# Release 12 Apps DBA 101

John Stouffer

*Triora Group, LLC*

john.stouffer@trioragroup.com

www.trioragroup.com

This paper describes the new features, functionality and utilities available to Applications DBAs with Release 12 of Oracle's E-Business Suite of Applications. We will start by comparing the Release 11*i* and Release 12 architectures to lay the foundation for understanding the assortment of tools available to manage and maintain the Release 12 environment. Tools including Oracle Enterprise Manager (OEM), Oracle Applications Manager (OAM), Applications Management Pack (AMP), Rapid Install Wizard, Rapid Clone, AutoConfig, AutoPatch, OPatch and napply CPU, Oracle E-Business Suite Diagnostics, and the Oracle Integration Repository (*i*Rep) will be covered. This paper also discusses considerations for whether and when you should consider upgrading to Release 12.

## Release 11*i* and Release 12 Multi-Tiered Architecture

If you look at the following diagrams, you can see that Release 12 has changed considerably from Release 11*i*:

### Release 11*i* Architecture Components
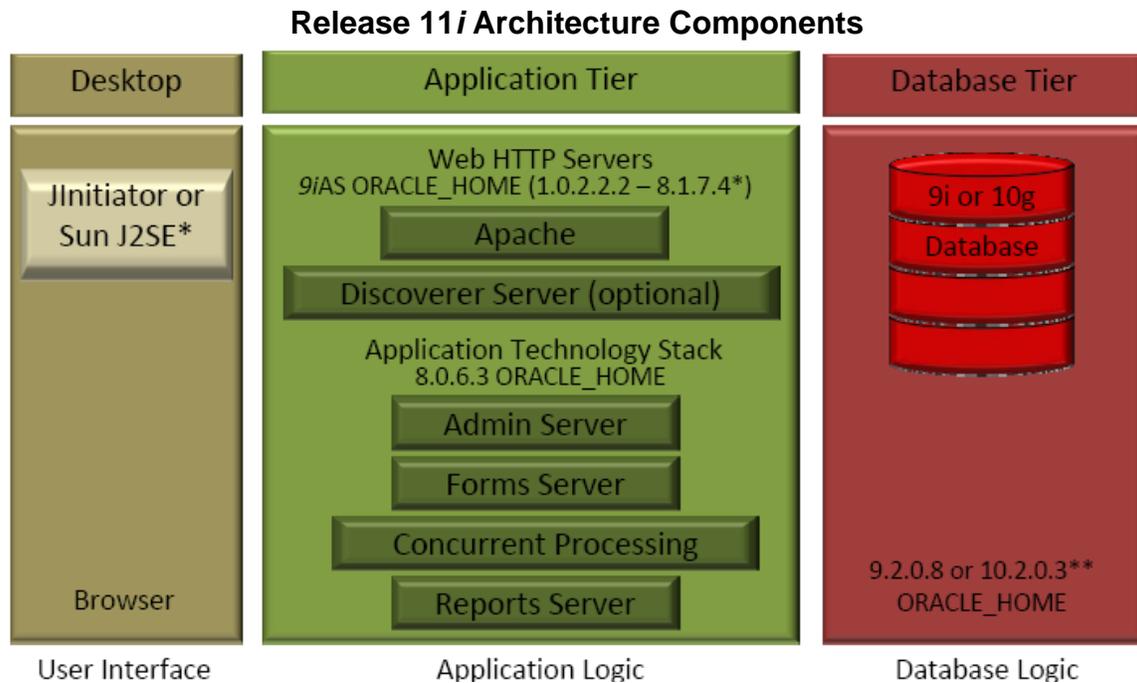
## Release 12 Architecture



| Desktop | Application Tier | Database Tier |
|---|---|---|
| Sun J2SE | Web HTTP Servers 10.1.3 ORACLE_HOME — Apache — Discoverer Server (optional) — OCJ4 Container — Application Technology Stack 10.1.2 ORACLE_HOME — Admin Server — Concurrent Processing — Forms Server | 10g Database — 10.2.0.3* ORACLE_HOME |
| Browser | | |
| User Interface | Application Logic | Database Logic |
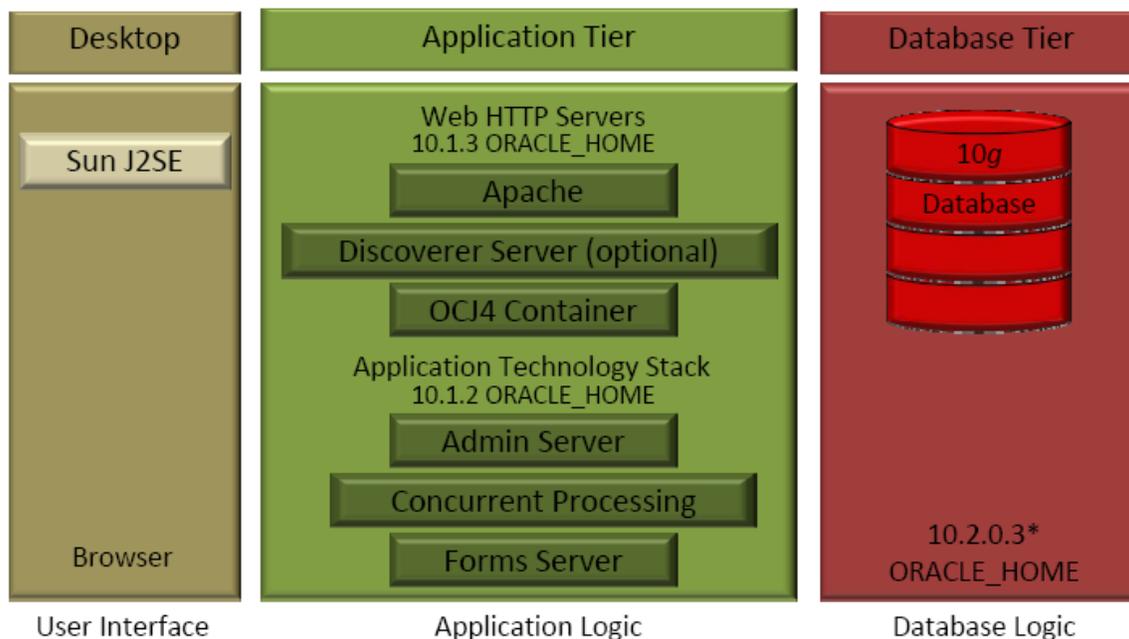
### Desktop Tier

On the desktop tier, Release 11*i* uses a browser and Oracle's JInitiator or the Sun J2SE Plug-In for the user interface, while Release 12 requires Sun's J2SE Plug-in. There are two types of "forms" that can be accessed when running the Applications. The first is an HTML-based form that looks just like a web page. The second is an Oracle Professional form, and it is accessed using a java applet. Called the Java desktop client, JInitiator or the Sun J2SE Plug-In automatically download to a user's PC the first time they log into a professional form within the Applications.

As Release 11*i* users prepare for Release 12, there are a number of reasons to get the migration to Sun J2SE out of the way early. First, there are the usual desupport issues: JInitiator 1.1.8 for Release 11*i* will be desupported in December, 2008, and a JInitiator 1.3 desupport announcement is pending. Most importantly, JInitiator is a modified version of Sun's product. Sun J2SE includes all the features that Oracle enhanced for JInitiator to support Oracle Forms. Migrating to Sun J2SE allows you to move to a standard product supported by Sun rather than a customized one supported by Oracle. Given the desupport plans for JInitiator, Oracle considers it less disruptive to migrate straight to Sun J2SE than to first move from JInitiator 1.1.8 to JInitiator 1.3 and then migrate to Sun J2SE.

### Application (Middle) Tier

The Application Tier hosts the different services that process the business logic and manage communication between the Desktop Tier and the Database Tier. For Release 11*i*, the Application Tier contains the Web Services, Forms Server, Report Server, Concurrent Processing Server and an Admin Server. Release 11*i* runs *i*AS 1.0.2.2.2 (Apache and Jserv) for its web services, and the 8.0.6.3 ORACLE_HOME handles the admin, concurrent processing, reporting and forms services. The Release 11*i* JServ is a simple Java applications server that supports Java Server Pages (JSP) and Servlets, and little else.

For Release 12, the Application Tier contains the Web Services, Forms Server, Concurrent Processing Server and an Admin Server. Components of the Web Services, which runs the 10.1.3 ORACLE_HOME code set, include the Web Listener, OCJ4J and the Oracle Process Manager and Notification Server (OPMN).

Release 12 now uses 10*g*AS Version 10.1.2 for Forms, which replaces Release 11*i's* Version 8.0.6 ORACLE_HOME. Release 12 uses 10*g*AS Version 10.1.3 for the Web Server with Oracle Containers for Java (OCJ4), which is the replacement for Release 11i's Version 8.1.7 ORACLE_HOME. These changes

in software do not, however, decrease the number of ORACLE_HOMES that you will support – with Release 12 you'll have at least three ORACLE_HOMEs: 10*g*AS ORACLE_HOME (10.1.3) on the Application Tier, a 10.1.2 ORACLE_HOME on the Application tier, and a 10.2.0.2 or 10.2.0.3 ORACLE_HOME on the database tier. If you use Discoverer, you'll have a fourth ORACLE_HOME. Supporting multiple ORACLE_HOMES, therefore, is here to stay. Oracle has also renamed the Server Partitioned or Split Configuration terminology that we used to describe the 8.0.6/8.1.7 relationship. Now we say we are running a "Mixed Platform Architecture".

Version 10*g*AS can run multiple containers of OCJ4, not for scalability (which was why you could have multiple JServ instances), but for division of processing. Each instance of OCJ4 is used as a compartment to contain one portion of the OAS 10*g* functionality. This allows the individual instances to be tuned for their actual workload, and helps to prevent them from competing for resources.

Version 10*g*AS also supports Oracle Identity Management, running Oracle Internet Directory (OID) Version 10.1.4 for security. With OID, it will be easier to integrate into corporate security infrastructure for companies that use LDAP directories.

A key difference between the Release 11*i* and Release 12 Application Tiers is that Version 10*g*AS positions us to take advantage of new Fusion Middleware features, which in turn prepares us for the next Oracle Applications Release after Release 12 – The Fusion Applications, due out by the end of 2008.

**Oracle Process Management and Notification (OPMN)**

Oracle Process Management and Notification (OPMN) is automatically installed and configured with every Oracle Application Server. This tool is essential for running the Oracle Application Server by providing an integrated way to manage all Oracle Application Server components, including Discoverer and OCJ4.

OPMN checks to see if a service has terminated and tries to restart the service automatically (commonly called death detection). OPMN creates a file for each managed process and can rotate log files.

You can customize process management by using Dynamic Resource Management (DRM). For example, you could modify OPMN to spawn an additional OC4J process if average response time exceeds a threshold and if there are less than four processes already running. Or you could start an additional OC4J process to run every day at 5pm during peak hours. The Resource Management Directive (RMD) tells DRM when and what to do. Directives are configured in the opmn.xml file. You can see examples of code to do these types of customizations in section 3 of the manual *Oracle Process Manager and Notification Server Administrator's Guide 10g Release 3 (10.1.3.)*.

Note: If you encounter issues with the Oracle Application Server 10.1.3, check out MetaLink Note: 454178.1, "Oracle Application Server Diagnostic Tools and Log Files in Applications Release 12". This document covers common problem scenarios and Oracle Application Server Diagnostic tools for OPMN, Java Object Cache, Forms Servlet and Class Loads and includes where to find log files for OPMN, the HTTP Server, and J2EE Application Modules. Another MetaLink Note, 373548.1, "Using Forms Trace in Oracle Applications Release 12" describes debugging tools for Forms.

## Database Tier – Oracle 10*g*

The Database Tier for Release 11*i* runs Oracle 9*i*R2, but can be upgraded to Oracle 10*g* (10*g*R1, 10*g*R2 or 10*g*R3). Release 12 is currently certified to run Oracle 10*g* (10*g*R1, 10*g*R2 or 10*g*R3). Oracle 10*g* offers a number of improvements over Oracle 9*i*, including improvements in performance - PL/SQL runs two times faster; manageability, including tools like the Automatic Workload Repository (AWR) and Automatic SGA Tuning; and optimizer improvements. The latest version of Oracle 10*g*, Version 10.2.0.3, is certified with Release 12.0.2 or higher. One of the most important reasons for upgrading to Oracle 10*g* is that it is in Premier Support while Oracle 9*i* is in Extended Support.

# Patching and Upgrading Release 12

With any major E-Business Suite release, there are certain immutable truths that lay the foundation for understanding the changes that Oracle has introduced. Release 12, also known as R12, is the latest release of the E-Business Suite offered by Oracle. As the Applications DBA, you will need to be particularly aware of three types of Applications patches provided for Release 12: **RUP**s, **CPU**s and the **ATG**.

### Release Update Pack (RUP)

Each new point release of Release 12 is packaged in a RUP (Release Update *Pack*), and current Release 12 RUPs are Releases 12.0.1, 12.0.2, 12.0.3 and 12.0.4. Oracle has muddied their list of acronyms with the Release Update Pack, because for years they have been releasing Release Update *Patches*, also called RUPs, which are an entirely different compilation of patches. ATG_PF.H RUP 6 is an example of a Release 11*i* Release Update Patch.

Oracle releases a new RUP for Release 12 every three months, concurrent with the quarterly CPU (Critical Patch Update). This is a more aggressive timeframe than we were accustomed to with Release 11*i*, and Release 12, from its first point release, is much more stable than the early releases of Release 11*i*. For those of you who were in the trenches with Releases 11.5.1 through 11.5.4, we're happy to say that Releases 12.0.1 through 12.0.4 are exponentially more stable.

A RUP for Release 12 is similar to a Release 11*i* CU, or Consolidated Update; it's a point release. Like the Release 11*i* CU2, also called Release 11.5.10.2, a Release Update Pack may include stub applications, performance improvements and new or enhanced functionality. To get an idea of the changes between RUPs, read the Release Content Documents (RCDs) on MetaLink. To find the RCDs and other Release 12 documentation, click on the E-Business Suite tab when you first log into MetaLink, then click on the E-Business Suite R12 Information Center. You can access the RCDs by clicking on "Release Content Document" on the left under "Browse Product":



**Figure 1 - You can access RCDs from MetaLink**

The following chart based on the Release 12 RCDs shows changes between the Release 12 RUPs that may be of interest to DBAs:

| | |
|---|---|
| **New Technology Inventory Report**<br><br>The Technology Inventory Utility is described in Chapter 5-1 of the *Oracle Applications System Administrator's Guide – Maintenance*: "This command-line utility generates reports that list the installed technology stack components and versions on the various nodes of a Release 12 Applications system. The reports can be generated either in HTML (the default) or text format. Separate reports are generated for the Database and application tiers."<br><br>After sourcing the correct .env file for the tier you want to run the report on, the command to run the Technology Inventory Utility is:<br><br>Application tier:<br><pre>perl $FND_TOP/patch/115/bin/TXKScript.pl<br>-script=$FND_TOP/patch/115/bin/txkInventory.pl<br>-txktop=$APPLTMP<br>-contextfile=$CONTEXT_FILE<br>-appspass=apps<br>-outfile=$APPLTMP/Report_Inventory.html</pre><br>Database tier:<br><pre>perl $ORACLE_HOME/appsutil/bin/TXKScript.pl<br>-script=$ORACLE_HOME/appsutil/bin/txkInventory.pl<br>-txktop=$ORACLE_HOME/appsutil/temp<br>-contextfile=$CONTEXT_FILE<br>-appspass=apps<br>-outfile=$ORACLE_HOME/appsutil/temp/Report_Inventory.html</pre><br>Note: To generate the report in text format, append `-reporttype=text` to the relevant command, and change the outfile name to have a .txt suffix instead of a .html suffix. | 12.0.2 |
| **OC4J Load Balancing**<br><br>MetaLink Note: 380489.1, "Using Load-Balancers with Oracle E-Business Suite Release 12" describes a new AS 10*g* feature that allows software-based load balancing.<br><br>Prasad Akkiraju's blog entry "Optimizing R12 Performance via OC4J Load-Balancing" at http://blogs.oracle.com/schan/2008/02/19#a2403 offers a thorough description of how to use OC4J clustering in Oracle AS 10*g* for load balancing. | 12.0.2 |
| **Change Base Language Script**<br><br>The script adchgbase.pl, used with Oracle License Manager, is a new utility that will update single-language tables when changing an existing Installed language to be the Base language for the Applications. | 12.0.2 |
| **Application Object Library: Custom Directory Information Tree (DIT)**<br><br>This is an Oracle Identity Management feature. | 12.0.3 |
| **Diagnostics Execution Engine and User Interface Enhancements**<br><br>New features support long running reports that generate huge volume reports. | 12.0.3 |
| **Applications Framework: Expose HGrid's Record Set Size for Administrator Personalization** | 12.0.3 |
| **Improved Error Notification from XML Gateway** | 12.0.3 |

| | |
|---|---|
| **New and Revised Diagnostic Tests** | 12.0.4 |
| See MetaLink Note: 421245.1 for a complete list of Release 12 Diagnostics Tests. Here are some of the DBA tests: | |
| MOAC Setup Diagnostic Test – use this test when your responsibility does not appear to have access to the expected operating units. | |
| R12: Diagnostic Pack Data Collection Test – use this test to identify what version of the Support Pack is installed and also help troubleshoot support pack installation problems. | |
| R12: RDA Data Collection Test – this test will collect file system and database information. | |

## Critical Patch Update (CPU)

Unlike Release 11*i*, Release 12 RUPs contain the latest E-Business Suite portion of the CPU (Critical Patch Update) available at its release. The RUP does not contain the Opatch (or technology) portion, so you still need to research the CPU and determine what additional pieces need to be applied to your technology stack. A CPU is Oracle's answer to the ongoing security issues plaguing our society. With hackers seeking access to companies' critical data, Oracle now releases a set of patches every quarter to fend off attacks. Because CPUs so far, have been implemented at the same time as the latest RUP, when you apply the latest Release 12 RUP, your environment will also be current on the E-Business Suite security patches included in the latest CPU. Since Oracle currently has no plans to implement a CU3 for Release 11*i*, you need to apply each new CPU as it is released to remain current on security patches on your Release 11i environments.   CPUs now also have other high priority patches included along with the security patches.

You might wonder why staying current on CPUs is so critical. If Sarbanes-Oxley compliance is important to your company, can you afford to fall behind on security updates? And of course, if *you* know there's a Critical Patch Update, and *you* know what vulnerabilities it fixes, so do *hackers*.

While the CPUs are intended to help fend off hackers, we have been waiting for a tool from Oracle called the Oracle Database Vault to protect data from insider attacks that will build internal controls to support segregation of duties and privacy requirements. Oracle Database Vault was recently certified for Release 11*i*, and we are waiting for certification with Release 12. You can read more about Oracle Database Vault at http://blogs.oracle.com/schan/2008/02/07#a2375 in the article "Using Oracle Database Vault 10gR2 With Apps 11i".

## Applications Technology Group (ATG)

For both Release 11*i* and Release 12, there is a set of modules that are used by all of the other E-Business Suite modules. These modules are also called "pseudo products" and are part of the Applications Technology Group, or ATG. Keeping current on the latest ATG patch is yet another DBA concern, since these modules affect every aspect of the E-Business Suite. Release 12 ATG modules are FND (Application Object Library), OAM (Oracle Application Manager), OWF (Oracle Workflow), FWK (Oracle Applications Framework), JTT (Oracle CRM Technology Foundation), JTA (Oracle Common Application Components), TXK (Oracle Applications Technology Stack), XDO (Oracle XML Publisher), ECX (Oracle XML Gateway), EC (Oracle E-Commerce Gateway), AK (Oracle Common Modules – AK), ALR (Oracle Alert), UMX (Oracle User Management), BNE (Oracle Web ADI), and FRM (Oracle Report Manager).

To complicate matters just a little more, Oracle follows strict compliance with their ATG_PF RUP policy, which states that the latest CPU will only support the last two ATG RUPs (where the ATG RUP in this case is a *Release Update Patch*). The January 2008 CPU will only support ATG RUP 5 and RUP 6.  So if you are running Release 11.5.10.2 with ATG RUP 4, you must upgrade to at least ATG RUP 5 to be able to apply the latest security patch, the January 2008 CPU. To stay current on security, you must stay relatively current on ATG RUPs, which means you must stay relatively current on which release of the Applications you are running

The introduction of CPUs is actually one of the most important drivers for forcing a need to update your E-Business Suite environment. While you may choose not to upgrade because you don't need new

functionality or fixes to code, choosing to hold off on applying a security patch can have devastating consequences for your business. With Release 12, Oracle would like you to apply RUPs and CPUs quarterly and to upgrade to the latest ATG RUP whenever a new one is released, though you may find that this is simply too aggressive a schedule to maintain because of testing considerations and business drivers. You might think that upgrading to a higher ATG RUP is only a concern for your technicians, but because the ATG modules are so deeply integrated within the Applications, you really must test the entire E-Business Suite every time you apply a new ATG RUP.

This paper covers patching considerations in much more detail later on, but you can already see how important staying current on the E-Business Suite will be for your company. As the DBA, it is your job to understand and mitigate, if possible, the risks your company is taking if your management chooses not to stay current.

## <u>SHOULD</u> We Upgrade to R12?

The E-Business Suite Release 11.5.10 software is four (4) years old this year. There are no plans to add another CU (Consolidated Update), so the only way to stay current is to apply Family Packs to Release 11*i*. With the end of life for Release 11.5.10.2 set for 2009, why would you upgrade to a release whose support is close to ending?

In terms of functionality, Release 12 includes new and improved modules as well as a new user interface called the Swan Interface. In fact, the biggest difference for Release 12 is on the functional side; much more so than on the technical side.

If you are planning an upgrade, you should consider upgrading to Release 12. You'll be positioned to upgrade to the Fusion Applications when they are released by the end of 2008. If the software is stable, always upgrade to the latest release. Release 12 is stable!

## <u>MUST</u> We Upgrade to R12?

Most of us long for the days when we could linger on an E-Business Suite release for years and years! Those days are over, mainly because Oracle is constantly changing the Applications, as much to add new functionality as to correct issues with existing functionality. With the need to apply security patches added into the mix, your company will need to consider what their overall patching strategy will be, and then plan to follow that strategy. Decisions about how long to wait to upgrade will affect the cost for Oracle's support, as well as how difficult the upgrade will be. Stragglers on releases earlier than Release 11.5.7, for example, will have to follow a much more complex upgrade path than those who have stayed on more current releases.

### Upgrade Paths

There are two upgrade paths for upgrading to Release 12, the two phase and single phase upgrades.

*Two Phase* - Unfortunately, if you are running a release prior to Release 11.5.7, you must first upgrade to Release 11.5.10.2 and then upgrade to Release 12. If you are not already running Oracle 10*g*, then you must upgrade to it before upgrading to Release 12. This upgrade path is called a dual phase upgrade. The good news is, the two phases do not have to occur during the same critical downtime.

As part of this upgrade, if you haven't already converted to the Oracle Applications Tablespace Model (OATM), you'll need to convert your data. New OATM features with Release 12 include automatic restart of the generation of migration commands and execution, a configurable default extent size and a new "Tools" tablespace for products such as Oracle Portal, Oracle Discoverer, Oracle Internet Directory and Oracle Application Server Single Sign-On.

*Single Phase* - If you are running Release 11.5.7 or later, you'll need to upgrade to Oracle 10*g* and Release 12 during the same critical downtime.

For both upgrades, we recommend that you upgrade to the latest certified version of Oracle 10*g* (currently 10.2.0.3), and that you upgrade to the latest certified version of Release 12 (currently 12.0.4). Note: If you are a public sector or Federal customer, the minimum release is 12.0.3.

**Applications Unlimited, an Oxymoron?**

You'll notice that this paper does not talk much about Release 12 *functionality*. For a DBA, if your end user community decides they need to upgrade because of functionality that is included in a higher release, then your decision about whether to upgrade or not is made for you. The area where you may need to influence your company's decision making comes down to Oracle's support strategy for the E-Business Suite, called Applications Unlimited, and how much support your company needs or is willing to pay for.

Oracle offers three types of support, Premier, Extended and Sustaining:

*Premier Support* includes certification with new third party products/versions and Oracle products.

*Extended Support* provides certification with most *existing* products instead of new third party products/versions and Oracle products. Extended Support may not include certification with some new third-party products/versions. If you're still running Oracle 9*i* and have purchased extended support from Oracle, then if you find a new problem with an existing certified configuration, Oracle will help you resolve the problem. Just keep in mind that Extended Support for Oracle 9*i* ends in July 2010.

Extended Support, by the way, costs more than Premium Support. For the first year of Extended Support, it costs 10 percent more. For the second and third years, it's 20 percent. Extended Support only lasts for three years, so after that if you refuse or are unable to upgrade, you move to Sustaining Support.

*Sustaining Support* does not include new updates, fixes, security alerts, data fixes and critical patch updates; new tax, legal and regulatory updates; new upgrade scripts; certification with new third-party products/versions; or certification with new Oracle products. If you have a question and there's already an answer on MetaLink, Oracle Support will point you to it. If you're still running Release 11.0.3, you're on Sustaining Support (which ends Jan 2009).

You might wonder why support levels are important to you, the DBA. The answer is that if your company hits a technical or functional critical issue on an older release, you might find yourself having to do an upgrade in a big hurry. And because upgrades require so much testing, this is certainly not a good position to be in.

The following chart shows the current plans for support. If you are still running on Release 11.0.3, the fact that even Sustaining Support has an end date – January 2009 – should be particularly important to you. If you are running releases prior to Release 11.5.10, you should be concerned that Oracle does not offer Extended Support. From our perspective, the biggest issue with staying on these earlier releases is that without Premium Support, you may not be able to stay current on the security patches provided by Critical Patch Updates. But there's another issue –the further behind you are, the more complicated your upgrade path will be.

| Release | GA Date | Premier Support Ends | Extended Support Ends | Sustaining Support Ends |
|---------|---------|----------------------|-----------------------|-------------------------|
| 11.0.3 | May 1999 | Feb 2007 | Not Offered | Jan 2009 |
| 11.5.1 | May 2000 | Jul 2006 | Not Offered | Indefinite |
| 11.5.2 | Oct 2000 | Jul 2006 | Not Offered | Indefinite |
| 11.5.3 | Jan 2001 | Jul 2006 | Not Offered | Indefinite |
| 11.5.4 | Jun 2001 | Jul 2006 | Not Offered | Indefinite |
| 11.5.5 | Sep 2001 | Jul 2006 | Not Offered | Indefinite |
| 11.5.6 | Jan 2002 | Jul 2006 | Not Offered | Indefinite |
| 11.5.7 | May 2002 | May 2007 | Not Offered | Indefinite |
| 11.5.8 | Nov 2002 | Nov 2007 | Not Offered | Indefinite |
| 11.5.9 | Jun 2003 | Jun 2008 | Not Offered | Indefinite |
| 11.5.10 | Nov 2004 | Nov 2009 | Nov 2012 | Indefinite |
| 12 | Jan 2007 | Jan 2012 | Jan 2015 | Indefinite |

## Release 12 Administration and Maintenance Tools

Oracle offers a number of tools to manage the E-Business Suite environment, including Oracle Enterprise Manager (OEM), Oracle Applications Manager (OAM), Application Management Pack (AMP), Rapid Install Wizard, AutoConfig, AutoPatch, OPatch and napply CPU, Diagnostics, and Oracle Integration Repository (*i*Rep).

## Oracle Enterprise Manager (OEM)

Oracle Enterprise Manager 10*g* Grid Control allows you to monitor E-Business Suite performance, availability and configuration changes. You can monitor multiple E-Business systems and drill down into Oracle Applications Manager (OAM). You can read more about OEM in MetaLink Note: 457442.1, "Oracle Enterprise Manager Grid Control Release Notes for Linux and Microsoft Windows 10g Release 4 (10.2.0.4.0). According to this note, some of the new features that are part of this latest release are:

- Provides data masking, which is the capability to replace sensitive data with false but realistic looking data on test and development databases (with AMP)

- Allows usage of commonly-used privileged delegation software, such as sudo or pbrun, to fit into the existing credential subsystem in Enterprise Manager

- Allows bidirectional flow of events between Enterprise Manager and third-party products

- Provides users through the Service Level Management Pack the capability to record transactions on Forms 6i-based applications and periodically replay these transactions to monitor performance and availability

- Provides DHTML transaction recording and monitoring features that allow you to record and playback DHTML-based applications. The features help you to capture mouse and keyboard actions, in addition to HTTP requests

- Allows you to monitor and manage Oracle BI Suite Enterprise Edition (Maui release). You can discover Oracle BI EE servers, view configuration information, monitor performance, and so on

- Provides, through the Diagnostics Pack for Non-Oracle Middleware, Oracle Application Diagnostics for Java (Oracle AD4J) that allows you to diagnose performance problems in production Java applications with minimal performance overhead and without shutting down the Applications

- Provides improved SOA management capabilities that enable you to automate the provisioning of BPEL Processes using the deployment procedures. Also offers configuration management of the BPEL Process Manager

- Provides out-of-box plug-in support for Microsoft Exchange targets. Allows you to monitor performance, availability, usage statistics, and administration of Exchange Servers

- Offers support for the following plug-ins:

  - EMC CLARiiON System: You can view storage, configuration, and performance information to analyze performance bottlenecks and resolve issues

  - VMware ESX Server: You can monitor configuration and performance data of VMware ESX Server 3

  - Microsoft SQL Server: You can access core administration capabilities

  - IBM DB2 Database: You can monitor IBM DB2 Release 9

  - EMC Symmetrix DMX System: Provides fixes for certain performance-related issues found in Reports and enhances its capability to function better in a larger environment that may consist of over 3000 disks

## Oracle Applications Manager (OAM)

Oracle Applications Manager (OAM) is a tool included with the E-Business Suite that extends your Applications management capabilities. To run OAM, log onto the applications as the System Administrator responsibility and then choose from the list of Oracle Application Manager options:





**Figure 2 - Here we chose "Dashboard"**

This tool provides a centralized interface to other tools:

- Patch Wizard, which recommends patches, provides details about what a patch will change, and shows what patches have modified a specific file.
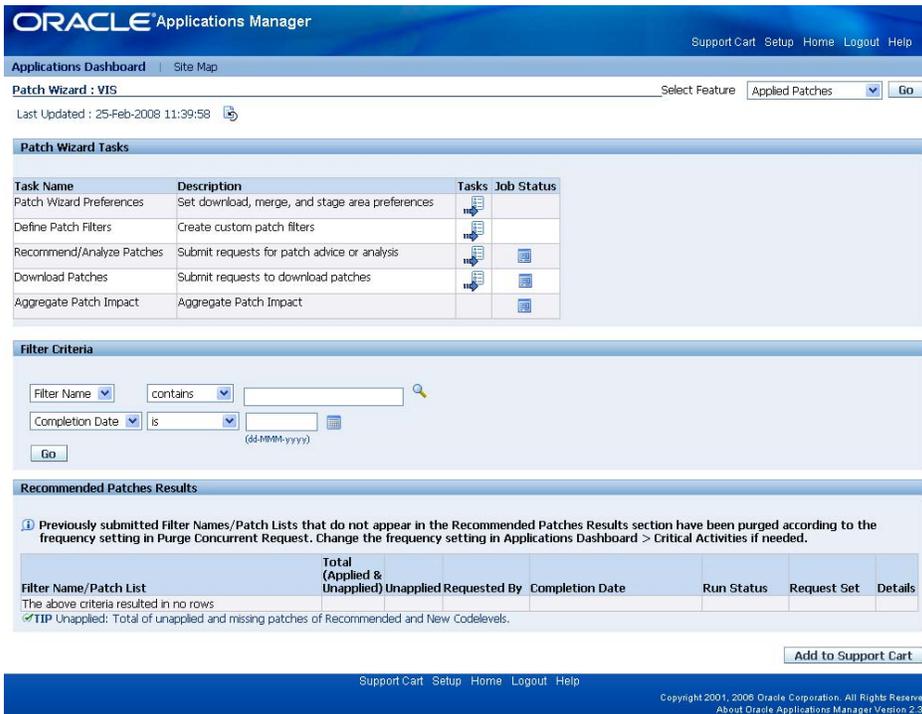


**Figure 3 - This is the "Patch Wizard" option**

- OAM is the recommended tool for making changes to your context_file.xml (AutoConfig).
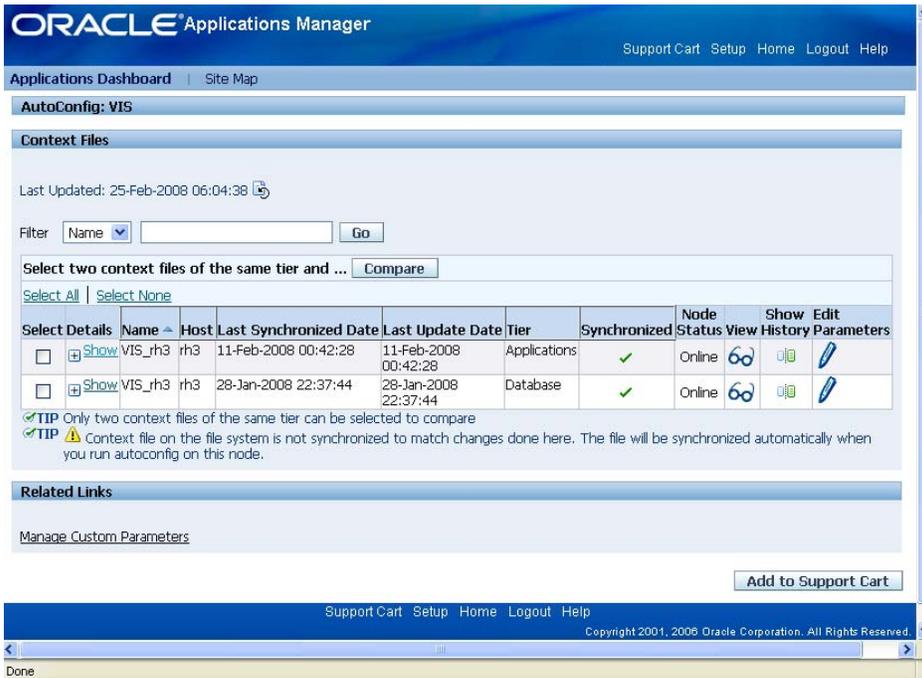


**Figure 4 – Use OAM to make changes to your AutoConfig context files**

- You can run License Manager from OAM to enable licensed E-Business Suite modules.



**Figure 5 - You can run License Manager from OAM**

- You can also use OAM to administer concurrent managers and workflow components, including starting and stopping concurrent managers and controlling workflow services.

- OAM includes Diagnostic Wizards for Concurrent Manager Recovery, Service Infrastructure, GCS and Forms Monitoring, CP Signature and Dashboard Collection Signature.

- OAM provides a menu-driven system to set up, run and view Diagnostics.

- The Dashboard Collection Program collects metrics for many services, web components and other features of an Oracle Applications instance. OAM includes a Dashboard Setup Wizard that can be used to enable or disable the monitoring of individual metrics.

- The CP Signature Wizard performs many key Concurrent Processing related data collections and gather important configuration and log files to be saved to the Support cart for more efficient interaction with Support.

## Applications Management Pack (AMP)

The Oracle Applications Management Pack (AMP) for Oracle E-Business Suite with EM Grid Control 10*g*R3 (10.2.0.3) extends Enterprise Manager 10*g* Grid Control. You can purchase AMP for your Oracle Applications installation. It integrates OAM with Grid Control to provide a consolidated end-to-end E-Business Suite management solution.

AMP monitors the Oracle Applications Service, the Oracle Applications Infrastructure Service, the Concurrent Processing Service, the Forms Applications Service, the Concurrent Manager, Workflow, Custom Objects, and Patch Information. AMP monitors your system for security problems, usage characteristics, configuration changes and performance. Its key capabilities include automated cloning, data masking, automatic discovery of E-Business Suite Systems, configuration management and service level management. The latest version, 2.0.1, includes the ability to use either the Enterprise Manager Grid

Control User Interface or a Command Line Interface to discover and register components of the E-Business System.

You can read more about AMP in MetaLink Note: 394448.1, "Oracle Application Management Pack for Oracle E-Business Suite, Releases 2.0.0 and 2.0.1", and on Steven Chan's blog, http://blogs.oracle.com/schan/2008/02/21#a2453, "Latest Apps Management Pack 2.0.1 Now Available", and at http://download.oracle.com/docs/pdf/A85229_01.pdf, Oracle Enterprise Manager, Getting Started with the Oracle Management Pack for Oracle Applications, Release 2.2, Part No. A85229-01".

## Cloning the Applications

You can clone an E-Business Suite instance using RapidClone or Applications Management Pack (AMP). There were some MetaLink notes indicating that you could clone using Oracle Application Manager, but we haven't found any documentation about how to do so or a menu option in OAM.

RapidClone is the most commonly used tool for cloning. Oracle continues to refine it and released a new set of patches for Release 12 with Patch 6145693 that corrected 57 cloning issues. MetaLink Note: "Cloning Oracle Applications Release 12 with Rapid Clone" describes its cloning process, which is a manual process.

To use Applications Management Pack (AMP), you should read MetaLink Note: 412044.1 "Application Management Pack for Oracle E-Business Suite Release 1.0 and 2.0.1 Troubleshooting Guide" carefully. The intention with AMP's cloning feature is to provide automated cloning that will also support cloning with data scrambling (data masking). AMP's recent patch, Version 2.0.1, includes a number of fixes for cloning issues, including the ability for users to choose custom directories for installing APPL_TOP and DB TOP while cloning Release 12, the ability for users to perform a scale up or scale down clone of DB TOP, the ability for a clone to support the capability to skip optional steps specified in the Clone Procedure, support for cloning Individual EBS components (Database Techstack, Data Top, Application Techstack, and Application Top), and the ability to apply an EBS image on an existing E-Business Suite Target.

## Rapid Install Wizard

You'll use the Rapid Install Wizard if you are installing a fresh install of the E-Business Suite. The Rapid Install Wizard installs the ORACLE_HOMEs and databases, and the APPL_TOP and COMMON_TOP directories that contain the Applications code. A new concept for Release 12 is the Instance Home, or $INST_TOP. Located at $ORACLE_BASE/inst/apps/context_name, where context_name is the dbsid_host, the Instance Home facilitates setting up a shared application file system for multi-node configurations and creates a common location for all objects specifically related to an instance (logs, some config files, CCM output, etc.).

## AutoConfig

AutoConfig automatically configures an Oracle Applications Release 12 instance. All the necessary information is saved in the Applications Context File or the Database Context File. The Applications Context File is an XML repository in $INST_TOP that contains the configuration information for the Applications tier. The Database Context File is an XML repository in the RDBMS ORACLE_HOME that holds database tier information.

AutoConfig logfiles are stored under $INST_TOP/admin/log for the Application Tier and $ORACLE_HOME/appsutil/log/<CONTEXT_NAME> for the Database Tier. AutoConfig Template files have named tags that are replaced with instance-specific information located in <product_top>/admin/template. Note that this file should not be edited. You can create a custom template file by copying the template file and then editing it. To do so, create a directory named "custom" in the same directory as the template file you are customizing. Copy that customized template file into the directory you just created and AutoConfig will recognize that it is a custom template that supersedes the original template file. When AutoConfig detects a custom template file, it uses it.

AutoConfig comes with a set of scripts that include:

- `adchkcfg.sh` – run this program before running AutoConfig to review changes. It generates a report showing the differences between the current and modified AutoConfig file

- `adtmplrpt.sh` – provides information about the location of AutoConfig templates

- `restore.sh` – use this script to roll back an AutoConfig session

See MetaLink Note: 387859.1, "Using AutoConfig to Manage System Configurations in Oracle E-Business Suite Release 12" for more details about AutoConfig.  The latest AutoConfig Patchset for Release 12 is TXK.A.Delta.4 Patchset (Patch 6329757).

## Applications Patching

Applications patching is Oracle's way of releasing code fixes, functionality enhancements or new functionality. Patches can update or create new file system objects like forms, reports and sql scripts. Patches can also execute code within the database to change seeded data. To upgrade an E-Business Suite environment from Release 11*i* to Release 12, or to apply a Release 12 RUP, Family Pack, Mini-Pack, or other applications patch, you'll use the AutoPatch tool. You can use OAM's Patch Wizard to help decide which patch to apply and to determine what code or data it will change. You can also use the Patch Application Assistant to help track and apply manual patch steps. Oracle has a new manual called *Oracle Applications Patching Procedures*.

### Release 12 Applications Patching Changes

With Release 12, Oracle keeps major new features and bug fixes separate. In fact, major new functionality is now reserved for point releases. Oracle creates a new maintenance branch for each point release of the Applications. New feature introduction into maintenance branches is limited and requires executive approval (by Oracle executives). To provide better change control, Release 12 introduced some new terminology for patching called codelines and codelevels that should make checking for prerequisites easier.

### Codelines and Codelevels

Patches are grouped into codelines. A codeline begins with a point release and progresses to include all patches required to maintain that point release. So Release 12.0 would be Codeline A, and Release 12.1 would be called Codeline B. The unique set of product features for a point release or a product family are a codelevel. In Release 11*i*, patches could require other individual patches as prerequisites, making it difficult to determine if a new patch included all the functionality of an older patch. In Release 12, patches can only require a codelevel as a prerequisite. Read MetaLink Note: 459156.1, "Oracle Applications Patching FAQ for Release 12" to learn more about Release 12's patching features.

### Types of Applications Patches

As an Apps DBA, you'll find yourself applying a number of different types of Applications Patches to your environment. We've already talked about Release 11*i* Consolidated Updates (CUs) and Release 12 Release Update *Packs* (RUPs). CUs can be released after a Release 11*i* point release (like 11.5.10), and Release 12 RUPs can only be applied to an existing Release 12 environment. Following are additional types of patches:

- Maintenance Packs are a collection of the latest product family patchsets. Release 11.5.10 is the latest Release 11*i* Maintenance Pack. Consolidated Updates (CUs) are applied to a maintenance pack, so the latest CU for Release 11*i* brings 11.5.10 up to Release 11.5.10.2.

- Technology Layer Updates are patchsets or mini-packs that change the underlying services. The latest for Release 11*i* is 11*i*.ATG_PF.H Rollup 6.

- Family Packs or Product Family Release Update Patches (RUPs) provide patches for a specific, individual product family for a specific point release.

- Product Mini-Packs are bug fixes for a specific applications module, rather than product family.

- One-off Patches/Individual Bug Fixes/Emergency Patches are rare. A one off patch is one that fixes one issue. A recent example is One-off Patch 6812211, which fixes a potential data corruption issue in Release 12 Oracle Assets.

- Pre-upgrade patch – upgrade related, high priority patches consolidated from all the products within a product family

Steven Chan's blog article "Products and Families and Versions – Oh, My!" (http://blogs.oracle.com/schan/newsItems/departments/patching/2006/05/05#a120) describes the different types of patches that you might need to apply to a Release 12 environment in addition to Release Update Packs:

As you consider applying patches to your E-Business Suite environment, it is important that you understand the thoroughness of Oracle's testing. Consolidated Updates (CUs) and Release Update Packs (RUPs) are the most thoroughly tested by Oracle. Family Packs, on the other hand, are tested only by their product teams. Where possible, you may want to wait for a RUP rather than apply another type of patch between RUPs. Since Oracle has done well at meeting their quarterly dates for RUPs, if you are staying current on patching, you should only have to apply a non-RUP patch in limited situations. If possible, stay current on CPUs and Technology Layer Updates, even if you can't stay current on Release Update Packs.

**AutoPatch**

AutoPatch applies *Applications patches* (not database patches, operating system patches, or CPUs) and records the patch details in the OAM Applied Patches Database. OAM includes tools like Applied Patches, Timing Reports and Patch Wizard to help determine what patches have already been applied, how long they may take to apply, and which ones are available. Using OAM's Patch Wizard, there is no excuse for not knowing exactly what – right down to the SQL code – is being changed by a patch. MetaLink Note: 225165.1

You can use AD Merge Patch to group patches together for application, then apply the merged patch using AutoPatch. You can also use AutoPatch Non-interactive Mode to automate patch application. You should use a Shared Application Tier File System for multi-node systems to apply patches only once. MetaLink Note: 181665.1, "Release 11i Adpatch Basics" covers patching strategies.

**Patch Application Assistant**

Oracle Patch Application Assistant (PAA) helps you track and perform manual steps during patching. For patches with manual steps, PAA generates a customized set of instructions specific to your installation and displays the relevant manual steps. For merged patches, PAA automatically merges the contents of the individual patch readme files. If you need to use PAA, the patch readme will ask you to run admsi.pl.

## Database and CPU Patching

You use the OPatch utility to apply patches to the RDBMS. OPatch is also used to apply patches to the Application Management Pack (AMP). Critical Patch Updates (CPUs), the quarterly security patches that patch the ORACLE_HOMEs, use n-Apply CPU (aka n-apply). n-apply uses OPatch, but groups security fixes to simplify patch conflict resolution procedures.

Note: MetaLink Note: 466181.1, "10*g* Upgrade Companion Version 2" documents how to upgrade from Oracle 9*i* to 10*g*.

## Oracle eBusiness Suite Diagnostics

The Oracle eBusiness Suite Diagnostics are free utilities. New diagnostics are delivered in a standard Oracle Patch and are applied using AutoPatch. The diagnostics don't alter data or setup, and the latest patch is included in Release 12.0.4. While Diagnostics were not initially required, Oracle now expects you to have the Diagnostics installed and will often ask you to run a particular Diagnostic to help problem solve a Service Request (SR). You should stay current on Diagnostic patches, as the Diagnostic programs are useful in troubleshooting.

To Run Diagnostics:

1. Login to the E-Business Suite using an account that has the "Oracle Diagnostics Tool" responsibility

2. Select the "Oracle Diagnostics Tool" responsibility

3. Choose a diagnostic test from the Test Summary list. You can see which tests are available for an Application by clicking on the number under "Registered Tests":



**Figure 6 – We'll click on the number 3 next to the Applications DBA Application**

4. Enter input parameters if there are any for the test that you have selected

5. Click on the 'Run Test' button

6. To review the test output, click on the 'Report' icon displayed in the status line



**Figure 7 - In this example, we decided to run the System Snapshot - RDA test, which we selected from the list on the left. We entered parameters that the test requested, then clicked on the "Run Test" button. We can see that the test succeeded, so we clicked on the "Report" button to see the results.**

**Figure 8 - The RDA results are lengthly, so we've only included a snippet here. Notice, though, that you can Print the report, Save the report to your desktop, or Upload the saved report to Oracle Support.**

## Oracle Integration Repository (*i*Rep)

You can use the Oracle Integration Repository (*i*Rep) to view all the interfaces in the E-Business Suite in one place. The *i*Rep catalog can be searched using keywords and can be navigated by product family, interface type and integration standard. Interface types include concurrent request, java, java service interface, PL/SQL, Service Data Object, Web Service, XML Gateway Map and EDI. You need the Integration Repository responsibility to use *i*Rep. Read more about *i*Rep in MetaLink Note: 421170.1, "R12 Oracle Service Contracts And Integration Repository Access".

1.  Login to the E-Business Suite from an account that has the "Integration Respository" responsibility

2.  Select the "Integration Repository" responsibility

3.  Select a Product Family and explore
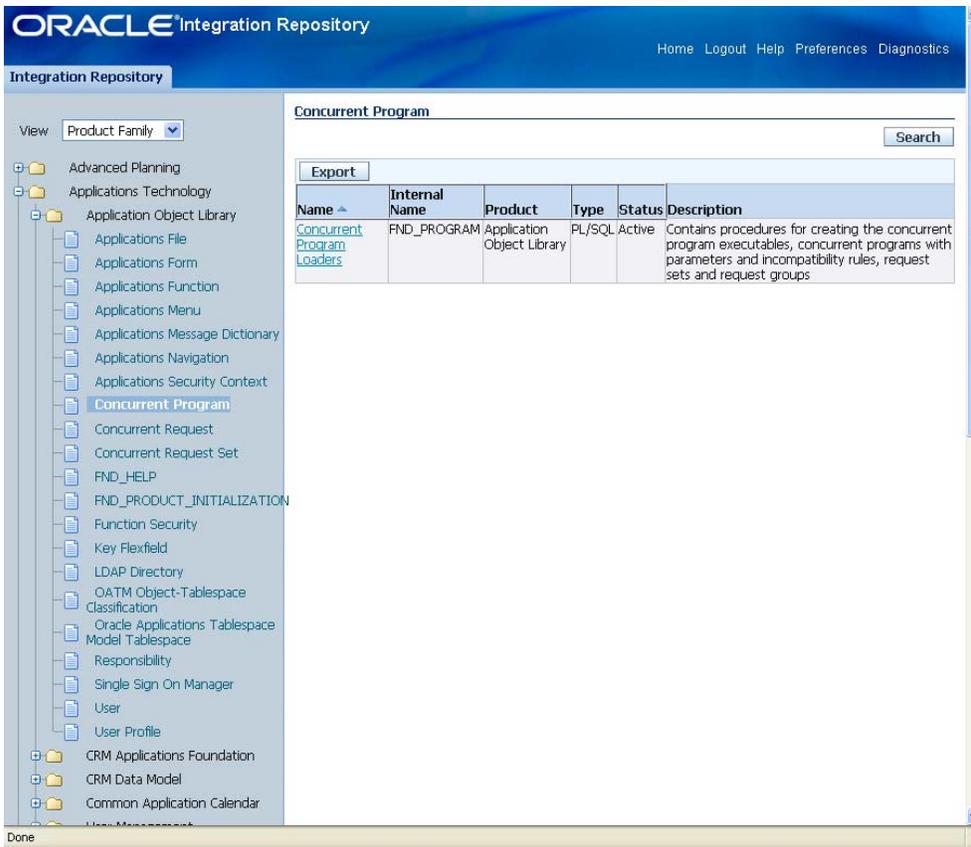
**Figure 9 - *i*Rep**
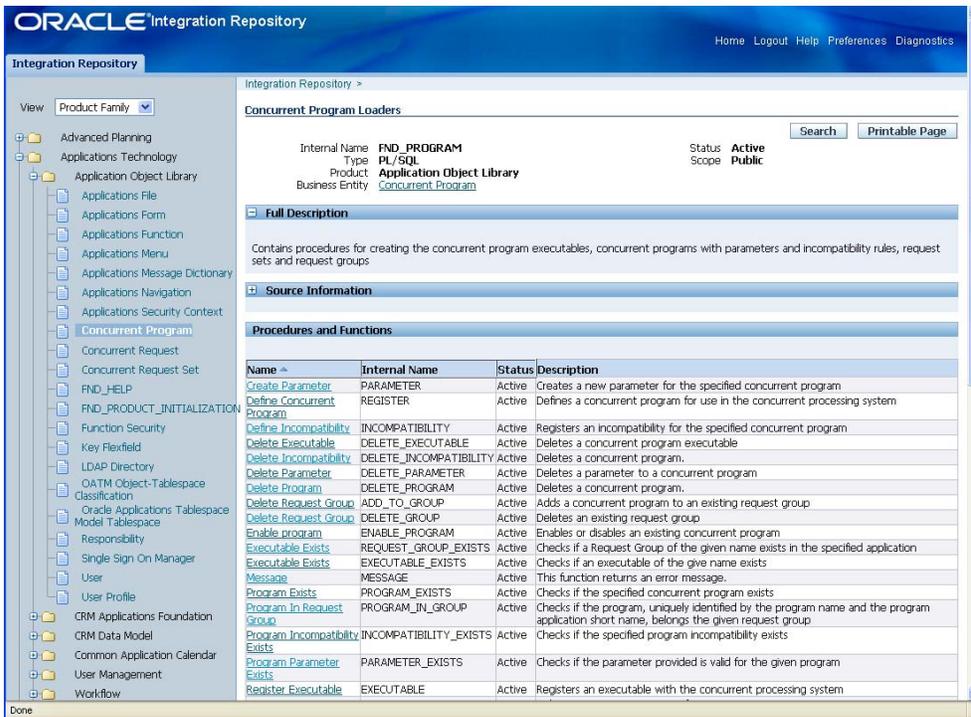


**Figure 10 - Exploring Product Families with *i*Rep**

## Conclusion

Oracle has clearly placed a tremendous emphasis on stabilizing their Release 12 products, and is providing us with a wealth of tools to help manage our Release 12 environments. In return, they expect us to patch, and patch often. With Applications Unlimited support options and the requirement that customers stay within the current versions or the one prior on the ATG technology upgrades to be able to apply the latest Critical Patch Update, customers will need to define an upgrade process and adhere to it. When we log Service Requests to Oracle Support, we can now expect to be asked to run specific Diagnostics programs to provide better information for problem solving. We're also seeing a tremendous improvement in the availability of documentation and the ease in locating documentation on MetaLink. In the end, it's a tradeoff – Oracle is working very hard to provide tools to encourage us to stay patched current… now all we have to do is learn how to use them to reduce the maintenance footprint of the Applications, which frees the Apps DBAs to work on real problems and issues.

## Links

- http://blogs.oracle.com/shan - Steven Chan, Director of Applications Technology Integration for Oracle – wonderful articles explaining the nuances of the Applications

- www.Integrigy.com – E-Business Suite Security, including CPU vulnerability evaluation

- http://orclville.blogspot.com – Floyd Teter's Fusion perspective from the trenches

- www.OnCallDBA.com – E-Business Suite books and concurrent manager expertise

- www.trioragroup.com – that's us!

## About the Author

John Stouffer has more than 18 years' experience with Oracle database administration and more than 14 years' experience supporting Oracle's E-Business Suite Applications environments, including architectural design, installation, implementations, upgrades and system assessments in the federal, public and commercial industries. John is an Oracle ACE for his contributions in the area of Oracle Fusion Middleware. John chairs the OAUG Upgrade SIG, was the founding chair for OAUG's Fusion Council and actively participates in other GEO and SIG activities.

## About Triora Group LLC

The Triora Group ensures that Oracle E-Business Suite customers get the highest value from their investment in Oracle products.  Our staff has an average of over 10 years of Oracle Applications and Database experience. We take a holistic view of the Oracle environment, providing expertise with the Applications, Application Server, Middleware and Database. We also assist customers with implementing Real Application Clusters, Security, Disaster Recovery solutions, Information Life Cycle Management, Application Integration Architecture and Service Oriented Architectures.