Tom Kyte - Beware...

Brian Carr - DBA Code of Ethics

Dan Hotka - Using The PL/SQL Profiler
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I just finished reading Alex Handy’s article in the SD Times – “Conferences put learning ‘in your face.’ But in a tight economy, balancing budgets against expanding brains is a tricky proposition”. If big events are really not in the budget; then look locally for alternative learning opportunities. Local user groups and meet-ups are a quick and easy way to share information and get answers to your questions. In today’s tight economy some budgets just don’t have the extra money to send many people to a large conference and look to their employees to seek alternatives.

One excellent alternative is RMOUG! RMOUG provides many options to network and exchange technical ideas like our Quarterly Educational Workshops (QEWs), Newsletter, technical list server to discuss issues, and an online library of papers from past conferences at no cost to our members.

RMOUG is actively exploring other learning opportunities for our membership including partnering with other local technical user groups and Meetups. Speaking of Meetups -- have you heard about the “Card Table Network” Tom Gaines is organizing? SQL*Plus, RMAN, RAC anyone! For more details check out RMOUG’s website or contact Tom by email at tgaines@graebel.com.

I invite all of you to participate by sharing your experiences and knowledge with others by:

- Writing an article for the SQL>UPDATE RMOUG Newsletter
- Presenting a technical session for a Quarterly Educational Workshop
- Participating in RMOUG’s on-line technical list server
- Have a particular area of interest? Organize or join a Special Interest Group (SIG) to share ideas
- Attending and networking with your peers at RMOUG’s Training Days 2010 February 16th–18th at the Colorado Convention Center

On behalf of the Board of Directors and our membership, I want to extend a special “Thank You” to all who are currently participating by volunteering your time and sharing your knowledge. For all others please consider accepting my invitation; RMOUG is a strong organization only because of the support and involvement of our membership.

All the best,
Peggy King
The Rocky Mountain Oracle User’s Group (RMOUG) is dedicated to helping others. We give our time and put forth effort not for financial gain, but to improve the professional, technical and personal lives of our colleagues. Stan Yellott personified this dedication by helping not only his professional colleagues, but by extending the effort to high school and college students, the next generation of IT professionals. The Stan Yellott Scholarship Fund is founded on the principle of going above and beyond to assist our current and future colleagues.

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If you are interested in contributing to the scholarship fund, please contact Heidi Kuhn
HeidiKuhn@rmoug.org

From Mike Herder
May, 2009 Scholarship Recipient

The scholarship helped me out greatly. I was struggling on how I was going to build a new computer that I desperately needed when I had my summer class (Differential Equations) to pay for. Luckily, the Stan Yellott Scholarship paid for my summer class which allowed me to build a computer that has 2 Quad Core 2.0GHz Processors, 4GB of ram, and motherboard support to 96GB -- a huge step from running a 2GHz computer where the ram was maxed out at 1GB. This computer is essential because in Computer Science I will be taking a Parallel Programming class and not only do I have a fast computer, but its multiprocessors will help me resolve my problems faster than the traditional method that the class uses.

In the future I will also be taking classes that revolve around eyesight for robotics, and I am hoping to find an efficient way/improve upon stereoscopic vision for robots, so I also need a computer that can give me data without making me wait for results. Furthermore, the computer will help support a software package that we use in Mechanical Engineering where the engineering computers just can’t handle the processing as well as what is needed. Instead of managing my time so greatly because of old computers, now I can focus on classes in efforts of achieving my 3 degrees in Applied Mathematics, Computer Science, and Mechanical Engineering.

Starting in August 2009, I have been thinking that maybe after I graduate I will get a job that pays well, and simultaneously I will get my masters degree in Computer Science; however, I still have 2 years to figure that part of my life out. As for my near future, I will soon be taking a class that will allow me to use my knowledge of computer science, basic electrical engineering, and mechanical engineering knowledge to build a robot for a class. Meanwhile, I will continue my personal research in alternative energy as well as in programming with mathematics to help increase the efficiency of alternative energy systems.

"We can never replace all the great things you do but we will help carry on all the things you started”
George T
I remember when I first learned of a database feature called a ‘trigger’. I first learned about them not with Oracle, but rather with a database called Sybase – way back when. It was before Oracle had triggers – triggers were first introduced in Oracle version 7.0 in 1992 but I first met triggers a year or two earlier with Sybase SQLServer version 4.

At first, I thought triggers were the coolest thing ever – a really neat trick. Something that I as a developer could use to perform “magic”, to make things happen by side effect. “Look” I would say, “You insert into this table and magically all of this other stuff happens”. It was neat, it was magical. It was also not-understandable, not expected, not maintainable.

Having things happen by ‘magic’ like that is not something people are expecting. More than once I’ve received an email or a question on http://asktom.oracle.com/ to the effect of “Tom – I’m inserting this data into the table, clearly I am – here is my insert – but Oracle is corrupting or changing the data. Look at what gets inserted”. My response is always very short, very terse to this inquiry. It consists of “what triggers are defined on that table?” Ten times out of ten – the answer is “Oh, sorry to have bothered you – there was a trigger and it did the corruption”. This “unexpected side effect” has caused many a problem.

The forgotten trigger has bitten me many times in the past. Anytime something ‘strange and unexpected’ starts happening – my first hunch is to go looking for a trigger. My second hunch, which I’ll be addressing in this article as well is the dreaded ‘when others then NULL;’ statement in PL/SQL! Many times I find a trigger in place trying to do ‘magic’, to make it so the developed code doesn’t have to be bothered with something.

A very common (attempted) use of triggers is to attempt to implement some data integrity constraint. For example – to enforce conditional uniqueness. The scenario is “when some attribute X is set to a specific value, the columns Y and Z must be unique in the table”. Meaning, Y and Z must be unique in a certain condition, under certain circumstances.

Here is a trigger I recently came across on AskTom whereby the questioner was asking “Why doesn’t this work when using insert into T select … from”. Meaning, they believe the trigger ‘works’ when using ‘insert into t VALUES’, but not ‘insert into t SELECT ...’. Without looking at the trigger – I already knew what the problem would be. In this case – they would be hitting a mutating table constraint (that was based on the INSERT as SELECT not working, mutating table constraints only happen on multi-row inserts) and since they said the trigger “does not work” (not that they received an error – but the trigger did not “work”), I believed I would find a “when others then NULL” in their code. The when others then NULL would just hide any error they really encountered, the mutating table constraint in this case.

I was correct on both cases – here was their trigger (some names changed and
code whittled down to the bare essentials to make it easier to read):

```
ops$tkyte%ORA10GR2> create table t
  2 (cola varchar2(6),
  3  colb varchar2(4),
  4  colc varchar2(4),
  5  cold varchar2(4)
  6 );
Table created.
```

A trigger that is reading the table it is firing will make a decision regarding the validity of the data without having a LOCK TABLE command present. Since reads do not block writes and writes do not block reads in Oracle – this is almost certainly an error in logic. There can and will be data in that table you cannot see, but will be able to see soon – when the other transaction commits. If the goal is to validate some set of rows (set of rows – not just the current row being inserted) and you are attempting to do that in a trigger – and you have not serialized access to the table, you are almost certainly doing it wrong. I cannot see your changes, you cannot see my changes, we do not block each and if our changes “conflict” with each other – our trigger won’t be able to figure that out.

A “WHEN OTHERS THEN NULL”. Whenever I see an exception block with a when others not followed by raise or raise_application_error() – I question why any of the code above the exception handler is present at all. Basically the when others then null in the code presented to me made it so that “if any error is encountered, it is OK, our code need not have run, need not have executed”. Basically, I believe you can almost always just delete the code in the begin/exception block – you don’t care if it executes or not!

All three of these issues were causing this trigger to not work (as in the logic does not work) – under all circumstances – even in the cases where they thought it worked – it did not.

Let’s see this trigger in action – using a single session and one or two transactions:

```
ops$tkyte%ORA10GR2> insert into t
  2  values ('second',2,3,4);
1 row created.
```

Looking at that trigger – I immediately spotted the three grievous errors:

A “FOR EACH ROW” trigger that queries the table it is firing upon, that will raise a mutating table constraint, no doubt, anytime you use an “insert into t select” statement (but not insert into t values () – when the database knows there will be only one row inserted at most, it doesn’t raise the mutating table constraint).

```
ops$tkyte%ORA10GR2> insert into t
  2  values ('first',2,3,4);
1 row created.
```

A trigger that is reading the table it is firing will make a decision regarding the validity of the data without having a LOCK TABLE command present. Since reads do not block writes and writes do not block reads in Oracle – this is almost certainly an error in logic. There can and will be data in that table you cannot see, but will be able to see soon – when the other transaction commits. If the goal is to validate some set of rows (set of rows – not just the current row being inserted) and you are attempting to do that in a trigger – and you have not serialized access to the table, you are almost certainly doing it wrong. I cannot see your changes, you cannot see my changes, we do not block each and if our changes “conflict” with each other – our trigger won’t be able to figure that out.

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```
ops$tkyte%ORA10GR2> insert into t
  2  values ('first',2,3,4);
1 row created.
```
So, apparently the PL/SQL block succeeded - and it did, it was not the WHEN OTHERS that caused it to succeed, rather the trigger ran to a successful completion. Unfortunately, the logic in the trigger is faulty; it does not work when there is more than one single user in the database. Consider what is left in table t after committing all outstanding work:

```
ops%tkyte%ORA10GR2> declare
  2      -- this mimics having another
  3      -- sqlplus session
  4      pragma autonomous_transaction;
  5  begin
  6      insert into t
  7      values ('fourth',2,3,4);
  8      commit;
  9  end;
10 /  
PL/SQL procedure successfully completed.
```

Now, if we were to run those inserts we would find:

```
ops%tkyte%ORA10GR2> select * from t;
COLA   COLB COLC COLD
------ ---- ---- ----
first  2    3    4
third  2    3    4
fourth 2    3    4
```

We have three duplicates! The first record – we understand, it belongs there. The record tagged ‘third’, it got in there due to the WHEN OTHERS THEN NULL hiding the fact that the trigger failed, was not able to ‘verify’ the data. The record tagged ‘fourth’ got in there due to multi-user race conditions (reads not blocking writes and vice versa).

The “correct way” (the real correct way is demonstrated further below with the ALTER TABLE command, the trigger is always the wrong way to do this) to implement this trigger:

```
ops%tkyte%ORA10GR2> CREATE OR REPLACE TRIGGER t_trigger
  2  Before Insert ON t For Each Row
  3  Declare
  4      l_cnt number;
  5  Begin
  6      lock table t in exclusive mode;
  7      Select count(*) into l_cnt
  8        From t
  9        Where colb = :New.colb
 10        And colc = :New.colc
 11        And cold = :New.cold;
 12  if (l_cnt >0)
 13      then
 14          raise_application_error (-20050, 'Cannot insert duplicates!');
 15      end if;
 16  End;
17  /
Trigger created.
```

Now for the “other session” syndrome:

```
ops%tkyte%ORA10GR2> declare
  2      -- this mimics having another
  3      -- sqlplus session
  4      pragma autonomous_transaction;
  5  begin
  6      insert into t
  7      values ('fourth',2,3,4);
  8      commit;
  9  end;
10  /
PL/SQL procedure successfully completed.
```

```
ops%tkyte%ORA10GR2> insert into t
  2  values ('third',2,3,4)
  3  from dual;
  4  insert into t
  5  *
ERROR at line 1:
ORA-04091: table OPS%TKYTE.T is mutating, trigger/function may not see it
ORA-06512: at “OPS%TKYTE.T_TRIGGER”, line 6
ORA-04088: error during execution of trigger ‘OPS%TKYTE.T_TRIGGER’
```

The application is prevented from logically corrupting the data – we cannot use INSERT SELECT on this table while this trigger is in place. We could use COMPOUND triggers in Oracle Database 11g Release 1 and above – or use a “three trigger trick” to work around the mutating table constraint in Oracle Database 10g Release 2 and before in order to allow for INSERT SELECT, but I won’t show that here.

```
ops%tkyte%ORA10GR2> insert into t
  2  select 'third',2,3,4
  3  from dual;
  4  insert into t
  5  *
ERROR at line 1:
ORA-00060: deadlock detected while waiting for resource
ORA-06512: at line 6
```

Here is deadlocked – in real life with two sessions this second session would have simply been blocked. It would have blocked until the first session committed (and then it would fail with a ORA-00001, Duplicate Value error) or the first session rolled back
(at which point this insert would succeed).

Basically, we have to serialize somehow – to ensure that the fact I cannot see your modifications and you cannot see mine doesn’t allow the data to become corrupt. It is true that there could be “higher concurrency” ways to serialize and still create consistent data – but in general, LOCK TABLE is needed.

```
ops$tkyte%ORA10GR2> commit;
Commit complete.

ops$tkyte%ORA10GR2> select * from t;
COLA  COLB  COLC  COLD
------ ---- ---- ----
first  2    3    4
```

Now with everything in place – we have correct consistent data. But at what a high price, you had to LOCK table t.

The correct implementation here – one that would work and be as concurrent as possible – would be simply:

```
ops$tkyte%ORA10GR2> alter table t
 2   add constraint t_unique
 3   unique( colb, colc, cold );
Table altered.
```

A simple declarative constraint – a simple, complete, bullet-proof declarative constraint – running through our inserts again we’ll find:

```
ops$tkyte%ORA10GR2> insert into t
 2   values ( 'third',2,3,4 );
1 row created.

ops$tkyte%ORA10GR2> insert into t
 2   values ( 'second',2,3,4 );
insert into t
  *  ERROR at line 1:
ORA-00001: unique constraint (OPS$TKYTE.T_UNIQUE) violated
```

The simple case is caught as before, and

```
ops$tkyte%ORA10GR2> declare
 2   another
 3   -- sqlplus session
 4   pragma autonomous_transaction;
 5   begin
 6     insert into t
 7     values ( 'fourth',2,3,4 );
 8     commit;
 9   end;
10  /
declare
  *  ERROR at line 1:
ORA-00060: deadlock detected while waiting for resource
ORA-06512: at line 6
```

```
ops$tkyte%ORA10GR2> commit;
Commit complete.

ops$tkyte%ORA10GR2> select * from t;
```

```
COLA  COLB  COLC  COLD
------ ---- ---- ----
first  2    3    4
```

Lastly:

```
We can do INSERT SELECT now, no mutating table constraints – but we cannot violate the unique key constraint that is in place. Further:
```

```
ops$tkyte%ORA10GR2> declare
 2   another
 3   -- this mimics having
 4   pragma autonomous_transaction;
 5   begin
 6     insert into t
 7     values ( 'fourth',2,3,4 );
 8     commit;
 9   end;
10  /
declare
```

```
ops$tkyte%ORA10GR2> insert into t
 2   values ( 'third',2,3,4 );
1 row created.
```

We block other transactions from duplicating our data – it works in a multi-user environment – and it works in a scalable fashion. If we attempted to insert any other values for colb, colc, cold – the insert in the other transaction would have proceeded smoothly without blocking, without locking the table.

```
We end up with logically correct data in our database – in a scalable, concurrent and correct fashion.
```

If you attempt to do integrity constraints in a trigger or in your application, not using a declarative constraint, you have to choose between:

- Concurrency, scalability
- Correctness

You can have either one – but only one. With declarative constraints, you get both.

In summary...

If I could remove a few features from the database – it would be triggers and when others then null. It is nice that in Oracle Database 11g Release 1 and above, PL/SQL considers “when others then null” something you need to be warned about:

```
ops$tkyte%ORA11GR1> show errors procedure p
Errors for PROCEDURE P:
LINE/COL ERROR
-------- ----------------------------------------
9/8      PLW-06009: procedure “P” OTHERS handler does not end in RAISE or RAISE_APPLICATION_ERROR
```

In that release, not re-raising the error in a WHEN OTHERS exception handler is considered a seriously bad practice and you are told about it.
Triggers on the other hand, they won’t be removing from the database. When used correctly and sparingly – triggers can be a good positive thing. It is when they are used for every and anything that they become a really bad idea. If you are performing “magic” with them – stop. If you are doing entity integrity (integrity constraints that cross rows in a table as the above example, or cross tables as referential integrity would) with them – stop (find a declarative way to do it). If you are doing something that could be done in a trivial manner in the application (eg: assigning a sequence number to a primary key) – stop (do it in the application).

Triggers should be used when there is no other way to achieve your goal. They should be the last resort – not the first path of action.

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THE COLLEGIATE PEAKS PHOTO COURTESY OF JOHN KING, RMOMUG MEMBER
Using the Oracle PL/SQL Profiler
By Dan Hotka

Oracle has provided the ability to see how much time each step of a PL/SQL routine takes since Oracle8i. The environment is easy to setup and the information is easy to retrieve.

Introduction

Why Profile? When tuning SQL, it is easy because there is just the single SQL statement. With PL/SQL, there are SQL statements, SQL imbedded in implicit and explicit cursors, called routines (functions/procedures), and the PL/SQL code itself. When a PL/SQL routine is taking 5 minutes to run, exactly what code is taking how much time? This is the information that the PL/SQL profiler provides. Without this information, the person trying to tune the PL/SQL is only shooting in the dark, perhaps pulling out and tuning the SQL within the code, but otherwise has no idea what a PL/SQL routine is doing when it comes to time spent on each line of code.

The profiler is easy to setup and easy to use. Tools like Quest Software’s TOAD provides a nice GUI interface to this profiler.

Installation

The profiler has two scripts that setup the environment. Both are found in the <ORACLE_HOME>/rdbms/admin folder.

The PROFLOAD.sql script needs to be run as SYS (connect <connect string> AS SYSDBA). This script will create the DBMS_PROFILER package and create synonyms and permissions for usage.

The PROFITAB.sql script is recommended to be executed for each user desiring to run the DBMS_PROFILER package. This script sets up the three main tables: PLSQL_PROFILER_RUNS, PLSQL_PROFILER_UNITS, and the PLSQL_PROFILER_DATA. This script can be setup so that all the users share these tables but this topic is beyond the scope of this paper.

Understanding the Profiler Process

Profiling is initiated with the START_PROFILER program. Start this process then execute the PL/SQL routine to be profiled. When execution is done, run the STOP_PROFILER program. This will stop the profiling process and write the collected information to the profiler tables.

There are two more routines that control the collection of profiler data: PAUSE_PROFILER and RESUME_PROFILER. These routines might be useful if only certain statistics are of interest from a rather large PL/SQL program, or perhaps called subroutines are not desired to be profiled. These routines are typically imbedded in the PL/SQL code.

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Contact Dan at:
www.DanHotka.com
Dhotka@Earthlink.net - (515) 279-3361
The FLUSH_DATA routine can also be called to periodically write the collected information to the profiler tables. This might be useful if the STOP_PROFILER routine is taking an excessive amount of time when profiling larger PL/SQL routines. This routine is typically embedded in the PL/SQL code.

When the START_PROFILER routine is started, the Oracle RDBMS collects a variety of information about the PL/SQL routine while it is being executed. The STOP_PROFILER then stops this collection process and writes the collected information to the three profiler tables.

These tables are then examined using SQL to view the results of the profiler collection.

**Using the PL/SQL Profiler**

There will be additional profiler information collected if the object being profiled has been compiled using the debug option. This example will use this simple LOOPING_EXAMPLE code:

```sql
CREATE OR REPLACE PROCEDURE looping_example
IS
    loop_counter   NUMBER := 0;
BEGIN
    FOR rec IN (SELECT * FROM emp)
    LOOP
        loop_counter := loop_counter + 1;
        DBMS_OUTPUT.put_line ('Record ' || loop_counter || ' is Employee ' || rec.ename);
    END LOOP;
    DBMS_OUTPUT.put_line ('Procedure Looping Example is done');
END;
```

To capture PL/SQL profile information, execute the following statements. The comment submitted with the START command will be populated into the RUN_COMMENT in the PLSQL_PROFILER_RUNS table, see below:

```sql
SQL> execute DBMS_PROFILER.START_PROFILER('User0 Looping_Example');
SQL>
SQL> execute LOOPING_EXAMPLE:
SQL>
SQL> execute DBMS_PROFILER.STOP_PROFILER;
```

This example code and the PROFILER_RPT.sql SQL*Plus script (runs all 3 SQL statements in an interactive script) are available from www.DanHotka.com (downloads). You can also email me for the PROFILER_RPT.sql script.

The profiler populates three tables with related information. PLSQL_PROFILER_RUNS has information about each time the profiler is started, including the comment entered when the profiler session was initiated. The PLSQL_PROFILE_UNITS contains information about the PL/SQL code executed during the run. Each procedure, function, and package will have its own line in this table. The PLSQL_PROFILE_DATA contains the executed lines of code, code execution time, and more. The following SQL is useful in extracting the profiler information.

First, find the profiler run of interest. The RUN_COMMENT column has the

```sql
select runid, run_owner, run_date, run_comment
from plsql_profiler_runs;
```

<table>
<thead>
<tr>
<th>RUNID</th>
<th>UNIT_NUMBER</th>
<th>UNIT_TYPE</th>
<th>UNIT_OWNER</th>
<th>UNIT_NAME</th>
<th>UNIT_TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>PROCEDURE</td>
<td>USER0</td>
<td>LOOPING_EXAMPLE</td>
<td>20 SEP 07</td>
</tr>
</tbody>
</table>
```
In this SQL, enter the RUNID from the prior SQL statement. Oracle will place several lines of '<anonymous>' in the UNIT_OWNER column. This information is the overhead that Oracle incurred executing the code, not the code itself. Since I am not interested in this clutter, I coded the SQL to just show me the profiler information of interest to me.

```
select runid, unit_number, unit_type, unit_owner, unit_name, unit_timestamp
from plsql_profiler_units
where unit_owner <> '<anonymous>'
and runid = &rpt_runid;
```

<table>
<thead>
<tr>
<th>RUNID</th>
<th>RUN_OWNER</th>
<th>RUN_DATE</th>
<th>RUN_COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>USER0</td>
<td>21-SEP-07</td>
<td>User0 Looping Example</td>
</tr>
</tbody>
</table>

This code cleans up the profiler tables.

```
delete from plsql_profiler_data;
delete from plsql_profiler_units;
delete from plsql_profiler_runs;
```

TOAD Users

Quest Software has implemented the PL/SQL Profiler into the TOAD tool. This option has been available for quite a while. It too is easy to use and the whole process is easily handled from the TOAD environment.

Starting and stopping the profiler is easily accomplished by clicking on the Toggle PL/SQL Profiler button. If this button is grayed out, then the TOAD Server Side objects need to be executed (Database -> Administrate -> TOAD Server Side Objects Wizard).
When the PL/SQL code is executed, a dialog box will popup for the start comment.

![Start Profiler Run dialog box](image1)

Click the Toggle PL/SQL Profiler button again to stop profiling.

The same profile tables are populated but TOAD also formats this same output using a nice interactive wizard. Use Database → Optimize → Profiler Analysis menu item to access the Profiler Analysis.

![Profiler Analysis window](image2)

The output is easily visible. Select your executed code from the list and click on the arrow button in the circle.

![Profiler Analysis output](image3)

Summary

The PL/SQL Profiler is an essential tool when tuning PL/SQL and the SQL coded into these same routines. Without something like this profiler process, it is impossible to tell where the time is spent when tuning PL/SQL code.

Dan Hotka

Dan Hotka is a Training Specialist who has over 31 years in the computer industry and over 26 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 TOAD Handbook by Pearson. He is also the author of SQL Developer Handbook by Oracle Press, SQL Developer Handbook by Oracle Press, 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. Visit his website at www.DanHotka.com. Dan can be reached at dhotka@earthlink.net.

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![Dan with his 1971 Super Beetle at the summit in Rocky Mountain National Park](image4)
Introduction

The purpose of this paper is to analyze the social and ethical responsibility of Database Administrators (DBAs) in the Information Technology field. Do DBAs have a social or ethical responsibility to the organizations they work for?

What is a Database Administrator (DBA)?

A Database Administrator is the person in charge of managing the relational database and its access rights. Wikipedia defines a database administrator (DBA) as the person who is responsible for the environmental aspects of a database.

In general, these include:

• Recoverability - Creating and testing backups
• Integrity - Verifying or helping to verify data integrity
• Security - Defining and/or implementing access controls to the data
• Availability - Ensuring maximum uptime
• Performance - Ensuring maximum performance given budgetary constraints
• Development and testing support - Helping programmers and engineers to efficiently utilize the database

The role of a database administrator has changed according to the technology of database management systems (DBMSs) as well as the needs of the owners of the databases. For example, although logical and physical database designs are traditionally the duties of a database analyst or database designer, a DBA may be tasked to perform those duties.

Issues, Why We Need One

System Administrators (SAs) and DBAs generally have high levels of access into computer systems at major corporations, financial institutions, educational facilities and brokerage firms. The IT professionals have access to highly-confidential information, prior to it becoming public knowledge, such as IPOs, stock ratings, debt ratings, test questions and answers just to name a few. Many times high-level executives do not even realize when they are saving a Word document, Excel spreadsheet

by Brian Carr
or information to a database that most likely one or more employees or contractors working within IT have the ability to access this information. So what stops the IT professional with high-level access to systems from reading and acting on this information for their own purposes, even if they’re not a hedonist who solely seeks pleasure for themselves no matter the cost to others?

ABC News in September 2007 reported a “computer administrator at one of the nation’s largest prescription drug management companies admitted Wednesday he planted an electronic “bomb” in the company’s computer system.” (Source: abcnews.com)

If this “logic bomb” would have executed it would have erased critical patient information causing major problems and financial loss for the healthcare corporation. This is one case where an IT professional took advantage of the high-level system access that was entrusted to him. An example where a DBA took advantage of the trust placed in them was at Fidelity National. In 2007 the company had 2.3 million customer records stolen and sold to a marketing firm. The company “said that this was all orchestrated by one employee, who has thus far only been identified as “a senior-level database administrator who was entrusted with defining and enforcing data access rights.” If someone wants to steal a database, that’s the perfect job to have.” (Source: infosecnews.org)

**Existing DBA Code of Ethics**

Doctors take the Hippocratic Oath and are entrusted with patient’s well-being and are to preserve life. Part of the oath is to never to do deliberate harm to anyone for anyone else’s interest. It is easy to understand why a physician would be required to take such an oath considering the great responsibility they hold in their hands. Engineers also have a code of ethics. Which states “engineers are expected to exhibit the highest standards of honesty and integrity. Engineering has a direct and vital impact on the quality of life for all people.” (Source: nspe.org) It is also easy to see why engineers must have a code of ethics as they design airplanes, buildings, automobiles and many other items which people trust our lives with. I believe it would be great for DBAs to also be required to take an oath, or swear to practice by a strict Code of Ethics. While it may be difficult to argue that people trust their lives to a DBA, people and organizations do trust extremely confidential and sometimes very personal information to a Database Administrator. Stephen Wynkoop from SSWUG.org proposes the following elements in a DBA Code of Ethics:

**Responsibilities to the Company**

Be aware of and up to date on regulations that impact data systems.

Keep the company advised of all issues, honestly, openly and without unneeded drama.

Provide complete information with all facts available.

Provide the best possible security for all data systems.

Provide a recoverable environment, with a recovery plan and awareness of how to execute on that plan.

No silos - avoid segregating knowledge about your systems, techniques.

**Responsibilities to One’s Self**

Stay up to date on industry happenings.

Stay up to date on regulation and other non-technology things that touch data systems.

Continue to learn new techniques, new tools, understand best practices.

Strive to constantly be tuning and improving approaches and procedures to existing processes.

**Responsibilities to Co-Workers**

Be honest in all dealings with co-workers.

Protect co-workers from data systems.

Share, teach and help grow the collective knowledge base.

What can be made better with these existing code of ethics?

I like how the SSWUG Code of Ethics calls-out the DBAs responsibility to multiple stakeholders. The organization you work for, yourself and your co-workers are all important entities to keep in mind when conducting yourself on a daily basis. What is missing from the SSWUG model is the fiduciary responsibility of a DBA. The model also should call out the responsibility for DBAs to never access information that is not required for doing their job. For example looking up a colleague’s salary out of curiosity should be called out as unethical. Also the model should have a more professional tone to set the proper environment for how a DBA should conduct themselves.

**My proposed Code of Ethics**

Preamble This Code of Ethics sets forth ethical principles for all Database Administrators (DBA). The DBA Code of Ethics is intended to be used as a guide for all involved in the profession of database administration for promoting, and maintaining the highest standards of ethical practice, personal behavior, and professional integrity. The guidelines expressed
Principle 1 (Prudence)

Prudence is defined as the ability to know the good end and the rights means to get there. To be sure a DBA is being prudent they must seek counsel, look at facts and consider the general norms of society. When in doubt regarding a questionable situation the DBA should consider the facts, without jumping to conclusions; seek the advice of another DBA; and/or consider what society would consider being the prudent and proper decision for the common good of all. “The common good concerns the life of all. It calls for prudence from each, and even more from those who exercise the office of authority.” (Source: http://thesocialagenda.org/article4.htm#10) Certainly DBAs hold an office of authority when one considers the trust placed in them and the high-level access a DBA possesses to many, if not, all the databases within an organization.

Principle 2 (Justice)

Justice is defined as giving each their rightful due. The Member accepts responsibility for the exercise of sound judgment and professional competence. The DBA respects the rights and dignity of all individuals and promotes well-being for all involved. Be honest in all dealings with co-workers. Protect co-workers from data systems.

Principle 3 (Temperance)

Temperance is defined as knowing when to hold back. The DBA must show temperance before viewing or acting on information considerable by a reasonable person to be confidential. “Usurping another’s property against the reasonable will of the owner” is considered theft. (Source: Catechism of the Catholic Church)

Principle 4 (Courage)

Courage is defined as knowing when to take a risk. The Member honors all professional and volunteer commitments. Keep the company advised of all issues, honestly, openly and without unneeded drama. Provide complete information with all facts available.

Principle 5 (Responsibility)

Responsibility is having control over and accountability for appropriate events which happen in your domain. For the DBA this involves being responsible and accountable for the databases they are trusted to control.

Principle 6 (Trustworthiness)

Trustworthiness is being creditable and worthy of trust. When you are trustworthy people can count on you to do your best, to keep your word and to follow through on your commitments. You do what you say you will do.

Conclusion

Creating a Database Administration Code of Ethics is not a task to be taken on by a single person. A large collective input must be taken; a cross-functional team must be brought together with the goal of creating a universal Code of Ethics for the Database Administrations Professional. The Code of Ethics would likely never be enforced, other than what is considered to be unlawful, however the code is about striving to be a more cohesive profession when it comes to what we do and how we do it.
Assistant/Associate Professor
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The School of Computer & Information Sciences (SCIS) at Regis University invites applications for a full-time, 12-month appointment in computer information systems at the level of Assistant or Associate Professor. Qualified candidates for a senior level position may be considered to assume department chair duties.

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https://jobs.regis.edu and refer to posting # 0753

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Oracle Database 11g New Features Workshop
Tuesday, Oct 6, 2009
8:30 am to 4:30 pm
Oracle Corporation
222 N. Sepulveda Blvd.
Suite 2300
El Segundo, CA

FREE Oracle Database New Features 11g Workshop.

Attendees of this interactive event will hear about the benefits of upgrading to Oracle Database 11g. You’ll discover new features and enhancements in Oracle Database 11g that can quickly drive measurable improvements to existing IT infrastructures. Learn how you can:
- Lower costs by eliminating idle redundancy
- Reduce storage and improve performance through compression
- Minimize risks traditionally associated with change in the data center
- Protect sensitive data throughout the enterprise
Oracle Content Management Workshop  
Tuesday, Oct 20, 2009  
8:30 am to 4:00 pm  
Westin Bonaventure  
404 South Figueroa Street  
Los Angeles, CA 90071  
Oracle’s multisite Web Content Management solution within Oracle Universal Content Management provides the critical framework and necessary tools to effectively manage internal and external Web sites. It dramatically improves productivity and allows organizations to maintain accurate, timely, and current web content with consistent branding and presentation across all organizational sites. With Oracle Universal Content Management, you can centralize control of site architecture and presentation while distributing development and ongoing maintenance to the business units.

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• Easily Manage Multiple Sites with a Consistent Look and Feel  
• Increase Constituent and Employee Satisfaction  
• Lower Integration Costs  
• Deliver Contents in-context for collaboration knowledge sharing  

Oracle Application Express Briefing with Websoft  
Wednesday, Oct 21, 2009  
11:00 am to 1:30 pm  
Oracle Corporation  
500 South Front Street  
Suite 1100  
Columbus, OH 43215  
Discussions will include:

• Reasons for failed/delayed custom software projects  
• Advantages of Rapid Application Development  
• How APEX facilitates Rapid Development better than any development tool on the market  
• Successful software applications built using APEX  
• Real world examples of custom built APEX Applications  

Learn how to successfully address the following:

• Project Management  
• Budget  

Oracle Business Intelligence Symposium  
Thursday, Oct 29, 2009  
9:00 am to 3:00 pm  
The Westin Diplomat  
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Hollywood, FL 33019  
We invite you to attend the Oracle Business Intelligence Symposium and find out how you can use BI to gain power through knowledge. You’ll learn how to:

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Ronald Reagan Building and International Trade Center  
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Washington, DC 20004  
As the world’s largest provider of enterprise software solutions, Oracle is in a unique position to help government solve their critical issues. As a long-standing partner with the Federal government, Oracle has helped over 1,500 government organizations around the world deliver on their core missions.

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Paper Submissions:  
Don Sullivan, Hewlett Packard Corporation, presented the HP Scalable NAS for Oracle Solution, a variety of flexible configurations all of which simplify storage and server provisioning along with providing High Availability through a maximum of 16 NAS heads for storage access when running Oracle over NFS. The Enterprise Fileserving Cluster Gateway (EFS-CGW) includes Proliant servers, performing as the NAS heads, which run the HP Scalable NAS clustering software while allowing the customer to choose their own form of Storage. The NAS 4400 is an Oracle Ready storage appliance that includes Proliant Servers and an EVA 4400. Both of these solutions are managed through a single graphical user interface. The HP Scalable NAS software provides symmetrical multi-headed access to the entire logical storage array as opposed to the more well-known NAS paradigms, single-headed filers or asymmetrical multi-headed systems. When using HP Scalable NAS the client system can access all data from all NAS heads at all times through customer defined virtual hosts. The administrator can create and extended volumes and filesystems in minutes through the GUI. Filesystems can be created to contain all Oracle related file types including database files, oracle binaries for the server and Oracle Applications, archive logs, RAC files, external tables, loader files and more. The system supports both RAC and non-RAC implementations and is version independent. The use of Direct-NFS (DNFS) is also supported.

Mark Mestetskiy, on the migration of AOL objects using AppsMigrator GUI developed by iTerra Consulting for FNDLOAD utility. The AppsMigrator GUI tool offers Oracle APPS developers and analysts a convenient and efficient way to migrate AOL objects using Oracle FNDLOAD utility without the necessity to remember configuration files names/locations or FNDLOAD command syntax.

Tammy Osborn spoke on “Conquering a Forest of Trees,” providing a collection of tips and tricks gathered from various sources for developing Tree interfaces with JDeveloper 11G. This was an excellent step-by-step guide to “growing” a tree from a seed to a mature height.

Ken Ramey presented Oracle APEX / BI Publisher Quick Start. Oracle Application Express (APEX) and Business Intelligence Publisher (BI Publisher) can be leveraged together for rapid development of user friendly applications with dynamic reporting. While APEX provides an intuitive Rapid Application Development environment, BI Publisher provides the ability to create highly customized reports.

John King, Can I Make XML Go Faster? Oracle has been a leader in adding XML and XML processing to the database. In many cases XML performance is not what is desired. This session discussed factors impacting Oracle XML performance and performance improvement. Topics included: choosing correct XMLType, SecureFile/BasicFile, XML indexing, XML document design, Insert/Update/Delete issues, SQLX functions, and PL/SQL functions.
For those of you who didn’t get to attend our Educational Workshop on August 21st, 2009, it was held at a very nice room, Science Amphitheatre, at Regis University. We held six sessions with a theme focused on Oracle development tools. Primarily, the core development tools Forms/Reports, which were confirmed by Oracle to be supported for the next 5 years. Furthermore for those of you still running client server versions, you’re still able to get Oracle support; however, this is only in the context of questions/answers and not with any product defects!

Along with an Oracle representative focusing on new and recent features in Oracle Forms, including information on integration with Java, ADF and Web Services, there were two Oracle partners focusing on upgrading your Forms/Reports to newer versions and Java. Bottom line is if you’re running Client Server versions of these tools and run into a defect with the product stopping business, you must upgrade to 10g r2 to get product defect support. There are tools available to help you with converting to 10g r2 Forms/Reports Web versions and/or to Java.

There were two vendors presenting information to help in understanding Forms/Reports support and upgrade options. PITTS and CipherSoft were the two vendors providing their insight and information to help with upgrading your tools to fully supported versions.

PITTS provided information on Oracle Forms/Reports support, upgrading to fully supported versions of Forms/Reports and moving your development work to ADF, APEX or SOA enabled applications. They offer consulting services and products to help your shop upgrade to Forms/Reports 10g r2. Their website is: http://www.pitssamerica.com/

CipherSoft provided an informative presentation on first determining if you should migrate your applications to JAVA before spending dollars on moving to this technology. The reasons to migrate to JAVA were pertaining to your business leveraging the use of new technologies that benefit from using this tool. If your company can leverage these new technologies, then CipherSoft has tools and consultants to help with your migration needs. Their website is: http://www.ciphersoftinc.com/

Both companies provided information to help with upgrading to a supported Oracle toolset and offered insight into reasons why you should or should not upgrade. As always, I look forward to our next Quarterly Educational Workshop and seeing more of our members taking advantage of these offerings!

**Quarterly Education Workshops**

*August 21st, 2009*

*Coutesty of Ron Bich*

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**Be Sure To Attend The**

**Winter Quarterly Education Workshop**

**November 20, 2009**

RMOUG is seeking abstracts for this meeting. Presentations can include overviews, tips, techniques, and testimonials, and lessons-learned. For abstract submission, we are seeking the equivalent of a proposal for the presentation.

Please contact

**Allison Leech**

allison_leech@yahoo.com
Hi! My name is Chris Ostrowski and I am the new IS Director for RMOUG. Some background about myself:

I grew up in a little town called Bayonne, NJ. Most of my childhood was uneventful - the two defining events being the first time my dad took me to a hockey game at Madison Square Garden and when my elementary school got an Apple II. Both of those events would alter my life forever.

Sitting at that Apple II and trying to write my first BASIC program, I realized how much forcing yourself to think in a structured manner really appealed to me. I certainly had no idea how much computer technology would expand into every facet of our lives the way it currently does when I was banging out those first couple of simple programs in 7th grade, but I think I inherently knew that this is what I wanted to do with my life.

I went to Rutgers University in the late ‘80s. Computer Science was just starting to take off at that time, although the Internet and students carrying around laptops were still a few years away. Everyone worked in “computer labs” that were a combination of dumb terminals and Apple Mac SE’s that were bolted to tables. I remember many a late night going down to the lab to finish an assignment I had procrastinated on until the last minute, only to find a line out the door of other students who had likewise procrastinated. You would have thought that experience would have taught me the ultimate lesson: don’t procrastinate. Nope; instead, I figured out a loophole - instead of going to the computer lab at 9pm the night before and waiting in line for hours, I just went to bed early, got up at 5am, and went down to the empty lab to finish the assignment before my 9am class started. Looking back, I realize how much I was playing with fire, but I thought of myself as pretty clever back then. Red Bull wasn’t around, but its 1980’s equivalent was: Jolt Cola.
It tasted awful, but it got the job done.

During that time, I had a chance to visit Colorado and fell in love with the scenery and the people. I was working as a COBOL programmer for a now-defunct company in NJ called Tops Appliance City as an intern coding and maintaining their Point-of-Sale (POS) system. I blabbed to all of my co-workers how beautiful Colorado was - little did I know that simple act would forever change my life.

A co-worker remembered me waxing poetic about Colorado and called me out of the blue with a job offer in Boulder years later. I didn’t have much time to decide as the company was looking to fill the job immediately. My co-workers in NJ couldn’t believe I was going - one even said to me, “You’re leaving here to go to a city named after a rock?”. I took a deep breath, packed everything I owned into my little Dodge Shadow and made the 1,800 mile trip out to Denver in late 1991. I planned on taking 3 days for the journey, but I was so excited, I actually made it in two.

I got a chance to experience the upheaval Denver experienced throughout the 1990s - hockey and baseball came to town, we got a new airport, a new baseball stadium, a new arena for hockey and basketball, a new football stadium, a completely revitalized downtown, the great I-25 expansion as well as two Stanley Cups and two football championships.

For those of you living in Denver in the 1990s, you know that Denver was going through one of its many boom-and-bust cycles as the telecommunications industry drove a lot of what was happening in the technological landscape of Denver at that time. I had a chance to work with lots of companies both as a consultant and full-time employee, including a two-year stint with Oracle itself. During that time, I worked hard to increase the level of my skills, going from a PL/SQL developer, to an Oracle Forms developer, to an Oracle DBA, to a Java programmer to an Application Server / SOA architect. While that period certainly had its ups and downs, I had a chance to work with a lot of Oracle technologies and it gave me the foundation for a lot of the architecture-related work I do today. Oracle Corporation, by the way, is a phenomenal place to work, if you ever get the opportunity.

Oracle Corporation, by the way, is a phenomenal place to work, if you ever get the opportunity.

After bouncing around a couple of companies during that time, I was fortunate to land a position with TUSC in 2000, where I continue to work today. TUSC has been an incredible place to work, both personally and professionally. TUSC has given me the opportunity to expand my basic skills and work with clients on new and exciting projects throughout my time with them. Currently, I am working with a team developing a Web Services / SOA tool called iPerspective that allows organizations to build and deploy Web Services based on any data source in their organization with writing any code whatsoever. We definitely feel that iPerspective is a game-changer and will allow organizations to implement Web Services and SOA technologies exponentially quicker than they could with any other tool on the market today.

I started participating in RMOUG Training Days in 2000 and did my first presentation at Training Days in 2003. Right off of the bat, it was obvious that RMOUG was a special organization. I was in line at lunch at a large Oracle User Group meeting in California a couple of years ago when I heard the ultimate RMOUG compliment: one of the attendees turned to another and said, “Have you ever gone to RMOUG Training Days in Denver? It costs half this conference and has twice as much stuff I’m interested in”.

On the personal side, I taught myself how to skate at 28 (not an easy task) and started playing hockey in various leagues throughout the Denver area as hockey’s popularity surged after the Avalanche’s Stanley Cup wins in 1996 and 2001. I live in Highlands Ranch with my wife, Karen and my daughter Kelsey. I look forward to working with the RMOUG Board and members to create a world-class web presence for RMOUG.

Chris
Application For Membership

☐ Individual...$75  ☐ Student (must have Student ID)...$35

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FAX: (303) 933-6603

What Is RMOUG?
The Rocky Mountain Oracle Users Group (RMOUG) was established in 1984 with just a few members. Meetings were held twice-a-year to share ideas and information about Oracle. Today, RMOUG is one of the largest Oracle user groups in the world with over 1,000 members.

RMOUG offers general membership meetings, a professional magazine, an annual training event, and an information-packed web site. Members include professional analysts, project managers, database administrators, developers, and designers who work with Oracle products to produce high-quality business solutions.

RMOUG is an alliance partner with the International Oracle Users Group - Americas. RMOUG is a not-for-profit organization incorporated in Colorado.
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President

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Peggy King has been managing Partner of King Training Resources since 1992. Her previous background includes securities, banking, and paralegal. Peggy has volunteered in several roles. They include: Training Days Director for 2004 and 2005; RMOUG Training Days; IOUG-A Live!; and, several years at other conferences serving on the Finance and Web committees for IOUG.

Vice President

John Peterson
E-mail: VicePresident@rmoug.org

I have been interested in Computers and IT, since my best friend in High School logged me into a teletype printing Terminal computer in 1969. Have been doing IT since 1981 as a Cobol programmer, since then worked as a Systems Analyst, Programmer/Analyst, Sql*(forms, reports, oem,oam, developer/designer, tools), Oracle Developer, Oracle DBA, Oracle Applications DBA, OS Systems Administrator, College Lecturer in Business and Computer Science, internet implementation, Client Server/DBA Mgr, W2 Consultant, Sr. Oracle DBA currently Oracle RDBMS/EBusiness Suite, Experience with SungardHE(SCT Banner, Peoplesoft, Oracle ERP systems 10.7nca thru 11i, Oracle Rdbms versions 5,6,7,8,9 and 10).

Secretary

Bill Schwartzkopf
E-mail: Secretary@rmoug.org

Through my 12 years with RMOUG, I have seen it grow and continue to evolve in its offerings to the User Community. Through my continued involvement with RMOUG, I will work to keep it in the forefront of Oracle user groups. This includes continuous improvement of processes in today’s fast changing environment to maximize content and offerings to the membership. Over that time, I have served as Track Coordinator for Training Days in 1994 and 1995, Oracle Liaison, User Group Liaison, Director of Vendor Relations, Program Chair, Secretary, Vice President, and President. I started my career in IT as a Computer Operator and have experience in Development, Systems Analysis, Network Administration, Systems Administration and Database Administration. Currently I am a Senior Oracle DBA with over 15 years of experience.

Treasurer

Kathy Robb
Arisant, LLC
E-mail: Treasurer@rmoug.org

Kathy Robb has been involved in Oracle technology since Oracle RDBMS 5, serving in a variety of capacities, including database support and administration, management, consulting and technical training. With over 20 years of Oracle-based experience, Kathy has worked with multiple Oracle technologies, particularly with Oracle Applications and Oracle Database. Kathy has a wide-ranging knowledge of technologies and support her customers in all areas of architecture, implementation and support. Kathy is a co-founder of Arisant, LLC a Colorado company and Oracle Partner.

Administrative Assistant

Heidi Kuhn
Voice Mail: (303) 948-1786
Fax: (801) 697-4366
E-mail: Admin@rmoug.org

Heidi Kuhn began working for the Rocky Mountain Oracle Users Group in 1997, when there were less than 1,000 members. She has been delighted to watch the membership grow to over 1,300 people. Currently she is still managing the membership database, which includes updating member names, addresses, and payment records.
**Training Days Director**

Ron Bich, SofTec Solutions, Inc.
Phone: 303-650-6951
E-mail: TrainingDaysDir@rmoug.org

In 1997 I joined RMOUG as an active non-corporate paying member of RMOUG and became an active volunteer in 2000. The positions I have held on our Board of Directors are Director of IS, President and Director of Membership. Other volunteer duties I have done since becoming an active volunteer include Training Days registration/track coordinator, Presenting, Board Member at Large and Newsletter Mailings. My career in IT began in 1990 and I was later introduced to Oracle 7.3 in 1995. After my initiation into Oracle my experience has expanded through a variety of industries, Oracle versions, development platforms and development/maintenance teams supporting a variety of custom and purchased business applications.

**Membership Director**

Barbara A. Lewis, PhD

Axia College of the University of Phoenix
Voice: 303-757-6709
Email: MembershipDir@rmoug.org

Barbara Lewis has been an RMOUG member for more than 5 years. For 18 months, she was a member of the Web Maintenance team while serving 12 months of that time as the team lead and Board Member-at-Large. She has served on the Board as the IS Director for the past year. Her technical career began 8 years ago as a Programmer Analyst, Tester and several years as an Oracle Database Network Administrator with a certification as an 8i OCP-DBA. She began teaching for the University of Phoenix in 1993 where she remains as an online IT/IS faculty member.

**Programs Director**

Allison Leech
E-mail: ProgramsDir@rmoug.org

Allison has 18+ years of Oracle leadership experience developing custom based business application solutions. She also has experience in the role of problem management and resolution for a local satellite communication provider as well as providing support and administration for the delivery of an enterprise Learning Management System. Her current responsibilities include development and support of a large integrated resource tracking application with the USDA Forest Service.

**Newsletter Director**

Pat Van Buskirk

National Radio Astronomy Observatory
Voice: 303-621-7772
Email: NewsletterDir@rmoug.org

Pat Van Buskirk has been an Oracle DBA since 1991 and is currently the DBA for the National Radio Astronomy Observatory in Socorro, NM. Prior to that, she was a mainframe programmer and Oracle Forms developer. She has acted as project manager for applications in manufacturing, insurance, education, research and education. Her hobby is horses and she is currently the Treasurer for the New Mexico Reining Horse Association and volunteers her DBA and web skills to the Centered Riding Organization in Perkiomenville, PA.

**Scholarship Director**

Linda Seeley
E-mail: ScholarshipDir@rmoug.org

Linda Seeley has been in IT since 1989. She started out as a mainframe programmer then switched to Oracle in 1994. She has developed custom applications using Oracle Forms and Reports and has installed and supported various versions of Oracle Applications, Application Server, Developer, and Discoverer. Through it all her main hat has been that of Database Administrator, supporting Oracle databases starting with a legacy version 5 database. She has been a Training Days registration volunteer or room ambassador for 4 of the last 5 years. Linda currently works at a (surviving!) startup dot-com.

**Not Pictured**

Brad Blake • SIGS Director • E-mail: SigsDir@rmoug.org
Chris Ostrowski • IS Director • E-mail: IsDir@rmoug.org
Ann Horton • Oracle Liaison • E-mail: OracleLiaison1@rmoug.org
# RMOUG Events Calendar

## September
- **9/1/09**: Newsletter - Deadline for Articles Fall Issue
- **9/15/09**: Board Monthly Meeting - Conference Call @ 5:30pm
- **9/15/09**: Scholarship - Accepting Applications for Winter Scholarship
- **9/17/09**: Newsletter - Mail Date Fall Issue
- **9/22/09**: Training Days 2010 - Presentation Abstracts Due

## October
- **10/5/09**: QEW - Call for Presentations
- **10/15/09**: Board Monthly Meeting - Corporate Offices @ 5:30pm
- **10/16/09**: QEW - Deadline for Presentations
- **10/23/09**: QEW - Preliminary Agenda
- **10/30/09**: Scholarship - Deadline for Applications for Winter Scholarship

## November
- **11/2/09**: Newsletter - Call for Articles Winter Issue
- **11/3/09**: Training Days 2010 - Early Registration begins
- **11/8/09**: Training Days 2010 - Speaker confirmation due
- **11/19/09**: Training Days 2010 - Schedule at a Glance Posted to website
- **11/20/09**: Board Meeting @ 7:00am before first QEW session
- **11/20/09**: Quarterly Educational Workshop
- **11/20/09**: Scholarship - Announce Winter Scholarship recipients at QEW
- **11/24/09**: Newsletter - Deadline for Articles Winter Issue

## December
- **12/10/09**: Board Monthly Meeting - Conference Call @ 5:30pm
- **12/18/09**: Newsletter - Mail Date Winter Issue

## January
- **1/12/10**: Training Days 2010 - Speaker Presentation Papers Due
- **1/13/10**: Training Days 2010 - Last day for Early Registration
- **1/13/10**: Training Days 2010 - Standard registration begins
- **1/14/10**: Board Monthly Meeting - Corporate Offices @ 5:30pm

## February
- **2/8/10**: Newsletter - Call for Articles Spring Issue
- **2/9/10**: Training Days 2010 - Last day for standard registration
- **2/10/10**: Training Days 2010 - Late Registration begins
- **2/16/2010 - 2/18/2010**: Training Days 2010 Conference
- **2/17/10**: Board Monthly Meeting @ Training Days
- **2/28/10**: Newsletter - Deadline for Articles Spring Issue

## March
- **3/11/10**: Board Monthly Meeting - Conference Call @ 5:30pm
- **3/15/10**: Scholarship - Accepting Applications for Spring Scholarship
- **3/22/10**: Newsletter - Mail Date Spring Issue

## April
- **4/5/10**: QEW - Call for Presentations
- **4/16/10**: QEW - Deadline for Presentations
- **4/22/10**: Board Monthly Meeting - Corporate Offices @ 5:30pm
- **4/23/10**: QEW - Preliminary Agenda
- **4/30/10**: Scholarship - Deadline for Applications for Spring Scholarship

## May
- **5/3/10**: Newsletter - Call for Articles Summer Issue
- **5/21/10**: Board Meeting - 7:00am before first QEW session
- **5/21/10**: Quarterly Educational Workshop
- **5/21/10**: Scholarship - Announce Spring Scholarship recipients at QEW
- **5/28/10**: Newsletter - Deadline for Articles Summer Issue

## June
- **6/10/10**: Board Monthly Meeting - Corporate Offices @ 5:30pm
- **6/18/10**: Newsletter - Mail Date Summer Issue
Join us for our next Quarterly Education Workshop in November. RMOUG hosts quarterly workshops in May, August and November of each year with the fourth and largest educational event being Training Days in February. Learn about the newest technologies, gain more insight into Oracle techniques and enjoy the comradery of meeting with other Oracle professionals.

If you or your organization are interested in partnering with RMOUG to host an upcoming meeting, or to submit an abstract for presentation, please contact Allison Leech, Programs Director at ProgramsDir@rmoug.org.

Watch RMOUG’s Web Page for November Location and Topics

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