

# Custom Reports



This feature is available for **ictime** version 5.2 and higher.

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## Scope

**ictime** already provides a powerful reporting functionality that - apart from creating reports - is also used as starting point to charge work logs and create invoice documents (see [Reporting](#) and [Charge Work Logs - Create Invoice](#)). However, there are practical and technical limits for this functionality, as many customers have specific needs and there is no way to add all features without impacting usability and speed. So we have decided to create a completely independent custom reporting feature where customers can simply create all kinds of reports they need, using a proven standard technology, **JasperReports**. These custom reports are not limited to **ictime** data, but might include all data from JIRA or other JIRA add-ons.



Custom reports offer unlimited flexibility - but this is not an out-of-the-box solution for non-technical users. You build your own reports, and need to be able to create reports with JasperReports tools - or you will need to contract someone who knows this technology and can code reports for you. In addition, you will need to understand the database structure of **ictime** (and/or JIRA and/or other add-ons) as far as required to know where data is located and how it is related.

## Technology

Custom Reports are based on the **JasperReports Library**. The JasperReports Library is the world's most popular Open Source reporting engine. It is written in Java and it is able to use data from any kind of data source and generates documents that can be viewed, printed or exported in a variety of document formats including HTML, PDF, Excel, OpenOffice or Word (note: starting with version 5.8.2, **ictime** supports MS-Excel and PDF format). For more information, refer to <http://community.jaspersoft.com/project/jasperreports-library>.

## Create Reports

### Overview

In order to use a report in **ictime**, you first have to create this report with respective JasperReports tools, have to package/zip it with additional data (like images) and then you can create the report in **ictime**.

For additional information, please also consider reading [Custom Reports enhanced](#).

### Examples of reports for accounting

We have already created some reports that you can use as a starting point for your reports:

	English (MySQL)	German (MySQL)	English (PostgreSQL)	English (MsSql) <sup>1</sup>
Invoice	<a href="#">Download</a>	<a href="#">Download</a>	<a href="#">Download</a>	<a href="#">Download</a>
Credit note	<a href="#">Download</a>	<a href="#">Download</a>	<a href="#">Download</a>	<a href="#">Download</a>
Invoice (Service Level Agreement)	<a href="#">Download</a>	<a href="#">Download</a>		<a href="#">Download</a>
Credit note (Service Level Agreement)	<a href="#">Download</a>	<a href="#">Download</a>		<a href="#">Download</a>

<sup>1</sup> MsSql Database schema must be "jiraschema". In case your JIRA database is running using a different schema, reports need to be adapted.

## Create the Report

### Basics

You can use e.g. one of the following tools to create your report:

- <http://community.jaspersoft.com/project/jaspersoft-studio>
- <http://community.jaspersoft.com/project/ireport-designer>

JasperReports supports scripting languages like Groovy avoiding the complexity experienced by report writers that don't know Java. However, at this moment, **ictime** only supports reports that use Java, **Groovy is not supported**.

### File Name

The .jrxml file must be named "**main.jrxml**", otherwise it won't work (als you will provide your file in a .zip archive that can be named according to your needs, it does not matter that the name needs to be the same for different reports).

### Parameters

Usually, before running a report, the user should enter or select data. Define respesive parameters, and the user will be prompted to enter/select the respective information:

Example:

```
<parameter name="invoiceId" class="java.lang.Integer"/>
```

### Image Files

Ensure that references to images are relative to the report file and do not point e.g. as absolute path to your development system. Images should be located in the same directory as the report file itself.

### Fonts

Do only use fonts that are available on your target system. Consider to embed fonts so that users who do not have a font are still able to view the report correctly.

### Sub-Reports

Currently **not supported**.

### Package and Provide as .zip File



To upload your report, you need to provide it (with additional files, like images, if applicable) in one **.zip** file. In this .zip file, you need to provide the non-compiled **main.jrxml** file (not the compiled .jasper file).



Only **.zip** files can be uploaded to **ictime**, other formats are not supported. It does not matter if your report only consists of one file or also includes image data.

## Create Report/Upload Report File/s

### Create Report

Field	Description	Remarks
Name	Name for the report.	Mandatory
Description	Short description for the report.	Optional.
Locale	E.g en_US, de_DE, es_ES. Set this, if you want to change settings like the decimal or thousands separator in the report. If not set, the system/Java default will be used.	Optional.
Type	<p>The type is used to distinguish normal reports from reports used as templates for invoices and credit notes (in case you have enabled the invoice documents feature, see <a href="#">General Configuration</a>).</p> <ul style="list-style-type: none"> <li>• GENERAL: A normal report for reporting purposes.</li> <li>• INV_BILL: Template for invoices. All active reports with this type will be available when you create an invoice.</li> <li>• INV_CRN: Template for credit notes. All active reports with this type will be available when you create a credit note.</li> </ul> <p>If you have chosen INV_BILL or INV_CRN as type, you can't change this selection any longer after you have saved the report. In addition, you can't delete reports with this type any longer once they have been used for at least one invoice.</p>	Mandatory. Default is GENERAL.
Permission	NOT IMPLEMENTED	
Disabled	Option to disable the report.	In case you can't delete a report any longer (this is the case for reports that have been used as invoice templates), you can deactivate it. This report won't appear any longer in dropdowns or lists (for normal users, users with a permission to manage reports will still see the report)
File	<p>Option to upload your report file. Needs to be a <b>.zip</b> file and this file needs to contain your report in <b>.jrxml</b> format and with the file name <b>main.jrxml</b>.</p> <div>  Only <b>.zip</b> files can be uploaded to <b>ictime</b>, other formats are not supported.         </div> <div>  You can't upload reports that use <b>Groovy</b>, as this is currently not supported.         </div>	Shows the data directory (something like: /var/atlassian/application-data/jiratest/data/ictime/reports). Please ensure that <b>ictime</b> can write in this directory.

## Edit Report

Field	Description	Remarks
Name	Name for the report. Can be changed.	Mandatory
Description	Short description for the report. Can be changed.	Mandatory
Type	If you have chosen INV_BILL or INV_CRN as type, you can't change this selection any longer after you have saved the report. If you have chosen GENERAL, you can still change this to INV_BILL or INV_CRN.	Mandatory.
Permission	NOT IMPLEMENTED	
Disabled	Option to disable the report.	In case you can't delete a report any longer (this is the case for reports that have been used as invoice templates), you can deactivate it. This report won't appear any longer in dropdowns or lists (for normal users, users with a permission to manage reports will still see the report)

Note that you can't change the report file/s when editing a report. If you want to change the file, you need to delete or disable the report and create a new one.

## Delete Report

Normal reports can be deleted at any time. You can't delete reports with type INV\_BILL or INV\_CRN any longer once they have been used for at least one invoice.

## Templates for Invoices and Credit Notes

As already mentioned above, custom reports are also used to manage templates for the invoicing process (invoices and credit notes). Before you activate the invoice documents feature (see [General Configuration](#)), you need to create at least one template for an invoice and one for a credit note.

For invoice and credit note templates, keep the following in mind:

- Charging work logs is a defined process in **ictime**, and during this process, data is written into the invoice dataset and the so called invoice item datasets as result of this process. All "chargeable" work logs included in the invoice change their status to "**charged**" in **ictime**. However, **ictime** does not define how your invoice document looks like in terms of data, and you are free to add data not only from the invoice and invoice item datasets, but also from any other place in **ictime** or JIRA or JIRA add-ons. So it is basically **your template that defines the business logic and content of your invoice**.
- You might need to create multiple templates if you want to reflect different scenarios for invoicing (like e.g. a simple invoice without details, an invoice with details, an invoice with a contingent of hours, an invoice with a fixed fee for a contract and so on). All active templates will be available when you create an invoice, and by choosing the template during the invoicing process, you decide "how" to invoice.
- Credit note templates should reflect the logic of the invoice template exactly - basically it is the same template, only with a different headline and a different source for the document date. If you use multiple invoice templates, you should also create multiple credit note templates. This is not strictly mandatory, but recommended, otherwise the recipient of the credit note might be confused.



Normal reports frequently contain parameters in order to let a user insert or select data when a report is executed. For invoices, this is neither required nor will it be used during the invoicing process, all parameters will be ignored. As part of the invoicing process, all data required will be provided via the invoice mask. However, it might make sense to define at least a parameter for the invoice ID for testing purposes (to see if a new report works, you do not need to create a new invoice, but just execute the respective report with the ID of an existing invoice).

Reference Table for data fields that are available in the invoice dataset:

Field	Description	Remarks

Please note that you are not limited to these fields when creating a template for invoices or credit notes.

## Report List

Field	Description	Remarks
Name	Name for the report.	
Description	Short description for the report.	
Type	<ul style="list-style-type: none"><li>• GENERAL: A normal report for reporting purposes.</li><li>• INV_BILL: Template for invoices. All active reports with this type will be available when you create an invoice.</li><li>• INV_CRN: Template for credit notes. All active reports with this type will be available when you create a credit note.</li></ul>	
Permission	NOT IMPLEMENTED	
Disabled	false/true	

## Run Reports

### Security Hints



Custom reports do **not implement a default security concept** to limit data that can be retrieved and displayed by a report. This means that a user who can run a report gets access to all data that is displayed by this report, even if this data would not be accessible for the user when using the JIRA user interface.

## Execute a Report

### Normal Reports (Reporting Purposes)

Run a report by clicking the respective icon.

If the report has parameters defined, you will be prompted to enter/select respective values.

Although JasperReports supports a variety of document formats including HTML, PDF, Excel, OpenOffice and Word, at this moment, **ictime** only supports **PDF** as output format. We will implement support for other formats in one of the next releases.



It is not possible to execute queries in a report that are modifying the data source, i.e. only SELECT queries will be executed.

### Invoice Templates (Invoices, Credit Notes)

If you have added parameters to your template (like invoice ID), you will also be able to "run" the template like any other report. This is only useful for testing purposes, and should never be used to "create" an existing invoice "again". To cover basic requirements of a consistent and reliable accounting system, an invoice can only be created once, and this invoice can only be modified by cancelling the invoice and generating a new one.

## Using Fonts

Usage of fonts in reports is limited to the fonts installed as system fonts on your JIRA server. You can check the installed fonts on your JIRA server using `fc-list` (Linux systems).

If you want to use Custom Fonts in your reports which are NOT available on your JIRA Server than you have to make them available on the JIRA server.

### Option 1 - System Font:

Install the Font as system font on your JIRA Server

### Option 2 - Font Extension:

If you are using the Font Extension from JasperReports, you need to add the .jar File to the lib directory of your JIRA Installation (default directory on Linux Systems: `/opt/atlassian/jira/lib/`). The font will be available after you restarted the server. You need to redo this step when you upgrade your JIRA installation.