

**Oracle® Retail Brand Compliance Management
Cloud Service**

Reporting Best Practices Guide

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Preface

The document provides best practice guidance to clients using Jaspersoft Reporting in Oracle Retail Brand Compliance Management Cloud Service, in order to most efficiently and easily design and run Ad-Hoc reports.

This guidance is applicable to all versions of Jaspersoft in use.

Audience

This document is intended for the users of the Oracle Retail Brand Compliance Management Cloud Service Reports module.

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Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
<code>monospace</code>	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Best Practices

This chapter provides information on the best practices for reporting.

General Advice

- Identify a specific record that you expect to appear in the report, so that you can use this as a marker to filter the report and check that the report output is as expected.
- Apply an initial filter which limits the report output to just the marker record you have identified, for example, the particular Specification Number. This reduces the time taken to refresh the Designer while building the report.

This filter can be removed once you have finished designing the report.

- For Brand Compliance release 15.0 and above (Jaspersoft 6.1 and above), set the data type to either "Sample Data" or "No Data," which restricts the Designer to referencing a small set of records, or no records at all, while building the report, again reducing the time taken to refresh the Designer.
- It is recommended that reports which are expected to output large amounts of data should always be run either in the background or scheduled, rather than run directly on screen.

This applies especially to reports containing data from complex tables (such as, Recipe, Nutrition, Packaging), or from multiple data sources (such as, Specification + Product record + Site).

To assist users, include a note in the Report Description, such as "Schedule Only."

- For reports which routinely require different values to be selected for a particular filter (such as the same report filtered and run for different Business Categories), sub reports can be created.

This means that the report can be created just once, and then replicated according to the filter values. Sub reports are stored together in the Repository. (Note that the sub reports are not automatically updated if the parent report is amended, such as, additional columns added.)

Sub reports can be created by the following methods:

- When scheduling or running a report in the background, save the filter values which are selected for the report.
- Once the report has been run, select the report Options and save any amended filter values.

- Alternatively, a Report (or Ad Hoc View) can be copied in order to reuse the report design and apply different filter values. This method is useful if you want to reuse another user's report.

In the Repository view, highlight the report (or Ad Hoc View) you want to copy, select the Copy button, and then paste the report into a different folder. Modify the name of the report so that it can be correctly identified.

Designing Reports

Note: The Ad Hoc View in Brand Compliance release 15.0 and above replaces the Report Designer in earlier versions, and means that each report design can be saved separately from the report itself.

While working in the Designer view, if the report builder hangs while adding fields, ensure that you have applied at least one filter and selected Sample Data, to limit the amount of time and memory needed to build the report.

Saving a Report

- The report cannot be saved until at least one data column has been added.
- It is recommended to Save the Report (of Ad Hoc View) at regular intervals while building it in the Designer, to avoid loss of data if an unrecoverable timeout is experienced.

Adding Fields and Columns

- Fields can be selected either by dragging them to the report-builder screen, or by right clicking them from the menu and choosing Add as Column.
- Use of the right click method is recommended, rather than drag and drop, to reduce lag.
- Once a column has been added to the report body, right click the column and use the menu options to move left or right.
 - Use Ctrl to select multiple columns to move at once.
- Use the right click menu to edit the column label.
- Use the right click menu to add a summary calculation for the column: Count; Distinct Count; Mode; Median; Average; Sum; Maximum; Minimum; Range; Standard Deviation.
 - If groups are in use, the summary will apply to each group.
- Jaspersoft 6.1 allows you to choose whether the report output includes detailed data, or just the summaries.

Field Selection

- Jaspersoft 6.1 and above includes a Search option, which helps to more easily locate fields in the limited space of the field selection pane.
- Where possible, avoid cross-referencing fields that are located in different records. For example, if the Specification Type is required when reporting on Specification data, ensure that you select this from the group of fields for Specification Header,

rather than the group of fields for Product Record. This will help to limit potential duplication of rows in the report output.

Filters

- Add at least one filter when first building a report, to allow the report to focus on a single marker record, while the required columns and additional filters are added. This filter can be removed, if not needed, once the report has been built.
- Jaspersoft 6.1 includes an Apply button for filters, which means that any filters added to the report or modified in the report, are not actually applied until this button is selected.

This allows you to build up a number of filters without the Designer refreshing and querying the data each time, thus reducing waiting time, and allowing you to save the report and filter choices before refreshing the data.

- Filters can be added to any data column that has been added to the report, by right clicking the column and choosing the Create Filter menu option.
- Alternatively, filters can be added to fields before adding the column to the report, by right clicking the field in the field selection pane, and choosing from the menu. This reduces any lag when the column is added, by reducing the amount of data returned.
- Filters can be added to fields without actually including the field itself in the report layout. This can be useful if a filter is required, but the filtered field would cause duplication of rows in the report output.
- For reports which are expected to return a large number of records, which could exceed the allowed size of the report, it is useful to add filters which can limit the number of records a particular instance of the report will return. For example, limit the records by Specification Number range, Specification Type, and Specification Status.

Multiple sub reports can be created (see "[General Advice](#)"), to retrieve the full set of data in batches.

- Note that multiple filters can be created to a single field.
- New filter controls in Jaspersoft 6.1 and above, allow filter values to be selected, de-selected, and inverted.
- By default, all filters will be applied with an And expression.

A custom filter expression can be created, to control the order in which filters are applied and to control whether an And or Or expression is used.

Always remember to update the Custom Expression if any filtered columns are added or removed.

Cross Tab Reports

- It is recommended to create a table report initially, to ensure that the required data exists, before converting it to the Cross Tab format.
- Columns in a Cross Tab report must always be numeric fields (selected from the Measures field selection pane).
- While Dates are not classified as numeric fields, the Project domain has dates converted to numeric values (absence of / separators) for the purpose of Cross Tab reports.

Running and Scheduling Reports

This section provides information on running and scheduling reports.

Running the Report

- Once the report has been built and tested with a restricted amount of data, the report can be created.
With Jaspersoft 6.1 and above, use the option to Save Ad Hoc View and Create Report, which creates the report separate to the Designer.
- With earlier versions of Jaspersoft, use the Save As option, which saves the report and Designer as a single item.
- Unless the expected report output is small, it is always recommended to run the report in the background.
Note that, for earlier versions of Jaspersoft (pre-Brand Compliance release 15.0), the report can be run directly from the Designer. Avoid this, and instead return to the Repository view where the report can be selected to *Run in Background*.
- When running the report in the background, if you opt to change the filter values, it is advisable to choose the option to Save the updated values, to ensure that these are actually used when the report is run.
- When creating the job, ensure that Overwrite or Sequential file name is selected. If neither option is used, the next time the report is run, the output will not be saved as a duplicate file name would be created in the Repository.
- Jaspersoft allows files to be generated as a PDF. Avoid this option if saving the file in the database or requiring the file to be delivered by email, as the file size is larger than other formats.
- When requesting the output, use the option to include a link rather than attach the file to the email notification, if the size or content of the file could be blocked by your mail server.
Note that, to be able to download the report output using the email link, the user must be logged into Brand Compliance and have the Reports app open.
- While a report is running, avoid repeatedly trying to run it if it is taking excessive time to run, as this can queue multiple jobs in the memory, eventually causing the reporting memory to become full and all jobs to fail.

Scheduling a Report

- If scheduling reports, schedule them to run Out of Hours, and stagger the schedules to avoid multiple scheduled reports running at the same time.
- Since certain automated maintenance routines are set to run at 12am, avoid scheduling reports to run at this time; for reports that are required to run overnight, set them to run from 2.15am.
- When scheduling the report, ensure that Overwrite or Sequential file name is selected.

The option chosen will depend on the user's requirement for the report. However, if there is no requirement for an aged comparison of the data within the report, then a simple Overwrite is preferred, to avoid multiplying the report outputs saved in the database. The report created will always be the last report run with that name.

If the end user needs to be able to compare the current report to past reports, then the Sequential option can be chosen, in order to retain previously generated reports. Each new report will be saved with a date-time stamp to differentiate it from previous ones.

The saved outputs will be identified as Content Resource files.

- It is recommended that users review Content Resource files frequently, to delete any aged reports that are no longer required.

This will free up memory space and assist the overall performance of reporting.

- When scheduling reports, as long as the recipient has access to Brand Compliance Reports, it is preferable to use the option to include a link to the saved report output in the system, rather than to attach the file to the email notification. This will avoid files getting lost if the size or content of the file could be blocked by your mail server. Note that Oracle imposes a 20 megabytes email size on its email relay, so any single email that exceeds this limit will not reach its intended recipients, regardless of any further restrictions imposed downstream.

Also remember that, if you specify the report output to be delivered as an email attachment, that will leave the Oracle domain as the email routes to the intended recipients and could route through many email relays before reaching the target recipient.

Consider whether the email and its content could be inspected by an anonymous third party during this process and consider whether sensitive information is held within the email, which you would not normally send outside of the application.

- Jaspersoft 6.1 and above allows you to choose to receive a success/failure notification, when scheduling reports or setting reports to run in the background.

It is recommended to choose this option, especially if you have opted to send the report output as an email attachment, as this will confirm the success of the job even if the attachment is blocked due to size.

Additionally, you can choose to include the report Job Information and Stack Trace, which enables quicker analysis, should the report job fail.

Appendix: Stack Trace Errors

This appendix provides some common stack trace errors which may be received as a result of a report failing to run.

In some cases, it is possible for users to identify the root cause from the error message, and therefore re-mediate the issue without needing to contact Oracle Support.

For each error message listed below, the key text which indicates the root cause is shown in **bold**.

Number of rows in the report exceeds 200,000 rows

If this error occurs, filter the report to reduce the size of output per report.

Stack Trace Error:

```
Job: Background Execution (ID: 5977) Report unit:  
/organizations/RETAILER/Users/Reporting/Missing_QAS_Report Quartz Job:  
ReportJobs.job_5977 Quartz Trigger: ReportJobs.trigger_5985_0 Exceptions: The job  
was not completed. A system error occurred while running it.  
java.lang.IllegalArgumentException: error getting datarator at  
com.jaspersoft.ji.adhoc.service.AdhocEngineServiceImpl.fillReport(AdhocEngineServ  
iceImpl.java:2063) at  
com.jaspersoft.ji.adhoc.service.AdhocEngineServiceImpl.execute(AdhocEngineService  
Impl.java:1994) at  
com.jaspersoft.ji.report.options.engine.ReportOptionsExecutionJob.executeReport(Rep  
ortOptionsExecutionJob.java:120) at  
com.jaspersoft.jasperserver.api.engine.scheduling.quartz.ReportExecutionJob.execute  
AndSendReport(ReportExecutionJob.java:442) at  
com.jaspersoft.jasperserver.api.engine.scheduling.quartz.ReportExecutionJob.execute(   
ReportExecutionJob.java:233) at  
org.quartz.core.JobRunShell.run(JobRunShell.java:195) at  
org.quartz.simpl.SimpleThreadPool$WorkerThread.run(SimpleThreadPool.java:520)  
Caused by: com.jaspersoft.commons.util.QueryExecutionTooManyRowsException:  
jsexception.QueryExecutionTooManyRowsException at  
com.jaspersoft.ji.adhoc.service.AdhocEngineServiceImpl.getDatarator(AdhocEngineSe  
rviceImpl.java:438) at  
com.jaspersoft.ji.adhoc.service.AdhocEngineServiceImpl.fillReport(AdhocEngineServ  
iceImpl.java:2061) ... 6 more
```

Number of rows in the report exceeds 65,536 rows (when file output format is xls)

Note that this error may occur in earlier versions of Jaspersoft, but is not applicable to Jaspersoft 6.1 and above as the report output is automatically split onto multiple tabs.

If this error occurs, filter the report to reduce the size of output per report.

Stack Trace Error:

Job: Background Execution (ID: 6029) Report unit:
/organizations/RETAILER/Users/root/Country_of_Origin_and_Raw_Material_Report Quartz Job: ReportJobs.job_6029 Quartz Trigger: ReportJobs.trigger_6037_0
Exceptions: The job was not completed. A system error occurred while running it.
com.jaspersoft.jasperserver.api.JSEExceptionWrapper:
net.sf.jasperreports.engine.JREException: **Error generating XLS report:** test at
net.sf.jasperreports.engine.export.JExcelApiExporter.setRowHeight(JExcelApiExporter.java:367) at
net.sf.jasperreports.engine.export.JRXlsAbstractExporter.exportPage(JRXlsAbstractExporter.java:896) at
net.sf.jasperreports.engine.export.JRXlsAbstractExporter.exportReportToStream(JRXlsAbstractExporter.java:804) at
net.sf.jasperreports.engine.export.JRXlsAbstractExporter.exportReport(JRXlsAbstractExporter.java:475) at
com.jaspersoft.jasperserver.api.engine.scheduling.quartz.XlsReportOutput.getOutputStream(XlsReportOutput.java:121) at
com.jaspersoft.jasperserver.api.engine.scheduling.quartz.ReportExecutionJob.executeAndSendReport(ReportExecutionJob.java:456) at
com.jaspersoft.jasperserver.api.engine.scheduling.quartz.ReportExecutionJob.execute(ReportExecutionJob.java:233) at
org.quartz.core.JobRunShell.run(JobRunShell.java:195) at
org.quartz.simpl.SimpleThreadPool\$WorkerThread.run(SimpleThreadPool.java:520)
Caused by: **jxl.write.biff.RowsExceededException: The maximum number of rows permitted on a worksheet been exceeded at**
jxl.write.biff.WritableSheetImpl.getRowRecord(WritableSheetImpl.java:1170) at
jxl.write.biff.WritableSheetImpl.setRowView(WritableSheetImpl.java:1446) at
jxl.write.biff.WritableSheetImpl.setRowView(WritableSheetImpl.java:1398) at
net.sf.jasperreports.engine.export.JExcelApiExporter.setRowHeight(JExcelApiExporter.java:363) ... 8 more

Opening / generating a report in the front end times out

If this error occurs, try setting the report to run in the background.

Error Message:

The server has encountered an error. Please excuse the inconvenience.

Error Message

org.springframework.webflow.conversation.impl.LockTimeoutException: Unable to acquire conversation lock after 90 seconds