Clean Up That Mess! A Mother's Guide to Managing Your E-Business Suite Clutter

Barbara Matthews

Red River Solutions

barb@oncalldba.com

www.oncalldba.com

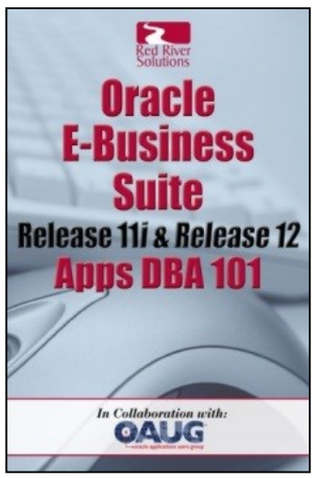
http://oracleebizviews.blogspot.com

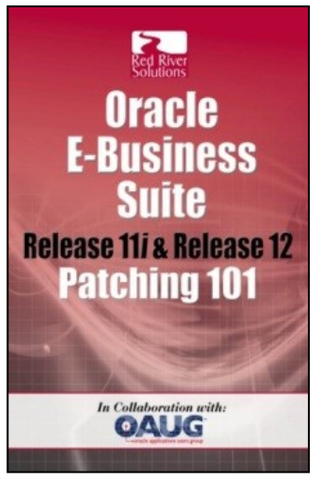
www.RedRiverSolutions.com

COLLABORATE 13
TECHNOLOGY AND APPLICATIONS FORUM FOR THE ORACLE COMMUNITY

Barbara Matthews

- OAUG Upgrade SIG Board
- OAUG Connection Point Seminars Board
- Oracle Databases Version 7+
- Oracle Applications Release 10+
- Oracle Ace
- Specializing in E-Business Suite Release 12 Upgrade Readiness Assessments/Health Checks, Upgrades, and General Nitpicking





Presentation Objectives

- Review configuration settings, Concurrent Programs and tools that can affect performance
- Learn about Concurrent Programs you can run to clean up administrative tables
- Learn about tools to help you manage your EBS environment
- Learn how to tidy up your environment before you upgrade; you'll thank me later.
- Use what you've learned to adjust your new Release 12 environment after the upgrade so it performs well
- **Understand that neither your house nor your EBS environment are self cleaning**

As You Prepare to Upgrade

- Take care of your current environment so you can focus on preparing for the new environment
- Inspect your current environment – this is your chance to eliminate bad practices and adopt best practices that you'll carry over to the new environment
- Clean it up
- Include time in your plan to tune the new environment

Inspect Your Current Environment

- Does your Concurrent Manager configuration perform the way it should?
- Oracle provides lots of ways to adjust the Concurrent Managers; make sure you use them judiciously

Concurrent Manager Configuration: What to Look At?

Concurrent Manager Performance History

CONCURRENT MANAGER	COUNT	TOTAL HOURS	AVG. HOURS	WAITED HOURS	AVG. WAIT
Alert Manager	2,548	86.25	.03	320.09	.13
FSG Manager	3,171	258.67	.08	6.65	.00
OAM Metrics Collection Manager	60	.10	.00	6.72	.11
Standard Manager	75,166	2437.52	.03	154185.62	2.05
Workflow Manager	54,341	56.15	.00	254.66	.00

Concurrent Request Queues and Capacities

MANAGER	Running	Max	TARG	SLEEP	CACHE
Workflow Manager	4	4	4	5	1
Alert Manager	4	4	4	60	
Standard Manager	30	30	30	5	10
OAM Metrics Collection Manager	1	1	1	60	1
FSG Manager	7	7	7	10	1

Concurrent Manager Settings: Target, Sleep, and Cache

- Target – maximum number of concurrent requests that can run at the same time for a Concurrent Manager. Allow too many to run at once and online users suffer performance issues. Allow too few and the Concurrent Manager wait time increases and work doesn't get done fast enough.

- Sleep – wait time after jobs are run and before the Concurrent Manager looks for more. Generally, 30-60 seconds is recommended – not 5.

Concurrent Manager Settings: Target, Sleep, and Cache

- Cache - The number of requests a concurrent manager can fetch so it will not have to re-query after each execution of a concurrent request. Generally, twice the Target, more if the Concurrent Manager is dedicated to processing quick running requests.

- See Andy Tremayne and Uday Moogala's presentation *Performance Tuning E-Business Suite Concurrent Manager (Performance Series Part 2 of 4)*

Concurrent Manager Settings: Target, Sleep, and Cache

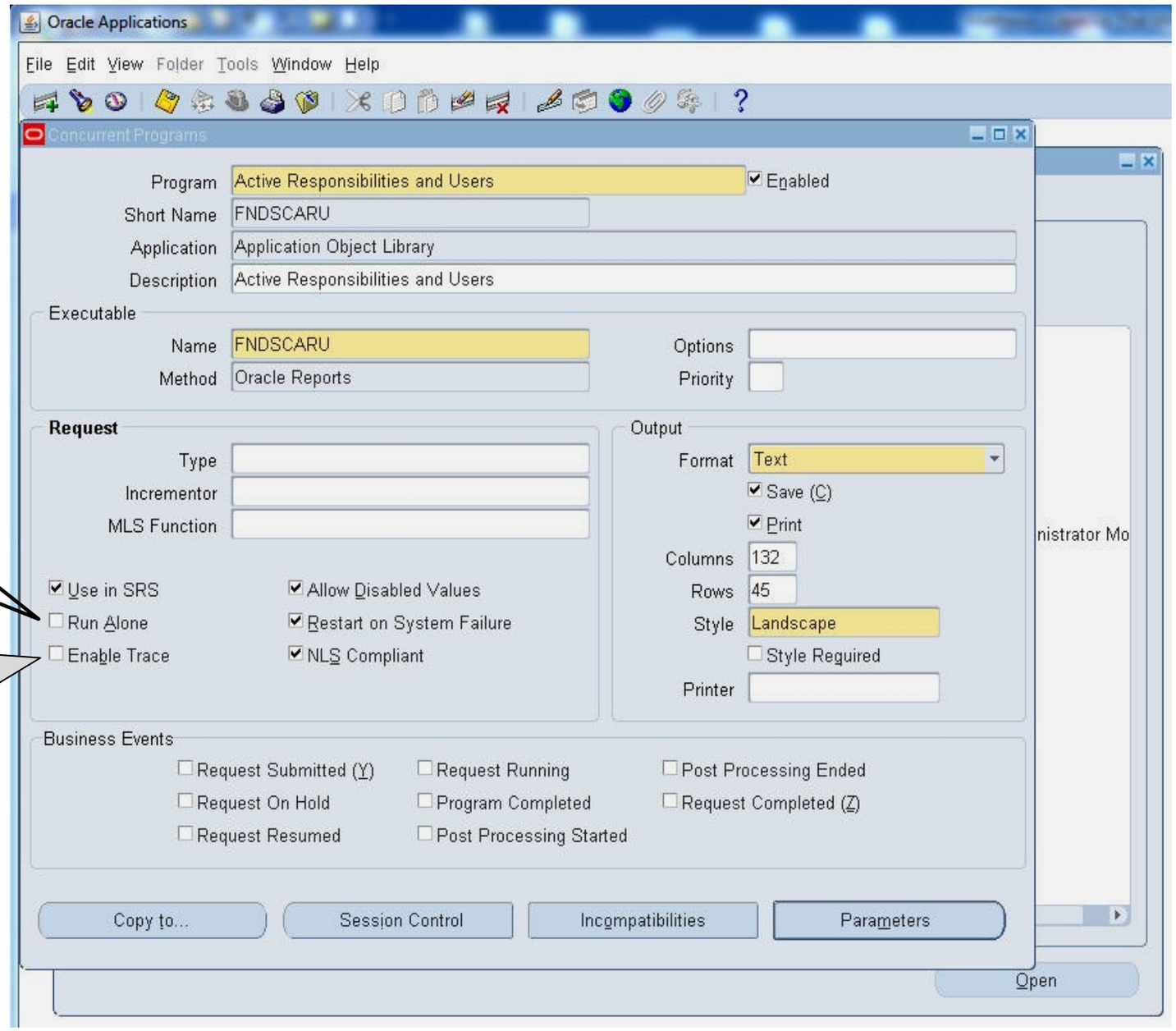
My super insightful cache analogy:

- *I have a bag of candy in the pantry and I'm sitting on the couch.*
- *I've decided I'm going to eat the candy 2 at a time (Target=2)*
- *Which is more efficient:*
  1. *Go to the pantry, get 2 candies, go sit down on the couch, eat the 2 candies, go back to the pantry, get 2 candies, go sit down on the couch, go back to the pantry, get 2 candies, go back to the couch, eat 2 candies… (cache=2)*
  2. *Go to the pantry, get a big handful, eat them 2 at a time, go back for another handful when I run out*
- *What's the potential issue to raising cache super high?*
  - *If I've got all the candy on the couch, nobody else can get any from the pantry*

Avoid Run Alone

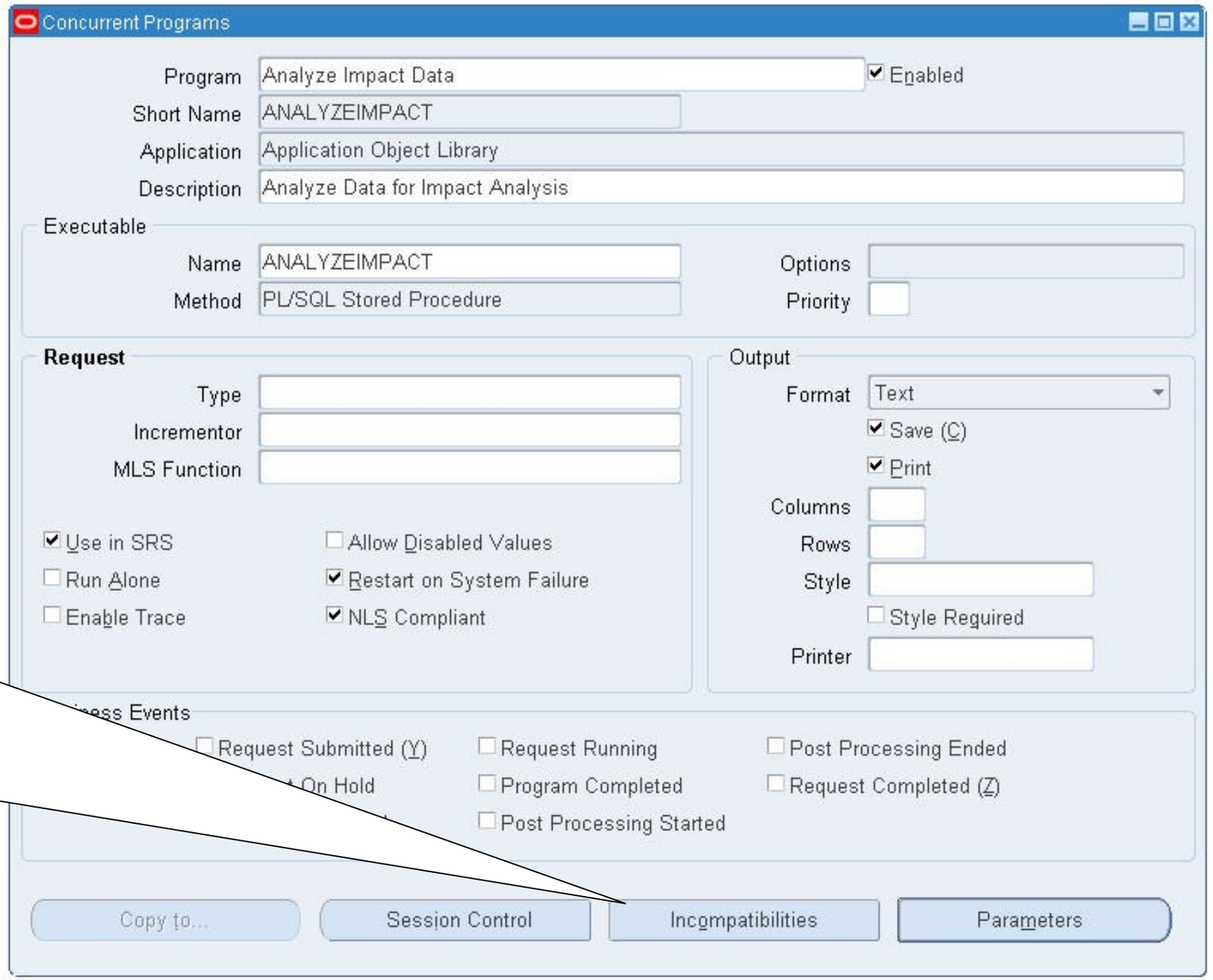
A simple click here can bring your concurrent manager to a grinding halt…

While you're at it, turn off Trace when you're not using it

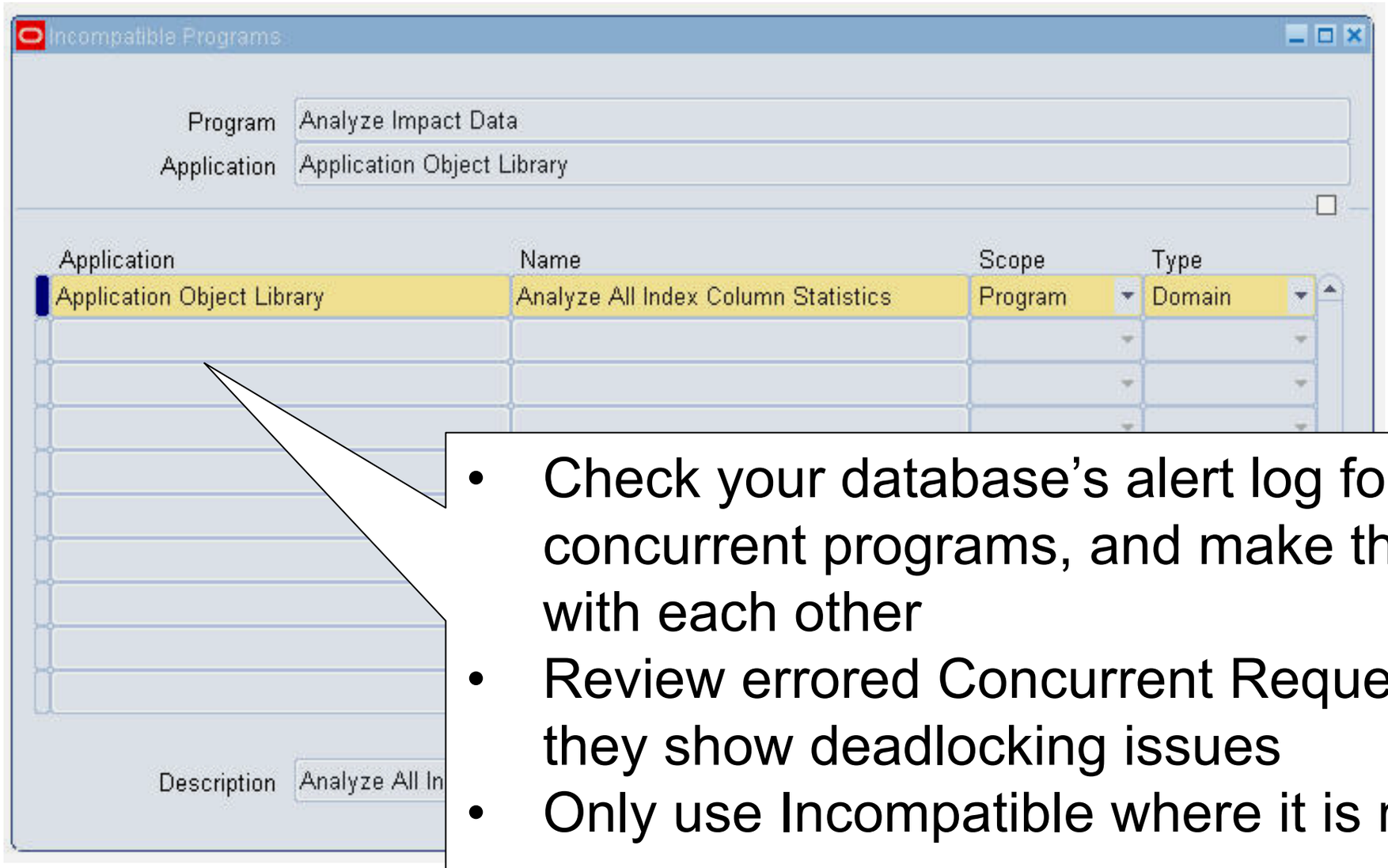


Incompatibilities: Ways to Avoid Each Other

You can click on the Incompatibilities button to set another program to be incompatible with this one to avoid deadlocking – this works much better than runalone!

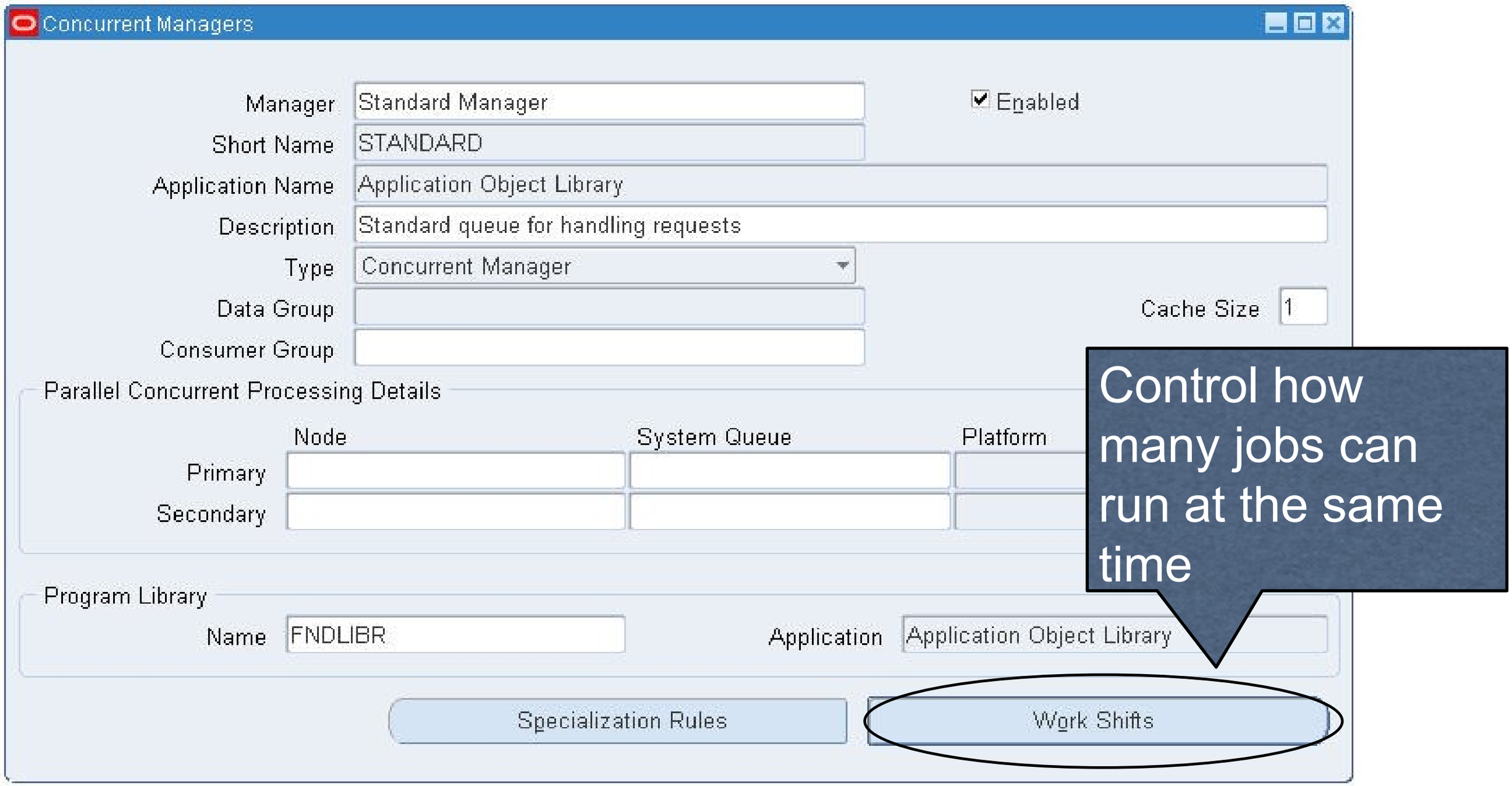


Incompatibilities: Ways to Avoid Each Other

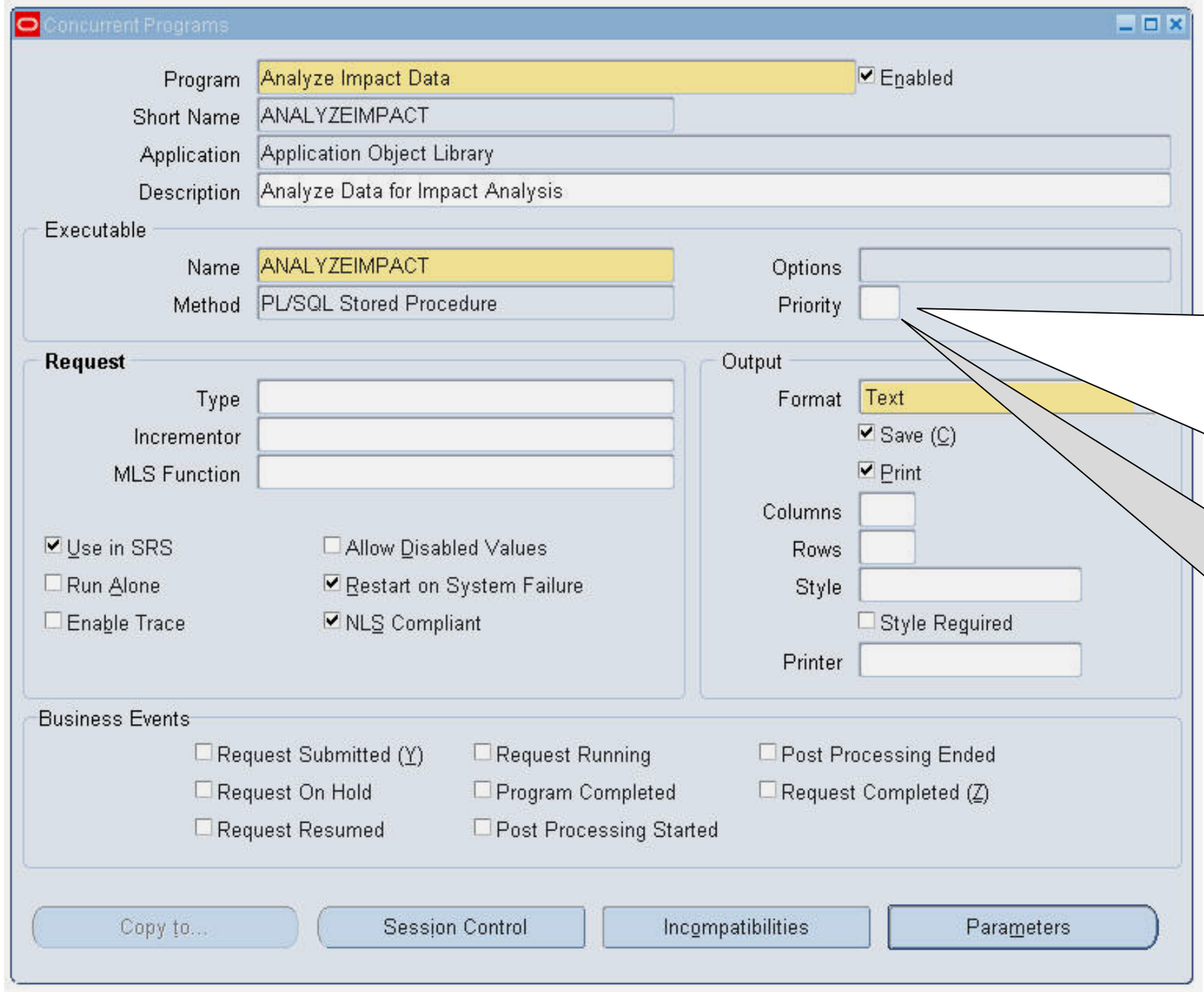


- Check your database's alert log for deadlocking concurrent programs, and make those incompatible with each other
- Review errored Concurrent Requests – sometimes they show deadlocking issues
- Only use Incompatible where it is needed

Workshifts: Use Your Time Wisely



Priority



The default priority for all Concurrent Programs is 50. Set it below 50 if you want a Concurrent Program to always run before other Concurrent Programs.

Don’t overdo using lower priorities

Consider Creating a Custom "Quick" Concurrent Manager

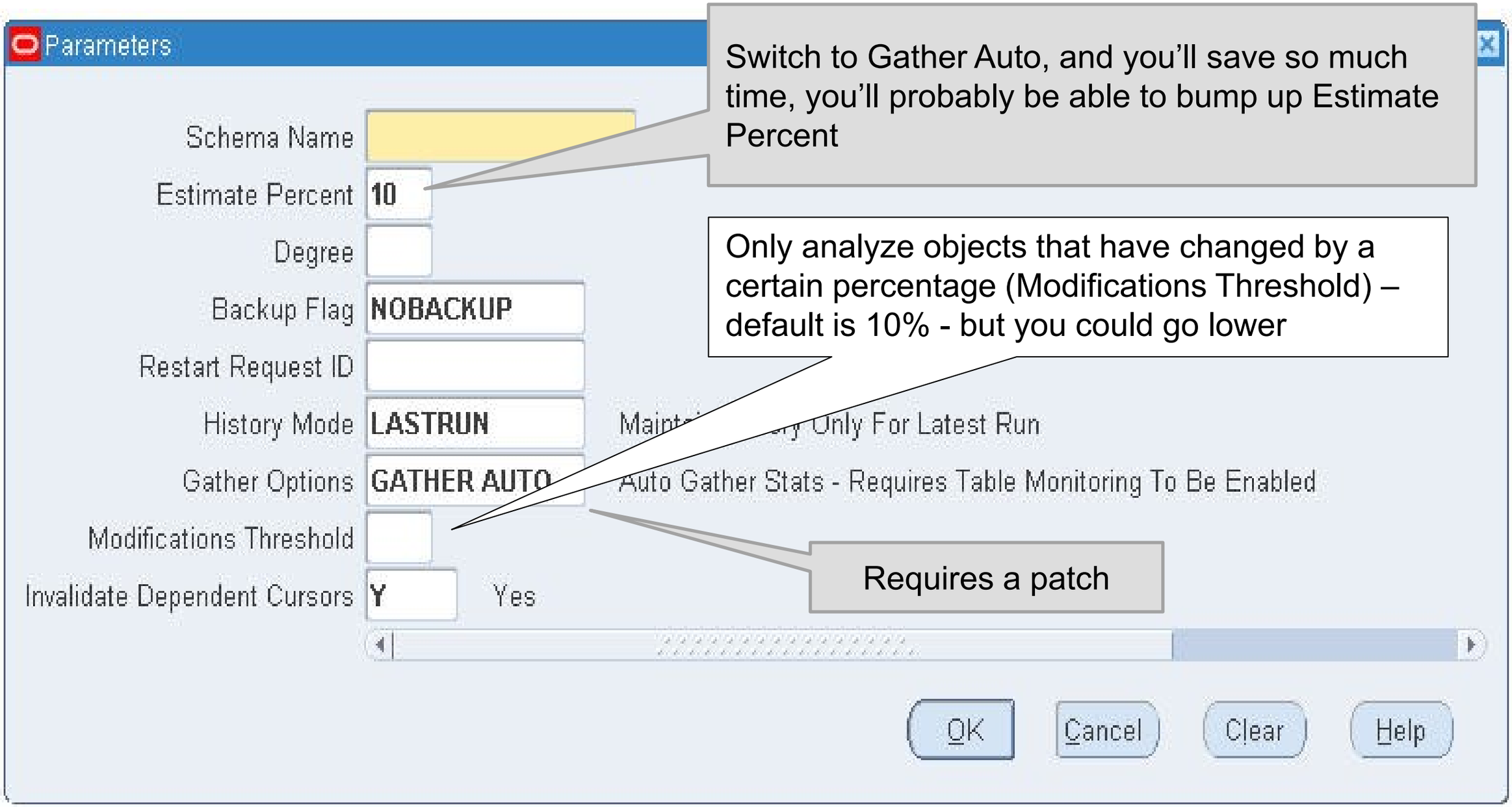
1. Assign Concurrent Programs that ALWAYS run fast – recheck periodically

2. Exclude them from the Standard Manager and other managers where they are assigned

3. No, they don't run faster just because you called the manager the Quick Manager… they just get to run sooner

4. Why make a reprint get in line behind a big job?

Gather Schema Statistics Options



Switch to Gather Auto, and you'll save so much time, you'll probably be able to bump up Estimate Percent

Only analyze objects that have changed by a certain percentage (Modifications Threshold) – default is 10% - but you could go lower

Requires a patch

Use the "old" way of analyzing after a DB or EBS Upgrade. Then switch to Gather Auto

Gather Schema Statistics Options

What about your 3rd Party Objects?

- If they aren't part of the EBS in your Custom Schema, they won't get analyzed by the Gather Schema Statistics

What about SYS and SYSTEM objects?

- Beginning with RDBMS Release 10g, you're supposed to analyze them too.

- Most DBAs run "other" analyzes as cron jobs. Consider creating a Custom Concurrent Program to analyze those, and create a Request Set to ensure you are analyzing everything.

So What Does This Have to Do With Upgrading?

1. Chances are, both you and Oracle will implement new programs
2. Which Concurrent Manager should they be assigned to?
3. You'll likely change your hardware, your operating system, and you may switch from 32 bit to 64 bit
4. You'll probably upgrade your database version, and you may add more memory and CPUs
5. It's time to review the overall performance of your Concurrent Manager configuration, and the setup decisions you've made in the past

You've Organized Your Clutter; Now It's Time to Clean Out Your Closets

Purging

Purging

1. Oracle provides Concurrent Programs to purge administrative data
2. Look for big tables owned by APPLSYS for more candidates
3. Read up on MOS to decide if the Purge programs apply to you
4. If you are concerned about deleting data, you can create an archive table, add an on delete trigger to the original table, run the purge and automatically save the data in the archive table (Guess what? This is a CUSTOMIZATION)
5. You can also determine what Concurrent Programs are populating the tables and contact users to see if automatic purging is appropriate
6. If you're late in discovering a purging program, you may start running it and have issues getting it to complete because there is so much data to process (snapshot too old errors); work with your DBA to adjust the program to purge in smaller batches

How to Find More Objects to Purge

- Search for the biggest tables/indexes owned by APPLSYS

Big Tables and Indexes

OWNER	NAME	TYPE	BYTES	EXTENTS
PA	PA_EXPENDITURE_ITEMS_ALL	TABLE	9679405056	18462
PA	PA_COST_DISTRIBUTION_LINES_ALL	TABLE	6886522880	13135
PA	PA_CUST_REV_DIST_LINES_ALL	TABLE	4142923776	7902
PA	PA_TXN_ACCUM	TABLE	2483552256	4737
PA	PA_EXPEND_ITEM_ADJ_ACTIVITIES	TABLE	1984954368	3786
AR	AR_RECEIPTS_REP_ITF	TABLE	1710227456	3262
APPLSYS	**WF_ITEM_ATTRIBUTE_VALUES_PK**	**INDEX**	**1644167168**	**3136**
AP	AP_AE_LINES_ALL	TABLE	1577582592	3009
PA	PA_RESOURCE_ACCUM_DETAILS	TABLE	1541406720	2940
PA	PA_EXPENDITURE_COMMENTS	TABLE	1043857408	1991
APPLSYS	**WF_ITEM_ATTRIBUTE_VALUES**	**TABLE**	**1021837312**	**1949**
AP	AP_INVOICE_DISTRIBUTIONS_ALL	TABLE	1005060096	1917
PA	PA_CUST_REV_DIST_LINES_N4	INDEX	877658112	1674
PA	PA_RAND_APPLIED_BURDEN	TABLE	813170688	1551
PA	PA_TXN_ACCUM_N2	INDEX	725090304	1383

- Search for “Purge” on MOS

What Happens to the High Water Mark on All Those Tables You Purged?

Know which tables you are purging, because the tables that are purged are excellent candidates for quarterly outage table/index rebuilds

Take a look at Oracle Managed Files (OMF)

Purge: FND_CONCURRENT_REQUESTS

Holds information about Concurrent Programs that will run or have run in your Concurrent Manager

1. Run Purge Concurrent Requests and/or Manager Data Concurrent Program daily
2. Most customers purge data older than 7-30 days
3. Oracle recommends keeping the fnd_concurrent_requests table under 25,000 rows
4. Consider additional Purges that delete data about concurrent requests that run most (more than 500 times per month)
5. When might that data come in handy? Use it for the Release 11i Mandatory Baseline Patching and your R12 upgrade – create a custom table to archive the data.

Purge: FND_CONCURRENT_REQUESTS

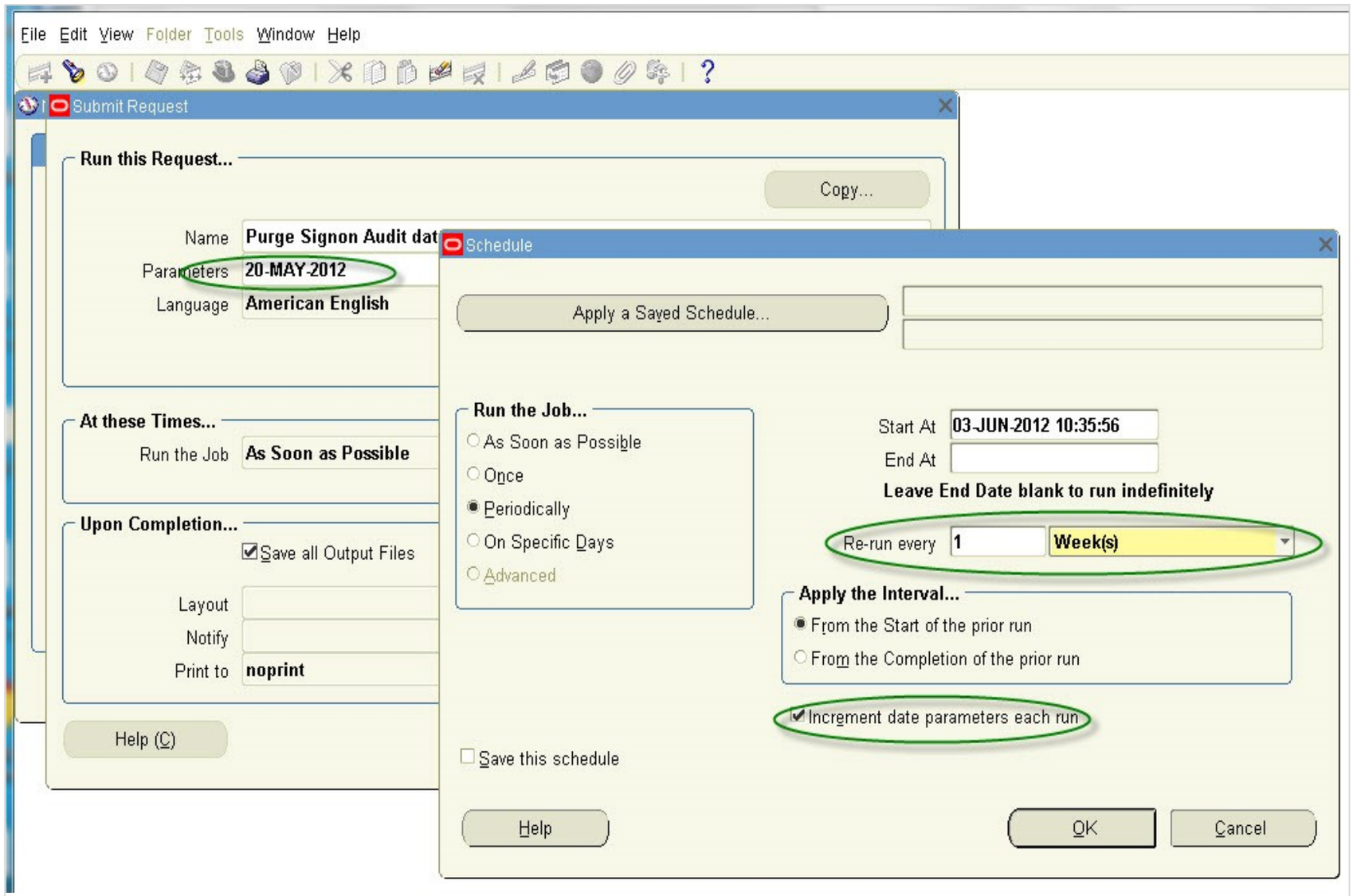
Best Practices

1. For Release 11i and Release 12 performance testing, you can create a test suite based on what was running during your worst performing times (close?) by extracting the information and creating concsub commands
2. If you find a performance patch, you can extract the concsub information used in the past, then run and compare to previous runs to determine if the performance patch worked

Purge: FND_LOGINS

Holds information about users who have logged in, when they logged in, and for how long

1. Run Purge Signon Audit data Concurrent Program weekly
2. Set it up correctly or it won't delete data correctly



Purge: FND_LOBS

FND_LOBS are attachments

1. DBAs do not delete from FND_LOBS; the only way to get rid of them is for Oracle to provide a Concurrent Program for the module that users used to load them up
2. They can take up an enormous amount of space
3. They can make exporting and importing your database take a very long time
4. Change pctversion to 0 instead of the default of 10%, since you rarely update an attachment

Purge: FND_LOBS

5. Consider rebuilding the table to make the pctversion take affect on existing data instead of just new data
6. Test and apply Patch 9004099 for orphaned records, if you haven't already
7. Log enhancement requests for more Concurrent Programs to clean up FND_LOBS
8. Review MOS Doc. ID: 396803.1, *FND_LOBS_CTX Is Having Huge Size, How To Reduce The Size Of The Index*, which suggests changing the file_format value for binary files to IGNORE. This improves import performance for LOBS

Purge: Self Service Sessions

1. Run Purge Inactive Sessions Concurrent Program at least weekly
2. Removes data from ICX_SESSIONS, ICX_SESSION_ATTRIBUTES, ICX_TRANSACTIONS, ICX_TEXT, ICX_CONTEST_RESULTS_TEMP, ICX_FAILURES, ICX_REQUISITIONER_INFO and FND_SESSION_VALUES tables

Purge: WORKFLOW

1. Run Purge Obsolete Workflow Runtime Data Concurrent Program daily

2. Run for items with a Persistence Type of Temporary

3. Choose an appropriate Age for data retention, and leave Item Type and Item Key blank

Purge: FND_LOG_MESSAGES

1. For Release 11i, run Purge Debug Log and System Alerts Concurrent Program daily and purge all messages older than 7 days *
2. For Release 12, run Purge Debug Log and Closed System Alerts daily
3. Purges FND_EXCEPTION_NOTES, FND_OAM_BIZEX_SENT_NOTIF, FND_LOG_METRICS, FND_LOG_UNIQUE_EXCEPTIONS, FND_LOG_EXCEPTIONS, FND_LOG_MESSAGES, FND_LOG_TRANSACTION_CONTEXT, and FND_LOG_ATTACHMENTS

* See MOS Doc. ID: 332103.1, Purge Debug Log and System Alerts Performance Issues

Purge: WSH_EXCEPTIONS

This holds data from the Shipping Exceptions Form WSHFXCLG.FMB

- If this table grows very large, see:
  - MOS Doc. ID: 358994.1, *The Table WSH_EXCEPTIONS is Extremely Large – Unable to Purge*
  - MOS Doc. ID: 842728.1, *Sample API To Purge WSH_EXCEPTIONS Using WSH_EXCEPTIONS_PUB*
  - MOS Doc. ID: 1079743.1, *Cannot Purge WSH_EXCEPTIONS TABLE Due to Too Many Closed Exceptions*

Purge: FND_ENV_CONTEXT

- If this table grows very large, see MOS Doc. ID: 419990.1, *Table Fnd_env_context Growing Very Fast*, Patch 4152801

Purge: PERFSTAT (statspack)

statspack is a tool that gathers performance information about your database

1. If you have a very large PERFSTAT–owned table, consider if you need to save all that data:

```
SELECT to_char(snap_time,'YYYY MON') snapdate, count(*)
FROM perfstat.stats$snapshot
GROUP BY to_char(snap_time, 'YYYY MON')
ORDER BY 1;
```

2. Can be purged with $ORACLE_HOME/rdbms/admin/sppurge.sql or sptrunc.sql

Purge: RX Interface Data and Purge RXI Interface Data

See:
MOS Doc. ID: 844548.1, *How to Manually Purge Rx Interface Data*. The relevant tables all end with "_ITF".
MOS Doc. ID: 434451.1, *Ar_receipts_rep_itf Table Keeps Growing After Purge Program*
MOS Doc. ID: 164202.1, *How to Purge RXI Interface Data* *

If you aren't sure if you should purge this data, check to see who ran the programs, and check with them to see if regular purging should be done

You've Organized Your Clutter; You've Cleaned Out Your Closets; Now Tighten Up Your Environment

Use the Tools:

- Patch Wizard ❤
- EBS Workflow Analyzer ❤
- EBS Concurrent Processing Analyzer ❤

Now Tighten Up Your Environment

ORACLE PREMIER SUPPORT

GET PROACTIVE!

More Tools:

- MOS Doc. ID: 335.1, Period Close Advisor *
- MOS Doc. ID: 1523546.1, AutoInvoice Post-Process Validation Report: Overview and Installation Instructions
- MOS Doc. ID: 153788.1, ORA-600/ORA-7445/ORA-700 Error Look-up Tool

Search “Get Proactive” on MOS

* See *Effectively Using the My Oracle Support: EBS R12 Period Close Advisor*, Alyssa Johnson

Patch Wizard

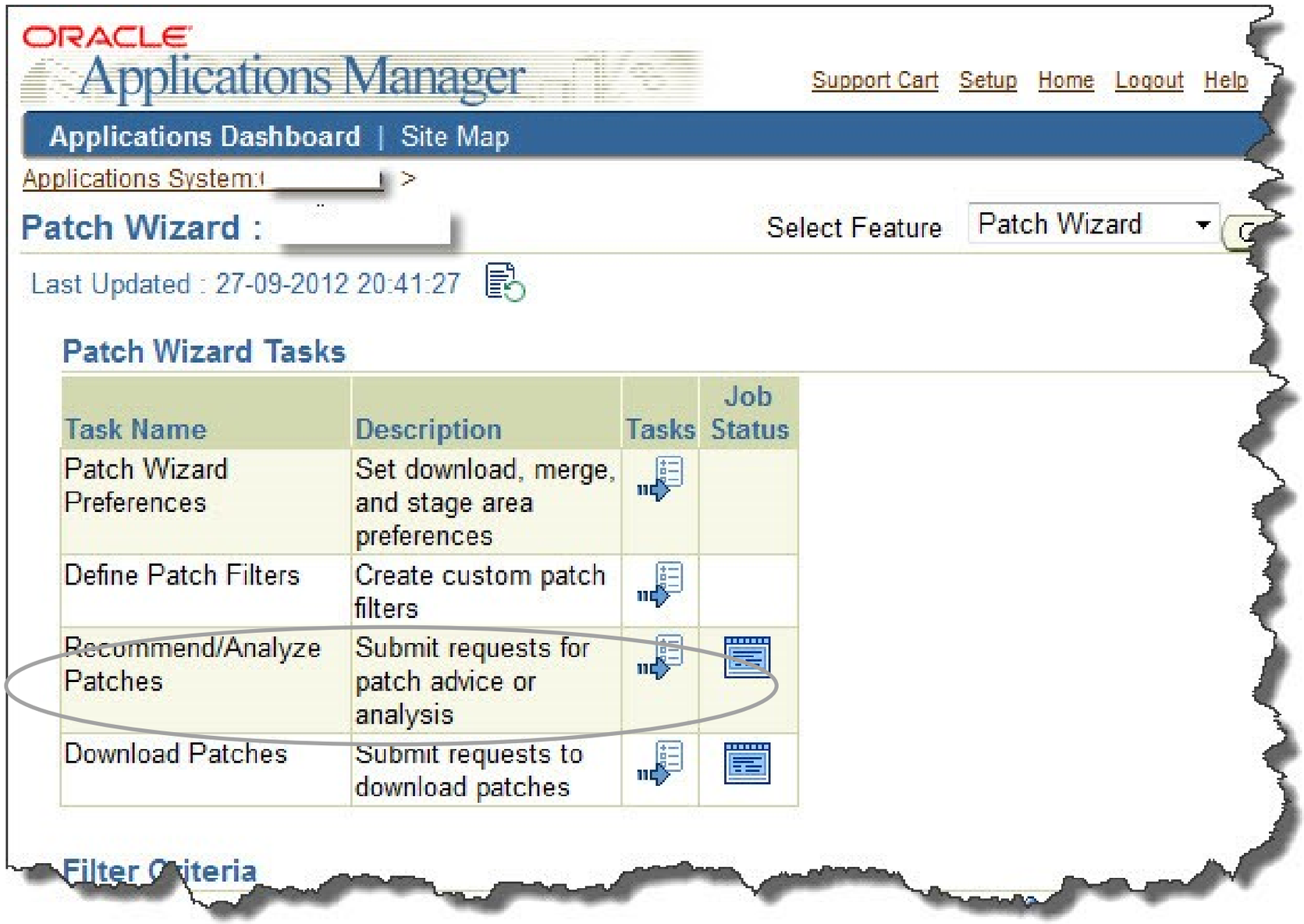
Use Patch Wizard to Assist with Testing Patches

Find a patch and run Patch Wizard Analyze (included with Oracle Application Manager (OAM)) to download the patch and analyze the impact it will have

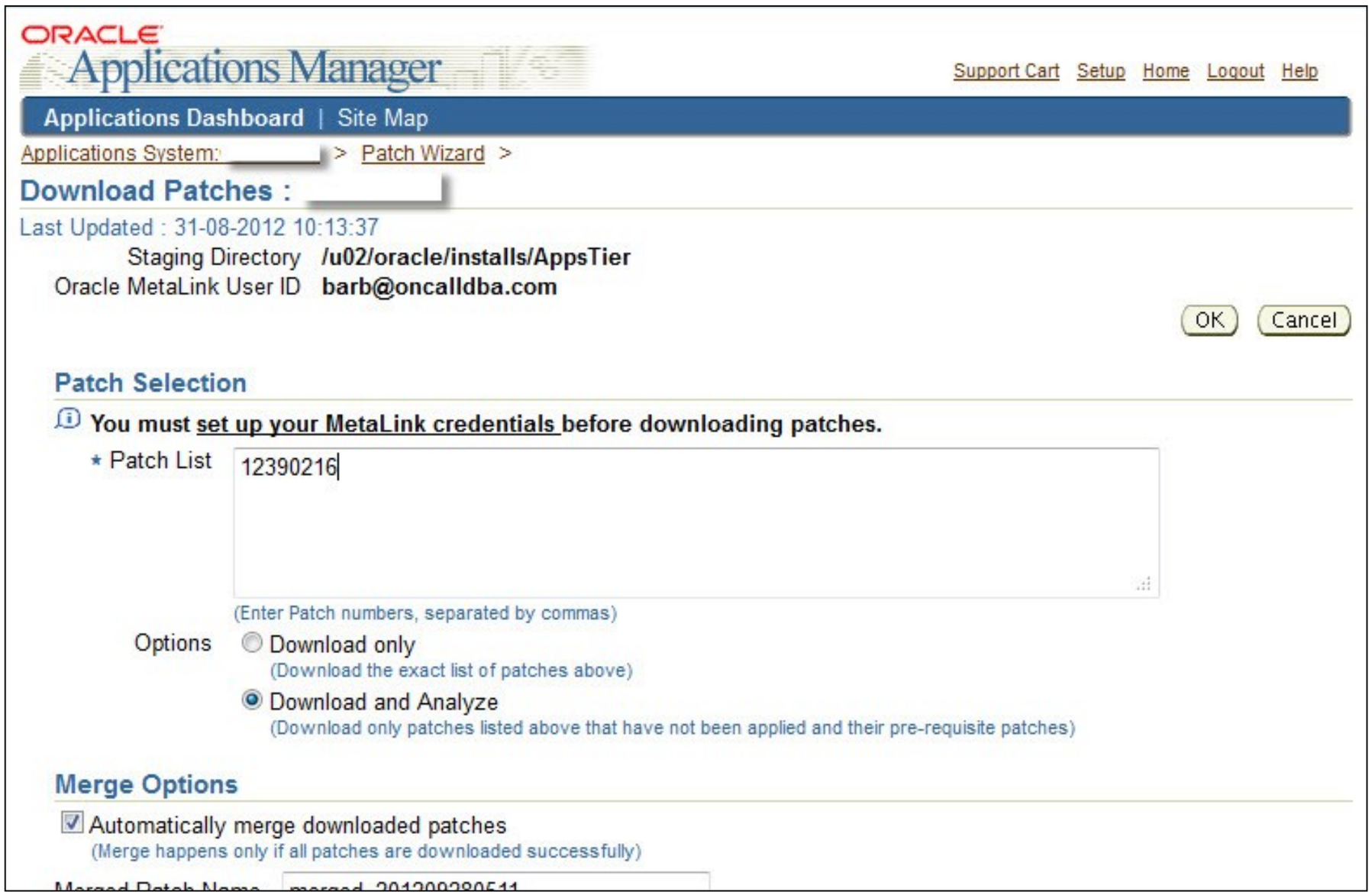
For each patch, provide a document to your test team that includes:

1. The problem description that required a patch
2. The MOS document and/or SR that pointed to that patch
3. The patch(es) to be applied.
4. The patch(es) Readme(s). If pre-reqs or post steps have already been done, make it clear in the documentation
5. The objects that will change when the patch is applied
6. How to test the problem – it is possible that a patch will fix code that a form or report calls, but not change the form or report. Help testers understand how to test in that situation. If there are other affected forms and reports, include testing those.

Use Patch Wizard to Assist with Testing Patches



Use Patch Wizard to Assist with Testing Patches



Use Patch Wizard to Assist with Testing Patches

ORACLE Applications Manager

Support Cart Setup Home Logout Help

Applications Dashboard | Site Map

Applications System: _____ > Patch Wizard > Recommended Patches Results >

Patch Impact Analysis for 12390216: _____

Patch Description	**11i OFA: 1OFF:7672348:11.5.FA.P:11.5.FIN_PF.G:11.5.10.2:ERRORS FRM-41084 AND FRM-41045 WH**
Patch Readme	
Total Files in Patch	**1**
Files to install	**1** (100.00%)
Prerequisite Patches	**0**

Direct Impact Summary

Applications Patched	**1**
File Types Installed	**1**
New Files Introduced	**0**
Existing Files Changed	**1**
Existing Files Unchanged	**0**

Indirect Impact Summary

Unchanged Files Affected	**0 JSPs**
Menu Navigation Trees Affected	**9 Responsibilities, 9 Paths**
Diagnostics Tests to Re-Run	**0 Test(s)**

TIP Analysis on Unchanged Files Affected only available for JSPs
TIP Click on the Prerequisite Patches link to toggle between Aggregate and Individual Impact Analysis
TIP Aggregate Impact Analysis only for patches with metadata uploaded from InfoBundle.zip
TIP Click on Patch ID in the Aggregate Impact Analysis Table to view individual Impact Analysis for Pre-reqs

Support Cart | Setup | Home | Logout | Help

About Oracle Applications Manager Version 2.3.1

Use Patch Wizard to Assist with Testing Patches

ORACLE Applications Manager

Support Cart Setup Home Logout Help

Applications Dashboard | Site Map

Applications System: _____ > Patch Wizard > Recommended Patches Results > Patch Impact Analysis >

Patch Impact File Details for 12390216: _____

Apply Filter

Patch Description **11i OFA: 1OFF:7672348:11.5.FA.P:11.5.FIN_PF.G:11.5.10.2:ERRORS FRM-41084 AND FRM-41045 WH**

App Short Name | Directory

Impact Type: Changed File | File Name

Object Type: All Types

Application △	Directory	File Name	Impact Type	Version in APPL_TOP	Version in Patch	Objects Affected
[OFA] Assets	forms/US	FAXMADDS.fmb	Changed File	115.310.310.2	115.310.310.3	9

TIP Use (%) as wildcard in filters

TIP Use Application Short Name in filter

Apply Filter

Support Cart | Setup | Home | Logout | Help

About Oracle Applications Manager Version 2.3.1

Is Patch Wizard Perfect?

- Need to be able to create printable, e-mailable reports that you can send to your test team

Test These Forms:

FORM_NAME	User Form Name	IMPACT	BUG_NO
FAXMADDS	Mass Additions	Changed	12390216

Test These Concurrent Programs:

NA

- Patch Wizard tells you what changed as part of a patch. If an underlying program that is not part of the patch changes, it will not identify it. THOROUGH TESTING IS CRUCIAL.

Proactive Analyzers

Why the Analyzers Are Special

- Easy to install – run as a script or follow instructions to set up as Concurrent Program
- They point you to MOS Notes
- They include the script code
- They tell you if you're doing something right!

Nice work!!
There are ZERO #STUCK Activities found.

For more information refer to Note 453137.1 - Oracle Workflow Best Practices Release 12 and Release 11i

- If you have feedback, you can send it directly to the person who manages the tool
- My Oracle Support Communities
- Do check for new versions of the tools, as Oracle continues to enhance them

Use the EBS Workflow Analyzer to Assist with Workflow Cleanup

Try out the EBS Workflow Analyzer tool. It does not correct issues, but it runs a variety of scripts that gather information about what needs to be fixed and directs you to MOS notes for the issues it sees

Additional Workflow Cleanup

Workflow Analyzer Overview

Workflow Runtime Data Table Gauge

Tells you if you have a problem, how many records are affected, why it is a problem, and where to look for more help

Your overall Workflow HealthCheck Status is in need of Immediate Review!

The WF_ITEMS Table has obsolete workflow runtime data that is older than 3 years.

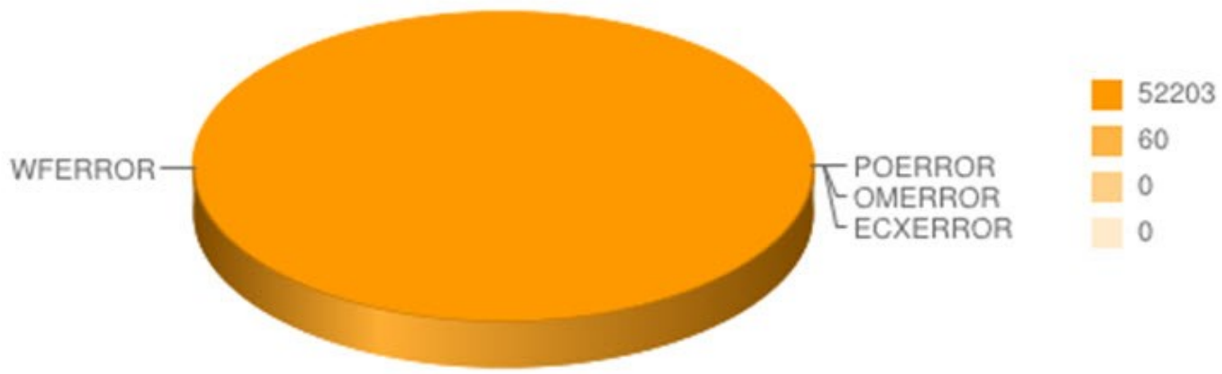
We reviewed all 2,671,755 rows in WF_ITEMS Table for Oracle Applications Release 12.0.6 instance called TEST on testserver
Currently 57% (1,513,648) of WF_ITEMS are OPEN, while 43% (1,158,107) are CLOSED items but still exist in the runtime tables.

Note: Once a Workflow is closed, its runtime data that is stored in Workflow Runtime Tables (WF_*) becomes obsolete.
All the pertinent data is stored in the functional tables (FND_*, PO_*, AP_*, HR_*, OE_*, etc), like who approved what, for how much, for who, etc...)
Remember that each row in WF_ITEMS is associated to 100s or 1000s of rows in the other WF runtime tables, so it is important to purge this obsolete runtime data regularly.

E-Business Suite Version				SQL Script
SID	RELEASE	HOSTNAME	STARTED	DATABASE

Additional Workflow Cleanup

Show the status of the Workflow Error Notifications for this instance



Item Types

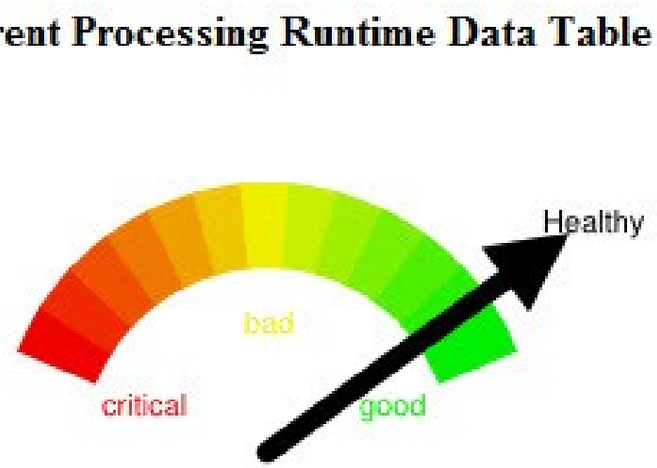
Attention
There are 52,263 Error Notifications of type (ECXERROR,OMERROR,POERROR,WFERROR) found on this instance.
Please review the following table to better understand the volume and status for these Error Notifications.

Also review :
Note 1448095.1 - How to handle or reassign System : Error (WFERROR) Notifications that default to SYSADMIN.
Note 760386.1 - How to enable Bulk Notification Response Processing for Workflow in 11i and R12, for more details on ways to do this.

Summary of Error Message Recipients (WFERROR, POERROR, OMERROR, ECXERROR)							SQL Script
NAME	**DISPLAY_NAME**	**STATUS**	**PREFERENCE**	**EMAIL**	**TYPE**	**COUNT**	**OPEN**
SYSADMIN	SYSADMIN	ACTIVE	MAILHTML		WFERROR	51,921	OPEN

Use the EBS Concurrent Manager Analyzer to Assist with Concurrent Manager Configuration

Try out the EBS Concurrent Manager Analyzer tool. It does not correct issues, but it runs a variety of scripts that gather information about your configuration and what may need to be changed and directs you to MOS notes for the issues it sees.



EBS Concurrent Manager Analyzer

- What if you like the output, but want to sort a different way?

They give you the code!

Description:
This section identifies the total time duration for recently completed requests.

Action:
The output produced can be cross referenced with the enabled managers and defined workshifts outputs, for better allocation of requests across the existing managers/workshifts. For example you can consider assigning quick requests to one manager and/or workshift, and assigning slow requests to another manager and/or workshift. Requests with varying runtimes can also be moved to their own manager, or remain with the standard manager queue.

Elapsed Time History of Concurrent Requests (Sorted by number of executions) — SQL Script

APPLICATION	DESCRIPTION	PROGRAM	PRIORITY	#TIMESRUN/SORT	TOTAL|MINUTES	AVG|MINUTES	MAX|MINUTES	MIN|MINUTES	RUN|STDDEV MINUTES	WAIT|STDDEV MINUTES	#WAITED|MINUTES	AVG|WAIT MINUTES	TYPE
FND	Gather Schema Statistics	FNDGSCST	50	1	9.32	9.32	9.32	9.32	0	0	0	0	
XXGL	GL/PA Reconciliation Report	GL_PA_RECON_97B	50	1	.5	.5	.5	.5	0	0	0	0	
XXPA	SF1034 ACRN Format	PA_ACRN_1034	50	1	0	0	0	0	0	0	0	0	

EBS Concurrent Manager Analyzer

- This is cool, but what if I want to see **all** tables that have lots of empty blocks so I can reorganize and reset their high watermark?
- What if I want to see **all** Big Tables so I can search for more Purge programs on MOS?

They give you the code!

Additional Tablespace Statistics for the FND_CONCURRENT Tables (Table Name, Block Count, Empty Blocks, Row Count, Last Analyzed, Sample Size)					SQL Script
Table Name	**Total Blocks**	**Empty Blocks**	**Row Count**	**Last Analyzed**	**Sample Size**
FND_CONCURRENT_PROCESSES	26	1939	84	17-FEB-2013 01:35:27	84
FND_CONCURRENT_QUEUES	8	0	49	17-FEB-2013 01:35:31	49
FND_CONCURRENT_REQUESTS	58	170	590	17-FEB-2013 01:35:32	590
FND_EVENTS	15	0	595	17-FEB-2013 01:36:30	595
FND_EVENT_TOKENS	8	0	597	17-FEB-2013 01:36:30	597
FND_ENV_CONTEXT	636	0	30929	17-FEB-2013 01:36:29	30620

What if an Analyzer Identifies a Problem and You Still Aren't Sure How to Resolve It?

- Read the MOS Notes it points to
- Log an SR and upload the Analyzer results
- Contact the My Oracle Support Community and ask for guidance

Conclusion

- Research these suggestions on My Oracle Support
- Test them on your test environment
- Expect to do more tuning when you get to Release 12

Questions and Answers

Barbara Matthews
Red River Solutions

Red River Solutions

barb@oncalldba.com
www.oncalldba.com
http://oracleebizviews.blogspot.com
www.RedRiverSolutions.com