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**www.*DanHotka.com***  
**Quarterly Newsletter**

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**Winter 2008**



Dan Hotka is a Training Specialist who has over 30 years in the computer industry and over 24 years of experience with Oracle products. He is an internationally recognized Oracle expert with Oracle experience dating back to the Oracle V4.0 days. Dan's latest book is the [SQL Developer Handbook](#) by Oracle Press. He is also the author of [Oracle9i Development By Example](#) and [Oracle8i from Scratch](#) by Que and has co-authored 7 other popular books including the [Database Oracle10g Linux Administration](#) by Oracle Press. He is frequently published in Oracle trade journals, and regularly speaks at Oracle conferences and user groups around the world.

## Public Training Offerings

Watch for Dan in your area with these courses. Contact Dan for course details and enrollment. Check [www.DanHotka.com](http://www.DanHotka.com), click on Onsite Training for course outlines, or, just ask Dan.

**Nov 11 - 12, 2008** Oracle SQL Performance Tuning (Denver)

**December 1 - 3, 2008** Oracle SQL Performance and Tuning (Minneapolis)

**December 4, 2008** TOAD Tips and Techniques (Minneapolis)

**December 9 - 11, 2008** Oracle SQL Performance and Tuning (Salt Lake City)

**December 16 - 18, 2008** Advanced PL/SQL Programming (Minneapolis)

**January 13 - 15, 2009** Advanced PL/SQL Programming (Madison, WI)

**January 20 - 22, 2009** Advanced PL/SQL Programming (Denver)

**I** It has been a good year. I've been self-employed for just over 5 years now and this is the first year I didn't have a large client that dominated my schedule. I want to thank each and every one of you that I have met this year for allowing me to come and do training for you and your staff.

This newsletter will cover:

- The MERGE statement. I have also included some Oracle10g gotcha's and how to avoid them.
- How to get Free Training from [www.DanHotka.com](http://www.DanHotka.com)
- Oracle RAC tips and techniques from the experts at Performance Tuning
- Both TOAD and SQL Developer have put new releases out. I'll point out the major enhancements.
- *Oracle PL/SQL: Expert Techniques for Developers and Database Administrators* by Bulusu
- Back Page: VW Museum in Wulfsburg, Germany!

This newsletter, along with all prior newsletters, are available at [www.DanHotka.com](http://www.DanHotka.com).

## What's in this issue?

### User Group Information:

- See Dan at RMOUG and Collaorate!
- See page 2 for Dates and Submitted Papers.
- I have several new presentations for User Groups – See New Presentations. A complete list of topics is at <http://www.danhotka.com/>

### Merge Statement

Oracle Merge Statement Tips and Techniques. Page 4

### RAC Tips and Techniques

Ed Whalen shares his expertise on RAC. Page 4

### Free Downloads

Free Downloads. Page 7

### Free Training Opportunity

Learn how to attend free training by Dan. Page 3

### Product Review

- TOAD 9.7 New Feature Summary
- SQL Developer 1.5 New Feature Summary

See page 5.

### Book Review

*Oracle Database 11g DBA Handbook*

Check out this useful book by Bryla and Loney on page 6.

### Educational Offerings

- My Training Pricing Model – up to 15 attendees for one low price!
- On-site at your company or in your city via user group participation...see Educational Offerings on Page 3.

### Featured Presentation

- Oracle11g Automatic SQL Tuning. A new presentation submitted to RMOUG. Details on page 7.

### The Back Page:

- VW Museum in Wulfsburg, Germany

### Puzzler...

What was the first hard drive capacity for a PC and an Apple?

Go to [www.DanHotka.com](http://www.DanHotka.com) for the answer!

## User Group Information

See Dan at these events:

#### KCOUG November 5 (Kansas City)

Submitted Papers

All the Free Stuff from Oracle Corp

Why is my 10g Database Slower than my 9i Database?

Discoverer Tips and Techniques

[www.kcoug.org](http://www.kcoug.org)

#### RMOUG February 11 - 12, 2009 (Denver)

Submitted Papers

Why is my 10g Database Slower than my 9i Database?

All the Free Stuff from Oracle Corp

TOAD Tips and Techniques

Oracle11g New Features for Developers

Oracle11g Automatic SQL Tuning

University Sessions: Understanding Oracle Explain Plans or Oracle SQL Tuning Tools

[www.rmoug.org](http://www.rmoug.org)

#### Collaborate 09, 2009 (Orlando)

Submitted Papers

Why is my 10g Database Slower than my 9i Database?  
All the Free Stuff from Oracle Corp  
TOAD Tips and Techniques  
Oracle11g New Features for Developers  
Oracle11g Automatic SQL Tuning  
www.ioug.org

I am available to speak at your user group. A complete listing of available topics is on my website.

Let me know what you would like and I can fill your timeslot.

## Educational Offerings

Please remember that my portable computer lab make these courses very easy to teach at your site. The cost of this lab is included in my 1-fee pricing model (see below).

2008 has been a year of PL/SQL and SQL Performance Tuning. I have been doing training for 5 years now (where does the time go...) and have noticed definite patterns of training.

My PL/SQL offerings include both Intro to PL/SQL (a 2-day course) and Advanced PL/SQL (a 3-day course). Both courses cover using the Oracle PL/SQL Profiler and other PL/SQL tuning topics.

The focus of my SQL Performance Tuning course is to cover exactly how Oracle arrives at the explain plan, how Oracle uses/includes indexes in these plans, and tuning using a coding style that I find helps keep the tuned SQL stay tuned.

I have adapted this course to 1-day, 2-day, and 3-day offerings. This course also illustrates various tuning tools such as Stats Pack, SQL Trace, and the PL/SQL profiler, as well as advanced topics that include SQL Profiling, finding SQL problems using the V\$ tables, and Oracle10g performance issues.

### Training Pricing Model

I price my courses at a fixed rate for up to 15 attendees. This rate compares to the price that others charge for just 2 to 4 attendees. This course fee always includes the use of my portable computer lab. There is a separate per attendee charge that covers the cost of the student guide and any additional books that might be associated with the course.

This student fee is anywhere from \$50 to \$150, depending on the course.

### Current Course Offerings

Give your technical staff that competitive edge with Oracle Workshops! These courses are designed to enhance your staff's skill set to perform their job better.

These workshops are designed to be held at your location. These courses use my portable computer lab. On-site instruction enables more people to be trained with the same training dollar.

The course utilizes a variety of current tools. Students will have the opportunity to learn more about SQL Developer, TOAD, TextPAD, as well as the Oracle tools like SQL\*Plus, iSQL\*Plus, and Dan's new Java-based SQL Tuner.

**Oracle SQL Performance Tuning Tips and Techniques (1-day, 2-day, or 3-day offerings)**

**TOAD for IT Staff**

**SQL Developer for IT Staff**

**Oracle Analytics/Answers for End Users**

**Oracle Analytics for Administrators**

**Oracle Discoverer for End Users**

**Oracle Discoverer for Administrators**

**Introduction to Oracle (SQL)**

**Oracle Intro to PL/SQL**

**Oracle Advanced PL/SQL**

**Oracle Fundamentals**

**Oracle10g New Features for Developers**

**Introduction to UNIX/Linux**

**UNIX/Linux Shell Programming**

**Oracle/Unix Scripting Tips and Techniques**

## Free Training Opportunity

I have met folks that have organized a public course in their area. They always get to sit in the class for free!

I usually do on-site training because the training opportunity is easier to manage and the public offerings can be fickle with headcount.

I need at least 5 people to make a public class viable.

### How does this work?

Contact me with interest in wanting to work with your current employer and your prior employers, your network of friends and associates in the area, etc, to provide me with 8 to 10 attendees.

I will do all the contract work, collections, and follow-up. I may ask you to help make contact with additional folks by providing me with additional contact information, etc.

### What classes are available?

- The Oracle SQL Performance Tuning (2-days or 3-days...most go for the 2-day version)
- Advanced PL/SQL Programming Tips and Techniques

Any course I offer (see [www.DanHotka.com](http://www.DanHotka.com)) is available. It is the two offerings mentioned that tend to draw the larger groups for public offerings.

### Summary:

Contact me with the course you are interested in helping me to promote a public class in your area. Work with me to get at least 8 people from your contact group involved and you will get to sit in free.

## Merge Statement

The Merge statement was introduced in Oracle9.2. This SQL code handles inserts and updates on tables with a single statement. This syntax should allow for better performance of larger datasets because the MERGE statement actually checks to see if the data exists...if so...Oracle updates it otherwise Oracle inserts it. I can remember writing PL/SQL routines to perform this functionality.

The MERGE syntax allows for rows to be selected from one or more tables for insertion or updating into one or more tables. This syntax allows for the INSERT, UPDATE, and DELETE statements to be combined into a single operation.

This statement is deterministic...you cannot update the same row more than once with the same MERGE statement.

### Syntax

```
MERGE INTO <table <table alias>>
  USING (SELECT statement)
  WHEN MATCHED THEN
    UPDATE Statement
  WHEN NOT MATCHED THEN
    INSERT Statement);
```

Example (from Quest Software Knowledge Expert)

```
MERGE INTO bonuses D
  USING (SELECT employee_id,
  salary, department_id FROM employees
  WHERE department_id = 80) S
  ON (D.employee_id =
  S.employee_id)
  WHEN MATCHED THEN UPDATE SET
  D.bonus = D.bonus + S.salary*.01
  DELETE WHERE (S.salary > 8000)
  WHEN NOT MATCHED THEN INSERT
  (D.employee_id, D.bonus)
  VALUES (S.employee_id,
  S.salary*0.1)
  WHERE (S.salary <= 8000);
```

### 10g Tip

If using this MERGE statement on primary key/foreign key data...I have heard that the MERGE statement can hang if there is not an index on the foreign key, or, the foreign key is not the leading column of an index.

### Summary

Use this syntax instead of writing your own.

## RAC Tips and Techniques

Ed Whalen is a RAC expert. He had me do the tuning chapters in his popular book: Oracle Database 10g Linux Administration by Oracle Press. I hope to have more of Ed's technical expertise in this column in the future. Enjoy...thank you Ed.

Oracle RAC (Real Application Clusters) has become increasingly more popular in the last few years as both a highly available and scalable platform. Oracle RAC allows for additional capacity to be added by simply adding another node to the cluster. However, as with all technology, it can work well or poorly depending on how you configure it. In this article some key components of RAC will be highlighted and best practices for optimal performance will be addressed.

**RAC Overview.** The Oracle RAC cluster is essentially a set of Oracle instances that access the same database. Components that enable RAC to work are; one or more computers, a shared disk subsystem and a high-speed interconnect. Each of these components is essential to the Oracle RAC cluster. In order to have an optimal RAC system, each of these individual components must be configured optimally. In addition, the Oracle instance on each RAC node should be tuned according to normal Oracle tuning methods (as an Oracle instance on RAC is no different than a non-RAC Oracle instance, with SGA, PGA, configuration options, etc).

**RAC Nodes.** Each RAC node should be sized and tuned appropriately for the type of application that you are running. The SGA should be tuned according to information you have acquired from AWR or statspack reports. When tuning the SGA and PGA, it is not necessary for all RAC nodes to be tuned the same, unless they are all performing the same workload. For example, if you are running OLTP on one node and a batch on another, each node should be tuned according to the workload.

**Shared Disk.** Keep in mind that the shared disk is being used by all nodes in the cluster. It is easy to overload the disk subsystem. In order to achieve optimal I/O latency for Oracle, it is still necessary to limit I/Os per second (IOPS) to about 150 IOPS per disk. Make sure that there are sufficient disks allocated to the shared disk subsystem. It is also recommended that ASM be used for Oracle RAC because of the ability to expand and shrink storage as necessary.

**Interconnect.** Gigabit Ethernet is the most common network interconnect, but probably not the most optimal. It is important that the interconnect be isolated on its own switch and VPN, and that spanning tree be disabled. The interconnect is used for heartbeat, locking, and data traffic, and can easily become saturated. The best way to reduce traffic is by proper RAC architectural design, but that is a topic for a later time. Make sure that the interconnect is functioning optimally and is not becoming overloaded. In addition, make sure that the maximum and default UDP

buffer sizes are tuned according to Oracle recommendations. These recommendations vary by platform.

**Summary.** These best practices should provide a basic starting point for your system. As with any Oracle system, it must be monitored and tuned on a regular basis. No two applications or systems are the same, thus each system must be individually tuned.

**Edward Whalen** is the founder and Chief Technology Officer of Performance Tuning Corporation. Prior to founding Performance Tuning Corporation, Ed worked for Compaq Computer Corporation as an OS Developer and Database Performance Engineer. His experience and ongoing role includes consulting on complex projects, developing and instructing training courses, writing books and technical papers on various Oracle and Microsoft technologies, and speaking at technical events. He has published 10 books covering Microsoft SQL Server and Oracle technologies, with his most recent work "Microsoft SQL Server 2005 Administrator's Companion," and "Oracle Database 10g Linux Administration". Ed is recognized as a leader in database system design and performance optimization, providing critical advice and support to companies worldwide.

## Product Review

TOAD 9.7 has recently been released by Quest Software. Oracle Corp has produced an updated version of their SQL Developer 1.5 tool as well. This article will highlight some of the latest features in both tools.

### TOAD 9.7

The installation seems to replace the existing TOAD now. I need to pay closer attention to if there is an option to allow the current and new release to both be installed. In the real world, this probably isn't an issue.

#### New Features

- Data Generation
  - Right click on Table
  - ERD Diagrammer
  - Create Table Wizard
- Action Recall (very useful to automate repetitive tasks)
  - TOAD Actions and Action Sets now allow for conditional logic

- Code Expert Enhanced
  - Top 20 Rules
  - Better output report
- More DBA options available from Database Browser
  - Eliminates need to access functions separately
- RMAN Scripting Support
- StatsPack and AWR Advisories
- Trace File Browser
- Enhanced Schema Compare
  - Can now snapshot schema's using a definition file
  - Multiple Targets
- Health Check now includes differences from last time ran!
- Better Workload Replay using Benchmark Factory
- Support for VCS versioning control
- Alerts if TOAD is using certain purchased features of Oracle such as AWR, ADDM, and SQL Tuning Advisor.
- TOAD alerts if not using a suitable Oracle Client.

Useful Links:

[www.ToadWorld.com](http://www.ToadWorld.com)

## SQL Developer 1.5

The latest release of SQL Developer is 5440. It has been available since August? See Downloads for link.

Download either the full version with runtime or just the latest version itself. Expand into its own folder (I highly recommend NOT overlaying the existing code...). Export and import your connections and reports. This release supports code templates so in the future...export these as well for import to new releases!

### New Features

- Updated Code Insites
- New SQL Formatter
- Code Templates!
  - Updateable
  - Sharable
- 11g Flashback
- Unshared worksheets
  - Useful for long queries
- Drag and drop from Navigator to Worksheet

- Updated Data Grid sort options
- View Queues and Queue tables
- Work with Java
- Better DB Object Search
- Import from XLS, CSV spreadsheet
- Start/Stop Databases
- Generate DB Doc in html format
- Schema Copy
- Schema SQL Difference
- Export Wizard includes data now with DDL
- View Trace files
- 11g ASH and AWR reports
- Reports with gauges
- PL/SQL Profiler
- Sybase Adaptive Server v12 and v15
- Times10 Support
- CVS and Subversion support

### Useful Links

New Features Document:

[http://www.oracle.com/technology/products/database/sql\\_developer/files/newFeatures\\_v15.html](http://www.oracle.com/technology/products/database/sql_developer/files/newFeatures_v15.html)

Feature List:

[http://www.oracle.com/technology/products/database/sql\\_developer/files/featurelist\\_1\\_5.htm](http://www.oracle.com/technology/products/database/sql_developer/files/featurelist_1_5.htm)

## Book Review

### Oracle PL/SQL: Expert Techniques for Developers and Database Administrators

ISBN: 978-1-58450-554-9

By: Lakshman Bulusu

Publisher: Course Technology Cengage Learning.

I can tell by reading this book that Mr. Bulusu is an experienced PL/SQL programmer. He includes his knowledge in each of the topics and always provides scripts that illustrate his topics. The book includes a CD that contains all the scripts from the book.

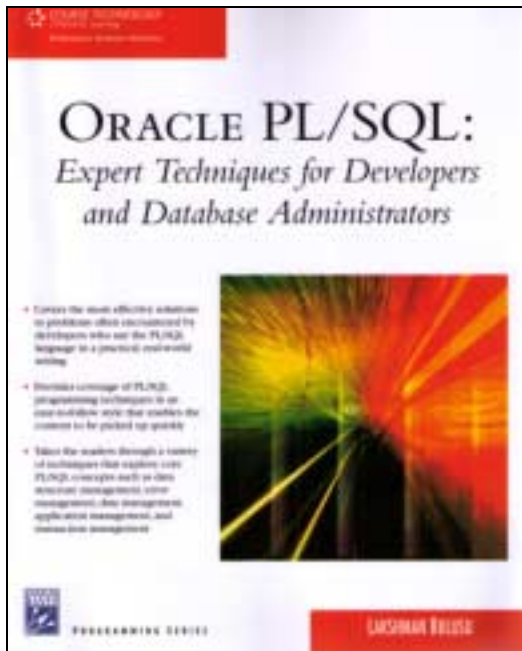
I liked the organization of this book. I think it would make a good reference guide for both the novice and experienced PL/SQL programmer.

This book contains chapters on:

- Intro to PL/SQL and Overview
- PL/SQL by Dissection
- New Features (10g and 11g)
- Data Structures
- Error Management
- Data Management
- Application Management
- Transaction Management
- Application Development Frameworks
- Applying in 3GL and Web
- Miscellaneous Techniques
- Tuning and Debugging
- Coding Standards

This is a good book for anyone working with PL/SQL.

Nice job Lakshman.



## Featured Presentation

### Oracle11g Automatic SQL Tuning

Oracle10g introduced Automatic SQL Tuning and Oracle11g completely automates the process. See how Oracle has implemented this tuning feature using Base Lines, AWR, ADDR, OEM, and the SQL Tuning Advisor. Also see how this process can be used manually as well.

This is a must-see presentation. Dan will discuss the benefits and drawbacks of this new tuning feature being offered by Oracle Corp.

## Free Downloads

**TOAD** [www.ToadSoft.com](http://www.ToadSoft.com)

SQL Developer

<http://www.oracle.com/technology/software/products/sql/index.html>

**Oracle PL/SQL Profiler Paper and Script:** Learn how to use this free PL/SQL profiler from Oracle Corp. The paper also covers using the PL/SQL Profiler from TOAD. Download this paper and script from [www.DanHotka.com](http://www.DanHotka.com).

Email Dan at [Dhotka@Earthlink.net](mailto:Dhotka@Earthlink.net) for any of these items:

- **Oracle SQL Trace Start and Stop Scripts:** Use these scripts to start and stop the Oracle Trace.
- **JS Tuner:** This tool will assist you with enhanced explain plans and useful index info/hints/and SQL history at your fingertips.
- **JS Analyzer:** This tool makes running the character-mode TKProf and SQL\*Plus interface Trace Analyzer a snap. No more typing long trace file names.

# The Back Page

## VW Museum at Wulfsburg, German

I had the pleasure of a 5-country tour of Europe in October...Croatia, Czech Republic, Germany, Estonia, and Ireland. I did some training and some touring.

My son and I got to find some of our heritage near Prague:



The 'L' in my lineage got dropped at Ellis Island when my relatives arrived in 1861. This is a small town in the Czech Republic (an hour southeast of Prague), not well marked, near where my relatives farmed. Lhotka is a common name there. We also found Lhotka Lake, an undeveloped area along a bicycle trail. In the USA...there are both Lhotka's and Hotka's. My family heritage settled in eastern Iowa...I am originally from Iowa City, Iowa.

These are some of my favorite bugs from the mother ship:  
VW Plant and Museum in Wulfsburg, Germany.



The mother ship!!!





This is a pre-production bug. VW always made a convertible bug. Hitler had his picture taken in this car.



I might make one of these some day! There were over 50 vintage bugs in this building.



This is a WWII amphibious jeep known as a Schwimmwagen. There was also a Kublwagon (what the VW Thing was modeled after)... WWII jeep, and WWII

production bugs used in the field (they sat higher and lower gearing).



Kublewagon



One of the original 3 Herbie bugs from the original Walt Disney movie.