

Preparing Linux Guests to Run Oracle Solutions on System z

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Agenda

- Oracle Fusion Middleware 11gR1 Installation Tips
- Setting up for E-Business Suite for System z



Oracle Fusion Middleware /Weblogic



- What's Available:
 - 11gR1 – Fusion Middleware contains - WebLogic Server 10.3.3 and WebLogic Portal 10.3.2
 - 10gR3 (10.1.3.5.0) – Oracle Application Server 10g Release 3 (OPMN)
 - 10gR2 (10.1.2.0.2) – Oracle Application Server 10g Release 2 (Oracle Forms and Reports)
- Fusion Middleware - 11gR1, E-business Suite does not use utilize this “tech” stack today.
- 10gAS tech stack runs the technical components of E-business Suite

Installing WebLogic Server – Download Java



- SLES 10 SP3

Dependency error to **libstdc++5** when installing the IBM Java 6 64 bit (SR8), with SR8 SP1 did not get the error.

```
rpm -q --provides libstdc++33-3.3.3-7.8.1  
compat-libstdc++  
libstdc++5 = 3.3.3-7.8.1
```

- With the latest **IBM Java SR8 SP1** Java Version quickstart configurator would not launch after install.
- Minimum 1GB Virtual, with samples Recommend – **2GB Virtual Storage.**
- On a couple of installs as root changed the permissions of **/bin** so I could only logon as root.

Java 6

Downloads

IBM 64-bit SDK for Linux on zSeries architecture, Java Technology Edition
2010-07-14

To download using Download Director, select the files you want below and click on 'Download now'. [Learn more.](#)

You can also download the files [using ftp.](#)

Download using Download Director

Select all files

SDK

rpm format
ibm-java-6390v-sdl-6.0-0-2.1.s390x.rpm (86 MB)

tgz format
ibm-java-sdl-6.0-0-2.1-linux-s390x.tgz (88 MB)

JRE

rpm format
ibm-java-6390v-pe-6.0-0-2.1.s390x.rpm (83 MB)

tgz format
ibm-java-pe-6.0-0-2.1-linux-s390x.tgz (83 MB)

Installing WebLogic Server 10.3.3



- **Download Weblogic:**

<http://www.oracle.com/technetwork/middleware/ias/downloads/wls-main-097127.html10.3.3>)

from Additional Platforms area.

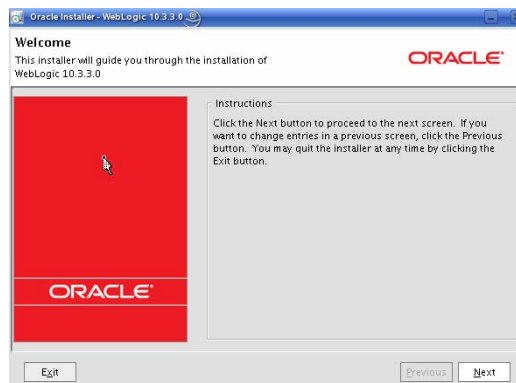
	Microsoft Windows (32-bit JVM)	Linux (32-bit JVM)	Solaris (32-bit JVM)	Additional Platforms (See Note Above)	More Info
Oracle WebLogic Server 11gR1 (10.3.3) + Coherence + OEPE - Package Installer	x86: 997 MB File1	x86: 923 MB File1			
Oracle WebLogic Server 11gR1 (10.3.3) + Coherence - Package installer	x86: 779 MB File1	x86: 705 MB File1	SPARC: 641 MB File1	Generic: 921 MB File1	
Oracle WebLogic Server 11gR1 (10.3.3) ZIP Distribution	x86: 413 MB File1	x86: 413 MB File1		Mac OS X: 413 MB File1	Readme

Installing WebLogic Server 10.3.3



Start Installer with

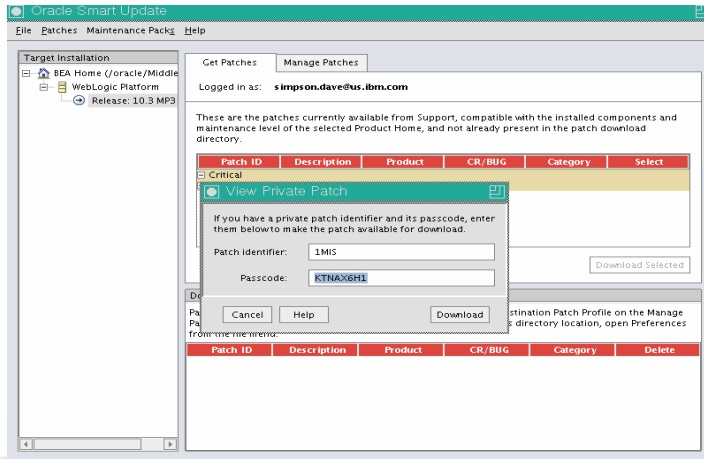
```
export JAVA_HOME=/opt/ibm/java-s390x-60/jre
export PATH=$JAVA_HOME/bin:$PATH
java -Djava.io.tmpdir=/tmp -d64 -jar wls1033_generic.jar
```



Patching WebLogic Server 10.3.3

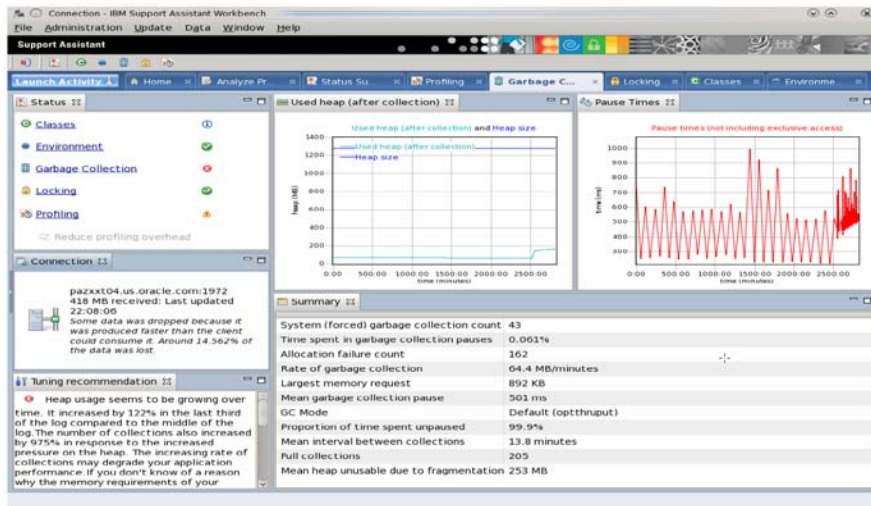


- Under the **utils/bsu** directory you run **bsh.sh**, then select **Patches-> Retrieve Private** and Enter Patch ID and Passcode from the Release Notes.
- Then move to **Manage Patches** Tab to apply the patch.
 - 1MIS & 8RLQ have some issue but E1WM patch applies OK



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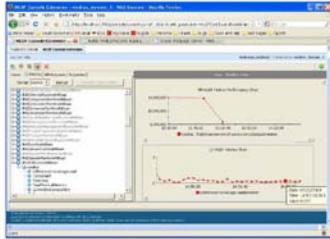
IBM Java Support Assistance



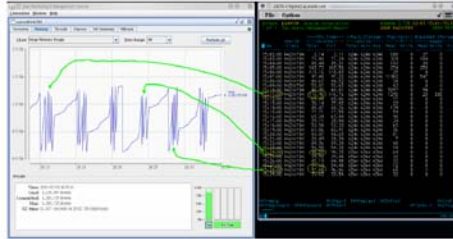
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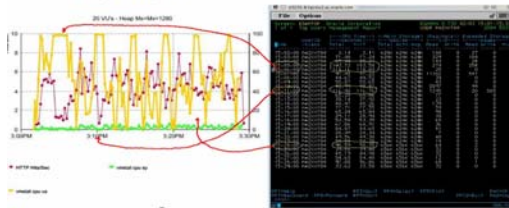
Other Troubleshooting Tools:



WebLogic Diagnostic Framework



JConsole & ESAMON



Oracle Advanced Testing Suite & ESAMON



nmon data analysis

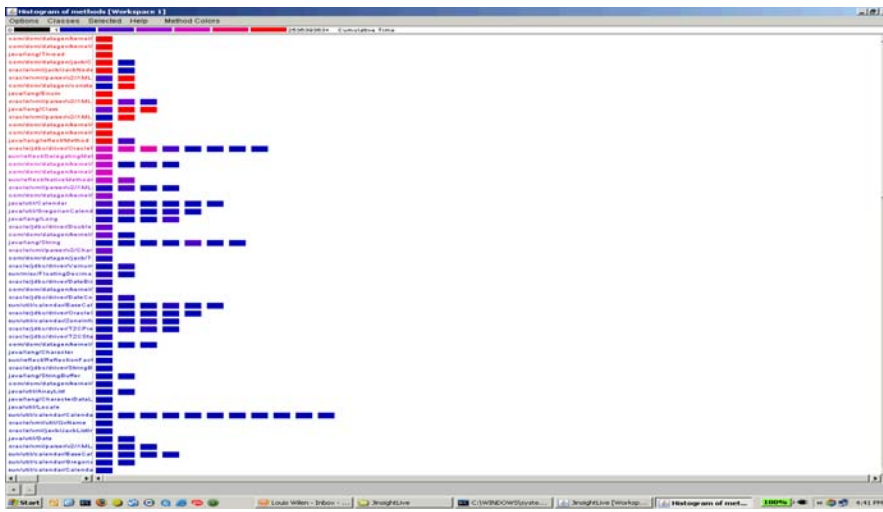
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Courtesy – Marc Connolly – Oracle Corporation

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Java Tracer

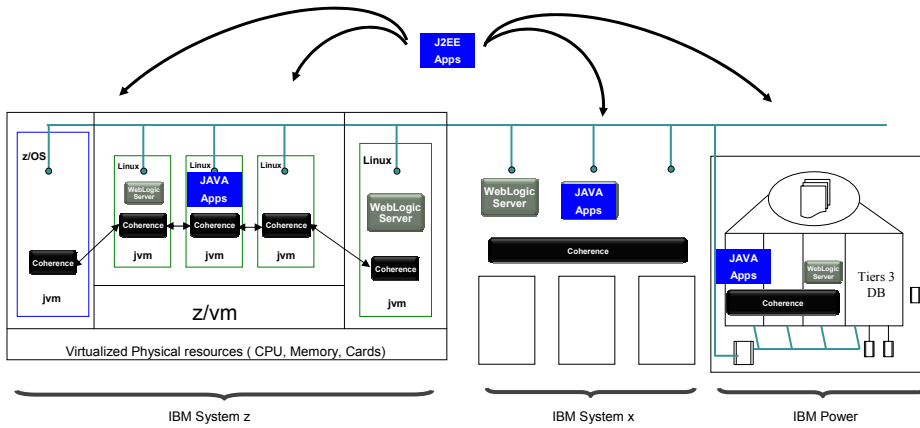
- Utility to trace Java
<http://www.ibm.com/developerworks/java/jdk/tools/healthcenter/>



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Oracle Coherence - Heterogeneous, Distributed, Shared, Dynamically Scalable Memory with IBM infrastructure



E-Business Suite for System z



Business Challenges Today



- Support for Multiple Environments - Development, Training, Pilot, and Test Environments
- No Longer Require one environment rather six, seven...
- Multiple Application and Database servers
 - Load balancing servers, Oracle RAC, Discoverer
 - Dev, QA, Test, Training and Sandbox
- Auditing and Software Compliance
- Databases are ever changing and System Performance
- Acquisitions and Takeovers – being able to integrate quickly

zEnterprise flexibility: deploy Oracle applications to the “best fit” technology tier to meet business requirements



- zEnterprise enables Oracle workloads implemented on multiple heterogeneous platforms to be consolidated and managed end to end as single system
- With the centralized management of zEnterprise, it takes fewer resources to manage the Oracle operations and as a result it can reduce your exposure to operational errors and downtime
- The extensive automation and intelligent workload management capabilities help manage and optimize all aspects of IT services to achieve more efficient utilization of system resources

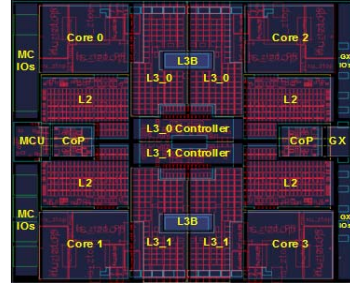


zEnterprise can reduce cost by simplifying business process management infrastructure and optimize your infrastructure to meet workload requirements

z196 - IBM Leadership Technology at the Core



- New 5.2 GHz Quad Core Processor Chip boosts hardware price/performance
 - 100 new instructions – improvements for CPU intensive, Java™, and C++ applications
 - Over twice as much on-chip cache as System z10 to help optimize data serving environment
 - Out-of-order execution sequence gives significant performance boost for compute intensive applications
 - Significant improvement for floating point workloads
- Performance improvement for systems with large number of cores – improves MP ratio
- Data compression and cryptographic processors right on the chip



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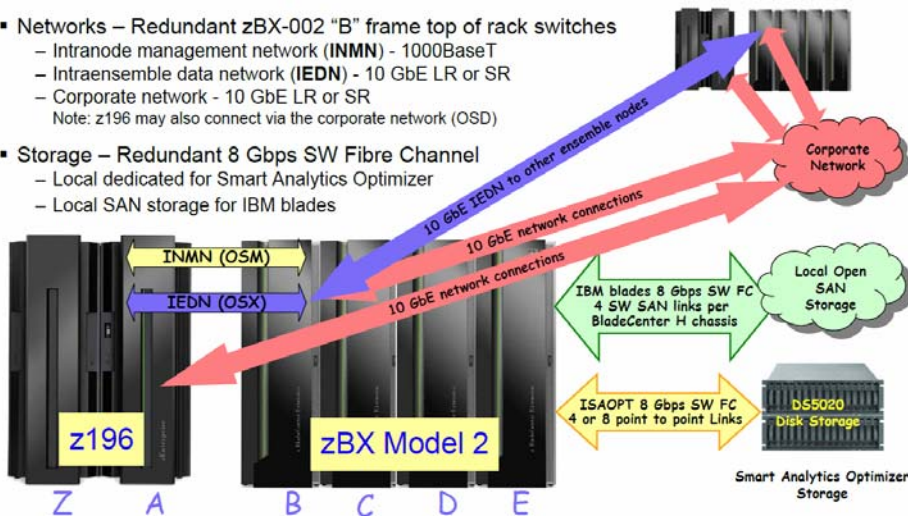
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zEnterprise – Ensemble Addition – Great for Integrating Other Systems with E-Business Suite



- Networks – Redundant zBX-002 “B” frame top of rack switches
 - Intranode management network (INMN) - 1000BaseT
 - Intraensemble data network (IEDN) - 10 GbE LR or SR
 - Corporate network - 10 GbE LR or SR
 - Note: z196 may also connect via the corporate network (OSD)
- Storage – Redundant 8 Gbps SW Fibre Channel
 - Local dedicated for Smart Analytics Optimizer
 - Local SAN storage for IBM blades



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zEnterprise for Oracle Applications



zEnterprise provides 60% more total capacity over z10 EC – by delivering larger uniprocessors, more configurable cores in the server, twice the memory, and improved bandwidth. These capacity improvements mean zEnterprise provides unsurpassed scalability for consolidation that can be combined with new virtualization management functions for a competitive edge.

- **By design, the zEnterprise is a binary compatible machine**
- **Oracle certifies OS level only - not hardware or hardware virtualization**
 - *Any hardware running certified OS level implicitly supported*
- **With Oracle Applications Unlimited all existing infrastructure products currently supported by Oracle applications will continue to be supported into the future.**
 - Supports investments in IBM technology and products
 - Including hardware, operating systems, databases and middleware
 - No forced upgrades to Fusion Application, maintain lifetime support of current application
 - System z Siebel and PeopleSoft customers' investment in DB2 is preserved
 - Current Customers can add new modules using DB2
 - New customers can install Siebel or PeopleSoft with DB2 database on z/OS

Oracle E-Business Suite Components



- In general all of the modules (with a few exceptions) installed with the Rapid Install Wizard (Rapidwiz) of R12 are supported. For specifics, please review the following My Oracle Support Note: Oracle E-Business Suite Installation and Upgrade Notes Release 12 (12.1.2) for IBM: Linux on System z (Note: 1116895.1).
- The products in the 12.1 Rapid Install media under the following E-Business Suite product families are available:
 - Financials, Human Resources, Order Management, Logistics, Supply Chain Planning, Manufacturing, Procurement
 - Intelligence, Marketing & Sales, Channel Revenue Management, Service, Projects, Product Lifecycle Management
 - Learning Management, Master Data Management
 - Interaction Center Technology, Financial Services, Communications/Utilities, Public Sector/University

Oracle E-Business Suite Certification



- The following Oracle E-Business Suite R12.1.2 products are currently not supported on Linux on System z:

Product Family	Products
Oracle Marketing & Sales	Field Sales
Oracle Service Mobile	Mobile Field Services
Oracle Channel Revenue Management	Oracle Price Protection ¹
Oracle Intelligence	Supply Chain & Order Management Intelligence, Procurement Intelligence, Projects Intelligence, Financials Intelligence ²

¹Upon the certification of OracleAS 10g BPEL Process Manager 10.1.3.5 for Oracle E-Business Suite R12.1.2 on Linux on System z, this product will be supported.

²Upon the certification of OracleAS 10g Discoverer for Oracle E-Business Suite R12.1.2 on Linux on System z, these products will be supported .

Oracle E-Business Suite Linux on System z Certification



- **Technology Certifications Planned**

- OracleAS 10g Single Sign-On 10.1.2.3
- OracleAS 10g Internet Directory 10.1.2.3
- OracleAS 10g WebCache 10.1.2.3
- OracleAS 10g Discoverer 10.1.2.3
- OracleAS 10g Portal 10.1.2.3
- OracleAS 10g BPEL Process Manager 10.1.3.5
- OracleAS 10g Release 3 (10.1.3) Patch Set 5 (10.1.3.5)

- **Database certifications planned after the database versions are available**

- Oracle Database 10gR2 10.2.0.5 patch set
- Oracle Database 11gR2

- **NOTE:** Oracle has separate certification process for additional products that might be used in the implementation of E-Business Suite. These are the external certifications not currently available on Linux on System z which are expected to be delivered with E-Business Suite R12 on Linux on System z Servers in the future

Oracle E-Business Suite Certification



Associated Oracle solutions not available on Linux on System z

- Other Oracle solutions that are sometimes associated with E-Business Suite (EBS) but are not supported on Linux on System z include:
 - Oracle Retail Suite
 - Retek
 - ProfitLogic
 - 360Commerce
 - Demantra
 - Oracle Transportation Management (G-Log)
 - Oracle Pharmaceuticals (Clinical)
 - Oracle iLearning

Implementation Options



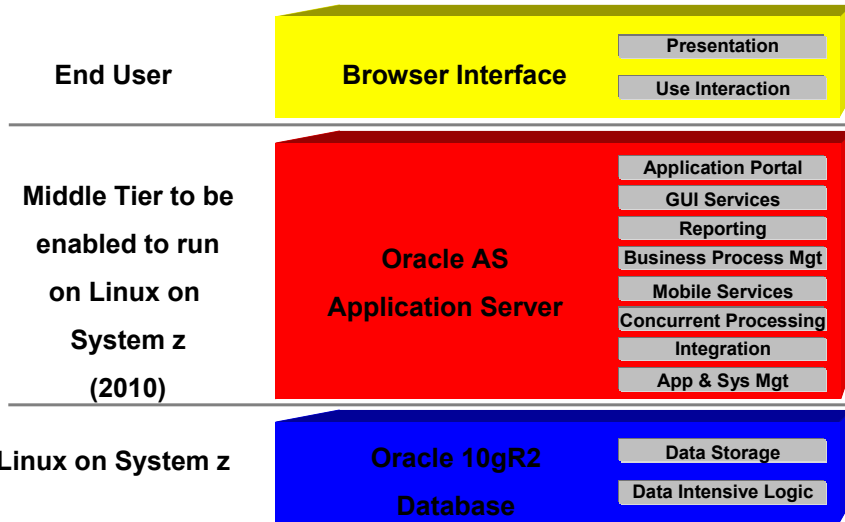
New Installation

- Use 12.1.2 Rapid Wiz for complete installation

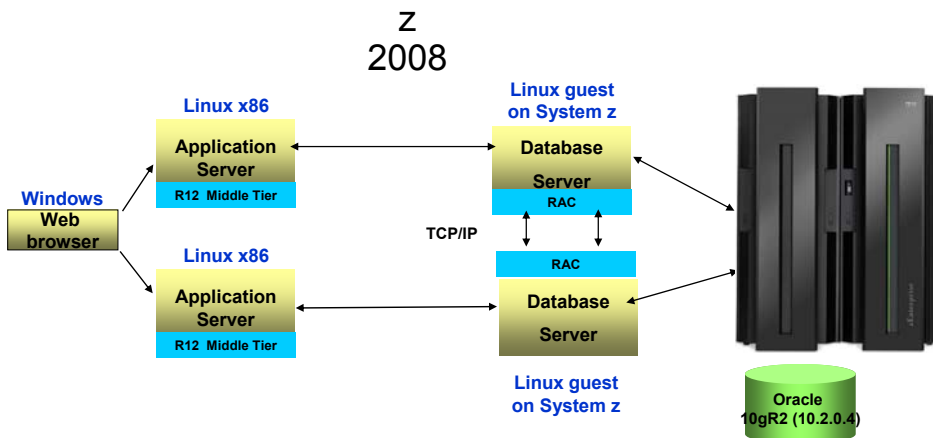
Migrating to R12 E-Business Suite on Linux on IBM System z

- *Running mixed architecture today (split tier - mid tier and database tier)*
 - Running E-Business Suite 11i
 - Use R12 Rapid Wiz to upgrade and migrate
 - Running E-Business Suite R12
 - Migration Utility planned for a future Release 12.1 release
- Running on another platform today
 - 11i or R12
 - Move existing 10gR2 Database first to Linux on IBM System z in a mixed platform architecture mode
 - Use the methods listed above to migrate the middle tier

E-Business Suite Architecture

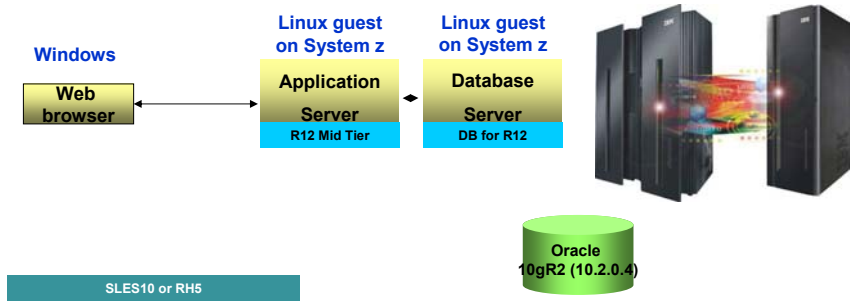


Oracle E-Business Suite R12 Mixed Architecture with Database RAC on Linux on IBM System Z 2008

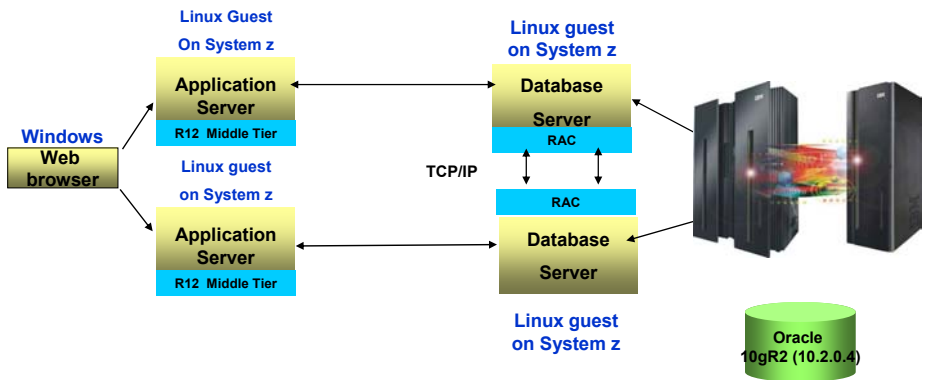


SLES10 or SLES9 or Red Hat 4 or RH5

Oracle E-Business Suite R12 on Linux on IBM System z 2010



Oracle E-Business Suite R12 Architecture with Middle Tier and Database tier on Linux on IBM System z 2010

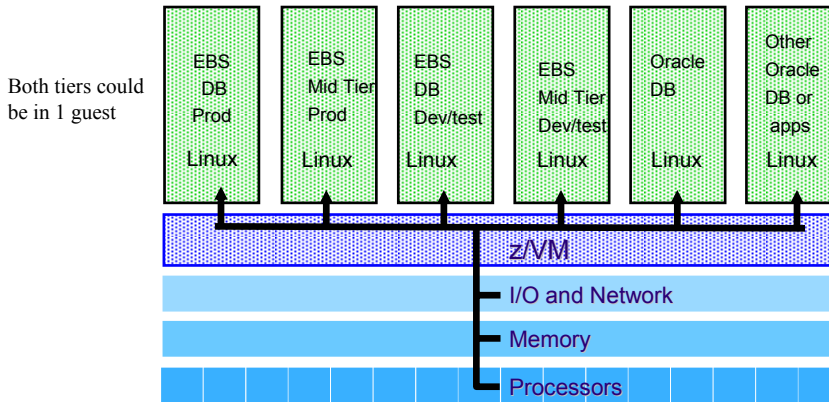


Virtual Machine Partitioning for E-Business Suite



Efficiently Exploiting the Entire Mainframe Complex

A *Virtual Machine* simulates the existence of a dedicated real machine, including processor functions, storage, and input/output resources.



Easy to create new images, easy to manage

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Sizing E-Business Suite



- TechLine Sizing Questionnaire – Good Place to Start!
<http://www-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/PRS1672>
- **CPU requirements for running Oracle Applications depend on:**
 - The number of concurrent users and their usage profiles
 - The number of concurrent manager processes and the types of jobs that they are running
 - The load for activities other than Oracle Applications (monitoring, backups, Oracle Grid Agent)
 - Response time requirements
- **Memory Requirements (RDBMS and forms server)**
 - Oracle database overhead (dbms_stats jobs etc)
 - Size of system global areas (SGA, PGA, ASM)
 - Number of concurrent users (4.5MB per user)
 - Other software running on the database tier
 - Linux Page File Tables
- Use a guideline of **25 MB** per user to estimate the Applications requirements for the node where you install the forms server. *

*Source Oracle Ebusiness Suite Install Guide

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E-Business Disk Storage



- Obtain CDs from edelivery.oracle.com (must be licensed)
- Going to Need about 50GB of storage to stage the CDs
 - startCD (Use the one from edelivery – do not patch at this time)
 - oraAS
 - oraAppDB
 - oraApps
 - oraDB

File System Space Requirements for Standard Installation



Node:	Space Required:
Applications node file system (includes OracleAS 10.1.2 Oracle Home, OracleAS 10.1.3 Oracle Home, COMMON_TOP, APPL_TOP, and INST_TOP)	35 GB
Database node file system (Fresh install)	55 GB
Database node file system (Vision Demo database)	208 GB

E-business Suite System Checker



Install Oracle Applications - Pre-Install Checks

Validate System Configuration

The pre-install tests are listed below, each with an icon that indicates the test results. Click on the test icon for details of that test. If one or more tests fail, the issues must be resolved before continuing. One or more of the pre-install tests show that further review is required.

<input checked="" type="checkbox"/>	Port Availability	<input checked="" type="checkbox"/>	OS User and Group Check
<input checked="" type="checkbox"/>	Port Uniqueness	<input checked="" type="checkbox"/>	File Systems
<input type="checkbox"/>	File Space	<input checked="" type="checkbox"/>	Host/Domain
<input checked="" type="checkbox"/>	System Utilities		

Retry

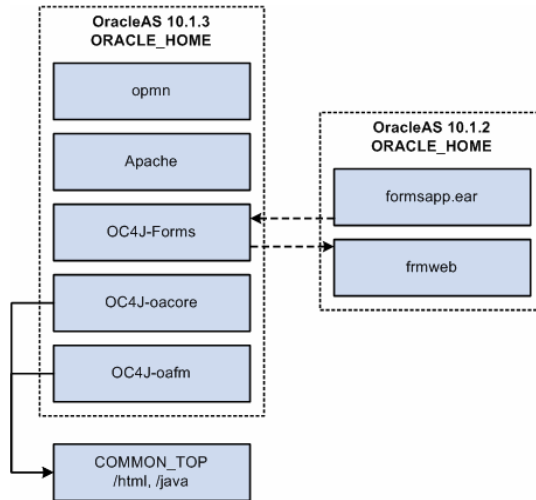
Cancel Help < Back Next >

Performance Tips for E-Business Suite

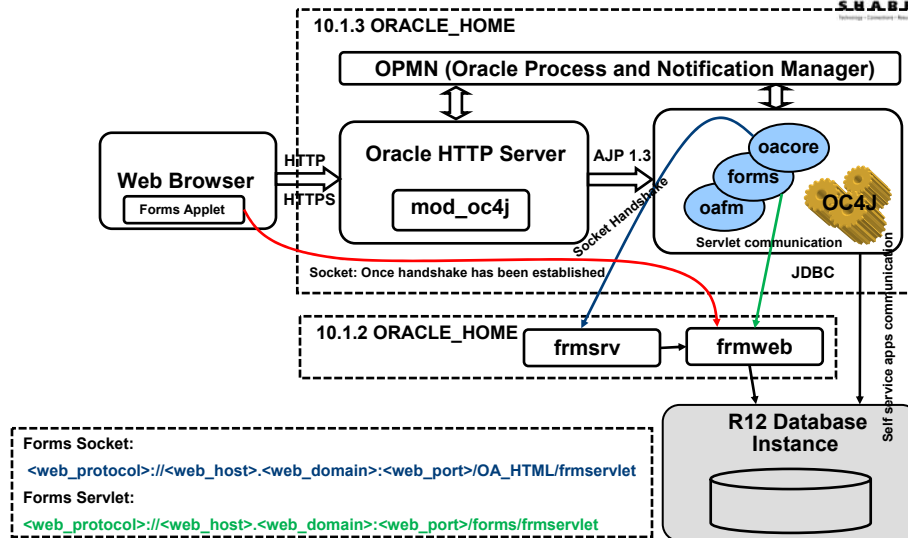


- The User client Java client connection to the Oracle Forms uses "message diff-ing" to reduce network bandwidth.
 - This Java client has a lot of Jar files to assist with the user interface (modal boxes, calendar, widgets etc.)
- Location of the Oracle Forms Server with respect to the data server. Minimizes the application start-up time.
 1. Invoke Java Virtual Machine (JVM).
 2. Load all initial Java client classes.
 - Authenticate security of classes.
 3. Display splash screen.
 4. Initialize Form.
 - Load additional Java classes, as required.
 - Authenticate security of classes.
 - Render boilerplate objects and images.
 - Render all elements on the initial screen.
 5. Remove splash screen.
 6. Form is ready for use.

Relationship between 10.1.3 and 10.1.2 ORACLE Homes



Forms: R12 Tech Stack Component interaction



Forms Socket:
 <web_protocol>://<web_host>.<web_domain>:<web_port>/OA_HTML/frmservlet

Forms Servlet:
 <web_protocol>://<web_host>.<web_domain>:<web_port>/forms/frmservlet

Setting up Linux Guest on z for E-Business Suite full implementation



- Choices are SLES10 SP2 ($\geq 2.16.60-0.34$) or RedHat 5 Update 3 ($\geq 2.6.18-128-EL5$)
- E-Business uses a 10gR2 DB tier with an Oracle Database and a mid tier with AS10g
- Base default Linux installation plus additional rpms are required
- Had to apply SLES 10 SP2 (2.16.60-0.34) then upgraded kernel to 2.16.60-0.42.5 - as this is $> .34$
- Also needed to patch openmotif21-libs-32bit-2.1.30MLI4-143.2

Setting up Linux Guest for E-Business Suite



Create master guest – clone for the others

Customers want smaller images to save disk space so installing all rpms may not be a good option

Recommendations for DB, AS10g, are documented in My oracle support notes (Metalink)

Oracle provides an rpm to check and to assist in the location of missing rpms (for the DB in April – note 1086769.1)



RPMs for E-Business Suite 12.1.2 with DB 10gR2– RH5.3 or higher

- Note 1116895.1 NEW Oracle Applications Installation and Upgrade Notes for Release 12(12.1.2) for Linux on IBM System z
- **RHEL 5.3 Operating System Requirements**
As listed in the about note, there are 35 additional pack packages that must be installed on your RH Linux on System z after a default rpm installation

RPMs for E-Business Suite 12.1.2 with DB 10gR2 – SLES 10 SP2+



- **SLES 10 SP2 or higher**
The following packages must be installed on your Linux on System z after a default rpm installation:
 - **db1-1.85-101.2** (May require softlink to libdb.so.2)
 - db1-32bit-1.85-101.2
 - gcc-4.1.2_20070115-0.21
 - gcc-c++-4.1.2_20070115-0.21
 - glibc-devel-2.4-31.54
 - glibc-devel-32bit-2.4-31.54
 - libaio-devel-0.3.104-14.2
 - libaio-devel-32bit-0.3.104-14.2
 - libstdc++-devel-4.1.2_20070115-0.21
 - openmotif21-libs-32bit-2.1.30MLI4-143.2
- Do not be surprised if additional RPMs are also required (during the installation of the above) as pre-requisites.

libdb.so.2 file



- On SLES 10 we installed the **db1-1.85-101.2.s390x.rpm**
 - This is not on the primary CD – look on 2 or 3
- Use a symbolic link to provide this library
 - `# ln -s /usr/lib64/libgdbm.so.2.0.0 /usr/lib64/libdb.so.2`
- The same was done on the 32 bit lib folder once we found that the 64 bit solution works, so as to make it look identical.
 - `# ln -s /usr/lib/libgdbm.so.2.0.0 /usr/lib/libdb.so.2`
- This solution is found under the AS10G certification on X86 and X86-64 platforms documents on metalink Doc ID 564174.1

OPENMOTIF for Red Hat



- Openmotif21 is now available with the RH distro if not it is also available at <http://oss.oracle.com/projects/compat-oracle>
- The required RPMs is :
 - openmotif21-2.1.30-11.RHEL5.s390.rpm
- As root, you can install this RPM package by issuing the following command:
- `# rpm -i openmotif21-2.1.30-11.RHEL5.s390.rpm`

Kernel values for E-Business Suite 12.1.2 with DB 10gR2



- **Kernel Parameter / Value**

```
kernel.semmsl 250*
kernel.semms 32000*
kernel.semopm 100*
kernel.semzni 142*
kernel.shmall 2097152
kernel.shmmax 2147483648 or half size of mem

kernel.shmmni 4096
kernel.msgmax 8192
kernel.msgmnb 65535
kernel.msgmni 2878
ns file-max
fs.file-max 131072
net.ipv4.ip_local_port_range 10000 65000**

net.core.rmem_default 262144
net.core.rmem_max 1048576
net.core.wmem_default 262144
net.core.wmem_max 262144
```

*: set using the following entry in the /etc/sysctl.conf file: kernel.sem = 256 32000 100 142

** : values recommended for the local port range may need to be adjusted according to the specific needs of the user's environment in order to avoid port conflicts.

Limits.conf file



- Make the following changes to **/etc/security/limits.conf** file
 - hard nofile 65536
 - soft nofile 4096
 - hard nproc 1384
 - soft nproc 2047
- To avoid failure of the registration
 - **unset ENV**

DB Patch



- Note if you have to install Patch 6007358 there are 2 versions – Check that you have the correct version of the DB in the pull down
- The Patch content is not the same
- One is for DB 10.2.0.2
 - This has the correct stubs libraries for the Database installation.
 - You can skip this patch by installing 10.2.0.2 until it fails and then installing 10.2.0.4 patch set which has the patch included
- One is for DB 10.1.0.5
 - This patch is required for successful installation of AS 10.1.3.1 SOA installation on SuSe 10 systems only.
 - This has a set of current object files

E-Business Suite with Linux on System z



The screenshot displays the Oracle Applications Manager interface. At the top, it says 'ORACLE Applications Manager' with navigation links for Support, Cart, Setup, Home, Logout, and Help. Below this is the 'Applications Dashboard' for 'Site Map' and 'Applications Dashboard: TEST'. There are tabs for Overview, Performance, Critical Activities, Business Flows, Security, and Software Updates. The main content area is divided into several sections:

- Applications System Status:** Data Retrieved: 03-Aug-2010 06:35:20. A table shows the status of various components for host ORAS01 on IBM Linux on System z. All components (Host, Admin, Database, Concurrent Processing, Forms, Web) are marked as 'Up' with green checkmarks.
- Configuration Changes (last 24 hours):** Data Retrieved: 03-Aug-2010 06:35:20. Shows 0 Patches Applied, 20 Site Level Profile Options, and 4 Applications Context Files Edited.
- System Alerts:** Data Retrieved: 03-Aug-2010 06:35:20. Shows 1 New Alerts, 1 New Occurrences, 1 Open Alerts, and 0 Open Occurrences.
- Web Components Status:** Data Retrieved: 01-Oct-2003 00:00:00. Shows Servlet Agent, JSP Agent, and TCF, all marked as 'Up' with green checkmarks.
- User Initiated Alerts:** Data Retrieved: 03-Aug-2010 06:35:20. Shows 0 New Alerts, 0 New Occurrences, 0 Open Alerts, and 0 Open Occurrences.

TIP The information shown above (with the exception of Web Components Status section) is retrieved from the system periodically. To retrieve up-to-the-minute data, please use the refresh icon for the desired section. Please see Help for more details.

Gathering Tech-Stack Configuration and Log files for Support



- 10gAS Configuration

```
tar cvf configFiles_`hostname`.tar $ORA_CONFIG_HOME/10.1.2/* \  
$CONTEXT_FILE \  
$ADMIN_SCRIPTS_HOME \  
$APPL_TOP/*.env \  
$ORA_CONFIG_HOME/10.1.3/Apache \  
$ORA_CONFIG_HOME/10.1.3/config \  
$ORA_CONFIG_HOME/10.1.3/j2ee/oaocore \  
$ORA_CONFIG_HOME/10.1.3/j2ee/forms \  
$ORA_CONFIG_HOME/10.1.3/j2ee/oaafm \  
$ORA_CONFIG_HOME/10.1.3/network \  
$ORA_CONFIG_HOME/10.1.3/opmn \  
$INST_TOP/ora/10.1.3/*.env \  
/etc/hosts
```

- 10gAS Logs

```
tar cvf logFiles_`hostname`.tar $LOG_HOME/ora/10.1.3 $LOG_HOME/appl/admin
```

- Tech Stack Configuration

```
perl $FND_TOP/patch/115/bin/TXKScript.pl \  
-script=$FND_TOP/patch/115/bin/tkInventory.pl \  
-txktop=$APPLTMP -contextfile=$CONTEXT_FILE \  
-appspass=<apps password> \  
-outfile=$APPLTMP/Report_Inventory.html
```

- Application Configuration

```
$AD_TOP/sql/adutconf.sql
```

Provisioning With Oracle on System z



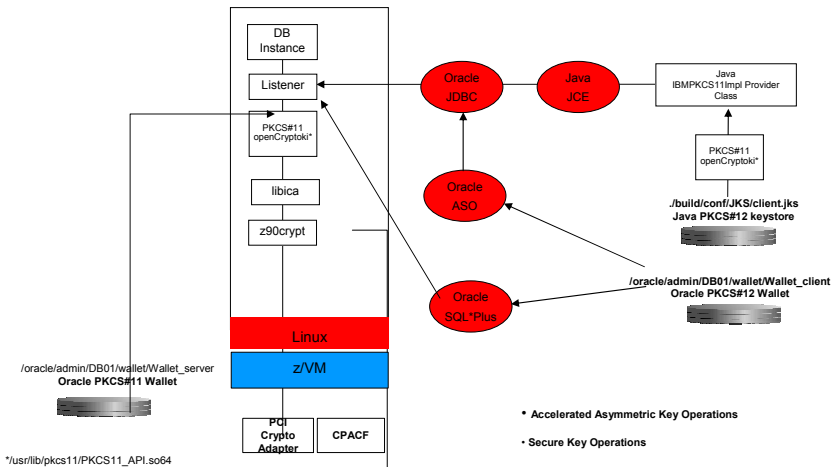
- Oracle Silent Installs (CRS, ASM, Grid Agent, Data Base)
 - The Future with E-Business Suite
 - Oracle installation, patching and cloning can be scripted.
- Some great products that allow for Dynamic Infrastructure:
 - Audelium – is a tool our Oracle/IBM Joint Solution Center uses provisioning Oracle and IBM products and is now publicly available.
 - Other vendors products are available/coming



Oracle Advanced Security – Crypto Card



- Trend with Federal Customers integrating the crypto card with Oracle
- 80% higher throughput and offloads expensive SSL cpu cycles to the card.



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Why Virtualize E-Business Suite?



- Hardware resources can be locked into a particular configuration that might be sub-optimal for the overall project lifecycle.
 - Preparation (patching, configuration, spot testing, development),
 - QA testing (unit, performance, integration),
 - A project's hardware is sized to accommodate the maximum load
 - Hardware resources can lie unused for the majority of the project
- Patching E-business Suite with the ALL the inter-dependencies can be really complex .
 - environment in "Limbo" while waiting for a resolution
- Different time zones. Physical-world time-slicing is hard, as it's hard to capture all runtime components and their integrations' dependencies on other servers. In the virtual world, shutdown, suspend, and startup actions are much faster and cleaner.
- Security, DR, Cloning, Availability, Higher Utilization, Management, Great Support, Over commit of resources

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Oracle Support Notes

- [Oracle Applications Installation and Upgrade Notes Release 12 \(12.1.2\) for Linux on IBM System z \[ID 1116895.1\] – NEW!!!](#)
- [How To Upgrade 11i Custom Forms To R12 \[ID 563258.1\]](#)
- [Oracle Applications Installation Guide: Using Rapid Install \(which is supplemented by Oracle Applications Release Notes and Oracle Applications NLS Release Notes\)](#)
- [Oracle Applications Upgrade Guide: Release 11i to Release 12.1.1](#)
- [Oracle E-Business Suite Maintenance Pack \(MP\) Installation instructions](#)
- [Oracle Applications Release 11.5.10.2 Maintenance Pack Installation Instructions \[ID 316365.1\]](#)
- [Application Tier Platform Migration with Oracle E-Business Suite Release 12 \[ID 438086.1\]](#)
- [Planning Your Oracle E-Business Suite Upgrade from Release 11i to Release 12.1 \[ID 987516.1\]](#)
- [Using Transportable Database to migrate E-Business Suite R12 Using Oracle Database 10gR2 or 11g \[ID 734763.1\]](#)
- [How to Reduce the Disk Space Used by a Cloned E-Business Suite Environments. \[ID 443383.1\]](#)

Oracle Documentation



- Oracle E-Business Suite Installation Guide: Using Rapid Install E12842-04
- Oracle E-Business Suite Maintenance Procedures E13675-03
- Oracle E-Business Suite Maintenance Utilities E13676-03
- Oracle E-Business Suite Patching Procedures E12148-03
- Oracle E-Business Suite Upgrade Guide, Release 11i to 12.1.1 E16342-01
- Oracle iSetup Developer's Guide (zipped) E15842-01
- Oracle iSetup User's Guide E12899-03
- Oracle Diagnostics Framework User's Guide E12895-03
- System Administration
- Oracle E-Business Suite System Administrator's Guide Documentation Set NA
- Oracle E-Business Suite System Administrator's Guide - Configuration E12893-03
- Oracle E-Business Suite System Administrator's Guide - Maintenance E12894-03
- Oracle E-Business Suite System Administrator's Guide - Security E12843-04
- Oracle E-Business Suite Flexfields Guide E12892-03
- Oracle Alert User's Guide E12951-0
- Oracle E-Business Suite Concepts E12841-03