
DALLAS ORACLE USER GROUP

May/June 1998

Issue #4

Thursday, May 21

4:00 - 6:30 p.m.

DOUG Meeting

Getting the Best Out of Oracle Support

(Reg Gwin - Oracle Corporation)

Backup and Recovery: Strategy and Procedures

(Sid Poondla - Business Technology Solutions)

Thursday, June 18

4:00 - 6:30 p.m.

DOUG Meeting

Oracle Multi-Org

(April Stooksberry - Computer Systems Authority)

TBD

(TBD - Oracle Corporation)

Location

Oracle Corporation

972-401-5800

222 W. Las Colinas Blvd., Suite 1000
Irving, Texas 75039



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MULTI-ORG: A TECHNICAL PERSPECTIVE (PART 3 OF 3)

by Carolyn Waygood - President of EXOR Technologies, Inc.

The following article is meant to introduce readers to various technical aspects of the Multi-Org feature of the Oracle Applications™. We will address topics including database architecture for pre-multi-org multiple sets of books environments, R10.6 and R10.7 architectural approaches, and upgrading multiple sets of books environments to 10.7

Earlier Architectural Models

In earlier releases of the Oracle Applications, database administrators supported the integration of subledger applications (such as Oracle Purchasing and Oracle Payables) into multiple sets of books (defined in the Oracle General Ledger) by installing multiple copies of the subledger database objects (e.g., tables, indexes, and sequences). For example, as shown in the following diagram, given two sets of books in Oracle General Ledger (one for the United States, and one for France), two installations of Purchasing and Payables objects were installed. Users who “connected to” the first

installation of Oracle Purchasing (“PO”) created transactions, sending accrued receipt information to the US Book. Users who connected to the second installation (“PO1”) generated transactions which were passed to the France Book.

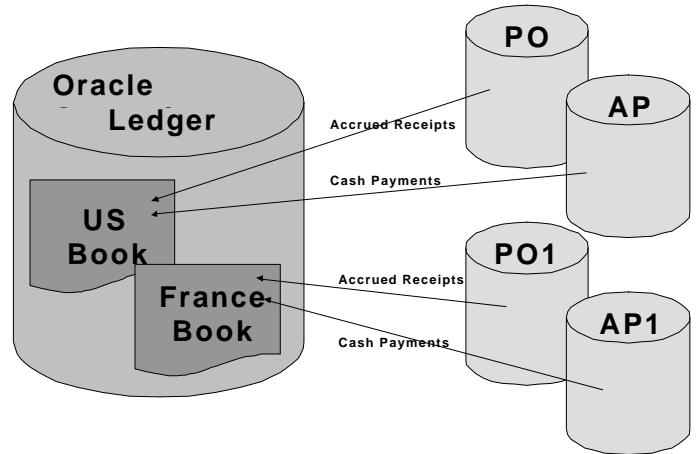


Figure 1: Earlier Multiple Sets of Books Approach

(Continued on page 5)



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MULTI-ORG (CONT'D)

(Continued from page 3)

Unlike the standard installation of the Oracle Applications, where a single set of books implementation in Oracle General Ledger required a single installation of subledger data (refer to Figure 2 below), multiple sets of books implementations required multiple Oracle IDs (accounts) and multiple installations of database objects (refer to Figure 3 below).

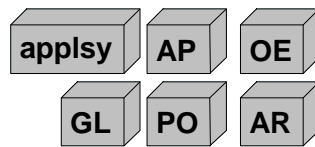


Figure 2: Single Set of Books Approach

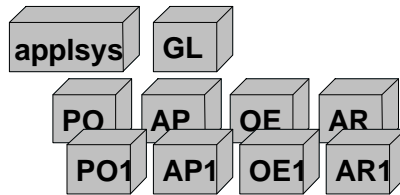


Figure 3: Earlier Multiple Sets of Books Approach

This approach required excessive administrative support, as well as overhead in database space. More importantly, this approach did not support true intercompany transactions across sets of books necessary in a global organization. Thus, the stage was set for a new approach in supporting multiple sets of books in the Oracle Applications, and Oracle Corporation designed and developed "Multi-Org".

"Multi-Org was first introduced to Oracle Applications customers in Release 10.6."

10.6 Multi-Org

Multi-Org was first introduced to Oracle Applications customers in Release 10.6. This initial release, however, was pre-production and required approval from Oracle Corporation in order to

implement it. The architectural approach to Multi-Org in later releases was significantly improved over the 10.6 approach, as we will discuss later.

In 10.6, another change was introduced to the database architecture. A new Oracle account was created called "APPS". This account owned synonyms to all application objects, and was also the owner of all "server side code" including stored packages and procedures. This approach was designed to make the installation procedure of the Oracle Applications easier and less prone to error. In effect, all application objects are loaded in the database when installing Release 10.6. Although users connect to the APPS account when they choose a responsibility in the Oracle Applications, underlying tables, indexes, and sequences are still owned by specific application Oracle IDs as seen in earlier release (refer to Figure 4 below).

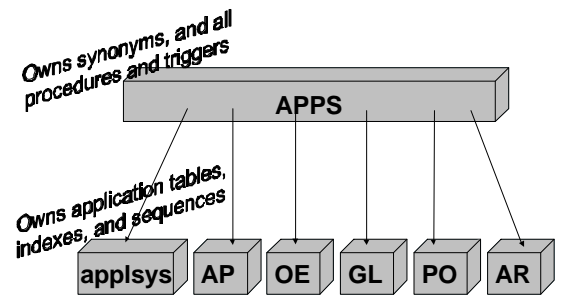


Figure 4: 10.6 Single Set of Books Approach

When one introduces Multi-Org into the 10.6 environment, the simplistic picture above becomes complex and confusing. Although the approach to Multi-Org changes in 10.7 (for the better!), it is worth mentioning the earlier architectural approach to gain an understanding of the history behind Multi-Org.

(Continued on page 7)

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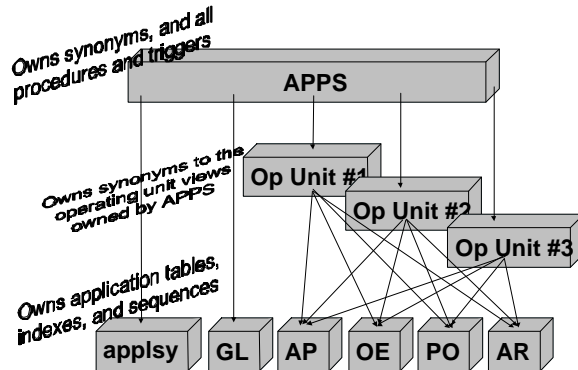


Figure 5: 10.6 Multi-Org Approach

"10.7 still utilizes the APPS account along with the detailed product (application) accounts."

As you can see from the above diagram, the introduction of Multi-Org and its associated operating units in a 10.6 environment required the creation of additional Oracle accounts – each representing one of the operating units in your organizational hierarchy. In the example above, the database environment supported three

operating units. If the customer defined four operating units in their organizational hierarchy, the database would reflect four additional accounts, one for each operating unit.

In this approach, the individual application IDs (e.g., PO, AP, etc.) still own the base product database objects (i.e., tables, indexes, and sequences). The APPS account still owns synonyms to all product objects, as well as the server side code. In this environment, however, APPS also owns new dynamic views that partition data by operating unit. APPS then grants access to these views to each operating unit account (ID). The operating unit accounts then create synonyms to these views. Users connect to the operating unit accounts when they choose a responsibility in the Oracle Applications. In order to support this approach, database administrators were required to create additional Oracle accounts (one for each operating unit), as well as custom data groups

and responsibilities to connect users to the appropriate operating unit.

As the reader can see from the above discussion, we moved away from talking about “multiple sets of books” and on to talk about “multiple operating units”. Although the two are not synonymous (i.e., an operating unit does not equate to a set of books), where there is a requirement for multiple sets of books, there is most likely the need for multiple operating units (thus the need for Multi-Org). However, it is important to note that a customer may choose to implement only one set of books and still have the need to define multiple operating units. There are a variety of configurations one could choose when developing their organizational hierarchy.

There are some important notes to keep in mind when reflecting on these earlier architectural solutions to multiple sets of books. These include;

- single set of books 10.6 users connect to a responsibility which connects to APPS
- multiple sets of books 10.6 users connect to a responsibility which connects to an operating unit account determined by the *data group* assigned to the responsibility
- a column called ORG_ID has been added to various application tables which maintains the unique ID assigned to an operating unit
- APPS owns all the multi-org views, and operating unit database accounts only own a synonym to these dynamic views
- this approach again created some overhead and complexity to the Oracle Applications environment through the introduction of additional operating unit accounts

(Continued on page 8)

MULTI-ORG (CONT'D)

(Continued from page 7)

10.7 Multi-Org

When Multi-Org moved to “production” status in Release 10.7, the architectural solution was simplified. In a single set of books environment, the database approach in 10.7 resembles the single set of books approach in 10.6 (refer to Figure 4). As can be seen in the diagram below, 10.7 still utilizes the APPS account along with the detailed product (application) accounts.

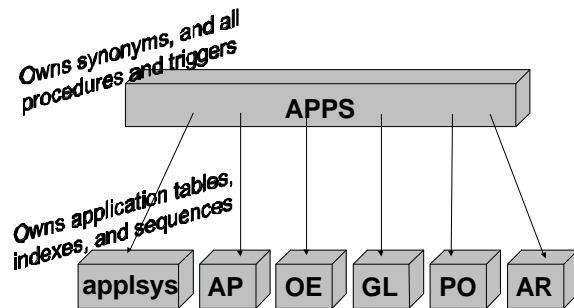


Figure 6: 10.7 Single Set of Books Approach

The difference between a 10.6 and a 10.7 database environment is reflected in the architectural approach to Multi-Org. Whereas Release 10.6 required additional operating unit accounts to support Multi-Org, Release 10.7 does not. As a matter of fact, the 10.7 Multi-Org environment looks extremely similar to the standard 10.7 environment without Multi-Org. As can be seen by the following diagram, the only difference between Figure 6 and Figure 7 is the addition of partitioned views owned by the APPS schema.

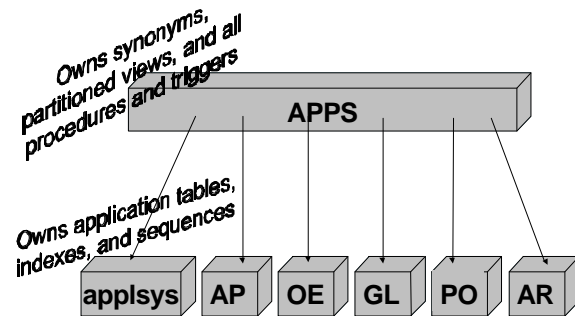


Figure 7: 10.7 Multi-Org Approach

(Continued on page 9)



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“SQL*NET FOR DUMMIES”

by Shawn Ellinger - CSA Senior Systems Consultant

Many DBA ‘newbies’ want to know how SQL*Net connects to the database without reading a large complicated book. And by understanding this process, it eases the pain in resolving problems when users are having trouble connecting to the database.

There are three main components to SQL*Net when connecting to the database; 1) the sqlnet.ora file (on the client), 2) the tnsnames.ora file (on the client) 3) the listener process (listener.ora) on the server. How do each of these fit together? It's all very simple once you know the steps. When a user makes an attempt to connect to the database from a client, they pass a connect string. A connect string consists of a username, password and a database name or alias.

SQL*Net takes this connect string and holds it temporarily and first looks in the sqlnet.ora file for SQL*Net specific information. For example it looks to see what the default domain is. The default domain is world. This domain is appended on the end of the database name if no domain is given. It also looks for other information like out of bound breaks and connection timeout values.

Once SQL*Net has this information, it looks for the database's alias name in the tnsnames.ora file. The tnsnames.ora file acts as a lookup table. The tnsnames.ora file resolves the alias name to a server name, a communication port and a database SID. SQL*Net now passes the database SID to the server name through the communication port.

The listener process, on the server, is listening for requests to connect to the database through the same port that is in the tnsnames.ora file (normally 1521 or 1526). Once the listener receives a request, it takes the SID that was passed from the client and makes a comparison with the list it has from the listener.ora file. If they match, the listener spawns a dedicated server process and attempts to make a connection to the database with the username and password given from the connect string. If the username and password are able to connect to the database, the

dedicated process is released from the listener process and a connection is made directly to the client. At this point we have a client connected to a dedicated server process which is connected to the database all communicating using SQL*Net.

If problems arise in trying to connect to the database, you can follow these simple steps to resolve where the actual problem might be. I also have a piece of information which might make it a step easier in being a DBA: To find a problem, first find out where the problem is not.

MULTI-ORG (CONT'D)

(Continued from page 8)

When comparing Figure 5 to Figure 7, we also see a much more simplified approach to Multi-Org in Release 10.7.

Upgrading Multiple Sets of Books to Multi-Org

When customers prepare to upgrade a multiple sets of books environment to the new 10.7 Multi-Org model, they need to be knowledgeable about their alternatives. There seems to be confusion in the industry as to the outcome of following Oracle's packaged upgrade path (referred to as *AutoInstall*). The AutoInstall process will take a multiple set of books environment and create additional APPS accounts in 10.7, one for each set of book, as well as multiple product groups for each APPS account. The outcome is typically not the desired long term solution for the customer. This can be better communicated through diagrams.

Assume, for example, a customer needs to upgrade from a 10.6 multiple sets of books environment (*notice I did not say a 10.6 multi-org environment!*) to 10.7 Multi-Org. below represents the architectural model of the 10.6 environment prior to the upgrade process.

(Continued on page 10)

MULTI-ORG (CONT'D)

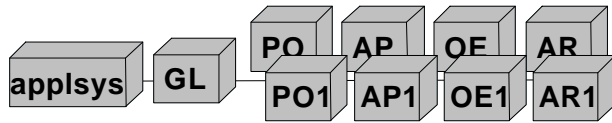


Figure 8: 10.6 Multiple Sets of Books Approach

After applying Oracle's packaged upgrade routines to the 10.6 environment, the customer is left with a database environment resembling the model below.

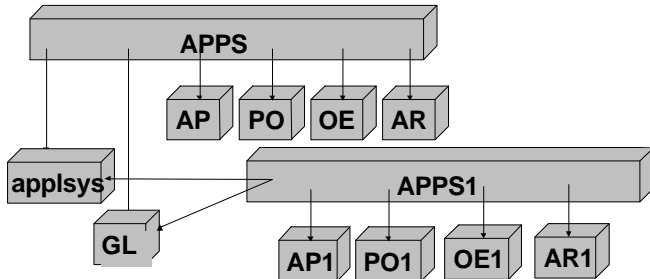


Figure 9: Results of Using Oracle Upgrade Utilities for Multiple Sets of Books

As you may realize, the architecture in Figure 9 does not resemble the 10.7 Multi-Org model depicted in

Figure 7. In fact, the customer would not be able to benefit from many Multi-Org capabilities moving forward with the model in Figure 9. What is the alternative? Unfortunately, at this time, the alternative to using Oracle's upgrade processes is to implement 10.7 as a new instance, and convert data from the "legacy" 10.6 (or earlier) multiple sets of books environment to the new 10.7 environment. Although Oracle has announced their plans to provide an "automated" procedure for upgrading multiple sets of books to a true 10.7 Multi-Org environment, these procedures are not available today.

About the Author:

Carolyn Waygood is President of EXOR Technologies, Incorporated, the ERP Division of Sapient Corporation, which specializes in the implementation and continued support of the Oracle Applications. With over 15 years of Oracle experience, including almost 10 years of Oracle Applications experience, Carolyn offers detailed knowledge of the Oracle database, tools, and Applications. For more information about EXOR or Sapient, visit their web sites at www.exor.com and www.sapient.com.

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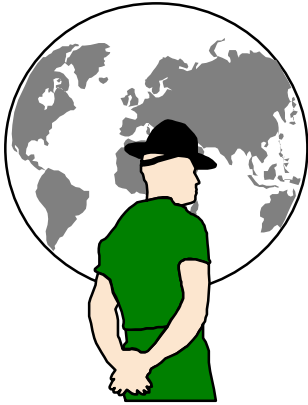
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Multi-Org: A Technical Perspective & SQL*Net for Dummies