

JasperReports® Web Studio

User Guide

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Overview

JasperReports® Web Studio Edition is the set of tools to run and edit report templates for the JasperReports® Library reporting engine and the whole Jaspersoft family of products that use this open source library to produce dynamic content and rich data visualizations. It comes as a web-based alternative to JasperReports Web Studio, the desktop application, which is the most complete and powerful designer for JasperReports templates.

JasperReports Web Studio supports a few different deployment scenarios, including a standalone web application that can be run on its own or added to the existing JasperReports® Server instances as a pluggable report editing feature.

Getting Started

The standalone web application distribution of JasperReports Web Studio comes in the form of a ZIP package that contains everything you need to start the application on a Linux, Windows, or macOS machine.

After downloading the package from the Jaspersoft website, you can extract its contents to a folder of your choice on your target machine and then navigate to that folder using a terminal window and launch the start.sh or start.bat script.

By default, the application starts on *http://localhost:8088*, but the port and other configuration parameters can be changed in the start script if needed.

The web application opens up with a login screen where you have the option to connect to various types of repositories where reporting resources are stored, including JasperReports Server instances, Google Drive accounts, or GitHub projects.



Only the button to connect to an existing instance of JasperReports Server is enabled by default, the other two login options for Google Drive and GitHub are disabled, as they require additional configuration in the start script for the OAuth2 based authentication into these cloud platforms.

Configuration

JasperReports Web Studio can be configured in different ways through properties. These properties may be:

- passed as environment variables
- added in the jrws.properties file
- added in the java system properties.

A report could be as simple as a file or could be composed of multiple files, images, styles, or resource bundles. These files should be stored somewhere and should have a location, eventually relative to the report or root. They are usually stored in a kind of repository. The most simple and popular repository is a simple file system folder. File folders are very good for classic desktop development but are not enough in the modern way to work on multiple computers with multiple users involved, in clouds.

JasperReports Web Studio can work with different repository types:

- Google Drive
- GitHub
- Local Folder
- JasperReports Server

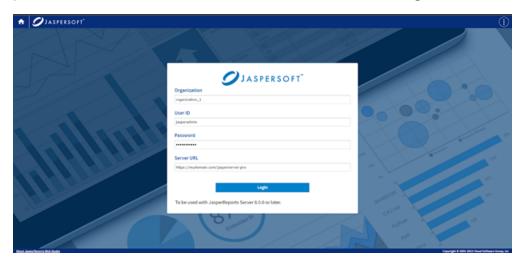
Each repository could have its own exceptions. For example, you cannot save on GitHub, but you can commit your changes.



Using JasperReports Server

One of the available buttons on the JasperReports Web Studio welcome screen allows you to connect to a JasperReports Server instance and manage the reporting resources

In addition to the usual JasperReports Server login credentials such as the organization/tenant ID, the user ID, and the password, you need to specify the URL of the JasperReports Server instance to connect to, as seen in the following screenshot:





Note:

When JasperReports Server and JasperReports Web Studio are located on different servers, due to the Web CORS and CSP rules, they should be accessed using the HTTPS protocol. In case they are on the same server and hostname, it can be either the HTTP or HTTPS protocol.

Report Units

To create a **Report Unit**, use the **New** menu at the top left. A minimalist report unit with blank report is created. Click the report unit and use the same **New** menu to create or upload any files needed for the report unit. To edit the file, click the file. The corresponding editor opens allowing you to edit the file. If there are input controls, they appear as files next to the data source. You can change the order of input controls. To delete, use the **Delete** option from the context menu.

Using Google Drive

The login screen of JasperReports Web Studio shows a button that allows you to log in to a Google Drive account and edit reporting resources stored there. But it requires specifying Google OAuth2 application registration information in the start script of the application using system configuration properties.

The installer does not come with such Google Drive authorization information preset in the application start script and this is why the respective login button is disabled.

In order to enable the Google Drive login button, you need to register your instance of the JasperReports Web Studio with Google Drive by following the steps detailed on this page:

https://developers.google.com/drive/api/v3/about-auth

Once you have obtained the client ID and the secret key for your application at Google, you can set them in the start script of the JasperReports Web Application using the following system properties added with a -D flag to the command that launches the Java Virtual Machine as follows:

- -Djsw.google.client.id=[YOUR_CLIENT_ID]
- -Djsw.google.secret.key=[YOUR_SECRET_KEY]

Using GitHub

The login screen of JasperReports Web Studio also features a login button for connecting to GitHub. It allows the user to create and modify report template files stored in the GitHub project associated with the respective account.

The GitHub login button is disabled by default. The OAuth2 application registration information must be specified in the application start script using the system configuration properties. The startup page provides authorization information. This allows the application to access remote GitHub repositories. The access can be obtained by registering your local instance of JasperReports Web Studio with GitHub by following the steps detailed on this page:

https://docs.github.com/en/rest/guides/basics-of-authentication

The client ID and the secret key provided by GitHub for your registered application can be set in the start script of the JasperReports Web Studio. Use -D arguments in the command that open the Java Virtual Machine:

- -Djsw.github.client.id=[YOUR_CLIENT_ID]
- -Djsw.github.secret.key=[YOUR_SECRET_KEY]

Using Local Folder as a Repository

It is possible to use a folder from the PC as a report repository. In the case JasperReports Web Studio is installed and used by a single report developer, the developer could work with reports from a laptop. To do that, a property should be configured in the startup script jrws.repository.file.[name]. For example:

For Linux:

```
JRWS_ARGS="${JRWS_ARGS} -Djrws.repository.file.samples=/path/to/the/samples"
```

For Windows:

```
set "JRWS_ARGS=%JRWS_ARGS% -
Djrws.repository.file.samples=C:/path/to/the/samples"
```



▲ Warning: Because JasperReports Web Studio is listed by default on the localhost:8088, this folder is seen by other network users. To avoid this, the users must protect this port with a firewall (not allowing connections from outside) or configure the Jetty server to allow connections only from the localhost.

Using Jackrabbit as a Repository

Jackrabbit repository provides multiple options to store resources, such as, files, relational database, MongoDB. There are multiple ways to configure the repository.

In case of file based repository, use:

```
jrws.repository.jackrabbit.path=/path/to/repository
```

The following properties from README.md files can be used to configure Jackrabbit repository for various authentication providers like Google, GitHub, Cognito.

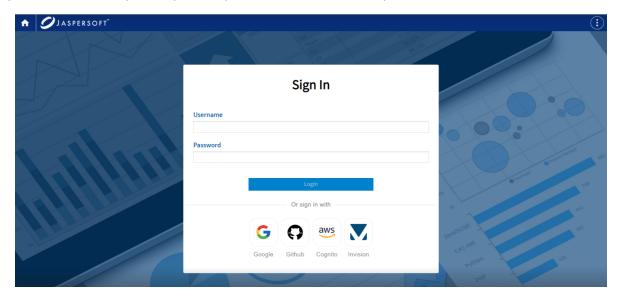
All the properties must be set in the irws.properties file before starting the application.

- For Google:
 - o jrws.url.rest.login.jackrabbit.google=[true|false]
 - o jrws.google.client.id=[YOUR_CLIENT_ID]
 - o jrws.google.secret.key=[YOUR_SECRET_KEY]
- For GitHub:
 - o jrws.url.rest.login.jackrabbit.github=[true|false]
 - o jrws.jackrabbit.github.client.id=[YOUR_CLIENT_ID]
 - o jrws.jackrabbit.github.secret.key=[YOUR_SECRET_KEY]
- For Cognito:
 - o jrws.repository.saas.url=https://jaspersoft-saas.auth.us-east-1.amazoncognito.com/oauth2/authorize
 - jrws.repository.saas.logout.url=https://jaspersoft-saas.auth.useast-1.amazoncognito.com/logout

- jrws.repository.saas.clientID=[the client ID]
- o jrws.repository.saas.state=[the state]
- ∘ jrws.repository.saas.key=[key]
- jrws.repository.saas.token.server.url=https://jaspersoft-saas.auth.us-east-1.amazoncognito.com/oauth2/token
- jrws.repository.saas.jwk.provider.url=https://cognito-idp.us-east-1.amazonaws.com/us-east-1_9us5526RZ

Jackrabbit repository provides the flexibility to use different authentication providers, like Google, GitHub, Cognito, and Invision. By default, there is an admin user.

The repository is shared between different owners (individuals or organizations). Each owner has a number of report repositories. There are different limitations that can be set by the owner or repository, like space and concurrent report execution.



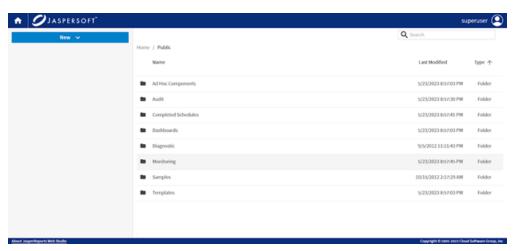
When you log into the remote storage platform, you are presented with the contents of the target repository and are able to navigate the folder structure or search for resources that need to be edited using the specialized editors that JasperReports Web Studio offers.

Folders and files can be created, edited, or removed, just like in any file system like a repository. To upload a file or folder, click the **New** button and select **Upload File** or **Upload Folder**. The menu also contains the following options:

- New Report
- New Data Adapter
- New Folder

The following actions are available from the context menu, when you right-click on the name of a file or folder:

- **Delete** deletes the resource permanently.
- Download downloads the resource.
- Resource Information shows detailed information about the resource such as, name, description, mime, ID, type, path, size, Created Date, Last Modified Date, and permissions. With the required permissions and if the repository allows, you can change the name or description.



To open a file, click the file name.

To download a file or a folder, use the right-click context menu on the resource, and select the **Download** menu item. Folders are saved as zip files.

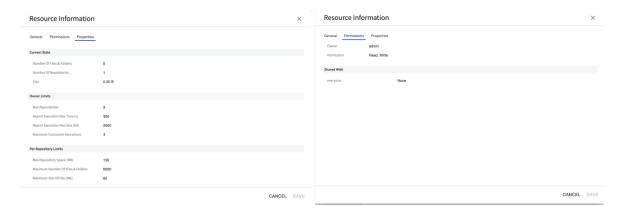
In the **New** menu on the top right, depending on permissions and possibility to create a resource, there are two menu items:

- Upload
- Upload Folder

These options allow you to upload files or folders into the repository.

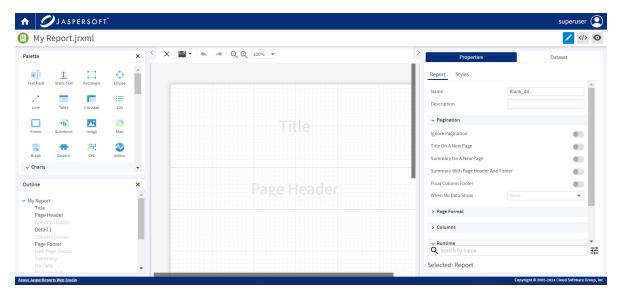
Resource information

In the **Resource Information** dialog, you can view the resource information and permissions. In the case of some special objects, like repositories, additional information like, available space and limits can be viewed too.



Editors

JasperReports Web Studio is a collection of tools that helps to develop reports. It opens and edits the file types usually used in report development, report templates, data adapters, JasperReports styles templates, images, all kinds of text, XML, JSON files. If it is not working with a particular type of file available in the repository, use another tool.



Report Designer

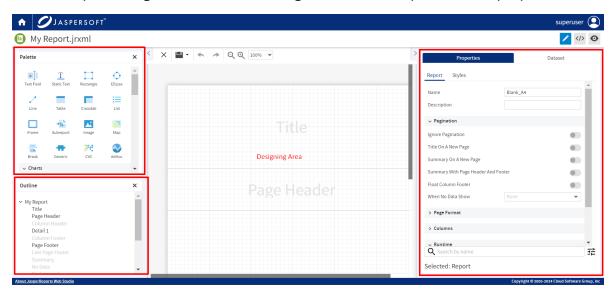
JasperReports Web Studio's main feature is the editor for JRXML report templates. Like Jaspersoft Studio, the editor has three tabs:

- Visual report designer
- JRXML source editor
- · Report preview

You can switch between these tabs using buttons at the upper-right corner of the application window.

Layout Designer

The visual report designer consists of a design view, outline, palette, and properties view.



The Palette contains all the elements from which the report is built. Drag an element from the palette into the designer.

Outline shows the structure of the layout part of the report. You can view, add, and delete the bands from here. You can also view the order of the elements in a container.

The Designing Area shows the large layout composed of the bands and elements. Drag the elements to arrange them in the desired layout. Keep in mind that this is very close to the

report rendered in the HTML format. Reports rendered in PDF or other formats could look a bit different.

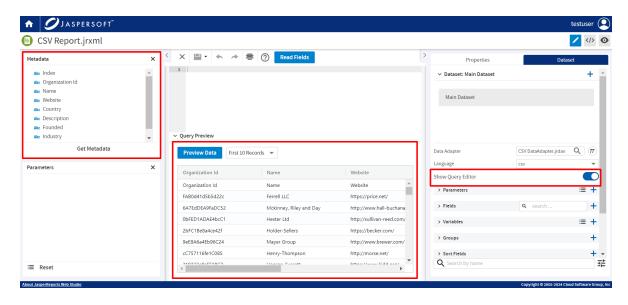
Selecting an element in the Outline or Design area automatically shows its properties in the Properties view. Elements could have hundreds of properties that are organized in categories. It is possible to filter properties by name by using the search box at the bottom of the view. In the same place, there is an icon to set more filters, to show or not deprecated properties, or all JasperReports custom properties.

A special category of properties is styles. If an element uses a style, properties inherit the value of the parent style. These values are shown in the light gray color. In general, if the property shows the value in the light gray color, this is the default or calculated from the properties value, black color is used for the actual value.

Dataset

The dataset view helps to configure the report datasets. It shows the list of datasets. Each dataset in the properties view has Fields, Parameters, Variables, Groups, and a large list of other properties. Use **Show Query Editor** to show the Query Editor and all related tools.

In the Query Editor area, depending on the language, a text editor with the syntax highlighting will help edit the query. Parameters view is for setting the values for the parameters. The metadata view helps visualize the structure of most of the JDBC databases or CSV, XLS, XML, and JSON files. Query Preview is useful to run the query and see what data it returns.



To simplify report creation, drag the fields from the dataset view into the report design. The designer creates a TextField with the corresponding expression automatically.

Validation and Refactoring

Dataset objects are used as references by all kinds of elements inside the report. There is a validator of the model. In case there are problems, a red icon appears at the bottom-right corner. Click the icon to see the problems.

In case dataset, fields, parameters, and variables are either renamed or deleted, the designer tries to refactor expressions or other references in the model.

Copy and Paste Elements

To copy and paste elements in the report layout designer, you can use any one of the following options:

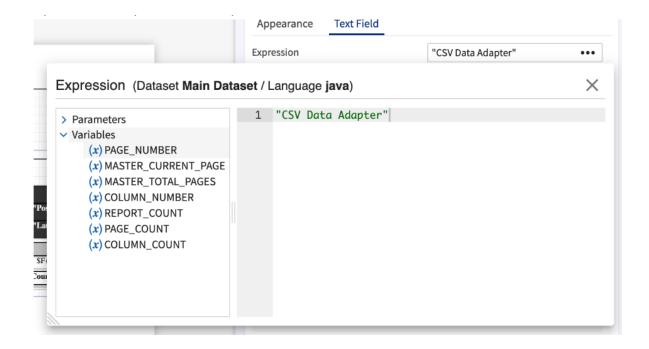
• Select the component and use the standard browser shortcut keys (Ctrl+C and Ctrl+V) from the keyboard.

OR

Right-click on the component and from the context menu, select Copy and then
 Paste.

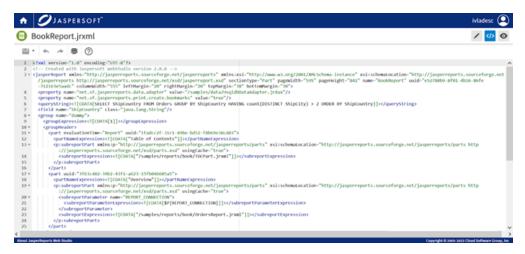
Expression Editor

The expression editor is composed from two panes. The left-hand side pane lists the dataset objects that you can use in the expression. The right-hand side panel shows the expression itself.



Source Editor

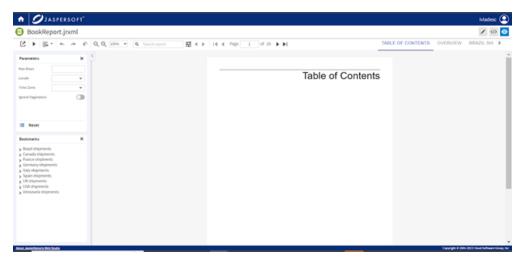
Report templates for JasperReports Web Studio are text files with .jrxml extension. You can use the **Source Editor** to manually modify a template by editing the XML code.



Preview

This is the place to consume and test reports. This view provides user interfaces to give values to parameters, select the format to generate, and navigate the report. Report navigation could be done in different ways. On the top toolbar, there are controls to select the desired page, search through the report, or use bookmarks to navigate in the report.

The bookmarks are present on the left side of the page, with toolbar buttons being linked only to sub-reports that are referred to by the main report.



Data Adapter Editors

An important aspect of reporting is acquiring the data for the reports. This data usually comes from relational databases, files, or other specialized data storage systems.

The way to acquire report data in JasperReports Web Studio is by using data adapters, which are specialized files containing information about how to get the data.

Data adapters could be of the following types: Random, Empty, QueryExecutor, relational database connections (JDBC), MongoDB, Mondrian, locally stored or remotely retrieved data files of CSV, XML, JSON, XLS type, and so on.

JasperReports Web Studio features a specialized editor that allows creating and editing these data adapter types.

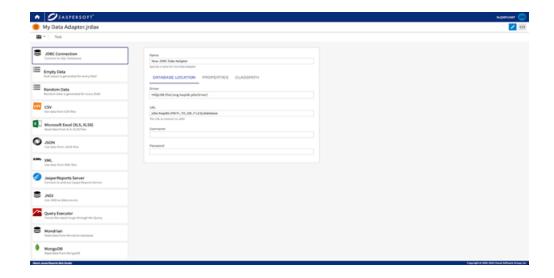
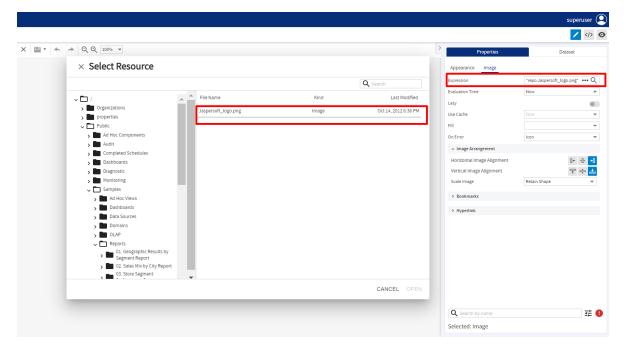


Image Editors

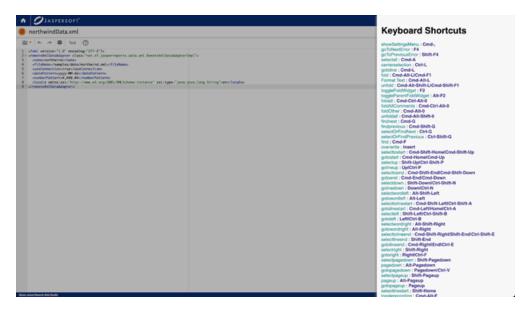
There is basic support for images. By default, JasperReports Web Studio shows an image supported by the browser. For some image types, there is an image editor, which helps to modify an existing image.



Text Editors

Most of the text files are editable with a simple text editor. However, for many types, JasperReports Web Studio supports syntax highlighting and some more advanced editor

functions like folding, and validation. This could be very useful for files like properties, CSS, HTML, XML, JSON, SH, SQL. The text editor supports functionalities including search and replace text, pretty formatting. To see all the keyboard shortcuts, click the question mark icon on the toolbar.



Editor for JR-INF/context.xml

These files provide configuration for report execution. It could contain some properties that are used for reports or classpath. To see a more detailed description of these files, refer to the JasperReports® IO guides.



Feature Compatibility Matrix

The following table describes the available features for Jaspersoft Studio and JasperReports Web Studio.

Feature	Jaspersoft Studio	JasperReports Web Studio 1.0	JasperReports Web Studio 2.0	JasperReports Web Studio 3.0
Installation	Desktop - Every user needs to install	Browser + Server Side - single installation for multiple users	Browser + Server Side - single installation for multiple users	Browser + Server Side - single installation for multiple users
Repositories	JasperReports Server	Google Drive, GitHub, JasperReports Server	Google Drive, GitHub, Jackrabbit, Local Folders	Google Drive, GitHub, Jackrabbit, Local Folders
JRS Report Units	Create, reorder input controls add and delete resources. Edit create all types of resources	No	No	Create, reorder input controls add and delete resources.
Jackrabbit Repository	No	No	Simple resource structure	Owner and repositories All kinds of limits Permissions
Data Adapters	JDBC, CSV, Excel, JNDI, JSON, XML, JasperReports	JDBC, CSV, Excel, JNDI, JSON, XML	JDBC, CSV, Excel, JNDI, JSON, XML, JasperReports	JDBC, CSV, Excel, JNDI, JSON, XML, JasperReports

Feature	Jaspersoft Studio	JasperReports Web Studio 1.0	JasperReports Web Studio 2.0	JasperReports Web Studio 3.0
	Server, Query Executor, Mondrian, MongoDB		Server, Query Executor, Mondrian, MongoDB	Server, Query Executor, Mondrian, MongoDB
File Editors	Editors for all files	Yes (Text Editor basic, No Image editor)	Text and Image Editor	Text and Image Editor
JRXML Editor	Yes	Yes	Yes	Yes
Report Preview	Preview and export in multiple (image, JSON, XML, text) formats, Parameter prompts (user and built-in, wizards for much more parameter types, reset, and set to null parameters, default parameter values), sort fields, export property settings, bookmarks, book tabs, no search report functionality, select data	PDF, HTML, Excel, open doc, PPT, no parameter prompts, no sort fields, no export property setting, no bookmarks, no book tabs, no search functionality, no data adapter selection, no data snapshots, no report execution statics, and logs, no input controls	PDF, HTML, Excel, doc, open doc, metadata, PPT, parameter prompts supported by JRIO, no defaults, reset for all (not for individual), no null value setting, no sort fields, no export property setting, bookmarks, book tabs, functionality, no data adapter selection, no data snapshots, no report execution statistics, and logs, no input controls	PDF, HTML, EXCEL, doc, open doc, metadata, PPT, parameter prompts supported by JRIO, no defaults, reset for all (not for individual), no null value setting, no sort fields, no export property setting, bookmarks, book tabs, functionality, no data adapter selection, no data snapshots, no report execution statistics and logs, no input

Feature	lasnorsoft	JasperReports	JasperReports	lacnor Donorte
reature	Jaspersoft Studio	Web Studio 1.0	Web Studio 2.0	JasperReports Web Studio 3.0
	adapter, data snapshots, report execution statistics, and logs, input controls for JasperReports Server.			controls
Query Preview	Yes	No	Yes	Yes
Query Editors	Specialized UI query editors for different query languages	Only a simple text editor	Text editor with syntax highlighting	Text editor with syntax highlighting
Outline	Lot of functionalities and actions (drag and drop, arrange elements, menus for different things to generate or verify something)	Just showing report structure, not possible to add or remove bands	Report structure, Possible to add or remove bands	Report structure, Possible to add or remove bands
Designer	Render elements with JasperReports, tools and actions to arrange elements, snap to grid, layouts,	Basic Rendering of the report, element re- arrangement, move or resize, delete	Improved rendering of text elements (render better fonts, sizes, and other properties), improvements in	Improved over 2.0 Copy, Cut and Paste elements Drag and Drop fields, Better Expression editor, Dataset

Feature	Jaspersoft Studio	JasperReports Web Studio 1.0	JasperReports Web Studio 2.0	JasperReports Web Studio 3.0
	key shortcuts,		key shortcuts, every chart type has image now instead of static image	model validation, Dataset changes refactoring
Parameter Prompts	Yes	No	Yes	Yes
Search in Preview	Yes	No	Yes	Yes
Report Bursting	Yes	No	Yes	Yes
Data snapshots	Yes	No	No	No
Bookmarks, Book Tabs	Yes	No	Yes	Yes
Data Structure View	Yes	No	Yes	Yes
Generate Fields	Yes	No	Yes	Yes
Element Rendering	Rendering with JasperReports® Library	Basic rendering	Improved text fields, charts, and images	Improved text fields, charts, and images
Palette	Dynamic (showing different images sizes, search elements, add elements)	Show all elements	Have elements by category, improved labels, and icons	Have elements by category, improved labels, and icons

Feature	Jaspersoft Studio	JasperReports Web Studio 1.0	JasperReports Web Studio 2.0	JasperReports Web Studio 3.0
Properties	Advanced view and specialized UI, search, reset, set to null, default values, styles view, more complex widgets for different property types	For simple elements, simple types, search	Properties for All elements, search, arranged in categories, more widgets for diff types, show default values	Added file selection Image, subreport selection
Styles	Yes	No	Yes	Yes
Highcharts	Yes	Just generated properties for Highcharts	Improved properties (arranged in categories, more widget types)	Improved properties (arranged in categories, more widget types)
Fusion	Yes	Just general properties (no fusion-specific ones)	Improved properties (arranged in categories, more widget types), all fusion properties (fusion-specific ones)	Improved properties (arranged in categories, more widget types), all fusion properties (fusion-specific ones)
Barcodes	Yes	Just general properties (no specific ones)	Improved properties (arranged in categories, more widgets types), all properties (specific ones)	Improved properties (arranged in categories, more widgets types), all properties (specific ones)

Feature	Jaspersoft Studio	JasperReports Web Studio 1.0	JasperReports Web Studio 2.0	JasperReports Web Studio 3.0
JasperReports Server Report Publishing	Yes	Not Needed	Not Needed	Not Needed
Custom Properties	Yes	No	All custom properties defined in the library	All custom properties defined in the library
Expression Editor	Advanced (can see datasets, functions)	Simple Text	Simple text, Syntax highlighting for Java, Groovy, JavaScript	Added dataset objects in the dialog
JR Properties UI	Advanced (lot of preferences pages)	No	Set JasperReports Library properties in the context.xml file	Set JasperReports Library properties in the context.xml file
Report Compilation	Yes	Not needed (because JasperReports® IO compiles it)	Not needed (because JasperReports® IO compiles it)	Not needed (because JasperReports® IO compiles it)

Jaspersoft Documentation and Support **Services**

For information about this product, you can read the documentation, contact Support, and join Jaspersoft Community.

How to Access Jaspersoft Documentation

Documentation for Jaspersoft products is available on the Product Documentation website, mainly in HTML and PDF formats.

The Product Documentation website is updated frequently and is more current than any other documentation included with the product.

Product-Specific Documentation

The documentation for this product is available on the JasperReports® Web Studio Product Documentation page.

How to Access Related Third-Party Documentation

When working with JasperReports® Web Studio, you may find it useful to read the documentation of the following third-party products:

How to Contact Support for Jaspersoft Products

You can contact the Support team in the following ways:

- To access the Support Knowledge Base and getting personalized content about products you are interested in, visit our product Support website.
- To create a Support case, you must have a valid maintenance or support contract with a Cloud Software Group entity. You also need a username and password to log in to the product Support website. If you do not have a username, you can request one by clicking **Register** on the website.

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