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 (Mult-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.

**Responsibility**
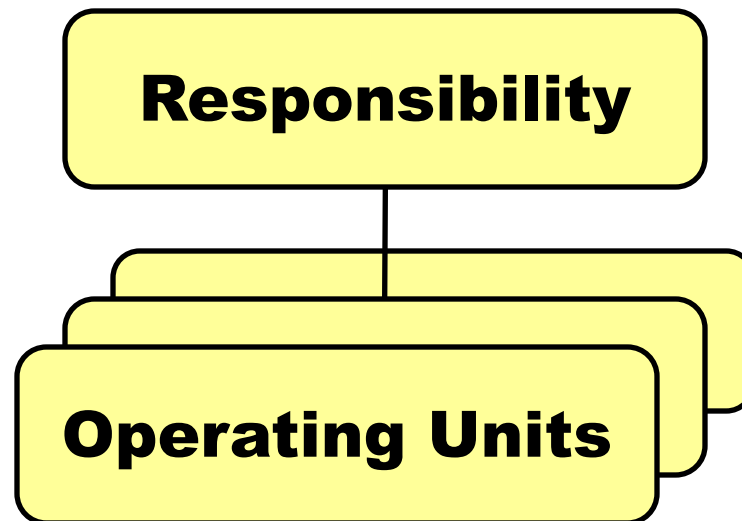
Operating Units

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

ONT DB User   APPS DB User

OE_ORDER_HEADERS_ALL → **OE_ORDER_HEADERS**
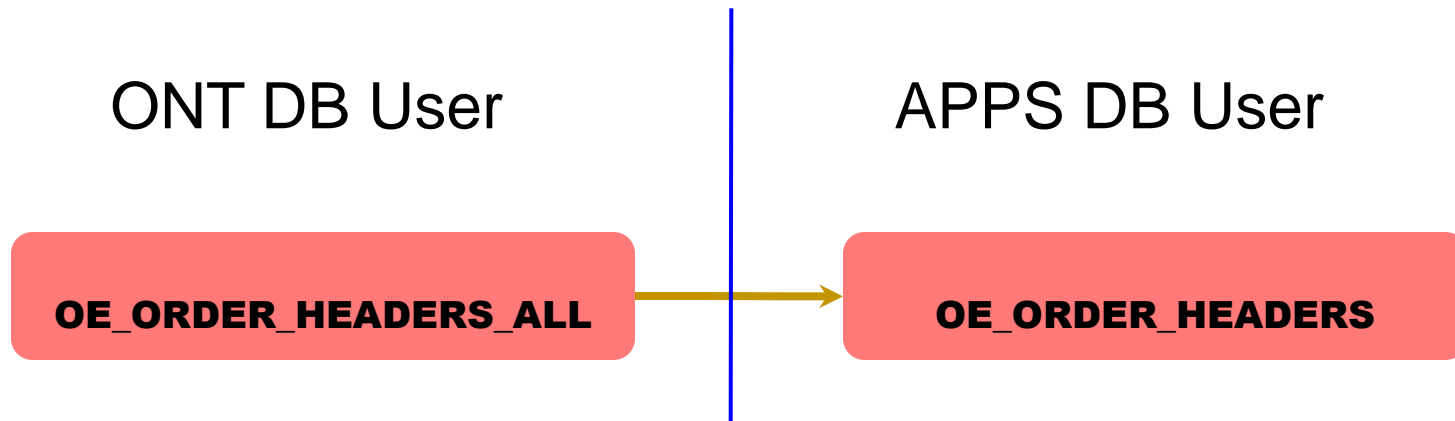
Pre-R12 Multi-Org Architecture

- 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)`
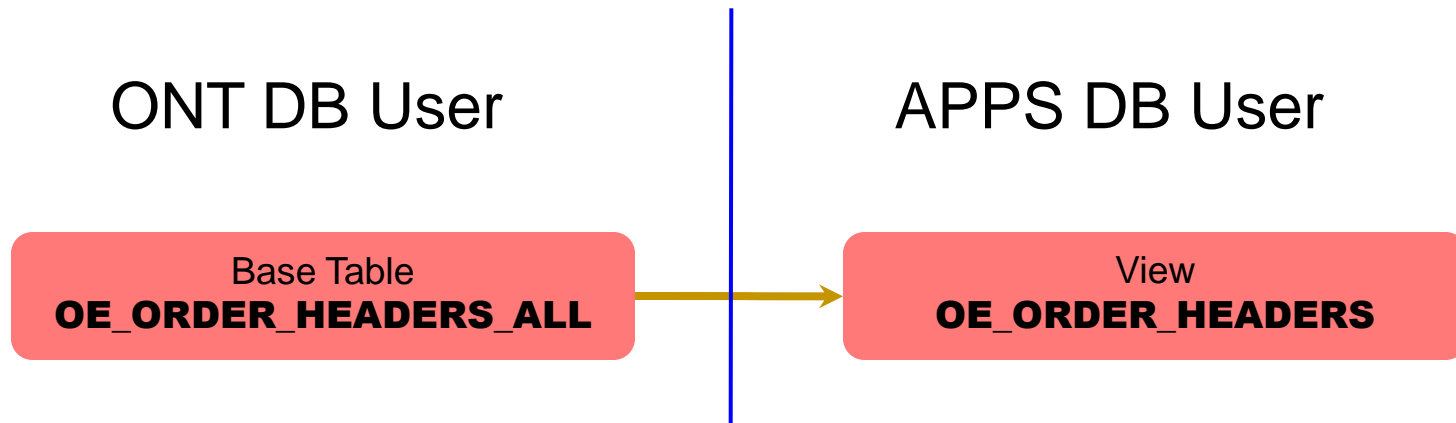
ONT DB User   APPS DB User

| Base Table **OE_ORDER_HEADERS_ALL** | → | View **OE_ORDER_HEADERS** |

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.

ONT DB User

APPS DB User

Base Table
OE_ORDER_HEADERS_ALL

VPD

Synonym
OE_ORDER_HEADERS
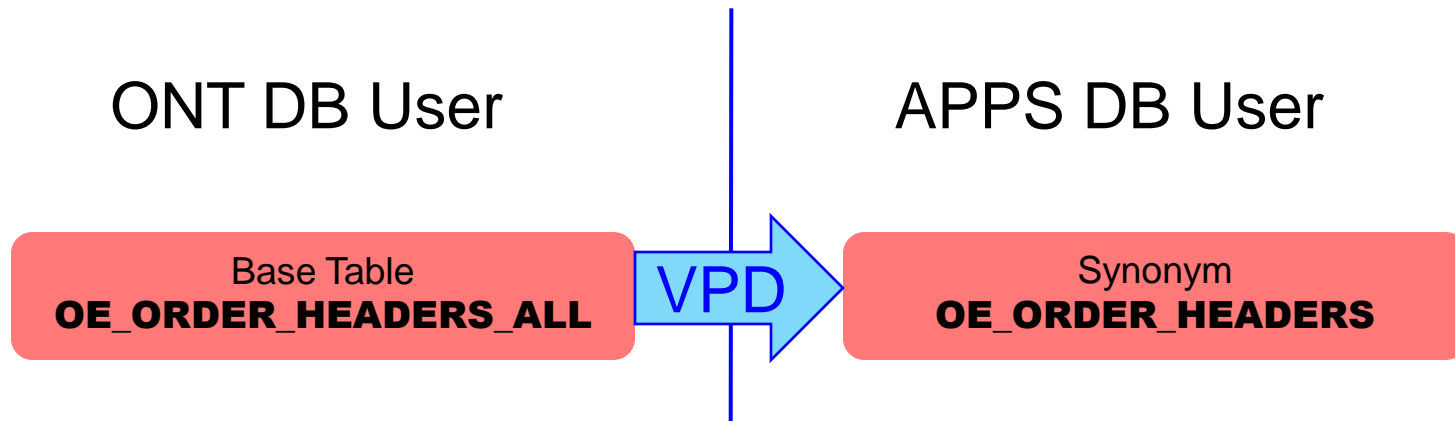
Real World Example

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

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)
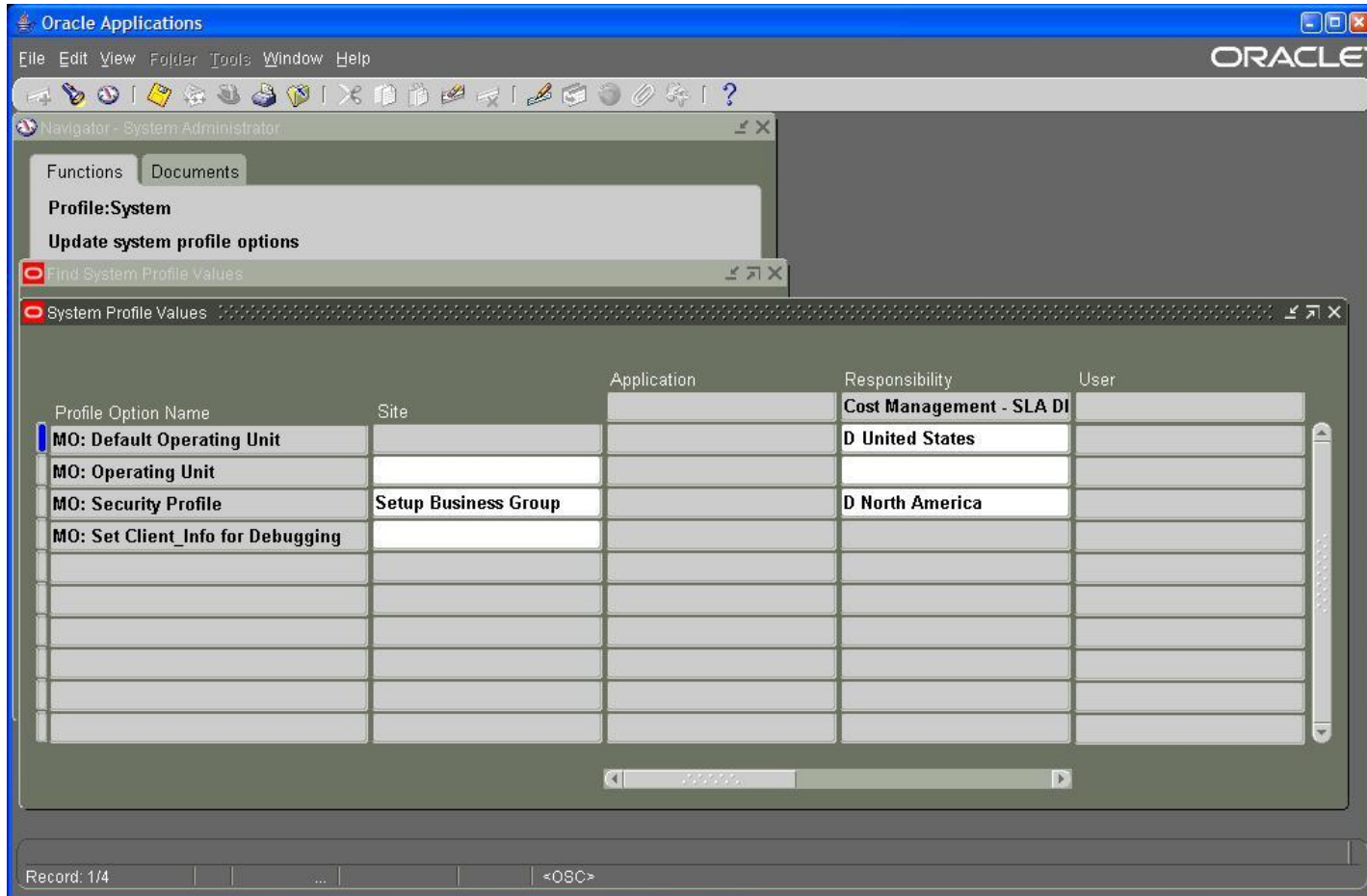
Pre-R12 'MO: Operating Unit'

- 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
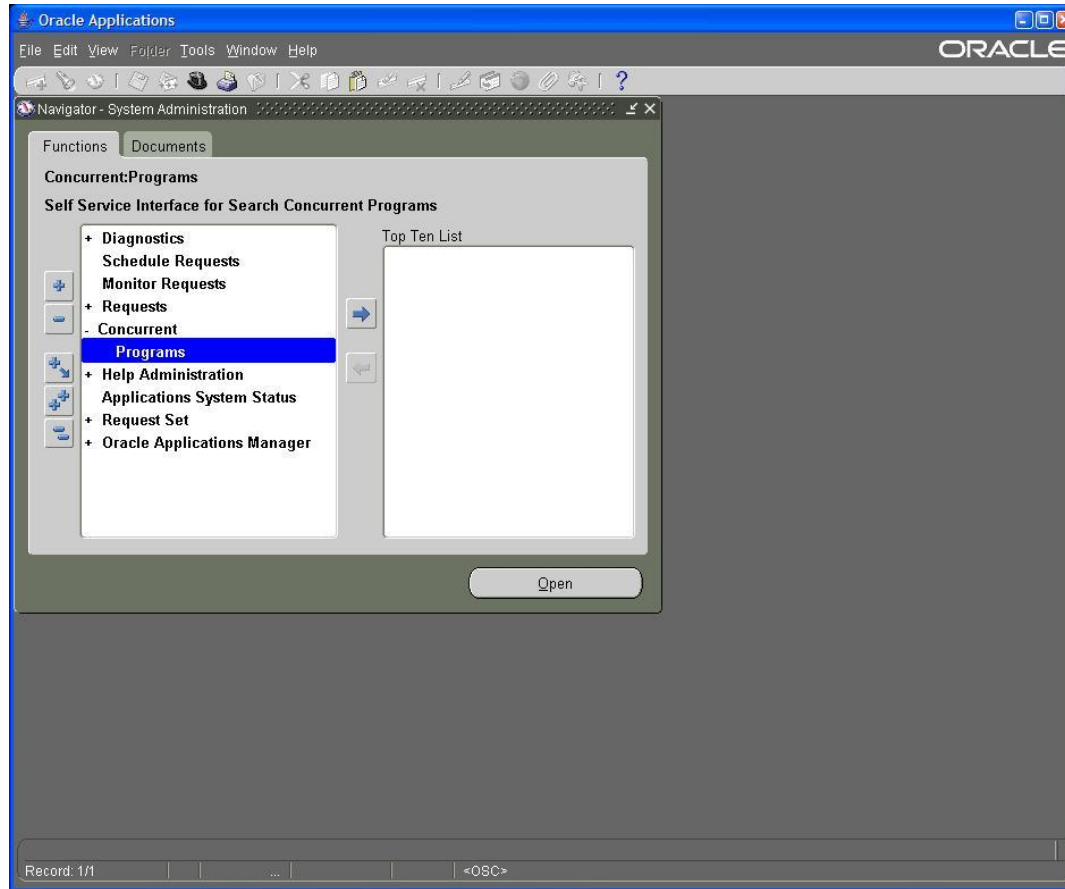 (trial and error determination of setups, no clear direction)

Concurrent Programs

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

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 Administor : Define Concurrent Programs form.

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
  http://www.jrpjr.com