Syntax by Type</b> Server—jdbc:hive://<server>[:<port>]/default
	<b>Default Port</b> 10000
	<b>JDBC Class</b> org.apache.hadoop.hive.jdbc.HiveDriver
	<b>JDBC JAR File Name</b> hive-jdbc-x.x.x-pentaho-y.y.y.jar Example: hive-jdbc-0.7.0-pentaho-1.0.1.jar*
<b>Shipped with Pentaho Products</b> <ul style="list-style-type: none"> <li>• Pentaho Business Analysis Server</li> <li>• Pentaho Data Integration</li> <li>• Pentaho Metadata-Editor</li> </ul> Pentaho Report-Designer	
<b>Comments</b> Data warehouse infrastructure that provides data summarization and ad hoc querying *x.x.x is the Hive version, y.y.y is the Pentaho version. Pentaho has enhanced the standard Hive JDBC driver	

**HSQldb**

Vendor Name	Details
Recommended Native Driver	
HyperSQL	<b>Company URL</b> <a href="http://www.hsqldb.org">http://www.hsqldb.org</a>
	<b>Driver URL</b> <a href="http://sourceforge.net/projects/hsqldb/">http://sourceforge.net/projects/hsqldb/</a>
	<b>JDBC URL Syntax by Type</b> Server—jdbc:hsqldb:hsqldb://<server>[:<port>]/<databaseName> Embedded Memory— jdbc:hsqldb:mem:<databaseName>
	<b>Default Port</b> 9001 N/A N/A

Vendor Name	Details	
	Embedded File — jdbc:hsqldb:file:<database-file>	
	<b>JDBC Class</b> org.hsqldb.jdbcDriver	<b>JDBC JAR File Name</b> hsqldb.jar
	<b>Shipped with Pentaho Products</b> <ul style="list-style-type: none"> <li>• Pentaho Enterprise-Console</li> <li>• Pentaho Business Analysis Server</li> <li>• Pentaho Aggregation-Designer</li> <li>• Pentaho Data Integration</li> <li>• Pentaho Metadata-Editor</li> <li>• Pentaho Report-Designer</li> </ul>	

**Informix**

Vendor Name	Details	
Recommended Native Driver		
IBM	<b>Company URL</b> <a href="http://www.ibm.com">http://www.ibm.com</a>	
	<b>Driver URL</b> =	
	<b>JDBC URL Syntax by Type</b> Server—jdbc:informix-sqli://<server>[:<port>]/<databaseName>:informixserver=<dbservername>	<b>Default Port</b> 1533
	<b>JDBC Class</b> com.informix.jdbc.IfxDriver	<b>JDBC JAR File Name</b> ifxjdbc.jar
	<b>Shipped with Pentaho Products</b> Pentaho Data Integration	

**Ingres**

Vendor Name		Details	
Recommended Native Driver			
Actian	<b>Company URL</b> <a href="http://www.actian.com/">http://www.actian.com/</a>		
	<b>Driver URL</b> <a href="http://esd.actian.com/product/drivers/JDBC/java">http://esd.actian.com/product/drivers/JDBC/java</a>		
	<b>JDBC URL Syntax by Type</b> Server—jdbc:ingres:// <server>[:<port>]/<databaseName>		<b>Default Port</b> 21071
	<b>JDBC Class</b>		<b>JDBC JAR File Name</b>

Vendor Name	Details	
	com.ingres.jdbc.IngresDriver	ijjdbc.jar
	<b>Comments</b> Open source relational database management system	

**InterBase**

Vendor Name	Details	
Recommended Native Driver		
Embarcadero	<b>Company URL</b> <a href="http://edn.embarcadero.com">http://edn.embarcadero.com</a>	
	<b>Driver URL</b> N/A	
	<b>JDBC URL Syntax by Type</b> Server—jdbc:interbase://<server>/<full_db_path>	<b>Default Port</b> N/A
	<b>JDBC Class</b> interbase.interclient.Driver	<b>JDBC JAR File Name</b> interclient.jar
	<b>Shipped with Pentaho Products</b> Pentaho Data Integration	

**jTDS Free MS SQL Sybase**

Vendor Name	Details	
Recommended Native Driver		
jTDS	<b>Company URL</b> <a href="http://jtds.sourceforge.net/">http://jtds.sourceforge.net/</a>	
	<b>Driver URL</b> N/A	
	<b>JDBC URL Syntax by Type</b>  SQL Server— jdbc:jtds:<server_type>// <server>[:<port>][/<database>] [;<property>=<value>[:...]]]  Sybase—jdbc:jtds:<server_type>:// <server>[:<port>][/<database>]	<b>Default Port</b>  1433  7100
	<b>JDBC Class</b>  interbase.interclient.Driver	<b>JDBC JAR File Name</b>  jtds-x.x.x.jar
	<b>Shipped with Pentaho Products</b> <ul style="list-style-type: none"><li>• Pentaho Enterprise-Console</li><li>• Pentaho Business Analysis Server</li></ul>	

Vendor Name	Details
	<ul style="list-style-type: none"> <li>• Pentaho Aggregation-Designer</li> <li>• Pentaho Data Integration</li> <li>• Pentaho Metadata-Editor</li> <li>• Pentaho Report-Designer</li> </ul>

**LucidDB**

Vendor Name	Details	
Recommended Native Driver		
DynamoDB	<b>Company URL</b> <a href="http://www.dynamobi.com">http://www.dynamobi.com</a>	
	<b>Driver URL</b> <a href="http://www.dynamobi.com/c/downloads/stable/">http://www.dynamobi.com/c/downloads/stable/</a>	
	<b>JDBC URL Syntax by Type</b> Server—jdbc:luciddb:http:// <server>[:<port>]	<b>Default Port</b> 8034
	<b>JDBC Class</b> org.luciddb.jdbc.LucidDbClientDriver	<b>JDBC JAR File Name</b> LucidDbClient-x.x.x.jar
	<b>Shipped with Pentaho Products</b> Pentaho Data Integration	
	<b>Comments</b> Open source BI solution for Big Data	

**MaxDB**

Vendor Name	Details	
Recommended Native Driver		
SAP	<b>Company URL</b> <a href="http://www.sap.com">http://www.sap.com</a>	
	<b>Driver URL</b> <a href="http://maxdb.sap.com">http://maxdb.sap.com</a>	
	<b>JDBC URL Syntax by Type</b> Server—jdbc:sapdb:// <server>[:<port>]/<databaseName>	<b>Default Port</b> 7210
	<b>JDBC Class</b> com.sap.dbtech.jdbc.DriverSapDB	<b>JDBC JAR File Name</b> sapdbc.jar
	<b>Comments</b> Database management system developed and supported by SAP AG	

**Mckoi SQL Database**

Vendor Name		Details	
Recommended Native Driver			
Mckoi	<b>Company URL</b> <a href="http://www.mckoi.com">http://www.mckoi.com</a>		
	<b>Driver URL</b> <a href="http://www.mckoi.com/originalmckoisql/index.html">http://www.mckoi.com/originalmckoisql/index.html</a>		
	<b>JDBC URL Syntax by Type</b> Server—jdbc:mckoi:// <server>[:<port>][/<schema>]/		<b>Default Port</b> 9157
	<b>JDBC Class</b> com.mckoi.JDBCdriver		<b>JDBC JAR File Name</b> mckoidb.jar
	<b>Comments</b> Open source SQL database written in Java		

**Mimer**

Vendor Name		Details	
Recommended Native Driver			
Mimer Information Technology	<b>Company URL</b> <a href="http://www.mimer.com">http://www.mimer.com</a>		
	<b>Driver URL</b> N/A		
	<b>JDBC URL Syntax by Type</b> Server—jdbc:mimer:<protocol>://<server>[:<port>]/<database>	<b>Default Port</b> 1360	
	<b>JDBC Class</b> com.mimer.jdbc.Driver	<b>JDBC JAR File Name</b> mimer.jar	

**MonetDB**

Vendor Name		Details	
Recommended Native Driver			
MonetDB	Company URL <a href="http://www.monetdb.org">http://www.monetdb.org</a>		
	Driver URL N/A		
	JDBC URL Syntax by Type	Default Port 50000	

Vendor Name	Details	
	Server—jdbc:monetdb:// <server>[:<port>]/<database>	
	<b>JDBC Class</b> nl.cwi.monetdb.jdbc.MonetDriver	<b>JDBC JAR File Name</b> monetdb-jdbc-x.x.jar
	<b>Shipped with Pentaho Products</b> Pentaho Data Integration	
	<b>Comments</b> An open source database system	

**MY SQL**

Vendor Name	Details	
Recommended Native Driver		
Oracle	<b>Company URL</b> <a href="http://www.mysql.com">http://www.mysql.com</a>	
	<b>Driver URL</b> <a href="http://dev.mysql.com/downloads/connector/j/">http://dev.mysql.com/downloads/connector/j/</a>	
	<b>JDBC URL Syntax by Type</b> Server—jdbc:mysql:// <hostname>[,<failoverhost> [:<port>] /<dbname>[?<URL attribute>=<value>[&<URL attribute>=<value>] ... ]	<b>Default Port</b>  3306
	<b>JDBC Class</b> com.mysql.jdbc.Driver (official class name)  org.gjt.mm.mysql.Driver (older class name)	<b>JDBC JAR File Name</b>  mysql-connector-java-5.x.xx-bin.jar
	<b>Shipped with Pentaho Product</b> <ul style="list-style-type: none"><li>• Pentaho Enterprise-Console</li><li>• Pentaho Business Analysis Server</li><li>• Pentaho Aggregation-Designer</li><li>• Pentaho Metadata-Editor</li><li>• Pentaho Report-Designer</li></ul>	

**Neoview**

Vendor Name	Details
Recommended Native Driver	
HP	<b>Company URL</b> <a href="http://www.hp.com">http://www.hp.com</a>

Vendor Name	Details	
	<b>Driver URL</b> <a href="https://h20392.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=NEO10">https://h20392.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=NEO10</a>	
	<b>JDBC URL Syntax by Type</b> Server—jdbc:hpt4jdbc:// <system>[:<port>]/[:][<URL attribute>= <value>[:<URL attribute>=<value> ...]	<b>Default Port</b> 18650
	<b>JDBC Class</b> com.hp.t4jdbc.HPT4Driver	<b>JDBC JAR File Name</b> N/A

**Netezza**

Vendor Name	Details	
Recommended Native Driver		
IBM	<b>Company URL</b> <a href="http://www.netezza.com">http://www.netezza.com</a>	
	<b>Driver URL</b> N/A	
	<b>JDBC URL Syntax by Type</b> jdbc:netezza://<server>[:<port>]/<database>	<b>Default Port</b> 5480
	<b>JDBC Class</b> org.netezza.Driver	<b>JDBC JAR File Name</b> N/A

**OpenBase SQL**

Vendor Name	Details	
Recommended Native Driver		
OpenBase International	<b>Company URL</b> <a href="http://www.openbase.com">http://www.openbase.com</a>	
	<b>Driver URL</b> <a href="http://www.openbase.com/index.php/products/downloads">http://www.openbase.com/index.php/products/downloads</a>	
	<b>JDBC URL Syntax by Type</b> Server—jdbc:openbase://<server>/<databaseName>	<b>Default Port</b> N/A
	<b>JDBC Class</b> com.openbase.jdbc.ObDriver	<b>JDBC JAR File Name</b> OpenBaseJDBC.jar

**Oracle**

Vendor Name		Details	
Recommended Native Driver			
Oracle	<b>Company URL</b> <a href="http://www.oracle.com">http://www.oracle.com</a>		
	<b>Driver URL</b> <a href="http://www.oracle.com/technetwork/database/features/jdbc/index.html">http://www.oracle.com/technetwork/database/features/jdbc/index.html</a>		
	<b>JDBC URL Syntax by Type</b> Thin Server— jdbc:oracle:thin:@<server>[:<port>]:<sid>  OCI Server —jdbc:oracle:oci:@<server>[:<port>]:<sid>		<b>Default Port</b>  1521
	<b>JDBC Class</b> oracle.jdbc.driver.OracleDriver  oracle.jdbc.OracleDriver		<b>JDBC JAR File Name</b>  ojdbcx.jar, ora18n.jar
	<b>Comments</b>  The OCI server requires OCI libraries		

**Pervasive**

Vendor Name		Details	
Recommended Native Driver			
Pervasive	<b>Company URL</b> <a href="http://www.pervasivedb.com/Pages/default.aspx">http://www.pervasivedb.com/Pages/default.aspx</a>		
	<b>Driver URL</b> <a href="http://www.pervasivedb.com/download/Pages/PDBDownloads.aspx">http://www.pervasivedb.com/download/Pages/PDBDownloads.aspx</a>		
	<b>JDBC URL Syntax by Type</b> Server—jdbc:pervasive:// <server>[:<port>]/<datasource>		<b>Default Port</b> 1583
	<b>JDBC Class</b> com.pervasive.jdbc.v2.Driver		<b>JDBC JAR File Name</b> N/A
	<b>Shipped with Pentaho Products</b> <ul style="list-style-type: none"><li>• Pentaho Data Integration</li><li>• Pentaho Report-Designer</li></ul>		
	<b>Comments</b> The data source is the ODBC DSN		



**PostgreSQL**

Vendor Name		Details	
Recommended Native Driver			
PostgreSQL Global Development Group	<b>Company URL</b> <a href="http://www.postgresql.org/">http://www.postgresql.org/</a>		
	<b>Driver URL</b> <a href="http://jdbc.postgresql.org/">http://jdbc.postgresql.org/</a>		
	<b>JDBC URL Syntax by Type</b> Server—jdbc:postgresql:// <server>[:<port>]/<databaseName>		<b>Default Port</b> 5342
	<b>JDBC Class</b> org.postgresql.Driver		<b>JDBC JAR File Name</b> postgresql-8.x-xxx.jdbc4.jar
	<b>Shipped with Pentaho Products</b> <ul style="list-style-type: none"><li>• Pentaho Data Integration</li><li>• Pentaho Report-Designer</li></ul>		

**SAP DB**

Vendor Name		Details	
Recommended Native Driver			
SAP DB	<b>Company URL</b> N/A		
	<b>Driver URL</b> <a href="http://www.sapdb.org/sap_db_jdbc.htm">http://www.sapdb.org/sap_db_jdbc.htm</a>		
	<b>JDBC URL Syntax by Type</b> Server—jdbc:sapdb://<server>/<database_name>		<b>Default Port</b> N/A
	<b>JDBC Class</b> com.sap.dbtech.jdbc.DriverSapDB		<b>JDBC JAR File Name</b> sapdbc-x.x.x.jar
	<b>Shipped with Pentaho Products</b> Pentaho Data Integration		
	<b>Comments</b> FREE Enterprise Open Source Database		

**SQLite**

Vendor Name		Details	
Recommended Native Driver			
Xerial		Company URL	

Vendor Name	Details	
	N/A	
	<b>Driver URL</b> <a href="http://www.xerial.org/trac/Xerial/wiki/SQLiteJDBC">http://www.xerial.org/trac/Xerial/wiki/SQLiteJDBC</a>	
	<b>JDBC URL Syntax by Type</b> Server—jdbc:sqlite:<filename.db>	<b>Default Port</b> N/A
	<b>JDBC Class</b> org.sqlite.JDBC	<b>JDBC JAR File Name</b> sqlite-jdbc-x.x.x.jar
	<b>Shipped with Pentaho Products</b> Pentaho Data Integration	

**SQL Server**

Vendor Name		Details	
Recommended Native Driver			
Microsoft	<b>Company URL</b> <a href="http://www.microsoft.com">http://www.microsoft.com</a>		
	<b>Driver URL</b> <a href="http://msdn.microsoft.com/en-us/sqlserver/aa937724.aspx">http://msdn.microsoft.com/en-us/sqlserver/aa937724.aspx</a>		
	<b>JDBC URL Syntax by Type</b> Server—jdbc:sqlserver:// <server>[:<port>];DatabaseName=<databaseName>		<b>Default Port</b> 1433
	<b>JDBC Class</b> com.microsoft.sqlserver.jdbc.SQLServerDriver		<b>JDBC JAR File Name</b> sqljdbc4.jar
	<b>Comments</b> The open source jtds driver also works with MSSQL		

**Sybase ASE**

Vendor Name		Details	
Recommended Native Driver			
SAP	Company URL <a href="http://www.sybase.com">http://www.sybase.com</a>		
	Driver URL <a href="http://www.sybase.com/products/allproductsa-z/softwaredeveloperkit/jconnect">http://www.sybase.com/products/allproductsa-z/softwaredeveloperkit/jconnect</a>		
	JDBC URL Syntax by Type Server— jdbc:sybase:Tds:<server>[:<port>]/<databaseName>		Default Port 5000

Vendor Name	Details	
	<b>JDBC Class</b> com.sybase.jdbc4.jdbc.SybDriver	<b>JDBC JAR File Name</b> N/A
	<b>Comments</b> The open source jTDS driver works with Sybase as well	

### Sybase SQL Anywhere

Vendor Name	Details	
Recommended Native Driver		
SAP	<b>Company URL</b> <a href="http://www.sybase.com">http://www.sybase.com</a>	
	<b>Driver URL</b> <a href="http://www.sybase.com/products/allproductsa-z/softwaredeveloperkit/jconnect">http://www.sybase.com/products/allproductsa-z/softwaredeveloperkit/jconnect</a>	
	<b>JDBC URL Syntax by Type</b> Server— jdbc:sybase:Tds:<server>[:<port>]/<databaseName>	<b>Default Port</b> 2638
	<b>JDBC Class</b> com.sybase.jdbc4.jdbc.SybDriver	<b>JDBC JAR File Name</b> N/A
	<b>Comments</b> This open source jTDS driver works with Sybase as well	

### SmallSQL

Vendor Name	Details	
Recommended Native Driver		
SmallSQL	<b>Company URL</b> <a href="http://www.smallsql.de/">http://www.smallsql.de/</a>	
	<b>Driver URL</b> <a href="http://www.smallsql.de/download.html">http://www.smallsql.de/download.html</a>	
	<b>JDBC URL Syntax by Type</b> Embedded— jdbc:smallsql:databaseName[?URL attribute=value[URLattribute=value] ...]	<b>Default Port</b> N/A
	<b>JDBC Class</b> smallsql.database.SSDriver	<b>JDBC JAR File Name</b> smallsql.jar
	<b>Comments</b>	

Vendor Name	Details
	Java desktop SQL database engine

**Teradata**

Vendor Name	Details	
Recommended Native Driver		
Teradata	<b>Company URL</b> <a href="http://www.teradata.com">http://www.teradata.com</a>	
	<b>Driver URL</b> <a href="http://downloads.teradata.com/download/connectivity/jdbc-driver">http://downloads.teradata.com/download/connectivity/jdbc-driver</a>	
	<b>JDBC URL Syntax by Type</b> Server—jdbc:teradata://<dbshost>[/<URL attribute>[;<URL attribute>]...]	<b>Default Port</b> N/A
	<b>JDBC Class</b> com.teradata.jdbc.TeraDriver	<b>JDBC JAR File Name</b> terajdbc4.jar

**Vertica**

Vendor Name	Details	
Recommended Native Driver		
HP	<b>Company URL</b> <a href="http://www.vertica.com">http://www.vertica.com</a>	
	<b>Driver URL</b> TBD	
	<b>JDBC URL Syntax by Type</b> Server—jdbc:vertica:// <server>[:<port>]/<databaseName>	<b>Default Port</b> 5433
	<b>JDBC Class</b> com.vertica.Driver	<b>JDBC JAR File Name</b> N/A

# Troubleshooting

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This section contains known problems and solutions relating to the procedures covered in this guide.

## Evaluation Licenses are Not Granted

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If you see a message in the graphical installation utility's error log that says, **Evaluation licenses were not granted for the following products**, this means that you've installed this version of Pentaho Business Analytics (or some piece of it) in the past, and one or more evaluation licenses have already been generated and installed. An evaluation license expires 30 days after it is generated; once expired, it cannot be reactivated. The only way to use Pentaho Business Analytics's full functionality is to install a new, active license that overwrites the old one.

In some cases, you may have delayed or extended your Pentaho evaluation beyond the automatic license's term. If you need more time, contact your Pentaho sales representative or pre-sales support engineer.

## Mac OSX Error When Running Apps

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When you run a Pentaho App file on OSX Mountain Lion, you may get a warning message from Gatekeeper. Temporarily changing security settings enables you to open apps successfully. For more information, see [OS X: About Gatekeeper](#).

1. **Go to System Preferences > Security > Privacy > General > Allow applications downloaded from.**
2. Change the setting to **Anywhere**.
3. Double-click the app.  
A message box appears indicating this app is not signed.
4. Click **Open** to run the app.
5. Reset the security settings to what they originally were.  
The next time you run this app, the message box does not appear and the app runs normally.