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CHAPTER 1 INTRODUCTION

TIBCO JasperReports® Server builds on TIBCO JasperReports® Library as a comprehensive family of Business Intelligence (BI) products, providing robust static and interactive reporting, report server, and data analysis capabilities. These capabilities are available as either stand-alone products, or as part of an integrated end-to-end BI suite utilizing common metadata and provide shared services, such as security, a repository, and scheduling. The server exposes comprehensive public interfaces enabling seamless integration with other applications and the capability to easily add custom functionality.



This section describes functionality that can be restricted by the software license for JasperReports Server. If you don't see some of the options described in this section, your license may prohibit you from using them. To find out what you're licensed to use, or to upgrade your license, contact Jaspersoft.

The heart of the TIBCO Jaspersoft® BI Suite is the server, which provides the ability to:

- Easily create new reports based on views designed in an intuitive, web-based, drag and drop Ad Hoc Editor.
- Efficiently and securely manage many reports.
- Interact with reports, including sorting, changing formatting, entering parameters, and drilling on data.
- Schedule reports for distribution through email and storage in the repository.
- Arrange reports and web content to create appealing, data-rich Jaspersoft Dashboards that quickly convey business trends.

For users interested in multi-dimensional modeling, we offer Jaspersoft® OLAP, which runs as part of the server.

While the Ad Hoc Editor lets users create simple reports, more complex reports can be created outside of the server. You can either use Jaspersoft® Studio or manually write JRXML code to create a report that can be run in the server. We recommend that you use Jaspersoft Studio unless you have a thorough understanding of the JasperReports file structure.

You can use the following sources of information to learn about JasperReports Server:

- Our core documentation describes how to install, administer, and use JasperReports Server and Jaspersoft
 Studio. Core documentation is available as PDFs in the doc subdirectory of your JasperReports Server
 installation. You can also access PDF and HTML versions of these guides online from the <u>Documentation</u>
 section of the Jaspersoft Community website.
- Our Ultimate Guides document advanced features and configuration. They also include best practice recommendations and numerous examples. You can access PDF and HTML versions of these guides online from the Documentation section of the Jaspersoft Community website.

- Our Online Learning Portal lets you learn at your own pace, and covers topics for developers, system
 administrators, business users, and data integration users. The Portal is available online from the Professional
 Services section of our website.
- Our free samples, which are installed with JasperReports Library, Jaspersoft Studio, and JasperReports Server, are available and documented online. Please visit our GitHub repository.
- If you have a subscription to our professional support offerings, please contact our Technical Support team when you have questions or run into difficulties. They're available on the web at and through email at http://support.tibco.com and js-support@tibco.com.

JasperReports Server is a component of both a community project and commercial offerings. Each integrates the standard features such as security, scheduling, a web services interface, and much more for running and sharing reports. Commercial editions provide additional features, including Ad Hoc views and reports, advanced charts, dashboards, Domains, auditing, and a multi-organization architecture for hosting large BI deployments.

1.1 Server Upgrade Distributions

The following distribution package is available for JasperReports Server upgrade:

Distribution Package	Description
WAR File Distribution Zip	Supports upgrade from version 6.3 or later. Supports all certified application servers. Supports all certified repository databases. Supports Windows, Linux, Mac, and other platforms.
	File name is: TIB_js-jrs_cp_7.2.0_bin.zip

1.1.1 About Bundled Apache Ant

We recommend Apache Ant version 1.9.4, which is bundled with the War File Distribution ZIP. The Ant scripts used for upgrade come with Windows and Linux batch scripts pre-configured to use the bundled version of Apache Ant.

If you want to run your own version of Apache Ant, version 1.8.1 or later is required.

The bundled Apache Ant includes an additional jar This jar (ant-contrib.jar) enables conditional logic in Ant. If you're running your own Ant you should copy the ant-contrib.jar to your <Ant HOME>/lib folder.



On Linux and Solaris, the Ant commands may not be compatible with all shells. If you get errors, use the bash shell explicitly. For more information, see the information on the bash shell in the Troubleshooting appendix of the JasperReports Server Community Project Installation Guide.

CHAPTER 2 UPGRADING FROM 7.1 TO 7.2

This chapter describes the recommended procedure for upgrading to JasperReports Server 7.2 from version 7.1. The examples show you how to upgrade using the js-upgrade shell scripts.

This chapter contains the following sections:

- Upgrade Steps Overview
- Upgrading with Customizations
- Back Up Your JasperReports Server Instance
- Preparing the JasperReports Server 7.2 WAR File Distribution
- Configuring Buildomatic for Your Database and Application Server
- Upgrading to JasperReports Server 7.2
- Starting and Logging into JasperReports Server 7.2
- Additional Tasks to Complete the Upgrade

2.1 Upgrade Steps Overview

These are the general steps used in this section:

- 1. Identify your customizations.
- 2. Back up your current JasperReports Server instance.
- 3. Download and set up the new 7.2 JasperReports Server WAR file distribution zip.
- 4. Run the js-upgrade script as described in 2.6, "Upgrading to JasperReports Server 7.2," on page 10.

If your current instance of JasperReports Server has modifications or extensions, keep track of these and reintegrate them into your 7.2 instance after upgrading.

2.2 Upgrading with Customizations

If your current instance of JasperReports Server has modifications or extensions, keep track of these and reintegrate them into your 7.2 instance after upgrading. See **Appendix A**, "Planning Your Upgrade," on page 23 to determine if any customizations you've made to your existing version of JasperReports Server are affected by changes to the updated version.

2.3 Back Up Your JasperReports Server Instance

First back up your JasperReports Server WAR file and jasperserver database so you can restore them if necessary. Perform these steps from the command line in a Windows or Linux shell.

This backup example is for Tomcat with the PostgreSQL or MySQL database. For other databases, consult your DB administration documentation for backup information.

Back up your JasperReports Server War File:

- 1. Create a folder where you can save your jasperserver war file. For example, C:\JS_BACKUP or /opt/JS_BACKUP.
- 2. Copy <tomcat>/webapps/jasperserver to <path>/JS BACKUP

Back up your jasperserver Database:

- 1. Create a folder (if you did not do so in the step above) where you can save your jasperserver database, For example, C:\JS_BACKUP or /opt/JS_BACKUP.
- 2. Run the following commands for PostgreSQL or MySQL:
 - PostgreSQL

```
cd <path>/JS_BACKUP
pg_dump --username=postgres jasperserver > js-db-dump.sql
```

MySQL

```
cd <path>/JS_BACKUP
```

```
Windows: mysqldump --user=root --password=<password> jasperserver > js-db-dump.sql

Linux: mysqldump --user=root --password=<password> --host=127.0.0.1 jasperserver > js-db-dump.sql
```



For MySQL, If you receive an error about packet size, see the Troubleshooting appendix of the JasperReports Server Community Project Installation Guide.

2.4 Preparing the JasperReports Server 7.2 WAR File Distribution

Use the buildomatic js-upgrade scripts included in the 7.2 WAR file distribution ZIP release package to carry out the upgrade. The WAR file distribution comes in a compressed ZIP file named TIB_js-jrs_cp_7.2.0_bin.zip.

Follow these steps to obtain and unpack the WAR file distribution ZIP file:

- 1. Download the WAR file distribution from the Jaspersoft community site (http://community.jaspersoft.com).
- 2. Extract all files from TIB_js-jrs_cp_7.2.0_bin.zip. Choose a destination, such as a C:\Jaspersoft folder on Windows, /home/<user> on Linux, or /Users/<user> on Mac.

After you unpack the WAR File Distribution, the resulting location will be known as:

```
<js-install-7.2>
```

2.5 Configuring Buildomatic for Your Database and Application Server

This upgrade procedure uses the js-upgrade-samedb-ce shell script.



For Unix, the bash shell is required for the js-upgrade scripts. If you're installing to a non-Linux Unix platform such as HP-UX, IBM AIX, FreeBSD or Solaris, you need to download and install the bash shell. See the Troubleshooting appendix of the *JasperReports Server Community Project Installation Guide* for more information.

This section shows example configurations for the PostgreSQL and MySQL databases.

2.5.1 Example Buildomatic Configuration

The default_master.properties file handles the upgrade configuration. We provide a sample configuration file for each database. You must specify your database credentials and application server location, and rename the file to default master.properties.

2.5.1.1 PostgreSQL Example

To configure default master.properties for PostgreSQL:

1. Locate the postgresql master.properties sample configuration file.

Database	Master Properties File
PostgreSQL	<js-install-7.2>/buildomatic/sample_conf/postgresql_master.properties</js-install-7.2>

- 2. Copy the file to <js-install-7.2>/buildomatic
- 3. Rename the file default master.properties
- 4. Edit default_master.properties for your database and application server.

Database	Sample Property Values
PostgreSQL	<pre>appServerType=tomcat (or wildfly, glassfish, etc.) appServerDir=c:\\Apache Software Foundation\\Tomcat 9.0 (for example) dbUsername=postgres dbPassword=postgres dbHost=localhost</pre>

2.5.1.2 MySQL Example

To configure default master.properties for MySQL:

1. Locate the mysql master.properties sample configuration file:

Database	Master Properties File
MySQL	<js-install-7.2>/buildomatic/sample_conf/mysql_master.properties</js-install-7.2>

- 2. Copy the file to <js-install-7.2>/buildomatic
- 3. Rename the file default master.properties
- 4. Edit default master.properties for your database and application server.

Database	Sample Property Values
MySQL	<pre>appServerType=tomcat (or wildfly, glassfish, etc.) appServerDir=c:\\Apache Software Foundation\\Tomcat 9.0 (for example) dbUsername=root dbPassword=password dbHost=localhost</pre>

2.6 Upgrading to JasperReports Server 7.2

Now that your buildomatic scripts are configured, you can complete the upgrade.



Make sure you've backed up your jasperserver database before proceeding.

Make sure you've backed up your old JasperReports Server WAR file before proceeding.

- 1. Stop your application server
- 2. Start your database server
- 3. Run the following commands:

Commands	Description
cd <js-install-7.2>/buildomatic</js-install-7.2>	
js-upgrade-samedb-ce.bat	(Windows) Upgrade jasperserver war file, upgrade jasperserver database to 7.2, add 7.2 repository resources into the database
./js-upgrade-samedb-ce.sh	(Linux) Upgrade jasperserver war file, upgrade jasperserver database to 7.2, add 7.2 repository resources into the database

2.6.1 js-upgrade Test Mode

Use the test option to run the js-upgrade script in test mode. For example, on Windows, enter:

```
cd <js-install-7.2>/buildomatic
js-upgrade-samedb-ce.bat test
```

In test mode, the js-upgrade scripts check your default_master.properties settings and validate your application server location and its ability to connect to your database. Test mode can help you debug issues like an incorrect database password without altering your system.

2.6.2 Output Log Location

The js-upgrade script creates an output log that captures both standard and error output. If problems occur during script execution, or you just want to remember which options you chose, open the output log file located

here:

<js-install-7.2>/buildomatic/logs/js-upgrade-<date>-<number>.log

2.6.3 **Errors**

If you encounter errors running the <code>js-upgrade</code> script, first look at the output log to see if you can spot the errors. For help, refer to the Troubleshooting appendix of the <code>JasperReports Server Community Project Installation Guide</code>. The information in this appendix applies to both <code>js-upgrade</code> scripts and <code>js-install scripts</code>.

If you need to modify values in your default_master.properties file, you can simply edit the file. When you run the js-upgrade script again, it uses the new values.

2.7 Starting and Logging into JasperReports Server 7.2

Start your application server. Your database should already be running.

2.7.1 Clearing Your Browser Cache

Before you log in, make sure you and your end users clear the browser cache. JavaScript files, which enable the UI elements of JasperReports Server, are typically cached by the browser. Clear the cache to ensure that the newer files are used.

2.7.2 Logging into JasperReports Server

Log in using the following URL, user IDs, and passwords:

URL: http://localhost:8080/jasperserver

User ID	Password	Description
jasperadmin	<pre><your-password></your-password></pre>	Administrator for the default organization

Your JasperReports Server instance has now been upgraded to 7.2. If you have startup or login problems, refer to the Troubleshooting appendix of the *JasperReports Server Community Project Installation Guide*.

2.8 Additional Tasks to Complete the Upgrade

Perform these tasks with the application server shutdown.

2.8.1 Handling JasperReports Server Customizations

If you made modifications to the original JasperReports Server application, these configurations are typically found in the WEB-INF/applicationContext-*.xml set of files.

You'll need to manually copy configuration changes, like client-specific security classes or LDAP server configurations, from your previous environment and integrate them with your upgraded environment.

2.8.2 Clearing the Application Server Work Folder

Application servers have work folders where JasperReports Server files are compiled and cached and other objects are stored. When you update the WAR file, the buildomatic deploy-webapp-ce target should automatically clear the application server's work directory, but it's a good practice to double-check. A permission problem, or some other problem, could prevent the clearing of the work folder.

To clear the work folder in Tomcat:

- 1. Change directory to <tomcat>/work.
- 2. Delete all the files and folders in this directory.

2.8.3 Clearing the Application Server Temp Folder

JasperReports Server uses caching to speed operations within the application. Caching files are created and stored in the application server, usually in a temp folder. Clear this temp folder to avoid any post-upgrade conflicts. Typically, the temp folder used by an application server corresponds to the path referenced by the java.io.tmpdir Java system property. For Apache Tomcat the temp folder is <tomcat>/temp.

To clear the temp folder in Apache Tomcat:

- 1. Change directory to <tomcat>/temp
- 2. Delete all the files and folders in this directory

2.8.4 Clearing the Repository Cache Database Table

In the jasperserver database, compiled JasperReports Library resources are cached in the JIRepositoryCache table for increased efficiency at runtime. Because the JasperReports Library JAR is typically updated with each new release, old cached items can get out of date and cause errors at runtime. If you encounter errors that mention a JasperReports Library "local class incompatible," check your repository cache table. In summary, you can clear your jasperserver database cache table as part of this upgrade process whether or not there are errors.

To manually clear the repository cache database table, run a SQL command similar to one shown below:

```
update JIRepositoryCache set item_reference = null;
delete from JIRepositoryCache;
```

CHAPTER 3 UPGRADING FROM 6.3 - 6.4 TO 7.2

This chapter describes the recommended procedure for upgrading from the latest version of JasperReports Server 6.3 through 6.4.x to JasperReports Server 7.2. If you're upgrading from version 7.1.x to 7.2, we recommend the procedure in Chapter 2, "Upgrading from 7.1 to 7.2," on page 7.

If you are upgrading from an earlier version of JasperReports Server, you need to go through an intermediate version before upgrading to 7.2. See Chapter 4, "Upgrading JasperReports Server 6.2.x or Earlier," on page 21 for more information.

This upgrade procedure uses the JasperReports Server WAR File Distribution ZIP release package and the included buildomatic scripts. Our examples are for upgrading from version 6.4.

This chapter contains the following sections:

- Upgrade Steps Overview
- Upgrading with Customizations
- Back Up Your JasperReports Server Instance
- Exporting Current Repository Data
- Preparing the JasperReports Server 7.2 WAR File Distribution
- Configuring Buildomatic for Your Database and Application Server
- Upgrading to JasperReports Server 7.2
- Starting and Logging into JasperReports Server 7.2
- Additional Tasks to Complete the Upgrade
- Old Manual Upgrade Steps

3.1 Upgrade Steps Overview

These are the general steps used in this section:

- 1. Plan your upgrade.
- 2. Back up your current JasperReports Server instance.
- 3. Export your existing repository data. For example, export your 6.4 data.
- 4. Download and set up the new 7.2 JasperReports Server WAR file distribution zip.
- 5. Run the js-upgrade script as described in 3.7, "Upgrading to JasperReports Server 7.2," on page 17.

3.2 Upgrading with Customizations

If your current instance of JasperReports Server has modifications or extensions, keep track of these and reintegrate them into your 7.2 instance after upgrading. See **Appendix A**, "Planning Your Upgrade," on page 23 to determine if any customizations you've made to your existing version of JasperReports Server are affected by changes to the updated version.

3.3 Back Up Your JasperReports Server Instance

First back up your JasperReports Server WAR file and jasperserver database so you can restore them if necessary. Perform these steps from the command line in a Windows or Linux shell.

This backup example is for Tomcat with the PostgreSQL or MySQL database. For other databases, consult your DB administration documentation for backup information.

Back up your JasperReports Server War File:

- 1. Create a folder where you can save your jasperserver war file. For example, C:\JS_BACKUP or /opt/JS_BACKUP.
- 2. Copy <tomcat>/webapps/jasperserver to <path>/JS_BACKUP

Back up your jasperserver Database:

- 1. Create a folder (if you did not do so in the step above) where you can save your jasperserver database, For example, C:\JS_BACKUP or /opt/JS_BACKUP.
- 2. Run the following commands for PostgreSQL or MySQL:
 - PostgreSQL

```
cd <path>/JS_BACKUP
pg_dump --username=postgres jasperserver > js-db-dump.sql
```

MySQL

```
cd <path>/JS_BACKUP
```

```
Windows: mysqldump --user=root --password=<password> jasperserver > js-db-dump.sql

Linux: mysqldump --user=root --password=<password> --host=127.0.0.1 jasperserver > js-db-dump.sql
```



For MySQL, If you receive an error about packet size, see the Troubleshooting appendix of the *JasperReports Server Community Project Installation Guide*.

3.4 Exporting Current Repository Data

You need to export your old repository data. Use the JasperReports Server export utility to export using:

- the buildomatic scripts (if you originally installed using buildomatic).
- the js-export-ce.bat/.sh script found in the <js-install>/buildomatic folder.

3.4.1 Using Buildomatic Scripts to Export Data

If you configured buildomatic and your default_master.properties file for export as described in the JasperReports Server Community Project Administrator Guide, you can use buildomatic to export your repository data. For example, to export 6.4 repository data, use the following commands:

1. Navigate to the buildomatic directory:

```
cd <js-install-6.4>/buildomatic
```

2. Run buildomatic with the export target:

```
Windows: js-ant.bat export-everything-ce -DexportFile=js-6.4-export.zip

Linux: ./js-ant export-everything-ce -DexportFile=js-6.4-export.zip
```



Note the location of this export file so that you can use it during the 7.2 upgrade process.

3.4.2 Using the js-export Script to Export Data

To use the js-export-ce.bat/.sh script, navigate to the buildomatic folder, for example, <js-install-6.4>/buildomatic. If you're using the PostgreSQL database the js-export script should already be configured to run. If you're using a different database, or you've changed database passwords, you may need to update the js-export configuration.

Run the following commands:

1. Navigate to the buildomatic directory:

```
cd <js-install-6.4>/buildomatic
```

2. Run the js-export script:

```
Windows: js-export-ce.bat --everything --output-zip js-6.4-export.zip

Linux: js-export-ce.sh --everything --output-zip js-6.4-export.zip
```



Note the location of this export file so that you can use it during the 7.2 upgrade process.

3.5 Preparing the JasperReports Server 7.2 WAR File Distribution

Use the buildomatic js-upgrade scripts included in the 7.2 WAR file distribution ZIP release package to carry out the upgrade. The WAR file distribution comes in a compressed ZIP file named TIB_js-jrs_cp_7.2.0_bin.zip.

Follow these steps to obtain and unpack the WAR file distribution ZIP file:

- 1. Download the WAR file distribution from the Jaspersoft community site (http://community.jaspersoft.com).
- 2. Extract all files from TIB_js-jrs_cp_7.2.0_bin.zip. Choose a destination, such as a C:\Jaspersoft folder on Windows, /home/<user> on Linux, or /Users/<user> on Mac.

After you unpack the WAR File Distribution, the resulting location will be known as:

```
<js-install-7.2>
```

3.6 Configuring Buildomatic for Your Database and Application Server

This upgrade procedure uses the <code>js-upgrade-newdb-ce</code> shell script.



For Unix, the bash shell is required for the js-upgrade scripts. If you're installing to a non-Linux Unix platform such as HP-UX, IBM AIX, FreeBSD or Solaris, you need to download and install the bash shell. See the Troubleshooting appendix of the *JasperReports Server Community Project Installation Guide* for more information.

This section shows example configurations for the PostgreSQL and MySQL databases.

3.6.1 Example Buildomatic Configuration

The default_master.properties file handles the upgrade configuration. We provide a sample configuration file for each database. You must specify your database credentials and application server location, and rename the file to default master.properties.

3.6.1.1 PostgreSQL Example

To configure default master.properties for PostgreSQL:

1. Locate the postgresql_master.properties sample configuration file.

Database	Master Properties File
PostgreSQL	<js-install-7.2>/buildomatic/sample_conf/postgresql_master.properties</js-install-7.2>

- 2. Copy the file to <js-install-7.2>/buildomatic
- 3. Rename the file default_master.properties
- 4. Edit default master.properties for your database and application server.

Database	Sample Property Values
PostgreSQL	<pre>appServerType=tomcat (or wildfly, glassfish, etc.) appServerDir=c:\\Apache Software Foundation\\Tomcat 9.0 (for example) dbUsername=postgres dbPassword=postgres dbHost=localhost</pre>

3.6.1.2 MySQL Example

To configure default master.properties for MySQL:

1. Locate the mysql_master.properties sample configuration file:

Database	Master Properties File
MySQL	<js-install-7.2>/buildomatic/sample_conf/mysql_master.properties</js-install-7.2>

- 2. Copy the file to <js-install-7.2>/buildomatic
- 3. Rename the file $default_master.properties$

4. Edit default_master.properties for your database and application server.

Database	Sample Property Values
MySQL	<pre>appServerType=tomcat (or wildfly, glassfish, etc.) appServerDir=c:\\Apache Software Foundation\\Tomcat 9.0 (for example) dbUsername=root dbPassword=password dbHost=localhost</pre>

3.7 Upgrading to JasperReports Server 7.2

Now that your buildomatic scripts are configured, you can complete the upgrade.



Make sure you've backed up your jasperserver database before proceeding.

Make sure you've backed up your old JasperReports Server WAR file before proceeding.

- 1. Stop your application server
- 2. Start your database server
- 3. Run the following commands:

Commands	Description
cd <js-install-7.2>/buildomatic</js-install-7.2>	Change to buildomatic directory
js-upgrade-newdb-ce.bat <path>\js-6.4-export.zip</path>	(Windows) Upgrade jasperserver war file, drop and recreate the database, import data file from previous version.
./js-upgrade-newdb-ce.sh <path>/js-6.4-export.zip</path>	(Linux) Upgrade jasperserver war file, drop and recreate the database, import data file from previous version.



On MySQL, if you receive an error about packet size, see the Troubleshooting appendix of the JasperReports Server Community Project Installation Guide.

3.7.1 js-upgrade Test Mode

Use the test option to run the js-upgrade script in test mode. For example, on Windows, enter:

```
cd <js-install-7.2>/buildomatic
js-upgrade-newdb-ce.bat test <path>/js-6.4-export.zip
```

In test mode, the js-upgrade scripts check your default_master.properties settings and validate your application server location and its ability to connect to your database. Test mode can help you debug issues like an incorrect database password without altering your system.

3.7.2 Output Log Location

The js-upgrade script creates an output log that captures both standard and error output. If problems occur during script execution, or you just want to remember which options you chose, open the output log file located here:

<js-install-7.2>/buildomatic/logs/js-upgrade-<date>-<number>.log

3.7.3 Errors

If you encounter errors running the <code>js-upgrade</code> script, first look at the output log to see if you can spot the errors. For help, refer to the Troubleshooting appendix of the <code>JasperReports Server Community Project Installation Guide</code>. The information in this appendix applies to both <code>js-upgrade</code> scripts and <code>js-install</code> scripts.

If you need to modify values in your default_master.properties file, you can simply edit the file. When you run the js-upgrade script again, it uses the new values.

3.8 Starting and Logging into JasperReports Server 7.2

Start your application server. Your database should already be running.

3.8.1 Clearing Your Browser Cache

Before you log in, make sure you and your end users clear the browser cache. JavaScript files, which enable the UI elements of JasperReports Server, are typically cached by the browser. Clear the cache to ensure that the newer files are used.

3.8.2 Logging into JasperReports Server

Log in using the following URL, user IDs, and passwords:

URL: http://localhost:8080/jasperserver

User ID	Password	Description
jasperadmin	<your-password></your-password>	Administrator for the default organization

Your JasperReports Server instance has now been upgraded to 7.2. If you have startup or login problems, refer to the Troubleshooting appendix of the *JasperReports Server Community Project Installation Guide*.

3.9 Additional Tasks to Complete the Upgrade

Perform these tasks with the application server shutdown.

3.9.1 Handling JasperReports Server Customizations

If you made modifications to the original JasperReports Server application, these configurations are typically found in the WEB-INF/applicationContext-*.xml set of files.

You'll need to manually copy configuration changes, like client-specific security classes or LDAP server configurations, from your previous environment and integrate them with your upgraded environment.

3.9.2 Clearing the Application Server Work Folder

Application servers have work folders where JasperReports Server files are compiled and cached and other objects are stored. When you update the WAR file, the buildomatic deploy-webapp-ce target should automatically clear the application server's work directory, but it's a good practice to double-check. A permission problem, or some other problem, could prevent the clearing of the work folder.

To clear the work folder in Tomcat:

- 1. Change directory to <tomcat>/work.
- 2. Delete all the files and folders in this directory.

3.9.3 Clearing the Application Server Temp Folder

JasperReports Server uses caching to speed operations within the application. Caching files are created and stored in the application server, usually in a temp folder. Clear this temp folder to avoid any post-upgrade conflicts. Typically, the temp folder used by an application server corresponds to the path referenced by the java.io.tmpdir Java system property. For Apache Tomcat the temp folder is <tomcat>/temp.

To clear the temp folder in Apache Tomcat:

- 1. Change directory to <tomcat>/temp
- 2. Delete all the files and folders in this directory

3.9.4 Clearing the Repository Cache Database Table

In the jasperserver database, compiled JasperReports Library resources are cached in the JIRepositoryCache table for increased efficiency at runtime. Because the JasperReports Library JAR is typically updated with each new release, old cached items can get out of date and cause errors at runtime. If you encounter errors that mention a JasperReports Library "local class incompatible," check your repository cache table. In summary, you can clear your jasperserver database cache table as part of this upgrade process whether or not there are errors.

To manually clear the repository cache database table, run a SQL command similar to one shown below:

```
update JIRepositoryCache set item_reference = null;
delete from JIRepositoryCache;
```

3.10 Old Manual Upgrade Steps

This section describes the older, manual upgrade steps used before we implemented the <code>js-upgrade</code> shell scripts in release 4.0. They're provided here mainly as a reference for internal use.

We recommend using the js-upgrade shell scripts described in the beginning of this chapter instead of these manual commands.

Commands	Description
cd <js-install-7.2>/buildomatic</js-install-7.2>	
<pre>js-ant drop-js-db js-ant create-js-db js-ant init-js-db-ce</pre>	Deletes and recreates your jasperserver db. Make sure your original database is backed up.
js-ant import-minimal-ce	
<pre>js-ant import-upgrade -DimportFile="<path-and-filename>"</path-and-filename></pre>	The -DimportFile should point to the <path> and <filename> of the js-6.4-export.zip file you created earlier. On Windows, you must use double quotation marks (") if your path or filename contains spaces. On Linux, you must use double quotation marks, escaped with a backslash (\") in this case. Note: "import-upgrade" will import resources from the 6.4 instance in a "non-update" mode (so that core resources from 7.2 will stay unchanged). Additionally, the "update-core-users" option will be applied so that the superuser and jasperadmin users will have the same password as set in the 6.4 instance.</filename></path>
js-ant import-sample-data-upgrade-ce	(Optional) This step is optional; it loads the new sample data. The old sample data is overwritten, so you may need to redo certain changes such as configuring the sample data sources for your database.
js-ant deploy-webapp-ce	Deletes the existing older war file, deploys the new war file.

CHAPTER 4 UPGRADING JASPERREPORTS SERVER 6.2.X OR EARLIER

4.1 Upgrading from 6.2.x or Earlier

If you're running JasperReports Server version 6.2.x or earlier, your upgrade requires multiple steps.

If you're running JasperReports Server 3.7 through 4.2:

- 1. Upgrade to the latest version of 6.3.x.
- 2. Upgrade 6.3.x to the latest version 6.4.x.
- 3. Upgrade 6.4.x to version 7.2.

If you're running JasperReports Server 4.5 through 6.2.x:

- 1. Upgrade to the latest version of 6.4.x.
- 2. Upgrade from 6.4.x to version 7.2.

The steps for the upgrade to 6.3.x or 6.4.x are documented in the *JasperServer Installation Guide* for that release. Download the JasperReports Server WAR file distribution zip package for the release you want to get the relevant files and documentation. The Installation Guide is in the docs folder.

If you're running a JasperServer version earlier than 3.7, first upgrade to 3.7.0, then to 6.3.x, then to 7.2.

4.2 Best Practices for Upgrading on Windows

The two methods for installing JasperReports Server are:

- 1. Installing with the Binary Installer and Bundled Components
 - The binary installer is an executable that puts all the components in place to run JasperReports Server. For example, if you take the default installation choices, you'll get the Apache Tomcat application server, the PostgreSQL database and Java execution environment.
 - But keep in mind that these components are specially configured to run a specific version of JasperReports Server. This applies to the Windows Start Menu items created to start and stop JasperReports Server.
- 2. Installing to Pre-existing Components
 - When installing a "Production" instance of JasperReports Server, you may want to install the main components before you install JasperReports Server. This way you have more control over updating and upgrading components like the application server, database, and Java.

Once you put these components in place, you have two options for installing JasperReports Server:

- a. Use the War File ZIP distribution (file name: TIB_js-jrs_cp_7.2.0_bin.zip)
 You'll install JasperReports Server to the existing components using the js-install.bat scripts.
 You'll create a default_master.properties file that specifies the location of the application server and database components.
- b. Use the Binary Installer, TIB_js-jrs_cp_7.2.0__installer-windows-x64.exe

 The installer will prompt you for the location of the application server and database components.

If you intend to upgrade your Windows installation with future releases of JasperReports Server, we recommend installing to pre-existing components. This will reduce any post-upgrade confusion caused by the Windows Start Menu showing the older version of JasperReports Server.

APPENDIX A PLANNING YOUR UPGRADE

Some of the new and enhanced features in JasperReports Server can affect your deployment, and you should plan your upgrade accordingly. Before upgrading make sure to:

- Review this information carefully and determine how the changes described affect your deployment.
- Back up your current JasperReports Server installation and repository.

The versions and their affected functionality are:

- Changes in 7.2 affect customizations to the login page, external authentication, and customizations to the Spring Security framework.
- Changes in 7.1 affect customizations to the login page.
- Changes in 6.1 affect themes.

Changes are cumulative, so review all topics that affect you. For example, if you're upgrading from 6.1 to 7.1, you may be affected by changes in 6.1, 6.2, 6.2.1, and 6.4.

For versions of the software earlier than 6.1, see earlier versions of the *JasperReports Server Community Project Upgrade Guide*.

This section describes only those changes that can significantly impact your existing deployment. For an overview of new features, improvements, and bug fixes see the release notes in the root directory of the distribution. For information on how to use the new features, see the *JasperReports Server User Guide* or the *JasperReports Server Administrator Guide*.

This chapter contains the following sections:

- Changes in 7.2 That May Affect Your Upgrade
- Changes in 7.1 That May Affect Your Upgrade
- Changes in 6.1 That May Affect Your Upgrade

A.1 Changes in 7.2 That May Affect Your Upgrade

A.1.1 Changes to the Login Page

The layout of the login page changed in JasperReports Server 7.2. There were no changes to the CSS classes, but some default values were changed. If you have customized the login page, test your customizations to ensure they have the desired effect in 7.2, and make any necessary changes. If you haven't customized the login page, this change doesn't affect you.

A.1.2 Spring Security Upgrade

JasperReports Server uses the Spring Security framework to implement security throughout the product. In JasperReports Server 7.2, the Spring Security framework was updated to Spring Security 4.2. For many users, this upgrade will have no impact. However, you may need to make some changes if you have implemented the following:

- External authentication If you have implemented external authentication or single sign-on in your server implementation, you need to update your implementation:
 - If you implemented external authentication using one of the sample files included in the project, you need to reimplement your changes in the updated sample files included in JasperReports Server 7.2.
 - If you implemented a custom external authentication solution, you need to migrate your solution to the new framework.
- Customizations If you have customized the server using Spring Security classes, you need to migrate your solution to the new framework.

A.1.2.1 Migrating External Authentication Sample Files

If you have implemented external authentication using one of the sample-applicationContext-<customName>.xml files located in the <js-install>/samples/externalAuth-sample-config directory, migrate your changes to JasperReports Server 7.2 as follows:

- 1. Prior to upgrade, back up your existing applicationContext-<customName>.xml (for example, applicationContext-externalAuth-LDAP.xml), located in the <js-webapp>/WEB-INF directory of your previous version of JasperReports Server.
- 2. Update your server installation to JasperReports Server 7.2, as described in the *JasperReports Server Community Project Upgrade Guide*.
- 3. In the new installation, locate the sample file that corresponds to the file you implemented previously. For example, if you implemented applicationContext-externalAuth-LDAP.xml, locate <js-install-7.2>/samples/externalAuth-sample-config/sample-applicationContext-externalAuth-LDAP.xml.
- 4. Rename the JasperReports Server 7.2 sample file to remove the sample- prefix. For example, rename sample-applicationContext-externalAuth-LDAP.xml to applicationContext-externalAuth-LDAP.xml.
- 5. Configure the properties in the new sample file to match the properties in your existing sample file. To do this:
 - a. Locate each bean you have modified in the previous version.
 - b. Find the same bean in the JasperReports Server 7.2 sample. The names of the beans have not changed between versions.
 - c. Copy or re-enter the properties you need for your server, taking care not to copy over class names or class packages.



Although the bean names are the same in the JasperReports Server 7.2 sample files, the name and package of the class in many bean definitions have changed. Make sure not to overwrite the new names with the old ones.

- d. Save the JasperReports Server 7.2 sample file.
- e. Rename the JasperReports Server 7.2 sample file to remove the sample- prefix. For example, rename sample-applicationContext-externalAuth-LDAP.xml to applicationContext-externalAuth-LDAP.xml.
- f. Place the modified file in the <js-webapp-7.2>/WEB-INF directory.

A.1.2.2 Migrating Customizations

The Spring Security codebase was significantly restructured from 3.x to 4.x. Many classnames have changed and other classes were moved to different packages. In addition, many classes were deprecated. At a minimum, you need to update the names and paths of the Spring Security classes you reference in any customizations you have made to JasperReports Server For information on updating your customizations see the Spring Security migration guide:

 $\underline{https://docs.spring.io/spring-security/site/migrate/current/3-to-4/html5/migrate-3-to-4-xml.html}$

For specific information about migrating from deprecated classes in 4.x, see the <u>Deprecations</u> topic in the same document.

A.2 Changes in 7.1 That May Affect Your Upgrade

A.2.1 Changes to the Login Page

The layout of the login page changed in JasperReports Server 7.1. There were no changes to the CSS classes, but some default values were changed. If you have customized the login page, you should make sure your customizations still have the desired effect in 7.1, and make any necessary changes.

If you have not customized the Login page, this change will not affect you.

A.3 Changes in 6.1 That May Affect Your Upgrade

A.3.1 Changes to Themes

The look and feel of the JasperReports Server web interface has been redesigned to modernize the application's appearance. To accomplish this, markup and styles have been modified. As a result of these modifications, custom themes developed for the previous interface will need to be updated for the new interface.

The following table lists the changes made to the user interface and describes some of the steps necessary to update custom themes in overrides_custom.css. The main changes are in the banner, body, footer, and login page. The changes to the login page are extensive. Instead of attempting to update an existing login page, you should re-implement the login page in the new default theme.

For information on developing new themes, see the JasperReports Server Community Project Administrator Guide and the JasperReports Server Ultimate Guide.

Table A-1 Updating Themes in JasperReports Server 6.1

Element	Classname and Modifications	File	Notes
Banner	.banner Give custom value to height	containers.css	Default value: height: 32px
Body	#frame Set custom top and bottom values that position the body of the application between the banner and footer without overlap	containers.css	Default value: top: 32px bottom: 17px This value needs to be equal to or greater than the height of .banner The bottom position needs to be adjusted only if the height of the footer is changed

Element	Classname and Modifications	File	Notes
Banner Logo	#logo Give custom values to height and width that match the dimensions of your logo Adjust margins around the logo if needed	theme.css	Default values: height: 22px width: 176px margin-top: 6px margin-right: 4px margin-bottom: 0 margin-left: 8px
Banner Main Navigation	.menu.primaryNav .wrap Set height and line-height to 1px shorter than .banner	containers.css	height: 31px line-height: 31px
Banner Main Navigation Home icon	.menu.primaryNav #main_home .wrap > .icon Set height to be the same as .banner Set values for width and background-position to fit your image.	containers.css	height: 32px width: 14px background-position: 0 -164px background-position: 0 -163px (IE8-9)
Banner Main Navigation Item arrow icon	.menu.primaryNav .node > .wrap > .icon Set height to your desired value, with the maximum value being the same height measurement as the .banner element. Set background-position and width to a value that properly displays the default or your custom image.	containers.css	height: 32px background-position: left -79px width: 11px
Banner Main Navigation Item arrow icon	.menu.primaryNav .wrap.over .menu.primaryNav .wrap.pressed Set background-position to a value that properly displays the default or your custom image.	containers.css	background-position is not explicitly defined, the value is cascaded from .menu.primaryNav .node > .wrap > .icon This only needs to be adjusted if you want a different color disclosure indicator for the pressed and over states of the main menu links

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Element	Classname and Modifications	File	Notes
Banner Search container	#globalSearch.searchLockup Set margin-top to desired value that will vertically center it within the banner.	controls.css	margin-top: 5px
Banner Metadata	#metalinks li Set line-height to the desired value that will vertically center it within the banner.	themes.css	line-height: 20px
Footer	#frameFooter Set height if you want it to be anything other than the default value.	containers.css	height: 17px
Login page	Re-implement in new theme.		

APPENDIX B WORKING WITH JDBC DRIVERS

This section describes how to set up your installation to use a driver other than the default driver.

B.1 Open Source JDBC Drivers

For open source JDBC drivers, buildomatic is set up to use a single default driver. If you want to use a driver other than the default driver, you can modify the buildomatic property files that determine the default JDBC driver.

The buildomatic JDBC driver property files are set up to point to a specific driver jar. This allows for multiple driver jar files in the same buildomatic/conf_source/db/<dbType>/jdbc folder. During the installation procedure only the default driver jar is copied to your application server.

If you want to use a newer JDBC driver version or a different JDBC driver, you can modify the buildomatic properties seen in your default_master.properties file.

B.1.1 PostgreSQL Example

The buildomatic/conf source/db/postgresql/jdbc folder contains the following driver file:

```
postgresql9.4-1210.jdbc41.jar
```

If, for instance, you want to change the default driver used by PostgreSQL from type jdbc4 to jdbc3, edit your default master.properties file:

```
<js-install>/buildomatic/default master.properties
```

Uncomment and change:

```
# maven.jdbc.version=9.4-1210.jdbc41
```

To:

```
maven.jdbc.version=9.2-1002.jdbc3
```

When you next run a buildomatic command, such as deploy-webapp-ce, the jdbc3 driver will be copied to your application server.

B.1.2 MySQL Example

The buildomatic/conf source/db/mysql/jdbc folder contains this driver file:

```
mariadb-java-client-1.1.2.jar
```

If, for instance, you want to use a JDBC driver built and distributed by the MySQL project, such as mysql-connector-java-5.1.30-bin.jar, you first need to download the driver from the MySQL Connector/J download location:

```
https://dev.mysql.com/downloads/connector/j/
```

Next, change your buildomatic configuration properties to point to this new driver.

Edit your default master.properties file:

```
<js-install>/buildomatic/default_master.properties
```

Uncomment and change:

```
# jdbcDriverClass=com.mysql.jdbc.Driver
# maven.jdbc.groupId=mysql
# maven.jdbc.artifactId=mysql-connector-java
# maven.jdbc.version=5.1.30-bin
```

To:

```
jdbcDriverClass=com.mysql.jdbc.Driver
maven.jdbc.groupId=mysql
maven.jdbc.artifactId=mysql-connector-java
maven.jdbc.version=5.1.30-bin
```