

# Release 12

## Technical Introduction - Intermediate

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April 14, 2008





# Brian Bent

- Oracle DBA 8 Years
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- Release 10.x to 12
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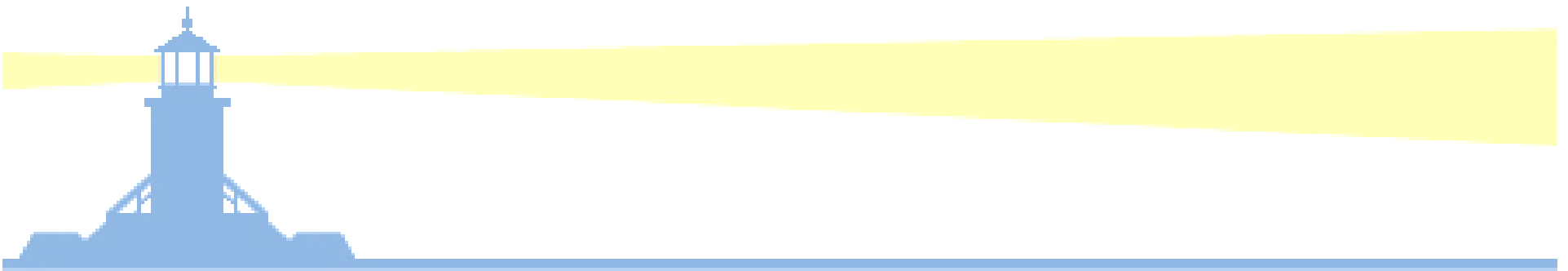
# Agenda

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



# 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



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





# Release 12 Tiers

- 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

# 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

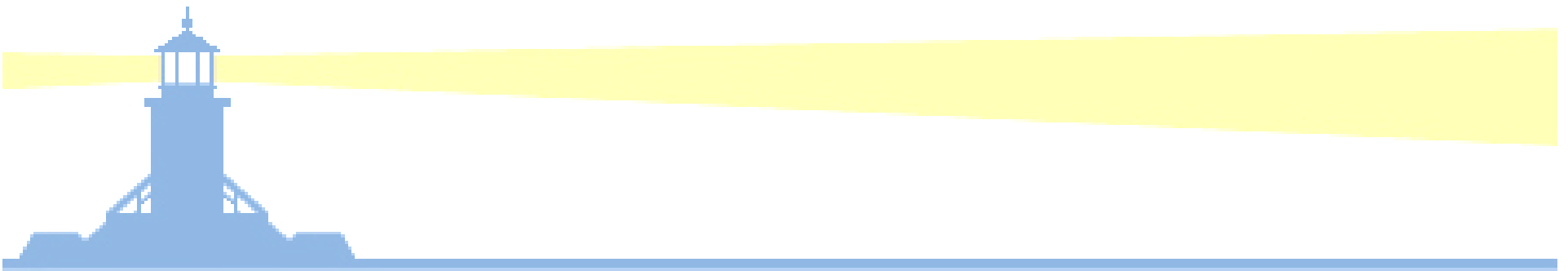
Concurrent Processing Server

Admin Server



Database  
Tier


Oracle RDBMS 10gR2



- Presentation
  - Audience
  - Tiers
  - **Components**
  - Technology Layer
  - Application Filesystem
  - AutoConfig
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  - OAM
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# Release 12 Components / Services

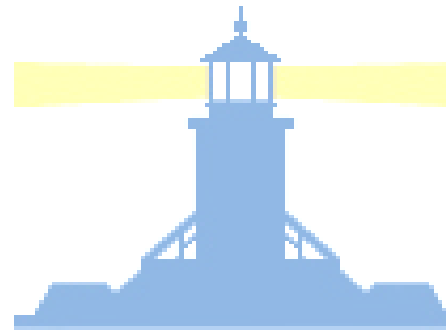
- Web Services
- Forms Services
- Concurrent Processing Server
- Admin Server
- Java Desktop Client



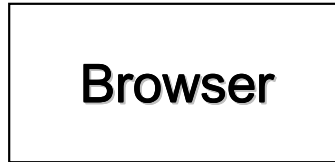
# Release 12 Components / Services – Web Services

- 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: Handles the more advanced requests through the Metadata Dictionary and Database
  - Oracle Process Manager and Notification Server: Manages Application Server components and is responsible for starting/stopping the OC4J containers

# Release 12 Tiers – Java Servlet Access



Desktop Tier



Browser



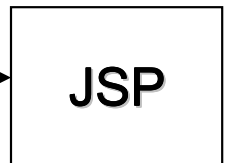
Application Tier



Web Listener



Servlet Engine



JSP



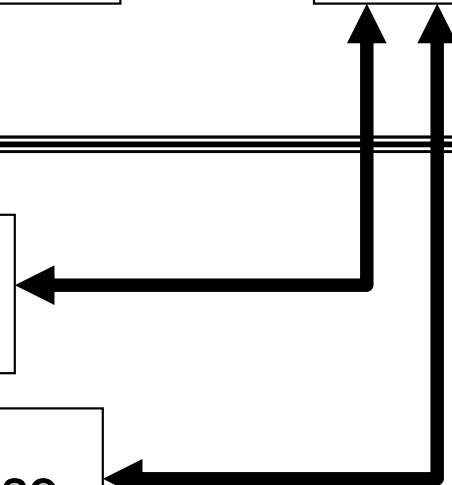
Database Tier




Metadata Dictionary



Database





# 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.

# Release 12 Tiers – Forms Socket Mode



Desktop Tier

Browser

Sun J2SE  
Java Plug-in



Application  
Tier

Web  
Listener

Forms  
Runtime


Forms Svcs

User Interface  
Logic




Database  
Tier

Database




# Release 12 Components / Services – Concurrent Processing Server pg. 1

- Concurrent Processing Server
  - Allows reports or programs to be run in the background
  - Provides the framework for a user to request a report or submit a program to be run while continuing to work in other areas
  - Allows scheduling these requests to run once or periodically as well as what time they are run
  - Governed by a series of tables
  - Can run requests directly from forms and workflow as needed to complete business processing.



# 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



# Release 12 Components / Services – Admin Server

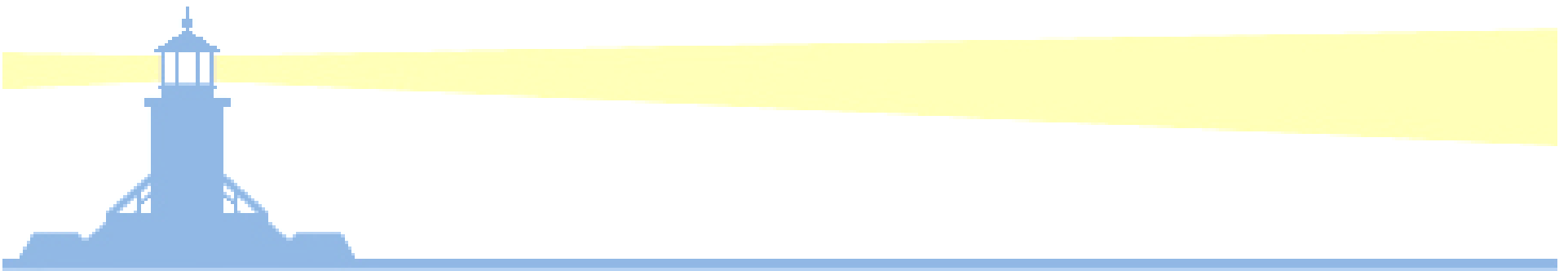
- Admin Server
  - Handles the data model of the Oracle Applications environment and the data in the Oracle Applications Database
  - Patching: Patches update or create new file system objects like forms / reports / sql scripts as well as executing code within the database to change seeded data
  - Maintenance: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





# 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




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





# Release 12 Technology Layer

- Technology Layer
  - An integrated collection of components that are used by all of the Oracle Application modules
    - Applications DBA (AD)
    - Applications Object Library (FND)
    - Applications Utilities (AU)
    - Common Modules (AK)
    - 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



# Release 12 Technology Layer - Picture

HRMS


Financials

Procurement

Manufacturing

.....

Technology Layer: AD, FND, AU, AK, WF, ALR, FWK, XDO



# Release 12 Technology Layer – Application DBA

- Technology Layer – Application DBA
  - 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



# Release 12 Technology Layer – Common Modules


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- Technology Layer - Common Modules
  - 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



# Release 12 Technology Layer – Application Utilities


- Technology Layer – Application Utilities
  - 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



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


- Technology Layer – Application Object Library
  - 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






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

- Technology Layer – Application Object Library
  - 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




# Release 12 Technology Layer - Workflow

- Technology Layer - Workflow
  - 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



# Release 12 Technology Layer - Alerts


- Technology Layer - Alerts
  - 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)



# Release 12 Technology Layer – Application Framework

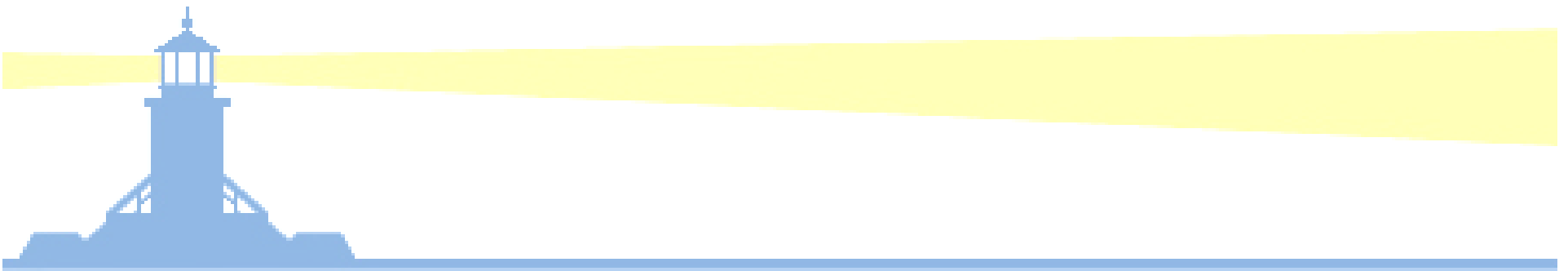
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- Technology Layer – Application Framework
  - Is Oracle's development framework for HTML applications and is a way to shorten development time while maintaining consistency
  - Primary components include:
    - bc4j => Business Components for Java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




# Release 12 Technology Layer – XML Publisher

- Technology Layer – XML Publisher
  - 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




- Presentation
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  - Tiers
  - Components
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  - AutoConfig
  - Cloning
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  - Repository
- Wrap up





# 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...



# 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

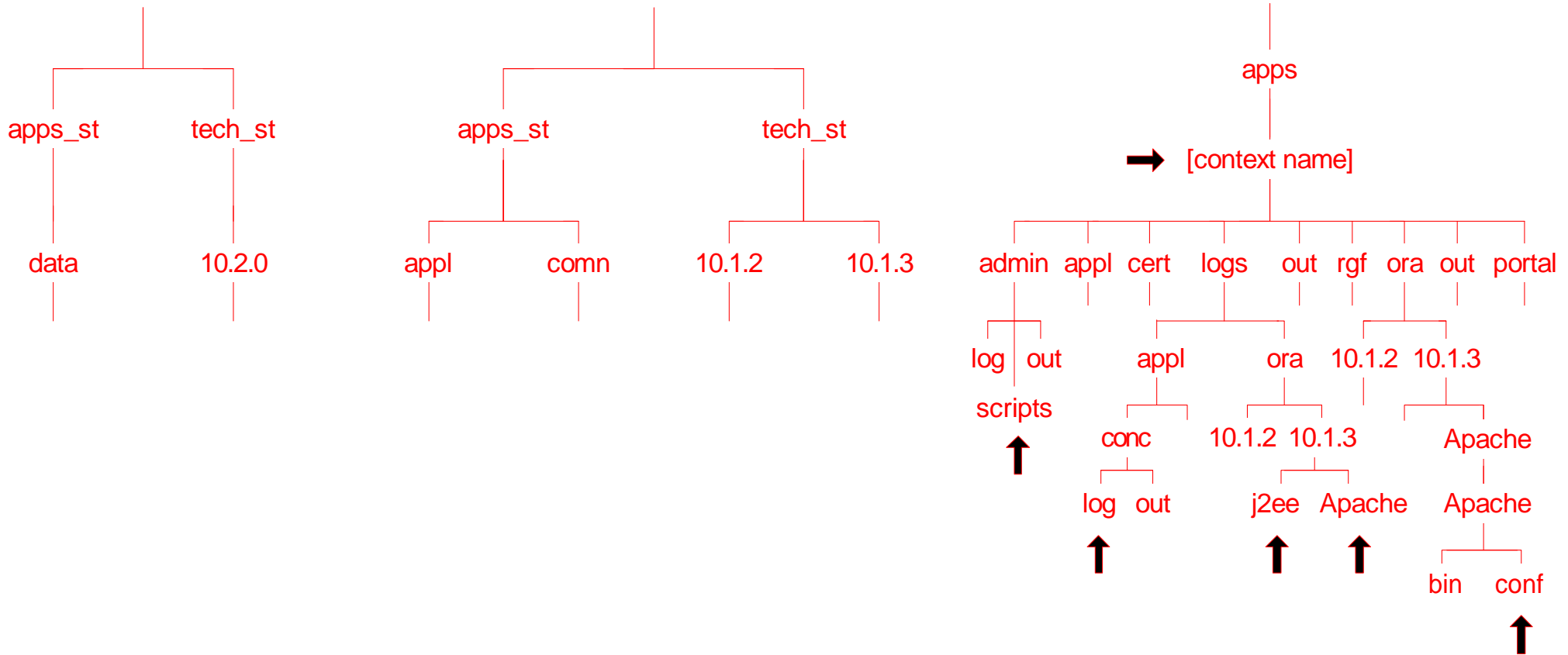


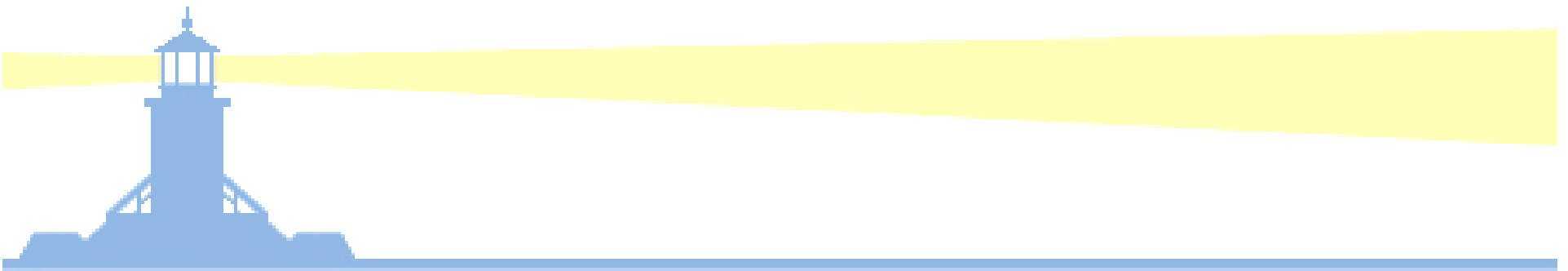


# Release 12 Application Filesystem pg. 3

- 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/comn => \$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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  - **AutoConfig**
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- 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
      - <rdbms\_oracle\_home>/appsutil for the Database Tier



# Release 12 AutoConfig pg. 2

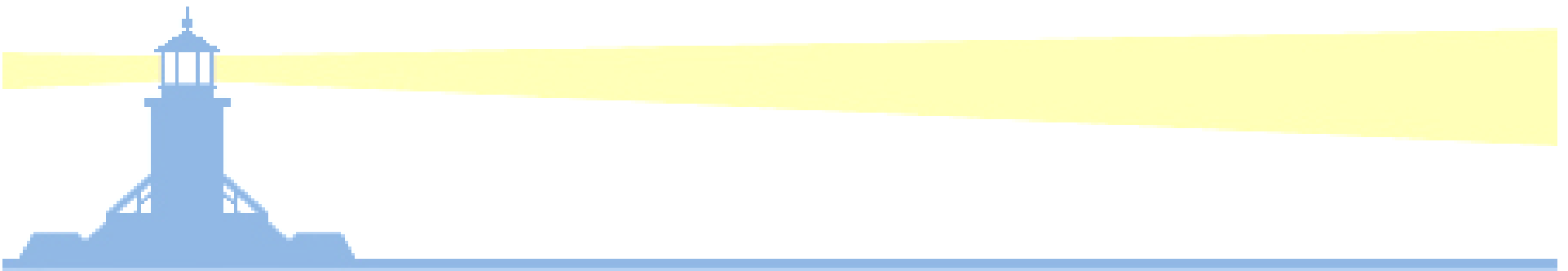
- AutoConfig

- 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:
  - Application Tier:  
\$APPL\_TOP/admin/<CONTEXT\_NAME>/out/MMDDhhmm
  - Database 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



# 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
    - adtmplreport.sh -> finds the template files for a given configuration file



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# 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 server that your production environment is sitting on
- 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



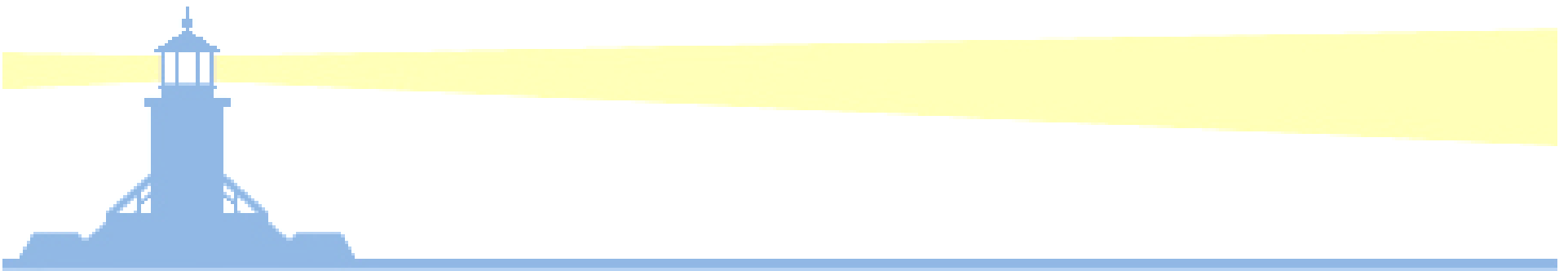


# Release 12 Cloning pg. 2

- 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...)



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# 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

# Release 12 OAM Site Map

**ORACLE** Applications Manager

Support Cart Setup Home Logout Help

Applications Dashboard | **Site Map**

Site Map: a120vis1

**Administration** Monitoring Maintenance Diagnostics And Repair

**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](#)

**Others**

- [Applications Manager Log](#)
- [Knowledge Base](#)

**TIP** Only the items to which you have access are clickable.

Support Cart Setup Home Logout Help

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About Oracle Applications Manager Version 2.3.1

# 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 |
|---------|-------------|-------------|-------|----------|-----------------------|-------|-----|
| SBLLC12 | 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

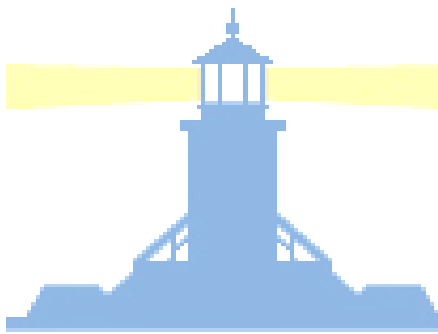
- PL/SQL Agent ✗ **Down**
- Servlet Agent ✗ **Down**
- JSP Agent ✗ **Down**
- Discoverer a **Unmonitored**
- Personal Home Page ✗ **Down**
- TCF ✗ **Down**

### User Initiated Alerts

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

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





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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>



# 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





# Release 12 Diagnostics – RDA Catalog

## Release 12.0 Diagnostics

### Applications Core Technology

- [Applications DBA](#)

### Financials

- [Oracle Assets](#)
- [Oracle General Ledger](#)
- [Oracle Payables](#)
- [Oracle Receivables](#)

### Human Resource Management Systems

- [Oracle Human Resources](#)

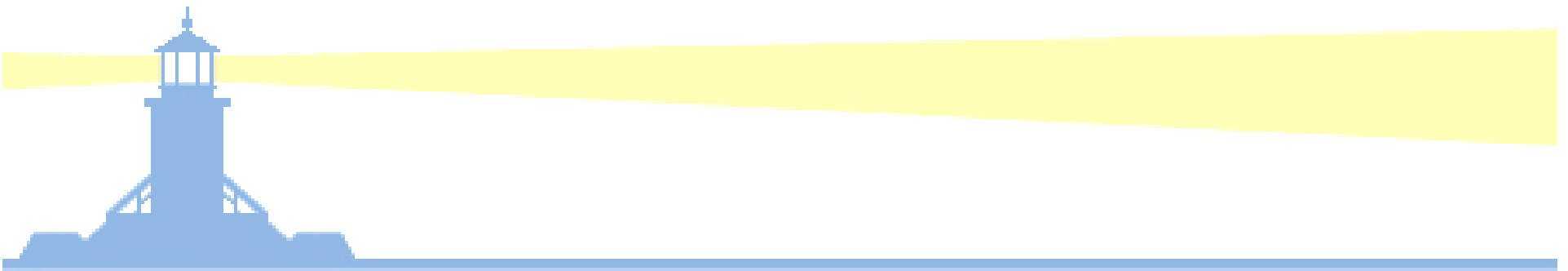
### Oracle Partner Relationship Management

- [Oracle Partner Relationship Management](#)




# 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



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# 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

# Release 12 Repository - Screen

**ORACLE** Integration Repository Home Logout Preferences Help

**Integration Repository**

View

- 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 Copyright (c) 2006, Oracle. All rights reserved.

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# Release 12 Repository – Detail Pic

**ORACLE** Integration Repository Home Logout Preferences Help

Integration Repository

View: **Product Family**

- Advanced Planning
- Applications Technology
  - Application Object Library
    - Applications File
    - Applications Form
    - Applications function**
    - Applications Menu
    - Applications Message Dictionary
    - Applications Navigation
    - Applications Security Context
    - Concurrent Program
    - Concurrent Request
    - Concurrent Request Set
    - FND\_HELP
    - Function Security
    - Key Flexfield
    - LDAP Directory
    - OATM 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.

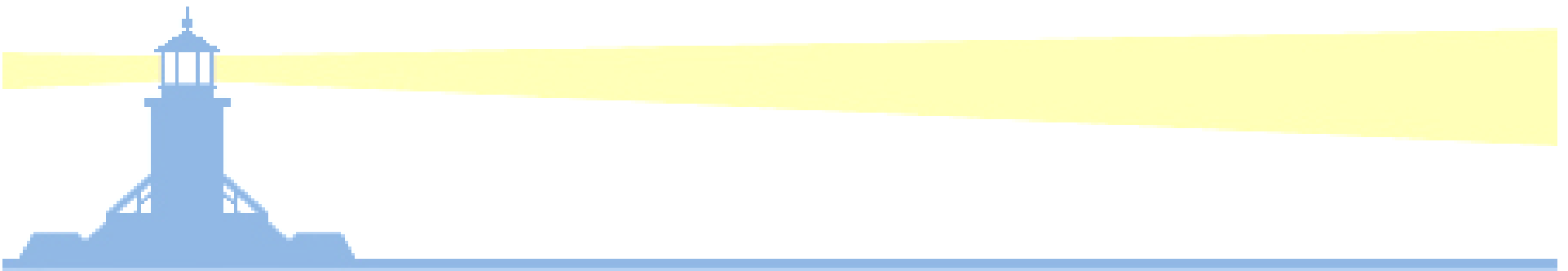
**Source Information**

Source File: **patch/115/sql/AFFMFUNS.pls**  
 Source Version: **120.3**  
 Source Product: **FND**

**Procedures and Functions**

| Name  | Internal Name | Status | Description                                     |
|---|---------------|--------|---|
| <a href="#">Create/Update Form Function</a> | LOAD_ROW      | Active | Creates or updates Form Function as appropriate |





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- **Wrap up**





# 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 /Respository
  - Congratulations! You're now ready for the advanced courses we'll be planning in the future...

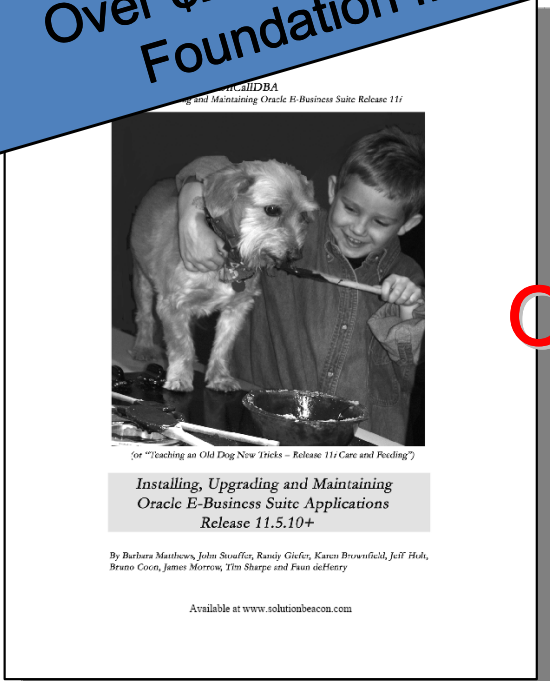




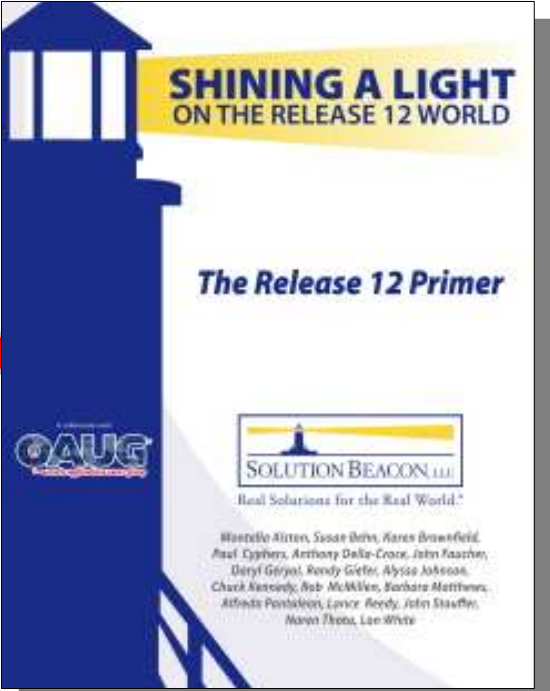
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# Questions and Answers

Thank You!

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