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# Technical Upgrade Best Practices

Oracle E-Business Suite 12.2

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# Program Agenda

- 1 12.2 Upgrade Overview
- 2 12.2 Upgrade Process Flow
- 3 12.2 Upgrade Best Practices to Minimize Downtime

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# R12.2 Rapid Install (RI)



- 12.2 RI is the media pack for EBS on Oracle Software Delivery Cloud (OSDC)
- RI contains applications code, core technology components, and VISION /FRESH databases
  - Direct upgrade Supported from 11i MBL (883202.1) or above, 12.0.4 or above , 12.1.1 or above
  - Follow R12.2 Release Notes (1320300.1) and relevant Upgrade Guide (*Oracle E-Business Suite Upgrade Guide, Release 11i to 12.2 OR Oracle E-Business Suite Upgrade Guide: Release 12.0 and 12.1 to 12.2* from the [EBS R12.2 Web Library](#))

**R12.2 is NOT available on MOS as a Maintenance Pack**

**New dual file system replaces current EBS file system**

**Enable EBR step (13543062:R12.AD.C ) after system is at R12.2.0**

**The EBS upgrade to R12.2 itself is NOT an Online Patch**

# EBS R12.2 Release Updates Since GA



- EBS R12.2.8 RUP (most recent)
  - EBS R12.2.8 (26787767) RUP was released in Oct 2018 (2393248.1)
  - Available at suite wide and family level granularity (requires minimum baseline of EBS 12.2.3)
  - Use “downtime” mode (against the RUN edition) when upgrading from prior releases such as 11i, R12.0 or R12.1
    - `adop phase=apply apply_mode=downtime`
- R12.2 Applications DBA (AD) / Technology Stack (TXK) RUPs ( Currently delta.10)
  - AD/TXK products deliver critical infrastructure for online patching. Highly recommended to uptake the latest RUP
  - AD/TXK delta.10 is a pre-requisite for upgrading to 12.2.8

# EBS CUP and Upgrade Fixes Report

- What is an upgrade fix ?
  - A patch released after 12.2 GA to address an issue in the upgrade itself (e.g. upgrade failures, upgrade performance etc)
  - Apply using “adpatch preinstall=y” option to the RI “Run” file system and merge the patch db driver with the main upgrade driver
- Consolidated upgrade patch (CUP )
  - Aggregation of 12.2 upgrade fixes at periodic intervals, generally aligned with each new EBS RUP
  - For R12.2, 26924710:12.2.0 ( **CUP9**) is the latest CUP
- EBS level Report **DOC ID 1448102.2** (bi-monthly)
  - List of upgrade fixes released beyond latest CUP
  - Merge the patches and the drivers with the latest CUP and apply the merged driver



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# 12.2 Technical Upgrade Process

## Required Pre-upgrade Steps (prior to main downtime)

### 1. Prepare Database

- Upgrade database to the **minimum version** (11.2.0.4) OR **latest certified version** (12.1.0.2). Migrate db platform if desired.
  - Database Prep guide for Release 12.2 (Doc 1349240.1)
  - Apply latest database patches. Refer to “Consolidated list of Technology patches” (Doc 1594274.1)
  - Check for missing database patches, Use EBS Technology Codelevel Checker (ETCC patch 17537119)
- *Requires downtime*

### 2. Lay Down File System

- Use Rapid Install (RI) for target platform to lay down 12.2.0 code and tech stack and create the Dual File System
  - Use latest StartCD (currently StartCD 51, Patch 22066363 ) + StartCD 12.2.0.51 Bundle Patch 25525148 ) to create the staged area
  - Check for missing application tier technology patches using ETCC script for mid tier (patch 17537119)
- **No downtime required**
- RI (startCD 51) supports 12.1.0.2 DB OH and FMW 11.1.1.9

# 12.2 Technical Upgrade Process..

## Required Downtime Steps (main EBS upgrade)

### 3. Upgrade to 12.2.0

- Apply AD + EBS upgrade fixes
  - AD.C+ AD CUP followed by the latest EBS-wide CUP + pre-install one-offs
- Apply 12.2 master driver (merged) via autopatch
- Run RI in “Configure” mode
  - *Do NOT bring up the system OR perform post-12.2.0 upgrade steps*

### 4. Enable Online Patching

- Update custom DB code based on Readiness Reports (1531121.1 )
- Enable EBR 13543062:R12.AD.C
  - Enables editioning for EBS and registered custom schemas
  - Generates editioning views for EBS and custom tables

### 5. Upgrade to 12.2.X

- Apply latest EBS RUP
  - Latest AD /TXK RUP in hotpatch mode against the RUN edition
  - adsplice custom/off-cycle products
  - Latest EBS 12.2.x RUP in “downtime “ mode
- Perform post-upgrade steps (post-12.2.0 steps followed by post-12.2.X steps)
- Apply Recommended patches (1267768.1)

# 12.2 Technical Upgrade Process ..

## Conditional Uptime Steps

### 6. Apply Translations

- *Release environment for testing (optional)*
- Apply (12.2 + 12.2.X NLS) merged either as online patch OR as in “hotpatch” mode

**OR**

- Use TSP (Trans Synch Patch) in “hotpatch” mode
- *Release environment for testing (required)*

R12.2 NLS Release Notes  
(1314621.1)

### 7. Deploy Custom Code & External Integrations

- Deploy middle tier custom code against RUN edition FS
  - See Developing and Deploying Customizations in EBS R12.2 (1577661.1)
- Custom and Third-Party Products integration guidance (1916149.1)
- Deploy external integrations per integration-specific docs

### 8. Configure System to Production Capacity

- Add nodes
  - 12.2 Cloning (1383621.1)
  - Adding node in a Shared applications file system (Doc 1375769.1)
- Add managed servers
  - Configure HTTP Server and Oacore, Oafm, Forms and Forms-c4ws (1905593.1)
  - Load-Balancing for 12.2 (1375686.1)

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# Plan, Prepare, Test and Upgrade

- As with most planned production maintenance activities, a successful upgrade is highly dependent on how well-defined the upgrade plan is.
- Pre-production testing and validation on an comparable system prior to the actual upgrade is key to minimizing unforeseen contingencies.
- Optimizing the upgrade process is all about making the right choices at the planning stage and verifying these choices with a test environment before production.

**Planning Your Oracle E-Business Suite (EBS) Upgrade from Release 11i to Release 12 (MOS ID 1406960.1)**

**Best Practices for Minimizing Oracle E-Business Suite Release 12 Upgrade Downtime (MOS ID 1581549.1)**

# Plan: Prepare Platform

## Plan for Platform Migration as a Separate Down Time

- Performing a Database migration to a new platform first, if being considered as part of an EBS upgrade, is recommended as customers would typically be able to perform this in a separate earlier downtime
- Regardless of whether this migration is done in a separate earlier downtime or as part of a single downtime, performance gains would be expected due to the fact that the upgrade of the Applications to R12 will run on newer and faster hardware

## Oracle E-Business Suite Upgrades and Platform Migration (MOS ID 1377213.1)

# Plan: Prepare Database

## Plan for Database Upgrade as a Separate Down time

- Upgrade RDBMS version to latest certified for the current APPS level.
- The latest database certified is 12.1.0.2 (11.2.0.4 is the latest for 11gR2)  
[https://blogs.oracle.com/stevenChan/entry/database\\_12\\_1\\_0\\_2](https://blogs.oracle.com/stevenChan/entry/database_12_1_0_2)
- **Tune Init.ora Parameters:**
  - Ensure mandatory init.ora parameters are set correctly.
  - **MOS ID 396009.1 & 216205.1** (R12 & 11i respectively)
- **Apply Required Patches & Fixes/Workarounds for Known Issues**
  - Recommended Performance Patches - **MOS ID 244040.1**



# Plan: Manage Data Volumes

## Purge Old and/or Transient Data

- Purge Portal
  - Purge Portal introduced in 11i10
  - Single purge/archive management console
  - Purge programs can be configured, initiated and monitored
  - Set the execution frequency as well view history of purge programs.
- Accessing the Purge Portal
  - System Administrator > Oracle Applications Manager > Purging/Critical Activities



# Plan: Manage Data Volumes

## Purge Old and/or Transient Data

- Use OAM to configure, initiate and monitor purge programs
  - Set the execution frequency and view program history
  - Programs tagged with the “Purge” program type

System Administrator > Oracle Applications Manager > Purging/Critical Activities

The screenshot displays the Oracle Applications Manager interface, specifically the 'Critical Activities' section. The page title is 'ORACLE Applications Manager' and the user is logged in as 'atg12q2'. The navigation menu includes 'Overview', 'Performance', 'Critical Activities', 'Diagnostics', 'Business Flows', 'Security', and 'Software Updates'. The 'Critical Activities' section shows a table of programs with columns for Focus Program Name, Request ID, Last Run Date, Outcome, Oracle Recommended Frequency, On Schedule (Oracle Recommended), Onsite Frequency, On Schedule (Onsite frequency), Success Rate, and Run. The table lists four purge programs, all with a success rate of 100% except for 'Purge Obsolete Workflow Runtime Data' which has a success rate of 65%. The table also includes a 'Focus Program Name' column with expand/collapse icons and a 'Request ID' column. The page includes a 'Last Updated' timestamp, 'Update Frequency' and 'Modify Monitored Program List' buttons, and a 'TIP' section at the bottom.

Focus Program Name	Request ID	Last Run Date	Outcome	Oracle Recommended Frequency	On Schedule (Oracle Recommended)	Onsite Frequency	On Schedule (Onsite frequency)	Success Rate	Run
<a href="#">Purge Concurrent Request and/or Manager Data</a>	5253153	25.10.2006 14:00:16	✓	Unavailable	🚩	Unavailable	🚩	100%	🔄
<a href="#">Purge Log and Closed System Alerts</a>	5253151	25.10.2006 14:00:06	✓	Unavailable	🚩	Unavailable	🚩	100%	🔄
<a href="#">Purge Obsolete Workflow Runtime Data</a>	5253150	25.10.2006 13:59:40	✗	Unavailable	🚩	Unavailable	🚩	65%	🔄
<a href="#">Purge Signon Audit data</a>	5253152	25.10.2006 14:00:12	✓	Unavailable	🚩	Unavailable	🚩	100%	🔄

❗ TIP Request ID is for the last run request.  
❗ TIP Onsite Frequency is user defined and can be updated.  
❗ TIP On Schedule columns indicate warning flags if programs are overdue with respect to Oracle recommended or Onsite frequencies.

# Plan: Manage Data Volumes

## Purge Old and/or Transient Data

- **Archive/Purge Product Information**
  - Product User guides – GL/AP/AR/FA/OM
  - Support Notes:
    - **(MOS ID 138264.1)** – General Ledger Archive/Purge FAQ
    - **(MOD ID 144431.1)** – Fixed Assets Archive/Purge FAQ
    - **(MOS ID 136919.1)** – General Ledger Archive/Purge Setup and Usage
- **(MOS ID 752322.1) : Reducing Oracle E-Business Suite Data Footprint**

# Prepare: Identify Patches/Tasks

## Identify Required Patches/Tasks

- Prepare a complete list of pre and post patches and recommended code levels
  - Keep the system current on AD/ATG/OAM code e.g. latest AD/ATG RUPs on 11i/R12.0 and once on R12.2
  - For 12.2, review Oracle E-Business Suite Release 12.2: Consolidated List of Patches and Technology Bug Fixes (1594274.1)
  - High priority patches from MOS.
  - Consolidated Upgrade Patches (CUP)
    - Latest EBS CUP for your target release
      - R12.2 Release notes **MOS ID 1320300.1**
    - Latest pre-install patches **MOS ID 1448102.1**
  - Review “Known-issues” sections from key “living” documents such as Release notes, MP Install Instructions
- Use TUMS (“The Upgrade Manual Script”) To avoid running tasks not relevant to your system

# Prepare: Identify Patches/Tasks

## Identify Required Patches/Tasks

- Identify and execute tasks that could be completed in a separate downtime period, prior to the production upgrade
  - Use applicable steps mentioned in the "Downtime reduction" and "Upgrade By Request" appendices E and G of the R12.1 upgrade guide
- Minimize historical data to be upgraded as per business requirements "Upgrade By Request"
  - Post-upgrade "hot-patch" of additional historical data outlined in **MOS ID 604893.1**
  - Assign post upgrade jobs to specialized CM queue (by request\_type) **MOS ID 399362.1**

# Prepare: Identify Patches/Tasks

## Upgrade By Request (MOS ID 604893.1)

- Use this option to defer the upgrade of historical data from the initial upgrade process (critical downtime window), to post upgrade
- Historical data can be upgraded anytime when system is up
- Implementation is a two step process:
  - Set range of historical data to be upgraded before R12.1/R12.2 upgrade and run the pre-upgrade concurrent program
  - Run the post-upgrade concurrent program (as needed for additional historical data)
- Utilize Parallel Concurrent Processing (PCP) for post-upgrade concurrent jobs to leverage the Cluster (RAC).
  - For RAC and PCP refer to **(MOS ID1359612.1)**
  - Starting from 12.1, you can define node affinity at the program level

# Prepare: Manage Customizations

## Check Custom Code

### For the duration of the upgrade, consider...

- Check and review customizations that business might not be using.
- Review new Product Features or New Technology to Migrate to.
- Review and disable custom triggers and business events.
- Review and disable custom VPD policies as needed.
- Review and eliminate redundant custom indexes.

**Upgrading your Customizations to Oracle E-Business Suite Release 12.1  
(MOS ID: 1435894.1)**

**Developing and deploying Customizations in Oracle E-Business Suite Release 12.2(MOS ID: 157766.1)**

# Prepare: Manage Customizations

## Identify and fix custom code to comply to online patching standards.

- Use “Online Patching readiness Reports” to identify issues in custom data base objects that will be fixed automatically Vs needing manual intervention.
- Use Global Standards compliance checker script to scan your file system custom code and fix reported issues.
- Detailed instructions: “EBS Technical Planning Guide” and **MOS ID 1531121.1**
- Download Patch 22200487:R12.AD.X (11i, 12.0, 12.1 or 12.2), use the scripts and generate the reports.



# Prepare: Pre-Upgrade Tasks

## Remove Unnecessary Workloads / Overheads

- Remove TDE (Transparent Data Encryption) from high volume tables (for the duration of the upgrade)
- Review and disable all debug or logging; do this at all levels (site, responsibility, user level etc.)
- Purge all old data that is no longer needed prior to the upgrade. **MOS ID 752322.**
- Flush all the interfaces, such as Auto Invoice, Journal Entry Import, Order Import etc.

# Prepare: Pre-Upgrade Tasks

## Remove Unnecessary Workloads / Overheads

- Drop MRC Schema if it still exists.
- Convert to OATM (Oracle Applications Tablespace Model).  
**MOS ID 248857.1**
- Convert to the new Multiple Organizations (Multi-Org) architecture  
**MOS ID 210193.1**
- If possible run in noarchivelog mode
- Disable flashback DB (for the duration of the upgrade).
- Disable auditing if enabled (for the duration of the upgrade)

# Prepare: Database Tier

## Gather Schema Statistics

- Gather CBO statistics for all Oracle E-Business Suite schemas with GATHER\_AUTO option using FND\_STATS (or gather statistics concurrent program)
- If the adsstats.sql job is taking a long time during the upgrade check the following:
  - Check that parallel execution is being used effectively (with parallel\_max\_servers set to a suitable value, such as 2 x number of cores).
  - Sample specific long running tables at a lower percentage
- If the adsstats.sql script is **still** taking a significant amount of time, reduce the upgrade time by:
  - Exporting schema statistics gathered during test runs (by adsstats.sql )
  - Importing these statistics instead of running adsstats.sql.
  - When importing statistics from test runs make sure data volumes are similar

# Prepare: Database Tier

## Gather Dictionary and Fixed Stats

- Gather dictionary object statistics when there is a significant change in dictionary, for example, lot of new objects created.

```
exec dbms_stats.gather_dictionary_stats;
```

- Gather fixed object statistics with reasonable load on the system

```
exec dbms_stats.gather_fixed_objects_stats
```

- Dictionary and Fixed stats should be gather manually as they are not gathered automatically in the Release 12 upgrade by adstats.sql or any other method.

# Prepare: Database Tier

## Gather Dictionary and Fixed Stats

- Fixed Object Statistics should be gathered:
  - After any associated platform or database upgrade that is part of the overall Oracle E-Business Suite upgrade.
  - After any SGA/PGA parameters have changed.
  - After Release 12 upgrade, when there is representative activity on the system.
- Dictionary Statistics should be gathered:
  - After any associated platform or DB upgrade that is part of the overall Oracle E-Business Suite upgrade.
  - After the Release 12 upgrade.
  - After move to OATM

# Prepare: Database Tier

## Properly Size SGA/PGA Memory

- Maximize SGA and PGA sizing:
  - Review the Advisory sections in AWR (from test runs) to fine tune SGA & PGA.
  - Some starting rules of thumb are:
    - log buffer = 30 to 100 Mb
    - shared pool = 1 to 4 GB
    - pga target = 3 to 20 GB
    - SGA/buffer cache = multi GB
    - be generous without causing excessive paging.
- Use Large/Huge pages. For example on Linux HugePages –**MOS ID 744769.1**
  - **MOS ID 361468.1, “HugePages on Oracle Linux 64-bit”** describes how to configure hugepages. When running the recommended script provided with Note 401749.1, make sure that all database instances are started.
  - Only SGA allocation benefits from large/huge pages, PGA allocation does not.

# Prepare: Database Tier

## Upgrade and Initialization Parameters

- For 32 cores or fewer initially set:
  - `parallel_max_servers` = 2 x number of CPU cores.
  - AD Parallel workers – start with 1 x number of CPU cores. Possibly increase to 1.5 x number of CPU cores.
  - `job_queue_processes` = number of CPU cores
- For more than 32 cores, start with:
  - `parallel_max_servers` = 1 x number of CPU cores.
  - AD Parallel workers = between 0.5 and 1.0 x number of CPU cores.
- Based on the performance diagnostics, these values can be changed based on the level of contention and resource (CPU/IO) usage (in AWR).
- Shutdown other RAC instances

# Prepare: Database Tier

## Upgrade and Initialization Parameters

- If specified, remove `db_file_multiblock_read_count`. This is the recommended value for normal operation.
- Set `optimizer_dynamic_sampling` level to the value of 4 during the Release 12 Upgrade, revert to the default value of 2 (or remove) after the upgrade.
- The values of the initialization parameters above (except `db_file_multiblock_read_count`) may be different from the values used for normal operation. So be sure to revert after the Release 12 upgrade has completed.
- If DB is 12c, Turn off the adaptive feature (Set `optimizer_adaptive_features=false`) before the EBS upgrade (before applying R12.AD.C)
- For other initialization parameters, refer to **MOS ID 396009.1**, “Database Initialization Parameters for Oracle E-Business Suite Release 12”.



# Prepare: Application Tier

## 12.2 Middle Tier Sizing Guidelines

- Managed instances JVM sizing should consider both memory and CPU domains.
- On 64bit environment, we do not recommend allocating huge heap sizes, but rather have more managed instances in the cluster to scale up to the target concurrency levels.
- For Admin Server sizing, the default size of 512M is not enough for most installations, we recommend setting the XMS to at least 1 GB and the XMX to 2GB
- An initial guidance on sizing can be found in the “Oracle E-Business Suite Installation Guide: Using Rapid Install”  
[http://docs.oracle.com/cd/E26401\\_01/doc.122/e22950/T422699i4773.htm#T610671](http://docs.oracle.com/cd/E26401_01/doc.122/e22950/T422699i4773.htm#T610671)

**Managing Configuration of Oracle HTTP Server and Oacore, Oafm, Forms and Forms-c4ws Applications in Oracle E-Business Suite Release 12.2 (Doc ID 1905593.1)**

# Test: Pre-Production Testing

## Testing and Final Run Planning

- Testing should be done on a comparable system that has the same CPU, IO and memory capacity as the target production system
- It is critical to do multiple rounds of testing with different settings to maximize server utilization, while considering the following
  - Memory utilization (no swapping/ excessive paging)
  - CPU utilization (scale down if at 100%)
  - I/O response times (scale down if averages > 20 ms)
- When analyzing Release 12 Upgrade performance issues, the goal is prevent wasted test iterations by maximizing the number of performance issues resolved.
- Testing timings along with system resource utilization should be used to plan the final upgrade with a 20% contingency factor.

# Test: Pre-Production Testing

## Get the Timings

- **AD Job Timing Reports:** The job timing report (adtimrpt.sql) reports the top 100 time consuming jobs.
- **AD Utility and Worker Logs:** The AD utility and worker logs can also be useful for diagnostics, giving you more detail about what happened and when. The AD workers logs (adworknnn.log) will give you the activities carried out by each worker and the timings.
- **AD Parallel tables:** The AD\_PARALLEL\_UPDATES, AD\_PARALLEL\_UPDATE\_UNITS tables can give information on the actual rows processed, the number of batches, progress over time, and long running batches (that might indicate locks/sleeps or data distribution issues).
- **AD\_TASK\_TIMING:** gives start and end times of jobs and workers, which can help identify all long running jobs, and match long running SQL and performance issues (on AWR) with specific jobs.

# Test: Pre-Production Testing

## Get the Diagnostic Data

- **Start with** Express Diagnosis of Oracle E-Business Suite Release 12 Upgrade Performance Issues (**MOS ID 1583752.1**)

### • SQL Tuning

- Trace files
- SQLT output (MOS ID: 215187.1)
- Trace Analyzer (MOS ID: 224270.1)
- AWR Report (MOS ID: 748642.1)
- 11g SQL Monitor Report
- AWR SQL Report (awrsqrpt.sql)

### • Database Tuning

- AWR Report (MOS ID: 748642.1)
- ADDM report (MOS ID: 250655.1)
- Active Session History (ASH)
- OS - OSWatcher (MOS ID: 301137.1) Q

- Correlate AWR, system vitals and expensive SQLs. Start with the top events and top SQLs sections in the AWR reports.
- Use the advisory sections to size SGA, and PGA Properly

# Test: Pre-Production Testing

## Common Optimizations

- Use `statistics_level=ALL` during the testing/diagnosis phase. Make sure to reset to `TYPICAL` afterwards. This will help capture runtime Execution plans with row counts & row source stats.
- For long running SQLs - Display cursor report (with `ALL +ALLSTATS` ) can be used to while SQL/job is running which massively speeds up the identification of sub-optimal execution plans and their solution.
- The other alternative is SQL Trace - for which the trace can be enabled on the Job or that particular SQL level.

# Test: Pre-Production Testing

## Common Optimizations

- For long running jobs or SQLs, it is best to start by investigating if good execution plans are being used. A poor execution plan (or even just one that is moderately sub-optimal) can be the root cause of contention, especially if that contention only occurs during a particular job.
- Create custom indexes for long running jobs where a new index could significantly improve the execution plan and performance
- For long running jobs with high level of contention on particular index segments , consider dropping the index before the job and recreating afterwards. Ensure that indexes are recreated in parallel and with exactly the same definition. And remember to ALTER INDEX to revert the degree of parallel (NOPARALLEL).

# Test: Pre-Production Testing

## Common Optimizations

- For long-running xdf or odf jobs **creating materialized views (MV)**, consider cleaning up or truncating of any large MV logs (**this requires MV complete refresh**)
- For high level of waits associated with redo log, especially “log buffer space” and “log file sync”, consider:
  - Change the configuration of redo logs
  - Move to faster filer
  - Increase redo log file sizes, increase the number of files or increase the log parallelism (hidden parameter `_log_parallelism_max`).

# Test: Pre-Production Testing

## Common Optimizations

- Once you have identified the long running jobs and SQL, you can check My Oracle Support for known issues and potential solutions or workarounds.
- However, bear in mind that the fix or workaround may not necessarily fix your particular problem.
- If you cannot confirm that you have exactly the same issue (from the diagnostics) you may still apply the fix, but should continue to gather diagnostics and search for a solution until the issue is fully resolved.
- If you have identified that a long running job has an inefficient execution plan, you could use an SQL Profile to apply hints that will help the CBO choose a better execution plan. You will need SQL tuning expertise to do this.



# References

# References

- Oracle E-Business Suite Release 12.2 Info center (1581299.1)
- Oracle E-Business Suite Release Notes, Release 12.2 (1320300.1)
- DB Preparation Guidelines for an E-Business Suite Release 12.2 Upgrade (1349240.1)
- Oracle E-Business Suite Release 12.2: Upgrade Sizing and Best Practices (1597531.1)
- Oracle E-Business Suite Release 12.2: Consolidated List of Patches and Technology Bug Fixes (1594274.1)

# Related Sessions – By Date, Time

Date/Time	Session Title and Speakers	Location
Wednesday, Oct 24, 4:45 pm	[TIP4186] - Getting Optimal Performance from Oracle E-Business Suite Samer Barakat, Senior Director, Oracle E-Business Suite Development, Oracle	Moscone North Room: 23
Thursday Oct 25, 9:00 AM	[TIP4183] - Technical Upgrade Best Practices for Oracle E-Business Suite 12.2 Udayan Parvate, Senior Director, Release Engineering, Oracle Samer Barakat, Senior Director, Applications Performance, Oracle	Moscone North Room: 23
Thursday Oct 25, 10:00 AM	[PRO4180] - Integration Options for On-Premises and Cloud with Oracle E-Business Suite Rajesh Ghosh, Senior Director, Oracle E-Business Suite Development, Oracle	Moscone North Room 23
Thursday Oct 25, 11:00 AM	[TIP4189] - Oracle E-Business Suite 12.2: Oracle Fusion Middleware (Oracle WebLogic Server) Admin Kevin Hudson, Senior Director, Oracle E-Business Suite Development , Oracle Elke Phelps, Product Management Director, Oracle E-Business Suite Development, Oracle	Moscone North Room: 23

# Related Sessions – By Date, Time

Date/Time	Session Title and Speakers	Location
Thursday Oct 25, 1:00 PM	[PRO4192] - What, Why and How You Can Benefit from Oracle Cloud at Customer Vasu Rao, Director Product Strategy, Oracle	Moscone North Room: 22
Thursday Oct 25, 1:00 PM	[PRO4181] - Managing and Monitoring Oracle E-Business Suite On-Premises and in the Cloud Srikrishna Bandi, Director, Oracle E-Business Suite Development, Oracle	Moscone North Room 23
Thursday Oct 25, 1:00 PM	[TIP4185] - Migrating and Managing Customizations for Oracle E-Business Suite 12.2 Santiago Bastidas, Product Management Director, Oracle E-Business Suite Development, Oracle	Moscone South Room: 104

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