Retail passion. Innovative solutions.

Retek® Merchandising System™ 11.0

Performance Tuning Guide

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Overview

The purpose of this document is to provide recommendations to maximize the performance of the Retek Merchandising System (RMS). It is also helpful to keep some of these recommendations in mind when building custom code for RMS.

Please refer to the *Retek 11.0 Software Performance Tuning Guide* for general system configuration recommendations.

Database Configuration

RMS is very data-centric application. Carefully read through the *Retek 11.0 Software Performance Tuning Guide* to set up the RMS database and its objects. Because of their importance, a few guidelines from that document are repeated here:

- Pay careful attention to the Oracle initialization parameters which allocate the memory for the Shared Global Area and Program Global Area. Some of the important parameters are DB_CACHE_SIZE, SHARED_POOL, SORT_AREA_SIZE, HASH_AREA_SIZE and LOG_BUFFER.
- Create all large volume tables with the proper partition keys. The number of partitions for partitioned tables depends upon the volume and number of store locations. Typical RMS partitioning is either based on hash partitioning (usually on location) or on range partitioning (usually using a date column).
- Also pay careful attention to the INITTRANS and FREELISTS settings for all tables and indices with a large number of insert and update transactions.
- All tables and indices should be in noparallel mode.

Application Server/Forms Tuning

Use high speed Ethernet (100Mbit required, Gigabit Ethernet recommended) with cross-over direct connection between the application server and the database server for low latency.

Opening and closing forms is CPU intensive on the application server. If the client has high open/close transaction rates, consider customizing the forms to avoid the open/close action. Optimize the query criteria to avoid returning too much data to the form.

Batch Tuning

Array/Bulk Processing

Add array processing wherever possible to perform bulk update/insert/select. Bulk operations are very efficient in Oracle.

As an example, see the trace file information below for an update statement on the ITEM_LOC table using a bulk update and a single update.

Single/Array Update	Call	Count	CPU	Elapsed	Rows	Avg CPU Time Per Row
Array	Execute	10	69.9	154.75	93,347	**0.75 ms**
Single	Execute	212,449	708.07	1416.54	212,449	**3.33 ms**

In this above example, the bulk/array update was about four times faster for the same volume of data.

Multi-Threading

Most of the RMS batch programs are multi-threaded so that multiple instances of a program can be run at the same time to process large amounts of data in parallel. Configure these threads based on the volume of data to be processed, resources available (mainly CPUs) and desired run-times. These can be set up in the RESTART_CONTROL and other associated tables. Make sure to maximize system resources for your batch run. However, do not run more threads than your server can handle. As a general rule of thumb, the optimal number of threads to run is equal to 1.5 times the number of available CPUs on the server. For custom code, consider utilizing the available existing views which balance the data among threads. The most common one is V_RESTART_STORE_WH.

```
/** From RMS User Guide  **/

Clients should be able to determine the best algorithm for their
design, and if a different means of segmenting data is required,
then either the restart_thread_return function can be altered, or a
different function can be used in any of the views in which the
function is contained.

/****/
```

Optimizing Commits

Configure the Max Commit Counter appropriately to optimize bulk fetch/execute. Each program can be set up with different commit counters. These settings can be configured by changing the value in COMMIT_MAX_CTR in the RESTART_CONTROL table. Typical settings for a program could range from 100 to10,000 depending upon the size of the logical unit of work.

Understanding the Business Requirements

RMS is a generic product which caters to all retail businesses. Some processing is very specific to a particular business market. For example, a function may apply to grocers but not to fashion retailers. Processing for a module can be controlled by specifying a flag or indicator in the SYSTEM_OPTIONS table. For example, if you set the ELC_IND indicator to 'N' in this table, then landed costs will not be used which will improve the performance. Discuss the RMS system options with a Retek Integrator or Services Representative to set these indicators appropriately based on your functional needs.

Adjusting Oracle Parameters

For RMS batch programs, additional parameters such as SORT_AREA_SIZE and HASH_AREA_SIZE can be specified at run time for better performance. They are usually good for single-threaded programs which perform full table scans. These parameters are defined in the oracle.pc program. The SQL_TRACE parameter can also be specified at run time to get additional diagnostic information which can be used to further improve the program.

Tuning the Batch Schedule

Optimize the overall batch schedule so that multiple programs can be run simultaneously to maximize the system resource usage. However, be cognizant of running too many threads in parallel which can cause a system bottleneck.

Purging Data

RMS is a transactional system, not a data warehouse. Keep only the data which is required for your business. Purge historical data on a regular basis.