Automatic Database Analysis
Dramatically boost the performance of your queries

A utomatic database analysis is a powerful feature that removes the necessity of a BBj® Services administrator to explicitly run a database analysis operation on their database. Database (or table) analysis is a feature where the BBj SQL engine analyzes the tables in the database to generate information used for determining the best possible way to optimize SQL queries run against that database. Without this information, the SQL engine must make a generic "guess" as to how to optimize a query and may or may not choose the best option. SQL query performance is highly dependent upon the availability of this information.

How It Works

The BBj database engine examines tables each time they are accessed to determine if an analysis is warranted. The following criteria is currently used to determine if a table should be analyzed or reanalyzed:
- The table has not yet been analyzed
- Since the last time the table was analyzed
  - The record count has increased by more than 50%.
  - One or more indices were created or dropped from the table (also includes keys added or removed from the file using non-database operations or tools such as SQL or the Enterprise Manager)

If any of these criteria are met, a table analysis job is entered into the analysis queue (see **Figure 1**) where it starts as soon as there is an available time slot for it to run. The analysis engine intentionally limits the number of simultaneous analysis processes so that it does not interfere with the running of applications or queries on that server. To view the progress of analysis jobs and the order of queued tables, simply click on the "Table Analysis Queue" item in the navigator on the left side of the Enterprise Manager application window.

How it Defaults

An important consideration is whether to leave automatic table analysis enabled for a database or if it should be disabled and analyzed manually. In most cases, automatic analysis should simply be enabled, which is the default setting on setup of a new database in the Enterprise Manager. However, if your application has the occasion to remove data files or tables that are part of the database, it may be necessary to disable automatic table analysis since an analysis operation will prevent a file currently being analyzed from being removed.

Figure 1. The Table Analysis Queue in Enterprise Manager

☞ In future releases of BBj after 10.02, developers can use the Admin API to disable/enable table analysis to avoid the need to completely turn off auto analysis. This feature allows the application to disable analysis if it needs to manipulate the files in an exclusive way, whereby database analysis might interfere.

Summary

Database analysis is vital to achieve optimal performance of SQL statements in BBj. Without the information derived during analysis, the SQL engine has no way of knowing the best index to use when matching a WHERE clause and so it must simply guess. With the addition of automatic database analysis, there is one less application setup action required to get a database configured and keep it configured to run as fast as possible. Now, BBj automatically analyzes tables as the need arises, all without any interaction from the end user or the administrator. ■

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