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- Reducing Business Risk and Unplanned Outages
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Letter from the President

17th Annual Training Days has come...

As I write this RMOUG’s 17th annual Training Days has just come to a close. While it is too early to tally the results as the polls just closed the exit polls show that the event was once again well received. RMOUG has worked hard over the years to keep Training Days a premier event while maintaining its affordability. This year’s event had a broad range of sessions presented by speakers from all over the world. I trust that those of you that attended found the information presented in the sessions beneficial. The Keynote Presentation “How Oracle Came to Rule the Database World” by Rick Niemiec from TUSC was quite enlightening. For those that missed it Rich stated that it can be found on TUSC’s website. It was nice to see the Pine Creek High School students from Colorado Springs in attendance again this year. This was the fifth year that students from Pine Creek have attended Training Days. Pine Creek’s initial attendance was sponsored by Stan Yellott and RMOUG has continued that support in honor of Stan. In this year’s Conference Program details of the Stan Yellott Scholarship Fund were listed. Any contributions in support of the fund would be greatly appreciated. Likewise applications for scholarships based on eligibility requirements are also welcome. Scholarship applications can be found on the RMOUG website. I would like to personally thank the Training Days Committee, Sponsors, Exhibitors, Volunteers, Speakers, and the staff from YCC for making this year’s Training Days another success.

With Training Days now behind us the focus will now be on our Educational Workshops. Please keep in mind that Jon Arnold our Programs Director is always looking for presentations at those workshops. If you feel that you have information you would like to share with the membership please contact Jon at ProgramsDir@rmoug.org. And as I have mentioned before perhaps there is information you would like to share with the membership but you would rather not speak before a group. The Newsletter would then be an excellent way to share your information. Allison Leech our Newsletter editor is always looking for articles and can be contacted at NewsletterDir@rmoug.org.

Once again thank you for your continued support and I look forward to seeing you at the upcoming Workshops.

Regards

Bill Schwartzkopf
Training Days 2008 – Another Successful Conference!!

RMOUG Training Days 2008 was a success with over 800 attendees and 129 presentations! Here’s a quick review:

We kicked off the RMOUG Training Days conference with six University Sessions held on Tuesday, February 12th, with over 100 people attending. The half day extended sessions offered attendees the opportunity to learn from the best. Our University facilitators for Training Days 2008 were Tom Kyte, Jonathan Lewis, Robert Freeman, Brad Brown, Peter Koletzke, and Carol Dacko.

• On Wednesday morning our keynote speaker Rich Niemiec, - TUSC a Rolta Company; took us on a journey through time highlighting the path Oracle has taken to show us all “How Oracle Came to Rule the Database World”.

• On Wednesday morning at 9:00am sharp the first of 12 sessions with over 100 technical presentations began. Our speakers came from all over the United States (Arizona, California, Georgia, Iowa, Illinois, Massachusetts, Michigan, North Carolina, New Jersey, Rhode Island, Tennessee, Texas, Utah, Virginia, Washington, and Wisconsin) and Europe (United Kingdom, Denmark, Netherlands) to share their technical knowledge and experiences with us.

• A first for Training Days 2008 was the Oracle Applications Track; with eleven technical sessions in this new track addressed various topics with a focus on Oracle Applications. We are looking forward to expanding this track for future Training Days conferences.

• Back by popular demand was the Install Fest sessions on both Wednesday and Thursday.
2008 Doug Faughan Award was presented by Bill Schwartzkopf to Brad Brown, - TUSC a Rolta Company; for his exemplary service to RMOUG. Brad joined RMOUG in 1994 and has served on the Board of Directors for RMOUG in various roles including President. As an ardent supporter of RMOUG and the Oracle Community, Brad has made many contributions ranging from speaking engagements at various user group conferences, SIG meetings, RMOUG’s Educational Workshops and newsletter articles.

2008 RMOUG Volunteer of the Year and nomination to the IOUG was presented by Bill Schwartzkopf to Darl Kuhn. Darl has volunteered his time as DBA and developer for RMOUG, supporting several of our business applications. This past year he has worked on the RMOUG’s Members-only site. He is a regular contributor for the DBA Domain in the SQL>Update, he always can make to support RMOUG is many ways at Training Days, Educational Workshops, and online discussion groups.

We extended an invitation to the supervisors and managers of the conference attendees to join us on Wednesday afternoon for the technical sessions, exhibitor showcases, and reception.

Our Gold sponsors for Training Days 2008 (Global Software, NetApp, Oracle, Quest, and Sentrigo) shared information about their companies at exhibitor showcases Wednesday afternoon.

The Training Days 2008 vendor exhibition opened 10:00 a.m. on Wednesday with over 20 exhibitors.
The Rocky Mountain Oracle Users Group continues to be the leading locally organized Oracle user group in the country. The success of RMOUG can be attributed to its members, the volunteers who support the activities of the users group, and the Board of Directors who provides direction for the users group.

The RMOUG bylaws require the regular election of the Board of Directors. These bylaws (available online at http://www.rmoug.org/bylaws.htm#board) outline the makeup and duties of the Board of Directors:

- There shall be twelve 12 Directors elected at large
- The management, control, and government of the Corporation (RMOUG) shall be vested in the Board of Directors.
- The Board of Directors shall preserve, protect, and promote the interests of the Corporation and will be responsible for formulating the general policy of the Corporation in accordance with the expressions of the members.

Note: current general policies for the users group can be found online at http://www.rmoug.org/policies.htm

It is time to begin the process by opening the call for Board Candidates for the fiscal year starting 01-June 2008 and running through 31-May 2009. To run for the Board of Directors, you must:

- Be a RMOUG member in good standing;
- Be able to participate in scheduled Board meetings (approximately 1 per month)
- Be willing and able to uphold the bylaws and policies of the organization; and
- Have an e-mail address
- You must have spent at lease least one year as a volunteer-at-large for the board or the RMOUG information systems group, or have actively participated as a volunteer on one or more RMOUG committee(s) or event(s).

If you are interested in running for the Board of Directors, please prepare and submit a short campaign statement and biographical sketch. You should outline your reasons for running for the Board of Directors and your qualifications. If you are not a current member of the Board of Directors, you must list the committee(s) or event(s) on which you have participated and the name of a current Board member as a reference. Please limit your statement to approximately one page.

Campaign statements must be submitted no later than Friday, April 30, 2008 by email to the current RMOUG Vice President at vicepresident@rmoug.org. If you have any questions about the process or would like to see a sample statement, please email admin@rmoug.org.

Peggy King
Vice President
Rocky Mountain Oracle Users Group
VicePresident@rmoug.org

Elections will be held at the May Education Workshop on May 16th, 2008:

Clarion Hotel & Suites-Denver South/Tech Center
7770 South Peoria St
Englewood, CO 80112
“We can never replace all the great things you do but we will help carry on all the things you started”, George T

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.

RMOUG started to award annual college scholarships to high school students. The Stan Yellott Scholarship Fund continues the educational mission by assisting deserving students.

Scholarships of $1000 each are awarded semi-annually in November and March to students interested in pursuing studies related to Information Technology.

An application can be filled out or downloaded at www.rmoug.org

Fall 2007, Stan Yellott Scholarship Recipient

Joseph Jordan – University of Denver

Joseph Jordan was born in Phoenix Arizona in 1987. He grew up in Indiana and Ohio, and moved to California in his teen years. Joseph excelled in web design and digital video in high school, and is currently a student at the University of Denver where he is pursuing a major in business information technology. Joseph is looking forward to a future career in the IT field, and continues to be interested in emerging technologies.

Congratulations Joseph!
On June 16th 1903, Ford Motor Company was incorporated and the Industrial Revolution started to hit a major acceleration point. On June 16th, 1977, a similar event occurred with the incorporation of Oracle Corporation (then called Systems Development Laboratories – SDL).

Oracle Celebrates 30 years:
Oracle celebrates its 30th anniversary On June 16, 2007 as a multi-billion dollar company literally driving every major business. It’s amazing to look back on the history of Oracle Corporation and the diverse team that has led to its success. Larry has been the driving factor of Oracle the company, but Bob Miner whose Assyrian family emigrated from Ada, Iran was the driving factor of Oracle the product. America is all about freedom, resilience, and opportunity. Larry Ellison & Bob Minor are examples of what is possible in a free society. Larry’s surname is even based on Ellis Island. Larry’s entrepreneurial success story shows that anything is possible where people enjoy freedom and an entrepreneur spirit burns. On the Statue of Liberty it reads: “Give me your tired, your poor, your huddled masses yearning to breathe free, the wretched refuse of your teeming shore. Send these, the homeless, tempest-tost to me, I lift my lamp beside the golden door!” That golden door eventually led Larry to the Golden Gate Bridge and the establishment of Oracle Corporation in Silicon Valley in 1977.

The Early Years at Oracle through the eyes of Bruce Scott:
Prior to forming Oracle, Bob Miner was Larry Ellison’s manager where they worked at Ampex together on a CIA project code named “Oracle.” Larry chose Bob as his manager because he liked Bob a lot more than his original manager. Ed Oates, another founder of Oracle happened to be walking by Bob Miner’s door when Larry Ellison mentioned his (Larry’s) wife’s name. It turned out to be Ed Oates’ lab partner from high school. Bruce Scott, who would be hired upon the formation of the company, is the “Scott” in scott/tiger (tiger was Bruce’s daughter’s cat).

When Larry went on to work at Precision Instruments, he discovered Precision Instruments had a need to do a $400K consulting project. For three or four engineers, that was a lot of money back then since wages were about 1/10 what they are now. Larry landed the deal. Larry was not part of the new company when it was founded; he was still at Precision Instruments. The new company was called Software Development Labs (SDL). We had three employees when we started the company in August of 1977. Bob Miner was the president; Ed Oates and I were both software engineers. We did 90% of the work on this two-year project in the first year, so we had the next year to work on Oracle. Ed Oates finished the other 10% of the project over the next year while Bob Miner and I started to write the Oracle database.

When we completed the Precision Instruments work, we had about $200,000 in the bank. We decided that we wanted to be a product company and not a consulting company. Bob wanted to build an ISAM product for the PDP11. He felt there was a need for an access layer. Larry wasn’t interested in that at all. Larry had been following what IBM was doing and he found a paper on the System/R based on Codd’s 1970 paper on relational databases. It described the SQL language, which was at the time called SEQUEL/2. Larry brought us the paper and asked if we could build this. We thought that it would be easy enough to do. So we started. I was 24 years old at the time, Bob was about 15 years older than me, and Larry was about 10 years older than me. I left Oracle in 1982 after about five and one half years working there. When I left, we had just finished version 3 of the database. Roughly half the code was mine and half was Bob’s. I believe that a lot of the parser code in the current database may still mine. Bruce Scott said that his best day was Oracle’s first user’s conference. This was a customer conference that we put on. It was in 1982 and it drew about 25-50 people. It was beginning to catch on.

In a 1998 Nicole Ricci Interview, Larry Ellison said: “In fact, when I started Oracle, the goal was never to have a large company. At best, I hoped we would have fifty people in the company and make a good living. About five years into the company, it became pretty clear that the horizons were unlimited. The only limitations were us.” Here’s a timeline of how things progressed:

Oracle RDBMS History Over the Year:
1970 – Dr. Edgar Codd publishes his theory of relational data modeling.
1977 – Software Development Laboratories (SDL) formed by Larry Ellison, Bob Miner, Ed Oates and Bruce Scott with $2,000 of startup cash. Larry and Bob come from Ampex where they were working
on a CIA project code-named “Oracle.” Bob and Bruce begin work on the database.

1978 – The CIA is first customer, yet the product is not release commercially as of yet. SDL changes its name to Relational Software Inc. (RSI)

1979 – RSI ships the first commercial version, Version 2 (there is no V1 shipped on fears that people won’t buy a first version of software) of the database written in Assembler Language. The first commercial version of the software is sold to Wright-Patterson Air Force Base. It is the first commercial RDBMS on the market.

1981 – The first tool, Interactive Application Facility (IAF), which is a predecessor to Oracle’s future SQL*Forms tool, is created.

1982 – RSI changes its name to Oracle Systems Corporation (OSC) and then simplifies the name to Oracle Corporation. 1983 – Version 3, written in C (which makes it portable) is shipped. Bob Miner writes half, while also supporting the Assembler based V2, and Bruce Scott writes the other half. It is the first 32-bit RDBMS.


1985 – Version 5 & 5.1 are released, First Parallel Server database on VMS/VAX.

1986 – Oracle goes public March 12th (the day before Microsoft and 8 days after Sun). The stock opens at $15 and closes at $20.75. Oracle Client/Server is introduced; first client/server database. Oracle5.1 is released.

1987 – Oracle is the largest DBMS company. Oracle Applications group started. First SMP (symmetrical multi-processing) database introduced.

1987 – Oracle’s Rich Niemiec along with Brad Brown and Joe Trezzo working at Oracle (now at TUSC) implement the first production client/server application running Oracle on a souped-up 286 running 16 concurrent client/server users for NEC Corporation.


1992 – Oracle V7 is released.

1993 – Oracle GUI client/server development tools introduced. Oracle Applications moved from character mode to client/server.

1994 – Bob Miner, the genius behind the Oracle database technology, dies of cancer.

1995 – First 64-bit database.

1996 - Oracle7.3 released.

1997 – Oracle8 is introduced. Oracle Application Server is introduced. Applications for the web introduced. Oracle is the first web database. Oracle BI tools like Discoverer are introduced for data warehousing. Tools have native Java support.

1998 – First major RDBMS (Oracle8) ported to Linux. Applications 11 shipped. Oracle is the first database with XML support.


2001 – Oracle9i (9.1) released. Oracle is the first database with Real Application Clusters (RAC).

2002 – Oracle9i Release 2 (9.2) released

2003 – Oracle at France Telecom is #1 on Winter Group’s Top Ten in DB size at 29T.

2003 – Oracle10g comes out – Grid focused, Encrypted Backups, Auto-Tuning & ASM

2005 – Oracle RAC at Amazon hits the Winter Group’s Top Ten in DB size at 25T.

2005 – Oracle buys PeopleSoft (includes JD Edwards), Oblix (Identity Management), Retek (Retail) $630M, TimesTen (in memory DB) and Innobase (InnoDB Open Source).

2006 – Oracle buys Siebel for $5.8B, Sleepycat Software (Open Source) and Stelliant (Content Management). Oracle with an Open Source push offers “unbreakable” support for Red Hat Linux.

2006 – Oracle10g Release2 comes out in fall (this book is based on that version)

2007 – Oracle buys Hyperion for $3.3B.

2007 – Oracle 11g comes out and the focus is self managing features and grid computing

2008 – Oracle buys BEA for $8.5B

I asked Bruce Scott what made Oracle successful in his mind. Bruce said: “I’ve thought about this a lot. I really think that it was Larry. There were a lot of other databases (like Ingres) out there that we beat. It was really Larry’s charisma, vision, and his determination to make this thing work no matter what. It’s just the way Larry thinks. I can give you an example I tell people that exemplifies his thought process: We had space allocated to us and we needed to get our terminals strung to the computer room next door. We didn’t have anywhere to really string the wiring. Larry picks up hammer, crashes a hole in the middle of the wall and says there you go. It’s just the way he thinks, make a hole, make it happen somehow. It was Larry, the right thing and the right time.” I always tell people that Larry Ellison is the genius behind Oracle, the company with Charles Phillips, Safra Catz, Keith Block and Judith Sim driving Larry’s vision today; Bob Miner was the genius behind Oracle, the product. Bob Miner’s development spirit has continued on through Darry Kabcenell, Roger Barmford, Andy Mendelsohn, Ken Jacobs, Thomas Kurian and many others. The combination of the diverse team Oracle has had over the years is the secret of their success! Happy Birthday Oracle!

References:
Oracle Database 10g Performance Tips and Techniques, Rich Niemiec, June 2007
Rich Niemiec Interviews Bruce Scott, Select Magazine, 2001
Retrospective: Still Growing after all these Years, Rich Niemiec, Oracle Magazine, 2001
The Difference between God and Larry Ellison, Mike Wilson, November, 1998
History of Oracle, Donita Klement, 1999
Book Review: RMAN Recipes for Oracle Database 11g

Richard Stolz
Author

Audience:
DBAs, or anyone needing to use RMAN

Skill Level:
All levels, advanced DBAs will find it as a good reference book.

Ease of Reading/Understanding:
Very easy to understand, the authors have been extremely thorough in explaining RMAN topics: solving problems, scripting, setting up RMAN, working with Flashback, RMAN Windows, Tuning RMAN, and Enterprise Manager.

Is the topic well covered and complete?:
Yes! A future version request would be to include some recipes for DataGuard archive log problem situations.

Overall Impression of the book:
This book provides excellent details that go beyond what the Oracle docs provide. It generally covers Oracle versions 10g and 11g. It is very complete and with this book you will not need additional RMAN books, unless you need to reference something from a very early version such as 8i. I especially enjoyed reading about the 11g new feature Data Recovery Advisor, scripting RMAN, and duplicating databases and transporting data. With numerous RMAN examples, the book lives up to its title of providing a problem-solution approach to RMAN.
Wow it has been awhile since my last message in SQL Update! Since my last message I have gone through some personal changes and our board members have gone through some changes. Change is an ongoing part of our world, personal changes, career changes and organizational changes and changes in technology that can impact our lives on a yearly and sometimes daily basis. I have been fortunate enough to realize that changes occurring in my world have both positive and negative results and I try to focus my attention on the positive results.

A few years ago, as the Director of IS, I provided a vision for changing our groups IT systems with the primary purpose of improving your benefits as a member. The new system was implemented with help from a group of member volunteers providing us with a web site upgraded to W3C International Standards and the ability for expanding our IT system beyond the web site to further improve member benefits. Once again I would like to recognize those member volunteers that were part of our first step towards improving RMOUG’s IT system and ultimately your member benefits.

This group of individuals are; George Loewenthal, Bill Coulam, Adam Nelson, Barbara Lewis, Mike Fons, Alice Moy, Andi Blackwell, Andrew Tillman, Art Bailey, Don Lewis, Lilly Croke, Scott Peterson and Steve Callan.

That was a great accomplishment and today under the new leadership of Barbara Lewis, our current Director of IS, we are on the verge of realizing additional benefits from that effort. One of the primary reasons for undertaking the development of our own IT system was to provide our members with a member’s only web site to add benefits specific to your membership. Working with the Board of Directors and member volunteers we developed a vision of the benefits a member’s only web site could provide to our members. Barbara informed the Board and then our member community in the SQL Update Fall 2007 edition in her Board Corner message that she and her volunteers have begun work on fulfilling the vision of a Members Only Web Site.

The member’s only web site will be available soon. This will be an additional benefit for RMOUG members so I am recruiting member volunteers to help with defining what you want included in your member’s only web site. This is your opportunity to provide our community with input to improve your member benefits. Benefits that can provide you with ability to advance your career and help other members with the ability to improve their career development too!

There have been many ideas provided in the past as to what type of benefits we can provide our members and Barbara included some of these in her message. So to help spark any new ideas from our members I have included a list below of past ideas:

- A real time message system for technical help with member volunteers rotating hosting schedules for real time message monitoring.
- Message boards for other member benefits outside of mail lists to provide postings for employment opportunities, reusable code, custom built utilities, events, etc…
- Registration form for volunteer opportunities for members to sign up to do volunteer work within RMOUG areas of interest to them.
- A system environment testing bed, to be defined within our system limitations, for testing new and old system compatibilities along with software technologies to provide involvement from your peers to prove/disprove compatibilities and as a debugging tool.
- Private presentation postings including white papers
- Member suggestions posting
- RMOUG IS development history

All of these ideas will be discussed by our board. Please feel free to comment on any of these past ideas as well as providing new ideas to be included in board discussions. Now is your chance to provide input on what benefits you would like to have for your member’s only web site. You can email me with your ideas at membershipdir@rmoug.org or any of the other board members. These ideas will be discussed by the Board of Directors for approval to implement in our Members Only Web site.

Board approval for including benefits to our Members Only Web site will be discussed and an approval process should be initiated from that discussion. When we have agreed upon an approval process for adding member benefits to our member’s only web site that will be included in the following member announcement sent out.

Member participation within RMOUG is probably among the highest, if not the highest, amongst similar user group’s world wide. This caught my attention after becoming a member in 1997, 10 years ago, and my active participation in volunteer work began in 2000 along with continuing today. In my opinion that is what makes our user group one of the elite groups to be a member of world wide!
Everyone is talking about it and it seems that everyone wants it. In fact, odds are great that you will be asked to reach into your relational database and pull out XML. At this point, you could either panic or look to XML DB for assistance (of course these options are not mutually exclusive). This article demonstrates how to use object types and W3C schemas to create XML. This technique is just one of many offered by Oracle’s XML DB.

The hierarchical nature of XML lends itself well to displaying parent/child relationships. Therefore, for this exercise, our data source is the DEPT and EMP tables belonging to the SCOTT user. A quick review of the tables reveals the expected relationship of many employees belonging to one department. The goal is to list all of the employees belonging to the accounting department.

### DEPT Table

<table>
<thead>
<tr>
<th>DEPTNO</th>
<th>DNAME</th>
<th>LOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>ACCOUNTING</td>
<td>NEW YORK</td>
</tr>
<tr>
<td>20</td>
<td>RESEARCH</td>
<td>DALLAS</td>
</tr>
<tr>
<td>30</td>
<td>SALES</td>
<td>CHICAGO</td>
</tr>
<tr>
<td>40</td>
<td>OPERATIONS</td>
<td>BOSTON</td>
</tr>
</tbody>
</table>

### EMP Table (filtered to identify employees of the accounting department)

<table>
<thead>
<tr>
<th>EMPNO</th>
<th>DNAME</th>
<th>JOB</th>
<th>MGR</th>
<th>HIREDATE</th>
<th>SAL</th>
<th>COMM</th>
<th>DEPTNO</th>
</tr>
</thead>
<tbody>
<tr>
<td>7792</td>
<td>CLARK</td>
<td>MANAGER</td>
<td>7839</td>
<td>09-JUN-81</td>
<td>2450</td>
<td>(null)</td>
<td>10</td>
</tr>
<tr>
<td>7635</td>
<td>KING</td>
<td>PRESIDENT</td>
<td>(null)</td>
<td>17-NOV-81</td>
<td>5000</td>
<td>(null)</td>
<td>10</td>
</tr>
<tr>
<td>7534</td>
<td>MILLER</td>
<td>CLERK</td>
<td>7782</td>
<td>23-JAN-82</td>
<td>1300</td>
<td>(null)</td>
<td>10</td>
</tr>
</tbody>
</table>

### 1. Create Object Types

First, model your relational data as a set of objects. When creating the objects, use column and data type information as your guide; the object name corresponds to the table name and the columns become object members. It is important to note that the names that you choose for the object members will eventually become XML element names. In the create statements below, the many-to-one relationship between employee and department is accomplished by nesting the employees as collection within the department object.

```
CREATE OR REPLACE TYPE EMPLOYEE_T AS OBJECT ( employee_id NUMBER, name VARCHAR2(10), job_title VARCHAR2(10), manager_id NUMBER, hire_date DATE, salary NUMBER, commission NUMBER );
CREATE OR REPLACE TYPE EMPLOYEE_LIST_T AS TABLE OF EMPLOYEE_T;
CREATE OR REPLACE TYPE DEPARTMENT_T AS OBJECT ( department_no NUMBER, department_name VARCHAR2(10), department_location VARCHAR2(10), employee员工_list_t
```

### 2. Generate the Schema

XML DB provides a method for generating a schema by simply passing an object type as input. Passing the DEPARTMENT_T object as a parameter will generate a schema that defines the department element, and because of the nested collection, the employee element is automatically included in the generation process.

```
DECLARE
    result XMLType;
BEGIN
    SELECT DBMS_XMLGEN.generateSchema('SCOTT','DEPARTMENT_T') INTO result
    FROM DUAL;
    DBMS_OUTPUT.PUT_LINE(result.getStringVal());
END;
```

### 3. Modify the Schema

**Note:** You must be granted **DBA PERMISSIONS** in order to register a schema.

I have omitted the generated schema in an effort to conserve space, so I leave it as an exercise for the reader to compare it to the schema that is registered below. The changes that have been made are as follows:

- The DEPARTMENT_T element has been renamed to DEPARTMENT
- The DEPARTMENT_NO element has been converted to an attribute. When performing this operation, the attribute must be moved outside of the xsd:sequence tag.
- The EMPLOYEE_ID element has been converted to an attribute and renamed to ID.

When you are done with your changes, it is time to register the schema with database. The name that you use during the registration process should be a unique URL. Keep this URL handy as you will need to reference it soon.
Having captured the populated object into the department_obj variable you are ready to generate XML. The createXML member function of XMLType will use the data contained in the populated object to generate XML that conforms to the referenced schema. The return value is of XMLType which has methods to allow you to print its contents.

The Result:

```
<DEPARTMENT DEPARTMENT_NO="10">
  <DEPARTMENT_NAME>ACCOUNTING</DEPARTMENT_NAME>
  <DEPARTMENT_LOCATION>NEW YORK</DEPARTMENT_LOCATION>
  <EMPLOYEE ID="7782">
    <NAME>CLARK</NAME>
    <JOB_TITLE>MANAGER</JOB_TITLE>
    <MANAGER_ID>7839</MANAGER_ID>
    <HIRE_DATE>1981-06-09</HIRE_DATE>
    <SALARY>2450</SALARY>
  </EMPLOYEE>
  <EMPLOYEE ID="7839">
    <NAME>KING</NAME>
    <JOB_TITLE>PRESIDENT</JOB_TITLE>
    <HIRE_DATE>1981-11-17</HIRE_DATE>
    <SALARY>5000</SALARY>
  </EMPLOYEE>
  <EMPLOYEE ID="7934">
    <NAME>MILLER</NAME>
    <JOB_TITLE>CLERK</JOB_TITLE>
    <MANAGER_ID>7782</MANAGER_ID>
    <HIRE_DATE>1982-01-23</HIRE_DATE>
    <SALARY>1300</SALARY>
  </EMPLOYEE>
</DEPARTMENT>
```

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303.267.6877

4. Generate XML
Finally, you are ready to bring the components together. First, issue a Select statement so that you can populate the DEPARTMENT_T object. This is a straightforward process of matching object member and column until you encounter the nested employee member. The nesting is accomplished with the use of the MULTISET keyword which instructs Oracle to return the result as a collection. The collection is identified as the EMPLOYEE_LIST_T type using the CAST operation.
Within Oracle 11g, there is new functionality within table partitioning that can make the DBA's administration cost of partition management non-existent – well, maybe not non-existent – but it can tremendously reduce the cost of partition administration within the data warehouse. This functionality isn't just for the data warehouse – it is really for all partition administration in your database. However, this article will focus on the functionality very common in the data warehouse – range-based partition management and administration.

In a growing data warehouse, partition maintenance and administration can become a burden. This is especially true when there isn't a standard retention period defined across your warehouse. With multiple client groups to support, it is difficult to establish a single service agreement – each client often defines their own retention period. So, what typically happens is there are periodic partition extensions that must occur to tables within the warehouse. By definition, the data warehouse keeps historical data – and Oracle's partitioning mechanisms make it simple to define, say, range-based partitions by a certain historical period – such as by month. Using this as an example, one would define 12 partitions to contain the data for a year. Unfortunately, what happens is eventually that year runs out – and one must add new partitions for the following year. Of course, it is possible for data outside the bounds of the highest partition go into a default partition – but, by design, that is what these range-based partitions are for – to store data for a given period in the proper partition.

Enter Oracle 11g – where it can significantly reduce this cost with new functionality to automatically add partitions to tables based on a given criteria. There are several ways to accomplish this with Oracle 11g – the focus here is on one method called interval partitioning. And within interval partitioning, for these examples, we will be using a fixed interval for our partitions – we will be setting our intervals by month.

See an example below:

```sql
create table test
(
 pk_id number(5),
 insdate date
)
partition by range (insdate)
interval (numtoyminterval(1, 'MONTH'))
(
 partition test07_11p values less than (to_date('2007-12-01','YYYY-MM-DD')),
 partition test07_12p values less than (to_date('2008-01-01','YYYY-MM-DD')),
 partition test08_01p values less than (to_date('2008-02-01','YYYY-MM-DD')));
```

The above table, upon the examination of the partitions, will hold any prior to the '2008-02-01' date. Make note of the new 'interval' parameter, which is where we specify the partitioning interval to be one month.

Let's look at the data dictionary for this table to validate its high value for each partition:

```sql
SQL> select partition_name, high_value from user_tab_partitions;
PARTITION_NAME
------------------------------
TEST07_11P TO_DATE(' 2007-12-01 00:00:00', 'SYYYY-MM-DD HH24:MI:SS', 'NLS_CALENDAR=GREGORIA
TEST07_12P TO_DATE(' 2008-01-01 00:00:00', 'SYYYY-MM-DD HH24:MI:SS', 'NLS_CALENDAR=GREGORIA
TEST08_01P TO_DATE(' 2008-02-01 00:00:00', 'SYYYY-MM-DD HH24:MI:SS', 'NLS_CALENDAR=GREGORIA
```

Let's insert some rows both inside and outside of the
partition range for this table:
SQL> insert into test values (1,'2007-07-01');
SQL> insert into test values (2,'2008-01-01');
SQL> insert into test values (3,'2008-02-01');
SQL> insert into test values (4,'2008-03-01');
SQL> insert into test values (5,'2008-04-01');

In Oracle 11g, all the above statements successfully inserted rows. The question is – where did the rows go that were outside of the table's partition boundaries. Again, let's peek at the data dictionary:

SQL> select partition_name, high_value from user_tab_partitions;

<table>
<thead>
<tr>
<th>PARTITION_NAME</th>
<th>HIGH_VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYS_P51</td>
<td>TO_DATE('2008-03-01 00:00:00', 'SYYYY-MM-DD HH24:MI:SS', 'NLS_CALENDAR=GREGORIA')</td>
</tr>
<tr>
<td>SYS_P52</td>
<td>TO_DATE('2008-04-01 00:00:00', 'SYYYY-MM-DD HH24:MI:SS', 'NLS_CALENDAR=GREGORIA')</td>
</tr>
<tr>
<td>SYS_P53</td>
<td>TO_DATE('2008-05-01 00:00:00', 'SYYYY-MM-DD HH24:MI:SS', 'NLS_CALENDAR=GREGORIA')</td>
</tr>
<tr>
<td>TEST07_11P</td>
<td>TO_DATE('2007-12-01 00:00:00', 'SYYYY-MM-DD HH24:MI:SS', 'NLS_CALENDAR=GREGORIA')</td>
</tr>
<tr>
<td>TEST07_12P</td>
<td>TO_DATE('2008-01-01 00:00:00', 'SYYYY-MM-DD HH24:MI:SS', 'NLS_CALENDAR=GREGORIA')</td>
</tr>
<tr>
<td>TEST08_01P</td>
<td>TO_DATE('2008-02-01 00:00:00', 'SYYYY-MM-DD HH24:MI:SS', 'NLS_CALENDAR=GREGORIA')</td>
</tr>
</tbody>
</table>

As you can see, Oracle automatically added partitions on the high end of the partition range! And, with those of us with many existing tables in lower versions of the database – we can fix that once we upgrade to version 11g. As with most SQL commands, you can define an interval to an existing partitioned table with an 'alter table' statement:

SQL> alter table test set interval (numtoyminterval(1, 'MONTH'));

So, you can create and alter tables to define the intervals for your tables. But, there are some things to keep in mind as you move forward to define intervals on your historical objects.

First, partition gaps can easily occur. If a partition is missing at insert time, Oracle will define one partition based on the interval. If you insert a row for February of 2008, and the previous partition was for December, 2007 – it will not create both a January and February partition – it will only create a partition with a high value of February 29, 2008 – and both January and February data will be inserted into the one newly created partition. While this may not pose a problem for your application, it is something to be aware of, as it has potential performance and administration ramifications.

Second, in the data warehouse environment, it is common to place partitions in different tablespaces. This way, you can obviously make tablespaces for older data read only, which can help query performance, as well as potentially reducing backup times by skipping read-only tablespaces. If your historical partitioned objects indeed reside in different tablespaces, this is where some administration cost still exists with partitioning. If you want to direct oracle to place new partitions it creates in specific tablespaces, you still have a bit of work to do.

Let's recreate our table with partitions that would hold 2007 data. After we've recreated our table, let's query the data dictionary to see our partitions that will hold 2007 data:

<table>
<thead>
<tr>
<th>PARTITION_NAME</th>
<th>TABLESPACE_NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEST307_11P</td>
<td>WPADFIE07_S</td>
</tr>
<tr>
<td>TEST307_12P</td>
<td>WPADFIE07_S</td>
</tr>
</tbody>
</table>

As you can see, the new partitions went into the user's default tablespace, which may or may not be the desired place.

To take care of this problem, we can modify the default tablespace for our table. There are a couple ways to accomplish this.

First, we can modify the table's default attributes:

1* alter table test3 modify default attributes tablespace wpadfie08_s;

Then, when we insert a row outside the partition boundaries, you can see that a new partition has been generated – and it has been placed in the desired tablespace:

SQL> select partition_name, high_value from user_tab_partitions
PARTITION_NAME     TABLESPACE_NAME
------------------------------ ------------------------------
HIGH_VALUE          

TEST307_11P         WPADFIE07_S
TO_DATE(' 2007-12-01 00:00:00', 'SYYYY-MM-DD HH24:MI:SS', 'NLS_CALENDAR=GREGORIA

TEST307_12P         WPADFIE07_S
TO_DATE(' 2008-01-01 00:00:00', 'SYYYY-MM-DD HH24:MI:SS', 'NLS_CALENDAR=GREGORIA

SYS_P69             USERS
TO_DATE(' 2008-02-01 00:00:00', 'SYYYY-MM-DD HH24:MI:SS', 'NLS_CALENDAR=GREGORIA

SYS_P70             USERS
TO_DATE(' 2008-03-01 00:00:00', 'SYYYY-MM-DD HH24:MI:SS', 'NLS_CALENDAR=GREGORIA

SYS_P71             WPADFIE08_S
TO_DATE(' 2008-04-01 00:00:00', 'SYYYY-MM-DD HH24:MI:SS', 'NLS_CALENDAR=GREGORIA

As you can see, for your data warehouse environment, Oracle 11g can really save you some administration costs for your historical partitioned tables. The days of manually adding partitions or writing procedures to manage the addition of partitions is essentially a thing of the past. We’ve discussed a bit about interval partitioning – which just scratches the surface of new partitioning options in Oracle 11g. To yield these benefits for your application, your mission – should you choose to accept it – is to upgrade to version 11g, and dive in!

About the Author:
Bill Padfield is an Oracle Certified Professional, working for Qwest as a DBA and manager. Bill helps administer and manage a large data warehouse environment consisting of more than 70 databases. Bill has been an Oracle DBA for over 10 years, and has been in the IT industry since 1985.
## Events Calendar

### Upcoming RMOUG Events Calendar

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>March</strong></td>
<td></td>
</tr>
<tr>
<td>3/13/2008</td>
<td>RMOUG SQL Update Newsletter - Articles Due</td>
</tr>
<tr>
<td>3/17/2008</td>
<td>RMOUG Board Meeting 5:00pm (Location Data 393)</td>
</tr>
<tr>
<td>3/31/2008</td>
<td>RMOUG - Call for Board Candidates</td>
</tr>
<tr>
<td>3/31/2008</td>
<td>Quarterly Educational Workshop (QEW) - Call for Presentations for May 16, 2008</td>
</tr>
<tr>
<td>3/31/2008</td>
<td>Stan Yellott Scholarship Fund - Open for applications Summer/Fall 2008</td>
</tr>
<tr>
<td><strong>April</strong></td>
<td></td>
</tr>
<tr>
<td>4/10/2008</td>
<td>RMOUG SQL Update Newsletter - Mailed</td>
</tr>
<tr>
<td>4/13/2008</td>
<td>RMOUG Board Meeting 5:00pm (Location Data 393)</td>
</tr>
<tr>
<td>4/13-17/08</td>
<td>IOUG Collab, see <a href="http://www.ioug.org/">http://www.ioug.org/</a> for details</td>
</tr>
<tr>
<td>4/18/2008</td>
<td>IOUG Collaborate 2008 -- at Denver Convention Center</td>
</tr>
<tr>
<td>4/25/2008</td>
<td>Quarterly Educational Workshop (QEW) - Deadline for Presentations for May 16, 2008</td>
</tr>
<tr>
<td>4/30/2008</td>
<td>Board of Directors 2008-2009, Campaign Statement submission deadline</td>
</tr>
<tr>
<td><strong>May</strong></td>
<td></td>
</tr>
<tr>
<td>5/2/2008</td>
<td>Quarterly Educational Workshop (QEW) - Final Agenda Posted for May 16, 2008</td>
</tr>
<tr>
<td>5/16/2008</td>
<td>Stan Yellott Scholarship Fund Presentation for Summer/Fall at QEW</td>
</tr>
<tr>
<td>5/16/2008</td>
<td>RMOUG Board Meeting at 7:00am - (Location TBA)</td>
</tr>
<tr>
<td>5/16/2008</td>
<td>RMOUG Quarterly Educational Workshop/Board of Directors 2008-2009, Election</td>
</tr>
<tr>
<td>5/16/2008</td>
<td>Stan Yellott Scholarship Fund - Deadline for Applications Summer/Fall 2008</td>
</tr>
<tr>
<td><strong>June</strong></td>
<td></td>
</tr>
<tr>
<td>6/12/2008</td>
<td>RMOUG Board Elections at Quarterly Educational Workshop (QEW)</td>
</tr>
</tbody>
</table>

### Ongoing Calendar Items:

COAUG meets the 3rd Tuesday of each month check website for details [http://www.coaug.org/](http://www.coaug.org/)
Type of Membership and Annual Dues (please check one). Membership is good for one year from date payment is processed. The following rates are in effect for the 2008 membership year (until further notice):

- **Individual**...$75
- **Student** (must have Student ID) $35

Corporate:
- 1-5 Members ................................................................. $300
- 6-8 Members ................................................................. $450
- 9-12 Members ............................................................... $595
- Additional members (over 12) $50 each

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Please list corporate contact first.

- Contact Name ___________________ Phone _________________
- Address ______________________________________________
- City, State, Zip _________________________________________
- e-mail _______________________________________________

Payment Method  Total  $________
- Check/Money Order (Make payable to: Rocky Mountain Oracle Users Group).
- Visa Card#
- MasterCard (Name on credit card) ____________________________

Please mail the completed form and payment to:
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P.O. Box 621942
Littleton, CO 80162
Fax: (801) 697-4366

- The Rocky Mountain Oracle Users Group (RMOUG) is over 20 years old and currently consists of over 1200 members throughout the Rocky Mountain Region. RMOUG is incorporated in Colorado.
- RMOUG has three general membership meetings a year and one major training event. General meetings are scheduled for a full day of presentations by users, vendors, and Oracle Corporation, preceded by general business. The training event is a two-day, multi-track, training extravaganza, provided at an unbelievably low cost.
- RMOUG has a new major publication, this newsletter, with a circulation of over 1200.
- Most of the work, including the newsletter, presentations, and training, is done by volunteers from the board, membership, advertisers, vendors, and Oracle Corporation.
Advertising Rates

Advertising Rates
Publishing Schedule for RMOUG SQL>UPDATE

All rates are per issue and for space reservation and placement only.

**Black & White or 2 Color**
- Full page .......................$500
- 1/2 page ........................$300

**Full Color**
- (Full page only)
- Back Cover ....................$1,250
- Inside Covers .................$1,000
- Inside ..........................$750

*For special pricing on packages, please contact Allison Leech at newsletterdir@rmoug.org.*

All advertisements and graphics must be submitted at a **300dpi resolution** for proper printing requirements.

*The deadline for all articles and ads, respectively, for the next issue of RMOUG SQL>UPDATE is May 15, 2008.*

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Publishing Schedule for RMOUG SQL>UPDATE

SQL>UPDATE_RMOUG is published quarterly. Please e-mail the director of newsletters prior to submitting/writing articles. All ads and articles are due on the following dates:

<table>
<thead>
<tr>
<th>Issue Date</th>
<th>Article Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring</td>
<td>January 2008</td>
</tr>
<tr>
<td>Summer</td>
<td>April 2008</td>
</tr>
<tr>
<td>Fall</td>
<td>July 2008</td>
</tr>
<tr>
<td>Winter</td>
<td>October 2008</td>
</tr>
</tbody>
</table>

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Your membership benefit includes access to the RMOUG list servers. All the list servers except for the Announcements are voluntary. You can sign up for the list servers by going to:

http://lists.rmoug.org/mailman/listinfo

The techies list server is for technical questions only. We have a vast amount of technical expertise in our membership, so this is a great place to ask questions and learn new information.

The misc list server is for non-technical information like job postings, job searches, product endorsements. While only members can post, there is often forwarded information from recruiters, companies, etc. As a member, you can also forward job information that you think will be beneficial to the membership.

The ISProjVol list server is for the IS Project Volunteers who manage our website, so if you would like to help, join them!

The Announcements list server is for RMOUG-only announcements. Membership and posting to this list is managed by the RMOUG Administrator, so if you need a new e-mail address, you will need to e-mail it to admin@rmoug.org. This will also keep your membership information updated.

If you have any questions, feel free to e-mail Heidi Kuhn at admin@rmoug.org, or call (303) 948-1786.

A new benefit to RMOUG members is an Associate Membership to IOUG (Independent Oracle Users Group), if you are interested in more information about this benefit or wish to sign up; please visit their website www.ioug.org.
For those times when you need to contact.

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  - Secretary@rmoug.org
- **Ron Bich**
  - MembershipDir@rmoug.org
- **John Peterson**
  - EducationDir@rmoug.org
- **Jon Arnold**
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  - OracleLiaison3@rmoug.org
- **Heidi Kuhn**
  - HeidiKuhn@rmoug.org
Want to get involved in RMOUG? Check out the opportunities to volunteer:

Training Days - Room Monitor
• Help monitor rooms and assist participants and speakers to ensure an easy transition between presentations (Conference %100 paid – limited space available)

Training Days - Registration
• Assist both members and speakers with registration and customer service needs (Conference %50 paid – limited space available)

Board Member at Large
• Be involved in helping the RMOUG board decision making process; work with other volunteers and board members on committees to improve our organization's member benefits, obtain leadership skills working in directing our organization volunteer efforts and events.

Abstract selection
• Help choose topics and areas of interest to be presented at an upcoming Quarterly Education Workshop or our yearly Training Days conference

Speaker/Presenter
• Polish up your skills presenting your expertise/knowledge areas to your peers and receive their recognition

Newsletter Articles
• Publish your knowledge for your peers to reference and acknowledge your expertise in you chosen subject fields.

RMOUG IS/Web
• Opportunities exist for assisting in the maintenance and management of RMOUG’s IS working technologies – learn new skills or enhance skills you already have and/or don’t use that much like mentoring, or gain new skills working with web site maintenance/building or UNIX, etc...

If interested, please contact Ron Bich at MembershipDir@rmoug
RMOUG would like to offer the opportunity for members to advertise Oracle technology related services, consulting, products and training in the upcoming issue of RMOUG’s SQL>Update. For only $35.00 you can purchase a 2½ X 3 inch black and white business card size space for a single issue of SQL>Update.

If interested, you will need to submit a pre-formatted/pre-edited copy of your business card ad or announcement no later than **May 15, 2008** for the November issue. Please feel free to contact me directly if I can help out in any way.

Allison Leech  
Newsletter Director  
RMOUG  
303.868.5835  
allison_leech@yahoo.com

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Join us for an RMOUG Quarterly Educational Workshop!

RMOUG hosts Quarterly Education Workshops in May, August and November of each year with the fourth and largest educational event being Training Days which is held in February.

**Our next meeting will be held Friday, May 16th, 2007:**
Clarion Hotel & Suites-Denver South/Tech Center
7770 South Peoria Street, Englewood, CO 80112

The following topics were presented at the November 16th meeting:

**Schedule:**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30am</td>
<td>Board Meeting (open to all members) and continental breakfast</td>
</tr>
<tr>
<td>8:15am - 8:45am</td>
<td>General Session</td>
</tr>
<tr>
<td>9:00am - 10:15am</td>
<td>What's the Fuss about Fusion? Oracle and SOA, John King, King Training Resources</td>
</tr>
<tr>
<td>10:30am - 11:45am</td>
<td>Internal and External Application Integration, Brad Brown, TUSC</td>
</tr>
<tr>
<td>11:45am - 1:00pm</td>
<td>Lunch Buffet (free to members, $15 for visitors)</td>
</tr>
<tr>
<td>1:00pm - 2:15pm</td>
<td>Oracle Fusion Development: At the Dawn of a New Age, Lynn Munsinger ORACLE</td>
</tr>
<tr>
<td>2:30pm - 3:45pm</td>
<td>Step-by-step Web Service Creation and Integrating or Using an Existing Web Service Tutorial, Brad Brown, TUSC</td>
</tr>
</tbody>
</table>

**Presentations:**

**9:15am - 10:30am**

*What's the Fuss about Fusion? Oracle and SOA, John King, King Training Resources*

Service Oriented Architecture (SOA) is a standards-based framework representing business processes as a set of shared, reusable services. Experiences from organizations starting their second generation of SOA provide a wealth of knowledge and best practices. Technologies are available to support and implement SOA including the Enterprise Service Bus (ESB), SOAP, WDSL, WSIF, and REST. In addition to the basic concepts and terminology of a Service Oriented Architecture (SOA) this session provides the basic information necessary to help you enthusiastically participate in the implementation of SOA at your organization based upon lessons from real SOA projects. You will be able to: explain the SOA and SOA’s potential pitfalls Best practices from successful SOA implementations and industry leaders will be discussed including interoperability lessons learned. Oracle’s Fusion project applies SOA to Oracle’s various Application offerings. Oracle’s Fusion Middleware’s SOA Suite enables SOA with various components including: an Enterprise Service Bus (ESB), Business Process Execution Language (BPEL), Oracle Service Registry, and various other tools.
10:45am - 12:00pm
**Internal and External Application Integration, Brad Brown, TUSC**
Oracle Fusion Web Services ventured down the path of a full bore implementation of internal and external application integration in what I perceived as the most efficient and cost effective manner, you'll get the benefit of my hindsight introspections today. Specifically, I implemented a light weight Service Oriented Architecture (i.e. Web Services) wherever it made sense. This presentation will discuss the good, bad and ugly about this approach that was taken. Knowing what I know today, I would in fact take this approach again. In fact, I highly recommend my self-named light-weight SOA.

1:00pm - 2:15pm
**Oracle Fusion Development: At the Dawn of a New Age, Lynn Munsinger, ORACLE**
Ready or not, Fusion is peeking over the horizon. Now is the time for all Oracle developers to understand what it will mean to become a Fusion developer, be it for custom applications or integration with Oracle’s own Fusion Applications. In this session I’ll cover the key strategies, architectures and technologies that define the Fusion development method and demonstrate the kind of applications that this technology can enable. This is the opportunity to push ahead of the crowd, get a sneak peak at Release 11 of JDeveloper and ADF, and learn what Fusion is really all about.

2:30pm - 3:45pm
**Step-by-step Web Service Creation and Integrating or Using an Existing Web Service Tutorial, Brad Brown, TUSC**
The Service Oriented Architecture (SOA) provides the foundation for any company's business-to-business process delivery. Using Web Services, your customers (whether internal or external) are able to seemingly access your core technology as if that technology is running in their own IT environment. This presentation will include a demonstration of the SOA application in action. This presentation will cover step-by-step Web Service creation and deployment. If you have customers or vendors who have provided you with Web Services that you need to integrate into your existing applications, you'll be happy that this presentation will also cover how to integrate and use an existing Web Service in a step-by-step manner. In this presentation, you'll learn how Web Services can change how you deliver applications to your customers (and other internal groups).

Quarterly Education Workshop presentations are available for download on the RMOUG website www.rmoug.org. Check it out!

*If you or your organization is interested in partnering with RMOUG to host an upcoming meeting, or to submit an abstract for presentation, please contact Jon Arnold, Programs Director at ProgramsDir@rmoug.org.
Speak-Tech Seminars

Seminars in Denver by Jonathan Lewis, Steven Feuerstein, Tim Gorman, Matt Hart, Mark Rittman and Daniel Fink in June, 2008

Speak-Tech (www.SpeakTechSeminars.com) offers seminars designed for you by Jonathan Lewis, Tim Gorman, Cary Millsap, Steven Feuerstein, Daniel Fink and other top Oracle experts. These seminars will enhance your Oracle skill set and increase your professional edge.

Feel comfortable knowing these seminars are organized by an experienced Oracle DBA who understands the needs and schedules of busy Oracle technologists.

All seminars are conducted by nationally and internationally known Oracle experts. Past instructors include Tom Kyte, Jonathan Lewis, Cary Millsap, Steven Feuerstein, Tim Gorman, Gaja Krishna Vaidyanatha, Mike Swing and David Kurtz; the leading Oracle practitioners and thinkers. The typical presenter has authored several books and numerous papers and articles; has presented to dozens of user groups and national conferences; connects with students; and enjoys teaching.

<table>
<thead>
<tr>
<th>Presenter</th>
<th>Date(s)</th>
<th>Location</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jonathan Lewis</td>
<td>June 11</td>
<td>Englewood</td>
<td>“Trouble-shooting and Tuning”</td>
</tr>
<tr>
<td></td>
<td>June 12</td>
<td>Englewood</td>
<td>“Writing Effective SQL”</td>
</tr>
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<td>June 13</td>
<td>Englewood</td>
<td>“One-day Oracle Developer”</td>
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<td>Tim Gorman</td>
<td>June 18-19</td>
<td>Englewood</td>
<td>“Scaling to Infinity – Partitioning Data Warehouses on Oracle”</td>
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<td>Matt Hart</td>
<td>June 18-19</td>
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<td>“Oracle Enterprise Manager Grid Control”</td>
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<td>Steven Feuerstein</td>
<td>June 23-24</td>
<td>Golden</td>
<td>“Best of Oracle PL/SQL”</td>
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<td>Mark Rittman</td>
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<td>“Enterprise Business Intelligence Masterclass”</td>
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<tr>
<td>Daniel Fink</td>
<td>TBA</td>
<td>TBA</td>
<td>“Advanced SQL &amp; SQL*Plus”</td>
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“Speak Tech has organized three seminars for me in Minneapolis, and many others for Steven Feuerstein, Jonathan Lewis, Cary Millsap & Tom Kyte. It will be a great benefit to have Speak Tech bring the world’s leading Oracle experts to Colorado.” – Tim Gorman

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