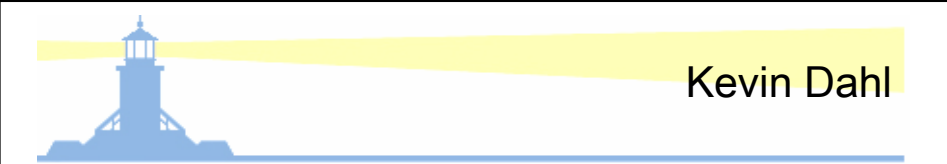






Release 12  
Technical Introduction – Intermediate  
(Technical Track)

Kevin Dahl  
May 30, 2008  
noon-1pm



Kevin Dahl

- Oracle DBA 18 Years
- Oracle Apps DBA 15 Years
- Release 10.x to 12
- RDBMS Version 7 to 10g
- Email: [kdahl@solutionbeacon.com](mailto:kdahl@solutionbeacon.com)



2



## Agenda

- Presentation
  - Audience
  - Tiers
  - Components
  - Technology Layer
  - Application Filesystem
  - AutoConfig
  - Cloning
  - OAM
  - Diagnostics
  - Repository
- Wrap up



3

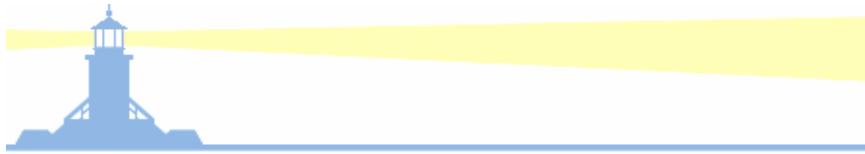


## Audience

- Audience
  - This presentation is for light to moderately experienced E-Business Technologists looking for a little more insight into the technology of Release 12
  - Graduates of our Release 12 Newcomers course



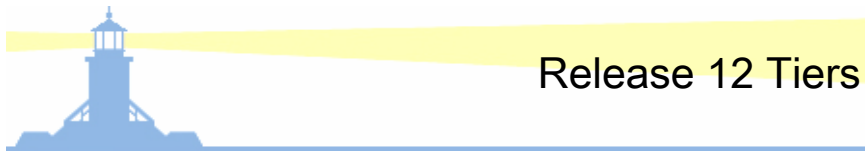
4



- Presentation
  - Audience
  - **Tiers**
  - Components
  - Technology Layer
  - Application Filesystem
  - AutoConfig
  - Cloning
  - OAM
  - Diagnostics
  - Repository
- Wrap up



5



- Desktop Tier
  - HTML Interface (Internet Explorer, Netscape, Firefox)
  - Professional Forms accessed by using a java applet (Sun J2SE Plug-in) with jar files
- Application Tier
  - Also known as the “middle” tier
  - Manages the communication between the desktop and database
  - Houses the components / services that process the business logic
  - Comprised of multiple code sets
- Database Tier
  - Houses the Oracle RDBMS (Database) Server which stores *most* of the “data” in the Oracle Applications



6



## Release 12 Tiers - Graphic



Desktop Tier

Sun J2SE java plug-in

Internet Explorer

Firefox

Netscape



Application Tier

Web Services => 10.1.3  
Forms Services => 10.1.2  
Concurrent Processing Server  
Admin Server



Database Tier

Oracle RDBMS 10gR2



7



- Presentation
  - Audience
  - Tiers
  - **Components**
  - Technology Layer
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- Wrap up



8



## Release 12 Components / Services

- Web Services
- Forms Services
- Concurrent Processing Server
- Admin Server
- Java Desktop Client



9

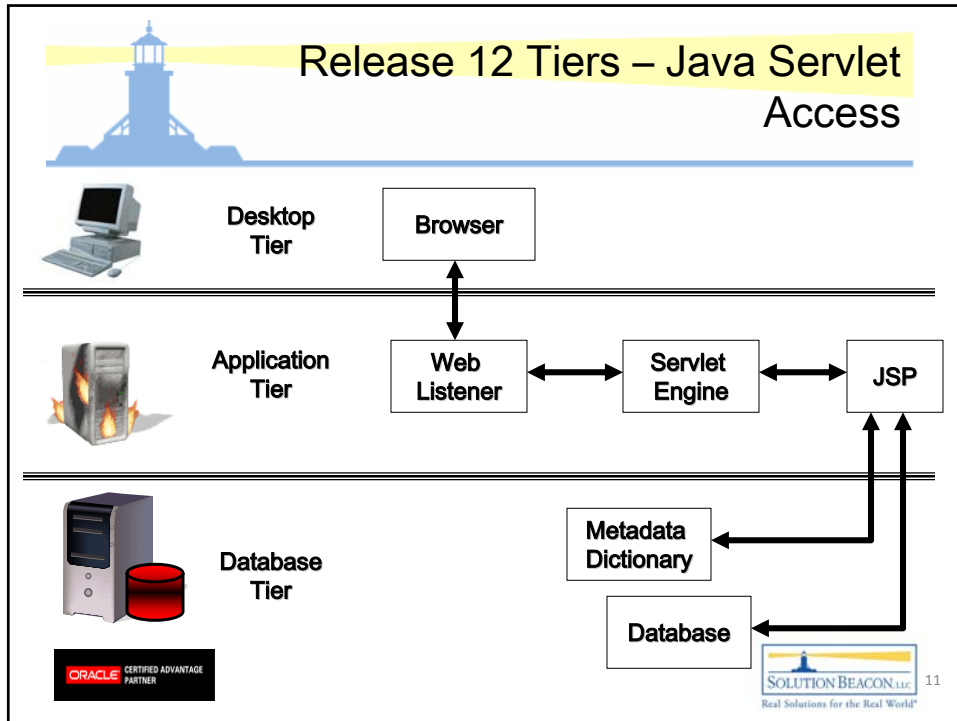


## Release 12 Components / Services – Web Services

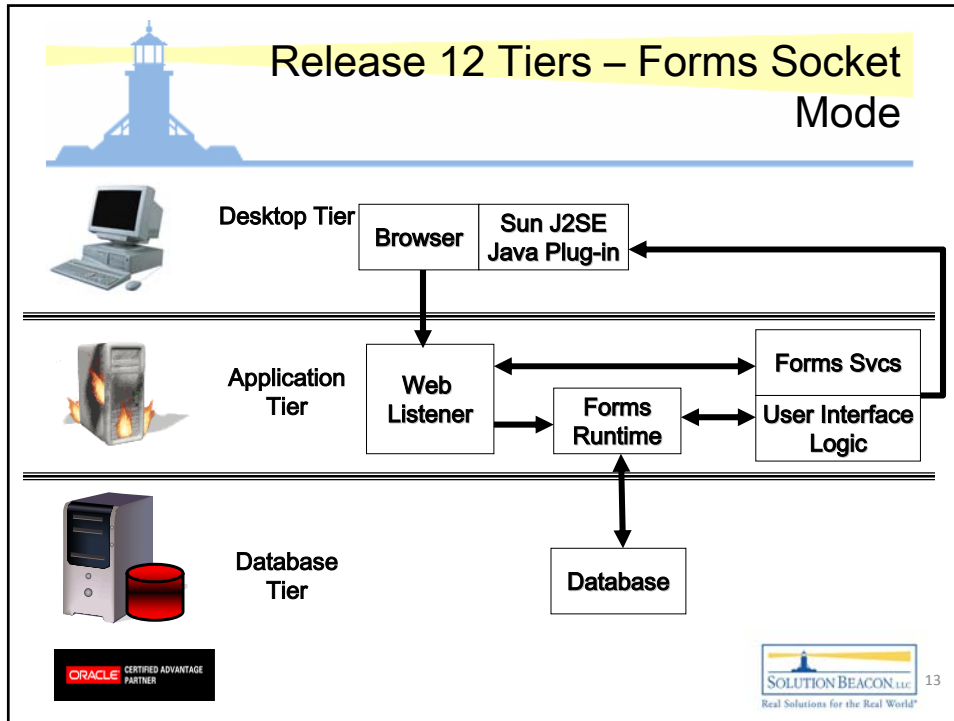
- Web Services Handle requests from the user via HTTP requests. They are comprised of several components:
  - Web Listener: Oracle wrapped Apache web server that “listens” for incoming http traffic
  - Java Servlet Engine (OC4J): Handles the more advanced requests through the Metadata Dictionary and Database
  - Oracle Process Manager and Notification Server (OPMN): Manages Application Server components and is responsible for starting/stopping the OC4J containers



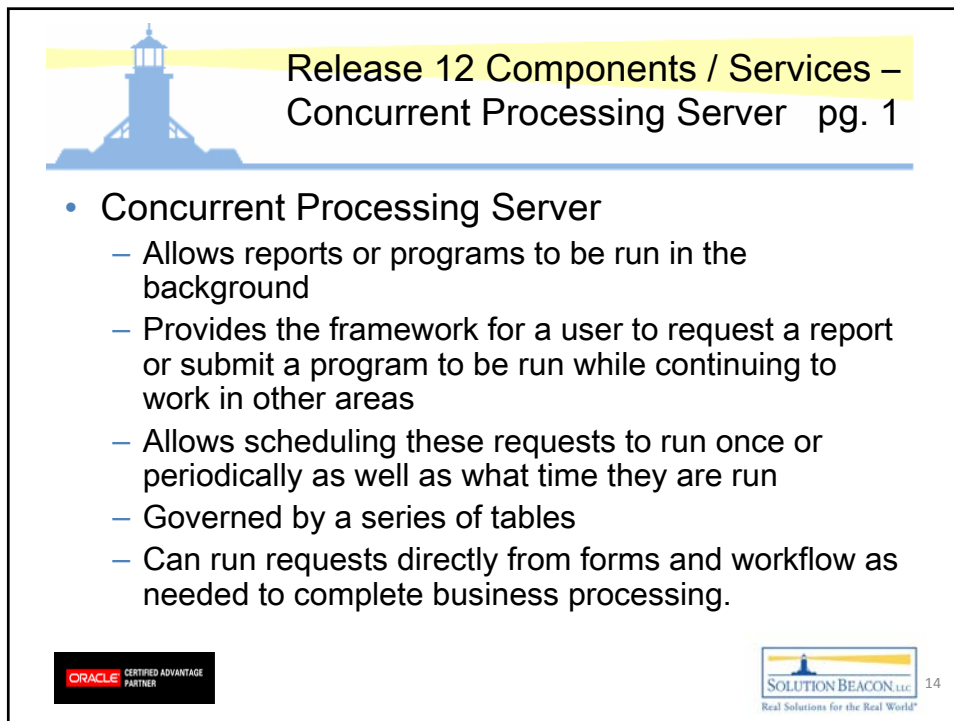
10



- ## Release 12 Components / Services – Forms Services
- **Forms Services**
    - Delivers the ability to run Oracle Forms
    - Is a java servlet known as the Forms Listener Servlet
    - Corresponds to the Java Applet on the Desktop Tier and handles communications between the end user and the database server over HTTP/HTTPS or TCP/IP connections.
    - Allows data to be cached which shows you only one record at a time even though there may be hundreds or thousands.
- Logos for ORACLE CERTIFIED ADVANTAGE PARTNER and SOLUTION BEACON, LLC are present at the bottom of the slide.



13



14



## Release 12 Components / Services – Concurrent Processing Server pg. 2

- Concurrent Processing Server
  - Comprised of control managers, transactional managers and standard managers
  - Allows Companies to create their own managers
  - Capable of running SQL, PL/SQL, Host shell scripts, C programs, Oracle Reports and Oracle Load programs, and Java programs.
  - Concurrent Managers produce output files always:
    - Log Files: These files show process steps type of information
    - Out Files: These files contain the “results” of the concurrent request



15



## Release 12 Components / Services – Admin Server

- Admin Server
  - located on the node where you maintain the data model and data in your Oracle Applications database
  - Patching: Patches update or create new file system objects like forms / reports / sql scripts as well as executing code within the database to change seeded data
  - Maintenance: Maintenance is run through the ADADMIN utility and is primarily done on the Admin Server node.



16



## Release 12 Components / Services – Java Desktop Client

- Java Desktop Client
  - Runs within the Java Virtual Machine that is installed on the end user's client machine
  - Release 12 runs the Sun J2SE Plug-In
  - Only initiated when the end users access functionality that requires it (Oracle Forms, Discoverer Plus etc...)
  - Installed through an executable that is downloaded through the web browser
  - Uses JAR files that contain the latest code set required for the requested form to run



17



- Presentation
  - Audience
  - Tiers
  - Components
  - **Technology Layer**
  - Application Filesystem
  - AutoConfig
  - Cloning
  - OAM
  - Diagnostics
  - Repository
- Wrap up



18



## Release 12 Technology Layer

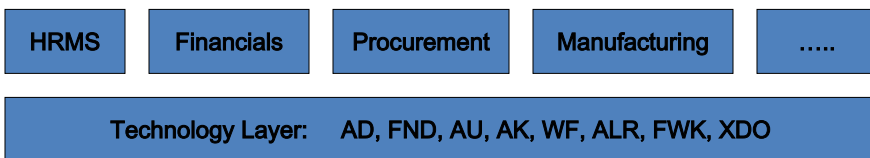
- Technology Layer
  - An integrated collection of components that are used by all of the Oracle Application modules
    - Applications DBA (AD)
    - Common Modules (AK)
    - Applications Utilities (AU)
    - Applications Object Library (FND)
    - Workflow (WF)
    - Alerts (ALR)
    - Applications Framework (FWK)
    - XML Publisher (XDO)
  - Collectively referred to now as the “Applications Technology Group”
  - Exists between the Applications Technology Stack and the Oracle Application Product Modules



19



## Release 12 Technology Layer - Picture



20



## Release 12 Technology Layer – Application DBA

- Technology Layer – Application DBA (AD)
  - Provides the administrative tools used to install, upgrade, maintain, and patch the Oracle Applications Environment.
    - AD Administration
    - AD Merge Patch
    - AutoConfig
    - Autopatch
    - Rapid Clone
    - Rapid Install



21



## Release 12 Technology Layer – Common Modules

- Technology Layer - Common Modules (AK)
  - Is an active data dictionary used to define HTML based Applications components
  - Generates runtime characteristics of the Applications
  - Used to develop inquiries for the HTML based Applications without programming
  - Stores language translated data field labels



22



## Release 12 Technology Layer – Application Utilities

- Technology Layer – Application Utilities (AU)
  - Used to maintain the Oracle Applications environment.
  - Provides a standard, shared location for certain files copied from other products.
    - Forms base files (.fmb)
    - .pll library files as needed for common objects like forms
    - Discoverer end user layer objects and components
    - .ogd graphics files
    - Java class files
    - .ldt files can be here as well



23



## Release 12 Technology Layer – Application Object Library pg. 1

- Technology Layer – Application Object Library (FND)
  - Key component in the Technology Layer
  - Provides common / uniform functionality across all products
    - Concurrent requests are submitted in same fashion between product modules
    - Flexfields processed in same manner between product modules
    - Standard look and feel between product modules
    - Provides common value sets for use between product modules
    - Same GUI and coding standards, for custom development, as used by Oracle's Developers
      - Many customizations can be integrated into Oracle Applications seamlessly



24



## Release 12 Technology Layer – Application Object Library pg. 2

- Technology Layer – Application Object Library (FND)
  - Provides System Administration features and functionality encompassing all product modules
    - Access control
    - Administration of system profiles
    - Administering concurrent managers
    - Administration of flexfields and value sets
    - Registration of custom products
    - Administrative framework for functions -> menus -> responsibilities



25



## Release 12 Technology Layer - Workflow

- Technology Layer – Workflow (WF)
  - Framework for transactional and business processing flows
    - Step by step processing of transactions or business processes that are automated and can be fully autonomous or can require user intervention
    - Comprised of several components
      - Workflow Builder
      - Workflow Engine
      - Business Event System
      - Workflow Event Manager



26



## Release 12 Technology Layer - Alerts

- Technology Layer – Alerts (ALR)
  - Precursor to Oracle Workflow Technology
  - Notifies defined entities when an exception occurs
  - Capability to execute a code set when an exception is encountered
  - Uses the concurrent managers to process “periodic” exceptions
  - Uses trigger type code to process “event” exceptions
  - Uses the workflow mailer to send emails / notifications
  - Can be effective for users wanting to know of exceptions that do not have strong programming skills
  - Screen / Form driven (point and click then fill out the data field)



27



## Release 12 Technology Layer – Application Framework

- Technology Layer – Application Framework (FWK)
  - Is Oracle’s development framework for HTML applications and is a way to shorten development time while maintaining consistency
  - Primary components include:
    - bc4j => Business Components for Java
    - aol/j => Provides java services, ability to connect to the database and some application functionality



28



## Release 12 Technology Layer – XML Publisher

- Technology Layer – XML Publisher (XDO)
  - Java product based on the W3C's Extensible Stylesheets Language specs
  - Uses the XSL-FO standard to change XML data into a formatting object
  - Uses data definitions and templates to produce output reports in the desired format
  - Made up of the following core components:
    - FO Processor
    - PDF Document Merger
    - PDF Form Processor
    - RTF Template Parser
  - Template Manager features:
    - Data Source Registration
    - Template Registration
    - XML Publisher APIs



29



- Presentation
  - Audience
  - Tiers
  - Components
  - Technology Layer
  - **Application Filesystem**
  - AutoConfig
  - Cloning
  - OAM
  - Diagnostics
  - Repository
- Wrap up



30



## Release 12 Application Filesystem pg.1

- Application Filesystem
  - Filesystem comprised of components from many Oracle products
  - Key directories known as “TOPS” that correspond to OS environment variables
    - \$DATA\_TOP – Contains the database datafiles
    - \$APPL\_TOP – Contains the <product>\_TOPS
    - \$COMMON\_TOP / \$COMN\_TOP – Contains “common” files used across multiple product modules
    - <PRODUCT>\_TOPs (i.e. \$PER\_TOP (HR Product)) – Contain product files like forms, reports, sql scripts, patch driver files etc...
    - \$INST\_TOP – Contains instance specific files such as configuration files, log files, output files, updateable code sets
    - <CUSTOM>\_TOP – Custom directory that houses Company specific Apps objects, sql scripts, custom forms etc...



31



## Release 12 Application Filesystem pg. 2

- Application Filesystem
  - Makes use of a number of environment variables to provide shortcuts to specific directories, programs, or files
    - Examples: \$INST\_TOP; \$APPL\_TOP; \$COMN\_TOP from previous slide
    - Some locations for these files/programs/directories are changeable while others are consistent between all installations
    - .env / .cmd files are used to map these variables
  - Oracle lays out a filesystem that is consistent out of the box and should be accepted unless you have advanced experience in the layout of an Oracle Applications system



32

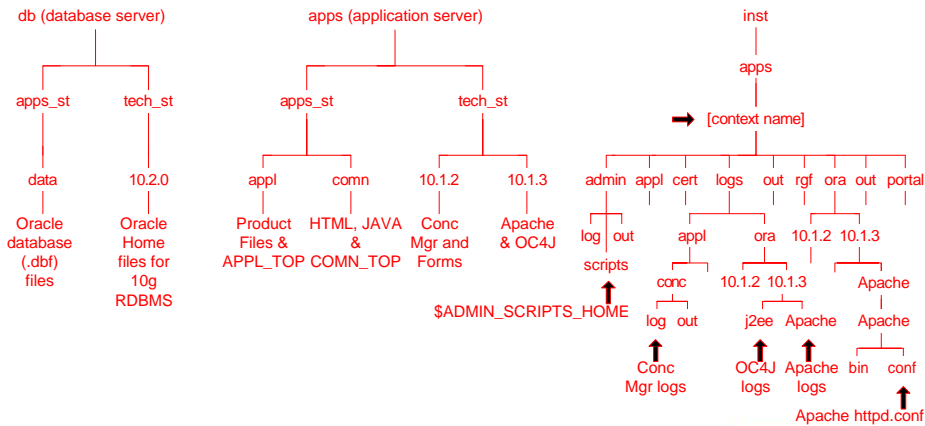


# Release 12 Application Filesystem pg. 3

- Application Filesystem continued
  - Using Solution Beacon's Release 12 Vision instance:
    - APPS\_BASE = a120vis1
    - Database Files:
      - /a120vis1/db/tech\_st/data => \$DATA\_TOP
      - /a120vis1/db/tech\_st/10.2.0 => Database ORACLE\_HOME
    - Application Files:
      - /a120vis1/apps/apps\_st/appl => \$APPL\_TOP
      - /a120vis1/apps/apps\_st/comm => \$COMMON\_TOP
      - /a120vis1/apps/tech\_st/10.1.2 => Apps ORACLE\_HOME
      - /a120vis1/apps/tech\_st/10.1.3 => Web ORACLE\_HOME
    - Instance Specific Files
      - /a120vis1/inst/apps/a120vis1\_sbllc12 => \$INST\_TOP
      - /a120vis1/inst/apps/a120vis1\_sbllc12/logs => \$LOG\_HOME



# Release 12 Directory Structure





- Presentation
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  - Tiers
  - Components
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35



## Release 12 AutoConfig pg. 1

- AutoConfig
  - Tool that manages the storage and propagation of configuration information
  - Implemented with a level of sophistication not easily explained
  - Uses a central “context” file and template files to store settings needed for the instance.
    - context\_file.xml is located in the \$INST\_TOP/appl/admin directory
    - Template files are located in a template directory under
      - <product>\_TOPs for the Application Tier
      - <rdms\_oracle\_home>/appsutil for the Database Tier



36



## Release 12 AutoConfig pg. 2

- AutoConfig
  - Use OAM (Oracle Applications Manager) to manage the values stored in the context\_file.xml
    - Oracle states that any changes to the text file without going through OAM will be overwritten during the next AutoConfig session
  - An AutoConfig session can be rolled back by using the backup files from the previous session which are located in the following directories:
    - Apps Tier: \$APPL\_TOP/admin/<CONTEXT\_NAME>/out/MMDDhhmm
    - DB Tier: <RDBMS\_ORACLE\_HOME>/appsutil/out/MMDDhhmm
    - \*\*\*MMDDhhmm stands for Month, Day, Hour and Minute of the session
    - Each directory has a restore.sh script to complete this action



37



## Release 12 AutoConfig pg. 3

- AutoConfig
  - Important scripts:
    - adautocfg.sh -> runs AutoConfig (\$AD\_TOP/bin/adconfig.sh)
    - adchkcfg.sh -> Produces a report that details the differences found in the AutoConfig environment at that time and what changes AutoConfig will make when it runs (output = cfgcheck.html)
    - adcfginfo.sh -> lists all of the products maintained by AutoConfig
    - adtmpreport.sh -> finds the template files for a given configuration file



38



- Presentation
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39



## Release 12 Cloning pg. 1

- Cloning
  - Cloning is the creation of an identical copy of an existing Oracle Applications system
  - Why Clone? Do you need other Apps systems?
    - Create a copy of your production system to test upgrades, patches, configuration changes in
    - Change the directory configuration or server of your production environment
  - Basic steps for cloning:
    - Run adpreclone.pl – Gathers information about “source” system’s Database Tier and Application Tier which is then stored in template type files



40



## Release 12 Cloning pg. 2

- Cloning
  - Basic steps for cloning (continued):
    - Copy entire application file system to target system
      - Can use utilities like rsync
      - Disk to Disk copies using the cp command
      - SAN/NAS based utilities like snaps copies, BVC copies etc...
      - Symbolic links?
    - Run adcfgclone.pl – This script reads the template files and prompts you to enter localized information
    - The Application will be started afterwards and will be ready for use as the new environment (I.E. Test, Dev or Patch etc...)



41



- Presentation
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42



## Release 12 Application Manager (OAM)

- Oracle Application Manager (OAM)
  - Oracle Application Manager is an HTML based GUI tool that is included in the installation of an Oracle Applications system
  - OAM extends your Applications management capabilities:
    - Monitor your system
    - Manage maintenance and patching activities
    - Manage configurations within your system
    - Administer concurrent managers and workflow components
    - Provides access to troubleshooting and Diagnostic wizards



43



## Release 12 OAM Site Map

The screenshot shows the Oracle Applications Manager Site Map interface. At the top, there is a navigation bar with 'ORACLE Applications Manager' and links for 'Support Cart', 'Setup', 'Home', 'Logout', and 'Help'. Below this, there are tabs for 'Administration', 'Monitoring', 'Maintenance', and 'Diagnostics And Repair'. The main content area is divided into several sections: 'System Configuration' (Hosts, AutoConfig, License Manager), 'Application Services' (Generic Services, Request Processing Managers, Transaction Managers, Parallel Concurrent Programming Setup), 'Workflow' (Home, Work Item Metrics, Agent Activity, Background Engines, Notification Mailer, Service Components, Purge), 'Concurrent Requests' (Submit New, Pending, Running, Completed (Last Hour)), 'Service Fulfillment Manager' (Service Fulfillment Manager), and 'Others' (Applications Manager Log, Knowledge Base). A tip at the bottom states: 'TIP Only the items to which you have access are clickable.' The footer contains the same navigation links and copyright information: 'Copyright 2001, 2008 Oracle Corporation. All Rights Reserved. About Oracle Applications Manager Version 2.3.1'.



44



# Release 12 OAM Application Dashboard

**ORACLE Applications Manager** Support Cart Setup Home Logout Help

Applications Dashboard [Site Map](#)

Applications Dashboard: a120vis1 Navigate to Configuration - Overview

**Overview** Performance Critical Activities Diagnostics Business Flows Security Software Updates

**Applications System Status**

Data Retrieved: 12-Jun-2007 10:32:23

Host	Platform	Host Status	Admin	Database	Concurrent Processing	Forms	Web
SBL1C12	LINUX Intel	✓	✓	✓	✓	✓	✓

**Configuration Changes (last 24 hours)**

Data Retrieved: 12-Jun-2007 10:32:23

Patches Applied	0
Site Level Profile Options	0
Applications Context Files Edited	0

**System Alerts**

Data Retrieved: 12-Jun-2007 10:32:23

New Alerts	81
New Occurrences	747
Open Alerts	0
Open Occurrences	0

**Web Components Status**

Data Retrieved: 31-May-2007 00:36:49

PL/SQL Agent	✗	Down
Servlet Agent	✗	Down
JSP Agent	✗	Down
Discoverer	ⓘ	Unmonitored
Personal Home Page	✗	Down
TCF	✗	Down

**User Initiated Alerts**

Data Retrieved: 12-Jun-2007 10:32:23

New Alerts	5
New Occurrences	5
Open Alerts	0
Open Occurrences	0



- Presentation
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## Release 12 Diagnostics pg. 1

- R12 Diagnostics
  - OAM
    - Provides a catalog of Diagnostics available for the E-Business Suite
    - More focused than the Apps RDA
    - Great Paper/Presentation by Susan Behn for further details
      - <http://repo.solutionbeacon.net/BehnSusanDiagnosticsCollab07.pdf>



47



## Release 12 Diagnostics pg. 2

- R12 Diagnostics
  - Apps RDA (Remote Diagnostics Agent)
    - Delivered in a standard patch
    - Metalink Doc. ID: 421245.1 (Release 12 Specific)
    - Diagnostics are completed through the Application



48



## Release 12 Diagnostics – RDA Catalog

### Release 12.0 Diagnostics

<a href="#">Applications Core Technology</a>	<a href="#">Financials</a>	<a href="#">Human Resource Management Systems</a>
<ul style="list-style-type: none"><li>• <a href="#">Applications DBA</a></li></ul>	<ul style="list-style-type: none"><li>• <a href="#">Oracle Assets</a></li><li>• <a href="#">Oracle General Ledger</a></li><li>• <a href="#">Oracle Payables</a></li><li>• <a href="#">Oracle Receivables</a></li></ul>	<ul style="list-style-type: none"><li>• <a href="#">Oracle Human Resources</a></li></ul>
<a href="#">Oracle Partner Relationship Management</a>		
<ul style="list-style-type: none"><li>• <a href="#">Oracle Partner Relationship Management</a></li></ul>		



49



## Release 12 Diagnostics pg. 3

- R12 Diagnostics
  - Database RDA
    - Is not used for E-Business Suite
    - Platform independent
    - Command line tool written in Perl
    - Metalink Doc. ID: 330363.1 RDA Tool FAQs



50



- Presentation
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51



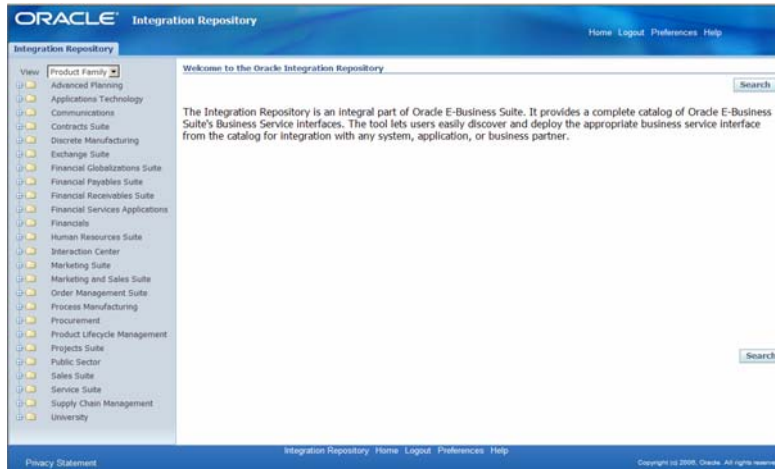
## Release 12 *Repository*

- Release 12 *Repository* (Integration *Repository*)
  - Provides a complete catalog of the “Apps” business interfaces
  - Comprehensive view of the interface mechanisms available
  - Features:
    - Updates are automated and documented
    - Catalog is keyword searchable and product specific navigable



52

# Release 12 Repository - Screen



ORACLE Integration Repository Home Logout Preferences Help

Integration Repository

View Product Family

- Advanced Planning
- Applications Technology
- Communications
- Contracts Suite
- Discrete Manufacturing
- Exchange Suite
- Financial Globalizations Suite
- Financial Payables Suite
- Financial Receivables Suite
- Financial Services Applications
- Financials
- Human Resources Suite
- Interaction Center
- Marketing Suite
- Marketing and Sales Suite
- Order Management Suite
- Process Manufacturing
- Procurement
- Product Lifecycle Management
- Projects Suite
- Public Sector
- Sales Suite
- Service Suite
- Supply Chain Management
- University

Welcome to the Oracle Integration Repository

The Integration Repository is an integral part of Oracle E-Business Suite. It provides a complete catalog of Oracle E-Business Suite's Business Service interfaces. The tool lets users easily discover and deploy the appropriate business service interface from the catalog for integration with any system, application, or business partner.

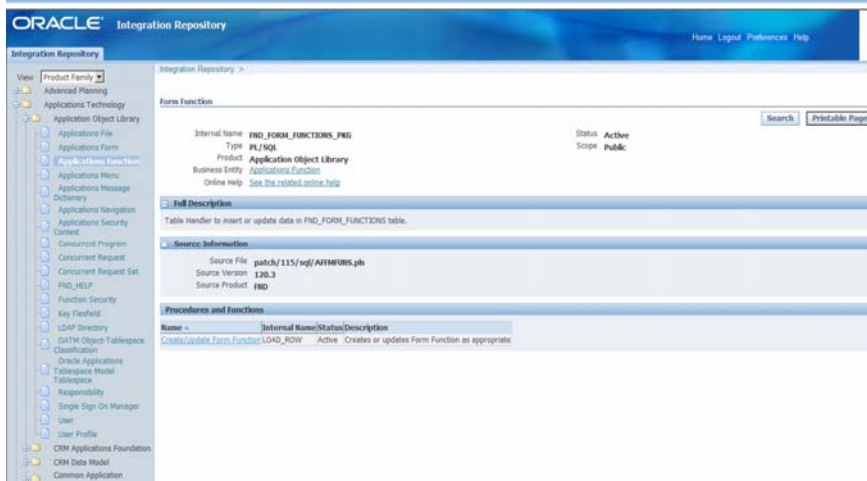
Integration Repository Home Logout Preferences Help

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53

# Release 12 Repository – Detail Pic



ORACLE Integration Repository Home Logout Preferences Help

Integration Repository

View Product Family

- Applications File
- Applications Form
- Applications Message Dictionary
- Applications Navigation
- Applications Security Cardset
- Concurrent Program
- Concurrent Request
- Concurrent Request Set
- FND\_HELP
- Function Security
- Key Field
- LDAP Directory
- GATM Object-Tablespace Classification
- Oracle Applications
- Tablespace Model
- Tablespace Responsibility
- Single Sign On Manager
- User
- User Profile
- CRM Applications Foundation
- CRM Data Model
- Common Application

Integration Repository >

Form Function

Internal Name: **FND\_FORM\_FUNCTIONS\_PKG** Status: **Active**

Type: **PL/SQL** Scope: **Public**

Product: **Application Object Library**

Business Entity: **Applications Function**

Online Help: [See the related online help](#)

**Full Description**

Table Handler to insert or update data in FND\_FORM\_FUNCTIONS table.

**Source Information**

Source File: **patch/115/sql/AFHMFRS.plb**

Source Version: **120.3**

Source Product: **FND**

**Procedures and Functions**

Name	Internal Name	Status	Description
Creates/updates Form Function	LOAD_ROW	Active	Creates or updates Form Function as appropriate

Integration Repository Home Logout Preferences Help

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54



- **Presentation**
  - Audience
  - Tiers
  - Components
  - Technology Layer
  - Application Filesystem
  - AutoConfig
  - Cloning
  - OAM
  - Diagnostics
  - Repository
- **Wrap up**



55



## Wrap Up...

- **Wrap Up...**
  - We have covered the 3 Tiers of Release 12 Oracle E-Business Suite as well as the components on each of those tiers.
  - We talked about the Technology layer which supports all of the product modules and provides commonality in process, functionality and look and feel
  - Next we took a hike through the Application Filesystem which laid the groundwork for how AutoConfig is possible. We also figured out that AutoConfig is a cornerstone of cloning.
  - We briefly discussed OAM, Diagnostics and the new Release 12 Repository
  - Congratulations! You're now ready for the advanced courses we'll be planning in the future...

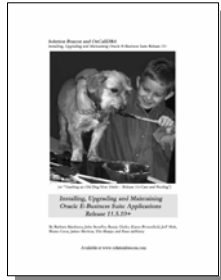


56



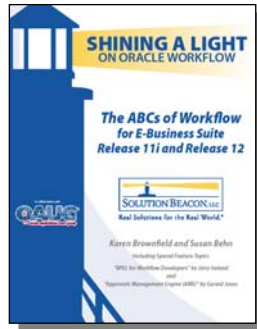
Available at  
[www.solutionbeacon.com](http://www.solutionbeacon.com)

Got Oracle?  
Get the Books!



Installing, Upgrading and Maintaining Oracle E-Business Suite Applications 11.5.10.2+

Order or Reserve Your Copy Today!



The ABCs of Workflow for Oracle E-Business Suite Release 11i and Release 12



The Release 12 Primer – Shining a Light on the Release 12 World



## Oracle Applications Users Group (OAUG)

- THE world's largest knowledgebase for Oracle Applications users
- Networking opportunities with over 118,000 members worldwide
- Access to over 50,000 white papers in the online OAUG Conference Paper Database
- FREE online training every Tuesday, Wednesday and Thursday for OAUG members





## Questions and Answers

Thank You!

Kevin Dahl

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[www.solutionbeacon.com](http://www.solutionbeacon.com)

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59