

R12 MOAC (Multi-Org Access Control) Uncovered

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Before We Start A Quick Audience Survey

- How many of you are on 11.0, 11i, 12?
- How many of you plan to upgrade to R12 in the next 18 months?

This Presentations Version Info

- This presentation has been composed from my experiences with several R12 clients
- The most recent exposure has been with an upgrade from 11.5.10.2 to 12.0.5

Client has:

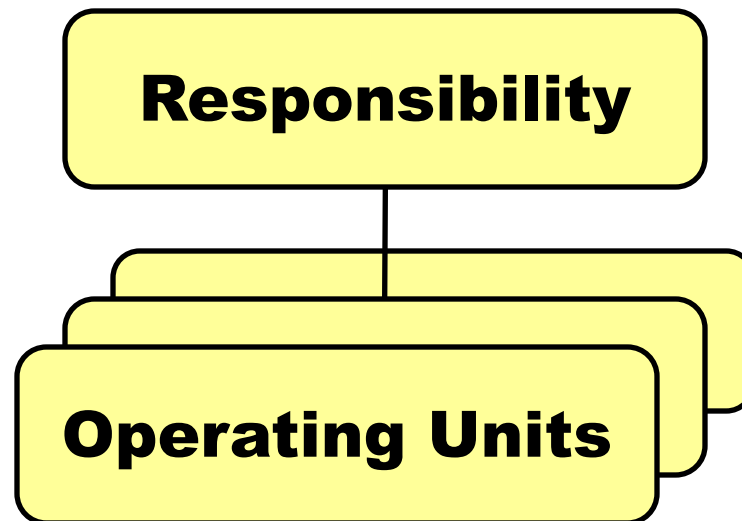
- Full Financials (AP, AR, GL, FA, HR)
- Operations (OM, INV, BOM, QA)
- CRM (CS, CSI, OKC/OKS, FS)

What I am going to cover

- Why MOAC (Multi-Org Access Control)
- Comparison of the Pre-R12 and R12 Multi-Org Architectures
- What you need to know now when using tools against an R12 MOAC DB
- MOAC Setups
- Some potential flaws

True Multi-Org Access Control

- R12 Offers True Multi-Org Access
- Responsibilities are assigned a Security Profile which is a group of Operating Units
- Assignment is through the profile option 'MO: Security Profile' set at the Responsibility Level.

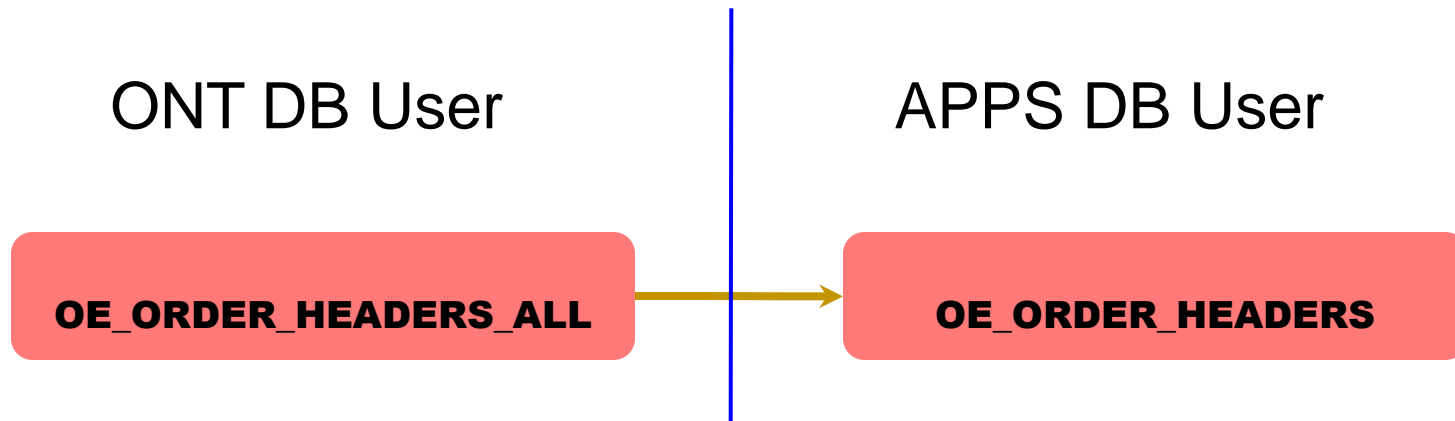


True Multi-Org Access Control (cont)

- So from one responsibility you can perform transactions and report on transactions from multiple operating units
- Desirable in a share services environment
- Users have to be very careful and disciplined while using MOAC
- Even though MOAC is available changing responsibilities to change operating units has some benefits

Hey where did the views go?

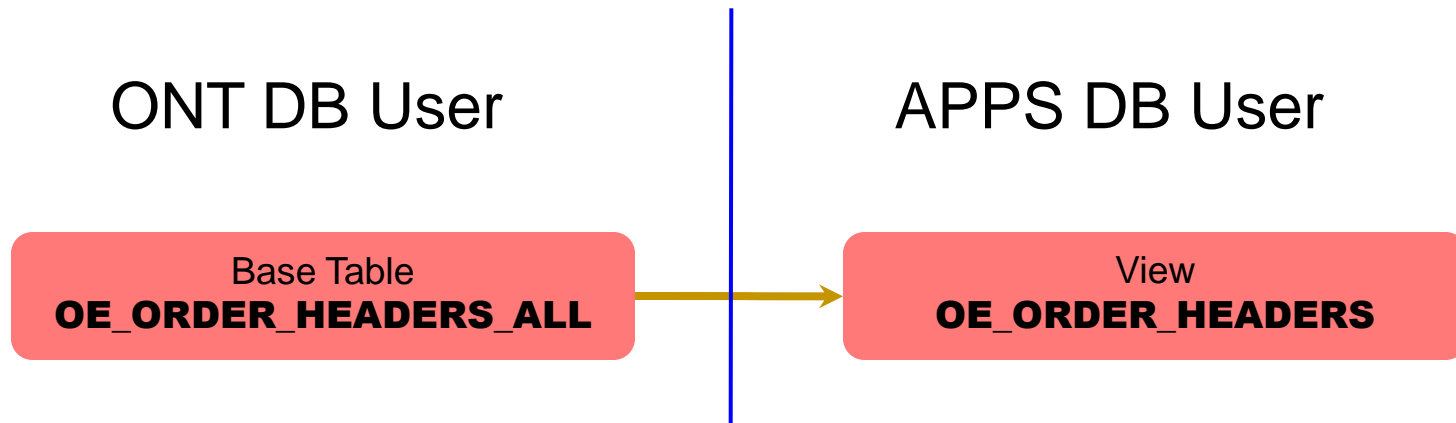
- R12 implements MOAC through DB Synonyms that replace the old Multi-Org Views
- Lets take the example of Order Management



Pre-R12 Multi-Org Architecture

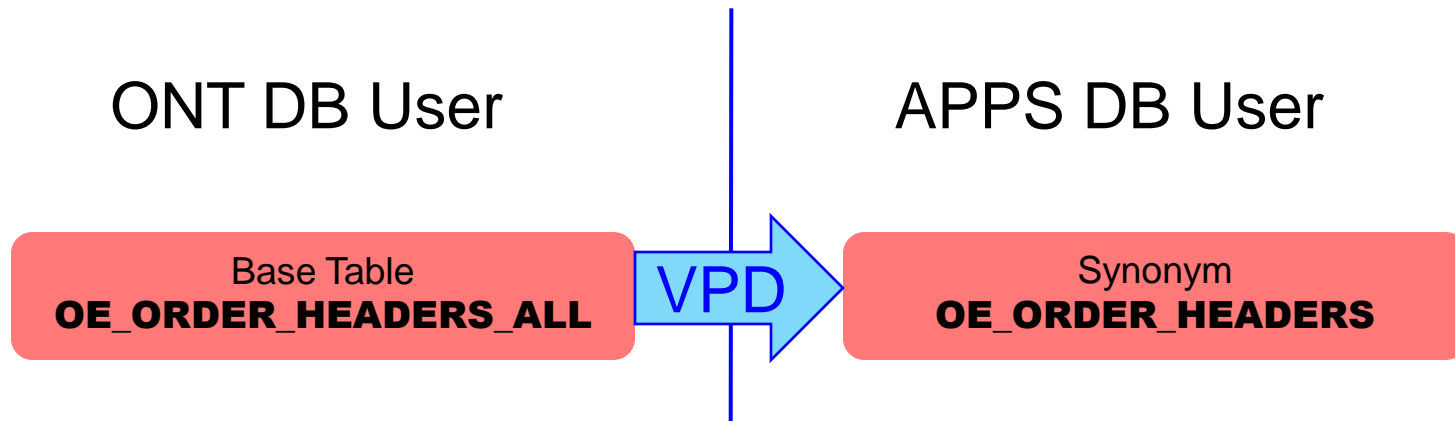
- Base data tables exist in the product schema with a naming convention of %_ALL. The data in this table is striped by ORG_ID (Operating Unit).
- A view in the APPS schema provides the Multi-Org filtering based on the statement below in the where clause.

```
SUBSTRB (USERENV ('CLIENT_INFO'), 1, 10)
```



R12 Multi-Org Architecture

- Base data tables exist in the product schema with a naming convention of %_ALL. The data in this table is striped by ORG_ID (Operating Unit).
- A synonym in the APPS schema provides the Multi-Org filtering based the Virtual Private Database feature of the Oracle 10G DB Server.



Real World Example

Security Profile and Operating Units

62 – 299 (Canada)

63 – 2 (US)

64 – 299, 2 (North America)

Sample Query

```
select ORG_ID, count(*)  
  from OE_ORDER_HEADERS  
 group by ORG_ID;
```

Security Profile = 62 (Canada)

299, 1000

Security Profile = 63 (US)

2, 7000

Security Profile = 64 (North America)

299, 1000

2, 7000

What is a Virtual Private Database

- This is a security feature of the Oracle Database Server 10G
- Security Policies can be applied to database object to control access to specific rows and columns in the object
- Security Policies can be different for each DML action
 - Select
 - Insert
 - Update
 - Delete

Virtual Private Database Gotchas

- Since Security Policies can be restrictive you might not be able to insert or update records through them.
- The Security Policies are not easily viewable using tools like TOAD.
- You need to be careful if you drop a Synonym because you won't always know if a Security Policy is applied to the Synonym and more importantly how to reapply it.

In SQL Pre-R12

- Pre-R12 you could set your SQL session context for multi-org with the following:

```
BEGIN
```

```
  dbms_application_info.set_client_info(2);
```

```
END;
```

- In this example 2 is the ORG_ID for the Operating Unit I am interested in.
- Or you could have used FND_GLOBAL.APPS_INITIALIZE to set your context.

How do you get the ORG_ID

- This is a handy little SQL routine to dump out the ORG_ID's and Operating Unit Names.

```
select ORGANIZATION_ID,  
       NAME  
from HR_OPERATING_UNITS;
```

- This still works in R12

In SQL R12

- In R12 you can set your SQL session context for a single OU with the following:

```
BEGIN
```

```
    execute mo_global.set_policy_context('S',2);
```

```
END;
```

- The 'S' means Single Org Context
- 2 is the ORG_ID I want set

R12 Preferred Method

- In R12 you can set your SQL session context for multiple OU's with the following:

```
BEGIN
  execute
  mo_global.set_org_access(NULL, 64, 'ONT');
END;
```

- 64 is the Security Profile you want to use
- 'ONT' is the application short name associated with the responsibility you will be using

How to find the Security Profiles

- The following SQL will dump out the Security Profiles and Operating Unit Names assigned to them

```
select psp.SECURITY_PROFILE_NAME,  
       psp.SECURITY_PROFILE_ID,  
       hou.NAME,  
       hou.ORGANIZATION_ID  
from PER_SECURITY_PROFILES psp,  
     PER_SECURITY_ORGANIZATIONS pso,  
     HR_OPERATING_UNITS hou  
where pso.SECURITY_PROFILE_ID = psp.SECURITY_PROFILE_ID  
     and pso.ORGANIZATION_ID = hou.ORGANIZATION_ID;
```

Security Profile From Profile Option

- The following SQL will dump out the Security Profiles assigned in via the Profile Options

```
select fnd_profile.value_specific('XLA_MO_SECURITY_PROFILE_LEVEL',  
                                user_id,  
                                resp_id,  
                                appl_id)  
  
from dual;
```

Where:

user_id: FND_USER.USER_ID

resp_id: FND_RESPONSIBILITY_TL.RESPONSIBILITY_ID

appl_id: FND_APPLICATIONS.APPLICATION_ID

Custom Development

- Based on what I have shown above it is obvious that this will change how you develop:
 - Reports
 - PL/SQL and SQL Concurrent Programs
 - Workflows
 - Forms
- For more details please see:
 - ML Note: 420787.1
 - Oracle Applications Multiple Organizations Access Control for Custom Code

What's ORG_ID -3113

- After upgrading to R12 you will find that some Multi-Org tables will now have rows with ORG_ID = -3113
- These are seed data template rows that are essentially values for "All Orgs"
- This can cause issues when Oracle Applications functionality requires unique names because these get are unioned in to results in many cases:
 - RA_BATCH_SOURCES_ALL.NAME

Setups Summary

- There are other related steps, I am only showing true 'MOAC' related ones
- Create Oracle Apps Security Profiles
(no not the same as the VPD Security Profiles)
- Assign Security Profiles to Responsibilities through the Profile Option 'MO: Security Profile'
- Other Profile Options
- Concurrent Programs

Setup Steps Documentation

A good reference is the manual:

'Oracle Applications Multiple Organizations'

Implementation Guide Release 12

Part No. B31183-02

Setups: Security Profiles

- The Security Profiles form allows you to group together Operating Units

Oracle Applications

File Edit View Folder Tools Window Help

Navigator - Global HRMS Manager

Functions Documents

Security:Profile

Define security profiles to restrict record access

Security Profile

Name **D North America** Business Group **D Corporation**

View Employees **All** Reporting User

View Contingent Workers **All** View All Records

View Applicants **All** Allow Granted Users

View Contacts **All** Restrict on Individual Assignments

View Candidates **All**

Organization Security Position Security Payroll Security Supervisor Security Miscellaneous Security

Security Type **Secure organizations by organization hierarchy and/or organization list**

Organization Hierarchy

Specify Top Organization:

Use the Organization on the User's Assignment(s) as the Top Organization

Include Top Organization Exclude Business Groups

Classification	Organization Name	Include	Exclude
	D United States	<input type="radio"/>	<input type="radio"/>
	D Canada	<input type="radio"/>	<input type="radio"/>
		<input type="radio"/>	<input type="radio"/>
		<input type="radio"/>	<input type="radio"/>

Record: 2/?

<ESC>

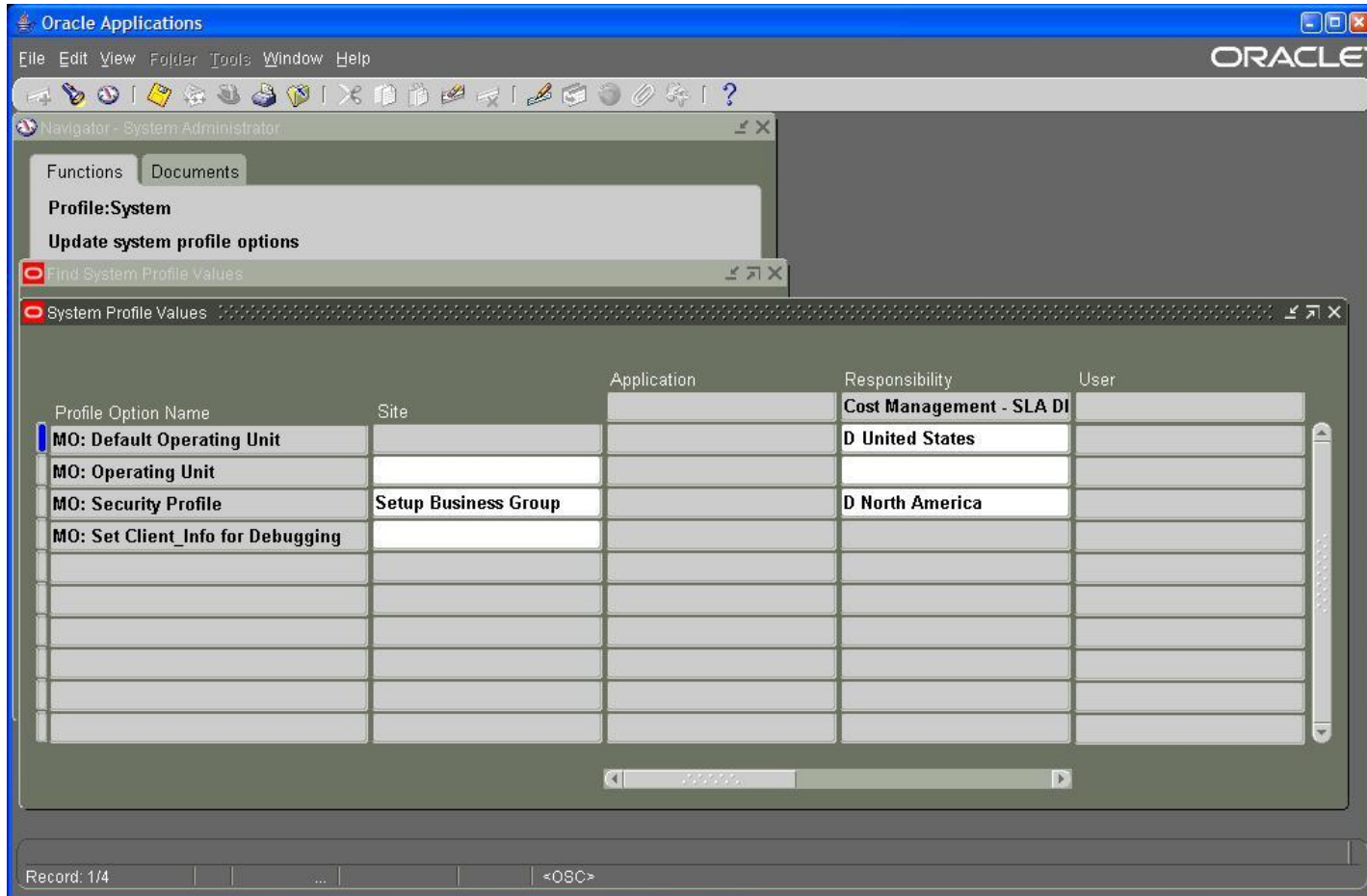
Run Security List Maintenance

- The Security List Maintenance concurrent program must be run each time you add or change Security Profiles.

Setups: Profile Options

- There are three Profile Options you need to be aware of related to Multi-Org that should be set at the Responsibility Level.
- The R12 profile option 'MO: Security Profile' is always evaluated first.
- The pre-R12 profile option 'MO: Operating Unit' still works in R12. It is just a secondary priority being evaluated after 'MO: Security Profile'.
- The R12 profile option 'MO: Default Operating Unit' sets the default Operating Unit for transactions when running under a Security Profile.

Setups: Profile Options (cont)



Pre-R12 'MO: Operating Unit'

- Many R12 applications modules do not work with 'MO: Security Profile' set for a given responsibility.
- They must only use 'MO: Operating Unit'.
- Some even require all three Profile Options set.

Examples:

- CRM Modules
- Certain GL Drill Down Functions
(trial and error determination of setups, no clear direction)

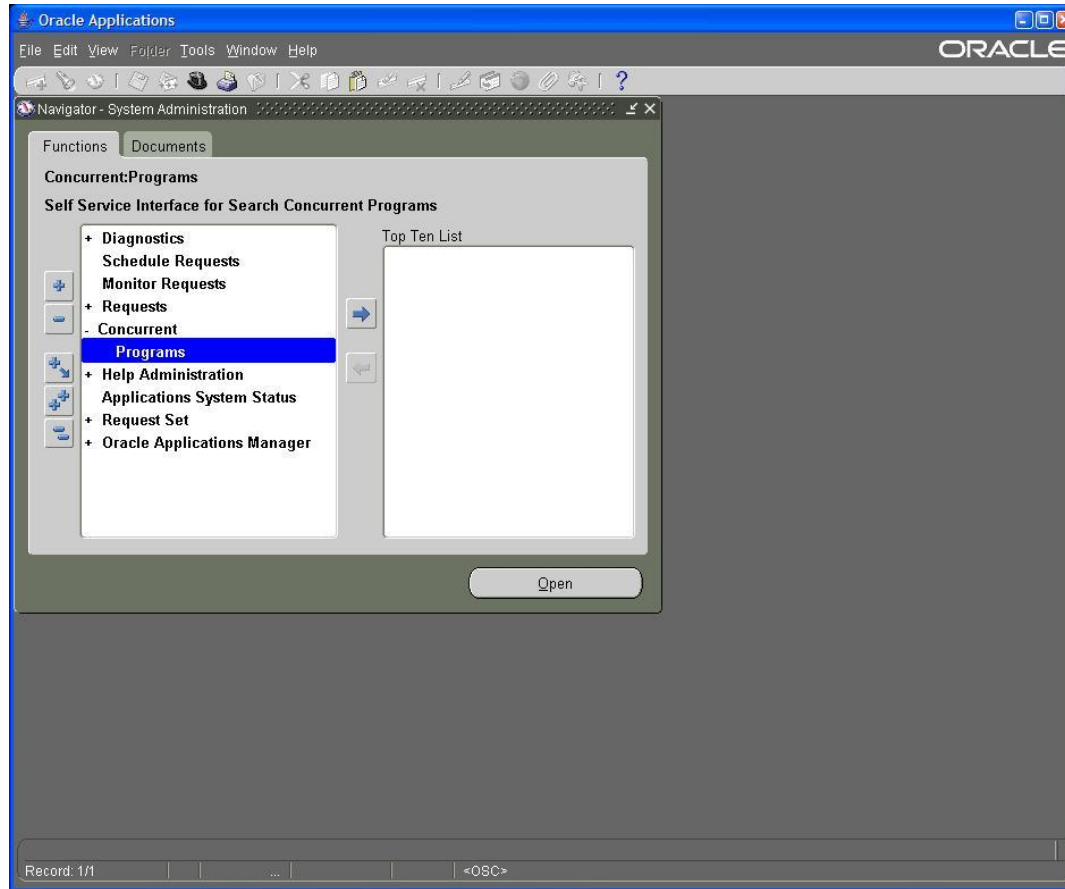
Concurrent Programs

- Oracle has implemented a new parameter on the System Administration : Concurrent Parameters form to control how to handle Operating Units.

The screenshot shows the Oracle Concurrent Processing interface for updating a concurrent program named 'RAXTRX'. The 'Request' tab is active, displaying 'Request Settings' and 'Output Preferences'. A red circle highlights the 'Incrementer', 'Executable Options', and 'Refresh Portlet' fields in the 'Request Settings' section. The 'Operating Unit Mode' is set to 'Single', and the 'Use in SRS' and 'Restart on System Failure' checkboxes are checked. The 'Output Preferences' section shows 'Save' checked, 'Format' set to 'Text', 'Columns' set to '132', 'Style' set to 'Landscape', 'Print' checked, and 'Rows' set to '45'. The 'Style Required' checkbox is also checked.

Concurrent Programs (cont)

Yes that's the **System Administration** Responsibility



Concurrent Programs (cont)

- The Operating Unit Mode parameter does not show up in the System Administrator : Define Concurrent Programs form.

The screenshot displays the Oracle Applications System Administrator interface. The main window is titled 'Oracle Applications' and contains a 'Navigator - System Administrator' pane. The 'Concurrent:Program:Define' form is open, showing the 'Define concurrent program' configuration for the 'Autoinvoice Import Program'. The form includes the following fields and options:

- Program:** Autoinvoice Import Program (Enabled)
- Short Name:** RAXTRX
- Application:** Receivables
- Description:** Interface your transactions to Oracle Receivables
- Executable:**
 - Name:** RAXTRX
 - Method:** Spawned
 - Options:** (empty)
 - Priority:** (empty)
- Request:**
 - Type:** (empty)
 - Incrementor:** (empty)
 - MLS Function:** (empty)
 - Use in SRS
 - Run Alone
 - Enable Trace
 - Allow Disabled Values
 - Restart on System Failure
 - NLS Compliant
- Output:**
 - Format:** Text
 - Save (S)
 - Print
 - Columns:** 132
 - Rows:** 45
 - Style:** Landscape
 - Style Required
 - Printer:** (empty)

Buttons at the bottom include 'Copy to...', 'Session Control', 'Incompatibilities', and 'Parameters'. The status bar at the bottom shows 'Record: 1/1' and '<OSC>'.

Concurrent Programs (cont)

- The Operating Unit Mode parameter is not always set properly by Oracle Development during an upgrade.
- This setting has three values:
 - NULL** – default setting
 - Single** – run only for a specific Operating Unit specified by 'MO: Operating Unit' profile option
 - Multi** – run for multiple Operating Units based on the 'MO: Security Profile' profile option
- Change this setting from the default NULL setting to Single to see if this resolves report execution errors.

Concurrent Programs (cont)

- This Operating Unit Mode parameter is used to identify:
 - How the program executes the multiple organizations initialization
 - When to display **Operating Unit** prompt in the Submit Requests window and Schedule Requests window.
- This impacts how the Submit Requests form evaluates Concurrent Request Parameter List of Values. If you don't see what you want try changing this setting.

MOAC Flaws? – GL Segments

- GL Segment Value Set Security Rules do not allow you to restrict usage based on Operating Unit

Example:

- You have a North America responsibility (CA & US)
- You have selected a transaction for the US OU
- You can enter GL Segment values for both CA & US on the transaction based on your MOAC Security Profile

From Brian Kotch, PinPoint Consulting

MOAC Flaws? – ORG_ID -3113

- As I mentioned before upgraded R12 instances can run into uniqueness issues when data is copied over to ORG_ID -3113
- RA_BATCH_SOURCES_ALL.NAME

MOAC Flaws? – MO: Operating Unit

- We still need to set this for some strange reason in GL and CRM Modules?
- No clear documentation describing when you need to set this
- Put up an SR with hints of MOAC issues and the analyst will ask you to probably try this first

MOAC Flaws? – VPD Security Profile

- Sometimes they don't appear to always work properly.
- How do you know when this is applied to a database object?
- How do you reapply this should the object need to be recreated?

Further Reading

- ML Note: 420787.1
Oracle Applications Multiple Organizations Access Control for Custom Code
- ML Note: 462383.1
SQL Queries and Multi-Org Architecture in Release 12
- ML Note: 396750.1
Oracle Applications Multiple Organizations Release 12 Roadmap Document
- Oracle Applications Multiple Organizations Implementation Guide Release 12
Part No. B31183-02

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- Additional reference papers can be found at:

<http://www.norcaloaug.org>

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