

# **R12.x Install/Patch/Maintain Oracle E-Business Suite**

**Volume 3 - Student Guide**

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## Preface

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### Profile

#### Before You Begin This Course

- Thorough knowledge of your operating environment and software.
- Working experience with database software.

#### Prerequisites

- There are no formal prerequisites for this course.

#### How This Course Is Organized

This is an instructor-led course featuring lecture and hands-on exercises. Online demonstrations and written practice sessions reinforce the concepts and skills introduced.

## Related Publications

### Oracle Publications

Title	Part Number
Oracle E-Business Suite Concepts	E12841
Oracle E-Business Suite Installation Guide: Using Rapid Install	E12842
Oracle E-Business Suite Maintenance Procedures	E13675
Oracle E-Business Suite Maintenance Utilities	E13676
Oracle E-Business Suite Patching Procedures	E12148

### Additional Publications

- System release bulletins
- Installation and user's guides
- Read-me files
- International Oracle User's Group (IOUG) articles
- *Oracle Magazine*

# Typographic Conventions

---

## Typographic Conventions in Text

Convention	Element	Example
Bold italic	Glossary term (if there is a glossary)	The <b>algorithm</b> inserts the new key.
Caps and lowercase	Buttons, check boxes, triggers, windows	Click the Executable button. Select the Can't Delete Card check box. Assign a When-Validate-Item trigger to the ORD block. Open the Master Schedule window.
Courier new, case sensitive (default is lowercase)	Code output, directory names, filenames, passwords, pathnames, URLs, user input, usernames	Code output: debug.set ('I', 300); Directory: bin (DOS), \$FMHOME (UNIX) Filename: Locate the init.ora file. Password: User tiger as your password. Pathname: Open c:\my_docs\projects URL: Go to http://www.oracle.com User input: Enter 300 Username: Log on as scott
Initial cap	Graphics labels (unless the term is a proper noun)	Customer address ( <i>but</i> Oracle Payables)
Italic	Emphasized words and phrases, titles of books and courses, variables	Do <i>not</i> save changes to the database. For further information, see <i>Oracle7 Server SQL Language Reference Manual</i> . Enter user_id@us.oracle.com, where <i>user_id</i> is the name of the user.
Quotation marks	Interface elements with long names that have only initial caps; lesson and chapter titles in cross-references	Select "Include a reusable module component" and click Finish.  This subject is covered in Unit II, Lesson 3, "Working with Objects."
Uppercase	SQL column names, commands, functions, schemas, table names	Use the SELECT command to view information stored in the LAST_NAME column of the EMP table.
Arrow	Menu paths	Select File > Save.
Brackets	Key names	Press [Enter].
Commas	Key sequences	Press and release keys one at a time: [Alternate], [F], [D]
Plus signs	Key combinations	Press and hold these keys simultaneously: [Ctrl]+[Alt]+[Del]

## Typographic Conventions in Code

Convention	Element	Example
Caps and lowercase	Oracle Forms triggers	When-Validate-Item
Lowercase	Column names, table names	SELECT last_name FROM s_emp;
	Passwords	DROP USER scott IDENTIFIED BY tiger;
	PL/SQL objects	OG_ACTIVATE_LAYER (OG_GET_LAYER ('prod_pie_layer'))
Lowercase italic	Syntax variables	CREATE ROLE <i>role</i>
Uppercase	SQL commands and functions	SELECT userid FROM emp;

## Typographic Conventions in Oracle Applications Navigation Paths

This course uses simplified navigation paths, such as the following example, to direct you through Oracle Applications.

(N) Invoice > Entry > Invoice Batches Summary (M) Query > Find (B) Approve

This simplified path translates to the following:

1. (N) From the Navigator window, select **Invoice** then **Entry** then **Invoice Batches Summary**.
2. (M) From the menu, select **Query** then **Find**.
3. (B) Click the **Approve** button.

### Notations:

(N) = Navigator

(M) = Menu

(T) = Tab

(B) = Button

(I) = Icon

(H) = Hyperlink

(ST) = Sub Tab

## Typographical Conventions in Oracle Applications Help System Paths

This course uses a “navigation path” convention to represent actions you perform to find pertinent information in the Oracle Applications Help System.

The following help navigation path, for example—

(Help) General Ledger > Journals > Enter Journals

—represents the following sequence of actions:

1. In the navigation frame of the help system window, expand the General Ledger entry.
2. Under the General Ledger entry, expand Journals.
3. Under Journals, select Enter Journals.
4. Review the Enter Journals topic that appears in the document frame of the help system window.



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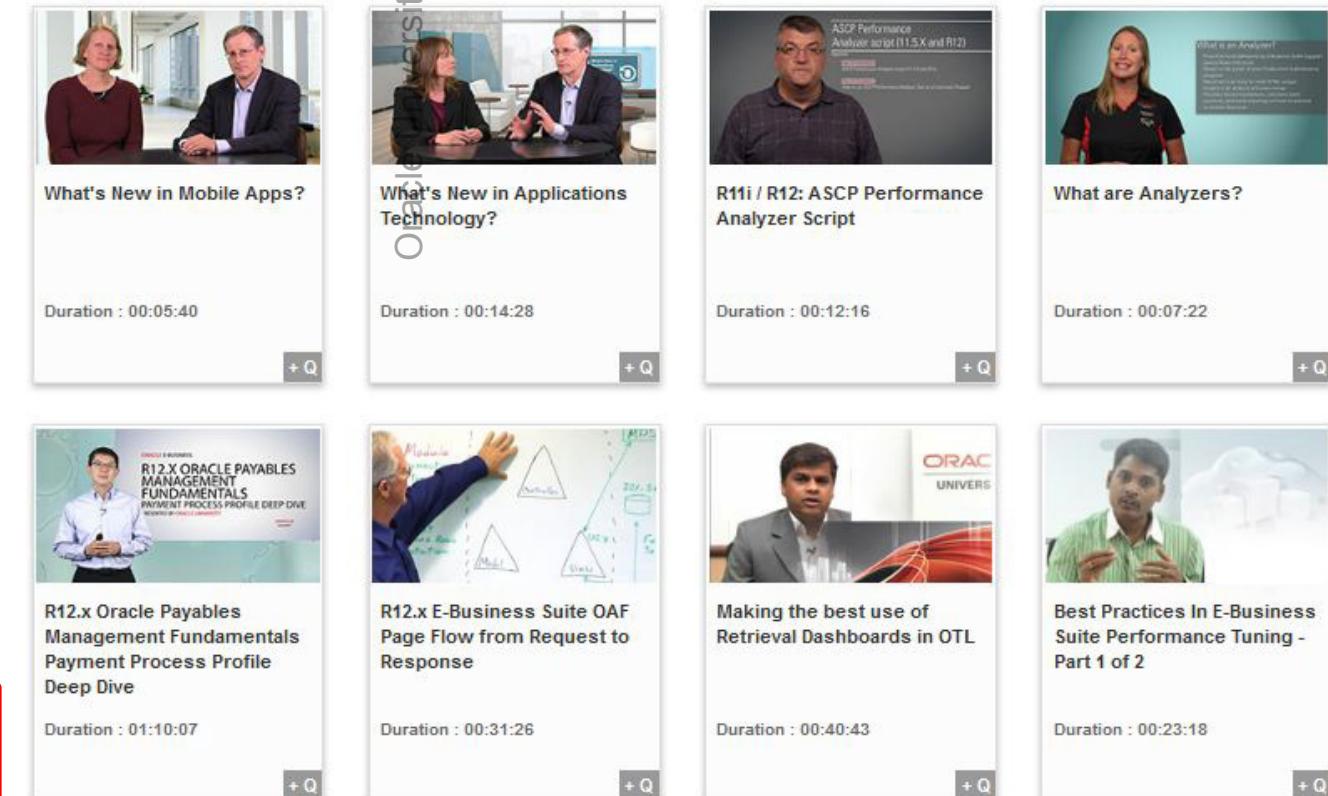
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# **Patching and the AutoPatch Process**

**Chapter 21**



## Patching and the AutoPatch Process

### Patching and the AutoPatch Process

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## Objectives

### Objectives

After completing this module, you should be able to do the following:

- Identify the different types of patch
- Describe how a patch is created
- Explain the steps AutoPatch goes through to apply a patch

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## Module Overview

### Module Overview

This module consists of the following topics:

- Patch naming convention
- Patch components
- Patch creation
- Downloading a patch
- Overview of AutoPatch
- AutoPatch operation
- Applying a patch
- Applying a patch to a multi-node system
- Patching documentation files
- Reducing patching downtime

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### Overview

This module describes patch terminology, patch types, the patch creation process, and the process of downloading a patch from My Oracle Support. It also looks at the components of a patch, and examines how the AutoPatch utility is used to apply patches.

## Patch Types

### Patch Types

Patch type	Description
Bug fix	Fixes an existing issue
New feature	Adds new functionality
Interoperability	Contains Oracle E-Business Suite files and database objects to make the current version of Oracle E-Business Suite compatible with a newer version of the database or a technology stack component. For example, Oracle Database interoperability with Oracle E-Business Suite Release.
Diagnostic	Released specifically to determine the source of an issue. A diagnostic patch does not fix the issue.

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### Patch Types

A patch is a correction or modification to Oracle E-Business Suite. Patches are created and released when a feature is modified or when there is an issue with Oracle E-Business Suite. Some of these are simple issues and can be resolved with a single patch, also known as a stand-alone patch. A patch can contain fixes for a single issue or a collection of issues for a particular product.

Some patches are released as high-priority patches, which should be applied by all customers who have installed the affected product.

## Patch Types

### Patch Types

Patch type	Description
Translation	Contains Oracle E-Business Suite files that have been translated from English to another language.
Performance	Fixes a problem with, or improves the performance of, an upgrade from a previous major release, such as 11.5.9 to 12.
Documentation	Updates Oracle Applications Online Help.

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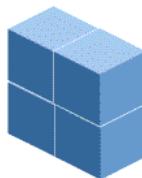
## Patch Terminology

### Patch Terminology



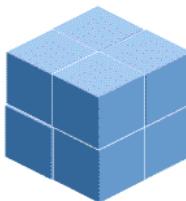
Patch

<patchnum>



Product Family  
Release Update Pack

R12.<prod>.A, R12.<prod>.B



Release Update Pack

12.0.1, 12.0.2, 12.0.3, 12.0.4

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### Patch Terminology

Patches are identified according to the format on the slide. A single patch is named after the patch or bug number. For example, a patch for a bug numbered 1234567 would simply be called patch 1234567.

Some special patches still have a patch number, but are also identified as follows:

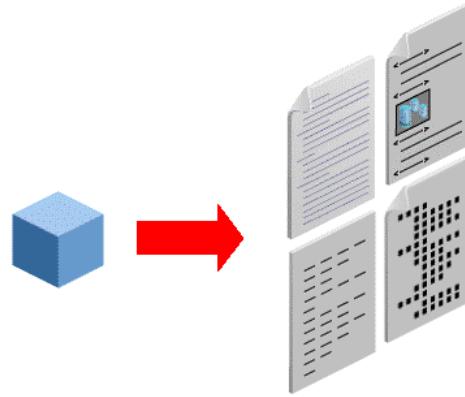
- A *product family release update pack* is an aggregation of patches created for a specific product family after the initial release, and designated by the release number followed by the product short name and a letter; for example, R12.FIN\_PF.A.
- A *release update pack* increments the third section of the release number, for example 12.0.1, 12.0.2, 12.0.3, 12.0.4, and consists of an aggregation of product family release update packs that have been created across Oracle E-Business Suite since the initial (base) release.

## Patch Components

### Patch Components

A patch, when downloaded, is usually in Zip format. When you unzip such a patch file, several components may be seen:

- Readme files
- Patch driver files
- Replacement files
- Patch metadata files



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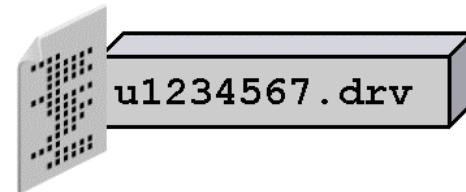
## Unified Patch Driver Files

### Unified Patch Driver Files

All Release 12 patches utilize a *unified driver*, with a filename of the form **u<patchnumber>.drv**

Combining the actions of copy, database, and generate drivers in a single consolidated driver, a unified driver:

- Copies replacement files
- Performs database updates
- Generates files



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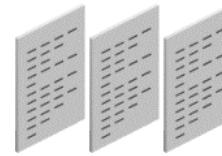
## Other Patch Components

### Other Patch Components

Readme.txt file  
Contains patch application instructions  
(may contain manual steps)



Patch metadata files  
Contains key patch information



Replacement files  
Copied over existing files



SQL scripts  
Run to perform updates



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### Other Patch Components

Patches may also include some the following components:

- **Readme file:** Every patch comes with at least one readme file (README.txt or README.html). This file tells you what the patch is fixing, the steps you need to perform, and any special instructions. It is imperative that you review the readme file before applying any patch.
- **Patch metadata files:** These contain a list of files and versions included in the patch. The metadata files are normally called b<patchnum>.ldt or f<patchnum>.ldt. The information in the patch metadata files is used to determine prerequisite patches, analyze the impact of the patch on the system, and compare versions of files in the patch with those of files in the system. From Release 12, the use of codelevels means that no prerequisite patch information needs to be stored in the .ldt files.
- **Replacement files:** These files replace the forms, reports, SQL scripts, HTML files, object modules and so on that you have on your current system. They are organized by subdirectory within the patch directory, based on where they belong in your file system.

- **SQL scripts:** These are scripts to modify the database. The scripts are typically called by the database driver. They are organized by subdirectory in the patch directory, but are run from the APPL\_TOP and not where the patch was unloaded.

## Patch Creation

### Patch Creation

This is the general process of creating a patch:

1. Customer (or internal tester) reports a problem
2. Customer or Oracle Support engineer opens service request (SR)
3. Support engineer researches problem
4. Support engineer notifies customer of existing patch, if available
5. Problem is logged as a bug if patch does not exist
6. Development researches issue and creates a candidate patch
7. Developer checks fix into local source control system

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### Patch Creation

Note that not every fix is released as a standard patch.

## Patch Creation (Cont.)

### Patch Creation (Cont.)

8. Development registers patch in the Automated Release Updates system (ARU)
9. Patch is automatically ported to all Oracle E-Business Suite platforms
10. Development tests patch in standard environments
11. Patch is translated to other languages if required
12. Patch is released to customers

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## Using My Oracle Support

### Using My Oracle Support

My Oracle Support (formerly Oracle*MetaLink*) contains:

- Technical documentation on Oracle products
- Technical forums on Oracle products
- Information on Oracle products availability
- Service Requests (SRs)
- Access to the iSR system that allows customers to log a SR
- Patches

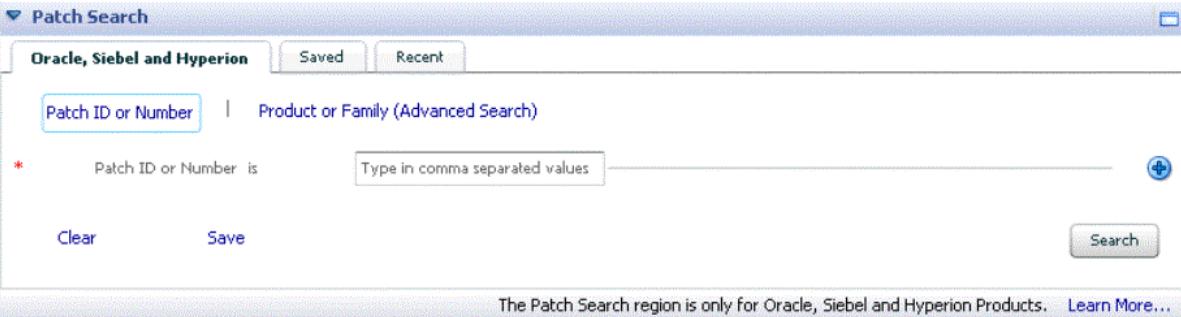
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### My Oracle Support

My Oracle Support (formerly Oracle*MetaLink*) is an Oracle web site that contains up-to-date information and patches for all Oracle products. Check periodically for bulletins, alerts, and issues, at <http://support.oracle.com>.

## Searching For Patches on My Oracle Support

### Searching For Patches on My Oracle Support



The Patch Search region is only for Oracle, Siebel and Hyperion Products. [Learn More...](#)

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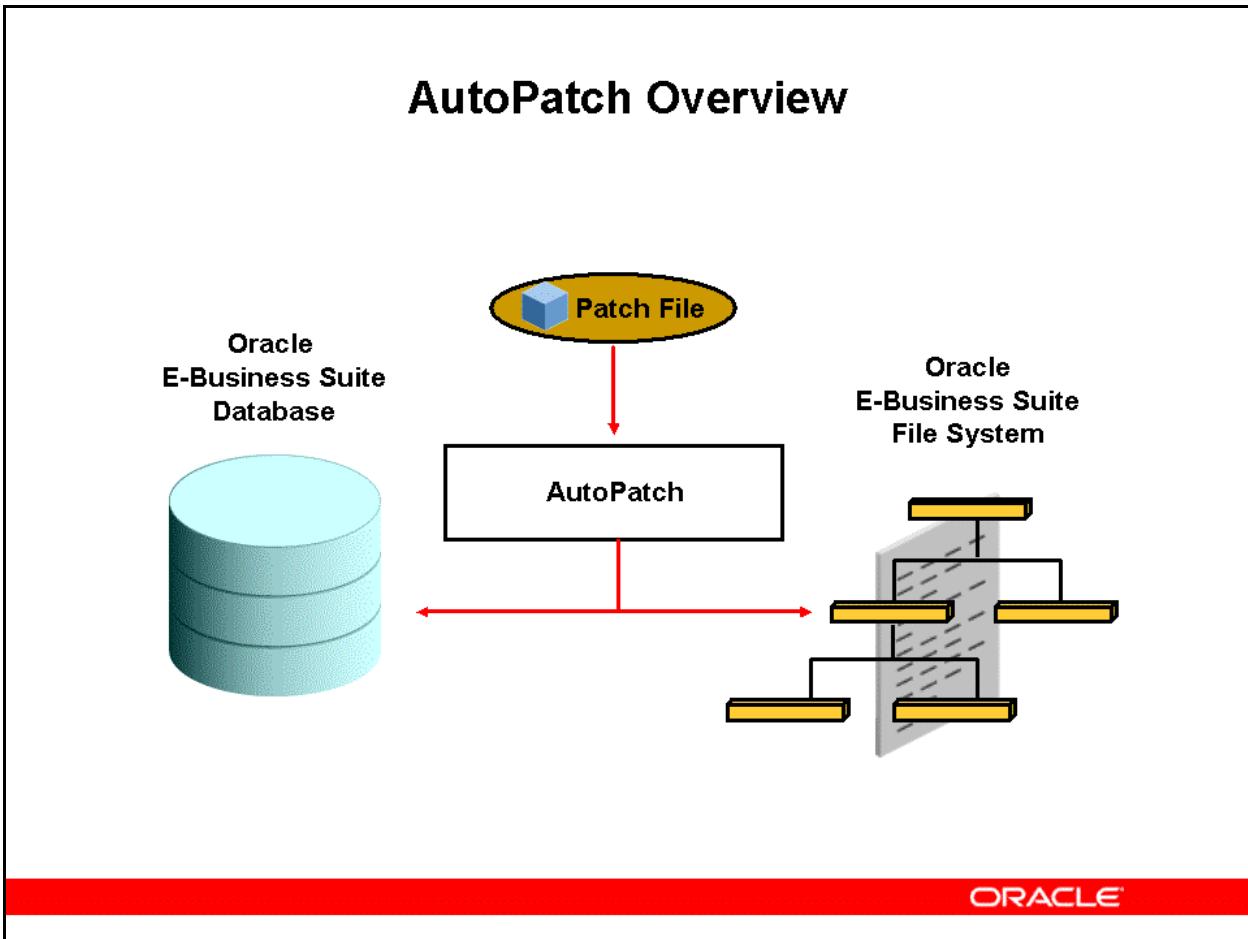
### Searching For Patches on My Oracle Support

My Oracle Support allows you to search for patches. The steps are:

1. Log in to My Oracle Support at <http://support.oracle.com>
2. Select the Patches & Updates tab
3. Search by Patch ID/Number (Simple Search) or Product/Family (Advanced Search)

You can then download the patch from the Search Results screen.

## AutoPatch Overview



### AutoPatch Overview

AutoPatch is a utility that automates many patching tasks for Oracle E-Business Suite. You use it to apply Oracle E-Business Suite patches.

In addition to maintaining existing products, AutoPatch can add files for a new language or a new product that was not a part of the base release.

AutoPatch cannot be used to apply Oracle Database, Oracle Application Server, or Oracle Developer patches.

## AutoPatch Overview

### AutoPatch Overview

AutoPatch:

- Automates many tasks to make the application of patches easier
- Supports a powerful, granular patching mechanism, which allows changing the minimum set of files
- Compares version numbers before replacing a file to ensure the most recent file is used
- Does not change files if those on the file system are more recent than the ones in a patch
- Makes a backup copy before replacing any file
- Does not run database tasks that have already been performed

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## AutoPatch Overview

AutoPatch:

- Automates many tasks to make the application of patches easier
- Supports a powerful, granular patching mechanism, which allows changing the minimum set of files
- Compares version numbers before replacing a file to ensure the most recent file is used
- Does not change files if those on the file system are more recent than the ones in a patch
- Makes a backup copy before replacing any file
- Does not run database tasks that have already been performed

## AutoPatch Operations

### AutoPatch Operations

AutoPatch does the following when applying patches:

- Prompts for required information about the patch
- Unloads patch metadata and verifies prerequisite patches have been applied
- Uploads patch history information to the database (if needed)
- Reads and validates the patch driver file
- Reads product file driver files
- Extracts object modules from the product libraries (so it can compare version numbers on the object modules it extracts)

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### AutoPatch Operations

AutoPatch takes no action if it finds a patch contains no new updates to your files or database objects. Before it makes any changes to existing files, AutoPatch first makes a backup copy.

When applying patches in *pre-install mode*, AutoPatch performs a limited set of operations.

## AutoPatch Operations

### AutoPatch Operations

AutoPatch does the following when applying patches:

- Compares the version numbers of the existing files against the files in the patch (version checking)
- Backs up any existing files that will be changed
- Copies files
- Archives files into libraries
- Relinks executables
- Generates Java archive (JAR) files as required

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## AutoPatch Operations

### AutoPatch Operations

AutoPatch does the following when applying patches:

- Compiles JSP files
- Updates database objects
- Compiles invalid database objects
- Generates forms, reports, and message files
- Runs AutoConfig to update configuration files, if any template files are introduced or updated by the patch
- Saves patch history information to the database

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## AutoPatch Features: Platform and Translation Checks

### **AutoPatch Features: Platform and Translation Checks**

AutoPatch is:

- **Platform-aware**
  - For example, if you try to apply a Sun Solaris specific patch on a Windows system, AutoPatch exits immediately
- **Translation-aware**
  - If language translation patches need to be applied in addition to the patch you are applying, AutoPatch notifies you

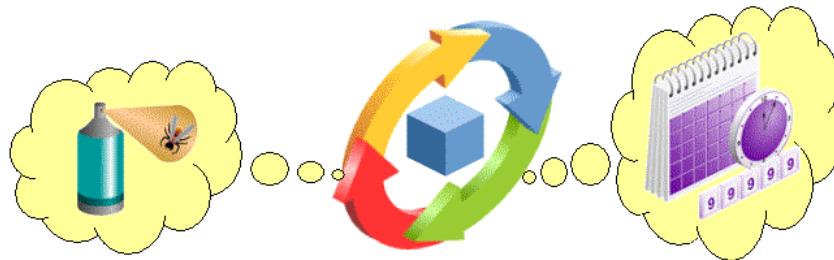
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## AutoPatch Features: Applied Patches Database

### AutoPatch Features: Applied Patches Database

With the Applied Patches database feature, you can determine:

- Which patches have been applied to a system
- When patches were applied
- What bug fixes were included in a patch
- When a file was last patched



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### AutoPatch Features: Applied Patches Database

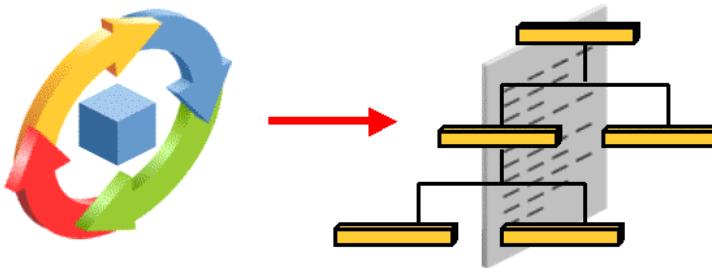
In earlier releases, patch history information was stored only in the file system, in a file called applptch.txt. This file contained information about all patches successfully applied to an Oracle E-Business Suite system. The new AutoPatch Applied Patches database feature moves the contents of this file to database tables. The Oracle Applications Manager (OAM) Applied Patches interface offers a set of query options and reports you can use to access patch history information in the database.

## AutoPatch Features: Patch History File Changes

### AutoPatch Features: Patch History File Changes

AutoPatch saves patch information to the file system when:

- You run AutoPatch in pre-install mode
- Its attempt to save patch information to the database fails
- There is a mismatch between the AutoPatch executable and the Applied Patches tables in the database



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### AutoPatch Features: Patch History File Changes

In pre-11.5.9 releases, the Patch History file (applptch.txt) contained detailed information on files that changed during the AutoPatch session. With the patch history database feature, this file existed only when a patch session failed or if AutoPatch could not write to the patch history database. In such cases, AutoPatch wrote its actions to this file.

From Release 11.5.9 onwards, adpsv<timestamp>.txt and javaupdates<timestamp>.txt replace applptch.txt. The contents of these files are uploaded to the Applied Patches database the next time AutoPatch is run successfully. These patch history files are located in the APPL\_TOP/admin/<SID> directory:

- **javaupdates<timestamp>.txt** contains patch history information on changes to Java files.
- **adpsv<timestamp>.txt** contains patch history information on changes to all non-Java files.

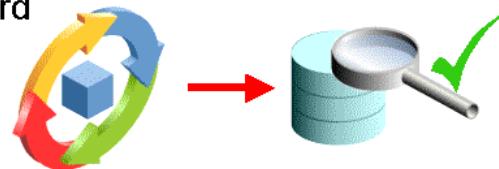
When the information from any of these files is successfully uploaded to the database, the files are removed from the file system. If the upload fails, the files remain on the file system.

## Prerequisite Patch Checking Using Codelevels

### Prerequisite Patch Checking Using Codelevels

Codelevels are essentially rollup patches with names that look like version numbers

- Higher codelevels include more changes, and include all fixes from lower codelevels
  - For example, R12.AD.A was the initial release of AD in Release 12
  - R12.AD.A.1 is a higher codelevel, which includes all code in R12.AD.A plus additional fixes
- Prerequisite checking used to be done via AutoPatch, but is now done from Patch Wizard



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### Prerequisite Patch Checking Using Codelevels

*Codelevels* are essentially rollup patches with names that look like version numbers. Higher codelevels include more changes, and at a minimum include all fixes from lower codelevels. For example, R12.AD.A was the initial release of AD in R12. R12.AD.A.1 is a higher codelevel, which includes all code in R12.AD.A plus additional fixes. R12.AD.A.2 is a higher codelevel again, which includes all code in R12.AD.A.1, plus further fixes.

In Release 11*i*, patches could have other individual patches as prerequisites. This provided flexibility, but could also lead to uncertainty as to whether a new patch included all the functionality from an older patch. The use of codelevels in Release 12 eliminates this uncertainty. For example, if a given patch has R12.GL.A.3 as a prerequisite, it is clear that R12.GL.A.4 satisfies the prerequisite, but that R12.GL.A.2 does not.

## AutoPatch Features: Checkfile Feature

### AutoPatch Features: Checkfile Feature

When you run a checkfile-enabled driver file, AutoPatch:

- Gets the version information from the specified file
- Checks the AD\_CHECK\_FILES table to determine whether this version of the file and its arguments have been run previously
- Determines whether the action is redundant
- Performs the action if the file has not previously been run
- After running all database actions, updates the AD\_CHECK\_FILES table with information about the database actions it performed

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### AutoPatch Features: Checkfile Feature

The AutoPatch checkfile feature reduces patch application downtime by checking whether a database action has been performed previously for the associated file contained in the patch. If a database action has been performed using the current version or a higher version of the file, AutoPatch omits the action.

Checkfile-enabled patch driver files contain the line "compatible feature checkfile". In addition, all SQL and EXEC commands in the patch driver file have an argument that starts with "checkfile". The checkfile feature specifically looks at the SQL and EXEC commands in the patch driver file and performs a version check of the files in the command. It also distinguishes whether a specific action on a file has been done. For example, a SQL script may run twice, each type with a different set of arguments, and checkfile can determine that these are not redundant actions and will perform both.

Release 12 introduced a significance enhancement in the *checkfile equivalence feature*, which was designed to reduce downtime when upgrading from Release 11*i* to Release 12. In such a case, a Release 12 file will not be executed if the Release 11*i* and Release 12 files are the same (as per the checkfile definition specified in the Release 12 file). For further details, see My Oracle Support Knowledge Document 559584.1, *Checkfile Equivalence Feature for Oracle Applications Release 12*.

## AutoPatch Features: Applying Merged Patches

### AutoPatch Features: Applying Merged Patches

- You can merge several compatible patches using the AD Merge Patch utility
- When applying a merged patch, you only need to run AutoPatch once for each driver in the merged patch, rather than once for each driver in all individual patches
- Applying merged patches reduces the amount of time to apply patches

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### AutoPatch Features: Applying Merged Patches

Using the AD Merge Patch utility to merge patches removes duplication of the patching process. For example, if two or more patches contain the same action, the merged patch will perform this action only once. If two patches contain two different revisions of a file, the merged patch only contains the higher revision of the file.

## AutoPatch Features: Password Hider

### AutoPatch Features: Password Hider

- Lines in the AutoPatch log file containing passwords are automatically masked so as to not display the passwords
- When flags=nohidepw is specified on the AutoPatch command line, an additional HIDEPW line is included
- The HIDEWP line contains the original line with the password included

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### AutoPatch Features: Password Hider

The purpose of this feature is to include passwords protected by HIDEWP comments in the AutoPatch log file, so that debugging is easier and stripping the passwords is simple. For example, to strip the passwords from a log file:

UNIX:

```
$ grep -v 'HIDEWP:' file > file_no_pws
```

Windows:

```
C:\>grep -v 'HIDEWP:' file > file_no_pws
```

In cases where security is more important than ease of debugging, do not use options=nohidepw.

## Patch Application Assistant

### Patch Application Assistant

- Patch Application Assistant (PAA) is a perl script, admsi.pl, which helps users perform any manual patching steps needed
- PAA generates a custom set of instructions that consolidates and displays the manual steps for all patches to be applied
  - After successfully performing each manual step, you can record that step as completed
  - When applying patches in the future, you can refer to this record to check which manual steps have already been completed
- For merged patches, PAA automatically merges the contents of the individual patch readme files



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## Patch Application Assistant

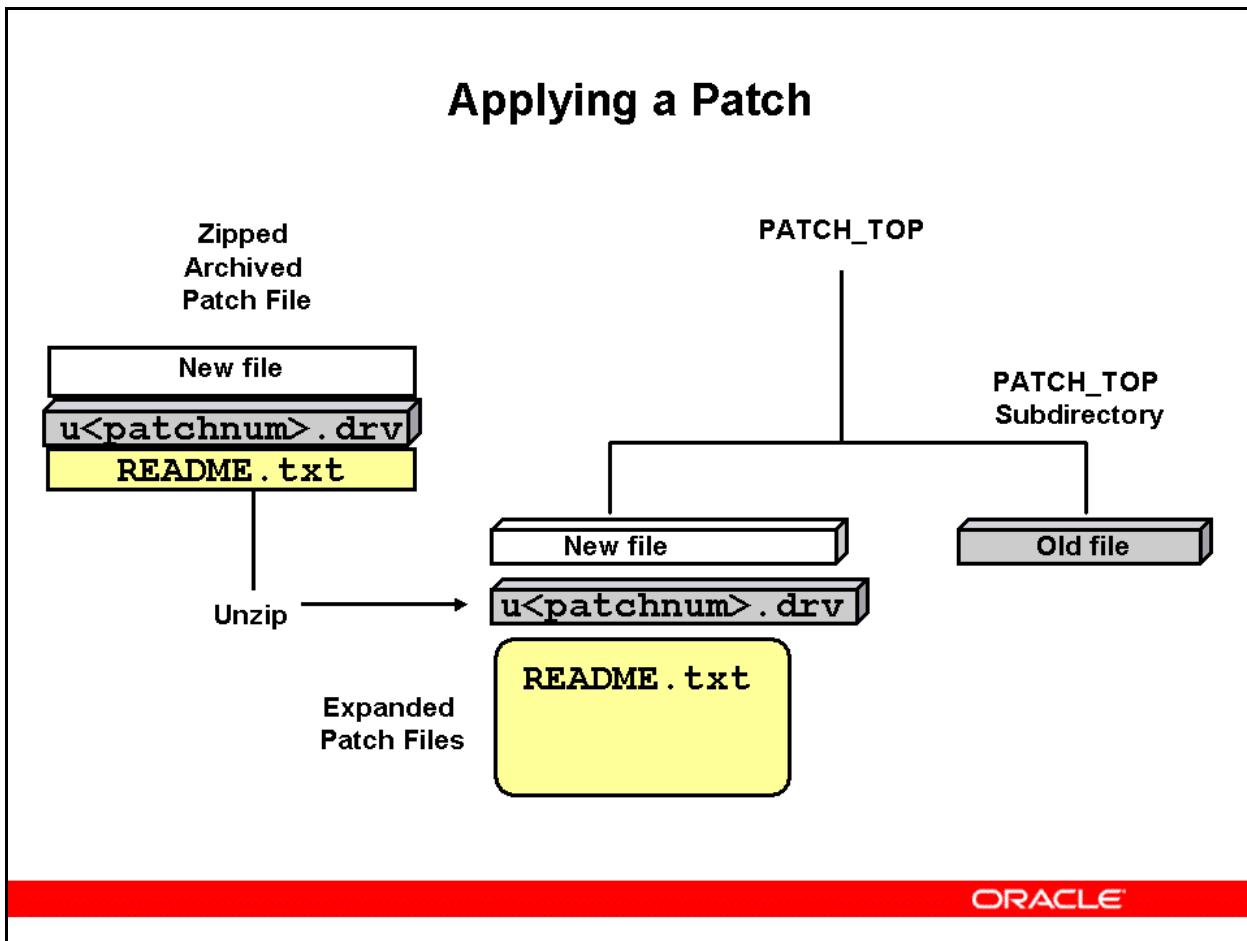
Oracle Patch Application Assistant (PAA) is a new feature in Release 12 that helps users track and perform manual steps during patching. It also provides consistency in the format of such manual steps.

Running PAA generates an installation-specific set of instructions that consolidates and displays the relevant manual steps for all the patches that are to be applied. For patches that require manual steps, the patch readme file contains generic instructions that apply to all systems. For instructions specific to a particular system, the readme file instructs you to use PAA.

After successfully performing each manual step, you can record that step as completed. When applying patches in the future, referring to this record will list the manual steps have already been completed, and which (unless specified otherwise) will therefore not need to be repeated.

For merged patches, PAA automatically merges the contents of the individual patch readme files.

## Applying a Patch



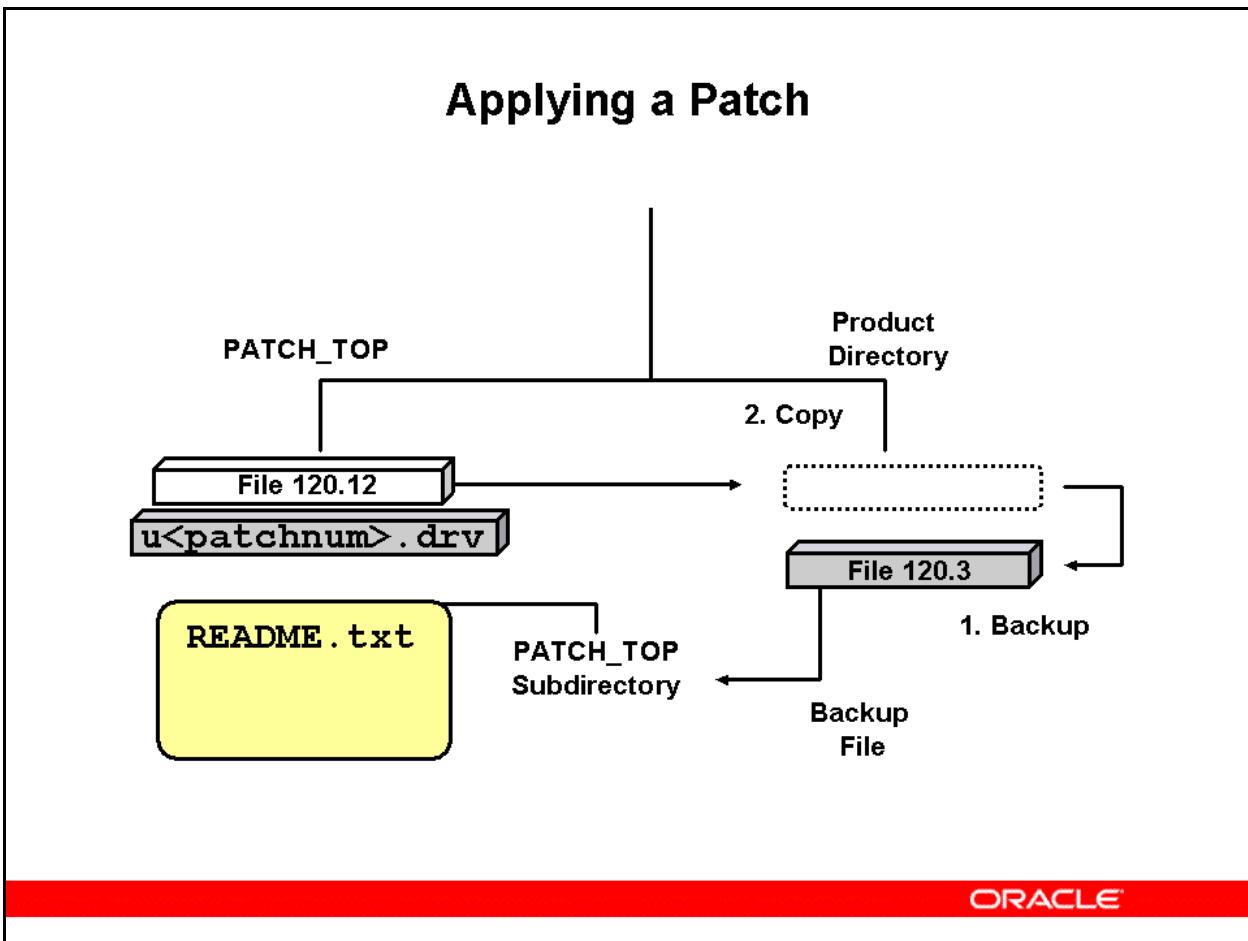
### Applying a Patch

This and the next slide show the process of applying a patch. This example shows the replacement of a file on the system using the unified driver that is standard in Release 12 and higher.

After you download the patch, copy the patch files to a directory on your file system by unzipping the archived patch file. The directory tree created by the unzipping process is referred to as the PATCH\_TOP directory. Once the patch is unzipped, review the readme file before taking any further action.

We recommend having a single location within the site (on a single server) for downloading and storing patches. A new directory, patches\_top, should contain all Oracle E-Business Suite patches, with separate subdirectories for each patch (these subdirectories are created automatically when a patch is unzipped). The patches\_top directory should also contain a 'patches.log' style spreadsheet detailing which patches have been or will be applied to which APPL\_TOPs, databases, and so on, as well as who applied the patch and who verified the success of the patch.

## Applying a Patch

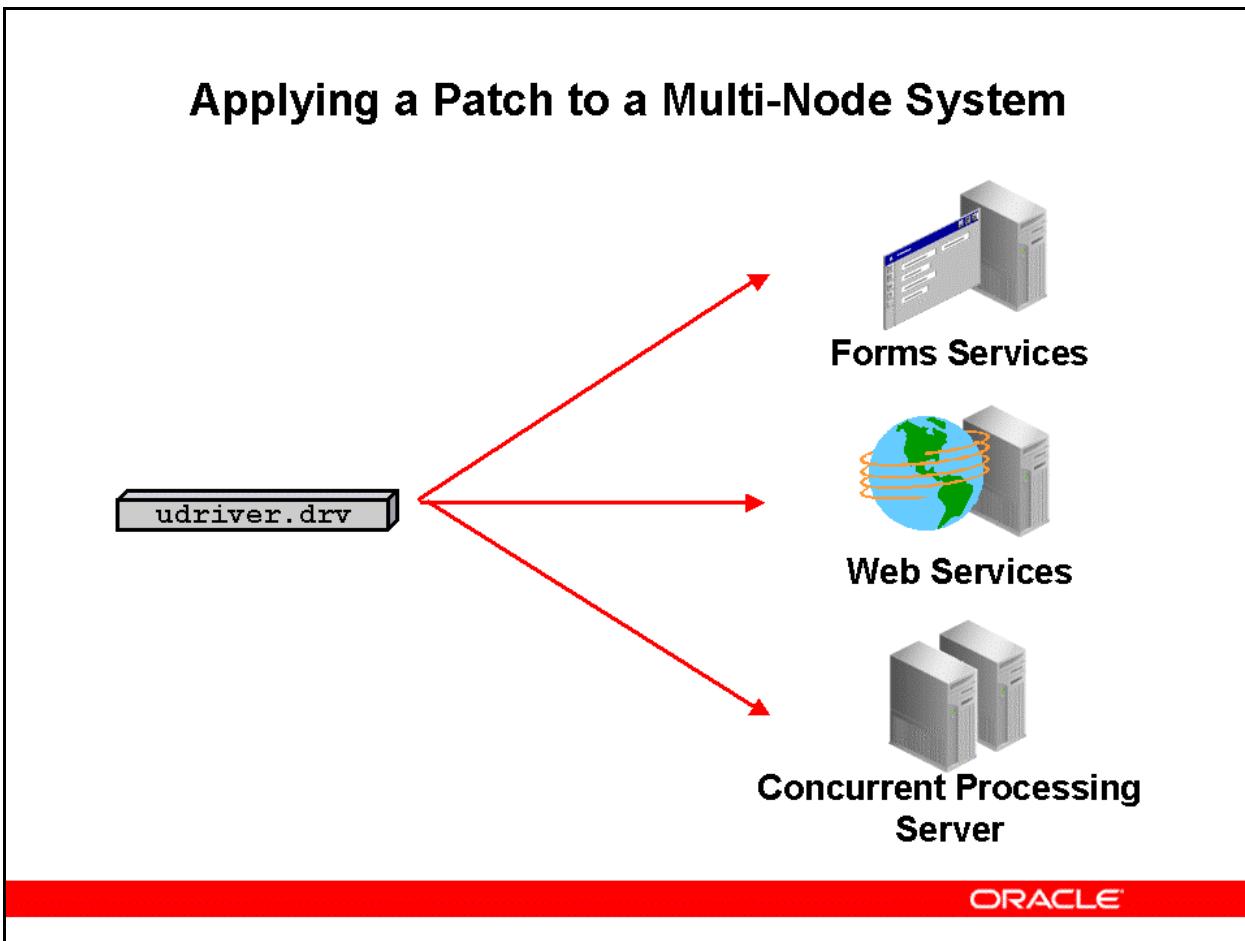


## Applying a Patch

Once you start AutoPatch, it:

- Reads the patch driver files under PATCH\_TOP.
- Verifies that the on-site file with the same name and location is an older version than the patch file. If the patch file is an older version than the existing file, AutoPatch does not copy it.
- Before replacing a file, makes a back up in a subdirectory of the patch directory. This is shown as step 1 on the right side of the slide.
- Copies the new file from PATCH\_TOP to the product directory.
- If the patch is a C object module, relinks dependent Oracle E-Business Suite executables with the relevant Oracle libraries.
- Performs database updates specified in the database driver. The checkfile feature ensures database tasks are not repeated.
- If you are applying a generate driver, it generates forms, reports, and/or message files.
- Records actions in the Applied Patches database.

## Applying a Patch to a Multi-Node System



### Applying a Patch to a Multi-Node System

In a multi-node system, Oracle E-Business Suite services and servers are distributed between several nodes. The core technology directories (admin, ad, au, and fnd) and all product directories are installed under the APPL\_TOP on all nodes, except for any node that contains only a database.

## Applying a Patch to a Multi-Node System

### Applying a Patch to a Multi-Node System

A Release 12 unified patch driver is applied to all APPL\_TOPS in a multi-node system

- AutoPatch identifies which actions in the driver are required for the current APPL\_TOP

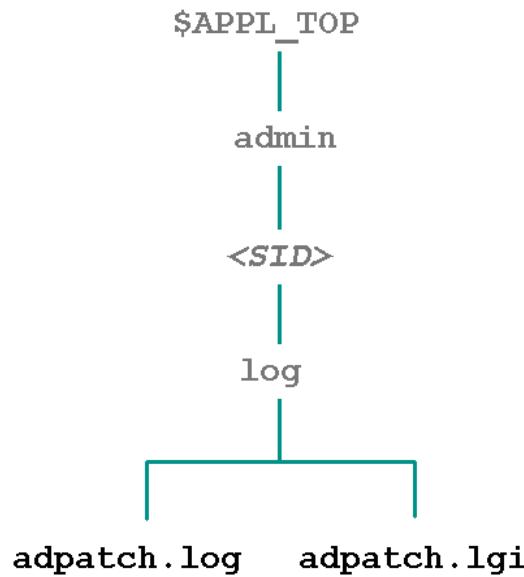
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### Applying a Patch to a Multi-Node System

You can maintain the APPL\_TOPs separately, or you can configure your system to share an APPL\_TOP. Release 12 also allows you to create a shared application tier file system, wherein the file systems for the APPL\_TOP, COMMON\_TOP, OracleAS 10.1.2 Oracle home, and OracleAS 10.1.3 Oracle home are all installed on a shared disk resource mounted on each node in the system. Any changes made to such as a shared file system are immediately visible on all nodes.

## Patching Application Documentation Files

### Patching Application Documentation Files



### Patching Application Documentation Files

There are two primary patch application documentation files:

- **adpatch.log** - This is the main log file, which records all actions for an AutoPatch session. You can find this file in APPL\_TOP/admin/<SID>/log, where <SID> is the value of your ORACLE\_SID or TWO\_TASK variable. The default file name is adpatch.log. Patch application management is simplified if you name your log file in a manner to match the driver file you are applying: for example, u1234567.log when applying the u1234567 driver.
- **adpatch.lgi** - This is the informational log file, which contains messages such as a list of files that were not applied. This file resides in the same location as your AutoPatch log file. It has the same base filename, but with a .lgi extension instead of a .log extension. For example, if your AutoPatch log file is called 1234567.log, your AutoPatch informational log file will be called 1234567.lgi.

## Reducing Patching Downtime

### Reducing Patching Downtime

To reduce the downtime for patch application:

- Schedule periodic downtime to install the latest release update packs
  - In particular, keep AD up-to-date
- Keep your test system current with your production system.
  - Rapid Clone can be used to create a copy
- Consolidate multiple patches with AD Merge Patch to minimizes downtime

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### Reducing Patching Downtime

Patch application is a key activity undertaken by Oracle E-Business Suite DBAs. If you need to apply a large number of patches, the required downtime can be significant. However, there are several simple ways you can minimize this downtime:

- **Schedule periodic downtime for application of the latest release update packs** - The more up-to-date your system, the less likely you are to experience known problems, and the easier it will be to resolve any new issues that may arise.
- **Keep AD up-to-date** - Running at the latest AD code level allows you to take full advantage of the efforts Oracle has put in to reduce downtime and simplify maintenance.
- **Keep your test system current with your production system** - When you test the application of a patch, it is imperative that the test system is realistic in terms of current patch level and transaction data. You can employ the Rapid Clone tool to create a copy of your production system.
- **Consolidate multiple patches with AD Merge Patch** - This utility merges multiple Oracle E-Business Suite patches into a single patch. This strategy reduces overall downtime significantly by eliminating duplicate tasks.

## Reducing Patching Downtime

### Reducing Patching Downtime

To reduce the downtime for patch application:

- Use a shared APPL\_TOP
- Use a staged APPL\_TOP
- Use the Distributed AD feature
- Perform maintenance during normal operation where possible

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### Reducing Patching Downtime

Minimizing downtime for patch application can also be reduced if you:

- **Use a shared APPL\_TOP** - This option is available if you have multiple application tier nodes.
- **Use a staged APPL\_TOP** - This will reduce the downtime to the period required for the database update. Staged APPL\_TOP is covered in a later chapter.
- **Use the Distributed AD feature** - This will help make full use of available hardware resources.
- **Perform maintenance during normal operation where possible** - For example, you can gather schema statistics or patch online help while the system is in use.

## Module Summary

### Module Summary

In this module, you should have learned how to do the following:

- Identify the different types of patch
- Describe how a patch is created
- Explain the steps AutoPatch goes through to apply a patch

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## Module Discussion

### Module Discussion

- Identify the operations performed during the application of a typical patch
- Name the three portions of a typical patch
- What benefits has the introduction of codelevels brought?
- List four ways to reduce patch downtime

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# **Patch Wizard**

## **Chapter 22**



## Patch Wizard

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### **Patch Wizard**

#### Patching Topics

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## Objectives

### Objectives

After completing this module, you should be able to do the following:

- Access Patch Wizard
- Download the Patch Information Bundle
- Set up Patch Wizard
- Define patch filters
- Submit Patch Wizard requests
- Download patches
- Check the status of Patch Wizard jobs
- Carry out patch impact analysis

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## Module Overview

### Module Overview

This module consists of the following topics:

- Accessing Patch Wizard
- Patch Wizard main page
- Patch Wizard setup
- Defining patch filters
- Patch Wizard results

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## Patch Wizard: Introduction

### Patch Wizard: Introduction

#### Patch Wizard:

- Reports which patches update Oracle E-Business Suite at the current code level, and which update to a new code level
- Compares the patches you have already applied against a list of all recommended Oracle E-Business Suite patches
- Does not report on all available patches
- Reports only on the patches that provide pro-active maintenance
- Downloads and merges and analyzes impact of patches

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## Patch Wizard: Introduction

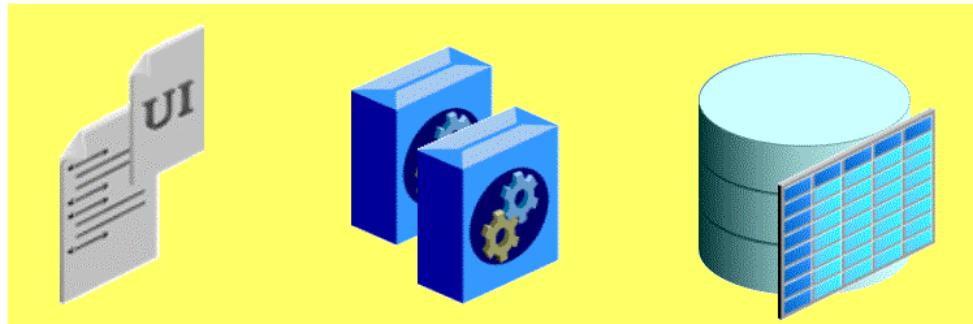
Patch Wizard greatly reduces the time and effort needed for patch management.

## Patch Wizard: Overview

### Patch Wizard: Overview

Patch Wizard consists of:

- A user interface
- Concurrent programs
- Database tables



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### Patch Wizard: Overview

You use the OAM interface to set up the Patch Wizard staging directory, manage patch filters, submit concurrent requests, and view recommended patches. The concurrent programs perform and monitor the following tasks:

- Upload patch information from the patch information bundle to Patch Wizard tables
  - Patch Wizard loads the patch information bundle metadata, including .ldt files and readme files, into the Oracle E-Business Suite database.
- Recommend patches based on the current environment and the patch information bundle
  - Patch Wizard can analyze multiple requests against the metadata. For example, you can narrow the comparison to report only on recommended Human Resources patches, or to report only on high-priority patches.
- Analyze lists of patches after downloading them from My Oracle Support.
  - You can also use Patch Wizard to upload the metadata for a specific patch or set of patches, and then view information reported from the metadata. For example, you can upload the metadata for a patch, and then view any requisite patches that have not yet been applied, and the impact of applying this new patch.

## Patch Wizard: Access

### Patch Wizard: Access

After logging in to Oracle E-Business Suite, you can navigate to the Patch Wizard main page from the Oracle Applications Manager Dashboard:



### Patch Wizard: Access

The Patch Wizard main page can be accessed from the Oracle Applications Manager Dashboard.

## Patch Wizard: Access

### Patch Wizard: Access

You can also navigate to the Patch Wizard main page from the Maintenance tab of the Oracle Applications Manager Site Map:

The screenshot shows the Oracle Applications Manager Site Map. At the top, there's a navigation bar with links like Applications Dashboard, Site Map, and Logout. Below it, a sub-navigation bar shows Patch Wizard : invok2. The main content area is titled "Patch Wizard Tasks". It lists several tasks with their descriptions and status icons:

Task Name	Description	Tasks Job Status
Patch Wizard Preferences	Set download, merge, and stage area preferences	[Status Icon]
Define Patch Filters	Create custom patch filters	[Status Icon]
Recommend/Analyze Patches	Submit requests for patch advice or analysis	[Status Icon]
Download Patches	Submit requests to download patches	[Status Icon]
Aggregate Patch Impact	Aggregate Patch Impact	[Status Icon]

Below this is a "Filter Criteria" section with dropdown menus for Filter Name (contains) and Completion Date (8), and a Go button. Further down is a "Recommended Patches Results" section with a note about purged filter lists and a table header:

Filter Name/Patch List	Total (Applied & Unapplied)	Unapplied	Requested By	Completion Date	Run Status	Request Set	Details
------------------------	-----------------------------------	-----------	--------------	-----------------	------------	-------------	---------

The table body below shows a single row with a note: "The above criteria resulted in no rows" and a tip: "TIP Unapplied: Total of unapplied and missing patches of Recommended and New Codelevels." There's also an "Add to Support Cart" button.

## Patch Wizard: Main Page

The Patch Wizard main page can also be accessed from the Maintenance tab of the Oracle Applications Manager Site Map.

## Patch Wizard: Results

### Patch Wizard: Results

The Results section of the Patch Wizard main page shows the list of all completed recommended patch requests:

Recommended Patches Results								
Filter Name/Patch List	Total (Applied & Unapplied)	Unapplied	Requested By	Completion Date	Run Status	Request Set	Details	
Recommended Patches	4	4	SYSADMIN	05-Aug-2009 15:20:36	Warning	<a href="#">6062731</a>		
New Codelevels	3	3	SYSADMIN	05-Aug-2009 15:15:49	Normal	<a href="#">6062700</a>		
<b>TIP</b> Unapplied: Total of unapplied and missing patches of Recommended and New Codelevels.								
<a href="#">Add to Support Cart</a>								

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## Patch Wizard: Results

The Results section of the Patch Wizard main page shows the list of all completed recommended patch requests. You can narrow the list of results by entering information in the Filter Criteria section of the main page. For example, you can view only the results of requests submitted on a certain date, or only results that contain a certain text string in the filter name. Clicking the icon in the Details column of a specific recommended patch request accesses the Recommended Patch Results page. After setting up and submitting a request, view the details of the recommended patches on this page.

Note that if the patch filter or patch list that you submitted does not appear in the Results section, there may be errors with the request, or the patches may already be applied, or no patches were recommended for the selected criteria. Review the request log for more information. If there are errors, make corrections and resubmit the request.

The information on the Preferences, Define Patch Filters, Recommend/Analyze Patches, Download Patches, and Recommended Patches pages is described in the following sections.

## Patch Wizard: Setup

### Patch Wizard: Setup

Before using Patch Wizard:

- Identify a staging directory for Patch Wizard files
- Set up defaults and other preferences
- Download the Patch Information Bundle

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## Patch Wizard: Setup

Before you submit a request for a patch analysis or download patches, you must access the Patch Wizard Preferences page and set up the system defaults and preferences. This Preferences page provides access to various setup tasks, including:

- Set preferences, both site-specific and general, that include the staging directory and various defaults that will apply to the patches you download.
- Set up filters that report only those patches that may affect your system.

## Patch Wizard: Patch Information Bundle

### Patch Wizard: Patch Information Bundle

- The Patch Information Bundle is a list of recommended patches that is updated daily
- You can obtain the Patch Information Bundle in either of the following ways:
  - From <http://updates.oracle.com/download/InfoBundleR12.zip> (requires My Oracle Support account)
  - Via the Oracle Applications Manager Patch Wizard interface
- You download the Patch Information Bundle to the staging directory you defined in Patch Wizard preferences

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### Patch Wizard: Patch Information Bundle

The list of recommended patches is in a Patch Information Bundle file that you download from My Oracle Support to the staging directory you define in the Preferences page. This file is updated daily and contains the list of recommended patches as well as metadata for these patches. The Patch Information Bundle metadata contain the readme and .ldt file for each recommended patch.

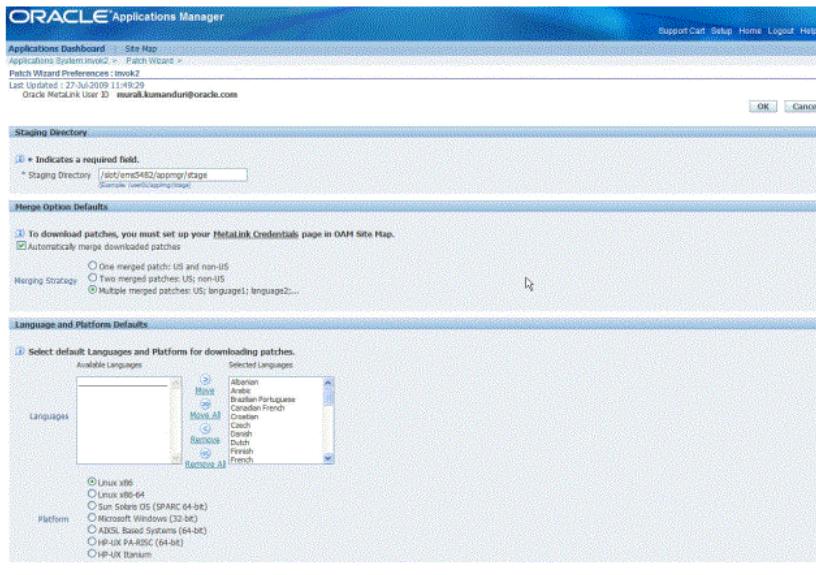
The patch metadata .ldt files are FNDLOAD data files included in the top-level directory of all recent patches. .ldt files will be present in the patch metadata zip files for each patch in the InfoBundle zip file. The f<bugno>.ldt file contains only the files and versions that are included in the patch. This information will be uploaded to the database (via FNDLOAD) as part of a "Recommending Patches" request submission. The use of codelevels in Release 12 means that there is no need to store prerequisite patch information in the .ldt file, unlike in previous releases.

The Patch Wizard loads the Patch Information Bundle data, including .ldt files and readme files, into the Oracle E-Business Suite database. It uses the metadata to analyze multiple requests. For example, you can narrow the comparison of applied patches to recommended patches to report only on recommended Human Resources patches, or to report only on patches that introduce a new code level.

## Patch Wizard: Preferences Page

### Patch Wizard: Preferences Page

- Clicking on the main page Tasks icon will open Preferences



## Patch Wizard: Preferences Page

The Patch Wizard Preferences page allows you to set configuration-specific information about your Oracle E-Business Suite system. This information you set on the Patch Wizard Preferences page also applies to other functions of the Patch Wizard, such as Recommended Patches and Download Patches. From the Patch Wizard main page, click the Tasks icon to show the Patch Wizard Preferences page. Preferences you can set include:

- Staging Directory:** The staging directory is where you store the patch information bundle and other files used by Patch Wizard. It is also used by Patch Wizard to create temporary files and subdirectories. These temporary files and directories are deleted after processing.
- Merge Option Defaults:** You can choose to automatically merge patches that you download. You can choose to merge all patches into one merged patch, create two merged patches (one for US patches and one for all non-US patches), or create multiple merged patches (such as one for each separate language).
- Language and Platform Details:** You can select one or more languages, which are the languages of patches that Patch Wizard will recommend and download. You can also set the platform of the patches you want recommended and downloaded

- **Display Option Defaults:** Hidden patches are patches that you choose not to display in your reports. For example, you may be aware of a patch that you plan to download and apply at a later date, but choose not to display it in the current reports. Selecting the Show Hidden Patches button on the Preferences screen overrides this, so that all patches (including hidden patches) are reported.

## Patch Wizard: Defining Patch Filters

### Patch Wizard: Defining Patch Filters

- The Patch Information Bundle contains information for all recommended patches for all products
- Patch Wizard could in principle compare patches in the Applied Patches database against all metadata in this file
  - However, the number of recommended patches in the report would be large, and the results might not be useful
- Instead, Patch Wizard provides filters that can be used to ensure the comparison only includes those patch types and products in the metadata that apply to your system
- From the main page, click the Tasks icon for Define Patch Filters to see all filters created for the current system
  - There are three pre-seeded filters
  - You can also create custom filters

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### Patch Wizard: Defining Patch Filters

The Patch Information Bundle file contains information for all recommended patches for all products. If the Patch Wizard were to compare patches in the patch information database against all metadata in this file, the number of recommended patches in the report might be too large to be useful. To avoid this, Patch Wizards provides filters so that only those patch types and products in the metadata that apply to your system are included in the comparison.

From the main page, click the Tasks icon for Define Patch Filters to see all filters created for the current system. Patch Wizard has three pre-seeded filters, and you can create custom filters.

## Patch Wizard: Defining Patch Filters

### Patch Wizard: Defining Patch Filters

- Clicking on the Define Patch Filters link in the Patch Wizard main page shows the filters created for the current system:

Select	Patch Filter Name	Type	Description	Updated By	Updated Date
<input checked="" type="radio"/>	Recommended Patches	Oracle	Recommended Patches for Current Codelevel	INITIAL SETUP	05-Aug-2009 15:05:13
<input type="radio"/>	Recommended Patches and New Codelevels	Oracle	Current Recommended Patches and New Codelevels	INITIAL SETUP	05-Aug-2009 15:05:13
<input type="radio"/>	New Codelevels	Oracle	New Codelevels	INITIAL SETUP	05-Aug-2009 15:05:13

### Patch Wizard: Defining Patch Filters

Clicking the Define Patch Filters link in the Patch Wizard main page shows all the filters created for the current system. Patch Wizard has three pre-seeded filters, and you can create custom filters from this Define Filters page. There are six columns of information on this page:

- Select:** This option button determines which filter to view, create like, edit, or delete.
- Patch Filter Name:** The name of the defined filter.
- Type:** The options are Oracle for pre-seeded filters and Custom for user defined filters.
- Description:** The description of the filter.
- Updated By:** The user who made the most recent update to the filter.
- Updated Date:** The date the filter was last updated.

Note that the pre-seeded filters contain "Oracle" in the Type column on this page, and other filters you create contain "Custom" in this column. You cannot edit or delete the three pre-seeded filters, but you can use the three filters as templates to create new filters.

## Patch Wizard: Defining Patch Filters

### Patch Wizard: Defining Patch Filters

- There are three pre-seeded filters:
  - New Codelevels
  - Recommended Patches
  - Recommended Patches and New Codelevels
- Patch Wizard creates these three filters by choosing only the high-priority patches that apply to the set of products you have licensed on your system

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### Patch Wizard: Defining Patch Filters

The New Codelevels filter determines recommended patches for a product, product family, or the entire Oracle E-Business Suite system. The Recommended Patches filter determines recommended patches for the current codelevel. The Recommended Patches and New Codelevels filter determines recommended patches for both the current and new codelevels. Note that you cannot edit the three pre-seeded filters.

## Patch Wizard: Recommend Patches

### **Patch Wizard: Recommend Patches**

From the Recommend Patches page of Patch Wizard, you can submit requests

There are two submit types associated with the Recommend Patches page:

- Create (Patch) Recommendations
- Analyze Specific Patches

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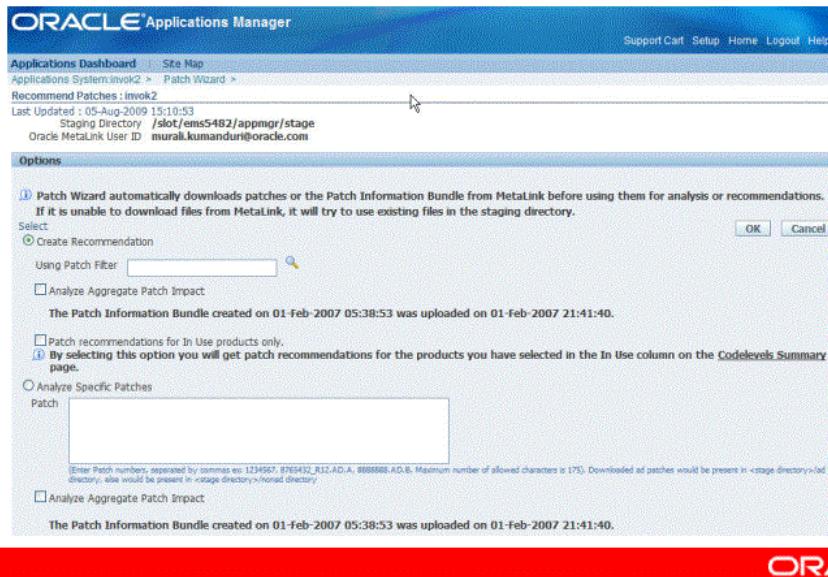
### **Patch Wizard: Recommend Patches**

After setting up the Patch Wizard staging area (and optionally creating custom filters), you can submit requests for processing from the Recommend/Analyze Patches page. Click the Tasks icon in the Recommend/Analyze Patches row to access the Recommend Patches page.

## Patch Wizard: Recommend Patches

### Patch Wizard: Recommend Patches

- The Recommend Patches screen allows you to create recommendations or analyze specific patches:



### Patch Wizard: Recommend Patches

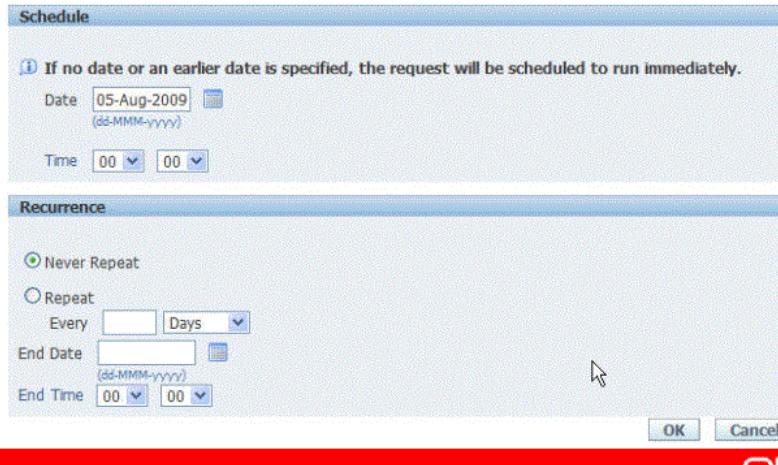
The Recommend Patches screen allows the following actions to be performed:

- Create Recommendations:** Generates recommendations based on the selected patch filter. You choose one of the three pre-seeded filters or any custom filter you created in the Define Patch Filters page. Patch Wizard uses the filter and compares the patch history database against the metadata patch list to recommend which patches you should apply. Before generating any recommendation, Patch Wizard automatically downloads the latest Patch Information Bundle from My Oracle Support. This differs from earlier releases, when there used to be a separate action on this page that would just instruct Patch Wizard to download and process the InfoBundle.
- Analyze Specific Patches:** Generates recommendations for specific patches. After downloading specific patches from My Oracle Support and placing them in the staging area, you can analyze these patches from this page by entering the patch numbers.

## Patch Wizard: Recommend Patches

### Patch Wizard: Recommend Patches

- Entering a date and time in the Schedule section allows the request to be run at a later time
- Entering the information in the Recurrence section allows you to schedule recurring requests



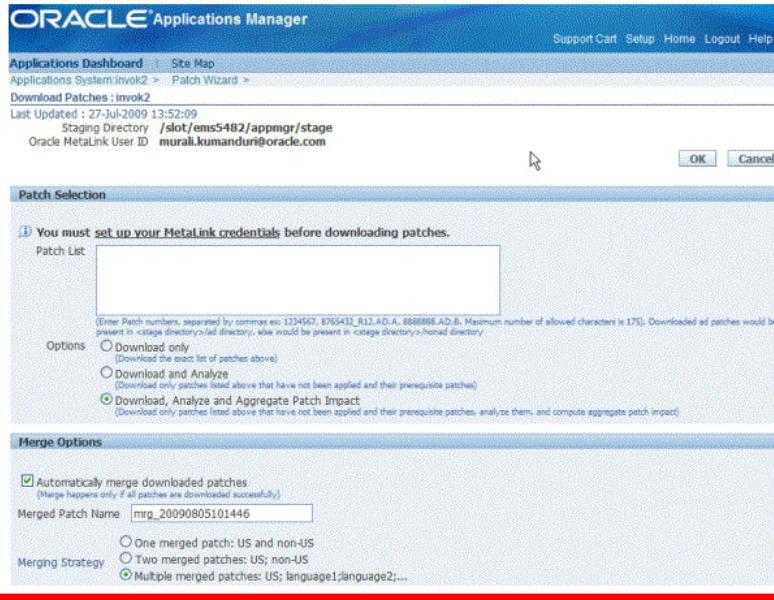
### Patch Wizard: Recommend Patches

You can enter a date and time in the Schedule section of this page to run the request at a later time. You can also schedule recurring requests by entering the information in the Recurrence section of this page.

## Patch Wizard: Download Patches

### Patch Wizard: Download Patches

- Various options can be specified when downloading patches:



### Patch Wizard: Download Patches

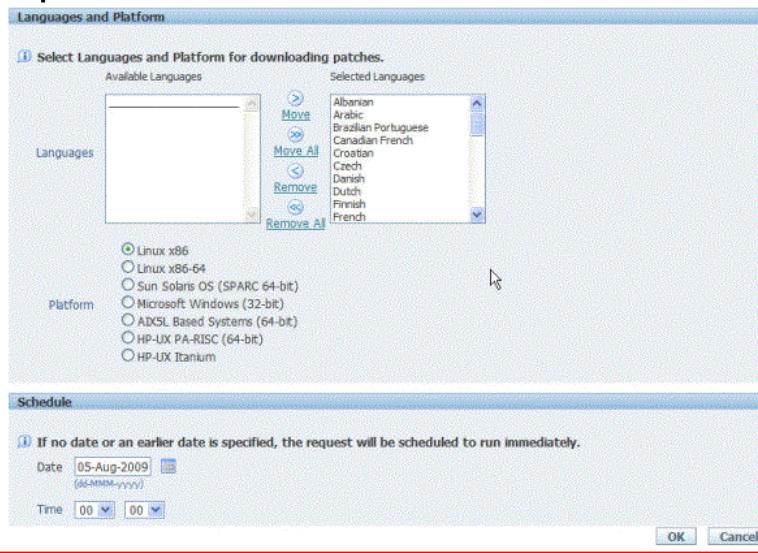
The Download Patches page prompts you for information about the patches to download, then downloads the patches directly from My Oracle Support. You enter the patch numbers in the input field separated by a comma. You can also choose to analyze the patches while downloading.

The Merge Options section of this page defines how patches should be merged after downloading. The defaults for merging are set on the Patch Wizard Preferences page. If you choose to automatically merge patches while downloading, specify the merged patch name and the merging strategy in this section.

## Patch Wizard: Download Patches

### Patch Wizard: Download Patches

- The languages and platform of patches to be downloaded can be specified:



### Patch Wizard: Download Patches

You can select the languages and platform of the patches to download. When you provide information in this section of the page, Patch Wizard only downloads patches that match the selected languages and platform. You can also provide information in the Schedule section to download at a later time.

## Patch Wizard: Job Status

### Patch Wizard: Job Status

- The status of requests can be displayed:

The screenshot shows the Oracle Patch Wizard interface. At the top, there's a header "Patch Wizard: Job Status". Below it is a table titled "Patch Wizard Tasks" with columns "Task Name", "Description", "Tasks", and "Job Status". The tasks listed are: Patch Wizard Preferences, Define Patch Filters, Recommend/Analyze Patches, Download Patches, and Aggregate Patch Impact. Each task has a small icon next to its name. Below this is a "Filter Criteria" section with dropdown menus for "Filter Name" (set to "contains %") and "Completion Date" (set to "Is"). A "Go" button is also present. Underneath is a "Recommended Patches Results" section. It contains a note about purged filters and a table with columns "Filter Name/Patch List", "Total (Applied & Unapplied)", "Unapplied", "Requested By", "Completion Date", "Run Status", "Request Set", and "Details". Two rows are shown: "Recommended Patches" (4 applied, 4 unapplied, Requested By SYSADMIN, Completion Date 05-Aug-2009 15:20:36, Run Status Warning, Request Set 6062721) and "New Codelevels" (3 applied, 3 unapplied, Requested By SYSADMIN, Completion Date 05-Aug-2009 15:15:49, Run Status Normal, Request Set 6062700). A note at the bottom says "TIP Unapplied: Total of unapplied and missing patches of Recommended and New Codelevels." An "Add to Support Cart" button is at the bottom right of the results table. The Oracle logo is at the bottom right of the page.

## Patch Wizard: Job Status

The status of requests can be seen by clicking the Job Status icon for either the Recommend/Analyze Patches task or the Download Patches task in the Patch Wizard Tasks table.

## Patch Wizard: Job Status

### Patch Wizard: Job Status

- Each line item on the View All page represents a Patch Wizard request:

Details	Request ID	Program	Phase	Status	Requestor	Requested Start Date	Duration	Wait Time
<a href="#">Show 6062731</a>	6062731	PatchWizard - Recommend Patches (Request Set SubmitAdvisorCriteria)	Running	Paused	SYSADMIN	05-Aug-2009 15:19:22	00:00:01	00:00:25
<a href="#">Show 6062700</a>	6062700	PatchWizard - Recommend Patches (Request Set SubmitAdvisorCriteria)	Completed	Normal	SYSADMIN	05-Aug-2009 15:03:53	00:12:23	00:00:25

TIP Duration is the total time(HRS:MIN:SS) the request has been running or the request ran.  
 TIP Wait Time is the time(HRS:MIN:SS) the request has waited.  
 TIP To display the available actions on a request, please click on show details.

[Add to Support Cart](#)

### Patch: Wizard Job Status

Each line item on the View All page represents a Patch Wizard request, and provides the following summary information:

- **Details:** This link allows you to toggle between Show and Hide. Show expands the row to show additional request details. Hide contracts and hides the action details.
- **Request ID:** The ID assigned to the request.
- **Program:** The program used to carry out the request.
- **Phase:** The phase of the request. The phase may be Pending, Running, Completed, or Inactive.
- **Status:** The status in which the request completed. Valid statuses are Normal, Error, Warning, Cancelled, and Terminated.
- **Requestor:** The user who submitted the request.
- **Request Start Date:** The start date of the request.
- **Duration:** The running time of the request.
- **Wait Time:** The length of time between when the request was submitted and when it began processing.

Clicking on a column heading allows you to sort the job status requests based on the content in that column. The sortable columns have column headings with dark borders, and when the mouse cursor is placed over the column heading the pointer will change to a hand. The sort alternates between ascending and descending each time you click the column heading.

All view pages provide the same summary information.

## Patch Wizard: Recommended Patches Results

### Patch Wizard: Recommended Patches Results

- Results of a Recommend Patches request can be shown:

Select Patch	Product	Prerequisites	Codelevel Status	PAA	Reason Recommended	Patch Description	Included in Aggregate Patch	Hide Patch Impact	Impact
The above criteria resulted in no rows									

Select Patch	Product	Prerequisites	Codelevel Status	PAA	Reason Recommended	Patch Description	Included in Aggregate Patch	Hide Patch Impact	Impact
<input type="checkbox"/> 7408174.R12.08	0	Yes	Unapplied Yes	Minipack	R12 CLL MINIPACK R12.CLL.C		<input type="checkbox"/> No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> 8596229.R12.08	0	Yes	Unapplied Yes	Minipack	APAC Consulting Localizations 12.1		<input type="checkbox"/> No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> 8640014.R12.08	0	Yes	Unapplied Yes	Minipack	CLC: Adspice For R12.1.1		<input type="checkbox"/> No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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### Patch Wizard: Recommended Patches Results

This page lists the results of the selected Recommend Patches request that you submitted. The set of recommended patches are divided into two sections:

- Recommended Patches for Current Code Level
- Patches that introduce New Code Level

This page has the following columns of information:

- **Select:** Select this check box and click the Download button if you want the patch number sent to the Download Patches page for submission. You can select any number of patches.
- **Patch:** This is the patch number of the recommended patch.
- **Product:** The product to which the patch belongs.
- **Reason Recommended:** The reason the patch is recommended; for example, it is part of a minipack or a family pack.
- **Prerequisite:** The number of all prerequisite patches for the recommended patch. If prerequisite exist, the number will be a link to a separate Recommended Patches page listing the prerequisite patches.

- **Codelevel Introduced:** The number of all the codelevels introduced for the recommended patch. If any, the number will be a link to a separate Recommended Patches page listing the prerequisite patches.
- **Patch Description:** A brief description of the patch.
- **Hide Patch:** Select this check box to hide the patch from the list of recommended patches. To hide or show selected patches, use the Show Hidden Patches check box at the top of the page and click Redisplay Data to refresh the page. The default values are set in the Patch Wizard Preferences page.
- **Impact:** Click this icon to access the Patch Impact Summary page. If you submitted a specific patch to analyze, click the Impact icon on the Recommended Patches Request page to view the Patch Impact Analysis Report.

Clicking the Download button carries the selected patch number(s) to the Download Patches page for submission.

## Patch Wizard: Patch Impact Analysis

### Patch Wizard: Patch Impact Analysis

- The Patch Impact Analysis tells which products and files are affected by a particular patch
- You can analyze which files are new, which files are changed, and which files are ignored when applying the patch
- You can view prerequisite patches required by this patch, and also read the readme file for each patch

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### Patch Wizard: Patch Impact Analysis

Access the Patch Impact Analysis report by clicking the Impact icon for a specific patch on the Recommended Patches Results page.

## Patch Wizard: Patch Impact Analysis

### Patch Wizard: Patch Impact Analysis

- Information is divided into General Patch Information, Direct Impact Summary, and Indirect Impact Summary:

The screenshot shows the Oracle Applications Manager interface for Patch Impact Analysis. At the top, it displays the patch details: Patch R12 d1: R12 CLL MINIPACK R12.CLL.C. Below this, there are sections for Patch Description, Patch Readme, and Total Files in Patch (1523). The Direct Impact Summary table provides a breakdown of patched applications, file types installed, new files introduced, existing files changed, flagged files changed, existing files unchanged, and non-US language patches required. The Indirect Impact Summary table showsunchanged files affected, menu navigation trees affected, responsibilities, paths, and diagnostic tests to re-run. At the bottom, there are tips for using the analysis, an 'Add to Support Cart' button, and the Oracle logo.

Direct Impact Summary		Indirect Impact Summary	
Applications Patched	2	Unchanged Files Affected	0 JSPs
File Types Installed	12	Menu Navigation Trees Affected	0 Responsibilities, 0 Paths
New Files Introduced	1523	Diagnostics Tests to Re-Run	0 Test(s)
Existing Files Changed	0		
Flagged Files Changed	0		
Existing Files Unchanged	0		
Non-US Language Patches Required	1		

### Patch Wizard: Patch Impact Analysis

The key information on this page is separated into three sections.

#### General Patch Information

This section includes the following information:

- Patch Description:** A brief description of the patch.
- Patch Readme:** Click this icon to see the readme file for the patch.
- Total Files in Patch:** The total number of files in the patch. Click the number link to access the Patch Impact Details page, which lists each file in the patch.
- Files to Install:** The number of files the patch will install.
- Prerequisite Patches:** The number of prerequisite patches for the recommended patch.

#### Direct Impact Summary

This section includes the following information:

- Applications Patched:** The number of products that will have files updated. Click the number link to access the Patch Impact Details page, which lists each product impacted and how they are impacted.

- **File Types Installed:** The number of different file types in the patch. Click the number link to access the Patch Impact Details page, which lists the file types and how they impact the system.
- **New Files Introduced:** The number of new files that will be introduced by the patch. Click the number link to access the Patch Impact Details page, which lists details of each new file introduced.
- **Existing Files Changed:** The number of existing files in the system that will be changed by the patch. Click the number link to access the Patch Impact Details page, which lists the existing files changed and the new version numbers.
- **Existing Files Unchanged:** The number of files unchanged because the version in the patch is older than the version in the system. Click the number link to access the Patch Impact Details page, which lists the files in the patch that are the same or earlier versions than those currently in the system.

### Indirect Impact Summary

This section includes the following information:

- **Unchanged Files Affected:** The number of system files with dependencies on patched files
- **Menu Navigation Trees Affected:** The number of menu navigation trees that will be updated by the patch
- **Diagnostics Tests to Re-Run:** The number of diagnostic tests to be re-executed after patching

## Module Summary

### Module Summary

In this module, you should have learned how to do the following:

- Access Patch Wizard
- Download the Patch Information Bundle
- Set up Patch Wizard
- Define patch filters
- Submit Patch Wizard requests
- Download patches
- Check the status of Patch Wizard jobs
- Carry out patch impact analysis

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## Module Discussion

### Module Discussion

- Describe the contents of the Patch Information Bundle
- Describe the Patch Wizard setup steps
- What are the advantages of defining custom patch filters?
- What can you determine by analyzing the impact of applying a patch?

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# **Running AutoPatch**

## **Chapter 23**



## Running AutoPatch

---

### **Running AutoPatch**

#### Patching Topics

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## Objectives

### Objectives

After completing this module, you should be able to do the following:

- Perform setup tasks prior to running AutoPatch
- Run the AutoPatch utility to apply patches
- Perform additional tasks after running AutoPatch

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## Module Overview

### Module Overview

This module consists of the following topics:

- AutoPatch Setup Tasks
- Running AutoPatch
- AutoPatch Prompts
- AutoPatch Messages
- Post AutoPatch Tasks
- When a Worker Fails
- Restarting AutoPatch

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## AutoPatch: Setup Tasks

### AutoPatch: Setup Tasks

Before running AutoPatch, you must prepare the environment:

1. Log in as applmgr
2. Run the environment file
3. Verify environment variables
4. Verify PATH
5. Ensure there is sufficient free disk space

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## AutoPatch: Setup Tasks

There are several steps to perform before running AutoPatch. First, prepare the environment:

1. Log in as the user who owns the Oracle E-Business Suite file system, typically applmgr.
2. Run the environment file for the Oracle E-Business Suite system you want to update.  
This file is normally called APPS<context\_name>.env and is under APPL\_TOP.  
Depending on your setup, you may have already run this file when you logged in during the first step.
3. Verify APPL\_TOP, ORACLE\_HOME, ORACLE\_SID, and TWO\_TASK. Ensure that these environment variables point to the correct database and directories.
4. Verify your PATH variable. Ensure that ORACLE\_HOME/bin and AD\_TOP/ bin are in your PATH variable.
5. Verify there is sufficient disk space. The temporary directories APPLTMP, APPLTMP, REPORT\_TMP, and the operating system temporary directory (/tmp, /usr/tmp, or C:\temp) must each have at least 50 MB of free space.

## AutoPatch: Setup Tasks

### AutoPatch: Setup Tasks

Next, you must prepare to apply the patch:

1. Copy patch files to your patch directory
2. Review the README file
3. Back up any files that might be overlaid
4. Ensure there is a recent system backup

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## AutoPatch: Setup Tasks

Next, prepare for application of the patch:

1. Copy the patch files to your own patch top directory. How you do this will depend on how you receive the patch, either on a CD or downloaded from My Oracle Support. The file will probably be zipped, and so need unzipping.
2. Review the README file. This provides information on applying the patch, including such details as other patch or software prerequisites, space requirements, time requirements, and any required manual steps. It may also specify which files are changed and which bugs are fixed.
3. Back up any customized files that will be updated. Before AutoPatch copies over a current file, it backs up that file to a subdirectory of the patch directory. Therefore, you usually do not need to back up the files manually.
4. Ensure there is a recent backup of the file system and database: once a patch is applied, there is no method for backing it out.

## AutoPatch: Setup Tasks

### AutoPatch: Setup Tasks

After the other preparations have been made, you must:

1. Ensure all Oracle E-Business Suite users log out
2. Shut down all application tier services
3. Enable Maintenance Mode
4. Perform any preparatory tasks in the README file
5. Run AutoPatch

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## AutoPatch: Setup Tasks

After you have completed the preparations:

- Ensure all Oracle E-Business Suite users log out, and shut down all application tier services. AutoPatch may replace forms or reports, or update seed data and the database structure, so it is advisable to ensure nothing is accessing the database during an AutoPatch session.
- Use the Change Maintenance Mode menu of AD Administration to enable maintenance mode.
- Perform any preparatory steps listed in the readme file. For example, you may need to run some SQL scripts manually.
- Run AutoPatch from the patch top directory.

Always apply patches to a test system first, and check for any functionality that might have been adversely affected by the patches before applying them to your production system. Further recommendations for patch testing and deployment are described later in the course.

## AutoPatch: Usage

### AutoPatch: Usage

Run AutoPatch from the patch directory by entering one of the following commands:

To run AutoPatch:

- UNIX:

```
$ adpatch
```

- Windows:

```
C:\>adpatch
```

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## AutoPatch: Usage

The AutoPatch executable is located in the AD\_TOP/bin directory. Run AutoPatch from the directory containing the patch files (referred to as the patch top directory).

For example:

UNIX:

```
$ cd /d01/app/appl/patches/bundles/<ENV>/<SID>/MMYYYY/MMMDD/1234567  
$ adpatch
```

Where /d01/app/appl/patches/bundles/<ENV>/<SID>/MMYYYY/MMMDD/1234567 is the patch top directory.

Windows:

```
C:\>cd app\appl\patches\bundles\<ENV>\<SID>\MMYYYY\MMMDD\1234567  
C:\>adpatch
```

Where C:\app\appl\patches\bundles\<ENV>\<SID>\MMYYYY\MMMDD\1234567 is the patch top directory.

## AutoPatch: Prompts

### AutoPatch: Prompts

Copyright (c) 2002 Oracle Corporation  
Redwood Shores, California, USA  
Oracle Applications AutoPatch  
Version 12.0.0

NOTE: You may not use this utility for custom development unless you have written permission from Oracle Corporation

Attention: AutoPatch no longer checks for unapplied prerequisite patches. You must use OAM Patch Wizard for this feature. Alternatively, you can review the README for prerequisite information.

AutoPatch records your AutoPatch session in a text file you specify. Enter your AutoPatch log file name or press [Return] to accept the default name shown in brackets.

Filename [adpatch.log] :

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## AutoPatch: Prompts

Once AutoPatch starts, you see prompts similar to the ones in this series of slides.

You are prompted to answer some initial questions. The default values for these questions are provided in [ ]. To select the default, just press [Enter]. The initial questions are similar to those for AD Administration. These ask you to:

- Verify that you are pointing to the correct APPL\_TOP.
- Specify a name for the AutoPatch log file. The default is adpatch.log. Patch application management is simplified if you name your log file in a manner to match the driver file you are applying; for example, u1234567.log.

## AutoPatch: Prompts

### AutoPatch: Prompts

```
You can be notified by email if a failure occurs.  
Do you wish to activate this feature [No] ? yes
```

```
You chose to be notified by email when a failure occurs.  
Please enter the email id(s) (separated by a space) that  
notifications should be  
sent to [gsicb_a] :ait-systems-patching_ww@oracle.com
```

```
Please enter the batchsize [1000] :
```

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### AutoPatch: Prompts

- Provide an email address for notification if requesting online notification of errors. In this example we have selected Yes, which would prompt us for an email account in the next step.
- Set a batch commit size to be used with SQL processing. The default value should be sufficient for most patching tasks.

## AutoPatch: Prompts

### AutoPatch: Prompts

Please enter the name of the Oracle Applications System that this APPL\_TOP belongs to.

The Applications System name must be unique across all Oracle Applications Systems at your site, must be from 1 to 30 characters long, and may only contain alphanumeric and underscore characters, and must start with a letter.

Sample Applications System names are: "prod", "test", "demo" and "Development\_2".

Applications System Name [prod] : prod \*

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### AutoPatch: Prompts

The questions on the next three slides are asked if you do not have a configuration file with the system and server configuration information. The configuration file is created when you answer the prompted questions during a Rapid Install session. If a configuration file exists, AutoPatch will read this file for the appropriate information.

The next prompt asks for the Oracle Applications system name. The Applications system name is defined during the Rapid Install run that installs Oracle E-Business Suite. As shown at the bottom of this slide, there is an asterisk next to the name "prod", which means that AutoPatch answered the prompt by looking in the configuration file.

## AutoPatch: Prompts

### AutoPatch: Prompts

NOTE: If you do not currently have certain types of files installed in this APPL\_TOP, you may not be able to perform certain tasks.

Example 1: ...

Do you currently have files used for installing or upgrading the database installed in this APPL\_TOP [Yes] ?  
Yes \*

Do you currently have Java and HTML files for HTML-based functionality installed in this APPL\_TOP [Yes] ? Yes \*

Do you currently have Oracle Applications forms files installed in this APPL\_TOP [Yes] ? Yes \*

Do you currently have concurrent program files installed in this APPL\_TOP [Yes] ? Yes \*

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## AutoPatch: Prompts

The next series of prompts determine which servers you have installed on the node you are running AutoPatch. As with the Oracle Applications system name, these series of prompts are answered automatically by referencing the configuration file, and you see an asterisk next to the answers:

- Do you currently have files used for installing or upgrading the database installed in this APPL\_TOP [Yes]? Yes \*
- Do you currently have Java and HTML files for HTML-based functionality installed in this APPL\_TOP [Yes]? Yes \*
- Do you currently have Oracle Applications forms files installed in this APPL\_TOP [Yes]? Yes \*
- Do you currently have concurrent program files installed in this APPL\_TOP [Yes]? Yes \*

## AutoPatch: Prompts

### AutoPatch: Prompts

Please enter the name Oracle Applications will use to identify this APPL\_TOP.

The APPL\_TOP name you select must be unique within an Oracle Applications System, must be from 1 to 30 characters long, and may only contain alphanumeric and underscore characters, and must start with a letter.

Sample APPL\_TOP Names are: "prod\_all", "demo3\_forms2", and "forms1".

APPL\_TOP Name [ap911] : ap911 \*

...

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## AutoPatch: Prompts

Another item that is usually supplied automatically is the APPL\_TOP name. Therefore, you see an asterisk next to this answer in this slide.

The Oracle Applications system name and the APPL\_TOP name are used by AutoPatch to create a subdirectory of your patch directory to back up the product's current or old file. Specifically, it backs up \$<PROD>\_TOP/<subdir(s)>/<old\_file\_name> to <patch\_dir>/backup/<sys\_name>/<appl\_top\_name>/<prod>/<subdir(s)>/<old\_file\_name> Where <patch\_dir> is the patch directory, <sys\_name> is the Oracle Applications system name, <appl\_top\_name> is the APPL\_TOP name, and <prod> is the name of the product being patched.

## AutoPatch: Prompts

### AutoPatch: Prompts

You are about to apply a patch to the installation of Oracle Applications in your ORACLE database 'prod' using ORACLE executables in '/d02/appl/prod/prodora/10.1.2'.

Is this the correct database [Yes] ?

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### AutoPatch: Prompts

AutoPatch asks you to verify that it is pointing to the correct database and Oracle E-Business Suite technology stack.

## AutoPatch: System Questions

### AutoPatch: System Questions

```
AutoPatch needs the password for your 'SYSTEM' ORACLE schema in order to determine your installation configuration.
```

```
Enter the password for your 'SYSTEM' ORACLE schema:  
manager
```

```
Connecting to SYSTEM.....Connected successfully.
```

```
The ORACLE username specified below for Application Object Library uniquely identifies your existing product group: APPLSYS
```

```
Enter the ORACLE password of Application Object Library  
[APPS] : APPS
```

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## AutoPatch: System Questions

AutoPatch prompts you for the SYSTEM schema password and the APPS password. Once you have supplied the necessary information, AutoPatch connects to the database to continue processing.

## AutoPatch: Patch File Name and Location

### AutoPatch: Patch File Name and Location

```
Enter the directory where your Oracle Applications patch  
has been unloaded
```

```
The default directory is [/d01/appl/112/patch/1234567] :
```

```
Please enter the name of your AutoPatch driver file :  
u1234567.drv
```

```
Getting Oracle Applications Release...
```

```
Current installed release is 12.1.1
```

```
Reading patch driver file...
```

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### AutoPatch: Patch File Name and Location

AutoPatch asks you to verify the directory where the patch has been unloaded; the default directory should be correct if you are running AutoPatch from your patch top directory. It then asks you for the name of the patch driver file.

## AutoPatch: Read Patch Driver File

### AutoPatch: Read Patch Driver File

```
Determining target release...
Current target release is 12.0.0
STOP_TASK: [Other driver and release-related logic] []
[Mon Jul 27 2009 14:58:11]
STOP_TASK: [Get Oracle Applications Release and read
driver file] [] [Mon Jul 27 2009 14:58:11]
```

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### AutoPatch: Read Patch Driver File

AutoPatch now reads the relevant driver file.

## AutoPatch: Translation Patch Reminder

### AutoPatch: Translation Patch Reminder

```
All known prerequisite patches have been applied.  
Continuing...
```

```
-----  
This base patch contains files which may require  
translation depending on the languages you currently have  
installed.
```

```
Oracle Corporation recommends that you obtain any  
translated versions of this patch for each of your non-US  
languages PRIOR to applying this base patch.
```

```
-----  
The translated version of the patch should be applied  
immediately AFTER applying this base patch.
```

```
-----  
Do you wish to apply this patch now [No] ?
```

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### AutoPatch: Translation Patch Reminder

If you have additional languages installed on your system, AutoPatch reminds you that translation patches may be necessary. AutoPatch then asks if you want to continue applying the patch.

## AutoPatch: Number of Workers

### AutoPatch: Number of Workers

```
Enter the number of parallel workers [6] :
```

```
AutoPatch will run EXEC and SQL commands in parallel mode.
```

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### AutoPatch: Number of Workers

If the patch is one that can be applied in parallel mode, AutoPatch asks you to specify the number of parallel workers you want to use. It automatically determines the default value for the number of workers as being two times the number of CPUs on the node from which you are running AutoPatch. For example, on single-processor nodes, the default is 2. The recommended number of workers is 2-4 times the number of CPUs.

After you specify the requested information, AutoPatch initiates the number of workers, which it manages through the use of the FND\_INSTALL\_PROCESSES table. If any remedial action is required to address failures in any of these workers, the procedures described in the lesson on AD Controller should be used.

## AutoPatch: Messages

### AutoPatch: Messages

```
Performing version checking...
Determining what executables to link...
Determining what Oracle Forms files to generate...
Determining what Oracle Reports libraries to generate...
Determining what Oracle Report files to generate...
Turning off FNDMDGEN actions for products that
```

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### AutoPatch: Messages

AutoPatch determines what actions to perform and what not to perform. These messages detail the processing being performed by AutoPatch.

## AutoPatch: Patch History

### AutoPatch: Patch History

```
Saving Patch History information to Database...

Trying to obtain a lock...

> Inserted 1 patch history records (total).

Gathering Statistics for AD_PATCH_HIST_TEMP

Done Gathering Statistics for AD_PATCH_HIST_TEMP
```

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### AutoPatch: Patch History

Once AutoPatch completes applying the patch, it updates the patch history database with its actions and gathers statistics for the AD tables if needed.

## AutoPatch: Update Snapshot

### AutoPatch: Update Snapshot

```
Updating the current-view snapshot...
```

```
Done saving Patch History information.
```

```
Copying applprod.tmp to applprod.txt (if needed)...
```

```
Did not need to copy applprod.tmp to applprod.txt.
```

```
Copying admin/<sid>/applterr.txt to admin/applterr.txt  
(if needed)...
```

```
Did not need to copy admin/fresh09/applterr.txt to  
admin/applterr.txt.
```

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## AutoPatch: Update Snapshot

AutoPatch automatically updates the current view snapshot.

## AutoPatch: Timing Report and Completion Message

### AutoPatch: Timing Report and Completion Message

There is no timing information available for the current session.

AutoPatch is complete.

AutoPatch may have written informational messages to the file

/d01/app1/120/admin/prod/log/adpatch.lgi

You should check the file

/d01/app1/120/admin/prod/log/adpatch.log

for errors.

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### AutoPatch: Timing Report and Completion Message

As AutoPatch finishes its tasks, it writes timing information to the AD Timing report for jobs run in parallel (if any) and reminds you to review the log files for any errors.

Confirmation that AutoPatch completed successfully is provided by the presence of the “AutoPatch is complete” at the end of the AutoPatch log file. If you do not see this message, you should examine the log files as described on the following slides.

## AutoPatch: Main Log File

### AutoPatch: Main Log File

- The default name of the main AutoPatch log file is adpatch.log
- This file is located in:
  - **\$APPL\_TOP/admin/<SID>/log** (UNIX)  
where <SID> is the value of ORACLE\_SID
  - **%APPL\_TOP%\admin\<SID>\log** (Windows)  
where <SID> is the value of ORACLE\_SID

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### AutoPatch: Main Log File

The most important step after AutoPatch completes is to check the log files for any errors that may have occurred during the patching process. Check the main AutoPatch log file first, then the other log files (see next slide) as necessary.

## AutoPatch: Other Log Files

### AutoPatch: Other Log Files

Check additional patching related log files for errors:

- **adrelink.log:** For relinking tasks
- **adlibout.log:** For moving C object files out of a product's C library
- **adlibin.log:** For moving C object files into a product's C library
- **adworkNNN.log:** For operations run in parallel mode
  - For example, adwork007.log
- **adpatch.lgi:** For AutoPatch informational messages

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## AutoPatch: Other Log Files

Further log files are located in the APPL\_TOP/admin/<SID>/log directory.

adworkXXX.log contains information for operations run in parallel mode. NNN represents the number of the worker, for example 007.

## AutoPatch: Follow-Up Tasks

### AutoPatch: Follow-Up Tasks

- Perform any manual update steps (see patch README file)
- Read protect log, out, and restart files
- Remove any obsolete files
- Update MLS
- Pin packages and sequences in SGA
- Disable Maintenance Mode
- Restart server processes

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### AutoPatch: Follow-Up Tasks

- Perform any manual steps. Check the README file for any manual steps to perform.
- Clean up or read-protect log, restart, and out directories: these files may contain passwords for Oracle E-Business Suite products.
- Remove any obsolete files. Once you are sure the patch has been applied successfully and the system properly tested, you can delete any backup file copies located in the patch subdirectory. If space permits, we recommend keeping a backup copy of the old files. Do not delete javaupdates<timestamp>.txt and adpsv<timestamp>.txt if they exist.
- Update MLS. If specified by the patch readme file, run the Maintain Multilingual option of AD Administration.
- Pin packages and sequences in System Global Area. If the patch affected database objects, then it is best to ensure that all new objects are pinned. See *Oracle E-Business Suite Maintenance Procedures*.for details.
- Use the Change Maintenance Mode option of AD Administration to disable Maintenance Mode.
- Restart all server processes.

## AutoPatch: Actions on Failure

### AutoPatch: Actions on Failure

If an AutoPatch operation fails, the course of action may depend on whether the failure occurs:

- Before worker processing
- During worker processing
- After worker processing

Do not choose to continue after an error is reported

- Exit AutoPatch, review the log files, and fix the error
- Rerun AutoPatch

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### AutoPatch: Actions on Failure

The course of action may differ depending on whether the failure occurs before, during, or after worker processing.

If the patch is being applied in parallel mode, AutoPatch operates with the number of parallel worker processes that you specified. When AutoPatch fails before or after the worker processes, a message appears asking whether you would like to continue:

An error occurred while ...

Continue as if it were successful [No] :

At this point it is usually best to exit AutoPatch and review the log files to determine the source of the error. Once the error has been resolved, you can restart AutoPatch.

If an error or a problem cannot be resolved:

- Verify that all steps in the README file were completed
- Check My Oracle Support for additional information regarding the patch being applied
- Contact Oracle Support Services

## AutoPatch: Actions on Worker Failure

### AutoPatch: Actions on Worker Failure

- Log on as applmgr from another window
- Run the environment file
- Split or copy the worker log file
- Diagnose and fix the problem
- Restart the worker

```
AD Worker error:  
The following ORACLE error:  
ORA-01630: max # extents (50) reached in temp segment  
in tablespace TSTEMP  
  
occurred while executing the SQL statement:  
CREATE INDEX AP.AP_INVOICES_N11 ON AP.AP_INVOICES_ALL  
(PROJECT_ID, TASK_ID) NOLOGGING STORAGE (INITIAL 4K  
NEXT 512K MINEXTENTS 1 MAXEXTENTS 50 PCTINCREASE 0)
```

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### AutoPatch: Actions on Worker Failure

When AutoPatch is running jobs using parallel workers and a worker fails, you do not have to wait until the other workers and AutoPatch stop. By performing the following steps, you can fix the problem and restart the worker while the manager is running:

- Log in as applmgr from another terminal or terminal window and verify the environment.
- Run the environment file.
- Split or copy the worker log file. This prevents errors if the worker tries to write to its log file while you are reviewing the file or if the file editor cannot handle a large file.
- Review the end of the log file to find the problem.
- Fix the problem.
- Restart the failed job using the AD Controller utility.

See the *Using the AD Utilities* module of this course for information on AD Controller.

## AutoPatch: Restarting

### AutoPatch: Restarting

```
Copyright (c) 2002 Oracle Corporation  
Redwood Shores, California, USA  
Oracle Applications AutoPatch  
Version 12.0.0
```

NOTE: ...

AutoPatch records your AutoPatch session in a text file you specify. Enter your AutoPatch log file name or press [Return] to accept the default name shown in brackets.

Filename [adpatch.log] :

Backing up restart files, if any.....Done

Your previous AutoPatch session did not run to completion.

Do you wish to continue with your previous AutoPatch session [Yes] ?

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## AutoPatch: Restarting

AutoPatch can be restarted as many times as necessary until the patch is successfully applied. If you typed “abort” at one of the prompts or exited AutoPatch to fix an error, you can restart AutoPatch by running the normal AutoPatch command:

```
$ adpatch
```

AutoPatch then asks you if you would like to continue with the previous session. Accepting the default “Yes” option restarts AutoPatch where the previous session stopped.

## AutoPatch: Restarting

### AutoPatch: Restarting

- If you answer No to restarting a prior session, AutoPatch asks you to confirm your choice and then starts a new AutoPatch session
- If the FND\_INSTALL\_PROCESSES table already exists, AutoPatch asks if you want to drop the table
- You must determine if AutoPatch, or any other AD Utility, is running in another session, or whether a previous patch session did not run to completion before telling AutoPatch to drop the FND\_INSTALL\_PROCESSES table

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## AutoPatch: Restarting

### AutoPatch: Restarting

- If any AD utility is running in another session or on another node, wait until that session is complete before you start a new AutoPatch session in the current environment
- If a previous patch session did not complete, resume applying that patch before you continue with a new one

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## Module Summary

### Module Summary

In this module, you should have learned how to do the following:

- Perform setup tasks prior to running AutoPatch
- Run the AutoPatch utility to apply patches
- Perform additional tasks after running AutoPatch

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## Module Discussion

### Module Discussion

- Name two of the setup tasks to be performed before running AutoPatch
- Name the log files you should check for error messages after applying a patch
- From which directory should you run AutoPatch, and why?
- What is the most straightforward way to restart AutoPatch?

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# **Patch Timing Reports**

## **Chapter 24**



## OAM Timing Reports

### OAM Timing Reports

#### Patching Topics

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## Objectives

### Objectives

After completing this module, you should be able to do the following:

- Describe the features of OAM Timing Reports
- Identify the key information in the Timing Detail reports
- Track an in-progress patch session

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## Module Overview

### Module Overview

This module consists of the following topics:

- Accessing OAM Timing Reports
- Timing Reports main page
- AutoPatch Timing Details report
- AD Administration Timing Details report
- Job Timing report
- Phase Information report
- Exceptions report

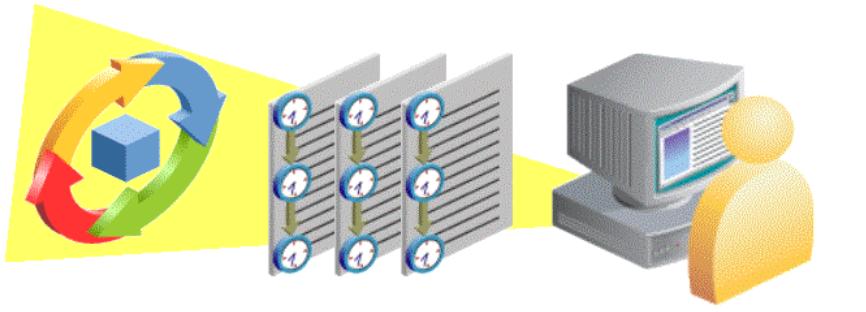
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## OAM Timing Reports

### OAM Timing Reports

#### OAM Timing Reports:

- Are an Oracle Applications Manager (OAM) utility
- Allow you to determine the timing of AutoPatch and AD Administration sessions
- List statistics about AutoPatch and AD Administration maintenance sessions that run parallel workers



### OAM Timing Reports

As they run processing sessions, both AutoPatch and AD Administration store information about the session in database tables. You can access this information through the OAM interface, either during the session or after it is complete.

During a parallel session, AD utilities assign processing jobs to workers. For jobs that affect the database, job actions are grouped in phases, which reduces dependencies.

## OAM Timing Reports

### OAM Timing Reports

The Timing Reports utility lists processing tasks and provides details about the elapsed time for phases, jobs, and sessions.

The information includes:

- Jobs run successfully on the first try
- Failed jobs that were restarted and then run successfully
- Failed jobs that were skipped
- Long-running jobs
- Summary information for each parallel phase
- How long it took to run a job
- Overall elapsed time for each session

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## Timing Reports: Main Page

**Timing Reports: Main Page**

This page lists all in-progress, stopped, aborted and completed maintenance sessions:

Task Name	Status	Start Date	Run Time	Last Update	Details	Log Files
AutoPatch - u6665350.drv		10-Aug-2009 09:19:59	27 min, 22 sec	10-Aug-2009 09:46:54		
AD Administration - Recreate grants and synonyms for APPS		10-Aug-2009 07:54:55	10 min, 15 sec	10-Aug-2009 08:05:10		
AD Administration - Recreate grants and synonyms for APPS		10-Aug-2009 07:30:01	20 min, 16 sec	10-Aug-2009 07:50:17		
AutoPatch - u8302210.drv		07-Aug-2009 15:49:17	16 sec	07-Aug-2009 15:49:33		
AutoPatch - u6086572.drv		07-Aug-2009 09:37:27	4 min, 43 sec	07-Aug-2009 09:42:10		

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## Timing Reports: Main Page

From the Timing Reports main page, you can view a list of all in-progress, stopped, aborted and completed maintenance sessions. Click the Details icon to access the Timing Details page.

The main page contains the following information for each maintenance session:

- **Task Name:** Name and brief description of the maintenance session.
- **Status:** Status of the timing report. A clock icon means the session is still in progress, an exclamation mark means the session has stopped, an X icon means the session was aborted (the AD utility was restarted with the restart=no option), and a check (tick) mark means the session has completed.
- **Start Date:** Date and time the maintenance session began.
- **Run Time:** Time required to complete the maintenance session.
- **Last Update:** The time the timing information was last updated.
- **Details:** By clicking the Details icon, you can access the Timing Details for the maintenance session.
- **Log Files:** View log files related to the task.

A filter at the top of the page allows you to narrow the contents of the list. You can filter based on the following status of the tasks: All tasks, In-progress tasks, Stopped tasks, Aborted tasks, or Completed tasks. You can also filter by Task Name, Start Date and Run Time. Click Go to activate the filter.

## Timing Reports: AutoPatch Timing Details

### Timing Reports: AutoPatch Timing Details

This report provides details for a specific AutoPatch session:

Focus Task Name	Elapsed Time	Start Date	End Date
AutoPatch startup after aimini	8 sec	07-Aug-2009 09:37:27	07-Aug-2009 09:37:35
Upload Patch History information from filesystem	5 sec	07-Aug-2009 09:37:28	07-Aug-2009 09:37:33
Run a single patch driver file	4 min, 35 sec	07-Aug-2009 09:37:35	07-Aug-2009 09:42:10
Copy portion steps	3 min, 12 sec	07-Aug-2009 09:37:38	07-Aug-2009 09:40:50
Read file driver files to get list of valid files	57 sec	07-Aug-2009 09:37:38	07-Aug-2009 09:38:35
Relink executables	2 min, 5 sec	07-Aug-2009 09:38:43	07-Aug-2009 09:40:48
Steps after generate portion	1 min, 20 sec	07-Aug-2009 09:40:50	07-Aug-2009 09:42:10
Save Patch History	1 min, 20 sec	07-Aug-2009 09:40:50	07-Aug-2009 09:42:10
Save Patch History to database	1 min, 20 sec	07-Aug-2009 09:40:50	07-Aug-2009 09:42:10

### Timing Reports: AutoPatch Timing Details

Clicking the Details link of a selected row with an AutoPatch Task Name in the Timing Reports list opens the AutoPatch Timing Details report, which provides details for a specific AutoPatch session.

The Timing Details section of the AutoPatch Timing Details report contains the following information for each task:

- Focus:** Select the circle icon next to a task to see just the sub-tasks within it.
- Task Name:** Name of the task. Click the blue triangle icon to expand or contract the sub-tasks within the task. The underlined Task Names are links to the Job Timing report for that particular task.
- Elapsed Time:** Time required to complete the task. This field is not applicable for stopped or in-progress tasks.
- Start Date:** Date and time the task began.
- End Date:** Date and time the task completed. This field is not applicable for stopped or in-progress tasks.

- **Number of jobs in this task:** Total number of jobs in the task. This field appears for stopped or in-progress tasks only.
- **Number of jobs completed:** Number of jobs completed. This field appears for stopped or in-progress tasks only.

The filter at the top allows you to adjust the list of tasks based on the elapsed time of tasks. The default list shows all tasks with elapsed time of greater than four seconds. Use the Expand All link to see all sub-tasks and the Collapse All to see just the top level task.

When you access the AutoPatch Timing Details report for a stopped or in-progress task, the page defaults to display the most recently performed sub-tasks. For in-progress tasks, you can use the Refresh icon to get the latest running tasks. The Refresh icon is a picture of a page with a green circular arrow.

## Timing Reports: AutoPatch Timing Details

### Timing Reports: AutoPatch Timing Details

Additional AutoPatch task information is available from the AutoPatch Timing Details page:

The screenshot shows the Oracle Applications Manager interface with the following details:

Run Information		Timing Summary	
<b>General</b>			
Utility Name	AutoPatch	Start Date	07-Aug-2009
Task	u6086572.drv	End Date	07-Aug-2009
Log File	/slot/ems4899/appmgr/apps/apps_st/appl/admin/ems4899/log/u6086572.log	Total Run Time	4 min, 43 sec
Driver File	/slot/ems4899/appmgr/patches/6086572/u6086572.drv	<b>Files Installed on this APPL_TOP</b>	
Patch Top	/slot/ems4899/appmgr/patches/6086572	Administration	Yes
Options	hotpatch	Java and HTML	Yes
Platform	LINUX	Forms	Yes
Applications System Name	ems4899	Concurrent	Yes
Oracle Database	ems4899	Processing	Yes
Oracle Home	/slot/ems4899/appmgr/apps/tech_st/10.1.2		
APPL_TOP Name	rws60168rems		
APPL_TOP Directory	/slot/ems4899/appmgr/apps/apps_st/appl		

Support Cart Setup Home Logout Help  
Copyright 2001, 2006 Oracle Corporation. All Rights Reserved.  
About Oracle Applications Manager Version 2.3.1

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### Timing Reports: AutoPatch Timing Details

Additional AutoPatch task information is available by clicking the + icon for the Run Information section at the bottom of the AutoPatch Timing Details page. The subsections in Run Information are General, Timing Summary and Files Installed on this APPL\_TOP.

**General:** This subsection includes the following information:

- Utility Name: Utility used to perform the task.
- Task: Task performed.
- Log File: Name and location of the log file.
- Driver File: Name and location of the patch driver file.
- Patch Top: Location of the patch driver files.
- Options: Command options used when running AutoPatch.
- Platform: Platform (operating system) on which Oracle E-Business Suite is running.
- Applications System Name: Name of the Oracle E-Business Suite system on which the task was performed.
- Oracle Database: Name of the database.
- Oracle Home: Path to the Oracle home used to link the executables.

- APPL\_TOP Name: Name of the APPL\_TOP.
- APPL\_TOP Directory: Path to the APPL\_TOP.

**Timing Summary:** This subsection includes the following information:

- Utility Start Date: Date and time the task began.
- End Date: Date and time the task completed. This field is not applicable for stopped or in-progress tasks.
- Total Run Time: Time required to complete the task. This field is not applicable for stopped or in-progress tasks.

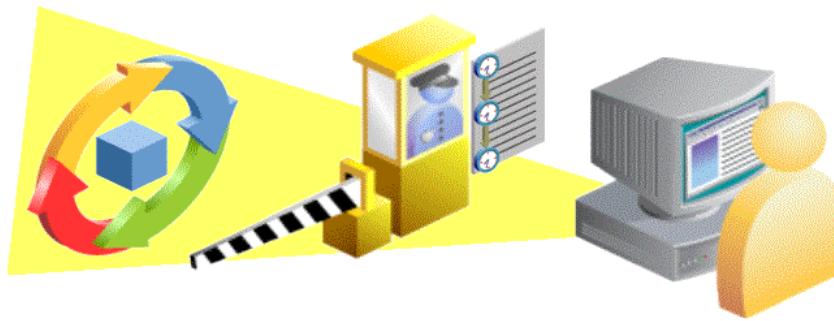
**Files Installed on this APPL\_TOP:** This subsection includes the following information:

- Java and HTML: States whether the APPL\_TOP on which the task was performed is a Web server.
- Forms: States whether the APPL\_TOP on which the task was performed is running Forms services.
- Concurrent Processing: States whether the APPL\_TOP on which the task was performed is a Concurrent Processing server.

## Tracking a Patch Session: Introduction

### Tracking a Patch Session: Introduction

- OAM allows you to track the progress of an AutoPatch session using the Timing Reports
- The In-Progress AD Utility report is identical to the AutoPatch Timing Details report
- This feature requires you to access OAM in Restricted Mode



### Tracking a Patch Session

When applying patches, the Oracle E-Business Suite system will be in Maintenance Mode, and the application tier services (including the Web server) will be shut down. This is to prevent access to Oracle E-Business Suite and Oracle Applications Manager while the patches are applied.

In order to access the OAM Timing Reports and thereby track a patching session in progress, the Web server must be running in Restricted Mode, and OAM accessed through a special Restricted Mode URL. This is described further on the next slides.

## Tracking a Patch Session: OAM Restricted Mode

### Tracking a Patch Session: OAM Restricted Mode

To use Restricted Mode for tracking in-progress patch sessions:

1. Set up the ad\_monitor user account
2. Shut down all application tier services
3. Enable Maintenance Mode
4. Enable OAM Restricted Mode
5. Restart Oracle HTTP server and oacore OC4J services
6. Run AutoPatch to start the patch session
7. From the Restricted Mode URL, log in to OAM as ad\_monitor
8. Navigate to the timing reports and review as needed
9. Re-enable Normal Mode
10. Disable Maintenance Mode and restart all services

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### OAM Restricted Mode

1. Use OAM to schedule downtime (Navigation: Site Map > Maintenance > Patching and Utilities > Schedule Downtime)
2. Set up the ad\_monitor user account as follows.
  1. Log in to SQL\*Plus as SYSTEM.
  2. Unlock the ad\_monitor user:

```
SQL> alter user ad_monitor account unlock;
```
  3. Log in to SQL\*Plus as user ad\_monitor. The default password is lizard. Reset the password.
3. Shut down all application tier services using the command  
\$INST\_TOP/admin/scripts/adstall.sh APPS/<APPS password>.
4. Enable Maintenance Mode from AD Administration.
5. Enable OAM Restricted Mode using the command:  

```
$FND_TOP/bin/txkrun.pl -script=ChangeApacheMode -contextfile=<Full path to context file> -mode=Restrict
```
6. Start Oracle HTTP Server and oacore OC4J services:

```
$INST_TOP/admin/scripts/adapcctl.sh start  
$INST_TOP/admin/scripts/adoacorectl.sh start
```

From now on, all access to Oracle E-Business Suite will be redirected to the downtime page.

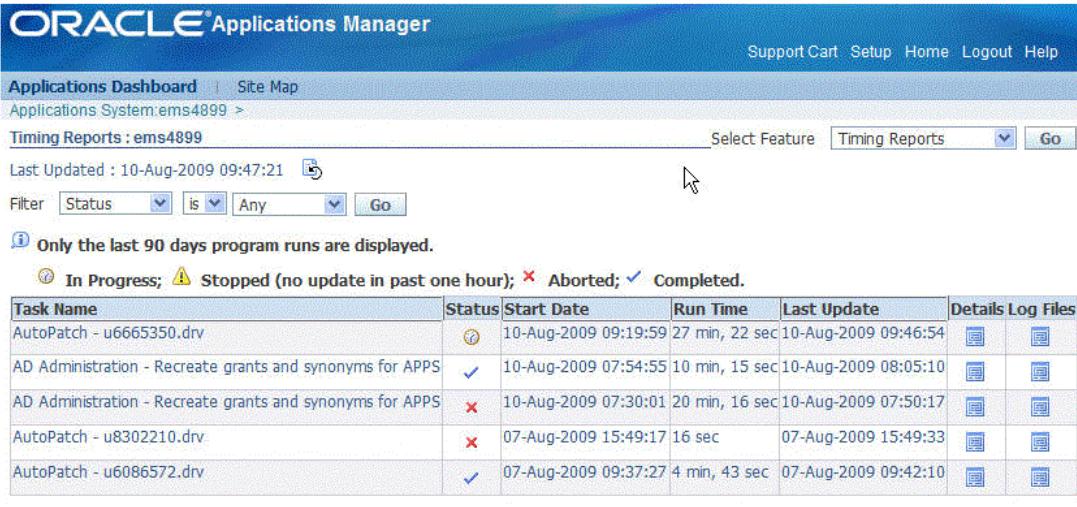
7. Run AutoPatch to start the patch session.
8. Access OAM through the Restricted Mode URL:  
[http://<hostname>:<port>/OA\\_HTML/weboamLocal/oam/oamLogin](http://<hostname>:<port>/OA_HTML/weboamLocal/oam/oamLogin)
9. Log into OAM as the ad\_monitor user
10. Navigate to the timing reports (Navigation: Sitemap > Maintenance > Patching and utilities > Timing Reports) and review as needed.
11. End scheduled downtime (Navigation: Sitemap > Maintenance > Patching and utilities > Manage Downtime Schedules > Select "Complete"
12. Re-enable Normal Mode using the command:  

```
$FND_TOP/bin/txkrun.pl -script=ChangeApacheMode -contextfile=<Full path to context file> -mode=Normal
```
13. Disable Maintenance Mode from AD Administration.
14. Restart all services using the command \$INST\_TOP/admin/scripts/adstrtal.sh APPS/<APPS password>.

## Tracking a Patch Session: In-Progress Tasks

### Tracking a Patch Session: In-Progress Tasks

Click the Details icon to open the In-Progress AD Utility report:



Task Name	Status	Start Date	Run Time	Last Update	Details	Log Files
AutoPatch - u6665350.drv		10-Aug-2009 09:19:59	27 min, 22 sec	10-Aug-2009 09:46:54		
AD Administration - Recreate grants and synonyms for APPS		10-Aug-2009 07:54:55	10 min, 15 sec	10-Aug-2009 08:05:10		
AD Administration - Recreate grants and synonyms for APPS		10-Aug-2009 07:30:01	20 min, 16 sec	10-Aug-2009 07:50:17		
AutoPatch - u8302210.drv		07-Aug-2009 15:49:17	16 sec	07-Aug-2009 15:49:33		
AutoPatch - u6086572.drv		07-Aug-2009 09:37:27	4 min, 43 sec	07-Aug-2009 09:42:10		

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### Tracking a Patch Session

The task status column in the Timing Reports main page shows In-Progress for the currently running AutoPatch session. Click the Details icon to open the In-Progress AD Utility report.

## Tracking a Patch Session: Completed Tasks

### Tracking a Patch Session: Completed Tasks

The In-Progress AD Utility report shows completed patch tasks:

The screenshot shows the Oracle Applications Manager interface for tracking a patch session. The title bar reads "ORACLE Applications Manager". The main content area is titled "Timing Details" and displays a table of completed tasks. The table has columns for "Focus Task Name", "Elapsed Time", "Start Date", and "End Date". The tasks listed are:

Focus Task Name	Elapsed Time	Start Date	End Date
AutoPatch	8 sec	07-Aug-2009 09:37:27	07-Aug-2009 09:37:35
AutoPatch startup after aimini	5 sec	07-Aug-2009 09:37:28	07-Aug-2009 09:37:33
Upload Patch History information from filesystem	4 min, 35 sec	07-Aug-2009 09:37:35	07-Aug-2009 09:42:10
Run a single patch driver file	3 min, 12 sec	07-Aug-2009 09:37:38	07-Aug-2009 09:40:50
Copy portion steps	57 sec	07-Aug-2009 09:37:38	07-Aug-2009 09:38:35
Read file driver files to get list of valid files	2 min, 5 sec	07-Aug-2009 09:38:43	07-Aug-2009 09:40:48
Relink executables	1 min, 20 sec	07-Aug-2009 09:40:50	07-Aug-2009 09:42:10
Steps after generate portion	1 min, 20 sec	07-Aug-2009 09:40:50	07-Aug-2009 09:42:10
Save Patch History	1 min, 20 sec	07-Aug-2009 09:40:50	07-Aug-2009 09:42:10
Save Patch History to database	1 min, 20 sec	07-Aug-2009 09:40:50	07-Aug-2009 09:42:10

At the bottom of the table, there is a link labeled "Run Information". The Oracle logo is visible at the bottom right.

### Tracking a Patch Session

The In-Progress AD Utility report shows the completed AutoPatch tasks. Click the Refresh icon to update the report with the latest completed tasks.

## AD Administration Timing Details

**AD Administration Timing Details**

This report provides details for a specific session of AD Admin:

Focus Task Name	Elapsed Time	Start Date	End Date
AD Administration └ Recreate grants and synonyms for APPS	10 min, 15 sec	10-Aug-2009 07:54:55	10-Aug-2009 08:05:10
Administration	7 min, 57 sec	10-Aug-2009 07:56:54	10-Aug-2009 08:04:51

**Run Information**

General		Timing Summary	
Utility Name	AD Administration	Start Date	10-Aug-2009 07:54:55
Task	Recreate grants and synonyms for APPS	End Date	10-Aug-2009 08:05:10
Log File	/slot/ems4899/appmgr/apps/apps_st/appl/admin/ems4899/log/adadmin.log	Total Run Time	10 min, 15 sec
Driver File	N/A		
Patch Top	N/A		
Platform	LINUX		
Applications System Name	ems4899	Files Installed on this APPL_TOP	
Oracle Database	ems4899		
Oracle Home	/slot/ems4899/appmgr/apps/tech_st/10.1.2	Administration	Yes
APPL_TOP Name	rwsd016bremsa	Java and HTML	Yes
APPL_TOP Directory	/slot/ems4899/appmgr/apps/apps_st/appl	Forms	Yes
		Concurrent Processing	Yes

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### AD Administration Timing Details

Clicking the Details link of a selected row with an AD Administration Task Name in the Timing Reports list opens the AD Administration Timing Details report. The AD Administration Timing Details report provides details for a specific session of AD Administration.

The Timing Details and Run Information sections contain the same types of information for each task as the AutoPatch Timing Details report.

## Job Timing Report

**Job Timing Report**

This report provides timing information for each job in a task:

Phase	Product	Directory	File	Action	Start Time	End Time	Run Time	Restarted?
Administration	ad	patch/ 115/sql	adappsgs.pls	sqlplus	10-Aug-2009 07:50:11	10-Aug-2009 07:50:13	2 sec	N
Administration	ad	patch/ 115/sql	adappsgs.pls	sqlplus	10-Aug-2009 07:50:12	10-Aug-2009 07:50:22	10 sec	N
Administration	ad	patch/ 115/sql	adappsgs.pls	sqlplus	10-Aug-2009 07:50:12	10-Aug-2009 07:50:15	3 sec	N
Administration	ad	patch/ 115/sql	adappsgs.pls	sqlplus	10-Aug-2009 07:50:12	10-Aug-2009 07:50:15	3 sec	N
Administration	ad	patch/ 115/sql	adappsgs.pls	sqlplus	10-Aug-2009 07:50:14	10-Aug-2009 07:50:21	7 sec	N
Administration	ad	patch/ 115/sql	adappsgs.pls	sqlplus	10-Aug-2009 07:50:14	10-Aug-2009 07:50:19	5 sec	N

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## Job Timing Report

The underlined Task Names in the AutoPatch Timing Details report and the AD Administration Timing Details report are links to the Job Timing report for that particular task. The Job Timing report provides timing information for each job within the selected task. The Job Timing Summary information appears at the top of the Job Timing report and the details appear at the bottom.

The Job Timing Summary information includes:

- Jobs that ran successfully: Number of successful jobs.
- Exceptions: Number of jobs that did not complete successfully. If exceptions exist, this will be a hyperlink to the Exception report.
- Total Number of Jobs: Number of jobs within the task.
- Total Elapsed Time: Time required to complete the task.
- Total Job Time: Time required to complete the jobs within the task.
- Total Number of Workers: Number of workers used to perform the task.

The Job Timing Details section contains the following information for each job:

- Phase: Database processing phase.

- Product: Product abbreviation for the product being updated.
- Directory: Directory path of the file run by the job.
- File: File used to perform the job.
- Action: Action of the job.
- Start Time: Date and time the job began.
- End Time: Date and time the job completed.
- Run Time: Total time of the job.
- Restarted?: Whether the job was restarted.

The filters at the top of the Details section allow you to adjust the list of jobs based on the property and run time of jobs. You can filter based on the following properties of the jobs: Phase, Product, Directory, File, Action, or Restarted. Click Go to activate the filter. Clicking the Phase Info button opens the Phase Information report.

## Phase Information Report

### Phase Information Report

This report provides timing information by phase for selected tasks in either the AutoPatch Timing Details report or AD Administration Timing Details report:

Phase	Start Time	Elapsed Time	Jobs	Task Name Running parallel SQL and EXEC commands		
				Total Job Time	Restarted?	Skipped
first	10-Aug-2009 09:45:34	7 sec	3	9 sec	N	0
con	10-Aug-2009 09:45:42	2 sec	1	2 sec	N	0
pls	10-Aug-2009 09:45:45	0 sec	2	0 sec	N	0
plb	10-Aug-2009 09:45:46	4 sec	3	8 sec	N	0
dat	10-Aug-2009 09:45:51	19 sec	2	36 sec	N	0
dat+1	10-Aug-2009 09:46:10	2 sec	2	2 sec	N	0
last	10-Aug-2009 09:46:13	1 sec	2	2 sec	N	0
last+1	10-Aug-2009 09:46:15	0 sec	1	0 sec	N	0

[Add to Support Cart](#)

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### Phase Information Report

The Phase Information report provides timing information by phase for a task selected in either the AutoPatch Timing Details report or AD Administration Timing Details report.

The general information presented at the top of the Phase Information report are:

- Driver File: Name of the driver file.
- Task Name: Name of the task performed.

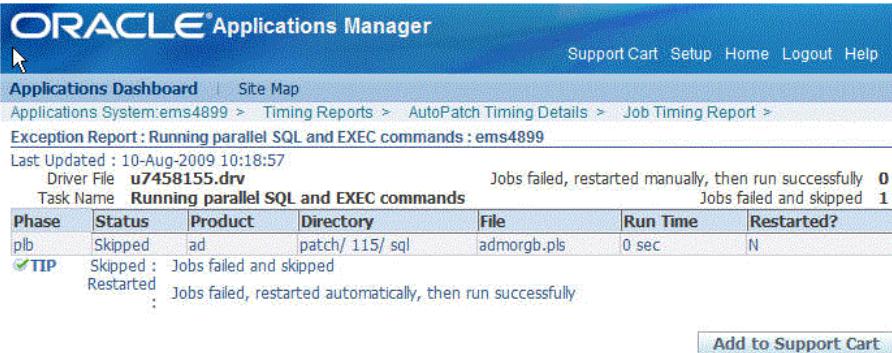
The Phase Information details include:

- Phase: Database processing phase.
- Start Time: Date and time the phase began.
- Elapsed Time: Time required to complete the phase.
- Jobs: Number of jobs in the phase.
- Total Job Time: Time required to complete the jobs within the phase.
- Restarted?: Whether any jobs within the phase was restarted.
- Skipped: Number of jobs within the phase that were skipped.

## Exceptions Report

**Exceptions Report**

This report provides a list of any exceptions that were encountered during the maintenance session:



The screenshot shows the Oracle Applications Manager interface. The title bar says "ORACLE Applications Manager". The main content area is titled "Exception Report : Running parallel SQL and EXEC commands : ems4899". It displays a table of job statistics:

Phase	Status	Product	Directory	File	Run Time	Restarted?
pib	Skipped	ad	patch/ 115/ sql	admorgb.pls	0 sec	N
<b>TIP</b>	Skipped :	Jobs failed, restarted manually, then run successfully 0				
	Restarted :	Jobs failed and skipped 1				
<small>Jobs failed and skipped</small> <small>: Jobs failed, restarted automatically, then run successfully</small>						

At the bottom right of the table is a button labeled "Add to Support Cart".

### Exceptions Report

Clicking the Exceptions number in the Job Timing report opens the Exception report. This report provides a list of exceptions encountered during the maintenance session. It is available only for jobs that have an Exceptions value greater than zero in the Job Timing report.

The general information presented at the top are:

- Driver File: Name of the driver file being run when the exception occurred.
- Task Name: Task being performed when the exception occurred.
- Jobs Failed, then restarted successfully: Number of jobs that initially failed but were restarted successfully.
- Jobs Failed and skipped: Number of failed jobs that were skipped.

The Exception details include:

- Phase: Database processing phase.
- Status: Status of the exception.
- Product: Owner of the file with the exception.
- Directory: Location of the file.
- File: File being processed when the exception occurred.

- Run Time: Total time the process ran.
- Restarted?: Whether the job with the exception was restarted.

## Module Summary

### Module Summary

In this module, you should have learned how to do the following:

- Describe the features of OAM Timing Reports
- Identify the key information in the Timing Detail reports
- Track an in-progress patch session

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## Module Discussion

### Module Discussion

- Describe the features of OAM Timing Reports
- Describe the information available for a patching session
- Discuss the value of being able to track progress of a patching session via OAM Timing Reports

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# **Other Patching Topics**

## **Chapter 25**



## Other Patching Topics

### **Other Patching Topics**

#### Patching Topics

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## Objectives

### Objectives

After completing this module, you should be able to do the following:

- Run AutoPatch in test mode
- Run AutoPatch in pre-install mode
- Run AutoPatch in non-interactive mode
- Use AutoPatch command line options
- Use test systems to evaluate patches
- Merge patch drivers from multiple patches

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## Module Overview

### Module Overview

This module consists of the following topics:

- AutoPatch Modes
- AutoPatch Options
- Java Release Infrastructure
- Patching Java Files
- Adding Translations and New Products
- Deploying Patches
- AD Merge Patch
- Merging Patches

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### Module Overview

This module focuses on the modes of AutoPatch, as well as AutoPatch command line options. It also describes the AD Merge Patch utility, and how you can merge multiple patches into a single merged patch.

## AutoPatch Modes

### AutoPatch Modes

In addition to the normal mode, AutoPatch can be run in these modes:

- Test mode
- Pre-install mode
- Non-interactive mode

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## AutoPatch Modes

In addition to the normal (patch application) mode, AutoPatch can be run in the following modes:

- Test mode
- Pre-install mode
- Non-interactive mode

## AutoPatch Test Mode

### AutoPatch Test Mode

In test mode, AutoPatch:

- Reads and validates the patch driver file
- Reads the product file driver files
- Extracts object modules to allow version verification
- Performs version verification and documents which files would be copied
- Determines which SQL scripts and EXEC commands it would have run
- Runs AutoConfig in test mode

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### AutoPatch Test Mode

With test mode, you can see the effects applying a patch will have on your system before applying the patch. In test mode, AutoPatch does not apply the patch. Instead, it lists each file it would have copied, relinked, executed, or generated and shows the actions it would have performed had it applied the patch.

## AutoPatch Test Mode

### AutoPatch Test Mode

In test mode, AutoPatch does not:

- Copy files
- Archive object modules
- Relink any executables
- Generate any forms, reports, menus, or PL/SQL libraries
- Run any SQL scripts or executables
- Record patch history
- Update configuration files or database profiles

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### AutoPatch Test Mode

Applying a patch in test mode works like applying a patch interactively, except that AutoPatch does not:

- Copy any files from the patch directory to the installation area
- Archive any object modules into the product libraries
- Relink any executables
- Generate any forms, reports, PL/SQL libraries, or menu files
- Run any SQL or EXEC commands (commands that change the database)
- Record patch history
- Update the release version in the database

## Running AutoPatch in Test Mode

### Running AutoPatch in Test Mode

To run AutoPatch in test mode:

```
$ adpatch apply=n
```

Messages state that no actions were performed:

```
Performing second half of mirrored copies...
No mirrored copies were executed in this patch

Running SQL scripts or EXEC commands...

Updating the Patch History file...
Did not update Patch History file (empty patch)

AutoPatch is complete.
```

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### Running AutoPatch in Test Mode

To run AutoPatch in test mode, use the ‘apply=n’ option as shown in the slide.

## AutoPatch Pre-Install Mode: Overview

### AutoPatch Pre-Install Mode: Overview

Pre-install mode is generally used:

- During the upgrade process to
  - Update AD utilities
  - Apply family consolidated upgrade patches
- To work around patching issues

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### AutoPatch Pre-Install Mode: Overview

In some situations, such as upgrading Oracle E-Business Suite to Release 12.1.1, you may need to patch upgrade-related files before performing the upgrade. For instructions on when to use pre-install mode, see *Oracle E-Business Suite Upgrade Guide: Release 11i to Release 12.1.1*, the Oracle E-Business Suite Release Notes, or the patch README file.

AutoPatch in pre-install mode asks all normal start-up questions except those relating to the database. Run AutoPatch in pre-install mode only if the patch explicitly requires it.

## AutoPatch Pre-Install Mode: Actions

### AutoPatch Pre-Install Mode: Actions

In pre-install mode, AutoPatch performs the following actions:

- Compares version numbers
- Copies files
- Relinks FND and AD executables
- Saves patch history information to the file system

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### AutoPatch Pre-Install Mode: Actions

Because AutoPatch does not read product driver files in pre-install mode, it copies all product files in the patch to the APPL\_TOP directory, even if they are not currently needed on this node. Additionally, if a file in the patch should be in APPL\_TOP and in another directory (such as in \$OA\_HTML), AutoPatch will only copy the file to APPL\_TOP in pre-install mode.

## AutoPatch Pre-Install Mode: Actions

### AutoPatch Pre-Install Mode: Actions

Since no database connection is available in pre-install mode, AutoPatch determines whether a patch should be applied based on the presence of the following files in the APPL\_TOP:

- If Preinstall\_Codelevel\_AD.txt is missing, the patch will be applied in pre-install mode without being validated for codelevel compatibility
- If Preinstall\_Codelevel\_MP.txt is missing, the patch will be applied without being validated for codelevel compatibility of the entities
- If both files are missing, AutoPatch will not validate codelevels in pre-install mode

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### AutoPatch Pre-Install Mode: Actions

Since no database connection is available in pre-install mode, AutoPatch validates whether a patch should be applied based on the presence of the following files in the APPL\_TOP:

- If Preinstall\_Codelevel\_AD.txt is missing, AutoPatch will apply the patch in pre-install mode without validating the patch for codelevel compatibility.
- If Preinstall\_Codelevel\_MP.txt is missing, AutoPatch will proceed with patch application without validating the patch for codelevel compatibility of the entities.
- If both files are missing, AutoPatch will not validate codelevels in pre-install mode.

## AutoPatch Pre-Install Mode: Restrictions

### AutoPatch Pre-Install Mode: Restrictions

AutoPatch in pre-install mode will not:

- Apply maintenance packs
- Apply NLS patches
- Apply baseline or codelevel-introducing patches
- Check if a patch is already applied on the system
- Run SQL or EXEC commands
- Generate files
- Read product driver files

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## AutoPatch Pre-Install Mode: Restrictions

AutoPatch in pre-install mode will not:

- Apply maintenance packs
- Apply NLS patches
- Apply baseline or codelevel-introducing patches
- Check if a patch is already applied on the system
- Run SQL or EXEC commands
- Generate files
- Read product driver files

## AutoPatch Pre-Install Mode: Example

### AutoPatch Pre-Install Mode: Example

```
$ adpatch preinstall=y

Copyright (c) 2002 Oracle Corporation
Redwood Shores, California, USA
Oracle Applications AutoPatch
Version 12.0.0

NOTE:...

adpatch records your adpatch session in a text file you
specify. Enter your adpatch log file name or press
[Return] to accept the default name shown in brackets.
Filename [adpatch.log] :

Mode Pre-Install = YES
```

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### AutoPatch Pre-Install Mode: Example

To run AutoPatch in pre-install mode, use the preinstall=y command shown at the top of the slide.

## AutoPatch Non-Interactive Mode: Overview

### AutoPatch Non-Interactive Mode: Overview

- Release 12 introduced the capability to run AutoPatch and apply patches without user intervention
- By specifying a patch top location, AutoPatch will locate and run all patch drivers specific to the patch you want to apply
- Before you can run AutoPatch non-interactively, you must initially create an AutoPatch defaults file for your current system

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### AutoPatch Non-Interactive Mode: Overview

Non-interactive patching is a way to avoid some of the prompts and automate the patching process. First, create a defaults file by running AutoPatch interactively with the specific command line option. Alternatively, you can copy \$APPL\_TOP/admin/adallddefaults.txt to \$APPL\_TOP/admin/<SID>/<new\_file>.txt and edit it as needed. Then run AutoPatch non-interactively, providing the name of the defaults file you created plus other command line options. After AutoPatch completes, perform any post-AutoPatch steps listed in the patch readme file.

## AutoPatch Non-Interactive Mode: Creating a Defaults File

### AutoPatch Non-Interactive Mode: Creating a Defaults File

- Specify defaultsfile=<Defaults File Name> on the AutoPatch command line
  - The defaults file must be located under APPL\_TOP/admin/<SID>
- Run AutoPatch up to the point where it asks you for the directory where your Oracle E-Business Suite patch has been unloaded, then enter the command **abort**
- Verify that your defaults file was created

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### AutoPatch Non-Interactive Mode: Creating a Defaults File

To create an AutoPatch defaults file:

- Specify defaultsfile=<Defaults File Name> on the AutoPatch command line. The defaults file must be located under APPL\_TOP/admin/<SID>.

For example:

```
$ adpatch defaultsfile=$APPL_TOP/admin/testdb1/defs.txt
```

- Run AutoPatch up to the point where it asks for the directory where your Oracle E-Business Suite patch has been unloaded. Then enter **abort** at this prompt.
- Verify that your defaults file was created.

Once you have an AutoPatch defaults file for your current system, you can run AutoPatch non-interactively.

## Running AutoPatch in Non-Interactive Mode

### Running AutoPatch in Non-Interactive Mode

To run AutoPatch in non-interactive mode:

```
$ adpatch defaultsfile=$APPL_TOP/admin/testdb1/def.txt \
logfile=1234567.log \
patchtop=$APPL_TOP/patch/1234567 \
workers=3 \
interactive=no
```

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### Running AutoPatch in Non-Interactive Mode

To apply a standard patch non-interactively, you can use the AutoPatch command in the slide, which specifies that:

- The defaults file is \$APPL\_TOP/admin/testdb1/def.txt
- The patch top is \$APPL\_TOP/patch/1234567
- The number of parallel workers is 3
- The mode is non-interactive

These and other applicable command line options are all described in more detail later in this lesson.

## Restarting AutoPatch in Non-Interactive Mode

### Restarting AutoPatch in Non-Interactive Mode

Command to restart AutoPatch in non-interactive mode:

```
$ adpatch defaultsfile=$APPL_TOP/admin/testdb1/def.txt \
logfile=1234567.log \
patchtop=$APPL_TOP/patch/1234567 \
workers=3 \
interactive=no \
restart=yes
```

- If AutoPatch encounters an error during a non-interactive patch session, do not simply re-run the original AutoPatch command after the issue is resolved
- Instead, use the same command line options originally specified, adding the restart=yes option
- Do not omit any of the original command-line arguments, as this may cause unpredictable results

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### Restarting AutoPatch in Non-Interactive Mode

If AutoPatch encounters an error during a non-interactive patch session, you should not simply re-run the original command after the issue is resolved. To restart a non-interactive AutoPatch session, use the same command line options originally specified, adding the restart=yes option as shown on the slide. Do not omit any of the original command-line arguments, as this omission may change AutoPatch's behavior and cause unpredictable results.

## AutoPatch Command Line Options: Overview

### AutoPatch Command Line Options: Overview

AutoPatch accepts command line arguments that consist of a comma-separated list of keywords

- You can use these keywords to specify the use of various processing options
- For example, the following command runs AutoPatch in test mode:

```
$ adpatch apply=n
```

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### AutoPatch Command Line Options: Overview

In addition to the command line options covered in the AD Utilities section of this course, the options in the following slides can be used by AutoPatch.

## AutoPatch Command Line Arguments: apply

### AutoPatch Command Line Arguments: apply

apply	
Purpose	Tells AutoPatch whether to run in test mode.
Values	y, meaning that AutoPatch does not run in test mode. n, meaning that AutoPatch does run in test mode.
Default	y
Example	adpatch apply=n

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## AutoPatch Command Line Arguments: driver

### AutoPatch Command Line Arguments: driver

driver	
Purpose	Tells AutoPatch the name of the patch driver file. This is usually used in non-interactive mode. It is only valid when the AutoPatch patchtop option is also used.
Values	A driver file name, or comma-separated list of patch driver file names.
Default	None, meaning that AutoPatch prompts for the patch driver file name.
Example	adpatch patchtop=/d01/apps/patches/1234567 driver=u1234567.drv

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### AutoPatch Command Line Arguments: driver

The driver option is generally used for non-standard patches; however, it can also be used with standard patches to bypass the driver prompt when running AutoPatch in normal mode.

## AutoPatch Command Line Arguments: patchtop

### AutoPatch Command Line Arguments: patchtop

#### patchtop

Purpose	Tells AutoPatch the top-level directory for the current patch. This is normally used in non-interactive mode.
Values	A fully-qualified directory name.
Default	None, meaning that AutoPatch prompts for the patch directory.
Example	adpatch patchtop=/d01/apps/patches/1234567

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## AutoPatch Command Line Arguments: preinstall

### AutoPatch Command Line Arguments: preinstall

#### preinstall

Purpose	Tells AutoPatch whether to run in pre-install mode. Pre-install mode is used to update AD utilities before an upgrade, and to apply family consolidated upgrade patches.
Values	y, meaning that AutoPatch runs in pre-install mode. n, meaning that AutoPatch does not run in pre-install mode.
Default	n
Example	adpatch preinstall=y

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## AutoPatch Command Line Arguments: stdin

### AutoPatch Command Line Arguments: stdin

#### preinstall

Purpose	When adpatch is run non-interactively, the stdin option may be used to avoid the SYSTEM and Oracle Application Object Library (APPLSYS) passwords being written to the AD defaults file.
Values	y, meaning that AutoPatch prompts the user for passwords. n, meaning that the passwords must be supplied with no prompting.
Default	n
Example	adpatch stdin=y

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## AutoPatch Command Line Arguments: uploadph

### AutoPatch Command Line Arguments: uploadph

#### uploadph

Purpose	Tells AutoPatch to upload patch history information from the patch information files to the database, and then exit.
Values	y, meaning that AutoPatch uploads patch history information; n, meaning that AutoPatch does not upload patch history information.
Default	None.
Example	adpatch uploadph=y

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## AutoPatch Command Line Arguments: options

### AutoPatch Command Line Arguments: options

#### options

Purpose	Pass generic options to AutoPatch. See the following slides for more information on available options.
Values	A comma-separated list of options.
Default	None, meaning that no generic options are passed.
Example	adpatch options=autoconfig

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### AutoPatch Command Line Arguments: options

The options= argument is used to pass generic options to AutoPatch in the form of a comma-separated list. For example, options=nocopyportion,nogenerateportion (note that there is no space after the comma).

Valid options are on the following slides.

## AutoPatch Options: autoconfig

### AutoPatch Options: autoconfig

**options=noautoconfig**

Purpose	Tells AutoPatch to run AutoConfig automatically.
Default	autoconfig
Comments	Use options=noautoconfig if you are applying a number of patches in sequence and want to run AutoConfig once, after applying the last patch of the sequence. A more common strategy is to merge the patches first using AD Merge Patch.

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## AutoPatch Options: checkfile

### AutoPatch Options: checkfile

options=nocheckfile

Purpose	Tells AutoPatch to either skip running SQL and EXEC commands if they are recorded as already run and to record them as having run after running them. Use nocheckfile to turn off the checkfile feature.
Default	checkfile
Comments	Using checkfile provides significant performance benefits.

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### AutoPatch Options: checkfile

The use of options=nocheckfile is not recommended. You should use this option only when requested to do so by Oracle Support.

## AutoPatch Options: compiledb

### AutoPatch Options: compiledb

options=nocompiledb

Purpose	Tells AutoPatch to automatically compile invalid objects in the database after running actions normally found in the database driver.
Default	compiledb for standard patches; nocompiledb for standard patch translations, documentation patches, and documentation patch translations.
Comments	In cases where multiple non-merged patches are applied in a maintenance window, you can use nocompiledb to save time. However, merging multiple patches and applying a single merged patch is usually a better strategy.

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## AutoPatch Options: compilejsp

### AutoPatch Options: compilejsp

options=nocompilejsp

Purpose	Tells AutoPatch whether to automatically compile out-of-date JSP files.
Default	compilejsp for standard patches; nocompilejsp for standard patch translations, documentation patches, and documentation patch translations.
Comments	JSP files are only compiled if the patch contains copy actions for at least one JSP file.

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### AutoPatch Options: compilejsp

In cases where a number of non-merged patches have to be applied within a limited maintenance window, you can use nocompilejsp to save some time. However, merging the patches and applying a single merged patch is usually a better strategy.

## AutoPatch Options: copyportion

### AutoPatch Options: copyportion

options=nocopyportion

Purpose	Tells AutoPatch whether to run commands normally found in the copy portion of the driver.
Default	copyportion
Comments	Use nocopyportion to tell AutoPatch not to perform copy actions of the driver.

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## AutoPatch Options: databaseportion

### AutoPatch Options: databaseportion

options=nodatabaseportion

Purpose	Tells AutoPatch whether to run commands normally found in the database portion of the driver.
Default	databaseportion
Comments	Use nodatabaseportion to tell AutoPatch not to perform database actions of the driver.

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## AutoPatch Options: generateportion

### AutoPatch Options: generateportion

options=nogenerateportion

Purpose	Tells AutoPatch whether to run commands normally found in the generate portion of the driver.
Default	generateportion
Comments	Use nogenerateportion to tell AutoPatch not to perform generate actions of the driver.

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## AutoPatch Options: hotpatch

### AutoPatch Options: hotpatch

options=hotpatch

Purpose	Tells AutoPatch to apply a patch regardless of whether the Oracle E-Business Suite system is in Maintenance mode.
Default	nohotpatch
Comments	AutoPatch aborts the patching session if Maintenance mode is disabled and the hotpatch option is not used. The hotpatch and maintenancemode options cannot be used together.

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## AutoPatch Options: integrity

### AutoPatch Options: integrity

options=integrity

Purpose	Tells AutoPatch whether to perform patch integrity checking, which verifies that the version of each file referenced in a copy action matches the version present in the patch.
Default	nointegrity
Comments	As the integrity of Oracle E-Business Suite patches is checked before they are released, the default of nointegrity is safe and avoids some AutoPatch overhead.

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## AutoPatch Options: maintenancemode

### AutoPatch Options: maintenancemode

options=maintenancemode

Purpose	Tells AutoPatch to put the system into Maintenance Mode.
Default	nomaintenancemode
Comments	<p>When the maintenancemode option is specified, AutoPatch will enable Maintenance Mode at the beginning of a patching session, and disable Maintenance Mode after successful patch application.</p> <p>The maintenancemode and hotpatch options cannot be used together.</p>

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## AutoPatch Options: parallel

### AutoPatch Options: parallel

options=noparallel

Purpose	Tells AutoPatch whether to run actions that update the database (such as SQL) and actions that generate files (such as genform) in parallel. Use noparallel to tell AutoPatch to run actions serially.
Default	parallel
Comments	Oracle does not recommend using the noparallel option. Oracle E-Business Suite patches are tested on systems using parallel processing.

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## AutoPatch Options: phtofile

### AutoPatch Options: phtofile

options=phtofile

Purpose	Tells AutoPatch whether to upload patch history information to the database after applying the patch, or to write it to the patch information files in the file system.
Default	nophtofile
Comments	Using phtofile allows you to defer uploading of patch history information to the database until after the system downtime. Use adpatch uploadph=y to upload patch history information from the patch information files to the database during uptime.

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## AutoPatch Options: validate

### AutoPatch Options: validate

options=validate

Purpose	Tells AutoPatch whether to connect to all registered Oracle E-Business Suite schemas at the start of the patch.
Default	novalidate
Comments	Useful for finding problems with incorrectly-registered Oracle E-Business Suite schemas or schemas with invalid passwords.

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## Java Release Infrastructure (JRI)

### Java Release Infrastructure (JRI)

#### Java Release Infrastructure:

- Is used for the purpose of developing, releasing, patching, and maintaining Oracle E-Business Suite Java code
- Allows JAR files to be generated and signed on-site

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### Java Release Infrastructure (JRI)

Much of the functionality of JRI is transparent to the user. The only direct interactions you may have with JRI are:

- During the Java patching process, when AutoPatch calls the jcopy program to patch the Java archive (JAR) patch files located in the Oracle E-Business Suite file system.
- During the maintaining process, when AD Administration is used to regenerate JAR files.

## Java File Patching

### Java File Patching

The process used by AutoPatch to apply a Java patch is:

- Patch Java files
- Regenerate JAR Files
- Sign JAR Files

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## Java File Patching

The process used automatically by AutoPatch to apply a Java patch is:

1. Patch changed Java classes.
2. Regenerate Java archive, or JAR files. The generation portion of the Java patch process regenerates the JAR files under both the \$APPL\_TOP and \$JAVA\_TOP. The JAR files in the \$APPL\_TOP are located in <PROD>\_TOP/java/jar, and the JAR files under the \$JAVA\_TOP are located in \$JAVA\_TOP/oracle/apps/<prod>/jar. JAR files can be regenerated as a maintenance task at any time, via the “Generate product jar files” option of AD Administration.
3. Sign JAR files. The final step of the Java patching process is the signing of all JAR files with the customer’s digital signature. This is an inherent part of the Java patching process, and no user intervention is required.

## Adding Translations and New Products

### Adding Translations and New Products

The following are delivered as patches:

- Translations of existing patches to languages other than American English
- Products not included in the base release (off-cycle products)

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## Adding Translations and New Products

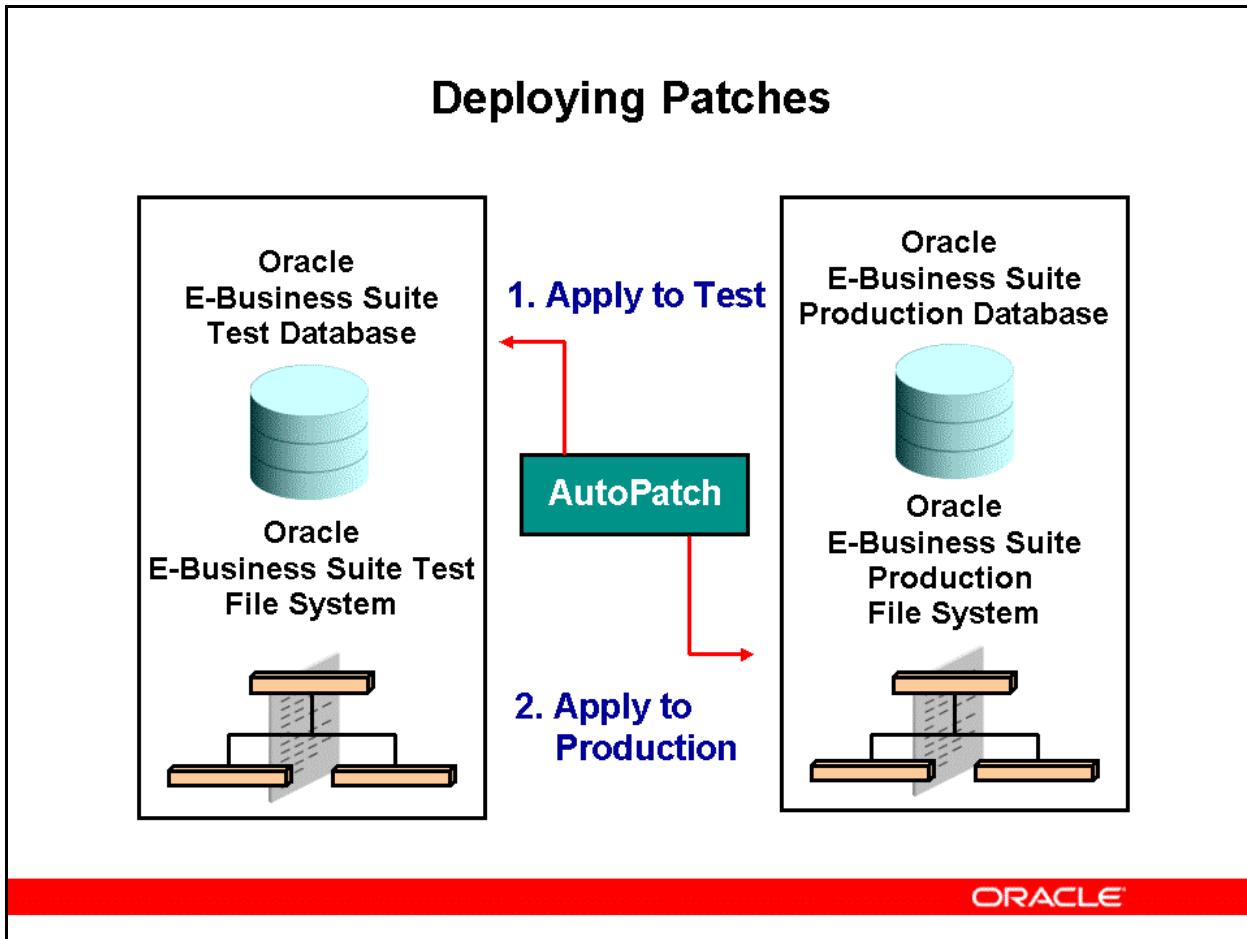
The following are delivered as patches:

- Translations of existing patches to languages other than American English.
- Products not included in the base release (off-cycle products):
  - A “new products patch” associated with a maintenance pack is applied using AutoPatch.
  - An individual “new products patch” is delivered as a single patch. Applying this patch involves running AD Splicer followed by AutoPatch.

The respective patch readme file contains detailed information on applying a translation or new product patch.

AutoPatch is translation-aware: when applying a base patch, AutoPatch notifies you if a translated patch also needs to be applied.

## Deploying Patches



### Deploying Patches

As stated earlier in the course, it is essential to check the effect of patches on a test system before applying them to your production system.

The test database and the production database should always be kept separate. The production database must use a different file system and ORACLE\_HOME from any other database.

After you are sure that the patch works correctly and the original issue has been resolved in the test system, you may apply the patch to your production file system and production database.

## Merging Patches with AD Merge Patch

### Merging Patches with AD Merge Patch

AD Merge Patch is a utility that is:

- Designed to merge multiple AutoPatch-compatible patches into a single integrated patch
- Located in the bin directory of \$AD\_TOP

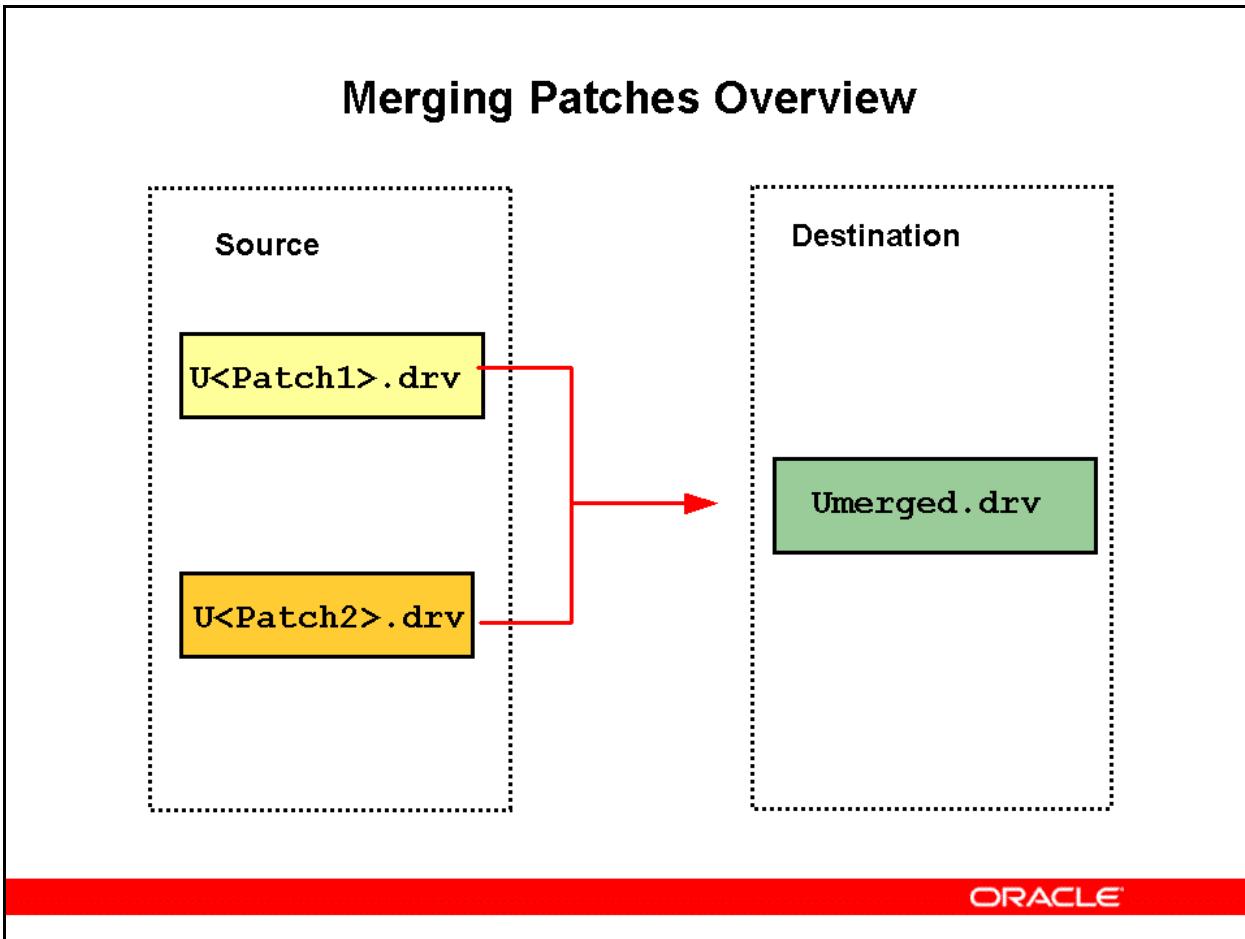
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### Merging Patches with AD Merge Patch

Each time AutoPatch runs, it prompts you for a series of answers, and, based on your input, attempts to connect to your Oracle E-Business Suite system. This initial phase may take several minutes, so for a series of patches the total time required for all the initial phases of can become significant.

By applying *merged* patches instead, you can save a substantial amount of time in the maintenance of your Oracle E-Business Suite system. In addition, merging patches eliminates duplicate tasks. Merged patches can be created by using the *AD Merge Patch* utility.

## Merging Patches Overview



### Merging Patches Overview

Merging multiple patches into one patch not only saves time, but makes patching easier.

AD Merge Patch is an executable that reads the driver files for each patch in the source directory and merges them together to create a single set of driver files in the destination directory. If there are different versions in the source patches, AD Merge Patch identifies the latest version of a patch.

The merged patch driver file is named `umerged.drv` by default. Use the `-merge_name` parameter to specify a name other than “merged.”

## AD Merge Patch Actions

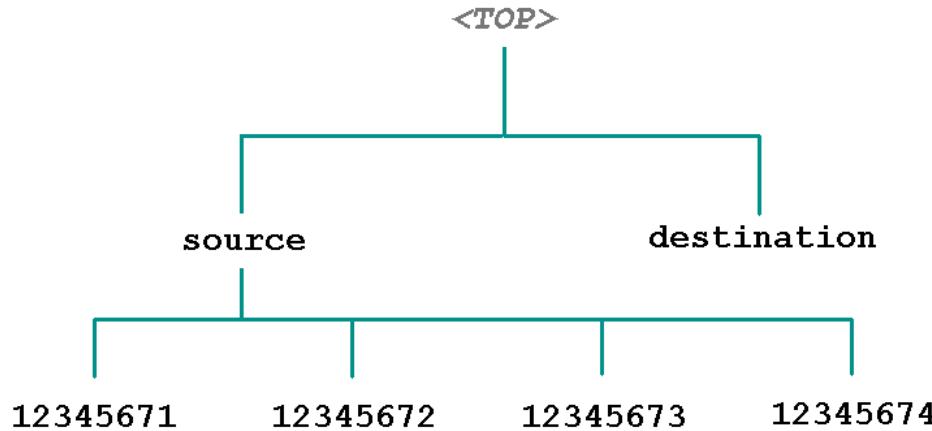
### AD Merge Patch Actions

- Working by file revision, AD Merge Patch merges the set of files contained in the individual patches under the source directory, and copies them to the destination directory
- If a file exists in more than one source patch, only the highest revision of the file is copied to the destination directory

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## Source and Destination Directories

### Source and Destination Directories



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### Source and Destination Directories

When merging patches, the source and the destination directories cannot be child or parent directories of each other. We recommend that you run AD Merge Patch from the parent directory of the source directory, and that the destination directory also be located in the same parent directory. For example, if you run AD Merge Patch from a directory named <TOP>, both the source and destination directories should be subdirectories of <TOP>.

The source directory must have all patches to be merged as immediate child directories. The patch directories cannot be in a lower directory under the source directory. For example, if four patches are to be merged, they must be in a directory structure similar to the one in the slide.

If you are using a manifest file (as described later in this section), all zipped ARUs should be placed in the source directory.

## AD Merge Patch: Introduction

### AD Merge Patch: Introduction

To merge two or more patches into a single merged patch, run the AD Merge Patch utility with the following arguments:

UNIX:

```
$ admrgpch <source dir> <destination dir>
```

Windows:

```
C:\>admrgpch <source dir> <destination dir>
```

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### AD Merge Patch: Introduction

The AD Merge Patch utility has two required arguments:

- The source directory where the patches to merge have been unloaded.
- The destination directory where the unified patch will be created.

AD Merge Patch creates the merged patch driver files and copies the actual files needed by the merged patches into the destination directory.

Always check the AD Merge Patch log file for errors after merging patches. The default log file name is admrgpch.log, and is located in the directory in which AD Merge Patch was run.

## AD Merge Patch: Naming the Merged Patch

### AD Merge Patch: Naming the Merged Patch

To specify the name of the merged patch drivers, run AD Merge Patch with the following arguments:

UNIX:

```
$ admrgpch -s <source directory> \
-d <destination directory> \
-merge_name <name>
```

Windows:

```
C:\>admrgpch -s <source directory> -d
<destination directory> -merge_name <name>
```

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### AD Merge Patch: Naming the Merged Patch

To specify the name of the merged patch, use the command shown on the slide.

For example the following command would merge the patches located in the /d01/patches/source directory and place them in the /d01/patches/destination directory.

```
$ admrgpch -s /d01/patches/source -d /d01/patches/destination \
-merge_name NLS99
```

On UNIX, you can enter the backslash character to indicate that the command being entered is to be continued on the next screen line. This is not available on Windows, where the command line must be entered in a continuous string that wraps to the next screen line if needed.

## AD Merge Patch: Merging Unzipped ARUs

### AD Merge Patch: Merging Unzipped ARUs

- You can merge patches without unzipping the ARUs by using a manifest file
- The manifest file is a text file in which you document the location and names of the patch zip files
- The contents of a manifest file will resemble the following:  
`/home/applmgr/patches/p3903945_12_GENERIC.zip  
/home/applmgr/patches/p3892799_12_GENERIC.zip  
/home/applmgr/patches/p3874740_12_LINUX.zip`

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### AD Merge Patch: Merging Unzipped ARUs

Use the -manifest option to use a manifest file that contains the name and location of the patch zip files. AD Merge Patch references this file, and unzips the patches listed. It copies the unzipped files into the source directory and includes them, along with any other files in the source directory, in the merged patch.

## AD Merge Patch: Using a Manifest File

### AD Merge Patch: Using a Manifest File

To merge two or more patches without unzipping the ARUs, run AD Merge Patch with the following arguments:

UNIX:

```
$ admrgpch -s <source dir> \
-d <destination dir> \
-merge_name <name> -manifest <filename>
```

Windows:

```
C:\>admrgpch -s <source dir> -d <destination
dir> -merge_name <name> -manifest <filename>
```

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### AD Merge Patch: Using a Manifest File

You can merge patches before unzipping them by creating a manifest file that lists the zip files, and specifying this file on the AD Merge Patch command line. AD Merge Patch will then unzip the patch files into the source directory and include them in the merged patch.

As noted previously, UNIX allows you to enter a backslash character to indicate that the command being entered is to be continued on the next screen line. This is not available on Windows, where the command line must be entered in a continuous string that wraps to the next screen line if needed.

## AD Merge Patch Special Options: -driveronly

### AD Merge Patch Special Options: -driveronly

- This option is used to merge only the patch driver files present under the patch top
- AD Merge Patch will merge the actions present in the patch driver files, and write the merged content to the resulting patch driver file
- The files will not be copied from the source directory to the destination directory
- The resulting merged patch driver file will be placed in the destination directory specified by the -d option
- Example of merging non-AD driver files (UNIX):

```
$ admrgpch -s <source dir> \
-d <destination dir> -driveronly
```

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### AD Merge Patch Special Options: -driveronly

This option is used to merge only the patch driver files present in the patch tops. AD Merge Patch will merge the actions present in the patch driver files, and write the merged content to the resulting patch driver file. However, the files will not be copied from the source directory to the destination directory. The resulting merged patch driver file will be placed in the destination directory specified by the -d option.

## AD Merge Patch Special Options: -preinstall

### AD Merge Patch Special Options: -preinstall

- This option is used to merge the patch driver files in the \$APPL\_TOP/admin/\$TWO\_TASK/preinstall directory
- The -preinstall option implicitly enables -driveronly as well, with the source directory as the \$APPL\_TOP/admin/\$TWO\_TASK/preinstall directory
- The related -s option can be used with -preinstall to specify the source directory and merge critical driver files
  - The combination of these options merges pre-install upgrade driver files with the master upgrade driver file
- The related -master option is used to specify the master upgrade driver to be merged with the pre-install upgrade drivers
  - This option is only valid with -preinstall or -driveronly

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### AD Merge Patch Special Options: -preinstall

This option is used to run AD Merge Patch in pre-install mode, where it will only merge the patch driver files present in the \$APPL\_TOP/admin/\$TWO\_TASK/preinstall directory. The -preinstall option implicitly enables the -driveronly option, and takes the source directory as \$APPL\_TOP/admin/\$TWO\_TASK/preinstall directory.

The -s option can be used in conjunction with the -preinstall option to specify the source directory and merge critical driver files. As pre-install upgrade driver files are copied to the pre-install directory when AutoPatch is used in pre-install mode, the combination of these options merges pre-install upgrade driver files with the master upgrade driver file.

The related -master option is used to specify the master upgrade driver to be merged with the pre-install upgrade drivers. This option is only valid with the -preinstall or -driveronly options.

## AD Merge Patch Special Options: -admode

### AD Merge Patch Special Options: -admode

- AD Merge Patch is now restricted to merge *either* AD-only patches or non-AD patches
- Non-AD mode will be used unless the -admode option is specified
  - In non-AD mode, AD Merge Patch will merge the non-AD patches present in either the source directory specified by the -s option, or the pre-install directory if -preinstall is specified
  - When merging patches, any AD patches present in the source directory are ignored in non-AD mode
- Example of merging AD patch driver files with AD upgrade driver files in pre-install mode (UNIX):

```
$ admrgpch -preinstall -d <destination dir> \
-mirror upgrade/upgrade.drv -admode
```

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### AD Merge Patch Special Options: -admode

AD Merge Patch can merge *either* AD-only patches *or* non-AD patches. By default, AD Merge Patch will run in non-AD mode unless -admode option is specified.

In non-AD mode, AD Merge Patch will merge the non-AD patches present in either the source directory specified by the -s option, or the pre-install directory if -preinstall is specified. When merging patches, AD patches present in the source directory are ignored in non-AD mode.

## AD Merge Patch: Restrictions

### AD Merge Patch: Restrictions

AD Merge Patch cannot be used to merge patches of different:

- Releases
- Platforms
- Parallel modes

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### AD Merge Patch: Restrictions

AD Merge Patch is capable of merging generic patches with patches for a specific platform; however, it cannot merge patches of two different releases, platforms, or parallel modes.

## Module Summary

### Module Summary

In this module, you should have learned how to do the following:

- Run AutoPatch in test mode
- Run AutoPatch in pre-install mode
- Run AutoPatch in non-interactive mode
- Use AutoPatch command line options
- Use test systems to evaluate patches
- Merge multiple patches into a single patch
- Use special options for merging patches

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## Module Discussion

### Module Discussion

- Name two actions performed by AutoPatch when running in test mode
- How would you specify multiple AutoPatch command line keywords?
- What is the purpose of the Java Release Infrastructure?
- What are the benefits of using AD Merge Patch?
- Name two special AD Merge Patch options

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# **Applied Patches Information**

## **Chapter 26**



## Applied Patches Information

### **Applied Patches Information**

#### Patching Topics

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## Objectives

### Objectives

After completing this module, you should be able to do the following:

- Describe the features of OAM Applied Patches
- Search for applied patch information
- Search for file history information
- Identify the Applied Patches reports
- Access the Applied Patches reports

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## Module Overview

### Module Overview

This module consists of the following topics:

- Applied Patches search pages
- Applied Patches reports
- Applied Patches and AutoPatch modes
- Accessing Applied Patches
- Simple Search
- Advanced Search
- Simple Files Search
- Advanced Files Search

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## Module Overview

### Module Overview

This module consists of the following topics:

- Applied Patches Report
- Patch Details Report
- Files Copied Report
- Bug Fixes Report
- Action Summary Report
- Action Details Report
- File History Report

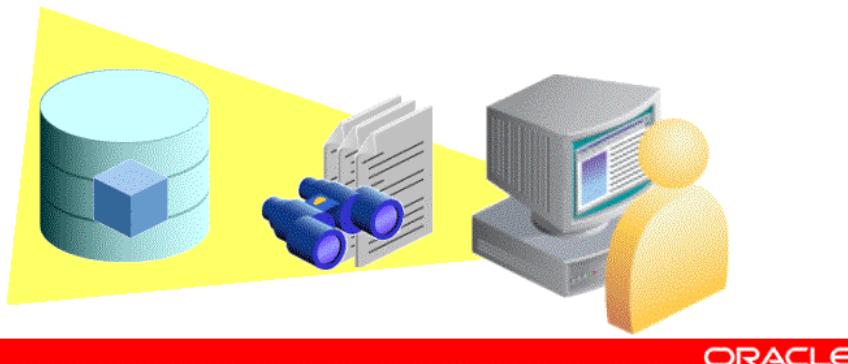
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## Applied Patches Information

### Applied Patches Information

The Applied Patches feature:

- Stores applied patch information in the database
- Automatically tracks all Oracle E-Business Suite patches applied to your system
- Allows you to access applied patch information easily through a set of reports and search options



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### Applied Patches Information

AutoPatch stores patch information in the database automatically each time it successfully applies a patch. However, if the patch is not applied successfully, or when you run AutoPatch in pre-install mode, patch history is not written directly to the database, but instead is written to these patch information files:

In Release 12.1, there are two patch history files:

- **Javaupdates<timestamp>.txt**: contains information on changes to Java files
- **Adpsv<timestamp>.txt**: contains information on changes to all other files

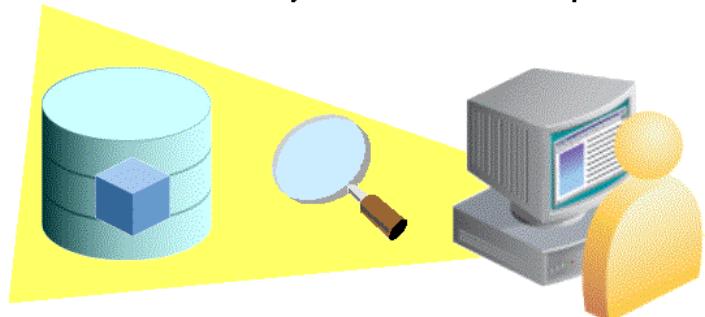
These files exist only if a patch session did not write applied patch information to the database. Both files are located in the APPL\_TOP/admin/<SID> directory.

## Applied Patches Information

### Applied Patches Information

With the Applied Patches Information feature, you can:

- Determine what patches have been applied to a system
- Investigate when patches were applied
- Determine what bug fixes were included in an patch
- Determine what translation patches have been applied
- Check when a file on a system was last updated



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## Applied Patches Information

### Applied Patches Information

The Applied Patches Information feature does not change the process of applying a patch

- You still apply patches with AutoPatch
- After each driver is run on each node, AutoPatch uploads the applied patch information to the Oracle E-Business Suite database
- After applying patches, you use Oracle Applications Manager (OAM) to view the applied patch information

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## Applied Patches Information

### Applied Patches Information

The Applied Patches Information feature stores the following key information for all patches:

- Patch number
- Driver file name
- Platform
- APPL\_TOP on which the patch was applied
- Contents and language of the patch

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## Applied Patches Information

### Applied Patches Information

The Applied Patches Information feature stores the following key information for all patches:

- Files changed or copied
- Bug fixes included in each driver file
- Whether the fix was applied successfully, or reason it was not applied
- Timing information (start time, end time, elapsed time during application, restart time)

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## Applied Patches Information and AutoPatch Modes

### Applied Patches Information and AutoPatch Modes

AutoPatch stores the applied patch information in different ways, depending on the AutoPatch mode used when applying the patch

- If the patch was not applied successfully, patch information is not written to the database or to the patch history files

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## AutoPatch: Normal Mode

### AutoPatch: Normal Mode

In normal mode, AutoPatch:

1. Uploads applied patch information from the patch history files, if they exist
2. Deletes the patch history files (if the upload is successful)
3. Applies the patch
4. Writes applied patch information to the database, appending it to any existing applied patch information

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### AutoPatch: Normal Mode

In normal mode, AutoPatch does not delete the patch history files if the upload is not successful.

The AutoPatch log file records whether the upload of applied patch information from the patch history files to the applied patch information database was successful.

## AutoPatch: Test Mode

### AutoPatch: Test Mode

In test mode:

- The patch history files are not changed
- AutoPatch does not upload
  - Any patch information files
  - Applied patch information to the database

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## AutoPatch: Pre-Install Mode

### AutoPatch: Pre-Install Mode

In pre-install mode:

- After applying the patch, AutoPatch writes applied patch information to the patch information files
- The contents of these files are uploaded to the database the next time AutoPatch runs in normal mode

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## Accessing Applied Patches Information

### Accessing Applied Patches Information

OAM Dashboard allows access to Applied Patches Information:

The screenshot shows the Oracle Applications Manager OAM Dashboard. At the top, there's a navigation bar with links for Support, Cart, Setup, Home, Logout, and Help. Below the navigation is a menu bar with Application Services and a Go button. The main content area has tabs for Overview, Performance, Critical Activities, Business Flows, Security, and Software Updates, with Overview selected. A sub-section titled 'Applications System Status' displays a table with columns Host, Platform, Host Status, Admin, Database, Concurrent Processing, Forms, and Web. The host listed is RW560114REMS and the platform is LINUX Intel. Most status indicators are green checkmarks, except for Concurrent Processing which has a red X. Below this is a section for 'Configuration Changes (last 24 hours)' and 'System Alerts'. The 'Configuration Changes' section shows 0 Patches Applied, 0 Site Level Profile Options, and 2 Applications Context Files Edited. The 'System Alerts' section shows 69 New Alerts, 1200 New Occurrences, 0 Open Alerts, and 0 Open Occurrences. At the bottom, there's a 'Web Components Status' section with entries for Servlet Agent, JSP Agent, Discoverer, and TCF, all marked as Up. There's also a 'User Initiated Alerts' section with 0 alerts and occurrences. A note at the bottom says: '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.' The Oracle logo is at the bottom right.

### Accessing Applied Patches Information

You can access the Applied Patches Information by selecting Applied Patches from the Oracle Applications Manager Dashboard.

## Applied Patches: Search Pages

### Applied Patches: Search Pages

There are two Applied Patches search pages:

- Simple Search
- Advanced Search

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### Applied Patches: Search Pages

The Applied Patches Simple Search page allows you to search for applied patches using simple criteria. The Advanced Search page provides more advanced search criteria.

## Applied Patches: Simple Search

### Applied Patches: Simple Search

Search Patches from OAM Site Map defaults to the Applied Patches Simple Search page:

Patch Name	Patch Description	Merged Patches	APPL_TOP Name	Language	Completion Date	Details
6871223.R12	Murali Custom Patch 7777777	No	rws60114rems	US	29-Jul-2009 07:52:09	
6871223.R12		No	rws60114rems	US	29-Jul-2009 07:31:15	

### Applied Patches: Simple Search

When you choose Search Patches from the Oracle Applications Manager Site Map, it defaults to the Applied Patches Simple Search page. From this Applied Patches home, you can:

- Search for patches that have been applied by entering search criteria in one or more fields and clicking the *Go* button.
- Click the *Advanced Search* button to access the Applied Patches Advanced Search page.
- Go to other OAM functionality by selecting it from the Select Feature drop-down menu.

There are three fields in the Applied Patches Simple Search page:

- **Patch ID:** Enter the patch number in this field.
- **Applied from Date <begin date> To Date <end date>:** This field allows you to search for patches that were applied during a specified period of time. Click the calendar icon to select the date or enter the date directly in the field. The format for this field is shown under the field. Some examples for the use of this field are:
  - Enter only the begin date. This search returns all patches applied from the begin date through to today's date.
  - Enter only the end date. This search returns all patches applied up to the end date.

- Enter the begin date and the end date. This search returns all patches applied between the begin date and the end date.
- **Language:** This drop-down menu allows you to select the language of a patch to be queried. You can select only one language in this field. To select multiple languages, go to the Applied Patches Advanced Search page.

You must enter a value in at least one of the three fields, otherwise, an error page appears requesting you to go back and enter a value. To submit the query, click the Go button. Click the *Reset* button to clear all search fields.

The results section at the bottom of the page displays the results of a query submitted through the search section. If the results section contains multiple pages of retrieved information, use the Previous and Next links or the drop down list to navigate from page to page. The retrieved applied patch information is presented in increments of 25 line items per page. Each line item represents an applied patch.

Details provided for each patch include:

- Patch Name: Name of the patch.
- Merged Patches: If this a merge patch, it would be **yes** with a link and the link will take you to Merge Patches page where all the patches that were merged would be displayed.
- APPL\_TOP Name: Name of the APPL\_TOP where the patches were applied.
- Language: Language of the patch.
- Completion Date: Date and time the patch was applied and completed.
- Details: Clicking this link accesses the Patch Details report.

Clicking on the heading for a column allows you to sort the patch summary information based on the content in that column. The sortable columns have column headings with dark borders. When the mouse cursor is placed over the column heading, the pointer will change to a hand. The sort order alternates between ascending and descending each time you click the column heading.

## Applied Patches: Advanced Search

### Applied Patches: Advanced Search

The Advanced Search button accesses the corresponding page:

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### Applied Patches: Advanced Search

Clicking the Advanced Search button in the Applied Patches Simple Search page accesses the Applied Patches Advanced Search page. The Advanced Search page provides greater granularity of query criteria than the Simple Search page. There are five additional search criteria to narrow the results of a query. The option buttons at the top of this page are identical to those of the Simple Search page. From this page you can:

- Search for patches that have been applied by entering search criteria in one or more fields and clicking the Go button.
- Click the *Simple Search* button to access the Applied Patches Simple Search page.
- Access applied patch information migrated from another Oracle E-Business Suite system.

These are the available search options:

- **Applications System Name** (required): Defaults to the name of your Oracle E-Business Suite system. If you have migrated applied patch information from another system, and want to search those records, enter the name of that system.
- **APPL\_TOP**: Name of the APPL\_TOP where the patches were applied.

- **Server Type:** Select the type of server where the patches were applied. The options are All APPL\_TOP Server Types or one or more specific Server Types. You can select one server or multiple servers. To select multiple servers, select the appropriate boxes.
- **Product:** Enter the product short name of the product that owns the patch in this field. For example, ad or fnd. This field is not case-sensitive.
- **Patch ID:** Enter the patch number in this field.
- **Applied From Date <begin date> To Date <end date>:** This field allows you to search for patches that were applied during a specified period of time. Click the calendar icon to select the date or enter the date directly in the field. Note that the format for this field is mm/dd/yy.
- **Language:** This list box allows you to select the language of a patch to be queried. You can select one language or multiple languages by selecting a language in the Available Languages box and clicking the Move button.

You must enter a value in at least one of these fields, otherwise an error page will appear and request you to go back and enter a value. To submit the query, click the *Go* button. Click the *Reset* button to clear all search fields.

## File History: Search Pages

### File History: Search Pages

There are two File History search pages:

- Simple Search
- Advanced Search

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### File History: Search Pages

The File History Simple Search page allows you to search for file history information for files that have been updated by a patch. The File History Advanced Search page provides additional search criteria options.

## File History: Simple Search

**File History: Simple Search**

Simple Files Search can be accessed in three different ways:

The screenshot shows the Oracle Applications Manager interface. The title bar says "File History: Simple Search". Below it, there's a message: "Simple Files Search can be accessed in three different ways:". The main area has a form for "Simple Search" with fields for "File Name" (set to "adpmain.o"), "Applied Within Last" (set to "200 Days"), "Changed From Date" (set to "dd-MMM-yyyy") and "To Date" (set to "dd-MMM-yyyy"). There are "Go" and "Reset" buttons. To the right is an "Advanced Search" link. Below the form is a table with one row:

APPL_TOP Name	Product	Directory	File	Version	Changed Date	Patch Details	Action
rws60114rems	AD	lib	adpmain.o	120.56.1201000.3	22-Jul-2009 03:57:54	7458155	

At the bottom right of the page is the Oracle logo.

### File History: Simple Search

The Simple Files Search page can be accessed in three ways:

- Choose File History from the Maintenance tab of the OAM Site Map.
- Select the File History from the Select Features drop-down menu.
- Click the *Simple Search* button from the File History Advanced Search page.

From this page you can:

- Search for files that have been updated by a patch by entering search criteria in one or more fields and clicking the Go button.
- Click the *Advanced Search* button to access the File History Advanced Search page.

There are three fields in the File History Simple Search page:

- **File name:** Enter the name of a file in this field. Do not include a directory path. This field is required and is case-sensitive. You can use the % wildcard symbol in combination with literal characters.
- **Changed From Date <begin date> To Date <end date>:** This field allows you to search for files that were updated during a specified period of time.

- **Language:** This drop down menu allows you to select the language of a file to be queried. You can select only one language in this field. To select multiple languages, go to the Advanced Search page.

You must enter a value in the File Name field, otherwise, a window will appear and request you to go back and enter a value. To submit the query, click the *Go* button. Click the *Reset* button to clear all search fields.

The results section displays the results of a query submitted through the search section. If the results section contains multiple pages of retrieved information, use the Previous and Next links or the drop down list to navigate from page to page. The retrieved information is presented in increments of 25 line items per page. Each line item represents the changing of a file due to its inclusion in a patch.

Details provided for a file are:

- APPL\_TOP Name: Name of the APPL\_TOP containing the files.
- Product: Product abbreviation for the product that owns the file.
- Directory: Path to the directory where the file is located.
- File: Name of the file.
- Version: Version number of the file.
- Changed Date: Date this version of the file was updated by a patch.
- Patch Details: Click on the patch number to see the Patch Details report for the patch the file was included in.
- Action Summary: Click on the icon to see the Action Summary report for the action that updated the file.

If a file has never been patched, "The above criteria resulted in no rows" appears in the APPL\_TOP Name column.

## File History: Advanced Search

### File History: Advanced Search

The Advanced Search button accesses the corresponding page:

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### File History: Advanced Search

Clicking the *Advanced Search* button in the File History Simple Search page opens the File History Advanced Search page. There are four search criteria, in addition to the three found on the Simple Search page, to narrow the results of a query. From this page you can:

- Search for version history of files that have been updated by a patch, by entering search criteria in one or more fields and clicking the *Go* button.
- Click the *Simple Search* button to access the File History Simple Search page.
- Access file history information migrated from another Oracle E-Business Suite system.

These are the available search options:

- **Applications System Name** (required): Defaults to the name of your Oracle E-Business Suite system. If you have migrated file history information from another system, and want to search those records, enter the name of that system.
- **APPL\_TOP name**: Name of the APPL\_TOP containing the files.
- **File name** (required): Enter the name of a file in this field. Do not include a directory path. This field is required and is case-sensitive.

- **Latest Version Only:** The options are Yes or No. Yes returns information for only the latest version of the file. No returns information for all versions of the selected file.
- **Changed From Date <begin date> To Date <end date>:** This field allows you to search for file history information spanning a specified period of time.
- **Language:** This list box allows you to select the language of a patch to be queried. You can select one language or multiple languages by selecting a language in the Available Languages box and clicking the *Move* button.

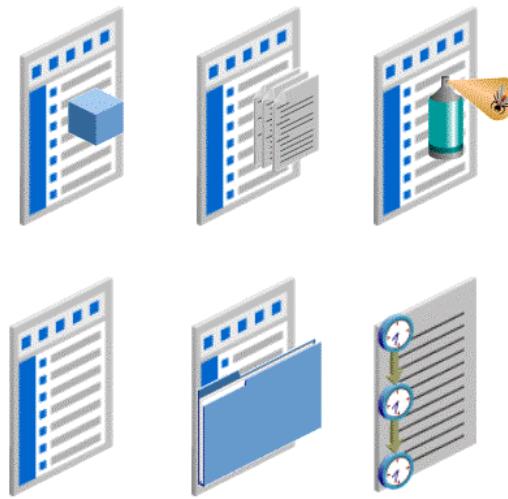
You must enter a value in the File Name field, otherwise, an error page appears requesting you to go back and enter a value. To submit the query, click the *Go* button. Click the *Reset* button to clear all search fields.

## Applied Patches Reports

### Applied Patches Reports

Six reports provide detailed results from the search pages:

- Patch Details report
- Files Copied report
- Bug Fixes report
- Action Summary report
- Action Details report
- Timing report



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### Applied Patches Reports

Most of these reports have a standard layout. The top portion of the report displays the search criteria and the bottom portion displays the results of the search. A navigation path appears at the top of each report and each item in the navigation path is a link. Clicking on the link accesses the respective search page or report.

Click the heading of a column to sort the information based on the content in that column. The sortable columns have column headings that appear three-dimensional. The sort alternates between ascending and descending each time you click the column heading.

When the reports contain multiple pages of retrieved information, use the Previous and Next links or the drop down list to navigate from page to page. The report information is presented in increments of 25 line items per page.

## Patch Details Report

**Patch Details Report**

The Patch Details report provides details of a specific patch, as well as patch summary information:

Select Driver File	Start Date	End Date	AutoPatch Options	Platform	Patch Top	Codelevel Introduced
<input checked="" type="radio"/> u7653746.drv	27-Jul-2009 11:26:21	27-Jul-2009 11:32:59	hetpatch	GENERIC	/slot/ems5482/appmgr/patches/7653746	<a href="#">[ ]</a>

### Patch Details Report

Clicking the Details link in a selected row from the results section of one of the Applied Patches search pages opens the Patch Details report. The Patch Details report provides details for a specific patch. The patch summary information is carried over from the Results section of the Applied Patches Search page and appears at the top of the Patch Details report.

This report contains the following information for a specific patch:

- **Select:** This option button determines which driver file details are presented in the Timing Details report, Files Copied report, the Bug Fixes report, or the Action Summary report.
- **Driver File:** Name of the driver file.
- **Start Date:** Date and time the application of the driver file began.
- **End Date:** Date and time the application of the driver file completed.
- **AutoPatch Options:** Any command line options used to run the driver file.
- **Platform:** Platform of the driver file.
- **Patch Top:** Location of the driver when it was run.
- **Codelevel Introduced:** This link will be enabled if the patch introduces new codelevels and the link will take you to Codelevel Introduced page.

To see additional details for a patch, click on one of the following buttons:

- **Timing Details:** Takes you to the AutoPatch Timing Details report for the particular patch session.
- **Files Copied:** Takes you to the Files Copied report.
- **Bug Fixes:** Takes you to the Bug Fixes report.
- **Action Summary:** Takes you to the Action Summary report.

## Files Copied Report

### Files Copied Report

The Files Copied report lists all files copied to the file system as a result of the actions in the selected driver file:

Product	Directory	File	Version
AD	xml/ oam/ patch/ advisor	DownloadPatches.ux	120.14.12010000.3
AD	java/ oam/ hardware/ timing	ViewLogFileDetailsHandler.class	120.2.1.2010000.2
AD	java/ advisor	PatchDownloadedHandler.class	120.11.12010000.3
AD	java/ oam/ resources	PatchResourceBundle.class	120.10.12010000.3
AD	java/ oam/ hardware/ advisor	SubmitPAJobHandler.class	120.16.12010000.2
AD	patch/ 115/ sql	adpatch.xls	120.3.1.2010000.2
AD	patch/ 115/ sql	adpatch.xls	120.2.1.2010000.2
AD	patch/ 115/ import/ US	adparepa.ltt	120.0.1.2010000.2
AD	patch/ 115/ sql	ademusr.sql	120.8.1.2010000.2
AD	xml/ oam/ patch/ advisor	RecommendPatches.ux	120.16.12010000.2
AD	xml/ oam/ patch/ advisor	RecommendPatches_support.ux	120.10.12010000.3
AD	java/ advisor	PAAnalysis.class	120.11.12010000.2
AD	java/ advisor	PAJobLoad.class	120.1.1.2010000.2
AD	java/ advisor	PAJobLoad.class	120.5.1.2010000.3
AD	java/ oam/ hardware/ timing	ADUHTimingComparator.class	120.2.1.2010000.2
AD	java/ oam/ hardware/ timing	TimingReportComparator.class	120.4.1.2010000.2
AD	java/ oam/ hardware/ advisor	SubmitPAJob.class	120.7.1.2010000.2
AD	java/ oam/ hardware/ advisor	ViewAdviceComparator.class	120.2.1.2010000.2
AD	java/ oam/ hardware/ advisor	RecommendPreqComparator.class	120.2.1.2010000.2
AD	java/ oam/ hardware/ advisor	ViewPreqResultsComparator.class	120.3.1.2010000.2
AD	java/ oam/ hardware/ advisor	AdmPatchResultsComparator.class	120.1.1.2010000.2
AD	java/ oam/ hardware/ advisor	RecommCostsEvaluator.class	120.2.1.2010000.2
AD	java/ oam/ hardware/ advisor	SetInPatchAdvisorComparator.class	120.1.1.2010000.2
AD	java/ oam/ hardware/ history	JobTimingComparator.class	120.3.1.2010000.2
AD	java/ oam/ hardware/ history	PhaseInfoComparator.class	120.3.1.2010000.2

### Files Copied Report

Select a driver file in the Patch Details report and click the Files Copied button to access the Files Copied report. This report lists all files copied to the file system as a result of the actions in the selected driver file. This report provides the following information about the files copied:

- Product:** Product short name for the product that owns the file.
- Directory:** Directory path where the file was copied.
- File:** Name of the file.
- Version:** Version number of the copied file.

If there are no files copied in the patch, no rows are displayed. If the number of files copied exceeds 200, the report lists only the first 200 files. Use the filter to reduce the number of files in the report.

## Bug Fixes Report

### Bug Fixes Report

The Bug Fixes report lists all bug fixes included in the selected driver file:

Bug Fix	Product	Applied	Remarks
7653746	ad	Y	
6728188	ad	Y	
6830043	ad	Y	
8317506	ad	Y	
8526419	ad	Y	
8644609	ad	Y	

### Bug Fixes Report

Select a driver file in the Patch Details report and click the Bug Fixes button to access the Bug Fixes report. This report lists all bug fixes included in the selected driver file. Each line item represents a bug fix. This report provides the following information about bug fixes:

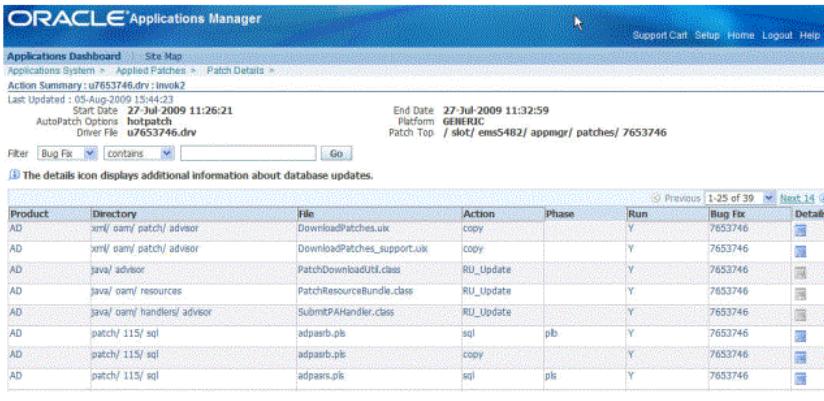
- Bug Fix:** Bug number of the bug fixed as a result of the selected driver file. The first item in this column is usually a link clicking on it accesses the Action Summary report.
- Product:** Product abbreviation for the product whose bug was fixed.
- Applied:** Represents whether the bug fix was applied.
- Reason Not Applied:** If the bug fix was not applied, the reason is stated here.

If there are no bug fixes in the patch, no rows are displayed. If the number of files copied exceeds 200, the report lists only the first 200 bug fixes. Use the filter to reduce the number of bug fixes in the report.

## Action Summary Report

**Action Summary Report**

The Action Summary report provides summary information on the actions of a selected driver file:



Product	Directory	File	Action	Phase	Run	Bug Fix	Details
AD	xml/ oam/ patch/ advisor	DownloadPatches.uk	copy		Y	7653746	
AD	xml/ oam/ patch/ advisor	DownloadPatches_support.uk	copy		Y	7653746	
AD	java/ advisor	PatchDownloadUtil.class	RU_Update		Y	7653746	
AD	java/ oam/ resources	PatchResourceBundle.class	RU_Update		Y	7653746	
AD	java/ oam/ handlers/ advisor	SubmitPAHandler.class	RU_Update		Y	7653746	
AD	patch/ 115/ sql	adpaarb.xls	sql	pb	Y	7653746	
AD	patch/ 115/ sql	adpaarb.xls	copy		Y	7653746	
AD	patch/ 115/ sql	adpaars.xls	sql	pls	Y	7653746	

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### Action Summary Report

The Action Summary report is accessed by one of two methods:

- By selecting a driver file in the Patch Details report and clicking the *Action Summary* button.
- By clicking a bug fix number in the Bug Fix column of the Bug Fixes report.

This report provides summary information for the actions of a selected driver file. Each line item represents a performed action. The Action Summary report provides the following summary information:

- **Product:** Product short name for the product that owns the file referenced by the action.
- **Directory:** Directory path for the file referenced by the action.
- **File:** Name of the file referenced by the action.
- **Before Version:** Version of the file before the update.
- **After Version:** Version of the file after the update
- **Action:** Type of action performed on the updated file.
- **Phase:** Phase in which the action occurred.
- **Run:** Signifies whether the action was executed.

- **Bug Fix:** Bug number of the bug fixed as a result of the selected driver file.
- **Details:** This link is active if AutoPatch performed database actions. Click this link to access the Action Details report.

You can sort each of these columns by clicking the column title at the top of the report. If the number of actions exceeds 200, the report lists only the first 200. Use the filter to reduce the number of items in the report.

## Action Details Report

**Action Details Report**

The Action Details report provides additional information on the actions of a selected driver file:

Arguments	Command Modifier	Check Object	Elapsed Time	Start Time	Restart Time	End Time	Restarted?
N/A	package	none none none	1 sec	27-Jul-2009 11:31:43		27-Jul-2009 11:31:44	N

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### Action Details Report

The Action Detail report is accessed by clicking the details link in a selected row of the Action Summary report. The Action Summary information is carried over and presented at the top of the Action Detail report.

The action details provided are:

- Arguments:** Specific arguments for SQL and EXEC commands.
- Command Modifier:** SQL or EXEC command modifier.
- Check Object:** Name of the database object to check for, along with name and password of the schema where AutoPatch looks for the check object. (This is "none none none" for most SQL commands, and is not specified for EXEC commands.)
- Elapsed Time:** Time required to complete the action.
- Start Time:** Date and time the action began.
- Restart Time:** Date and time the action was restarted.
- End Time:** Date and time the action completed.
- Restarted?:** States whether the action was restarted.

“N/A” in the report represents action details that are not specified. For example, in the Arguments field, N/A means no additional arguments were specified.

## Module Summary

### Module Summary

In this module, you should have learned how to do the following:

- Describe the features of OAM Applied Patches
- Search for applied patch information
- Search for file history information
- Identify the Applied Patches report
- Access the Applied Patches reports

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## Module Discussion

### Module Discussion

- Describe the features of OAM Applied Patches
- Describe how the recording of applied patch information relates to different modes of AutoPatch
- What are the advantages of the advanced search pages?
- What situations might require the use of the Applied Patches reports?

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# **Cloning Oracle E-Business Suite**

**Chapter 27**



## Cloning Oracle E-Business Suite

### Cloning Oracle E-Business Suite

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## Objectives

### Objectives

At the end of this module, you should be able to do the following:

- Describe situations that may require cloning
- Describe the Rapid Clone utility
- Detail the phases of the cloning process
- Perform the steps within each phase

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## Module Overview

### Module Overview

This module consists of the following topics:

- Principles and Terminology
- Cloning Scenarios
- Cloning Phases
- Rapid Clone Utility
- Prerequisite Steps
- Cloning Steps
- Finishing Tasks

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## Principles and Terminology

### Principles and Terminology

Cloning refers to the action of creating an identical copy of an existing Oracle E-Business Suite system

The existing and new systems must initially be identical in:

- Component versions
- Platform type

The following terms are used to identify the systems:

- Source system - the system to be cloned
- Target system - the newly created (cloned) system

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### Cloning Principles and Terminology

Simply copying all the components of an existing Oracle E-Business Suite system to a new location will not provide you with a working duplicate. For example, there are numerous configuration files in the file system whose contents must reflect the physical topology of a specific system.

## Cloning Scenarios

### Cloning Scenarios

Situations that may require cloning of an E-Business Suite system include:

- Creating a copy of a production system for testing (an example of standard cloning)
- Adding new machines to a system to meet an increased workload (an example of system scale-up)
- Migrating an existing system to a new platform (an example of system transformation)
- Creating a rolling environment to reduce patching downtime (an example of cloning being used to support maintenance)

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### Cloning Scenarios

Usage of cloning by Oracle E-Business Suite is subject to a process of continuous enhancement and extension.

## Overview of the Cloning Process

### Overview of the Cloning Process

The overall cloning process can be divided into the following stages:

- Prerequisite steps
- Clone Oracle E-Business Suite
  - Prepare the source system
  - Copy the source system to the target system
  - Configure target system
- Perform finishing tasks
- Test the target system

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### Overview of the Cloning Process

The cloning process is periodically updated, for example by the provision of new patches or additional cloning options. See My Oracle Support Knowledge Document 406982.1, *Cloning Oracle Applications Release 12 with Rapid Clone*.

## Overview of Prerequisite Steps

### Overview of Prerequisite Steps

Cloning prerequisite steps include:

1. Verify operating system requirements on target system
2. Verify source and target node software versions
3. Apply the latest AD patch
4. Apply the latest AutoConfig template patch
5. Apply the latest Rapid Clone patches
6. Run AutoConfig on the application tier
7. Synchronize appsutil on the database tier nodes
8. Run AutoConfig on the database tier
9. Maintain snapshot information

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### Overview of Prerequisite Steps

Various prerequisite steps must be undertaken before the actual cloning operation. Several of these are described in more detail on the following slides.

The most fundamental step is to ensure that the target system meets all the requirements for Oracle E-Business Suite Release 12.1, as listed in the generic *Oracle E-Business Suite Release Notes* and the specific Installation and Upgrade Note for each platform.

## Verify Source and Target Nodes Software Versions: Perl

### Verify Source and Target Nodes Software Versions: Perl

#### Perl

Minimum version	5.x
Location	All target system nodes
Details	You can use the Perl shipped with OracleAS10.1.3 and RDBMS 10g, or download it from Perl.com. Perl must be in the PATH and PERL5LIB must be correctly set.

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## Verify Source and Target Nodes Software Versions: Zip

### Verify Source and Target Nodes Software Versions: Zip

#### Zip

Minimum version	2.3
Location	All source system nodes
Details	You can download Zip from <a href="http://www.info-zip.org/">http://www.info-zip.org/</a> . Zip must be in your PATH for cloning.

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## Verify Source and Target Nodes Software Versions: Unzip

### Verify Source and Target Nodes Software Versions: Unzip

#### Unzip

Minimum version	5.52
Location	All source system nodes
Details	You can download Unzip from <a href="http://www.info-zip.org/">http://www.info-zip.org/</a> . Unzip must be in your PATH for cloning.

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## Verify Source and Target Nodes Software Versions: OS Utilities

### Verify Source and Target Nodes Software Versions: OS Utilities

#### Operating System Utilities

Minimum version	N/A
Location	All target system nodes
Details	Requisite OS utilities must be in the PATH when running adcfgclone.pl. On UNIX, these include make, Id, and ar.

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### Verify Source and Target Nodes Software Versions

See *Oracle E-Business Suite Installation Guide: Running Rapid Install* for details of the operating system utilities needed on each supported platform.

## Apply the Latest AD Patch

### Apply the Latest AD Patch

Update your Oracle E-Business Suite system's AD code by:

- Applying the latest AD patch available
- For example, patch 6510214 (R12.AD.A.DELTA.4) or higher

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### Apply the Latest AD Patch

Refer to My Oracle Support to identify and obtain the latest AD patch available.

## Apply the Latest AutoConfig Template Patch

### Apply the Latest AutoConfig Template Patch

Update the Oracle E-Business Suite file system with the latest AutoConfig template files by:

- Applying the latest TXK AutoConfig Template rollup patch to all application tier server nodes

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### Apply the Latest AutoConfig Template Patch

For details of the latest AutoConfig Template rollup patch, see My Oracle Support Knowledge Document 387859.1, *Using AutoConfig to Manage System Configurations in Oracle E-Business Suite Release 12*.

## Apply the Latest Rapid Clone Patches

### Apply the Latest Rapid Clone Patches

Update the Oracle E-Business Suite file system with the latest Rapid Clone files by:

- Applying the latest Rapid Clone patches to all application tier server nodes

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### Apply the Latest Rapid Clone Patches

Refer to My Oracle Support to identify and obtain the latest Rapid Clone patches.

## Run AutoConfig on the Application Tier

### Run AutoConfig on the Application Tier

To run AutoConfig on the application tier:

- UNIX:

```
$ <INST_TOP>/admin/scripts/adautocfg.sh
```

- AutoConfig prompts for the APPS password

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## Synchronize Applications Utilities on the Database Tier Nodes

### Synchronize Applications Utilities on the Database Tier Nodes

Update the <RDBMS\_ORACLE\_HOME> file system with the relevant files by performing the following steps:

- On the application tier (as the applmgr user):
  - Log in to the APPL\_TOP environment and source the environment file
  - Run Perl to create appsutil.zip file in <INST\_TOP>/admin/out
    - `perl <AD_TOP>/bin/admkappsutil.pl`
- On the database tier (as the oracle user):
  - Copy or ftp the appsutil.zip file from <INST\_TOP>/admin/out to the <RDBMS\_ORACLE\_HOME>
  - Change directory to the <RDBMS\_ORACLE\_HOME>
  - Unzip the appsutil.zip file
    - `unzip -o appsutil.zip`

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### Synchronize Applications Utilities on the Database Tier Nodes

See My Oracle Support Knowledge Document 387859.1, *Using AutoConfig to Manage System Configurations in Oracle E-Business Suite Release 12*, for details of updating the utility files on the database tier nodes.

## Run AutoConfig on the Database Tier

### Run AutoConfig on the Database Tier

To run AutoConfig on the database tier:

- UNIX:

```
$ <RDBMS_ORACLE_HOME>/appsutil/scripts/ \
<CONTEXT_NAME>/adautocfg.sh
```

- AutoConfig prompts for the APPS password

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## Maintain Snapshot Information

### Maintain Snapshot Information

As the applmgr user:

- Log on to each application tier node
- Run 'Maintain Snapshot information' in AD Administration

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### Maintain Snapshot Information

Log on to each application tier node as the applmgr user, and run 'Maintain Snapshot information' in AD Administration.

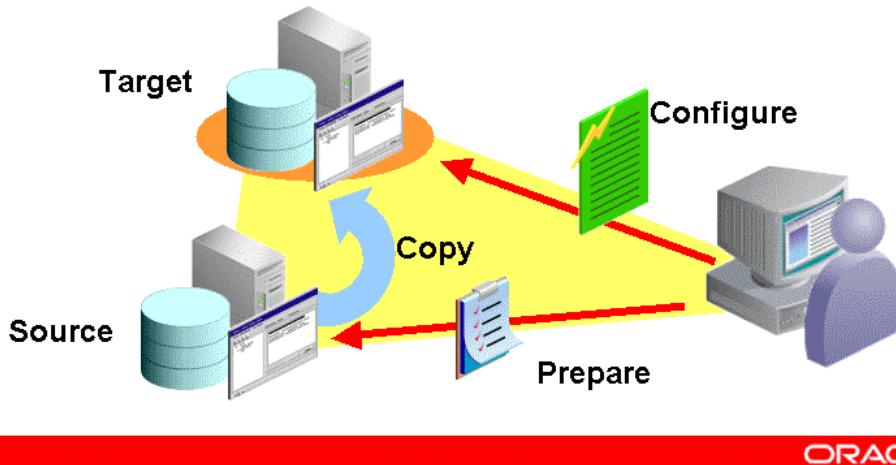
See *Oracle E-Business Suite Maintenance Utilities* for more details.

## Cloning Phases

### Cloning Phases

The actual cloning actions are divided into three phases:

- Prepare the source system
- Copy the source system to the target system
- Configure the target system



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### Cloning Phases

On the source system, Rapid Clone creates template files for cloning. The source system configuration is not changed.

After the source system is copied to the target system, Rapid Clone updates these templates to contain the new target system configuration settings.

## Prepare the Source System Database Tier for Cloning

### Prepare the Source System Database Tier for Cloning

Log on to the source system as the oracle user and run the following commands:

```
$ cd <RDBMS_ORACLE_HOME>/appsutil/scripts/ \
<CONTEXT_NAME>
$ perl adpreclone.pl dbTier
```

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## Prepare the Source System Application Tier for Cloning

### Prepare the Source System Application Tier for Cloning

Log on to the source system as the applmgr user, and run the following commands on each node with an APPL\_TOP:

```
$ cd <INST_TOP>/admin/scripts  
$ perl adpreclone.pl appsTier
```

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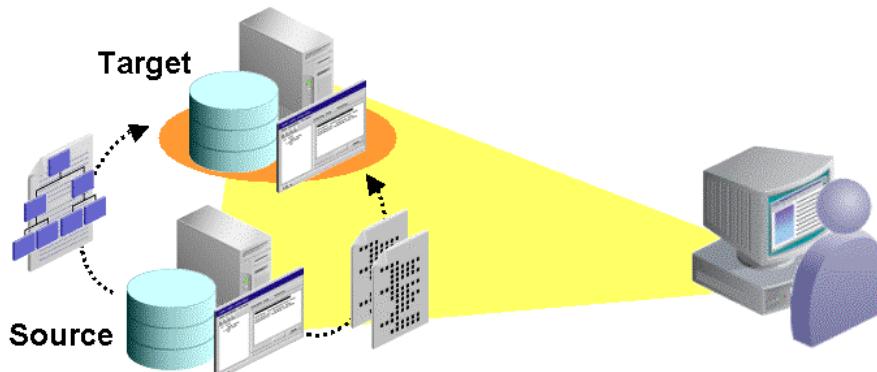
### Prepare the Source System Application Tier for Cloning

If new Rapid Clone or AutoConfig updates are applied to the system, adpreclone.pl must be run again on the database tier and application tier, to apply the new files that will be used later use in the cloning process.

## Copy Source System Files to Target System

### Copy Source System Files to Target System

- Copy the application tier file system from the source Oracle E-Business Suite system to the target system
- Ensure the application tier files copied to the target system are owned by the target system applmgr user, and that the database tier files are owned by the oracle user



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### Copy Source System Files to Target System

On most UNIX platforms, commands such as the following can be used:

```
% cd /target_dest_dir/db  
% cp -RH /source_dir/db/* .
```

Specifying -RH ensures that the symbolic links (soft links) are preserved when copying. The UNIX man page for the cp command will show the parameters available on a particular platform.

Alternatively, the tar command can be used to compress the directories into a temporary staging area. If you use this command, you may require the -h option to follow symbolic links, as following symbolic links is not the default behavior on all platforms. Consult the UNIX man page for the tar command.

## Copy the Application Tier File System

### Copy the Application Tier File System

- Log on to the source system application tier nodes as the applmgr user
- Shut down the application tier server processes
- Copy the following application tier directories from the source node to the target application tier node:
  - <APPL\_TOP>
  - <COMMON\_TOP>
  - Technology Stack
    - <OracleAS 10.1.2 ORACLE\_HOME>
    - <OracleAS 10.1.3 ORACLE\_HOME>

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## Copy the Database Tier File System

### Copy the Database Tier File System

- Log on to the source system database node as the oracle user
- Perform a normal shutdown of the source system database
- Copy the database (.dbf) files from the source to the target system
- Copy the source database ORACLE\_HOME to the target system
- Start up the source Oracle E-Business Suite system database and application tier processes

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## Configure the Target System Database Node

### Configure the Target System Database Node

Log on to the target system as the oracle user and enter the following commands to configure and start the database:

```
$ cd <RDBMS_ORACLE_HOME>/appsutil/clone/bin  
$ perl adcfgclone.pl dbTier
```

- Supply answers to the various prompts that appear, or accept the defaults

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## Configure the Target System Application Server Nodes

### Configure the Target System Application Server Nodes

Log on to the target system as the applmgr user and enter the following commands:

```
$ cd <COMMON_TOP>/clone/bin  
$ perl adcfgclone.pl appsTier
```

- Supply answers to the various prompts that appear, or accept the defaults

The red bar spans the width of the page below the command-line box.

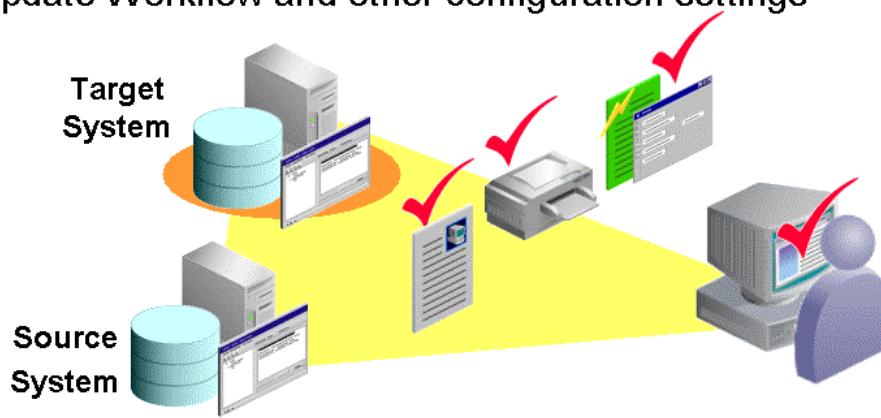
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## Finishing Tasks: Overview

### Finishing Tasks: Overview

Carry out finishing tasks such as:

- Update profile options
- Update printer settings
- Update Workflow and other configuration settings



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### Finishing Tasks: Overview

The final stage is to carry out finishing tasks as applicable. These may include updating profile options, updating printer settings, and updating Workflow and other configuration settings.

## Finishing Tasks: Overview

### Finishing Tasks: Overview

- 1. Update profile options**
  - Rapid Clone updates only site-level profile options
  - If any other profile options are set to instance-specific values, you must update them manually
- 2. Update printer settings**
  - If the new cloned system utilizes different printers, update the target system with the new printer settings
- 3. Update Workflow and other configuration settings**
  - Cloning an instance will not update the host- and instance-specific information used by Oracle Workflow and other components
  - Refer to the following slides to confirm there is no instance-specific data on the target system

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## Finishing Tasks: Update Instance-Specific Settings

### Finishing Tasks: Update Instance-Specific Settings

Table Name:	WF_NOTIFICATION_ATTRIBUTES
Column Name:	TEXT_VALUE
Column Value Details:	Value starts with http://<old web host>. Update to new web host

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## Finishing Tasks: Update Instance-Specific Settings

### Finishing Tasks: Update Instance-Specific Settings

Table Name:	WF_ITEM_ATTRIBUTE_VALUES
Column Name:	TEXT_VALUE
Column Value Details:	Value starts with http://<old web host>. Update to new web host

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## Finishing Tasks: Update Instance-Specific Settings

### Finishing Tasks: Update Instance-Specific Settings

Table Name:	WF_SYSTEMS
Column Name:	GUID
Column Value Details:	Using the Workflow Administrator Web Applications responsibility, create a new system defined as the new global database name

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## Finishing Tasks: Update Instance-Specific Settings

### Finishing Tasks: Update Instance-Specific Settings

Table Name:	WF_SYSTEMS
Column Name:	NAME
Column Value Details:	Replace value with the database global name

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## Finishing Tasks: Update Instance-Specific Settings

### Finishing Tasks: Update Instance-Specific Settings

Table Name:	WF_AGENTS
Column Name:	ADDRESS
Column Value Details:	Update database link with new database global name

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## Finishing Tasks: Update Instance-Specific Settings

### Finishing Tasks: Update Instance-Specific Settings

Table Name:	FND_FORM_FUNCTIONS
Column Name:	WEB_HOST_NAME
Column Value Details:	Update with the new web host name

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## Finishing Tasks: Update Instance-Specific Settings

### Finishing Tasks: Update Instance-Specific Settings

Table Name:	FND_FORM_FUNCTIONS
Column Name:	WEB_AGENT_NAME
Column Value Details:	Update to point at the new PL/SQL listener name

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## Finishing Tasks: Update Instance-Specific Settings

### Finishing Tasks: Update Instance-Specific Settings

Table Name:	FND_CONCURRENT_REQUESTS
Column Name:	LOGFILE_NAME
Column Value Details:	Update with the correct path to the log file directory

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## Finishing Tasks: Update Instance-Specific Settings

### Finishing Tasks: Update Instance-Specific Settings

Table Name:	FND_CONCURRENT_REQUESTS
Column Name:	OUTFILE_NAME
Column Value Details:	Update with the new directory path on the target system

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## Finishing Tasks: Final

### Finishing Tasks: Final

- Verify the setting of the APPLCSF environment variable
  - To modify it if needed, update the value of the s\_applcsf variable in the context file, and run AutoConfig
- Verify the value of SESSION\_COOKIE\_DOMAIN in ICX\_PARAMETERS
  - This will need to be updated if:
    - The target system is in a different domain from the source system
    - SESSION\_COOKIE\_DOMAIN was not null in the source system

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## Finishing Tasks: Final

**Verify the APPLCSF variable setting:** Source the APPS environment and review that the variable APPLCSF (identifying the top-level directory for concurrent manager log and output files) points to a suitable directory. To modify it, change the value of the s\_applcsf variable in the context file and run AutoConfig on the application tier.

**Update SESSION\_COOKIE\_DOMAIN value in ICX\_PARAMETERS:** If the target system is in a different domain to the source system, and SESSION\_COOKIE\_DOMAIN was not null in the source system, update that value to reflect the new domain name.

## Module Summary

### Module Summary

In this module, you should have learned how to do the following:

- Describe situations where cloning can be used
- Describe the Rapid Clone utility
- Detail the phases of the cloning process
- Perform the steps within each of the phases
- Perform the finishing tasks to complete cloning

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## Module Discussion

### Module Discussion

- Describe some situations where cloning may be required
- Into what stages can the overall cloning process be divided?
- List the three phases into which the actual cloning actions are divided

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# **Advanced Cloning Options**

## **Chapter 28**



## Advanced Cloning Options

### Advanced Cloning Options

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## Objectives

### Objectives

At the end of this module, you should be able to do the following:

- Refresh a target system
- Clone a multi-node system
- Add a node to an existing system

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## Module Overview

### Module Overview

This module consists of the following topics:

- Refreshing a target system
- Cloning a multi-node system
- Adding a node to an existing system

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### Overview

As described in the previous module, the following terms are used to identify the systems:

- Source system: the system to be cloned.
- Target system: the newly-created (cloned) system.

## Refreshing a Target System

### Refreshing a Target System

You may need to refresh a target system periodically, to synchronize it with changes made on the source system

- Prepare the source system as described in the previous module

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## Refreshing a Target System

### Refreshing a Target System

- Copy any parts of the application tier file system that have been updated on the source system
  - The APPL\_TOP, COMMON\_TOP, or technology stack may need to be refreshed on the target system
- Copy the database node file system if the RDBMS\_ORACLE\_HOME or database need to be refreshed
  - If refreshing the database, refresh the RDBMS\_ORACLE\_HOME at the same time

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## Refreshing a Target System

### Refreshing a Target System

- Configure the target system to be refreshed by running adcfgclone:

```
perl adcfgclone.pl dbTier \
<RDBMS_ORACLE_HOME>/appsutil/<Database context
file>

perl adcfgclone.pl appsTier \
<INST_TOP>/appl/admin/Applications context
file>
```

- Where:
  - Database context file is:  
`<RDBMS_ORACLE_HOME>/appsutil/<CONTEXT_NAME>.xml`
  - APPL\_TOP context file is:  
`<INST_TOP>/appl/admin/<CONTEXT_NAME>.xml`

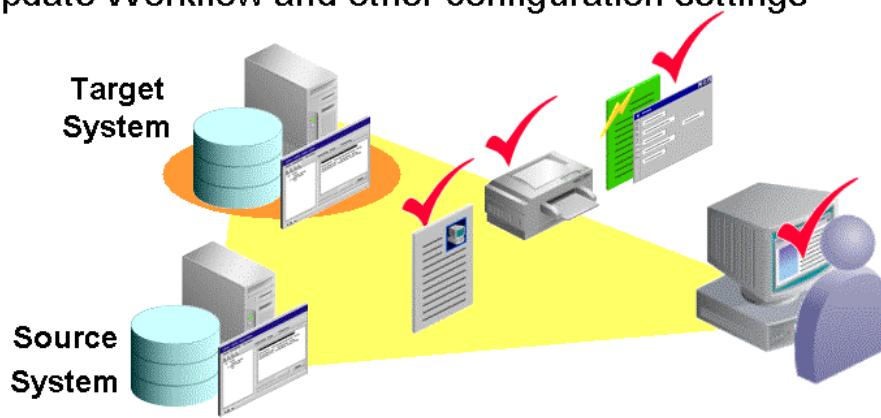
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## Refreshing a Target System

### Refreshing a Target System

Carry out finishing tasks such as:

- Update profile options
- Update printer settings
- Update Workflow and other configuration settings



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### Refreshing a Target System

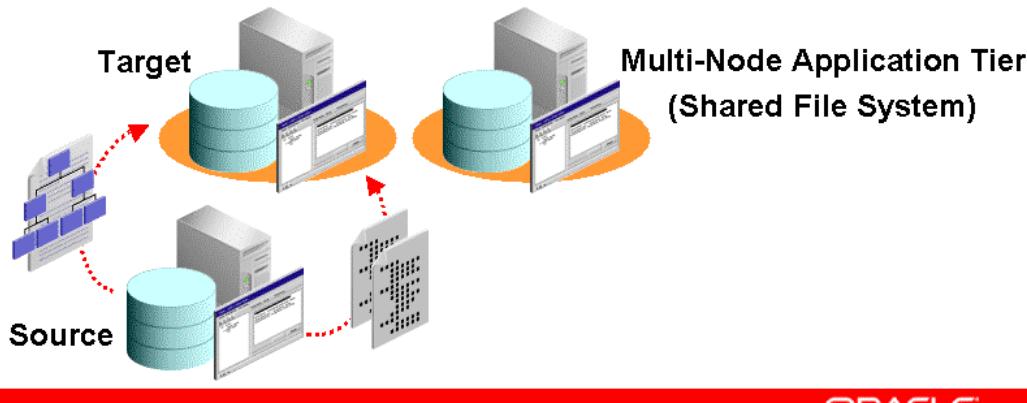
The final stage is to carry out applicable finishing tasks as described in the previous module (update profile options, update printer settings, update Workflow and other configuration settings).

## Cloning Multi-Node Systems

### Cloning Multi-Node Systems

With a multi-node source or target system, only one copy of the application tier files needs to be copied to the target system

- This is because all since Release 12 uses a unified APPL\_TOP by default, with all files being present on every application tier node



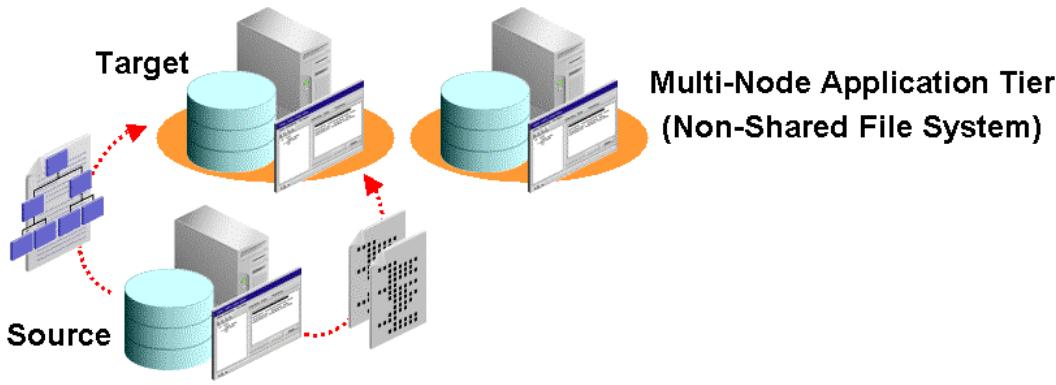
### Cloning Multi-Node Systems

Rapid Clone can be used where the source system or target system is a multi-node system. From Release 12, all APPL\_TOPs are unified APPL\_TOPs: that is, all files required for all application tier services are installed on every application tier node, with different nodes being differentiated by the services started on each. Therefore, only one copy of the application tier files needs to be copied to the target system, regardless of whether a shared file system is being used on the source or target system.

## Cloning Multi-Node Systems

### Cloning Multi-Node Systems

- Creating more than one application tier node on the target system requires a full clone of the database node and primary application tier node
- Either shared or non-shared file system application tier nodes can then be added



### Cloning Multi-Node Systems

When creating more than one application tier node on the target system, you must first perform a full clone of the database node and primary application tier node.

To add shared application tier nodes on the target system, follow the instructions in My Oracle Support Knowledge Document 384248.1, *Sharing the Application Tier File System in Oracle E-Business Suite Release 12*.

To add non-shared application tier nodes, carry out the copy and configure steps in the same way as on the primary node.

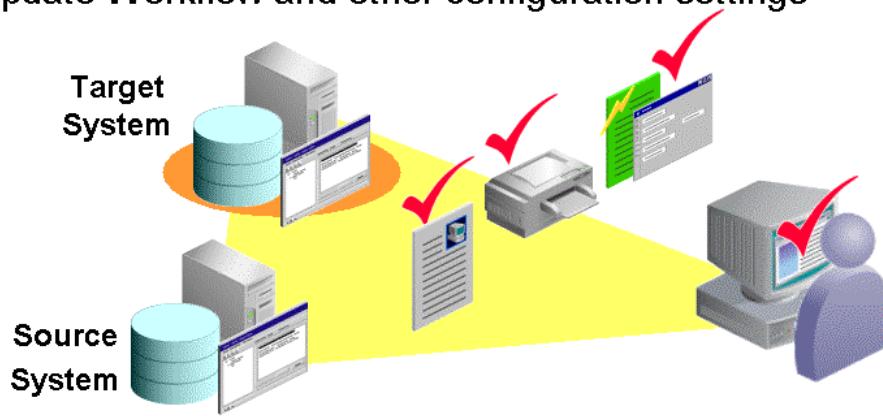
You can specify the services to start for each target application tier node when answering the prompts during the configuration step.

## Cloning Multi-Node Systems

### Cloning Multi-Node Systems

Carry out finishing tasks such as:

- Update profile options
- Update printer settings
- Update Workflow and other configuration settings



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### Cloning Multi-Node Systems

The final stage is to carry out applicable finishing tasks as described in the previous module (update profile options, update printer settings, update Workflow and other configuration settings).

## Adding a New Node to an Existing System

### Adding a New Node to an Existing System

- You can also use Rapid Clone to set up a new node being added to an existing Oracle E-Business Suite system
- The new node can either run the same services as the source node, or different services
- Prepare the source system, copy it to the new node and configure it as applicable
- After adcfgclone completes, set up the environment and run the following commands on the target system:

```
$ cd <COMMON_TOP>/clone/bin  
$ perl adaddnode.pl
```

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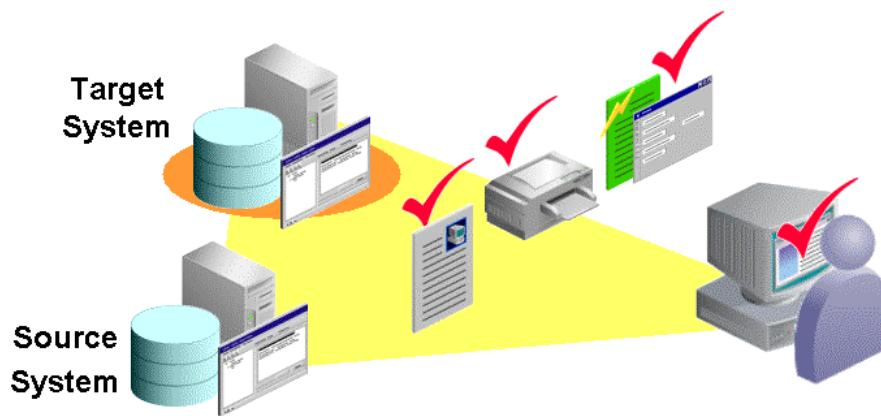
### Adding a New Node to an Existing System

After adding new nodes, see My Oracle Support Knowledge Document 380489.1, *Using Load-Balancers with Oracle E-Business Suite Release 12*, for details of how to set up load balancing.

## Adding a New Node to an Existing System

### Adding a New Node to an Existing System

- Update profile options
- Update printer settings
- Update Workflow and other configuration settings



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### Adding a New Node to an Existing System

The final stage is to carry out applicable finishing tasks as described in the previous module (update profile options, update printer settings, update Workflow and other configuration settings).

## Other Advanced Cloning Options

### Other Advanced Cloning Options

Other advanced cloning options include:

- **Cloning an Oracle RAC system**
- **Adding a node to an existing Oracle RAC cluster**
  - From Release 12, Rapid Clone is no longer used to migrate a database tier to Oracle RAC
- **Cloning the database separately**
  - Some situations require the database to be recreated without using Rapid Clone
  - For example, when system downtime is not feasible, or copy the database is being copied in hot backup mode

See slide notes page for applicable references

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## Other Advanced Cloning Options

These include:

### • **Cloning an Oracle RAC system**

Refer to My Oracle Support Knowledge Document 559518.1.

### • **Adding a node to an existing Oracle RAC cluster**

From Release 12, Rapid Clone is no longer used to migrate a database tier to Oracle RAC.

Refer to My Oracle Support Knowledge Document 745759.1.

### • **Cloning the database separately**

Some situations require the database to be recreated without using Rapid Clone. For example, when system downtime is not feasible, or copy the database is being copied in hot backup mode.

Refer to My Oracle Support Knowledge Document 406982.1.

## Module Summary

### Module Summary

In this module, you should have learned how to do the following:

- Refresh a target system
- Clone a multi-node system
- Add a node to an existing system
- Identify other advanced cloning scenarios

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## Module Discussion

### Module Discussion

- Name some situations that may require refreshing a cloned Oracle E-Business Suite system
- When cloning a multi-node system, what distinguishes multiple application tier nodes from each other?
- What additional steps may be needed after a new node is added to an existing system?
- List three standard finishing tasks that may need to be performed after cloning operations

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