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The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle’s products remains at the sole discretion of Oracle.
Program Agenda

• E-Business Suite Architecture
• Installation
• Upgrade
• Cloning
E-Business Suite Architecture
Oracle E-Business Suite 12.1.1
Architecture

Database Tier

Applications Tier

Client Tier

Web Services

Forms Services

Batch Services
Oracle E-Business Suite 12.1.1
Architecture

Database Tier

Applications Tier

11g
ORACLE_HOME
INST_TOP
11.1.0.7 ORACLE_HOME

APPL_TOP
COMMON_TOP
10.1.2.3 ORACLE_HOME
10.1.3.4 ORACLE_HOME

Database Tier

Applications Tier
E-Business Suite
Installation
Installing E-Business Suite R12.1.1
Rapid Install

- E-Business Suite Installation Tool
  - Install a New System
  - Upgrade an Existing System
  - Install Latest Technology Stack
Rapid Install
Install a New System

1. User Interview

2. Pre-Install Checks
Rapid Install
Install a New System

3

Database TechStack

4

Apps TechStack

Post-Install Checks

Apps File System
Technology Stack
Registration
Technology Stack Registration

11g

ORACLE HOME
10.1.2.3

ORACLE HOME
10.1.3.4

11.1.0.7

Global Inventory

oraInst.loc
E-Business Suite Upgrade
E-Business Suite Upgrade
Applications Upgrade
Create Upgrade File System

1. Lay Down New File System

10g or 11g

No Actions Performed in Existing Database

11i Continues to Work as Usual

Rapid Wizard
Applications Upgrade
Upgrade Tasks using New 12.1.1 APPL_TOP

2 Upgrade Operations

11i Code Level

Upgrade Operations

Functional Upgrade Steps
Patch DB Objects to 12.1.1 Level
Applications Upgrade
Configure Upgraded 12.1.1 Instance (Rapid Wizard)

3 Final Configuration

11.1.1 Code Level

Rapid Wizard

Cleanup Actions
Autoconfig Execution
Rapid Install
Upgrade Considerations

• 11gR1 Database
• Autoconfig Enabled on Database Tier and Applications Tier
• Consistent Net Services Topology Data Model
Other Rapid Install Commands
Rapid Install
Install Latest Technology Stack

11g
DATABASE

11.1.0.7
ORACLE_HOME

rapidwiz -techstack

FUSION MIDDLEWARE

10.1.2.3
ORACLE_HOME

10.1.3.4
ORACLE_HOME

Rapid Wizard
Rapid Install
Silent Mode

rapidwiz -silent -config CONFIG_FILE [-progress_only]

Rapid Wizard
Cloning
E-Business Suite
Cloning Techniques

- Cloning is the process used to create a copy of an existing E-Business Suite System
Cloning Techniques

Rapid Clone

- Command Line Process
- Requires User Interaction
- Note 406982.1 (Standard Clone)
- Note 559518.1 (RAC)

Application Management Pack for E-Business Suite

- Automated Process
- Provides Data Scrambling
- Allows Image Creation
- Leveraging EM Grid Control
Cloning Techniques
Rapid Clone

- Prepare Source System
- Copy Bits
- Configure Target System
Cloning Techniques
Prepare Source System

1. Database Tier

- Create ORA_HOME/appsutil/clone
- Obtain Database Information
- Create adcrdbclone.sql

adpreclone dbTier
Cloning Techniques
Prepare Source System

2 Applications Tier

adpreclone.pl appsTier

Create COMMON_TOP/clone
Cloning Techniques

Copy Bits

Source System

Target System

ORACLE DATABASE 11g

ORACLE E-BUSINESS SUITE

ORACLE FUSION MIDDLEWARE

ORACLE DATABASE 11g

ORACLE E-BUSINESS SUITE

ORACLE FUSION MIDDLEWARE
Cloning Techniques
Configure Target System

1. Database Tier

- Create Context File
- Home Registration
- Home Relink
- Home Configuration
- Database Re-creation
- Database Configuration
- Start Listener

adcfgclone.pl dbTier
Cloning Techniques
Configure Target System

2 Applications Tier

Create Context File
Home Registration
Home Relink
Home Configuration
INST_TOP Creation
APPL_TOP Configuration
Start Apps Processes

adcfgclone.pl appsTier
Cloning Techniques
Other Configuration Commands

1. Database Tier

```
adcfgclone.pl dbTechStack
```

- Create Context File
- Home Registration
- Home Relink
- Home Configuration
- Start Listener
Cloning Techniques
Other Configuration Commands

1. Database Tier

- Run `adcfgclone.pl dbconfig` for database configuration.
- Run `adcfgclone.pl database` for database re-creation.
- Start the listener.

Database Configuration
Database Re-creation
Start Listener
Cloning Techniques
Other Configuration Commands

2 Applications Tier

adcfgclone.pl atTechStack

Create Context File
Home Registration
Home Relink
Home Configuration
INST_TOP Creation
Start Apps Processes
Cloning Techniques
Other Configuration Commands

2 Applications Tier

adcfgclone.pl appltop
Cloning Techniques
Other Configuration Commands

1. Database Tier
2. Applications Tier

adclonectx.pl

Create Context File
Allow Automation
Cloning Techniques
Application Management Pack (AMP) Clone

- Source-to-Target
- Source-to-Image
- Image-to-Target
- Hot Cloning
- RAC Cloning
- Smart Clone
- Data Scrambling

Application Management Pack for E-Business Suite
Cloning Techniques
Source-to-Image

Source System

Application Management Pack
for E-Business Suite
Cloning Techniques
Image-to-Target

TEST1 → Image → TEST2

TEST3

Application Management Pack for E-Business Suite
Cloning Techniques
Hot Cloning

Source System

RMAN Hot Backup

Target System

Image

Application Management Pack
for E-Business Suite
Oracle E-Business Suite 12.1.1
RAC Cloning

Application Management Pack for E-Business Suite

Source System

Image

RMAN Hot Backup

Primary Node

Apps Tiers
Cloning Techniques
Smart Clone

Source System

Third Party Utility

Target System

Custom Cloning Mechanism

Application Management Pack for E-Business Suite

Application Tier Image
Cloning Techniques
Data Scrambling

Source System

Target System

Repackage Database

Scramble Data

Image

Application Management Pack for E-Business Suite
For More Information

search.oracle.com

Rapid Install Clone E-Business Suite

or

oracle.com
Related Documentation

- Oracle Applications Installation Guide: Using Rapid Install Release 12.1.1
- 803214.1: Now Available: Oracle E-Business Suite R12.1.1
- 798258.1: Oracle Applications Release Notes Release 12.1.1
- 380482.1: R12 Technology Stack Documentation Roadmap
- 405565.1: Oracle Applications Release 12 Installation Guidelines
- 394692.1: Oracle Applications Release 12 Documentation Resources
- 406138.1: R12 Downloading Rapid Install Software with Oracle E-Delivery
- 406982.1: Cloning Oracle Applications Release 12 with Rapid Clone
- 559518.1: Cloning Oracle Applications Release 12 with Rapid Clone on RAC Systems
- 783188.1: Certified RAC Scenarios for E-Business Suite Cloning
- 760637.1: Manually Cloning Oracle Applications Release 11i with 10g
- 438086.1: Migrating to Linux with Oracle Applications Release 12
- 387859.1: Using AutoConfig to Manage System Configurations in R12
E-Business Suite Technology Stack Blog

blogs.oracle.com/stevenChan

- Direct from EBS Development
- Latest EBS techstack news
- Certification announcements
- Primers, FAQs, tips
- Desupport reminders
- Advanced architectures
- Statements of Direction
- Early Adopter Programs
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Connect with Oracle E-Business Suite Technology Team?

Speak with the Experts about…

- Underlying Technology Stack
- Web 2.0 User Experience
- Upgrades to Release 12: Hints and Tips
- End-to-End Applications Management

Visit the
Oracle E-Business Suite – Applications Tools and Technology Kiosk!

Experts on Site:
- Steven Chan
- Uma Prabhala
- Angelo Rosado
- Max Arderius
- Prabodh Ambale
- Lester Gutierrez
- Udayan Parvate
- Nadia Bendjedou

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- etc
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Appendix
Oracle E-Business Suite 12.1.1
Architecture

Database Tier

Applications Tier
Oracle E-Business Suite 12.1.1

Database Tier

- 11g DATABASE
- 11.1.0.7 ORACLE_HOME

Applications Tier

- E-BUSINESS SUITE
- APPL_TOP
- INST_TOP
- COMMON_TOP
- 10.1.2.3 ORACLE_HOME
- 10.1.3.4 ORACLE_HOME

Fusion Middleware
Installation Best Practices

Documentation – startCD

• Documentation
  – Oracle Applications Installation Guide
  – Oracle Applications Release Notes
  – R12 Installation and Upgrade Notes
  – 11g Installation Guide

• startCD Version
  – startCD Continuously Updated
  – Latest startCD Information published in the Release Notes
Installation Best Practices
Media vs. Stage

• Media
  – Slow
  – Extensive User Intervention
  – Does not Require Disk Space
  – Might Require Special Privileges to Mount/Unmount DVDs
  – For the Current Machine only

• Stage
  – Fast
  – Minimum User Intervention
  – Requires 30 Gb
  – Created with adautostg.pl
  – Does not Require Special Privileges
  – Same Stage can be Mounted on Several Machines
Installation Best Practices
Remote Installations

• Different Methods
  – Virtual Network Computing (VNC)
  – Third Party X Display Servers

• Considerations
  – Must be Able to Render OUI Fonts
  – JDK 1.6 Compliant
  – Must Support the Network Traffic Required by the OUI
  – DISPLAY Configuration
Installation Best Practices
Operating System Requirements

• Fully Qualified Host
  – Static IP Address
  – Hostname.domain included on /etc/hosts
    • <IP> hostname.domain hostname

• Default File Permissions
  – Rapid Wizard should be able to create Files and Directories with Correct User/Group Permissions
  – File Creation Mask (i.e.: umask 022)
Installation Best Practices
Operating System Requirements

• Resource Limits
  – Set ulimit Parameters to Maximum Allowable Value
  – Maxproc: Number of Processes Per User
  – Openfiles: Number of Open Files per Process
  – Datasize: Amount of Memory Available to each Process

• Kernel Parameters
  – Requirements posted on E-Business Suite Documentation
  – Shared Memory (SHMALL, SHMMAX, SHMMNI)
  – Semaphores (SEMMSL, SEMMNS, SEMOPM, SEMMNI)
  – File Handles (file-max)
Installation Best Practices

Operating System Requirements

• Temporary Directories
  – /tmp
  – /tmp/.oracle
  – /var/tmp/.oracle

• Swap Space
  – 1Gb or Twice the size of RAM

• Shutdown Running Processes

• If having problems Verify If 11g can be Installed
Installation Best Practices

Cleaning Environments

• Clean Global Inventory
• Clean Temporary Directories
• Delete Database Technology Stack
• Delete Applications Database
• Delete Applications Technology Stack
• Delete Application File System
Application Management Pack

 Versions

Application Management Pack

2.0.1
2.0.2
2.0.1
3.0.0

10.2.0.3
10.2.0.4
Rapid Clone
Preclone dbTier

```
adpreclone.pl dbTier
```

```
adclone.pl
```

```
StageDBTier.java
StageDatabase.java
StageDBTechStack.java
```
Rapid Clone
Preclone appsTier

adpreclone.pl appsTier

adclone.pl

StageAppsTier.java

StageAppITop.java

StageAppsTechStack.java
Rapid Clone
Configclone dbTier

- adcfgclone.pl dbTier
- adclone.pl
- adclonectx.pl

- ApplyDBTier.java
- ApplyDatabase.java
- ApplyDBTechStack.java
- CloneContext.java
Rapid Clone

Configclone appsTier

```
adcfgclone.pl appsTier
```

```
adclone.pl
```

```
adclonetctx.pl
```

```
ApplyAppsTier.java
```

```
ApplyAppITop.java
```

```
ApplyAppsTechStack.java
```

```
CloneContext.java
```
AMP Clone

Clone Dashboard: Home View

Provides enterprise-wide status of clone jobs
**AMP Clone**

**Clone Dashboard: Image View**

A Cloned Image is a snapshot of an Applications System. A Clone Operation can be performed on a Source Applications System to create a Cloned Image. A Cloned Image can be deployed to create a Target Applications System.

<table>
<thead>
<tr>
<th>Select Name</th>
<th>Source</th>
<th>Last Modified By</th>
<th>Last Modified Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>R12img</td>
<td>VIS: Oracle EBusiness Suite</td>
<td>SYSMAN</td>
<td>03:23:19 PM Jul 27, 2006 PDT</td>
<td></td>
</tr>
</tbody>
</table>

**Deploy images on to a target system and Clone Source to Image**
AMP Clone
Clone Dashboard: Procedure View

Cloning Procedures are best practices provided by Oracle for cloning Oracle Applications. Procedures created by Oracle cannot be edited, but can be copied using Create Like, so that you can customize the procedure to fit your environment. You can run a Cloning Procedure to start a Clone Operation.

Contains predefined procedures defined by Oracle
Provides ability to run a specific clone procedure
Provides ability to view a specific procedure and create copies
AMP Clone

Clone Procedures: Creating a Custom Procedure
AMP Clone
Data Scrambling

• Protecting Sensitive Data while cloning Production systems

• Business Drivers:
  – Application Testing
  – Data Sharing

• Key Capabilities
  – Supports scrambling both 11i and Release 12 systems
  – Scramble / Purge sensitive database
  – In-build validations of scrambling configuration
  – Scrambled Image or System (when used with cloning)
  – Notifications on failure
Technology Stack Registration Components

• **oralInst.loc**
  - Under /etc on Linux and AIX
  - Under /var/opt/oracle on Solaris and HP-UX
  - Registry entry Inst_Loc on MS Windows
  - Inventory_loc points to Global Inventory Location

• **Global Inventory**
  - Registers each ORACLE_HOME
  - oralInventory/ContentsXML/inventory.xml
Technology Stack Registration
Components

- `oraInventory/ContentsXML/inventory.xml`

```xml
<?xml version="1.0" standalone="yes" ?>
<!-- Copyright (c) 2002 Oracle Corporation. All rights Reserved -->
<!-- Do not modify the contents of this file by hand. -->
<INVENTORY>
<VERSION_INFO>
  <SAVED_WITH>10.1.0.5.0</SAVED_WITH>
  <MINIMUM_VER>2.1.0.6.0</MINIMUM_VER>
</VERSION_INFO>
<HOME_LIST>
  <HOME NAME="TEST_DB__u04_TEST_db_tech_st_10_2_0" LOC="/u04/TEST/db/tech_st/10.2.0"
       TYPE="O" IDX="1"/>
  <HOME NAME="TEST_WEBOH__u04_TEST_apps_tech_st_10_1_3" LOC="/u04/TEST/apps/tech_st/10.1.3"
       TYPE="O" IDX="2"/>
  <HOME NAME="TEST_TOOLS__u04_TEST_apps_tech_st_10_1_2" LOC="/u04/TEST/apps/tech_st/10.1.2"
       TYPE="O" IDX="3"/>
</HOME_LIST>
</INVENTORY>
```
Technology Stack Registration
Global Inventory vs. Multiple Inventories

• Global Inventory
  – All the E-Business Suite Environments Share the same oraInventory
  – ORACLE_HOMEs must be unregistered with OUI
  – oraInst.loc remains the same

• Multiple Inventories
  – Each E-Business Suite Environment has its own oraInventory
  – Global Inventory can be deleted
  – oraInst.loc must be switched
Technology Stack Registration
Cleaning Inventory

• Global Inventory
  – Verify inventory_loc on oraInst.loc
  – Verify write permissions on oraInventory
  – Un-Install each ORACLE_HOME with its own OUI
  – Verify <HOME NAME> on
    oraInventory/ContentsXML/inventory.xml

• Multiple Inventories
  – Verify inventory_loc on oraInst.loc
  – Verify write permissions on oraInventory
  – Delete oraInventory
Technology Stack Registration
Registration Considerations

- Consider using Global or Multiple Inventories
- Verify that oraInst.loc exists
- Verify inventory_loc on oraInst.loc
- Point inventory_loc to a new oraInventory Location
- Verify write permissions on oraInventory
- Verify ORACLE_HOME duplications
- Verify Inventory Corruptions (i.e: opatch Isinventory)
## Installation Log Files

**Rapid Install**

<table>
<thead>
<tr>
<th>Log</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>/tmp/&lt;MMDDHHMM&gt;/&lt;MMDDHHMM&gt;.log</code></td>
<td>Runtime Rapid Install Log</td>
</tr>
</tbody>
</table>
## Installation Log Files
### Database Technology Stack

<table>
<thead>
<tr>
<th>Log</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>`&lt;ORACLE_HOME&gt;/appsutil/log/$CONTEXT_NAME/</td>
<td>Main Database Tier</td>
</tr>
<tr>
<td>&lt;MMDDHHMM&gt;.log</td>
<td></td>
</tr>
<tr>
<td>`&lt;ORACLE_HOME&gt;/appsutil/log/$CONTEXT_NAME/</td>
<td>10g Unzip &amp; Pre</td>
</tr>
<tr>
<td>dbInstall.log</td>
<td>Configuration</td>
</tr>
<tr>
<td>`&lt;ORACLE_HOME&gt;/appsutil/log/$CONTEXT_NAME/</td>
<td>10g Registration</td>
</tr>
<tr>
<td>ohclone.log</td>
<td></td>
</tr>
<tr>
<td>`&lt;ORACLE_HOME&gt;/appsutil/log/$CONTEXT_NAME/</td>
<td>10g Relink</td>
</tr>
<tr>
<td>make_&lt;MMDDHHMM&gt;.log</td>
<td></td>
</tr>
<tr>
<td>`&lt;ORACLE_HOME&gt;/appsutil/log/$CONTEXT_NAME/</td>
<td>10g Configuration</td>
</tr>
<tr>
<td>ApplyDBTechStack_&lt;MMDDHHMM&gt;.log</td>
<td></td>
</tr>
</tbody>
</table>
# Installation Log Files

## Database

<table>
<thead>
<tr>
<th>Log</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;ORACLE_HOME&gt;/appsutil/log/$CONTEXT_NAME/&lt;MMDDHHMM&gt;.log</code></td>
<td>Main Database Tier</td>
</tr>
<tr>
<td><code>&lt;ORACLE_HOME&gt;/appsutil/log/$CONTEXT_NAME/installdbf.log</code></td>
<td>Database Unzip &amp; Pre-Configuration</td>
</tr>
<tr>
<td><code>&lt;ORACLE_HOME&gt;/appsutil/log/$CONTEXT_NAME/adcrdb_&lt;SID&gt;.log</code></td>
<td>Recreate Control File</td>
</tr>
<tr>
<td><code>&lt;ORACLE_HOME&gt;/appsutil/log/$CONTEXT_NAME/ApplyDatabase_&lt;MMDDHHMM&gt;.log</code></td>
<td>Database Configuration</td>
</tr>
<tr>
<td><code>&lt;ORACLE_HOME&gt;/appsutil/log/$CONTEXT_NAME/&lt;MMDDHHMM&gt;/adconfig.log</code></td>
<td>Autoconfig</td>
</tr>
<tr>
<td><code>&lt;ORACLE_HOME&gt;/appsutil/log/$CONTEXT_NAME/&lt;MMDDHHMM&gt;/NetServiceHandler.log</code></td>
<td>DB Net Configuration</td>
</tr>
</tbody>
</table>
## Installation Log Files
### Applications Technology Stack

<table>
<thead>
<tr>
<th>Log</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;INST_TOP&gt;/logs/&lt;MMDDHHMM&gt;.log</code></td>
<td>Main Applications Tier Log</td>
</tr>
<tr>
<td><code>&lt;APPL_TOP&gt;/admin/&lt;CONTEXT_NAME&gt;/log/ApplyAppsTechStack.log</code></td>
<td>10.1.2/10.1.3 Unzip &amp; Pre-Configuration</td>
</tr>
<tr>
<td><code>&lt;INST_TOP&gt;/admin/log/ohclone.log</code></td>
<td>10.1.2 / 10.1.3 Registration</td>
</tr>
<tr>
<td><code>&lt;INST_TOP&gt;/logs/ora/10.1.2/install/make_&lt;MMDDHHMM&gt;.log</code></td>
<td>10.1.2 Relink</td>
</tr>
<tr>
<td><code>&lt;INST_TOP&gt;/logs/ora/10.1.3/install/make_&lt;MMDDHHMM&gt;.log</code></td>
<td>10.1.3 Relink</td>
</tr>
<tr>
<td><code>&lt;INST_TOP&gt;/admin/log/ApplyAppsTechStack.log</code></td>
<td>Technology Stack Configuration</td>
</tr>
</tbody>
</table>
## Installation Log Files

### Applications File System

<table>
<thead>
<tr>
<th>Log</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;INST_TOP&gt;/logs/&lt;MMDDHHMM&gt;.log</code></td>
<td>Main Applications Tier Log</td>
</tr>
<tr>
<td><code>&lt;APPL_TOP&gt;/admin/$CONTEXT_NAME/log/installAppl.log</code></td>
<td>APPL_TOP Unzip &amp; Pre-Configuration</td>
</tr>
<tr>
<td><code>&lt;APPL_TOP&gt;/admin/$CONTEXT_NAME/log/ApplyAppltop_&lt;MMDDHHMM&gt;.log</code></td>
<td>APPL_TOP Configuration</td>
</tr>
<tr>
<td><code>&lt;APPL_TOP&gt;/admin/$CONTEXT_NAME/log/&lt;MMDDHHMM&gt;/adconfig.log</code></td>
<td>Autoconfig Log</td>
</tr>
<tr>
<td><code>&lt;APPL_TOP&gt;/admin/$CONTEXT_NAME/log/&lt;MMDDHHMM&gt;/NetServiceHandler.log</code></td>
<td>Apps Net Configuration</td>
</tr>
</tbody>
</table>
# Installation Log Files

## Technology Stack Registration

<table>
<thead>
<tr>
<th>Log</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>oraInventory/logs/cloneActions&lt;MMDDHHMM&gt;.log</td>
<td>ORACLE_HOME Clone</td>
</tr>
<tr>
<td>oraInventory/logs/oraInstall&lt;MMDDHHMM&gt;.log</td>
<td>runInstaller</td>
</tr>
<tr>
<td>oraInventory/logs/silentInstall&lt;MMDDHHMM&gt;.log</td>
<td>runInstaller Silent Run</td>
</tr>
</tbody>
</table>
Cloning Techniques
Source-to-Target Refreshing

- Source-Target direct Synchronization
- Ideal for refreshing environments
- Rsync use for faster copy
Cloning Techniques
Standby System

• Maximum Availability Techniques
Cloning Techniques
Oracle Virtual Machine Cloning

- **OracleVM Cloning**
  - Functional VM Templates (i.e. ERP VM)
  - Technical VM Templates (i.e. 11i/11g+RUP6 Template)
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