# Considering an Upgrade to
# E-Business Suite Release 12

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## Executive Overview

The purpose of this paper is to provide the reader useful information when considering an upgrade of Oracle E-Business Suite and choosing between Release 11i and Release 12. The paper includes an overview of Release 12, some factors to consider when evaluating an upgrade decision between 11i and R12, recommendations for reducing downtime with an R12 upgrade, and steps to prepare for a Release 12 upgrade. The paper describes key features of Release 12 including a technology stack comparison between 11i and 12, factors affecting the decision to select Release 12, an overview of the upgrade process including major project and upgrade tasks, downtime reduction, lessons learned, and recommendations.

## Background

Oracle released E-Business Suite 11i in 2000. 11i has been supported and improved over the last 8 years and is in use by many customers. In 2007, Oracle introduced E-Business Suite Release 12 with an updated technology stack. Release 12 includes the latest products and innovations from Oracle and continues to evolve and extend the E-Business Suite product. Release 12 incorporates many new features and technologies acquired through acquisitions and development over the last 8 years.

## Objectives and Assumptions

Many E-Business Suite customers face the need to upgrade E-Business Suite, whether it is to implement new modules or interfaces, take advantage of product enhancements, or simply to maintain support. There are many factors to consider and organizations may take a conservative or aggressive position when selecting which version is correct for their unique situation.

This paper will provide an overview of the Release 12 technology stack and provide information that can assist when considering an upgrade to Release 12. The paper includes lessons learned and tips to reduce upgrade downtime and start preparing for an upgrade to Release 12.

# Release 12 Overview

## 11i and R12 Technology Stack Components

Oracle has released many product updates since the initial release of 11i. Some updates have been certified for E-Business Suite and are included or available with the 11i Technology Stack. While the Technology Stack in 11i has been updated, the current 11i Technology Stack is aging and lacks many improvements available in later releases of the component products. Release 12 was introduced with the latest component product versions and takes advantage of more product enhancements.

| Component | 11.5.10 | 12 |
|---|---|---|
| RDBMS Server | 9i Release 2 (9.2.0.5) | 10gR2 10.2.0.2 |
| Web Server | Internet Application Server iAS 1.0.2.2.2 (Apache 1.3.19) | Oracle Application Server 10g 10.1.3 (Apache 1.3.34) |
| Java Servlet Container | JServ | OC4J |
| Forms Server | Oracle Developer6i 6.0.8.24 | Oracle Application Server 10g 10.1.2 |
| Reports Server | Oracle Developer6i 6.0.8.24 | Oracle Application Server 10g 10.1.2 |
| Client Viewer Applet Host | Oracle JInitiator 1.3.1.18 | Java (J2SE) native plug-in 1.5.0_10+ 1.6.0_03+ |
| Discoverer | Discoverer 4i - 4.1.48 | Discoverer 10g -10.1.2.2.0 |
| Java Development Kit | JDK 1.4 – 1.4.2 | JDK 5.0 - 1.5.0_10 |

Release 12 leverages the latest versions of the Oracle Database and Application Server products. The latest standards provide better integration opportunities, performance, and management tools.

Release 12 requires a minimum database version of 10gR2 10.2.0.2, leverages AS10g 10.1.2 for Forms and Reports, and AS10g 10.1.3 for Web and OC4J. Developer Suite 6i Forms and Reports 8.0.6 Home is finally replaced with the latest available version when R12 was released.

Release 12 replaces the Oracle specific Java Client JInitiator with the standard Java Runtime Engine from Sun. Oracle has certified R12 with the Sun JRE 1.6.0_03+ and 1.5.0_10+. .
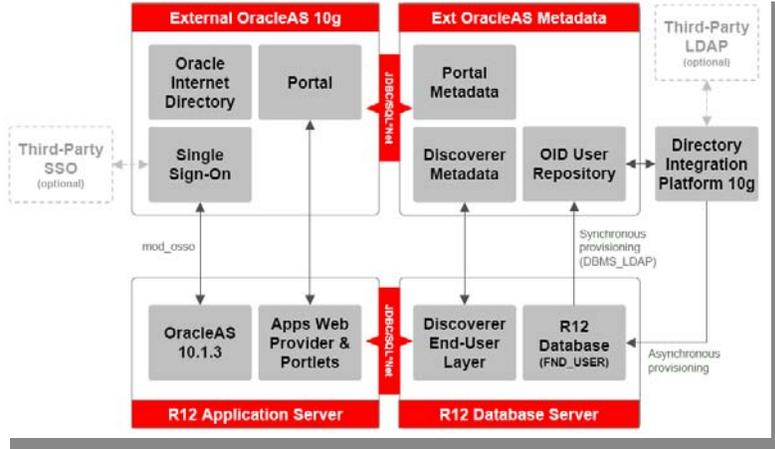
Discoverer 4i has been de-supported in 11i and R12 and Discoverer 10g 10.1.2 is certified. Discoverer 10g is an external integration component in 11i and Release 12. Discoverer 10g must be installed on a separate server or in a separate Oracle Home from the 10.1.2 and 10.1.3 Homes included with the R12 technology stack.

## External Integrations

Many server products and technologies have been released under the Application Server 10g product name. One common misconception is that the AS10g Oracle Homes included in R12 can be used for these products and technologies. The reality is that the R12 AS10g homes are designed to support Forms, Reports, Web, and OC4J only. Other AS10g products can be integrated with E-Business Suite Release 12, but require separate Oracle Homes or servers.

### Optional External Integrations
- ✓ OracleAS 10g Single Sign-On & Oracle Internet Directory 10.1.2.x
- ✓ Discoverer 10.1.2.x
- ✓ OracleAS 10g 10.1.3.1 SOA Suite
- ✓ Portal 10.1.4
- ✓ WebCache 10.1.2.x
- ✓ Oracle Integration 10.1.2.x
- ✓ Collaboration Suite 10gR2
- ✓ Enterprise Manager 10gR2

## File System Changes

| Component | 11i File System | R12 File System |
|---|---|---|
| ORACLE_HOME (RDBMS Home) | *<BASE>*/<SID>db/9.2.0 | *<BASE>*/db/tech_st/10.2.0 |
| ORADATA (Data Files) | *<BASE>*/*<SID>*data | *<BASE>*/db/apps_st/data |
| ORACLE_HOME (Developer Home) | *<BASE>*/*<SID>*ora/8.0.6 | *<BASE>*/apps/tech_st/10.1.2 |
| IAS_ORACLE_HOME (iAS Oracle Home) | *<BASE>*/*<SID>*ora/iAS | *<BASE>*/apps/tech_st/10.1.3 |
| APPL_TOP (Application Top) | *<BASE>*/*<SID>*appl | *<BASE>*/apps/apps_st/appl |
| COMMON_TOP (Common Top) | *<BASE>*/*<SID>*comn | *<BASE>*/apps/apps_st/comn |
| INST_TOP (Instance Top)<br><br>Instance Top (New)<br><br>• **Separate common & instance specific files**<br>• **Share common files between nodes and/or instances**<br>• **Technology stack and applications can have separate owners**<br>• **Shared file systems can be made read only when not patching for code safety**<br>• **Co-location of instance state including configuration and log files**<br>• **Network or local storage for each top** |  | *<BASE>*/inst/apps/*<context_name>*<br><br> |

In R12, the component home paths have moved and have some significant improvements. A base path for each component is provided during install and subdirectories are created under the base path to provide a more logical structure. The base mount point can be different between components (e.g., s01 for database and s02 for data files). The common naming convention for release 11i used the instance name as part of the path and added a small suffix to separate the various homes. Release 12 removes the instance specific prefix to allow homes to be shared between instances. The next directory in the path is db, apps, or inst to separate database tier, apps tier, and instance specific files followed by tech_st or apps_st to separate technology stack components from application code.

The Release 12 file system is very similar to the release 11i with the exception of the new Instance Top. The instance top separates configuration files and logs from the static technology stack and application files. The instance top is designed to separate common and instance specific files to enable sharing of common files between nodes when shared mount points are employed. The relocation also allows the technology stack and application file systems to have separate owners and for the technology stack file systems to be read only when not patching or upgrading. The Instance Top provides a single location to find all logs and configuration files and separates files that change frequently and require backup from files that are more static and require less frequent backup.

Release 12 file system changes provide more flexibility in choosing where to locate each technology stack and application component on network or local storage and to use various RAID levels of redundancy and performance

## SWAN Look and Feel

The SWAN Look and Feel includes design elements from Peoplesoft, other acquisitions, and thousands of hours of user testing and feedback.

### 11i Self-Service Expense Report



### Same Expense Report in R12 SWAN Look and Feel

**CRM Forms Screen in 11i**



**Same CRM Forms Screen in R12 SWAN Look and Feel**

<u>**Personalization**</u>

Release 12 includes many usability enhancements to OFA and Forms personalization functionality including the ability to place external content in standard forms without the need for customization and source control.

<u>**BI Publisher**</u>

Release 12 continues the migration to BI Publisher and includes many more seeded reports in the new XML format.

<u>**Grid Control E-Business Suite Admin Packs**</u>

A new management pack for Grid Control is available to help monitor and manage E-Business Suite. The Applications Management pack includes Automated Cloning, Service Level Management, and Configuration Management Reports.

More information on E-Business Suite Administration Packages for Grid Control can be found on Steven Chan's Blog and Oracle's product pages with the following links.

- *"Application Management Pack for Oracle E-Business Suite Now Available"*, Steven Chan • 02/23/2007: http://blogs.oracle.com/schan/2007/02/23#a1242
- Enterprise manager Oracle Product Page**:** http://www.oracle.com/enterprise_manager/applications-management-packs.html
- Enterprise Manager Oracle Data Sheet: http://www.oracle.com/technology/products/oem/pdf/apps_mgmt_ebiz.pdf

<u>**Storage Requirements**</u>

**Data Growth and Storage Requirements**

A good starting assumption for a release 12 upgrade is 10% data growth. Oracle experience with upgrades to their Global Single Instance resulted in growth under 10% as described below. Metalink Note: 399362.1 includes detailed information at a product and tablespace level.

| Years of Data Migrated | Before Upgrade DB Size(GB) | After Upgrade DB Size(GB) | Delta(GB) | %Growth |
|---|---|---|---|---|
| 3 Years | 6609.97 | 6808.44 | 198.47 | 3% |
| 12 Years | 6609.97 | 7161.61 | 551.64 | 8.30% |

**Additional Space Required During Upgrade**
Oracle recommends that you keep 11i Application Tier File System until upgrade complete. Average requirements are 30GB Application Tier and 5GB Database Tier.

Staging requirements for R12 are approximately 35GB compressed and 45GB uncompressed for a total of 80GB if zipped files are retained.

## Memory Requirements

Database Initialization Parameter Sizing Recommendations are currently the same for 11i and R12 (11i Note: 216205.1, R12 Note: 396009.1).

| Parameter Name | Dev/Test Instance | 11 – 100 | 101 – 500 | 501 – 1,000 | 1,001 – 2,000s |
|---|---|---|---|---|---|
| Processes | 200 | 200 | 800 | 1200 | 2500 |
| Sessions | 400 | 400 | 1600 | 2400 | 5000 |
| db_block_buffers | 20000 | 50000 | 150000 | 250000 | 400000 |
| sga_target | 1G | 1G | 2G | 3G | 14G |
| shared_pool_size (csp) | N/A | N/A | N/A | 1800M | 3000M |
| shared_pool_reserved_size (csp) | N/A | N/A | N/A | 180M | 300M |
| shared_pool_size (no csp) | 400M | 600M | 800M | 1000M | 2000M |
| shared_pool_reserved_size (no csp) | 40M | 60M | 80M | 100M | 100M |
| Total Memory Required | ~ 2 GB | ~ 3 GB | ~ 6 GB | ~ 13 GB | ~ 25 GB |

Middle tier memory requirements have increased from 11i. A review of 9iAS and AS10g components shows an increase in the minimum requirements from 768MB to 2.5GB. Additional memory should be allocated based on expected concurrent user count.

| Component | 11i 10 | | R12 | |
|---|---|---|---|---|
| Web Server | iAS 1.0.2.2 | 256 MB | AS10g 10.1.2 | 1 GB |
| Forms and Reports | Developer 6i | 512 MB | AS10g 10.1.3 | 1.5 GB |

## Processor Requirements

Processor requirements are less specific and are impacted by many factors. Some things that should be considered include the database size and data to be upgraded, modules implemented, batch processing requirements, and acceptable upgrade downtime.

If performance is less than acceptable in 11i, it will likely not improve with Release 12. An assumption of 25% additional capacity is a good starting point.

### Upgrade Paths

Direct upgrade from 11.5.7 and above is supported in 11i. Earlier versions require an interim upgrade to 11.5.10 CU2.

| Current Release | Upgrade Path | Documentation |
|---|---|---|
| 11.0, 11.5.1 - 11.5.6 | Release 11.5.10 CU2 > Release 12 | Maintenance Pack Installation Notes, Release 11.5.10 CU2 (Doc ID: 289788.1) > Oracle Applications Upgrade Guide: Release 11i to Release 12 (Doc Library CD) |
| 11.5.7 - 11.5.10 | Release 12 | Oracle Applications Upgrade Guide: Release 11i to Release 12 (Doc Library CD) |

Release 12 has a minimum requirement of RDBMS 10.2.0.2. RDBMS 10gR2 is certified on 11.5.9 and above. If your applications version is 11.5.9 CU2 or 11.5.10 CU2, downtime can be reduced by upgrading to 10g before upgrading to Release 12. When upgrading from any other version, the database must be upgraded during the R12 upgrade or with an interim upgrade to 11.5.9 CU2 or 11.5.10 CU2.

Release 11.5.9 CU2 and 11.5.10 CU2

- Upgrade database before migrating to R12 to limit R12 migration downtime or during R12 migration.

Release 11.5.7, 11.5.8, 11.5.9 base, 11.5.9 CU1, 11.5.10 base, and 11.5.10 CU1

- Upgrade database during R12 migration downtime

### R12 Upgrade Tools

**The Upgrade Manual Script (TUMS)**

The TUMS script identifies upgrade tasks that do not apply to your environment. The script is run from the middle tier server and a report unique to the instance is produced.

**Rapid Install**

Rapid Install Creates the new file system for the middle tier components and database, configures, and starts application services after instance upgrade. The install is streamlined from the 11i installer and makes use of Autoconfig and RapidClone functionality.

**AutoUpgrade**

AutoUpgrade is no longer used with Release 12. Tasks that were performed by AutoUpgrade in 11i have been migrated to AutoPatch. AutoPatch requires less input and streamlines the upgrade process.

**AutoPatch**

AutoPatch is used to apply the R12 upgrade driver. This is the same tool used to apply module upgrades and one-off patches. AutoPatch supports more upgrade tasks in Release 12 and the result is fewer upgrade tasks for the DBA.

**Upgrade by Request**

Before completing the upgrade to Release 12, a small patch can be applied to limit the amount of data to be upgraded during the upgrade. The tool can be used to postpone the upgrade of historical data until after the instance is made available. The tool can be used to limit upgrade downtime.

**Maintenance Wizard**

Maintenance Wizard is a replacement for Upgrade Assistant, which was used with 11i upgrades. The tool presents a consolidated, personalized set of instructions in a step-by-step format. It enables validation of important activities to prevent downstream issues and maintains log and status information for all tasks. The tool can also be used to download, merge, and install many required patches automatically.

Maintenance Wizard includes project management utilities to record the time taken for each task and completion status and can be used to execute tasks automatically.

Additional information on Maintenance Wizard is available in Metalink Note: 215527.1.

**R12 Quarterly and Annual Release Model**

Oracle has changed the patch and update model with Release 12 to help customers better plan and implement patching and upgrades. Oracle has committed to releasing a quarterly rollup (RUP) patch, which includes bug fix patches and new functionality. In addition, Oracle will release an annual Point release that includes major new functionality for Release 12.

RUP patches are the "y" in the 12.x.y version-naming scheme and the current RUP is 12.0.4. The RUP patches will be released on schedule every quarter and customers can plan their test and upgrade cycles with some certainty under this model. Major new functionality is reserved for Point releases. RUP patches are designed to maintain a Point release by rolling up all fixes and enhancements to the associated Point release.

Oracle will release an annual Point release patch to introduce major new functionality. Point releases are the "x" in the 12.x.y version-naming scheme and the current point release is 12.0 with 12.1 due out in 2008. Point releases are designed to implement a new codeline (branch) and introduce a new line of features and can significantly change the operation of your system. The introduction of and will not automatically result in the stopping of new enhancements and fixes for previous Point releases. New RUP patches will continue to be developed and released for previous Point releases as long as that codeline is being enhanced and supported.

Individual One-Off patches to address specific bugs will continue to be released to address immediate customer needs and will be rolled up into RUP patches.

See Metalink Note: 459156.1 "Oracle Applications Patching FAQ for Release 12" for additional details on Oracle's patching strategy for Release 12.

Critical Patch Updates (Security Patches) have been release quarterly for some time now. Oracle has confirmed that this model will be followed for CPU patches with Release 12 with the change that all application level CPU patches will be bundled in the quarterly point releases and will be cumulative as a result. Technology stack CPU patches will continue to be released on a quarterly basis and should be applied. Applications CPU patches will be available as a separate patch and included in the quarterly Oracle E-Business Suite Critical Patch Update Note (Currently Note: 467742.1 for January 2008).

**R12 Upgrade Process**

The table below includes a high-level view of the major upgrade tasks. Upgrade tasks are divided by Technical vs. Functional and tasks to be performed before, during, and after downtime. Any tasks that can be performed before or after downtime will reduce the required downtime. Required tasks are dependant on the E-Business Suite version before upgrade, existing patches in the current environment, and the modules and functionality implemented.

| Timing | Technical Upgrade Tasks | Functional Upgrade Tasks |
|---|---|---|
| **Before Downtime** | • Migrate to RDBMS 10gR2 if Current Version 11.5.9.2 or 11.5.10.2<br>• Familiarization and Sizing Estimates<br>• Apply AD.I<br>• Run TUMS<br>• Establish Sufficient Tablespace Room<br>• Migrate to OATM<br>• Apply ATG_PF.H.RU4 (Migrate to Workflow for Alert E-Mails)<br>• Various Product Related Tasks<br>• Configure Upgrade by Request to Identify Upgrade Time Period (Optional) | • Familiarization<br>• Business Process Mapping<br>• Complete Optional Reducing Downtime Tasks in "Appendix E" of Upgrade Guide |
| **During Downtime** | • Migrate to 10gR2 (if not already completed)<br>Apply R12 AD.A Minipack<br>• Run the R12 Patch Driver<br>• Apply Latest Product Patches<br>• Configure and Start Server Processes<br>• Reapply Customizations<br>• Finish System Admin Tasks (SSL, Workflow Mailer, XML Gateway, PDF Printing, BI Publisher Setup) | |
| **After Downtime** | • Verify Completion of Concurrent Programs<br>• Install Online Help<br>• Migrate Custom Development to New Technology Stack<br>• Run Data Migration program for Historical Data<br>• Update URLs in Open Workflows<br>• Various Product Related Tasks<br>• Remove 11i Middle Tier Files | • Post Upgrade Configuration Tasks<br>• Verification Tasks<br>• Identify Approach to Upgrade Historical Data if Upgrade by Request is Used |

## Summary

### Choosing Between 11i and R12

I would encourage anyone considering and upgrade to Release 12 to reach out to other organizations that have recently made a choice and started or completed an upgrade project. The experience of other organizations can help to make the correct decision for your own organization and to identify and address key project risks and success factors before starting your own upgrade project.

Oracle and implementation partners are available to help you understand options, project scoping, and success factors. Steven Chan of Oracle (Director, Applications Technology Integration for Oracle E-Business Suite Development) hosts a Blog at http://blogs.oracle.com/schan . The Blog includes many feature announcements and tools to help you understand, maintain, implement, and upgrade E-Business Suite. In an article in February 2007 titled "Choosing Between Release 12 or 11i", Steven explained that choosing the right upgrade path is more about the business costs and benefits and less about the specific technology.

> *"At the heart of the choice between Release 11i and 12 is a hierarchy of business decisions, decisions that require broad and deep input from the stakeholders in your end-user community."[1]*

Although the article specifically referenced versions 11i and Release 12, much can be applied generally to system selection processes. Steven recommended six questions when choosing an upgrade path.

> *"1. What's the prioritized list of applications that your business users use today? What are the differences in Release 11i and Release 12 functionality for those applications?"[1]*

Desired functionality is probably the most visible selection criteria to your users. The system needs to support required business processes efficiently. Pick the solution that best meets your current and expected functional needs and adds the most value to your organization.

> *"2. What business advantages, process improvements, and new organizational capabilities will be possible with the new Release 12 features?" [1]*

Release 12 followed 11i by nearly seven years and includes refined, improved, new, and sometimes reinvented business processes. Some process improvements are welcome and have an immediate positive effect while others may result in challenges and change management concerns within your organization. Evaluate the changes and their expected impact on your organization.

> *"3. What are the new architectural or deployment capabilities in Release 12? How will these new capabilities improve system performance, scalability, availability, manageability, and security?" [1]*

Release 12 includes a new generation of technology stack components designed for scalability, high availability, and manageability. Although current and earlier versions of 11i supported RAC, load balancing at the middle tier, and other advanced configurations, many new implementation options are available with he new technology stack. In addition, implementation processes have been streamlined reducing the complexity, effort, and potential issues. The new technology stack presents change to your organization and will require training and staff time to implement and support.

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[1] http://blogs.oracle.com/schan/newsItems/departments/release12/2007/02/15#a1226
*"Choosing Between Release 12 or 11i"*, Steven Chan • 02/15/2007

*"4.     What investments have you made in adapting your organization to Release 11i, and vice versa?  This might include:*

- *Employee, partner, vendor, and supplier training*
- *Customizations and Personalizations, including custom Forms, OA Framework screens, workflows, concurrent programs, and reports*
- *Integrations with third-party systems"* [2]

Release 12 includes change, hopefully for the better, and change has associated costs and benefits.  Heavy customizations in existing environments will likely require resources to be dedicated to migrating customizations and may have a schedule impact.


*"5.     Which of your customizations, extensions, and Personalizations can be replaced with new Release 12 features?  What savings will these represent?  How much of those investments will carry over to Release 12?"* [2]

Customizations require ongoing support and should be eliminated when standard functionality is available to meet process requirements.  Release 12 includes better support for Personalizations, which require very little maintenance when compared with Forms and Oracle Framework customizations.  Reducing or eliminating customizations can lead to a lower total cost of ownership.  Some process changes can be unwelcome and may require new customization or development effort.


*"6.     How will Release 12 help reduce your operational costs?  What are the incremental costs of Release 12 infrastructure, relative to your current Release 11i infrastructure costs?  These costs might include server, storage, and networking hardware and licensing."* [2]

Compare the costs to implement, operate, and maintain each version.  Take time to understand the value that technology stack and management tool improvements add and the impact to your total cost of ownership.

The full Blog is currently located at
http://blogs.oracle.com/schan/newsItems/departments/release12/2007/02/15#a1226
*"Choosing Between Release 12 or 11i",* Steven Chan • 02/15/2007


## Factors Affecting the DGS R12 Decision

**Technology Stack**

### Technical Upgrade Steps
**Advantage:** Release 12

The upgrade process and tasks are similar between 11i an Release 12.  Oracle has consolidated some steps in Release 12 and has reduced complexity and effort required to perform the technical upgrade.  With an 11.5.10.2 upgrade from 11.5.7, individual technology stack components (RDBMS, Web Server, Forms Server, etc...) would be upgraded independently.  The upgrade path to R12 includes a single Rapid Install to provide the updated technology stack.

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[2] http://blogs.oracle.com/schan/newsItems/departments/release12/2007/02/15#a1226
*"Choosing Between Release 12 or 11i"*, Steven Chan • 02/15/2007

### Report Development
**Advantage:** 11.5.10.2

There is a difference in migration of custom reports in R12 vs. 11i. Most custom reports would not require modification in an 11.5.10.2 upgrade. In R12, binary reports (PDF or Postscript output from Oracle Reports) have been de-supported and Oracle recommends that customers convert these binary reports to BI Publisher. This represents additional effort when upgrading to Release 12.

### Post Upgrade Patching
**Advantage:** Release 12

Several major technology, security, and application patches were released after 11.5.10.2. These patches and upgrades would need to be applied in addition to the initial upgrade for 11.5.10.2. Release 12 includes a predictable quarterly release that includes cumulative minor product enhancements, application security patches, and bug fixes. The bundled approach to patching with Release 12 reduces the number of patches to apply and the complexity of patch analysis and application.

## Project Impact and Total Cost of Ownership

### Risk
**Advantage:** 11.5.10.2

There is increased risk to a project with Release 12 as it has been available for less time than 11.5.10.2 and has a smaller install base. Oracle, implementation partners, and the customer share risk and responsibility to mitigate risk. Projects starting today will have decreased risks as the R12 install base is growing rapidly.

### Testing
**Advantage:** No advantage for either version

Functionality and integration testing requirements are more a function of the specific business process flows and functionality implemented than technical versions or solutions. Testing requirements would likely have little difference between 11i and Release 12.

### Support and Total Cost of Ownership
**Advantage:** Release 12

The effort and associated cost to upgrade to R12 from 11.5.7 is approximately the same as the upgrade to 11.5.10.2 from 11.5.7. Upgrades from Release 11.0 may require additional effort, but will likely benefit from a stepped upgrade to Release 12 as post upgrade patching will be reduced.

An upgrade to R12 moves farther along the release path for Oracle Applications. Technology stack and application versions will be supported longer on R12 vs. 11.5.10.2 and result in fewer upgrades in the future.

## Application and Technology Stack Features

### Functionality
**Advantage:** Release 12

Release 12 includes new and enhanced functionality that will benefit users in the near and long term. Although Oracle has committed to supporting 11.5.10.2 users far into the future, new development is focused on Release 12 and Fusion Applications. Implementation of Release 12 will ensure that new and enhanced functionality will be available with the upgrade and as Oracle provides software updates.

### Navigational Features and Look and Feel
**Advantage:** Release 12

Significant improvements in look and feel are included in Release 12. Oracle has leveraged design elements from PeopleSoft, other acquisitions, and thousands of hours of user testing and feedback to create the new SWAN look and feel in Release 12.

**Database Server**
**Advantage:** No advantage for either version

The same version of the database server (10gR2) would be implemented for 11.5.10.2 or for R12.

**Applications Server**
**Advantage:** Release 12

Release 12 utilizes Application Server 10g for Forms, Web, OC4J, and external integrations including Discoverer, Portal, SSO/OID, and BPEL. The same applications server versions would be implemented with 11.5.10.2 for external integrations, but 9iAS would be used for Web and Forms.

**Technical Features**
**Advantage:** Release 12

Release 12 includes more embedded Oracle Fusion Middleware features than 11.5.10.2. Oracle Applications Manager and Grid Control Application Management packs include improved cloning and system management tools under Release 12. Release 12 includes the new Integration Repository to assist Developers. In addition, Release 12 includes the latest Application Server versions and their associated management tools.

**Personalizations**
**Advantage:** Release 12

There is increased use of Personalizations in R12, which provide the opportunity to tailor the application without the need for costly and risky customizations. Some existing customizations may be eliminated with expanded availability of Personalizations in R12.

# Conclusion

**Minimizing Downtime**

**TUMS**

The Upgrade Manual Script (TUMS) is a useful tool to identify upgrade tasks that can be skipped. Use of TUMS is highly recommended and resulted in significant timesavings for DGS.

**OATM**

Convert to the Oracle Applications Tablespace Model (OATM) before upgrade if the conversion has not already been completed. The conversion simplifies administration, improves performance, and can reduce the time required to upgrade to Release 12.

**Pre-Upgrade Tasks**

Identify tasks that can be completed before the upgrade to Release 12 and complete these tasks early. If these tasks are not identified and applied early, project tasks and time constraints can limit staff availability for testing and application close to the upgrade. If the current EBS version is 11.5.9.2 or 11.5.10.2, upgrade the database to 10gR2 prior to the Release 12 upgrade to minimize upgrade tasks during the upgrade downtime.

**Archive and Purge**

Archive or purge historical data that is past retention requirements to limit the amount of data to process in the upgrade to Release 12. If archive and purge policies are not established, use this opportunity to establish a policy.

**Module Specific Tasks to Reduce Downtime**

Follow Module Specific Tasks to Reduce Downtime in Appendix E of the R12 Upgrade Guide. If extended downtime is costly or unacceptable, Appendix E can help to minimize downtime.

**Upgrade by Request**

If you have a large amount of data to upgrade and need to minimize downtime, consider using Upgrade by Request functionality to upgrade recent data and provide user access while historic data is upgrade. For more information, see Appendix G Upgrade by Request of the Release 12 Upgrade Guide.

**Adequate Hardware**

Establish adequate hardware to be used during the upgrade. Undersized hardware will slow the upgrade and increase downtime.

**Implementing Multiple Middle Tier Nodes**

If converting to a load balanced middle tier, upgrade a single node and follow Metalink Notes 406982.1 and 380489.1 to add additional nodes and configure load balancing. Applying the full upgrade to multiple nodes will result in more downtime than cloning and configuring additional nodes after upgrade.

**Lessons Learned**

**JInitiator is De-Supported and Current Certification for Sun JRE is 1.6.0_03**

Use of the standard Sun JRE is a welcome change, but comes with support challenges. JRE 1.6.0_03+ and 1.5.0_10+ are currently certified and certification for additional releases is underway. R12 use of the standard Sun JRE may conflict with the required versions for other Enterprise applications. Develop a strategy to manage and maintain version control of client systems.

For more information, see "*Upgrading Sun J2SE (Native Plug-in) with Oracle Applications 12 for Windows Clients*" (Metalink Note 393931.1)

**Concurrent Request Access**

The profile option "Concurrent:Report Access Level" is de-supported in Release 12 as Role Based Access Control (RBAC) is available. This profile option allows users to view other user's concurrent requests including output when set. The upgrade disables this profile option and does not migrate access to RBAC. RBAC is configured at the concurrent program level and can take some time to develop and deploy. For more information, see Metalink Bug: 6839402.

**Procurement and Payables Include Significant Changes**

Procurement and Payables include many changes in Release 12, many of which move functionality from Oracle Forms to OA Framework. Existing customizations in these modules may require significant changes to migrate to OA Framework.

**Multiple Organization Flag**

Changes to the way Organizations and Business Entities are defined in Release 12 may result in necessary modifications to custom code and changes to report definitions. In a recent upgrade, many seeded reports in the Projects module were not updated by the Release 12 upgrade and required modification. For more information, see *"Multiple Organizations"* in the *"Financials and Procurement Tasks"* in Chapter 4 Post-Upgrade Tasks of the Release 12 Upgrade Guide.

## Preparing Today for an R12 Upgrade

**Training**

Preparing staff with proper training prior to an upgrade project can improve implementation decisions and success. Training opportunities are available for the technology stack and applications. Significant changes are included in the Release 12 technology stack and DBA training can improve proper maintenance and tuning of the E-Business Suite system.

**Hardware Planning**

Hardware requirements vary significantly based on the modules implemented, user count, platform, customizations, and previous experience. A baseline assumption of 25% additional processing and memory requirements and 10% data growth is a good place to start and represents modest growth for most organizations. Many hardware manufacturers can assist with E-Business Suite sizing estimates.

**Upgrade to RDBMS 10gR2**

Upgrade to Oracle RDBMS 10gR2 if your current environment is 11.5.9.2 or 11.5.10.2. The upgrade is required for Release 12, early upgrade will reduce the required downtime for the Release 12 upgrade, and you can take advantage of improvements available in 10gR2 today.

**Migrate to Oracle Applications Tablespace Model (OATM)**

OATM provides performance improvements by storing database objects by storage and retrieval characteristics. Implementation of OATM frequently results in lower storage overhead as the old model included a couple hundred tablespaces and the new model includes only a few dozen tablespaces. Consolidating free space allows a lower percentage of free space to be maintained.

**Migrate Binary Reports to BI Publisher**

Implementation of BI Publisher early will allow report development to be performed prior to upgrade and free developers to focus on higher value tasks during upgrade. Implementation and experience will help prepare developers to support BI Publisher reports during and after the Release 12 upgrade.

**Document References**

- R12 Online Documentation (Metalink Knowledge Tab)
- *"Oracle Applications Documentation Resources, Release 12*" (Metalink Note: 394692.1)
- "*E-Business Suite Release 12 Upgrade Tablespace Sizing and Best Practices"* (Metalink Note: 399362.1).
- *"Oracle E-Business Suite Release 12 Technology Stack Documentation Roadmap"* (Metalink Note 380482.1)
- *"Integrating Oracle E-Business Suite Release 12 with Oracle Internet Directory and Oracle Single Sign-On"* (Metalink Note: 376811.1 )
- *"Maintenance Wizard Overview"* (Metalink Note: 215527.1)
- *"Using Discoverer 10.1.2 with Oracle E-Business Suite Release 12"* (Metalink Note: 373634.1)
- *"Using Oracle Portal 10g with Oracle E-Business Suite Release 12"* (Metalink Note: 380484.1)
- Steven Chan's Release 12 Blog http://blogs.oracle.com/schan/release12
- *"Preparing Custom Development for Next Oracle E-Business Suite Release"* (Metalink Note 374398.1)
- "*Upgrading Sun J2SE (Native Plug-in) with Oracle Applications 12 for Windows Clients"* (Metalink Note 393931.1)
- *"Application Management Pack for Oracle E-Business Suite Now Available"*, Steven Chan • 02/23/2007: http://blogs.oracle.com/schan/2007/02/23#a1242
- Enterprise manager Oracle Product Page**:** http://www.oracle.com/enterprise_manager/applications-management-packs.html
- Enterprise Manager Oracle Data Sheet: http://www.oracle.com/technology/products/oem/pdf/apps_mgmt_ebiz.pdf
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