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PEOPLESOFT

Getting Started on Your PeopleSoft Application Upgrade

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About This Documentation

Understanding This Documentation

This documentation is designed to get you ready for your upgrade of Oracle's PeopleSoft software. You must complete the tasks in this guide before beginning the actual upgrade. The tasks in this document will guide you through planning your upgrade as well as installing the necessary software.

This preface describes information that you should know, including PeopleSoft-specific documentation conventions, before you begin working with PeopleSoft products and documentation.

Audience

This guide assumes that you have a basic understanding of PeopleSoft software. One of the most important components of a successful upgrade of your PeopleSoft system is your on-site expertise. You should be familiar with your operating hardware environment and have the necessary skills to support that environment. You should also have a working knowledge of:

- SQL and SQL command syntax
- PeopleSoft system navigation
- PeopleSoft windows, menus, and pages and how to modify them
- Microsoft Windows

Oracle recommends that you complete training before performing an upgrade.

See Oracle University <http://education.oracle.com>.

For the purposes of this document, three groupings of project roles are identified as the primary audiences for this guide:

- Project management—Includes the project manager.
- Technical—Includes technical upgrade resources and PeopleSoft installers.
- Functional—Includes functional resources.

In the following section, Document Organization, each chapter is annotated with the primary audience for that chapter (and the secondary audience, as appropriate).

Document Organization

This guide is divided into chapters to assist you in planning your upgrade and installing the necessary software:

- "Planning Your Upgrade" (primary audience: product management; secondary audiences: technical and functional)
- "Understanding the Upgrade Process" (primary audience: technical)
- "Starting Your Upgrade" (primary audience: technical)
- "Reviewing Additional Upgrade Notes and Tips" (primary audience: technical; secondary audience:

functional)

This guide also contains appendixes. When additional information is relevant to an upgrade topic, you are directed to the appropriate appendix.

Typographical Conventions

To help you locate and understand information easily, this documentation uses the conventions listed in the following table:

Convention	Description
Monospace	Indicates a PeopleCode program or other code, such as scripts that you run during the upgrade. Monospace also indicates messages that you may receive during the upgrade process.
<i>Italic</i>	Indicates field values, emphasis, and book-length publication titles. Italic also refers to words as words or letters as letters, as in this example: Enter the letter <i>O</i> .
Initial Caps	Field names, commands, and processes are represented as they appear in the window, menu, or page.
lower case	File or directory names are represented in lower case unless they appear otherwise in the interface.
Menu, Page	A comma (,) between menu and page references indicates that the page exists in the menu. For example, "Select Use, Process Definitions" indicates that you can select the Process Definitions page from the Use menu.
Cross-references	Cross-references that begin with <i>See</i> refer you to additional documentation that will help you implement the task at hand. We strongly recommend that you reference this documentation. Cross-references under the heading <i>See Also</i> refer you to documentation that has additional information about the topic.
" " (quotation marks)	Indicate chapter titles in cross-references and words that are used differently from their intended meaning.
⇒ (line-continuation arrow)	A line-continuation arrow inserted at the end of a line of code indicates that the line of code has been wrapped at the page margin. The code should be viewed or entered as a continuous line of code, without the line-continuation arrow.
Note. Note text.	Text that begins with <i>Note</i> indicates information that you should pay particular attention to as you work with your PeopleSoft system.

Convention	Description
Important! Important note text.	A note that begins with <i>Important!</i> is crucial and includes information about what you need to do for the system to function properly.
Warning! Warning text.	A note that begins with <i>Warning!</i> contains crucial configuration information or implementation considerations; for example, if data might be lost or corrupted. Pay close attention to warning messages.

Related Information

Throughout this guide, you will find references to related information that may help with your PeopleSoft upgrade. You can find much of the following related information on My Oracle Support:

- Benchmark performance reports.
These reports provide performance information about those platforms that have been performance tested.
- PeopleSoft Change Assistant documentation.
- Hardware and software requirements guides.
The PeopleSoft hardware and software requirements guide and the application guide for your product list the hardware and software requirements for the new release.
- Installation guides.
The PeopleSoft application installation guide for your database platform and the application-specific guide for your product document how to install the new release.
- Oracle's PeopleTools product documentation, including:
 - *PeopleTools: Application Designer Developer's Guide* for your new release.
 - *PeopleTools: PeopleSoft Component Interfaces* for your new release.
 - *PeopleTools: Change Assistant and Update Manager* for your new release.
- Platform certifications.
Oracle lists supported platforms for PeopleSoft servers, clients, and third-party products.
- Product documentation.
The documentation for your product provides detailed product information.
- Red papers.
The PeopleSoft red paper library on My Oracle Support includes technical documents that provide details on topics such as online performance configuration guidelines.
- New Features Overview and Image Overview Updates.
New Features Overview and Image Overview Updates document what functionality has changed in each new release. Oracle produces New Features Overview for PeopleSoft PeopleTools and Image Overview Updates for application product releases.
- Upgrade guides.
Product-specific upgrade guides provide upgrade instructions for your particular upgrade path—that is, from your current release to your new release.

- Upgrade home pages.

The product-specific upgrade home page on My Oracle Support is the starting point for your upgrade. It contains the Upgrade Source Image, upgrade documentation, and links to related files.

- PeopleSoft Update Manager Home Page

This home page on My Oracle Support is the starting point for information about using PeopleSoft Update Manager (PUM). It contains information about the PUM installation and application maintenance processes.

Chapter 1

Planning Your Upgrade

This chapter discusses:

- Understanding How to Plan Your Upgrade
- Learning About the New Release
- Conducting a Business Fit/Gap Analysis
- Reviewing Technical Requirements
- Assessing Business Requirements
- Assembling Your Upgrade Project Team
- Creating the Upgrade Project Plan
- Defining a Testing Strategy
- Training Upgrade Team Members

Understanding How to Plan Your Upgrade

Upgrading Oracle's PeopleSoft software requires planning, resources, development, testing, and training. This chapter takes you through the planning process for your upgrade to ensure a smooth transition to the updated software.

This chapter is a planning guide for you and your team to make the arrangements and decisions needed before you begin the actual upgrade process. The tasks in this chapter help your team assess business requirements, review technical requirements, identify and train upgrade project team members, create the upgrade project plan, and define a testing strategy. Planning is essential for the successful implementation of a PeopleSoft upgrade; therefore, take the time to follow the tasks described in this chapter carefully.

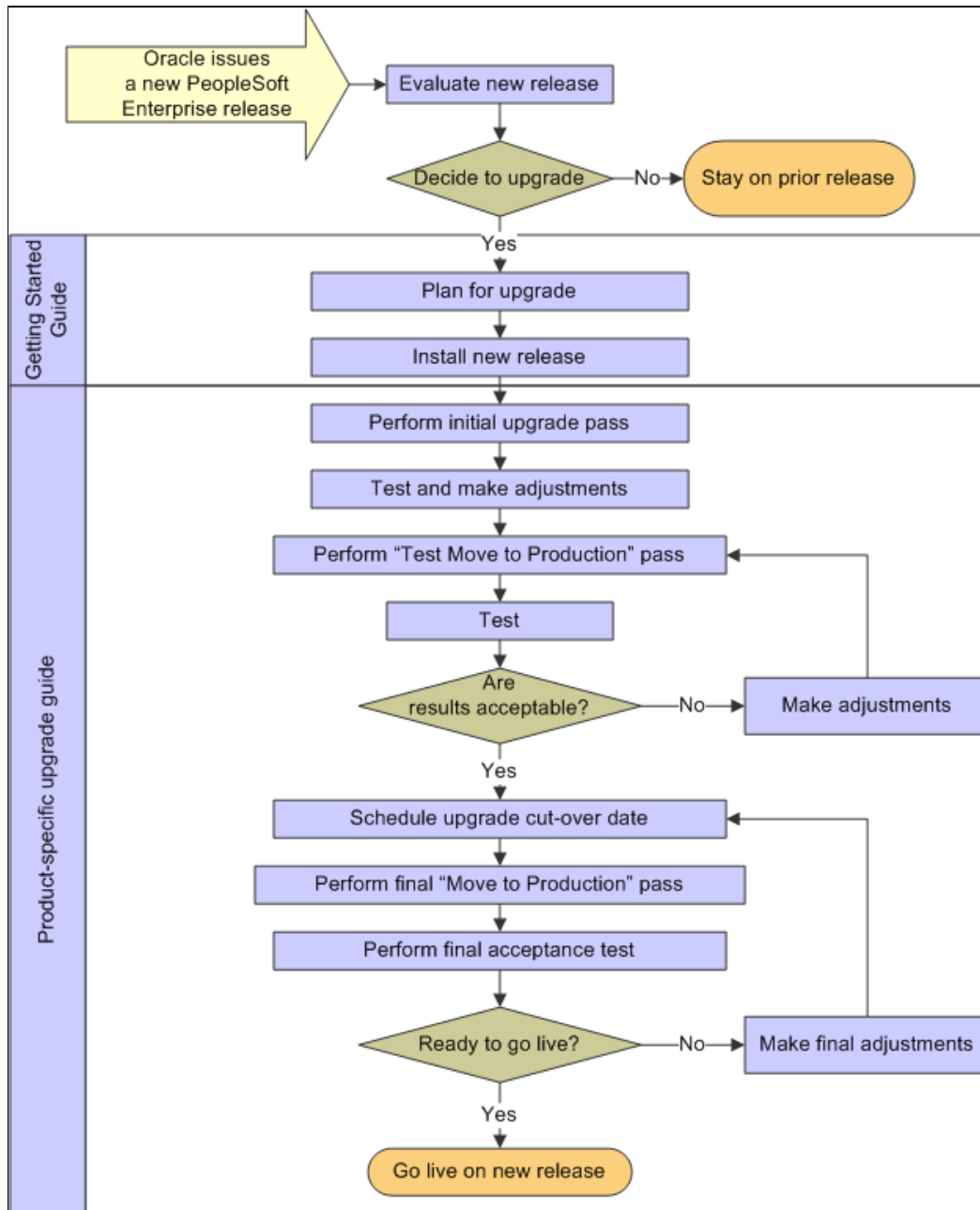
While this chapter was written primarily for upgrade project managers, project team members in technical and functional roles will also find that some of the planning tasks are relevant to their upgrade responsibilities.

The PeopleSoft upgrade process begins when Oracle issues a new PeopleSoft product release or a PeopleSoft PeopleTools release and ends when you have successfully upgraded to the new release. The upgrade process includes the following major activities:

- Evaluating the new release and deciding whether to upgrade
- Planning for your upgrade
- Installing the new release
- Performing the initial upgrade pass and one or more test Move to Production passes
- Testing and making adjustments after each pass
- Scheduling the upgrade cut-over date
- Performing the final Move to Production

- Performing the final acceptance test
- Making final adjustments
- Going live on the new release

This guide provides information to help you get started planning for your upgrade and installing the new release. You can find detailed information about the remaining tasks in the upgrade process in the product-specific upgrade guide for your upgrade path. The following diagram illustrates the major activities and decision points in the upgrade process:



PeopleSoft upgrade process

Task 1-1: Learning About the New Release

This section discusses:

- Understanding the New Release
- Reviewing the PeopleSoft Update Manager Home Page
- Reviewing New Features Overview and Image Overview Updates
- Reviewing Product Documentation
- Reviewing Red Papers
- Reviewing Installation and Upgrade Guides
- Reviewing Known Issues for Application Installation
- Attending Training Courses Recommended for Upgrades

Understanding the New Release

Documentation is an important part of your PeopleSoft system upgrade. Be sure to review all the documentation associated with your upgrade. Relevant documentation is posted on My Oracle Support or delivered with your software and includes:

- PeopleSoft Update Manager Home page.
- New Features Overview and Image Overview Updates.
- Product documentation.
- Red papers.
- The PeopleSoft application installation guide for your new release.
- The installation and upgrade guides for your product line, for the new release.

Task 1-1-1: Reviewing the PeopleSoft Update Manager Home Page

If you are upgrading to PeopleSoft 9.2 or higher, you must use PeopleSoft Update Manager (PUM) for all of your application maintenance needs. PUM is the application maintenance process introduced in PeopleSoft 9.2. This new process is mandatory and introduces hardware, software, and procedural requirements that you should consider when planning for upgrade activities, such as:

- Installing the new release and the images (Virtual Appliances).
- Applying Required at Upgrade fixes.
- Planning future maintenance.

Oracle strongly recommends that you read, review, and understand the following topics located on the PeopleSoft Update Manager Home page, My Oracle Support, Doc ID 1641843.2, before you begin your upgrade:

- What is PeopleSoft Update Manager?
- Using PeopleSoft Update Manager
- PeopleSoft Update Manager Hardware and Software Requirements
- Applying Required at Upgrade Patches with PUM
- PUM Best Practices and Maintenance Strategy

The remaining documentation found on the PeopleSoft Update Manager Home Page will guide you in installing Oracle VirtualBox (if applicable), applying the Virtual Box or Native OS version of the image, and using the PeopleSoft Update Images (PIs) for maintenance.

Important! Even though there are Known Issues documented on the PeopleSoft Update Manager Home Page for each update image level, the Update Image known issues should not be applied for upgrade.

See *Reviewing Known Issues for Application Installation*.

Review the videos posted on the PeopleSoft Update Manager Home Page for more information about the PUM installation and maintenance application processes.

If you are upgrading to PeopleSoft 9.1 or lower, you will continue to use the classic maintenance process that you have used in previous releases for your maintenance needs. For more information on the classic maintenance process, see *Patches and Updates for PeopleSoft Products*, My Oracle Support, Doc ID 1465172.1.

Note. Interaction Hub 9.1 is an exception as it uses PUM for applying Maintenance as of 9.1 Rev3.

Task 1-1-2: Reviewing New Features Overview and Image Overview Updates

Read the New Features Overview and Image Overview Updates before starting your upgrade. These documents were referred to as Release Notes in prior releases. They will help you to determine what has changed in the system and to familiarize yourself with the new features. Image Overview Updates provide detailed information about application changes. In addition to preparing you for the new features in the new release, the Image Overview Updates document is also valuable for the following tasks:

- Establishing test strategies.
For more information about establishing test strategies, see the *Defining a Testing Strategy* task.
- Determining end-user training needs.
Determining your end-user training needs before starting your upgrade will save you time and money.

You can download the New Features Overview and Image Overview Updates from My Oracle Support. Because these documents are not cumulative, you need to review them for each release that occurred after your current release through the new release.

Download and review the New Features Overview for PeopleSoft PeopleTools and Image Overview Updates for your product:

- **Download the New Features Overview for PeopleSoft PeopleTools**
Go to My Oracle Support and search for and download the PeopleSoft PeopleTools New Features Overview for the new release and for each PeopleSoft PeopleTools release between your current release and the new release.
- **Download the Image Overview Updates for your product**
Go to My Oracle Support and search for and download the Image Overview Updates for your product for the new release and for each product release between your current release and the new release.

Task 1-1-3: Reviewing Product Documentation

If you need additional information after reading the New Features Overview and Image Overview Updates, refer to the product documentation. The documentation for the new release is available once you have installed PeopleSoft Online Help (PeopleBooks).

See the application installation guide for your new release: "Installing PeopleSoft Online Help."

Task 1-1-4: Reviewing Red Papers

The PeopleSoft red paper library on My Oracle Support includes technical documents that provide details on topics such as online performance configuration guidelines. Go to My Oracle Support and search on red papers.

Task 1-1-5: Reviewing Installation and Upgrade Guides

Later in this guide, you will be instructed to download and follow the instructions in the application-specific installation and upgrade guides for your new release.

See "Starting Your Upgrade," Installing the New Release.

See "Starting Your Upgrade," Installing the PeopleSoft Update Image.

See "Starting Your Upgrade," Downloading Upgrade Documentation from the Upgrade Home Page.

Task 1-1-6: Reviewing Known Issues for Application Installation

Later in this guide, you will install the new release. You will need to review the Known Issues section on the application installation home page for your application upgrade image level to complete the install successfully. Any known issues with the installation are documented in that section on the application-specific page.

Task 1-1-7: Attending Training Courses Recommended for Upgrades

We recommend that your functional and technical experts attend the training courses recommended for the PeopleSoft upgrade process. More information is included in this guide.

You can also find a free training course, "Getting Started on Your PeopleSoft Upgrade," in the Oracle Learning Library that guides you through this documentation and helps you understand the upgrade process.

See "Planning Your Upgrade," Training Upgrade Team Members.

See Oracle Learning Library.

Task 1-2: Conducting a Business Fit/Gap Analysis

Based on the New Features Overview and Image Overview Updates review and knowledge of your customizations, assess the fit and any gaps between the new release and your business requirements. You may find it useful to visually compare the new release navigation and pages to the existing release as well. You will use this assessment to define the high-level scope of your customizations retrofit task. Consider these points during your business fit/gap analysis:

- Identify as many opportunities as possible to retire existing customizations based upon functionality delivered in the new release.
- Include both the online and batch environment, and determine your business needs for your PeopleSoft release.
- Identify the current business processes, including online processing, reporting, and interfaces.
- Review the new release functionality and compare it to your current functionality to identify possible conflicts and effects.

- Know your customizations. Detailed documentation about customizations should be available to you. This is your corporate documentation for the customizations and modifications that you have made to your Oracle-delivered applications. You will use this information during fit/gap analysis and compare report review activities. You should have a comprehensive set of documentation outlining both online and batch modifications and customizations. You may find it useful to perform a generic compare; for example, to compare your customized database to a PeopleSoft Demo database at the same release. This comparison will identify all the modifications that you have made to the online environment.
- Allocate the same team members from your initial implementation or last upgrade project, if available, to this upgrade project.

Also, remember that Oracle offers business fit/gap analysis services. Contact your account representative for more information.

Task 1-3: Reviewing Technical Requirements

This section discusses:

- Assessing Hardware and Software Requirements
- Reviewing Platform Certifications
- Performing a Technical Fit/Gap Analysis
- Planning for Performance Tuning

Task 1-3-1: Assessing Hardware and Software Requirements

The application hardware and software requirements guidelines outline the hardware and software requirements for the new release. These are the minimum levels required to operate your PeopleSoft system for the new release. Ensure that you have reviewed these requirements guides thoroughly and begin the acquisition process for any required hardware or software. Before beginning the upgrade itself, ensure that you are on the hardware and software supported for the new PeopleSoft system release. You can download these hardware and software requirements guides from My Oracle Support.

Go to My Oracle Support and search on hardware and software requirements for your product.

The baseline hardware and software requirements for the new release are documented in the PeopleTools Hardware and Software requirements on the Certifications tab on My Oracle Support. Any application-specific hardware and software requirements beyond the baseline PeopleSoft PeopleTools requirements are documented separately in a product-specific requirements guide for that application release.

Go to My Oracle Support, select the Certifications tab, enter PeopleSoft PeopleTools for Product, enter the release that you are going to (for example, PeopleSoft PeopleTools 8.53), and enter your platform.

Task 1-3-2: Reviewing Platform Certifications

The platform certification process provides certifications for servers and clients, as well as third-party products used in conjunction with your PeopleSoft release. Use this information in combination with the hardware and software requirements to ensure that you have supported platforms in place for your upgrade.

You can find supported platform information on My Oracle Support. Certifications tab.

Task 1-3-3: Performing a Technical Fit/Gap Analysis

Planning for your technical requirements ensures a smooth upgrade. In this task, you will perform a technical fit/gap analysis.

To perform a technical fit/gap analysis, conduct a thorough review of the existing technical environment, creating a spreadsheet that outlines the various hardware and software components currently used. Compare this information to the hardware and software requirements for the new release and the platform certification information reviewed previously. This comparison will provide the outline of hardware and software acquisitions required for the upgrade.

As you conduct the technical fit/gap analysis, keep in mind that upgrades require significant file and database server space. Database server space should accommodate two copies of your production database as well as space for several backups. File servers and batch servers will require ample space for log files that are generated by the upgrade process. Also, the upgrade process can be resource intensive, depending on the size of your database; consider using a separate environment for the upgrade (database server, I/O controllers, disk space, CPU, and so on).

See My Oracle Support, Certifications tab, PeopleTools hardware and software requirements.

Also review the PeopleSoft Supported Platforms on My Oracle Support for up-to-date server configuration information.

See My Oracle Support, Certifications tab.

Based on your technical fit/gap analysis, you should produce a document that details the hardware and software requirements. You will need to evaluate the existing structure and all assets, including network, servers, Oracle-delivered software, third-party-supplied software, and client workstations. The extent of detail will depend on the degree to which your organization intends to use existing assets.

Note. Order all required upgrades or new purchases from third-party suppliers and ensure that you have all necessary software from Oracle. Also, if you plan to have Oracle install your new release, schedule the installation as soon as possible.

Task 1-3-4: Planning for Performance Tuning

Consider the following sources of information for planning for performance tuning:

- Benchmark Performance Reports
Review the benchmark performance reports to understand the performance characteristics of specific products on specific platforms.
See <http://www.oracle.com/us/solutions/benchmark/apps-benchmark/index.html>.
- Hardware Supplier
Contact your hardware supplier for assistance with specific performance tuning and scalability.

Task 1-4: Assessing Business Requirements

This section discusses:

- Defining the Scope
- Determining the Timeline

- Establishing a Budget
 - Determining an Upgrade Strategy
 - Identifying Prerequisite Tasks
-

Note. You must plan your software upgrade to meet your business requirements. This task will assist you in identifying the critical success factors for your upgrade and can help you understand the key factors that can make or break your upgrade. Knowing the critical success factors and risk factors helps you better manage the risks.

Task 1-4-1: Defining the Scope

Many factors define the upgrade project scope: technical and functional analysis, the upgrade path, the number of databases to be upgraded, and the level of testing required. Be sure to include all of the following considerations in your upgrade:

- Review your business and technical analyses.
See "Planning Your Upgrade," Conducting a Business Fit/Gap Analysis.
See "Planning Your Upgrade," Performing a Technical Fit/Gap Analysis.
- Review your upgrade path.
- Review the databases involved.
- Identify any concurrent development.
Continued development on your production database during the upgrade is not recommended and should be avoided. Consider implementing any concurrent development after the upgrade, rather than in parallel.
- Establish your testing scope.
For more information on establishing your testing scope, refer to the appendix "Planning for Upgrade Testing."
- Establish your end-user training scope.

Task 1-4-2: Determining the Timeline

You need to define the start and end dates of your project and set your major milestone dates. The general guideline for a major upgrade is two to six months. A wide range is given here because of the project variables to be considered: size, complexity, and customizations of your current system; product line; and specific tasks, such as hardware procurement.

Task 1-4-3: Establishing a Budget

Determine whether there are any budget considerations for your upgrade process; for example, obtaining outside resources or procuring new hardware.

Task 1-4-4: Determining an Upgrade Strategy

Determine whether you will perform the technical upgrade of your application in house or whether you will use one of Oracle Consulting's Application Solution Centers (ASCs) to perform this service for you. Oracle Consulting ASCs offer fixed-fee, fixed-deliverable, and fixed-timeline services to assist you in your upgrade project. In addition to providing upgrade services, the ASCs provide experienced resources to guide you through your technical upgrade and knowledge transfer on the upgrade process; they support the upgraded application they deliver; and they provide recommendations for streamlining future upgrades.

See <http://www.oracle.com/us/products/consulting/upgrade-services/overview/index.html>.

Task 1-4-5: Identifying Prerequisite Tasks

Now that you have the analysis from the planning tasks, you will have identified specific prerequisite tasks for your organization that need to be included in your upgrade project plan. These tasks are in addition to performing the actual upgrade:

- Procure required hardware.
- Procure required software.
- Schedule hardware installation and configuration.
- Obtain resources.
- Coordinate training.

Task 1-5: Assembling Your Upgrade Project Team

This section discusses:

- Identifying Key Resources
- Identifying an Upgrade Project Manager
- Selecting a Technical Analyst
- Choosing a PeopleSoft Installer
- Designating a Database Administrator
- Selecting a Network Administrator
- Choosing a System Administrator/Web Administrator
- Identifying Developers
- Identifying Functional Analysts
- Determining Your Need for Oracle or Third-Party Consultants
- Creating a Resource Plan

Task 1-5-1: Identifying Key Resources

This section lists the types of key resources or roles you may require before, during, and after your upgrade. The key resources you choose may be either fully dedicated (working exclusively on this PeopleSoft upgrade) or only partially dedicated (working on other projects as well as the PeopleSoft upgrade). Some of the key roles are listed below:

- Upgrade project manager
- Technical analyst
- PeopleSoft installer
- Database administrator
- Network administrator
- System administrator
- Developers

- Functional analyst

We recommend that the upgrade team maintain ongoing communication with all key resources, including end users, throughout the upgrade process. The team should be aware of all milestones, schedule changes, and enhancements ahead of time to make the transition to the new release easier.

Task 1-5-2: Identifying an Upgrade Project Manager

The upgrade project manager must be familiar with the upgrade process. Most importantly, this individual must be able to make management decisions and resolve issues that affect the progress of the upgrade. Depending on the scope of the project, this resource may not need to be fully dedicated.

The upgrade project manager is responsible for the following functions:

- Prepares the project plan and manages the entire upgrade project from beginning to end.
- Monitors progress on the upgrade project plan and tasks.
- Facilitates meetings with the project team to discuss progress and issues.
- Alters the scope of the upgrade or obtains additional resources, as required, to ensure that the project is completed on schedule.
- Coordinates communication among the upgrade team members.
- Provides regular upgrade updates to management.
- Supports the upgrade team in all upgrade tasks.

Task 1-5-3: Selecting a Technical Analyst

The technical analyst should be a certified PeopleSoft upgrader and a fully dedicated member of the upgrade team. This individual must be familiar with PeopleSoft upgrades, relational database management systems (RDBMSs), PeopleSoft PeopleTools (including PeopleSoft Change Assistant), data management tools, Application Engine, PeopleSoft configuration and administration, operating systems, SQL, and other third-party tools that you use. In addition, we recommend that the technical upgrade resource have team leadership and management experience.

The technical analyst performs the following tasks:

- Runs and manages all technical upgrade tasks.
- Logs all technical upgrade steps.
- Resolves technical issues with the database administrator (DBA) and system administrator.
- Creates and oversees all necessary technical checklists to ensure completion of the upgrade.
- Reports completed tasks, issues, and risks to the upgrade manager.
- Completes technical fit/gap analysis according to PeopleSoft guidelines.

Task 1-5-4: Choosing a PeopleSoft Installer

It is recommended that you have a PeopleSoft installer install the new release. If you choose to self-install, consider having a PeopleSoft installer certify your install before starting the upgrade.

Your PeopleSoft installer should perform these tasks:

- Install the Oracle-delivered PeopleSoft software and necessary third-party products.
- Create and install a PeopleSoft Demo database.

- Configure the application server domain, web server, and Process Scheduler.
- Install and run the install verification test.

Task 1-5-5: Designating a Database Administrator

The Database Administrator (DBA) must be a dedicated upgrade resource and will be involved throughout the upgrade process. Although the DBA's responsibilities may be part time or on an on-call basis, DBA support is critical to the success of the upgrade. The DBA will work closely with the technical upgrade resource to resolve script and database-related issues.

Your DBA's responsibilities may include these tasks:

- Review scripts and modify them, if necessary, for customer standards.
- Monitor the database and provide database support.
- Perform backups and recoveries.
- Troubleshoot and tune the database.
- Enforce standards.

Task 1-5-6: Selecting a Network Administrator

The network administrator will provide network and server support. Similar to the DBA, this individual does not need to be assigned full time.

Your network administrator's responsibilities may include these duties:

- Manage network security and connectivity.
- Troubleshoot network-related issues.
- Set up workstations.
- Configure the network.

Task 1-5-7: Choosing a System Administrator/Web Administrator

The system administrator should have working knowledge of the server operating system and PeopleSoft technical architecture. The system administrator may need to be involved only on a part-time basis.

The system administrator's responsibilities include these tasks:

- Manage logins, passwords, and system security.
- Troubleshoot server issues.

Task 1-5-8: Identifying Developers

You are encouraged to use developers who are familiar with your customizations. These individuals may require SQR, COBOL, PeopleSoft PeopleTools, Application Engine, PeopleSoft Query, and PS/nVision experience, depending on your customizations.

Developers will be responsible for:

- Retrofit customizations.
- Unit, system, and interface test changes.
- Working closely with functional resources to ensure that business needs are met.

- Documenting all changes.

Task 1-5-9: Identifying Functional Analysts

Functional analysts should include individuals with knowledge of the application. They should be familiar with your business processes and customizations. Ideally, one team leader should be available to coordinate upgrade testing and additional functional resources for each functional area. The functional team lead must be familiar with developing an overall testing strategy and must be familiar with new release functionality.

Your functional analysts will perform the following tasks:

- Thoroughly review the New Features Overview and Image Overview Updates.
- Identify customizations and assist developers with resolving issues.
- Create and run test plans (system, integration, and end-user acceptance tests).
- Modify and test queries.
- Resolve issues with the assistance of other upgrade team members.
- Document all issues.
- Determine acceptance of the new release.

Be sure to analyze your internal resources. You may not have a specific resource or you may not have enough resources to dedicate to the upgrade project, so you will need time to recruit or outsource some of the roles. The descriptions above do not indicate the number of people. One person may fill one or more roles.

Task 1-5-10: Determining Your Need for Oracle or Third-Party Consultants

Many customers elect to use Oracle Consulting or other third-party consultants to assist them in various aspects of their upgrade process. These services are often used to supplement in-house staff and provide help in specialized areas, such as installation of the new release, fit/gap analysis, testing, training, security redesign, and so on.

During this task, you should assess your organization's upgrade goals, time frames, and in-house resources to determine whether you will need Oracle Consulting, third-party consultants, or both, and if so, in what capacity.

The Oracle web site has more information about Oracle Consulting upgrade services.

See <http://www.oracle.com/us/products/consulting/applications/peoplesoft/overview/index.html>.

Task 1-5-11: Creating a Resource Plan

After you have reviewed the key resources required, you should create an upgrade resource plan that includes the following:

- Key resource roles.
- Any internally available skilled resources.
- Your external resource needs.
- Training requirements for internal and external key resources.

Task 1-6: Creating the Upgrade Project Plan

This section discusses:

- Completing the Project Plan

- Establishing Project Standards

Task 1-6-1: Completing the Project Plan

Complete a detailed project plan for your upgrade using the upgrade instructions to outline the detailed activities for the actual implementation of the upgrade as well as information from the business and technical fit/gap analyses. Remember to plan for defining and executing test plans and training for both the project team and end-users.

Also think about your business practices and yearly schedule when creating your project plan. For example, if you are a PeopleSoft Financials customer, you do not want to implement the upgrade during your year-end close. Keeping these factors in mind is crucial when constructing the timeline for your upgrade.

Note. Be sure to consider post-upgrade tasks, such as configuring new functionality, in your project plan. Setting up your new functionality can be time consuming, and you will want to have a plan in place before you complete the upgrade.

Task 1-6-2: Establishing Project Standards

Establishing project standards for the upgrade includes the following:

- Establishing change control procedures.
- Customizing documentation standards.
- Developing issue management procedures.
- Communicating plans.
- Establishing documentation storage standards.

Task 1-7: Defining a Testing Strategy

A testing strategy provides the basis for understanding how you will test the upgrade application. Testing your database after you have completed the upgrade ensures that you can still operate your day-to-day processes on your new release version.

Please refer to the appendix "Planning for Upgrade Testing" for a description of testing strategies. Using this information, develop a test plan for the testing that you will perform.

Task 1-8: Training Upgrade Team Members

One of the first tasks in planning and preparing for the upgrade to your new PeopleSoft release is to educate your upgrade team on the upgrade process. Visit Oracle University for more information on training for upgrades.

See <http://education.oracle.com>.

Chapter 2

Understanding the Upgrade Process

This chapter discusses:

- Understanding Upgrading
- Understanding Upgrade Environments
- Defining the Term "Upgrade"
- Planning for Maintenance
- Reviewing the System Components To Be Upgraded
- Reviewing Your Hardware and Software Environment
- Reviewing PeopleSoft PeopleTools Components
- Reviewing Application Components
- Understanding Upgrade Types
- Using Application Designer
- Using the Comparison Process
- Determining Which Upgrade Steps Apply
- Learning About PeopleSoft Change Assistant

Understanding Upgrading

This chapter explains the technical concepts behind upgrading Oracle's PeopleSoft software. In addition, this chapter provides hints and suggestions for accomplishing the more complex upgrade procedures.

This chapter was written for the technical roles responsible for performing the upgrade.

Task 2-1: Understanding Upgrade Environments

You will use the following environments during your upgrade:

- The New Release Demo database always refers to the database delivered with your new PeopleSoft release. It contains the new and changed database objects that you want to add. The New Release Demo database is also referred to as the "Demo database" later in the upgrade. The base language of the New Release Demo database must match the base language of your production database.
- The Copy of Production database refers to the copy of your production database into which you will add the new and changed objects for this release from the New Release Demo database.

Note. You will create more than one Copy of Production database. Your second and subsequent copies are referred to as the "New Copy of Production."

- The Update Image environment is where you will get all your Required at Upgrade fixes for PeopleSoft 9.2 or higher upgrades. As of PeopleSoft PeopleTools 8.55, this will also be the delivery method for your corresponding application upgrade Change Assistant template.

Task 2-2: Defining the Term "Upgrade"

Many people think of upgrading as moving a software product from one release level to a higher release level by installing new program files. However, your PeopleSoft system does not consist of just software programs; you must also consider the database.

In a PeopleSoft system, the process of upgrading can be defined as *migrating objects from one database to another, updating other system components, such as software, or both.*

At the heart of the upgrade methodology is the idea that the database objects as well as the software determine the release level. Consequently, an upgrade may or may not include installing new executable files. This definition of an upgrade holds true whether you are moving *one* of your own customized objects or *1,000* new PeopleSoft objects into production. It is also true if you are upgrading only the software. In a PeopleSoft upgrade, you always perform one or both of these two steps, in the order presented:

1. Update your PeopleSoft software.
2. Copy any new objects into your database and adjust all your system components—such as application data, SQL tables, indexes, views, and batch programs—accordingly.

Whenever you perform one or both of these steps, you are upgrading your database to a new release level. It may not always be to a higher PeopleSoft PeopleTools release, as with new software, but it is at minimum to a higher *customer* release.

When you upgrade to a new PeopleSoft release, several upgrade passes are required to ensure that your upgraded production database performs as you expect. You must complete all of these passes to complete your upgrade.

The upgrade process consists of three passes, as described here:

- **Initial Pass**

The first pass is called the initial pass. In this pass, you create a copy of your production database and refer to it as the Copy of Production. Next, you identify all of your customizations on your Copy of Production database. Then you take the delivered database (the one with the new PeopleSoft release delivered with your product), called the Demo database, and incorporate the new release objects along with your customizations into the Copy of Production to create your first *upgraded* Copy of Production. In this pass, your Demo database is your Source, and the Copy of Production is the Target.

- **Test Move to Production Pass**

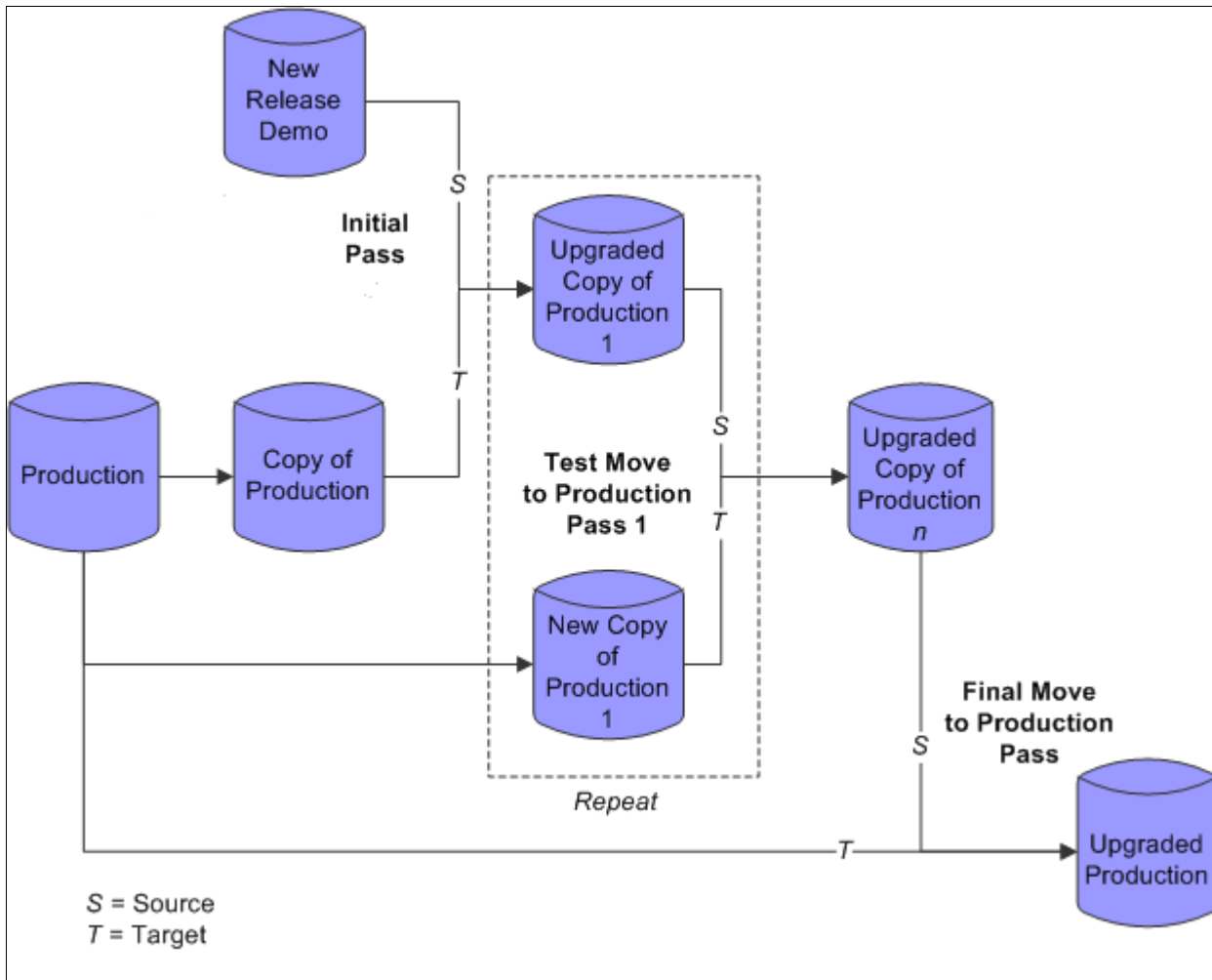
After you complete the initial pass, you begin the first Test Move to Production pass. In this pass, you create another copy of your production database and refer to it as the New Copy of Production. Using the upgraded Copy of Production (the one created in the initial pass), you incorporate the modified objects into the New Copy of Production to create your second upgraded Copy of Production. In this pass, the upgraded Copy of Production from the initial pass becomes your Source, and the New Copy of Production becomes your Target.

You repeat the Test Move to Production pass until it runs smoothly. A New Copy of Production is created for every Test Move to Production pass, and it is the new Target for each pass.

- **Final Move to Production Pass**

When you are ready for the Final Move to Production pass, you freeze your production database and incorporate the modified objects from your most recent upgraded Copy of Production into the production database itself. Once again, the upgraded Copy of Production (from the Test Move to Production passes) is the Source, and your production database is the Target.

The following flow chart illustrates the three passes in the application upgrade process:



Three passes in the upgrade process

Task 2-3: Planning for Maintenance

It is important that you identify the maintenance schedule for upcoming PeopleSoft PeopleTools and product releases. These releases are typically on a regular schedule and should be included in your project planning and budgeting processes. It is important to build regular maintenance tasks into your overall project plans. For example, for a year-long upgrade, development, and conversion project, time must be set aside for applying the PeopleSoft PeopleTools releases that ship during that time frame. Otherwise, if you fall behind, you may find that you need a fix shipped with one of the newer PeopleTools releases that cannot be back-ported as a PeopleTools patch.

Note. As of PeopleSoft 9.2, PeopleSoft Update Manager is the only application maintenance process that can be used to update and maintain your system. This new process requires a shift in your maintenance planning and procedures. We strongly recommend that you review and understand PeopleSoft Update Manager *before* you begin your upgrade to PeopleSoft 9.2. Read and review the documentation located on the PeopleSoft Update Manager Home Page, My Oracle Support, Doc ID 1641843.2, during the planning stages of your upgrade. The information there will influence your upgrade process and planning. You must be ready to use PeopleSoft Update Manager at the time of your upgrade to PeopleSoft 9.2. You will also find information about applying your Required at Upgrade patches for your PeopleSoft 9.2 upgrade on the PeopleSoft Update Manager Home Page.

Warning! Do not install application fixes to any environment that will be used as a source for an upgrade pass. Only Required at Upgrade fixes and any Known Issues documented on the installation home page for your specific application should be applied to the Demo (Source) database during the upgrade process. Installing application fixes, including fixes to the Demo environment (Source) or your Copy of Production environment (used during your Test Move to Production passes) can break data conversion and other scripts for the upgrade. You may stage and apply application fixes to a copy of your upgraded environment (after the initial upgrade pass or after any Test Move to Production pass) in order to complete testing as long as the patched environment is NOT used as the Source database in a subsequent upgrade pass. Once you have tested the application fixes in the copy of your upgraded environment, you can then apply those same updates after your final move to production and before you go live in production.

Note. Tax Updates are an exception to this rule. Please see the Appendix titled "Upgrading with Tax Updates" in the HCM Upgrade documentation for more information.

See PeopleSoft Upgrade Best Practices for Applying Maintenance on My Oracle Support, Doc ID 1993714.1.

See the product documentation in PeopleTools: Change Assistant and Update Manager for your current PeopleTools release for information about migrating change packages or maintenance updates.

Task 2-4: Reviewing the System Components To Be Upgraded

Whether you are updating your software, adding a single object to your database, or performing a full upgrade to a new PeopleSoft release, the basic components involved in upgrading are the same.

The following table defines the three main system components that can be affected by or involved in an upgrade:

System Component	Definition
Environment	Hardware and software, including client and server machines, client and server operating systems, RDBMS software and database, and network software.
PeopleTools	Software programs, utility scripts and reports, messages, COBOL SQL statements, and database tables and data that provide the framework for creating, using, and modifying PeopleSoft applications.
Applications	Object definitions (which determine what appears on the screen, how and what kind of data can be entered and how to enter it, and where the data is stored), database tables and data, and batch programs.

Task 2-5: Reviewing Your Hardware and Software Environment

When upgrading to a new release, you may be required to update your environment hardware or software, such as RDBMS software, client operating system, or server machines. Please review information on platforms certified for the new release.

Previous sections of this guide provided references to background reading on the release, hardware, and software requirements, and platform certifications.

See "Planning Your Upgrade," Reviewing New Features Overview and Image Overview Updates.

See "Planning Your Upgrade," Assessing Hardware and Software Requirements.

See "Planning Your Upgrade," Reviewing Platform Certifications.

Task 2-6: Reviewing PeopleSoft PeopleTools Components

This section discusses:

- Understanding PeopleSoft PeopleTools Components
- Reviewing PeopleSoft PeopleTools Software Programs
- Reviewing PeopleSoft PeopleTools Utility Scripts and Reports
- Reviewing Compare Reports
- Reviewing Message Catalog Entries
- Reviewing COBOL SQL Statements
- Reviewing PeopleSoft PeopleTools Database Tables

Understanding PeopleSoft PeopleTools Components

You are probably most familiar with PeopleSoft PeopleTools as the series of items found on the PeopleSoft PeopleTools menu. These items include Application Engine, Security, Process Scheduler, and so on. These tools are composed of and supported by a multitude of components. Before copying new objects into your database, you should understand how the PeopleSoft PeopleTools components interact with them.

Task 2-6-1: Reviewing PeopleSoft PeopleTools Software Programs

The PeopleSoft PeopleTools software programs are the executable files that you run to create, implement, and administer the records, pages, components, and other objects that make up an application. These programs also enable you to manipulate the underlying SQL database from within the Windows environment on your client workstation.

When you upgrade to a new PeopleSoft PeopleTools release, you always install new PeopleSoft PeopleTools program files.

Important! When you start to upgrade PeopleSoft PeopleTools, the software release is compared against a release value stored in the database table PSSTATUS. These two numbers must match or the executable programs will not run.

Task 2-6-2: Reviewing PeopleSoft PeopleTools Utility Scripts and Reports

PeopleSoft PeopleTools contain many SQL, SQR, and PeopleSoft Data Mover utility scripts and reports that you can use to monitor and maintain your system, such as DDDAUDIT, SYSAUDIT, and SWPAUDIT, as described in this table:

Report	Definition
DDDAUDIT	An SQR program that compares data structures defined in the PeopleSoft PeopleTools tables against the underlying database to uncover inconsistencies. It is critical that all these underlying components of PeopleSoft PeopleTools be synchronized before you perform an upgrade, and DDDAUDIT is an invaluable tool for helping you accomplish this.
SYSAUDIT	An SQR program that compares the various PeopleSoft PeopleTools tables that define each object type and identifies inconsistencies and orphaned objects, such as PeopleCode programs that are unattached to any record.
SWPAUDIT	An SQR program that identifies potentially "orphaned" PeopleSoft objects in a multilingual database.

Oracle updates these scripts and reports each time the PeopleSoft PeopleTools table structure changes. Therefore, when a new version of PeopleSoft PeopleTools is delivered, there may be new or modified utility scripts delivered as well.

Task 2-6-3: Reviewing Compare Reports

You run compare reports in PeopleSoft Application Designer.

See the PeopleTools: Application Designer Developer's Guide documentation for your current release on the PeopleSoft Hosted Online Help site.

Task 2-6-4: Reviewing Message Catalog Entries

When a new PeopleSoft PeopleTools release is delivered, PeopleSoft also delivers new system messages that support added or modified functionality. You must run a provided PeopleSoft Data Mover script to update your system messages. PeopleSoft reserves all message set numbers up to 20,000. If you have any custom messages, be sure they are assigned to message sets with numbers 20,000 or greater before running the script.

Task 2-6-5: Reviewing COBOL SQL Statements

You may need to load new or modified stored COBOL SQL statements when upgrading your PeopleSoft PeopleTools. When this is required, you are instructed to run a provided PeopleSoft Data Mover script to update your stored statements.

Task 2-6-6: Reviewing PeopleSoft PeopleTools Database Tables

This section discusses:

- Understanding PeopleSoft PeopleTools Database Tables
- Reviewing PeopleSoft PeopleTools Table Structure
- Reviewing PeopleSoft PeopleTools Table Contents

Understanding PeopleSoft PeopleTools Database Tables

PeopleSoft PeopleTools tables store the definitions, in the form of data, of all application objects, such as application records, views, and indexes. Whenever you modify an application object, the system redefines that object's definition in the appropriate PeopleSoft PeopleTools tables.

You must understand two facets of these tables before upgrading: table structure and table contents. The easiest way to understand the relationship between structure and contents is to think of your system as a spreadsheet: PeopleSoft provides the spreadsheet columns (structure) and the initial rows of data (contents). Each row of data defines all or part of a particular application object, such as a record, menu, or page. You modify the table contents as you add, delete, or modify your application object definitions.

Reviewing PeopleSoft PeopleTools Table Structure

The structure of each PeopleSoft PeopleTools table controls the type of information required for creating the object definitions it stores. For example, the columns in the record definition table, PSRECDEFN, display the information required for defining a PeopleSoft record.

Warning! The structure of the PeopleSoft PeopleTools tables is proprietary to PeopleSoft and subject to change without notice. If you attempt to change any information stored in these tables directly using SQL, you run the risk of causing your system to malfunction and lose your data. You should only use the PeopleSoft PeopleTools provided with the PeopleSoft system to customize your application.

When you perform an upgrade, your Source and Target PeopleSoft PeopleTools table structure must be identical; that is they must be at the same release level. When you are performing a customization upgrade (moving definitions from development into production) this won't be an issue. However, if your upgrade involves a new PeopleSoft PeopleTools release, you may have to update the structure of your existing PeopleSoft PeopleTools tables so that it matches the structure of the tables in the new release.

Note. If you are not sure which PeopleSoft PeopleTools release you are running, select Help, About PeopleTools from any PeopleSoft menu bar. A window will open and display your PeopleSoft PeopleTools release number and the release number of the active application.

Release scripts are SQL scripts that modify the underlying table structure of a database so that it is compatible with a more recent PeopleSoft PeopleTools release. They are located in the *PS_HOME\SCRIPTS* folder. Release scripts can be identified by their common naming standard—REL.xxx.SQL—in which xxx designates a PeopleSoft PeopleTools release number.

Depending on the release of PeopleSoft PeopleTools that you want to move to, you will run one or more of these scripts in order, one at a time, to upgrade your PeopleSoft PeopleTools table structure. You should never run these scripts on your own. Always use PeopleSoft Change Assistant when upgrading your PeopleSoft PeopleTools release.

Reviewing PeopleSoft PeopleTools Table Contents

PeopleSoft application objects—records, pages, components, and so on—are defined in the *contents*, or rows, of the PeopleSoft PeopleTools tables.

When you upgrade to a new PeopleSoft PeopleTools version only, the contents of the PeopleSoft PeopleTools tables (application objects) will not change. However, when you upgrade to a new application version, some or all of the PeopleSoft PeopleTools table contents that are delivered may have changed. You may want more information on this topic.

See Appendix: "Using the Comparison Process" in your product-specific upgrade guide.

In addition, some of the contents of the PeopleSoft PeopleTools tables do not define application objects, but rather PeopleSoft PeopleTools objects. For example, Workflow and Application Engine are PeopleSoft PeopleTools that were built using PeopleSoft PeopleTools. Like our applications, they are composed of menus, pages, and records. However, these PeopleSoft PeopleTools table contents are owned by Oracle and should not be modified.

Task 2-7: Reviewing Application Components

This section discusses:

- Understanding Application Components
- Reviewing Object Definitions
- Reviewing Application Table and Data Ownership
- Reviewing Batch Programs

Understanding Application Components

Each of Oracle's PeopleSoft product lines and applications—such as PeopleSoft HCM, PeopleSoft Payables, PeopleSoft Performance Management Warehouse, and so on—is composed of the following:

- Object definitions
- Application tables and data
- Batch programs

Task 2-7-1: Reviewing Object Definitions

Application object definitions are stored as the contents of the PeopleSoft PeopleTools tables. You can run SQL against your database to view these contents.

With each new application release, the object definitions stored in the PeopleSoft PeopleTools tables are updated. The purpose of this update may be to improve functionality, conform to new tax codes, or to take advantage of new operating system features. However, you are not expected to accept these new objects readily since you may have made your own modifications to some of these same objects.

To protect your customizations when you upgrade to a new application release, you compare the definitions that are delivered with your current definitions to find any conflicts. Then you decide which version you want to keep. The comparison process is probably the most difficult part of an application upgrade because it requires a careful review of conflicting definitions.

Important! Oracle recommends taking the new release object and reapplying your customizations to it to ensure that any factory-delivered, behind-the-scenes functionality is retained during the upgrade.

Task 2-7-2: Reviewing Application Table and Data Ownership

Application table and data ownership fall into one of three categories according to who maintains the tables and data—Oracle, you the customer, or both. The three ownership types are explained in the following table:

Ownership	Explanation
Oracle	Oracle delivers application tables that contain processing logic and rules, or data required by statute—for example, tax tables and garnishment rules tables. These tables and their data are created, maintained, and updated as needed by Oracle.
Customer	When you create custom application tables, you own those tables and their data.
Shared	When tables are delivered that contain processing rules or other data that you can customize to address your unique business requirements, Oracle owns the tables but shares ownership of the data with you.

When you upgrade to a new PeopleSoft release, the Image Overview Updates identify any Oracle-owned or shared ownership tables that have been modified. The Image Overview Updates also dictate whether you must accept the data changes to retain functionality in the new software.

See "Planning Your Upgrade," Reviewing New Features Overview and Image Overview Updates.

Task 2-7-3: Reviewing Batch Programs

In every PeopleSoft application, certain processes are performed on a server in batch mode rather than online—for efficiency and scheduling purposes. For example, batch programs that calculate payroll, post general ledger journal entries, or accrue sick leave are delivered by Oracle.

When you upgrade to a new application release, the Image Overview Updates point out any dependencies between table changes and changes that must be made to the batch programs that reference those tables. When you move your own customizations from development into production, you should also consider how they might affect these programs.

Task 2-8: Understanding Upgrade Types

This section discusses:

- Defining Upgrade Types
- Understanding Application Upgrades
- Understanding Customization Upgrades
- Summarizing Upgrade Types

Task 2-8-1: Defining Upgrade Types

As stated previously, an upgrade does not necessarily involve merging all the objects of a new PeopleSoft release into your database. An upgrade can be as simple as adding a new record or page to your application. Or, an upgrade can involve only the PeopleSoft PeopleTools software.

The three types of upgrades are described in the following table:

Upgrade Type	Description
PeopleTools	Move to a new PeopleSoft PeopleTools release. This type of upgrade involves installing new PeopleSoft PeopleTools software and copying in new PeopleSoft PeopleTools database objects.
Application	Move to a new PeopleSoft application release. This type of upgrade involves installing new software and comparing application object definitions.
Customization	Move your customized application components into production. This type of upgrade never involves a PeopleSoft PeopleTools upgrade.

You perform upgrades in a number of different ways, depending on your type of upgrade (PeopleTools, application, or customization) and your release level (your current release and your new release).

For information about performing a PeopleSoft PeopleTools upgrade, see *Getting Started on Your PeopleTools Upgrade*.

Task 2-8-2: Understanding Application Upgrades

You perform an application upgrade when you want to take advantage of most or all of the new features in a new, major (enterprise-level) PeopleSoft application release while still retaining your modifications.

This kind of upgrade involves:

- Comparing application object definitions between Oracle's database and yours.
- Reviewing conflicting definitions and deciding which version (the Oracle-delivered version or your version) to use.
- Copying the desired application object definitions into your database.
- Adjusting the application table data and batch programs.

Note. When you are moving to a new PeopleSoft PeopleTools release level by performing a PeopleSoft PeopleTools upgrade, you do not have to upgrade your applications. However, when you are moving to a new enterprise release level, an application upgrade is always required.

In this type of upgrade, you compare your application object definitions with those supplied in the new release to find any conflicts. You then review upgrade reports that identify conflicting object definitions between the Source and Target databases. These reports tell you if and how the definition has changed in each database. After you see how a definition differs in each database, you can decide which version you want to keep.

Performing an application upgrade can be complex if significant object modifications have been made. The more changes that have been made prior to the upgrade, the more items must be compared and considered before proceeding with the upgrade. This crucial process may take you several days or even weeks to complete.

You must also consider objects that you have customized that are no longer delivered in the new release. Oracle typically recommends that these objects be removed during the upgrade process.

Your application upgrade may involve both a PeopleTools release change as well as an application release change. If the PeopleSoft PeopleTools version of your Target database matches the PeopleSoft PeopleTools version of your New Release demo database, including the exact PeopleSoft PeopleTools patch level, then you will perform an application-only upgrade. This is available to you since your PeopleSoft PeopleTools release is not changing during the upgrade.

Prior to PeopleSoft PeopleTools 8.55, two types of upgrade templates were delivered:

- A combined upgrade template that included both the PeopleSoft PeopleTools and application upgrade steps.
- An application-only upgrade template that was optimized to eliminate steps relating to the PeopleSoft PeopleTools upgrade.

As of PeopleSoft PeopleTools 8.55, if your PeopleTools release needs to change during the application upgrade, Change Assistant will sequentially run a PeopleTools-only upgrade job and then an application-only upgrade job to upgrade both your PeopleSoft PeopleTools and application release levels. This applies for all passes of your upgrade; Initial, Move to Production, and Final Move to Production.

Task 2-8-3: Understanding Customization Upgrades

You perform customization upgrades when you want to move new or modified object definitions from development into production.

This kind of upgrade involves:

- Copying the desired application object definitions into your database.
- Adjusting the application table data and batch programs.

Note. It is assumed that you know how the new objects differ from existing objects in the Target database and that you do not need to compare them. However, you can choose to compare the new objects against the Target database before copying.

Task 2-8-4: Summarizing Upgrade Types

The following table describes the various types of upgrades, when you perform each type of upgrade, and what system components may be affected.

Upgrade Type	New Release Type	System Components Possibly Affected	Comments
PeopleSoft PeopleTools Upgrade	PeopleSoft PeopleTools maintenance release	Software programs, scripts, and reports PeopleSoft PeopleTools table structure PeopleSoft PeopleTools object definitions (such as Workflow pages, Application Engine records, and so on) Messages and stored statements	Involves database changes and a PeopleSoft PeopleTools program upgrade.
Application Upgrade	Enterprise release or major application release <i>May</i> include a PeopleTools Upgrade if needed	Executable programs, system files, and scripts Messages and stored statements PeopleSoft PeopleTools table structure Application object definitions Application data Batch programs	Major database changes.
Customization Upgrade	Customer release	Object definitions (PeopleSoft PeopleTools table contents) Application data Batch programs	Moves your customizations into production. Example: Copying in a customized application page.

Task 2-9: Using Application Designer

Application Designer is the tool you use for any upgrade that involves database changes. All of the listed upgrades involve an Application Designer project. A project is a collection of database objects to be copied from the Source database into the Target database. The contents of a project will vary depending on the type of upgrade you perform.

You can populate an Application Designer project in one of two ways: by adding objects manually, or by comparing two databases. When you populate by comparison, the project is filled with any objects that are defined differently in the Source than in the Target. If a project has been created manually, it can still be compared against a Target database, but only the objects currently in the project will be compared against the Target.

Task 2-10: Using the Comparison Process

This section discusses:

- Understanding the Comparison Process
- Understanding Upgrade Compare Reports

Task 2-10-1: Understanding the Comparison Process

This section discusses:

- Understanding Comparison Release Level
- Understanding Object Status
- Understanding Object Actions
- Understanding Upgrade Values
- Understanding How the System Tracks Object Changes
- Putting It All Together

Understanding Comparison Release Level

All PeopleSoft databases have a PeopleSoft PeopleTools table, PSRELEASE, that contains rows of data for every release level at which the database has ever existed.

The first column in this table, RELEASEDTTM, contains a date/time stamp identifying when each release level was "stamped." The second column, RELEaselabel, identifies the release level.

The format of a release label is *M XX.XX.XX.YYY*, where *M* is the market code, *XX* is an integer from 0 to 99, inclusive, and *YYY* is an integer from 0 to 999, inclusive. A release label has two parts: the PeopleSoft release number (*M XX.XX.XX*) and the customer release number (*YYY*). Each time you customize your production database, you can stamp it with a new customer release level to help you track your changes over time. You should not change any portion of the PeopleSoft release number unless specifically instructed to do so.

Understanding Object Status

PeopleSoft Application Designer determines the report action; then it defines the status—in both the Source and the Target—of each object to be compared or reported. The following table defines the various status types:

Object Status	Definition
Unknown	The object has not been compared. This is the default status for all objects inserted manually into a project and the permanent status of all non-comparison objects.

Object Status	Definition
Absent	The object was found in the other database but not in this one. When upgrading to a new PeopleSoft release, all new objects should have Absent status in the Target database, and all new objects should have Absent status in the Source database.
Changed	The object has been compared, its LASTUPDOPRID value is "PPLSOFT," and its LASTUPDTIME value is greater than the date/time stamp of the comparison release database. In other words, PeopleSoft has modified the object since the comparison release.
Unchanged	The object has been compared, its LASTUPDOPRID value is "PPLSOFT," and its LASTUPDTIME value is less than or equal to the date/time stamp of the comparison release database. In other words, PeopleSoft last modified the object before the comparison release.
Changed*	The object has been compared, its LASTUPDOPRID value is not "PPLSOFT," and its LASTUPDTIME value is greater than the date/time stamp of the comparison release database. In this case, the customer has modified the object since the comparison release.
Unchanged*	The object has been compared, its LASTUPDOPRID value is not "PPLSOFT," and its LASTUPDTIME value is less than or equal to the date/time stamp of the comparison release database. In this case, the customer last modified the object prior to the comparison release.
Same	The object has been compared and is defined the same in both databases. When an object in one database has this status, so will its counterpart in the other database. This status would never be seen when performing a database comparison because, in that case, the project is only populated with objects that are defined differently. However, it can occur when performing a project comparison because in a project comparison, the project contents are static; the project is not repopulated based on the comparison results.

Understanding Object Actions

Application Designer assigns default actions for each object, depending on what needs to be done to make the Target database consistent with the Source—the major goal of a comparison upgrade. These actions cannot be changed, although you can decide whether or not to accept each action. Action types are described in the following table:

Object Action	Definition
Copy	The object will be added to the Target database. Records will copy all record field information as well as the record object properties. Fields will copy all field table information as well as the field object properties.
Copy Prop (records and fields only)	Only object properties will be added to the Target database.
Delete	The object will be deleted from the Target database.

Object Action	Definition
None	No action will be taken on this object.

One of these action types is assigned to every object in a comparison project and in the upgrade reports. However, these actions are not necessarily carried out during the copy process. The upgrade value setting makes that determination.

Understanding Upgrade Values

The upgrade value for each object—Yes or No—determines whether the object action will be carried out during the copy process. These settings are all determined together by the upgrade orientation you assign during the compare process. You can orient the upgrade to take PeopleSoft changes or to retain your changes in the Target database. You will still have the option to set each upgrade value individually before you copy your project to your Target database, regardless of which orientation you choose.

Understanding How the System Tracks Object Changes

The PeopleSoft system tracks object changes using the contents of the PSRELEASE table, and the value of two fields, LASTUPDDTTM and LASTUPDOPRID, used in the PeopleSoft PeopleTools tables.

PSRELEASE was discussed earlier and one of its two fields, RELEASELABEL, was explained. The second field in this table, RELEASEDTTM, stores a date/time stamp for the current release level and all prior release levels.

The LASTUPDDTTM field in the PeopleSoft PS*Object*DEFN tables—such as PSRECDEFN, PSPNLDEFN, and so on—stores a date/time stamp identifying when each object was last modified. The LASTUPDOPRID field stores the operator ID of the user who made the modification. If Oracle made the modification, the proprietary ID "PPLSOFT" is used. PeopleSoft security prevents you from creating an operator named PPLSOFT.

If an object definition is found to be defined differently in the Source database than in the Target, it is checked to see whether either object definition has changed since the comparison release. If the object's LASTUPDDTTM value is greater than the RELEASEDTTM value for the comparison release level (stored in PSRELEASE), the object has changed. If the object's LASTUPDDTTM value is equal to or less than RELEASEDTTM, then the object has not changed since the comparison release.

The PeopleSoft system identifies a customized object as any object that has been customized by anyone other than the PeopleSoft ID (LASTUPDOPRID does not equal PPLSOFT) in the compared release or a prior release. A customized object is identified by an asterisk (*) in the comparison process.

Putting It All Together

The following table summarizes every possible Status, Action, and Upgrade value that could be applied to a single object during the comparison process:

Source Status	Target Status	Action	PeopleSoft Default	Keep Customizations
(Any)	Absent	Copy	Yes	Yes
Absent	Changed or Unchanged	Delete	Yes	Yes

Source Status	Target Status	Action	PeopleSoft Default	Keep Customizations
Absent	Changed* or Unchanged*	Delete	No	No
Changed	Changed or Unchanged	Copy	Yes	Yes
Changed	Changed* or Unchanged*	Copy	Yes	No
Unchanged	Changed	Copy	No	No
Unchanged	Unchanged	Copy	Yes	Yes
Unchanged	Changed* or Unchanged*	Copy	Yes	No
Changed*	Changed or Unchanged	Copy	No	Yes
Changed*	Changed* or Unchanged*	Copy	Yes	Yes
Unchanged*	Changed or Unchanged	Copy	No	Yes
Unchanged*	Changed*	Copy	No	No
Unchanged*	Unchanged*	Copy	Yes	Yes

Task 2-10-2: Understanding Upgrade Compare Reports

This section discusses:

- Reviewing Upgrade Reports
- Reviewing Report Columns
- Reviewing Cross-Reference Reports

Reviewing Upgrade Reports

During a comparison upgrade, you review the upgrade reports generated by Application Designer. These reports help you understand what objects differ between the Source and Target databases and how they differ.

If you have documentation of your database modifications, you should retrieve it before reviewing these reports. This will help you understand how the Target objects have changed and enable you to better compare the target version of the object with the Source version. If you are upgrading to a new PeopleSoft release, you should also review the Image Overview Updates for your product. These notes identify and explain object changes in the Source database.

Upgrade reports can be intimidating until you understand what data you are looking for and how best to use it.

Reviewing Report Columns

For the most part, the columns in upgrade reports correspond with the columns you see in Application Designer's upgrade definition window. Moving from left to right, you see the name of the object, the other key columns that vary by object type, the Source and Target status, and the action value and upgrade flag (Yes or No).

After these columns are three more that you do not find in Application Designer. The first is Attribute. This column tells you the kind of difference that was found between the two objects. For example, record field attribute values include Use/Edit, which identifies key or audit differences, and default field name (Def. Fldnm), which identifies differences in a default value. The second and third are Source Target. These wide columns display the actual differences between the object definitions. For example, on a Use/Edit attribute recfield difference, the Source column might contain "Xlat Table Edit" and the Target column may be empty. This means the Source record field has a translate table edit, while the Target record field does not.

If you are unsure of the meaning of the data in the last three report columns, use the PeopleTool that edits the particular object. The values in these columns correspond directly to dialog options in the tool.

Reviewing Cross-Reference Reports

Oracle delivers several cross-reference reports that you can run to provide information about the inter-relationships among various objects. These reports are delivered in the form of SQRs (found in *PS_HOME\SQR*) and Queries.

The cross-reference reports are described in this table:

Object Types	Report Name	Report Description
Applications and Fields	XRFAPFL	Lists all application windows, such as general tables, in alphabetical order, as well as the fields within each window. For each field, the report details the field name, field type, length, and format, as well as all the record and page definitions that contain the field (within the window).
Fields Referenced by PeopleCode Programs	XRFFLPC	Lists all PeopleCode programs in alphabetical order by associated record definition/field. The report includes type of field and lists all fields referenced in the PeopleCode program.
Fields and Pages	XRFFLPN	Lists all fields in alphabetical order. The report includes the names of all record and page definitions in which each field is used, as well as the Long Name of each field.
Records and Fields	XRFFLRC	Lists all fields in alphabetical order. The report details the long name, field type, field length, and formatting specified for the field, and includes the names of all record definitions that contain the field.

Object Types	Report Name	Report Description
Field Listing	XRFIELDS	Lists all fields in alphabetical order. The report includes field type, length, format, long name, and short name.
Menu Listing	XRFMENU	Lists application windows in alphabetical order. The report details all menus within each window and all page definitions within each menu. It also includes the associated search record definition name and detail page definition name.
Page Listing	XRFPANEL	Lists all page definitions in alphabetical order.
PeopleCode Programs and Field References	XRFPCFL	Lists record definitions that contain fields with PeopleCode program attributes. The report includes the field name, as well as the associated record definitions and fields referenced in the PeopleCode program.
Pages with PeopleCode	XRFNPC	Lists all pages that contain fields with PeopleCode attributes. For each page, the report includes the name of the record definitions that contain the field, as well as the field name and type.
Fields and Records	XRFRCFL	Lists all fields in alphabetical order by associated record definition name. The report details the long name, field type, field length, and formatting specified for the field.
Records and Pages	XRFRCPN	Lists all record definitions in alphabetical order. The report includes the menu and page definitions associated with each record definition.
Window Listing	XRFWIN	Lists all application windows in alphabetical order.

In addition to using our standard cross-reference reports, you can also generate ad hoc reports to extract the exact combination of information you need. Or, you can create permanent custom reports for information you extract on a regular basis.

We recommend that you mark your upgrade reports using a color coding system to help you quickly identify what you need to do to certain objects.

If you have several people reviewing sections of the reports, a good documentation policy is to have everyone on your review cycle initial and date the action defaults and overrides they select.

You may also find it easier to change some objects manually after the upgrade rather than copying the new versions from the Source.

Task 2-11: Determining Which Upgrade Steps Apply

Up to this point, some of the more complex concepts of upgrading have been explained. These concepts, however, make up only a part of the entire upgrade process. Depending on what type of upgrade you perform—PeopleTools (PT), application (APP), or customization (CUST)—upgrading will consist of multiple steps. The following table shows the high-level upgrade steps, specific tasks for each step, and which steps apply to the three upgrade types:

Upgrade Step	Tasks Included	Applicable Upgrade Types
Planning	Plan your upgrade activities.	All
Software Installation	Follow the instructions in your installation guide to install the software.	PT or APP
Preparation	Copy your production database, make functional decisions, clean up the copy, and identify customizations.	All
PeopleTools Copy	Update PeopleSoft PeopleTools tables, load new messages and COBOL SQL statements; import, compare, and copy PPLTOOLS project; update user security and SQL backup database.	PT
Comparison	Set upgrade controls, compare databases, review upgrade reports, adjust upgrade values as needed, and copy project.	APP or CUST
Apply Application Changes	Use SQL create new tables, SQL alter all records, load application data, run stored statements, and run data conversion.	All
Complete Copy of Production	Reapply customizations, set up menu security, and audit your database.	All
Testing	Test your move to production and develop testing strategies.	All
Move to Production	Freeze the production database, move copy of production to production database, and stamp database.	All

Important! Consider this table as a simple overview of the upgrade process. Whenever a new version of PeopleSoft software is delivered, a product-specific upgrade guide and PeopleSoft Change Assistant templates that specify step-by-step instructions for upgrading your system are also delivered.

Task 2-12: Learning About PeopleSoft Change Assistant

PeopleSoft Change Assistant is a tool designed to assist you in performing PeopleSoft upgrades. PeopleSoft Change Assistant operates on a Change Package (for your purchased product) that outlines the upgrade steps to be performed. PeopleSoft Change Assistant creates the road map of the upgrade steps to be performed based on information you provide during the setup of the environment and the Change Assistant job. PeopleSoft Change Assistant then runs each step by launching programs and processes, monitoring the progress, performing the navigation needed to complete the step, and checking for errors. In addition, PeopleSoft Change Assistant displays documentation relevant to the current step.

PeopleSoft Change Assistant can improve the quality of your upgrade, reduce errors, and decrease the amount of time it takes to complete an upgrade. In addition, PeopleSoft Change Assistant enables you to run certain steps in the upgrade unattended. During the unattended process, PeopleSoft Change Assistant can inform you, by email, if errors occur.

Specific documentation provides information on how to use PeopleSoft Change Assistant. In particular, the product documentation for PeopleTools: Change Assistant and Update Manager for your new release describes how to install and use PeopleSoft Change Assistant. This documentation is available through the PeopleSoft Online Help web site and delivered with your software. In this documentation, you learn how to load your upgrade template, set step properties, and run your upgrade process. PeopleSoft Change Assistant also enables you to configure certain options for your upgrade process.

See PeopleTools: Change Assistant and Update Manager for your current release.

Chapter 3

Starting Your Upgrade

This chapter discusses:

- Understanding How to Start an Upgrade
- Installing the New Release
- Applying PeopleSoft PeopleTools Patches
- Installing PeopleSoft Change Assistant
- Making a Copy of the Production Database
- Installing the PeopleSoft Update Image
- Defining Upgrade Packages
- Creating and Configuring an Upgrade Job
- Reviewing Upgrade Step Properties

Understanding How to Start an Upgrade

In this chapter, you will begin your upgrade of Oracle's PeopleSoft software. You will start by installing the new release, continue with retrieving and applying upgrade files, and finish by configuring your upgrade job in PeopleSoft Change Assistant.

Important! Remember that you must complete all steps in this guide before beginning your upgrade.

Task 3-1: Installing the New Release

To upgrade, you must first install the Source environment for your new release:

1. Download the PeopleSoft application installation guide for your database platform. These installation guides are found on the Installation and Upgrade tab of the PeopleTools home page.

Go to My Oracle Support and search for the PeopleTools home page for your new PeopleTools release level. Download the installation guide.

2. Download the application-specific installation guide for the product release that you are installing. The application-specific installation home page contains the application-specific installation guide. The link to the most recent application-specific home page is also found on the Installation and Upgrade tab of the PeopleTools home page. However if the upgrade-certified application release level is lower than what is listed on the PeopleTools home page, you will need to go to My Oracle Support and search for the application-specific installation home page for your upgrade-certified application release level.

Download the installation guide.

3. Download the Upgrade Source Image specific to your new application release level. These Images are found

on the application-specific upgrade home page for your upgrade path on the Upgrade Source Images tab. Only the Upgrade Source Image can be used to build the Source environment for the upgrade.

Go to My Oracle Support and search for your application-specific upgrade home page for your upgrade path.

Note. Do NOT use the Update Image to build your Source environment.

Install your new PeopleSoft software and Demo database following the instructions in the PeopleSoft application installation guide for your database platform, along with the application-specific installation guide for your product line. You will need to install an environment containing your licensed products and languages.

Review the Known Issues on the application-specific installation home page for information regarding issues that impact a fresh installation of PeopleSoft environments.

Warning! You must install the release that matches your specific upgrade path. You cannot install an older release and patch that database to the equivalent image level.

Note. You can use the pre-configured database delivered in the Upgrade Source Image as your New Release Demo database during your upgrade instead of completing a classic installation of your PeopleSoft application. This pre-configured Upgrade Source database is for Unicode customers *only*. If you are not a Unicode customer, you cannot use this pre-configured Upgrade Source database for your upgrade.

If you are a multi-language customer, you will need to perform the following instructions to complete your pre-configured source database for use in the upgrade: 1. Install a complete codeline, including all of your licensed languages. 2. Load your non-English licensed languages into the pre-configured Upgrade Source database. The delivered pre-configured Upgrade Source database is English-only.

The delivered translations are on the same PeopleTools patch and application maintenance level as the source image, so you will want to load the translations into your database prior to applying any PeopleTools maintenance.

See the product information for PeopleTools: Global Technology for your PeopleSoft PeopleTools release for more information about adding translations to an existing environment.

4. Ensure that the installed products in the Installation Options page on your New Release Demo database are set to accurately reflect your installed products.

Access the Installation Options page for your product line to set the installed products; for example, select Set Up Financials/Supply Chain, Install, Installation Options or Set Up HCM, Install, Installation Table. You must deselect the products on your New Release Demo that you are not using; otherwise, you will see steps for all products in your Change Assistant upgrade job, since the New Release Demo database comes pre-installed with all products.

5. If you are a multi-language customer and your base language is *not* English, you will need to swap your New Release Demo database prior to beginning the upgrade. The base language of the New Release Demo database must match the base language of your production database.

See the product information for PeopleTools: Global Technology for your PeopleSoft PeopleTools release for more information about swapping the base language.

Warning! Do not install any application fixes during the upgrade process! Installing application fixes, including fixes to the Demo database (used as your Source database during the upgrade process) or your Copy of Production database (used during your Test Move to Production passes) can break data conversion and other scripts for the upgrade. The *only* fixes that you can apply before or during the upgrade are Required at Upgrade fixes or the Known Issues that are documented on the installation home page for your specific application. All other application fixes should only be applied after you complete the upgrade.

Task 3-2: Applying PeopleSoft PeopleTools Patches

In this task, you download and apply PeopleSoft PeopleTools Required at Upgrade patches from the Patches & Updates tab on My Oracle Support.

Important! Because the release of an upgrade is often closely tied to a PeopleSoft PeopleTools patch release, complete this step only after the complete upgrade for your product is released on My Oracle Support. The certified upgrade path for your product will indicate the *minimum* PeopleSoft PeopleTools release and patch level that is required for your upgrade. Make note of this minimum PeopleSoft PeopleTools release and patch level.

However, we recommend that you take the most updated version of PeopleSoft PeopleTools as long as your minimum release is included to ensure that you have the most updated PeopleSoft PeopleTools.

Applying PeopleSoft PeopleTools patches will bring you completely up to date with any changes made to PeopleSoft PeopleTools that affect the upgrade process. These PeopleSoft PeopleTools patches should only be applied to either your Source database at the beginning of an upgrade pass, or your Target database after completing an upgrade pass. If you apply a PeopleSoft PeopleTools patch at the beginning of the upgrade pass to your Source database, the changes will be migrated automatically to the Target database. You can apply PeopleSoft PeopleTools patches to the Target database at the end of an upgrade pass if the patches were not applied to the Source database at the beginning of the upgrade.

Note. If you are performing an application-only upgrade and your New Release Demo database is on the same PeopleSoft PeopleTools release but a different PeopleSoft PeopleTools patch level than your current production database, you must apply the PeopleSoft PeopleTools patch to the database that is at the lower patch level. Both databases must be at exactly the same PeopleSoft PeopleTools patch level prior to starting the application-only upgrade.

As of PeopleTools 8.55, PeopleTools patches are also delivered via deployment packages (DPKs). The PeopleTools Patch Home Page includes the information for the PeopleSoft PeopleTools patches delivered as DPKs.

See the PeopleSoft PeopleTools Patch Home Page, My Oracle Support, Doc ID 2062712.2, for more information.

To apply all PeopleSoft PeopleTools Required at Upgrade patches:

1. Go to My Oracle Support and select the Patches & Updates tab.
 2. Click the Product or Family (Advanced) link.
 3. Select the Include all products in a family check box.
 4. Select the following search criteria:
 - For Product, select *PeopleSoft Enterprise PT PeopleTools*.
 - For Release, select your new PeopleTools release.
 - In the next search filter, select *Language* from the drop-down menu. In the adjacent field, select *American English* as your language.
 5. Click Search.
 6. Select the update ID for the PeopleSoft PeopleTools patch that you want to apply.
-

Note. Rather than taking the minimum patch level suggested on the product upgrade home page, take the latest PeopleSoft PeopleTools patch so that you are completely up to date with all PeopleSoft PeopleTools updates.

7. Before applying each patch, review the readme documentation included with the patch.

There may be instructions included within the patch that are relevant to your upgrade.

8. Download and install the PeopleSoft PeopleTools patch.

Task 3-3: Installing PeopleSoft Change Assistant

PeopleSoft Change Assistant was installed either as part of the PeopleSoft PeopleTools installation, or as part of the PeopleSoft PeopleTools patch.

Note. On some Windows platforms, the graphics do not appear as they should in PeopleSoft Change Assistant. To see the graphics, please refer to the PDF documentation.

You can access the PeopleTools: Change Assistant and Update Manager documentation from the PeopleSoft Hosted Online Help site.

See <http://www.oracle.com/pls/psft/homepage>

Task 3-4: Making a Copy of the Production Database

Make a copy of your production database. You will perform the upgrade on this Copy of Production database, not on your production database. Make sure that all current processes are completed and that no existing non-upgrade processes are queued or scheduled to run during the upgrade on the Copy of Production database. Performing the upgrade on a copy of your production database enables you to test your upgrade in a controlled environment. Refer to the administration guide for your database platform for information about copying databases.

Note. The Move to Production database is a second Copy of Production database, sometimes referred to as the "new" Copy of Production. The first Copy of Production, or "old" Copy of Production, will now be the Source database (it was the Target database in the initial test pass). The second, or "new" Copy of Production, is now the Target database.

Task 3-5: Installing the PeopleSoft Update Image

This section discusses:

- Understanding PeopleSoft Update Image Installation
- Installing the PeopleSoft Update Image for Your Application
- Downloading Upgrade Documentation from the Upgrade Home Page
- Understanding Required at Upgrade Fixes

Understanding PeopleSoft Update Image Installation

In this task you will install the latest PeopleSoft Update Image for your new application release. You will need this environment in order to generate a change package containing the Change Assistant upgrade template for your upgrade. Additionally, a change package containing the Required for Upgrade fixes for your upgrade will also be generated from the Update Image.

Note. You will need to install a PeopleSoft Update Image even if you are upgrading to the same image level that the upgrade was released on. The upgrade template needs to be generated from an update image and not an upgrade source image.

Task 3-5-1: Installing the PeopleSoft Update Image for Your Application

To install the latest PeopleSoft Update Image for your new application release:

1. Download the PeopleSoft Deployment Packages for Update Images Installation guide for the PeopleTools release matching the latest PeopleSoft Update Image for your application. These installation guides are found on the PeopleSoft Update Image tab of the PeopleSoft Update Manager Home page.
2. Download the latest Update Image deployment package specific to your new application release level. These Update Images are also found on the PeopleSoft Update Manager Home page.
3. Install the PeopleSoft Update Image following the instructions in the PeopleSoft Deployment Packages for Update Images Installation guide.

See the PeopleSoft Update Manager Home page, My Oracle Support, Doc ID 1641843.2.

Task 3-5-2: Downloading Upgrade Documentation from the Upgrade Home Page

The upgrade documentation files are attached to the upgrade home page on My Oracle Support. You must download the documentation before you begin your upgrade. As of PeopleSoft PeopleTools 8.55, only upgrade documentation is delivered on the upgrade home page. All other upgrade files are delivered as part of the new release Upgrade Source Image or updated through fixes in the Update Image.

Important! Before you complete your upgrade, it is imperative that you recheck the upgrade home page on My Oracle Support for updates to the upgrade instructions. We post updates on My Oracle Support when we revise the upgrade process.

Task 3-5-3: Understanding Required at Upgrade Fixes

You must apply all Required at Upgrade fixes to your system throughout the upgrade process. Required at Upgrade fixes are delivered in two ways:

- Required at Upgrade PeopleSoft Release Patchsets (PRPs) from My Oracle Support.
PRPs are standalone fixes that are available prior to the next image being released.
See How to Download PeopleSoft Bundles and Fixes from My Oracle Support (Doc ID 1432368.1), Using MOS to find PeopleSoft Release Patchsets (PRPs) or Images.
- Required at Upgrade fixes from the most current update image.

You can apply Required at Upgrade fixes at the beginning of an upgrade as well as at other points in the upgrade process. How you apply the fixes varies, depending on where you are in the upgrade. The high-level view of where, when, and how to apply Required at Upgrade fixes is discussed in the "Updates and Fixes Required at Upgrade" section of your product-specific upgrade home page.

See "Updates and Fixes Required at Upgrade" on your product-specific upgrade home page.

Important! You should apply all listed fixes. If you do not apply all fixes, you may be introducing an error into your upgrade. Some of the fixes will list a specific upgrade path. You should apply these fixes even if they are targeted for a different upgrade path. Interdependencies may exist between the upgrade code for various paths, and if you do not apply all fixes you may introduce errors.

Warning! DO NOT INSTALL ANY APPLICATION FIXES AT THIS TIME! The only fixes that you can apply at this time are Required at Upgrade fixes. Installing other application fixes during the upgrade process can break data conversion and other scripts for the upgrade. Application fixes include installing fixes to the Demo database used as your Source database during the upgrade, as well as any upgraded Copy of Production database that you use during your Move to Production test passes. Application fixes can be applied after the upgrade is complete.

Important! After upgrade GA, updates and fixes to the upgrade scripts will continue to be posted as Required at Upgrade resolutions on My Oracle Support. Check for these periodically and apply any updates that are newly available.

Task 3-6: Defining Upgrade Packages

As of PeopleSoft PeopleTools 8.55, the application upgrade template is delivered within the Update Image and can only be downloaded via the upgrade package. You will need to define your upgrade packages and create your upgrade template before performing your application upgrade in Change Assistant. The Define Upgrade Package component in the PeopleSoft Update Manager application will create 2 change package definitions:

- Upgrade package (UPG): This package contains the Application Upgrade template from your current release to 9.2
- Required for Upgrade package (RFU): This package contains all of the bugs required for upgrade

Prior to defining either type of upgrade package, apply all Required at Upgrade PRPs to your Current Update Image environment to ensure the generated package has the latest upgrade fixes.

To define upgrade packages:

1. In Change Assistant, configure the General Options and PUM Source.
2. Select Tools, Change Actions, then select Update Manager and click Next.
3. Select "Upload Target Database Information to Image" and click Finish.
The target database is the Upgrade Source database (New Release Demo).
4. Select the target database to upload.
5. Select "Proceed to Define or Create a New Change Package Wizard After Target Information is Uploaded" and click Next.
6. Click the button "Click Here to Open Browser and Connect to the PUM Source Database."
7. Sign on to the PUM Source Database.
8. Select PeopleTools, Lifecycle Tools, Update Manager, Update Manager Dashboard.
9. Expand the folder Select Target Database and click the Upgrade Source database name.
10. Expand the Define Change Package folder and select Define Upgrade Package.
The Define Upgrade Package wizard will guide you through the steps to create a change package definition.
11. At Step 2 of the Define Upgrade Package wizard, enter a name and description for the change package and click Next.
12. At Step 3, the "Application Upgrade to 9.2" option is selected by default. Select the From release and To

release (9.2 image release) from the drop-down lists and click Next.

By default, Required for Upgrade Fixes will be included in the package.

13. Step 4 does not apply to upgrade packages, so is skipped by the wizard.
14. Step 5 displays the upgrade path and the bugs to be included in the change package. Review the bugs and click Next.
15. When you transition to Step 6, the required for upgrade (RFU) change package and the application-only upgrade template (UPG) change package definitions are created and the results are displayed in the summary list.
16. Return to Change Assistant to create the change packages.
17. In Change Assistant, on the Create a New Change Package page, select either the UPG or RFU change package from the drop-down list and click Finish.
18. You will receive a message "Do you need to create the corresponding UPG CP?" or "Do you need to create the corresponding RFU CP?" or "Change Package <name of change package> has been Successfully Created in the Download Directory" depending on your selection in the previous step. Click OK.

The change packages will be created.

See the product documentation for PeopleTools: Change Assistant and Update Manager for your current release.

See the PeopleSoft Update Manager Home Page on My Oracle Support (Doc ID 1641843.2) for PUM instructions.

Task 3-7: Creating and Configuring an Upgrade Job

You must define your change packages before performing this task. To run an upgrade using PeopleSoft Change Assistant, you need to configure PeopleSoft Change Assistant as well as an upgrade job.

Note. You must be in Update Manager Action.

Launch PeopleSoft Change Assistant and perform the following steps:

1. Configure the PeopleSoft Change Assistant options:
 - a. Select Tools, Options.
 - b. On the General Options page, specify the high-level settings for your current environment.
 - c. On the Additional Options page, enter your optional email notifications settings.
 - d. Click OK.
2. Next, create your upgrade job. Select Tools, Upgrade Application.
The Change Package Wizard will guide you through creating the upgrade job.
3. On the Change Package Settings page, select the download directory where you created the Upgrade Package, select the apply type, and click Next.
4. On the Select Upgrade Target Database page, select the target database (Copy of Production database) to upgrade and click Next.
5. On the Select Upgrade Source Database page, select the source database and click Next.
6. On the Select Application Upgrade page, select the packages to apply and click Next.
7. Change Assistant will check the compatibility and display the status.

In PeopleSoft Change Assistant 8.55, you can apply a Required for Upgrade (RFU) Change Package to your upgrade source before starting the application upgrade. If you have not created an RFU package, you will see

a warning message on the Check Compatibility page indicating that the RFU Change Package is undefined. You may choose to proceed, or you may cancel this process, generate the RFU package using PUM procedures and then restart these steps.

See the PeopleSoft Update Manager Home Page on My Oracle Support (Doc ID 1641843.2) for PUM instructions.

8. Review the checks on the Check Compatibility page and click Next.
9. On the Apply Summary page, click Finish.
10. Change Assistant will create the Application Upgrade job and open it.
11. Set the documentation directory so that PeopleSoft Change Assistant can display the HTML upgrade documentation in the documentation pane:
 - a. Select Edit, Set Documentation Directory.
 - b. Enter or browse to the directory containing the HTML documentation and click OK.

See the product documentation for PeopleTools: Change Assistant and Update Manager for your current release for information about configuring Change Assistant for upgrades.

Task 3-8: Reviewing Upgrade Step Properties

When you open the upgrade template using PeopleSoft Change Assistant, you can find the various properties specified for each upgrade step. Several of those properties are included in the upgrade documentation. At the end of each upgrade step is a table that specifies the property values that apply to that step. The following example shows the property information that appears in the upgrade documentation:

The following table defines the possible values for each property in the step properties tables:

Properties				
Database Orientation	Pass Type	Products	Platforms	Languages
Target	All	All	DB2 z/OS	All

Properties table example

Property	Value	Definition
Database Orientation	Source	The step runs on the Source database. During your initial pass, your Source database is the new Demo database delivered with your new PeopleSoft release. For test Move to Production passes, Source indicates the database that you upgraded (your Copy of Production) in your initial pass.
Database Orientation	Target	The step runs on the Target database. This is your Copy of Production database.

Property	Value	Definition
Pass Type	Initial	The step runs only in the initial pass of the upgrade.
Pass Type	Move to Production	The step runs only in Move to Production upgrade passes. The step is not applicable to the initial pass.
Pass Type	All	The step runs for all types of upgrade passes.
Products	All	You run the step regardless of which products you are upgrading.
Products	Specific product names	You run the step only if you are upgrading the products specified. You specified which products you are upgrading when you set up your Change Assistant job configuration.
Platforms	All	You run the step regardless of which platform your database uses.
Platforms	One or more of the following platform names: <ul style="list-style-type: none"> • DB2 z/OS • DB2 LUW • MS SQL Server • Oracle 	You run the step only if your database uses one of the specified platforms. You specified which platform you are using when you set up your Change Assistant job configuration.
Languages	All	You run the step regardless of which language your database uses.
Languages	Specific language names	You run the step only if your database uses the languages specified. You specified which languages are installed on your database when you set up your Change Assistant job configuration.

Note. "DB2 for Linux, UNIX and Windows" and "DB2 for z/OS" are the official IBM names for the RDBMS. For the sake of brevity, PeopleSoft upgrade documentation often refers to "DB2 for Linux, UNIX and Windows" as "DB2 LUW" and "DB2 for z/OS" as "DB2 z/OS."

Chapter 4

Reviewing Additional Upgrade Notes and Tips

This chapter discusses:

- Understanding Upgrade Notes and Tips
- Reviewing Performance Recommendations
- Altering the Tablespace for PSIMAGE
- Updating Statistics During Data Conversion

Understanding Upgrade Notes and Tips

This chapter contains information that might apply to the upgrade for your product. We strongly encourage you to review the information in this section before beginning your upgrade.

Important! Review the Upgrade Notes and Tips section of your application-specific upgrade documentation. Application-specific information is included to help you understand and prepare for your particular upgrade.

Task 4-1: Reviewing Performance Recommendations

Before you begin your upgrade, you may want to plan for performance issues. For recommendations to enhance your upgrade performance, refer to the appendixes.

See Appendix: "Improving Performance."

Task 4-2: Altering the Tablespace for PSIMAGE

Oracle RDBMS customers need to alter the tablespace for PSIMAGE by increasing it to 200 MB; autoextending on the next 10 MB; and setting the maxsize to *unlimited*.

Task 4-3: Updating Statistics During Data Conversion

Update statistics run dynamically during the Application Engine data conversion programs in this upgrade. DB2 z/OS sites will need to implement the DSNUTILS stored procedure, follow the enhanced installation path, or both to take advantage of this feature. If you do not implement the DSNUTILS stored procedure or you follow the traditional installation path, you will need to set flags in Configuration Manager on the client workstation and in the Process Scheduler configuration on the servers to disable recognition of the %UpdateStats feature. See the chapter "Creating a Database" in *PeopleTools Installation for DB2 z/OS* for further information.

Note. Disabling the %UpdateStats feature of Application Engine will adversely affect the performance of your data conversion programs because statistics will not be updated when tables are loaded with large volumes of data.

Appendix A

Improving Performance

This appendix discusses:

- Understanding Performance Improvement
- Planning for Better Upgrade Performance
- Performing the Upgrade
- Improving Performance for Your Platform
- Consulting Oracle's Global Support Center

Understanding Performance Improvement

Performance is always a challenge when you upgrade. Much of the data currently in your database will be affected. No other batch processing works quite like it. Upgrade performance is sensitive to your unique environment and data. These performance recommendations are designed to help you improve performance during your upgrade.

Task A-1: Planning for Better Upgrade Performance

Review the following guidelines to help plan for better upgrade performance:

- Provide as much hardware, memory, and disk space as you can.
- Run long processes on a dedicated server, not the client server.
Configure that server similarly to your production environment.
- Size the Copy of Production database (Target) like your production database—allow for growth.
- Use the appendix titled "Sizing Tables for the Upgrade" to determine how much space you will need.
These recommendations are minimum levels; you should plan to use more.
- Use a dedicated workstation, configured as the production environment is configured.
- Provide an application server and process scheduler for the Target database on the new PeopleSoft release.
- Look for fragmented tables.
Resize or reorganize the initial and next extents accordingly.
- Know which tables are your largest.
This information will be valuable during the upgrade.

Task A-2: Performing the Upgrade

This section discusses:

- Verifying the Database Structure Task
- Creating and Altering SQL Scripts
- Running Application Engine Programs

Task A-2-1: Verifying the Database Structure Task

When performing the "Modifying the Database Structure" task, perform all recommended update statistics so that the optimizer can make a good decision.

Task A-2-2: Creating and Altering SQL Scripts

Use the following tips when performing the "Modifying the Database Structure" task:

- Perform all recommended update statistics so that the optimizer can make a good decision.
- Look for large tables that are being altered. Create separate scripts for each of these tables and run the script concurrently with your other alter scripts. You can run these concurrently even if you are using the Alter by Rename build option because each table creation uses an independent temporary table name in the new PeopleSoft release (*PSYrename*).
- Run your create table script concurrently with the alter tables without a deletes script.
- Some indexes will not create during alter without deletes because of a unique key violation. You can expect this because index structures have changed. The data in these indexes will be corrected during data conversion. You can create the index as a non-unique key for data conversion. Create this non-unique index, without the field that caused the error, so that data conversion does not have to update the index as well as the data pages as it corrects the data in this field.

Task A-2-3: Running Application Engine Programs

By default, Oracle delivers the PeopleSoft Change Assistant templates to run the application data conversion steps through the Process Scheduler to improve performance. Other Application Engine steps are set to run on the client by default. You may want to run these other Application Engine programs on the server to increase performance. However, only those steps that occur after the "Applying PeopleTools Changes" chapter of the upgrade can be run on the server.

One alternative is to run Application Engine programs on the server through the Remote Agent. PeopleSoft Change Assistant uses the PSEMHUB and PSEMAgent to execute jobs to the server. You will need to configure and start your Environment Management Hub and Agent, enter the Environment Management information into the Change Assistant Options dialog box, set your PeopleSoft Change Assistant mode, select the Enable Server Processing check box, and modify the run location of the steps that you want to run on the server.

Another alternative to the Remote Agent, is to run the steps through the Process Scheduler. PeopleSoft Change Assistant uses the PROCESSREQUEST component interface object to submit jobs to run on the PeopleSoft Process Scheduler server. You will need to configure and start a process scheduler for the appropriate database, define the process scheduler within your upgrade environment, and modify the existing step properties with the required parameters for the process scheduler.

See the PeopleTools: Change Assistant and Update Manager documentation for your current release.

Task A-3: Improving Performance for Your Platform

This section discusses:

- Using Oracle
- Using DB2

Task A-3-1: Using Oracle

You should use the cost-based optimizer during the upgrade. The application engine scripts use MetaSQL to run the update statistics command at various times during data conversion. If you are running the rule-based optimizer, you will not take advantage of these statements.

When running the alter scripts, remember the Oracle hint `/*APPEND*/`. This command will improve the performance of your alter script if you are doing an Alter by Rename action. This hint performs as an Oracle Direct Load Insert does, and it does not capture redo or recovery information. The syntax is as follows:

```
INSERT /*+ APPEND */ INTO TABLENAME (FIELD1, FIELD2, ...
```

Make sure your database administrator has turned autoextend on. Autoextend allows tablespaces to grow larger than their set maximum size, which will be useful during the upgrade process since tablespaces grow several times larger than they do in production.

Alter the tablespace for PSIMAGE by increasing it to 200 MB, autoextending on the next 10 MB, and setting the maxsize to *unlimited*.

Task A-3-2: Using DB2

To improve performance for your DB2 z/OS platform:

- Perform all recommended update statistics on the system catalog as well as the application tablespaces.
- For DB2 z/OS, Application Engine state records that are used in data conversion should be placed in tablespaces with LOCKSIZE ROW.
- Interspersed throughout the Application Engine data conversion programs are steps that make a dynamic call for RUNSTATS to be performed against selected tables. The following is an example of how this is used:
 - Step01 - Start with an empty Temp_Table_TAO.
 - Step02 - INSERT 60,000 rows into the Temp_Table_TAO.
 - Step03 - Application Engine Step calls %UpdateStats(Temp_Table_TAO).
 - Step04 - You can now perform SQL against Temp_Table_TAO using new statistics.

You are allowed to use indexes when processing against Temp_Table_TAO. If DB2 z/OS is not configured correctly, Application Engine programs skip these steps and the performance of the SQL steps that follow will suffer.

To take advantage of the %UpdateStats feature, at least one of these conditions must be met:

- You implemented the DSNUTILS stored procedure.
- You used PSTAAT to isolate selected tables to individual tablespaces."

See PeopleTools Installation for DB2 for z/OS for your current release.

Note. If you disable the %UpdateStats feature of Application Engine, the performance of your data conversion programs will be adversely affected because statistics will not update when the tables are loaded with large volumes of data.

- Additionally, you must apply all the required IBM patches listed in the document titled "Important PTFs for the PeopleSoft on DB2 for z/OS."

See "Important PTFs for the PeopleSoft on DB2 for z/OS" on My Oracle Support. (Search for the article name.)

Task A-4: Consulting Oracle's Global Support Center

If you have a problem with your upgrade, contact Oracle's Global Support Center. They will be able to give you a solution to the problem faster if you supply the following information:

- Details about the table row counts and indexes available for the tables involved in the processing:
 - Include indexes in your physical database, not those defined in PeopleSoft Application Designer.
 - Mention any customized indexes that you added; they could be getting in the way.
- RDBMS (Oracle, SQL Server, or DB2, and so on) and RDBMS release (for example, Oracle 7.3 or 8.16).
- If you are running on Oracle, specify whether you are you running in cost-based or rule-based mode.
- The PeopleSoft upgrade path for both PeopleSoft PeopleTools and the application.
- Trace files (PeopleSoft PeopleTools trace and RDBMS-specific trace files, SQL explains, and so on).

Appendix B

Planning for Upgrade Testing

This appendix discusses:

- Understanding Testing Techniques
- Deciding When to Test
- Evaluating Your Testing Requirements
- Defining Your Testing Strategy
- Determining the Testing Conditions
- Developing Your Test Plan
- Developing Test Scripts
- Reviewing Tips and Techniques

Understanding Testing Techniques

As with any project, testing is a critical part of your upgrade project. With proper testing, you can ensure that you upgrade successfully and are ready for your Move to Production.

Upgrades vary in complexity and scale from release to release and from customer to customer, so the testing periods and the activities required to perform testing vary from upgrade to upgrade. Because Oracle cannot anticipate how every organization uses the system to fit their own business practices, including customizations and data setup, Oracle does not deliver PeopleSoft upgrade test scripts. However, you can follow some general testing guidelines to assist with your upgrade testing. In this section, you will find information that will help you plan your testing tasks.

Task B-1: Deciding When to Test

An effective testing strategy involves an understanding of the stages of a PeopleSoft upgrade and when, within these stages, testing should be performed. You can take more than one approach and use more than one method to test your upgrade.

Task B-2: Evaluating Your Testing Requirements

To evaluate your testing requirements, you need the following information:

- The number of products and modules that you currently have in your production database.
- The number of customizations that you have in your production database.
- The functional design and business requirements that are addressed by each customization.

- Your online, batch, and reporting business processes that you want to include in testing.

Task B-3: Defining Your Testing Strategy

This section discusses:

- Understanding Your Testing Strategy
- Evaluating Unit Testing
- Evaluating System Testing
- Evaluating Integration Testing
- Evaluating Parallel Testing
- Evaluating Performance Testing
- Evaluating User Acceptance Testing
- Evaluating Regression Testing

Understanding Your Testing Strategy

Once you evaluate your testing requirements, you can determine what types of testing you need. You should define the tests to be performed for the project and the goals of each test—including roles and responsibilities, test-case management, control points, and success criteria. In addition, you should define and document the scope of each type of testing. Use the definitions below to determine the levels of testing required in your organization.

To ensure upgrade success, be sure to train upgrade members before the upgrade. It is critical that you have educated testers to ensure adequate test coverage of new functionality.

The testing types described below do not necessarily run systematically, one after another. Different test conditions can sometimes run in parallel.

Important! It is important to test not only your customizations and changes in your new release but also your standard business practices. By doing this, you ensure that your normal business practices have not been altered by the new release, your customizations, or both.

Task B-3-1: Evaluating Unit Testing

In this stage of testing, you have completed your upgrade tasks and your database is now at the new release level; now you should unit test before you use the new system. Unit testing validates data, business rules, and business process requirements. In addition, it ensures that business processes work as designed and that your database is ready for full functionality testing. To perform unit testing, you complete these processes:

- Test individual online transactions and batch processes on the upgraded database.
- Validate data converted during the upgrade.
- Verify that you can access existing data and enter new data successfully.
- Test customizations reapplied to the upgraded database.
- Test each customization individually along with all related processes.
- Do not test business processes.
- Test scripts are not required.

- Test – Document – Resolve issues – Retest.

Task B-3-2: Evaluating System Testing

System testing ensures that all business functions and processes run appropriately from the customer's view. Business processes are tested from beginning to end during system testing; this is sometimes referred to as end-to-end testing. To perform system testing, you complete these processes:

- Create a system test environment via a test Move to Production.
- Test inbound and outbound interfaces and related business processes.
- Test online business processes using relevant security (that is, user IDs, roles, and permission lists).
- Test batch business processes.
- Test reporting processes (SQR, PS/Query, and nVision).
- Test customizations to business processes.
- Perform testing using test scripts.
- Compare expected results to actual results.
- Test – Document – Resolve issues – Retest – Document – Sign off.

Task B-3-3: Evaluating Integration Testing

After system testing, you perform integration testing. In this stage, you test business processes and groups of related business processes within the application to determine whether they function as designed. In addition, you ensure that any design flaws are resolved before user testing. To perform integration testing, you complete the following activities:

- Create an integration test environment via a test Move to Production.
- Test specific business processes.
- Test integration between modules and business processes.
- Perform testing using test scripts.
- Compare expected results to actual results.
- Test – Document – Resolve issues – Retest – Document – Sign off.

Task B-3-4: Evaluating Parallel Testing

Parallel testing validates that the current production system and the upgraded database generate the expected results for specific business events. Parallel testing is optional but frequently used to ensure that the new release will generate the same results given the same testing scenarios. To perform parallel testing, you complete these processes:

- Create a parallel test environment via a test Move to Production.
The Copy of Production should be taken before the major business processes/events are executed so that the same processes can be run during the parallel test.
- Retain any output from production processes for later comparison.
- Run the same business processes/events in the upgraded database.
- Compare results generated in the production system with the results generated using the upgraded database.

- Perform testing using test scripts.
- Test – Document – Resolve issues – Retest – Document – Sign off.

Task B-3-5: Evaluating Performance Testing

You conduct performance testing to determine whether the system can accomplish stated objectives within a specified time period. The performance of the current production system is often used as a baseline. To conduct performance testing, you complete these processes:

- Define performance objectives for each business process included in the scope of the test.
- Perform business processes.
- Monitor performance.
- Compare actual performance and acceptance criteria.
- Perform testing using test scripts.
- Test – Document – Resolve issues – Retest – Document – Sign off.

Task B-3-6: Evaluating User Acceptance Testing

User acceptance testing determines whether day-to-day users can complete daily work activities within the system with an acceptable level of effort. For example, run through business processes such as hiring, terminating, and paying an employee in Human Resources or creating, editing, and posting journals in PeopleSoft Financials. To perform user acceptance testing, you complete these processes:

- Functional resources should run test scenarios with their appropriate production security access to ensure they have access to all the components, pages, and processes used in their daily functions.
- Perform testing using test scripts.
- Do not perform user testing with developer or Super User access.
- Test – Document – Resolve issues – Retest – Test – Document – Sign off.

Task B-3-7: Evaluating Regression Testing

You perform regression, or re-testing, if problems were found and resolved or changes were made during any of the previous tests. This stage of testing validates the test Move to Production and Move to Production parts of the upgrade. When all the tests have received sign-off, you will use the initial Copy of Production to upgrade the production database/environment. You then perform a test move into the production environment and customers confirm that the test move executed successfully. At this point you conduct regression testing. The following tips will assist you with regression testing:

- Ensure that no new defects have been introduced during the move.
- Run a predefined set of scripts to confirm the test move.
- Ensure that testing is performed by functional resources before *Go Live*.
- Rerun scripts from previous testing.

Task B-4: Determining the Testing Conditions

After you identify the types of testing to include in your upgrade, determine conditions for each stage of testing. Be sure to test the actual test Move to Production to resolve any technical issues in the upgrade process itself, in addition to performing functional application testing. Perform the following actions for each testing type:

- Determine criteria for successful completion.
- Determine which tests you can run concurrently and which you must run serially.
- Set up test plans and test scripts that you will need.
- Define the testing environment.
- Define issue resolution procedures.
- Define change control and migration procedures.
- Define which third-party tools you must install and configure.
- Identify database maintenance procedures, for example, backup and refresh.
- Evaluate the need for a testing tool to aid in the testing process.

Task B-5: Developing Your Test Plan

If you have test plans from your implementation or previous upgrades, consider modifying them for this upgrade project, ensuring that you incorporate features and functions delivered with the new release. Use existing test plans and scripts whenever possible. Identify modifications during the fit/gap analysis and complete script generation during the initial upgrade. Based on the objectives and scope defined in your testing strategy, identify the following items for each type of testing:

- Test procedures
- Assumptions
- Timing
- Deliverables
- Acceptance criteria
- Roles and responsibilities
- Resource requirements
- Training requirements
- Test environment
- Data requirements
- Issue and change control tracking procedures
- Testing tools

Task B-6: Developing Test Scripts

The process of developing test scripts can assist with detecting problems in the requirements or design of an application. It requires thinking through the entire operation of the application. For this reason, you may find it useful to start preparing test scripts early in the upgrade cycle and, if possible, to base them on existing test scripts from your implementation project or a previous upgrade.

If you have test scripts from your original implementation, reuse them and modify them to accommodate new functionality. That way, you can be sure to cover your critical end-to-end business processes. You will also want to focus additional testing time on your customizations to verify that they upgraded successfully.

If you do not have test scripts from your original or an earlier implementation, you can create them by documenting what you currently do within the system.

Create a test script for each business process to define the action or event, input, and the expected result to determine whether an application feature is working correctly. Functional resources who are aware of current processes should write your test scripts. However, when writing test scripts, assume that the person who is performing the testing does not know how to use the system. Use the following guidelines for developing test scripts:

- Test scripts should contain specifics, such as test identifier, test name, objective, test conditions and setup, input data requirements, steps, and expected results.
- Write as a step-by-step guide, stating what data should be entered, when, and where.
- Organize by module, business process, and process cycles.
- Create with full production security in mind.
- Create early in the upgrade process.

Make sure that your tests are consistent with the following tips:

- Action
 - Include the script name, description, and purpose.
 - Include the navigation steps within the PeopleSoft system.
 - Include navigation steps outside the PeopleSoft system.
- Input
 - Include security requirements: the User ID, Role, and Permission List that should be used to perform the test.
 - Specify key data elements, such as entering new data or accessing existing data.
- Results
 - Include the exact results.
 - Print screens to support the results and print the report output.

Task B-7: Reviewing Tips and Techniques

This section discusses:

- Reducing the Time of Upgrade Process
- Performing Security Testing

- Performing Testing on Up-to-Date Data
- Performing a Test Move to Production
- Tracking Issues
- Reviewing Testing Tools
- Discussing Change Control
- Discussing Backup Procedures
- Evaluating Unexpected Results
- Evaluating Reasons for Failure

Task B-7-1: Reducing the Time of Upgrade Process

All testing can be performed at the end, including running the tests on the current system to obtain results for comparison. One way to reduce the overall time of an upgrade is to run the tests on the current system while the upgrade is in progress. This way, you will have the results ready when the upgraded database is to be tested. You can achieve this by taking two copies of the production database at the start of the upgrade. Only one copy is upgraded, while the other remains at the current release. The testing time is reduced by performing the tests on only one database.

After each test Move to Production, you may want to turn over the upgraded database to the testing team while the technical team begins a new iteration of the test Move to Production. Conducting these two tasks in parallel may decrease the overall time required to upgrade. Any issues that are found by the testing team can be incorporated into the newly upgraded database as soon as it is available.

One approach that may be used for the Move to Production is to run the production database and upgraded database in parallel to ensure that key business processes operate as expected. Although this approach may require dual maintenance of data during the parallel testing period, it may minimize the effect of the actual Move to Production. If you are interested in using this method, once you have performed a test Move to Production to your satisfaction, schedule the production cut over a weekend. Then perform the next test Move to Production during that weekend. Bring the existing production system back up and run the upgraded database concurrently. If, after comparing the outcome of your critical business processes, you are satisfied with the results, then set the upgraded database to your production system. If you are not satisfied with the results, make the necessary adjustments and perform another test Move to Production.

Task B-7-2: Performing Security Testing

You must test security on each test pass that you complete. Security is a vital part of the upgrade process, and if it is not tested properly before you go live with your new release, the potential for failure is increased.

Task B-7-3: Performing Testing on Up-to-Date Data

The previous technique will mean that testing is performed on *old* data. The copies of production may have been taken some weeks or months in the past. It will confirm that the data you started with has upgraded successfully. However, the tests may need to be performed on the most recent data set, as follows:

- Take a copy of production and upgrade.
- Perform all phases of testing on the upgrade version up to unit testing.
- Determine whether the database is ready for full functionality testing.

Task B-7-4: Performing a Test Move to Production

Performing a test Move to Production is a good technique for assuring database readiness, as follows:

- Take two up-to-date copies of the production database.
- Perform the test Move to Production steps to upgrade one of the databases.
- Run test scripts on the remaining database.
- Perform tests on the upgraded database and compare the results.

Task B-7-5: Tracking Issues

You should implement a method for tracking the tests and issues discovered during testing. Tracking issues and resolutions on a central document serves as a communication tool and minimizes duplication. The following tips should be considered while tracking issues:

- Categorize issues as Critical, Major, Minor, or Cosmetic.
- Use a central document repository or tracking tool.

Task B-7-6: Reviewing Testing Tools

You should review the testing tools that you plan to use.

SQA Robot:

- Records key strokes (such as a macro recorder) into Visual Basic scripts.
- Useful for regression testing.
- SQA Manager can be used to simulate multiple users.

Test Director by Mercury/Interactive:

- Tool manages test scripts, and it tracks execution and defects.
- Useful for regression testing.

Task B-7-7: Discussing Change Control

Make sure that you have a procedure for implementing changes during the testing stage. You may have several databases if server space permits. All changes should be made in a master database. If an issue is found during testing, the resolution should be applied to the master database and promoted via predefined migration procedures. Remember that a master database will also be required to perform the Move to Production.

Task B-7-8: Discussing Backup Procedures

Consider these tips when backing up your data:

- Back up at baseline before testing (use a backup technique that allows you to restore individual tables).
- Back up at key points for point-in-time testing.
- Implement refresh procedures to avoid duplicate data.

Task B-7-9: Evaluating Unexpected Results

In the event that you receive unexpected results and you cannot determine their cause, attempt to replicate any issues that you encounter in your Copy of Production database on a delivered Demo database. If the issue does occur on the Demo, report it to Oracle's Global Support Center. Check My Oracle Support to see whether a fix has been posted to resolve the issue.

See My Oracle Support, Patches & Updates.

Task B-7-10: Evaluating Reasons for Failure

This list identifies some of the reasons your test plan may have failed:

- Testing strategy was poorly defined.
- Test plans were poorly defined.
- Test scripts were poorly defined.
- Resources and resource commitment were lacking.
- An understanding of the upgrade process was lacking.

