

Crystal Enterprise Solution Kit for Baan 2.0

Improving the Performance of Reports Against Baan

Overview

This document is designed to assist those who are responsible for creating reports using Crystal Reports 8.0 and 8.5 and the Baan Native Driver for use in Crystal Enterprise Professional 8.0.2.672 and 8.5.0.806, and Seagate Info 7.5.2.0 environments. This document provides new material beyond that which is included in the user guide provided with the Crystal Enterprise Solution Kit for Baan. It also includes material from the Crystal Reports Online Help. If you have any questions and/or suggestions regarding this document, please let us know by emailing baan@crystaldecisions.com

NOTE	The Crystal Enterprise Solution Kit for Baan 2.0 is not fully supported when installed in a Crystal Enterprise (CE) version 8.5.0.806 environment. For more information, please review Knowledge Base article C2011493 .
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Introduction

Multiple performance factors can have an impact on how fast your reports run against Baan. Some examples of these factors include: network performance, performance of the Baan server and Baan database, or whether your database is level 1 or 2. It can also be affected by the power of the computer used for Crystal Report creation or the level of the Crystal Enterprise server that is running the reports once you have published your reports to Crystal Enterprise.

Crystal Enterprise and Seagate Info also provide you with methods to work with a report that takes a long time to process. Using the scheduling options in Crystal Enterprise or Seagate Info, you can schedule reports to run in off-peak hours. Users can then access the data at a later date or time by viewing the saved instances of the report. In this way, the impact on the Baan server can be minimized and the end user experience enhanced. It is also possible to parameterize the report instances so that users can specify the data they wish to see in the report at view time.

The report design can also greatly affect how fast your report will run and retrieve data, and the performance impact on your Baan server. The report design aspect is what this document focuses on. It is our hope that it will provide you with some ideas on how to improve the performance of your Crystal Reports against Baan.

This document was created using Crystal Reports Online Help documentation and then coupling that with Baan-specific information. The Crystal Reports Online Help documentation can explain terms or concepts used in this document in more detail.

Selection Performance Tips

Items affecting record selection performance

There are a number of performance-related items that you should consider when designing your record selections:

Record selection will be faster if it is based on indexed fields instead of non-indexed fields. If you have based record selection on indexed fields, make sure the 'Use Indexes Or Server For Speed' option is selected in the 'Report Options' dialog of the 'File' menu.

NOTE	Your Baan administrator is able to add indexes to Baan tables. Therefore, it is possible to speed up critical reports by adding these indexes in Baan.
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If at all possible, avoid performing record selection based on formula fields, since it will result in less efficient reporting. For example, assume you have a formula field (@ExtendedPrice) in your report that returns the extended price of a line item (Quantity * Price). If you base your selection criteria on the formula (@ExtendedPrice > 1000), the SQL server will not understand the formula and the program will not pass the selection criteria down to the server. Instead, it will retrieve all of the records from the server and then it will apply record selection on the client computer.

NOTE	This is a general rule. In some cases, you may want to force the selection to be done in Crystal Reports rather than on the server-side for performance reasons. If you are finding that a selection is taking a particularly long time, it may make sense to test creating a “dummy” formula on the field and then performing a selection on that formula. This forces the selection to be done in Crystal Reports rather than at the database level. Or, you may consider using the group selection formula method documented below.
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If you are unsure whether or not the record selection is passing through to SQL, check it by clicking ‘Show SQL Query’ from the ‘Database’ menu. If the SQL query does not include a WHERE clause or if the WHERE clause does not mention all the fields that you are dealing with in your record selection, then you will need to work through the formula again since the translation did not occur properly.

NOTE	Make sure you have logged on to your data source before choosing the Show SQL Query command from the Database Menu.
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Do not perform any data type conversions in the record selection formula (for example, converting a number to a string using the ToText function). Such conversions cannot be translated to SQL thereby preventing SQL pass through. For more information, please review the “ToText” function in Crystal Report Help.

Record selection with a group selection formula

To perform record selection on both indexed and non-indexed fields, you can define your record selection in such a way as to maximize performance. You do this by creating a record selection formula and a group selection formula, and then using both to select records. This may require some explanation.

The Group Selection Formula Editor has the same functionality as the Record Selection Formula Editor. While its primary use is for creating group selection, it can also be used to create record selection.

While the two Formula Editors are fundamentally the same and the formulas produced appear the same, each produces formulas that are evaluated at different times.

- Formulas from the Record Selection Formula Editor are evaluated as the program reads records.
- Formulas from the Group Selection Formula Editor are evaluated as the program is printing records. At this point, the only records that are saved with the report are those that passed record selection criteria.

By using this functionality, you can create record selection based exclusively on:

- Indexed fields in a record selection formula

Or

- Non-indexed fields in a group selection formula

Since Crystal Reports runs record selection when it reads records and runs group selection when it prints records, the following events occur:

- The record selection formula on the indexed fields quickly returns a subset of data from your database. For this example, let's say that it returns 5,000 records out of 100,000 and saves them in a buffer.
- The group selection formula performs record selection but only on the subset of data records (5,000) that are saved with the report.

You accomplish the same record selection but do it in a more efficient manner. With very large data sets, this technique can save you significant processing time.

Multi-Company Reporting

Multi-company and multi-table reporting in Baan can cause report performance issues when used against tables with many records. It is important to understand what is happening when a multi-company report is performed against Baan using the `_.compnr` field. If you have two tables in the report, the query to Baan is attempting to join these two tables across all companies. So, an example would be if you created a report against the Sales Orders table and the Customer table against multiple companies. The query in Baan will try to link each sales order record selected to each customer table. So, if you had the same customer code in two different logistic companies you will actually have two records on the report for the sales orders with those customers, which would result as well in inconsistent data on the report. While it is possible to solve the problem of inconsistent data by using more selections in Crystal Reports, this will not solve the performance issues caused by the linking across tables.

There are ways to get around this issue. One method is simply to use as few tables as possible in the report. Obviously, you will end up with a less detailed report but your performance will be greatly enhanced. It may be that the report is really needed to get an idea of the totals across companies. Taking the example used above, let's say you wanted to see total sales across companies. It may have some benefit to put the customer details with each order but not necessary for the report. If you do need to look up customer details from the report, the best method to use is an on-demand subreport. That way you are only querying the customer details as needed for specific records.

If it is not possible to reduce the number of tables, it is time to look at using subreports as an option. Basically, you can take the report that you have and make it a single company report. Then you would create a report against a data source that has the company numbers that you want to report against (some possible data sources would be the company tables in Baan (ttaa100, tccom000, tfgld000, etc.) or even an Excel data source. Put these company number records in the Details section of the report. Then link the report you created earlier as a subreport. The company number in the main report will be the selection parameter for the subreport to all the `_.compnr` fields in the subreport. The effect will be that for each company one query is made to Baan, and on the main report, there will be one detail section for each company in the report. You are able to do totaling across all companies by using shared variables (see Crystal Reports Help). Most importantly, because multiple single company queries are being made to Baan, the report performance will be much better.

Finding More Information

For more information, review the following documentation or contact Technical Support.

Product Documentation

The Crystal Enterprise Solution Kit for Baan includes the following documentation on the product CD:

- Crystal Enterprise Solution Kit for Baan User's Guide, Uguide.pdf - This User's Guide leads you through the Solution for Baan components that enable you to generate Crystal reports from Baan reports and to report directly off your Baan data.
- Readme.txt - Includes last minute notes concerning the Crystal Enterprise Solution Kit for Baan product.
- Crystal Enterprise Solution Kit for Baan Installation Guide, Install.pdf - This Installation Guide leads you through the client and server installations of both components of the Solution Kit for Baan.

Contacting Crystal Decisions for Technical Support

We recommend that you refer to the product documentation and that you visit our Technical Support web site for more resources.

Self-serve Support:

<http://support.crystaldecisions.com/>

Email Support:

<http://support.crystaldecisions.com/support/answers.asp>

Telephone Support:

<http://www.crystaldecisions.com/contact/support.asp>