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Getting Started on Your PeopleSoft Upgrade

February 2013

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SKU ugs_ca_022013

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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 set forth in this guide before beginning the actual upgrade. The tasks in this documentation guide you through planning your upgrade as well as the installation of the necessary software.

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

Audience

This guide assumes you have a basic understanding of PeopleSoft software. One of the most important components of a successful upgrade of your PeopleSoft system is your already accumulated, on-site experience. 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 have been 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).

- Using Upgrade Notes and Tips (primary audience: technical; secondary audience: functional).

This guide also contains appendices. When additional information is relevant to an upgrade topic, you will be 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.
Italics	Indicates field values, emphasis, and book-length publication titles. Italics is also used to refer to words as words or letters as letters, as in the following example: Enter the letter *O*.
Initial Caps	Field names, commands, and processes are represented as they appear on the window, menu, or page.
lower case	File or directory names are represented in lower case, unless they appear otherwise on the interface.
Menu, Page	A comma (,) between menu and page references indicates that the page exists on 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 *See* refer you to additional documentation that will help you implement the task at hand. We highly recommend that you reference this documentation. Cross-references under the heading *See Also* refer you to additional documentation that has more information regarding the subject.
" " (quotation marks)	Indicate chapter titles in cross-references and words that are used differently from their intended meaning.
Note. Note text.	Text that begins with *Note* 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 *Important!* 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 *Warning!* contains crucial configuration information or implementation considerations; for example, if there is a chance of losing or corrupting data. 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 installation guide for PeopleSoft PeopleTools and the application 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.

- Release notes.

  Release notes indicate what has changed in each new release. Oracle produces release notes for PeopleSoft PeopleTools as well as for product releases.

- Upgrade guides.

  The product-specific upgrade guide provides upgrade instructions for your particular upgrade path—that is, from your current release to your new release.

- Upgrade pages.

  The product-specific upgrade page on My Oracle Support is the starting point for your upgrade. It contains the upgrade documentation and related files.

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 acts as a planning guide for you and your team to make the arrangements and decisions needed before you begin the actual upgrade process. These tasks 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 to executing a PeopleSoft upgrade properly; therefore, take the time to carefully follow the tasks described in this chapter.

While this chapter was written primarily for the upgrade project manager, project team members in technical and functional roles will also find some of the planning tasks to be 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:
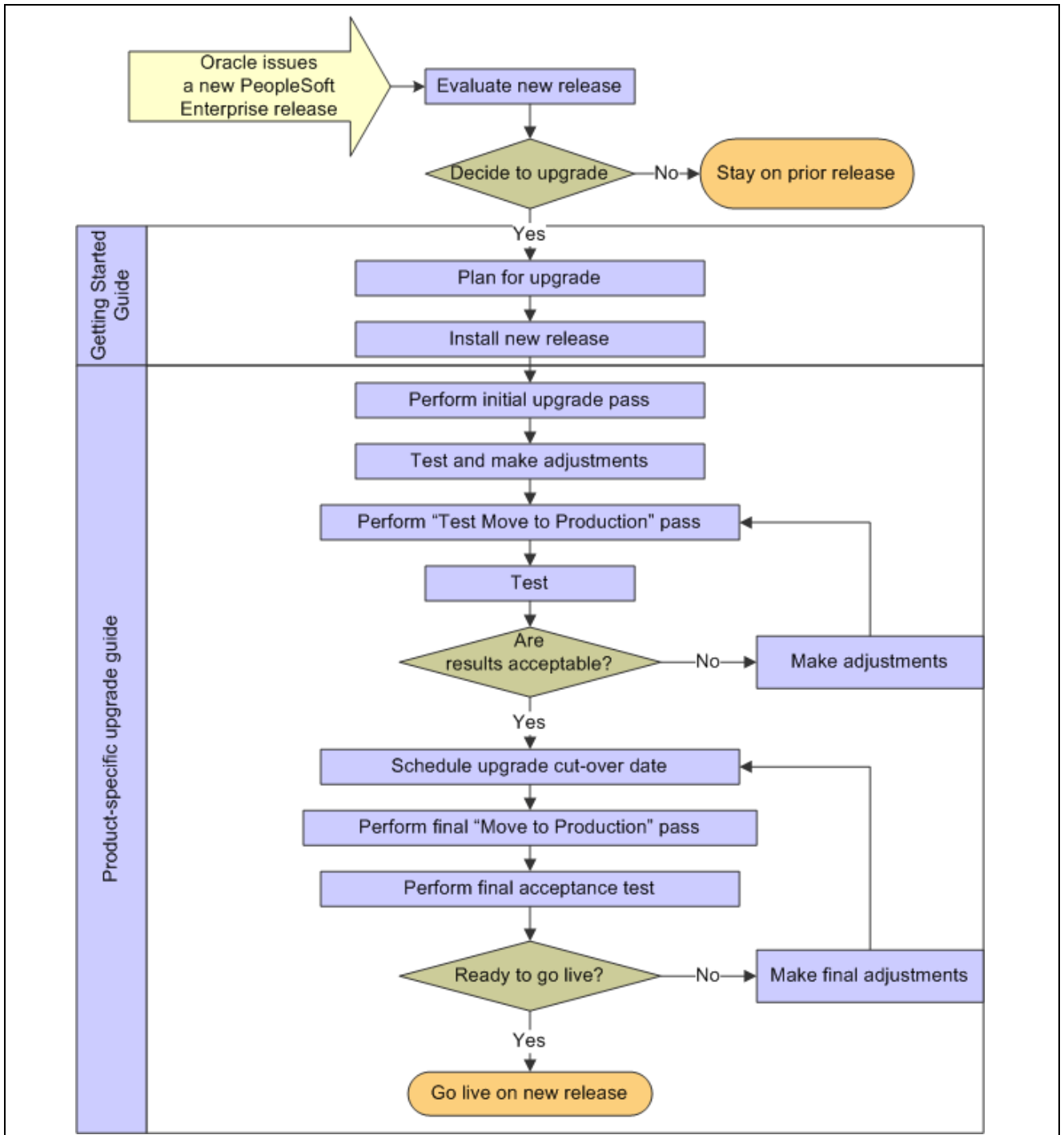
PeopleSoft upgrade process

Task 1-1: Learning About The New Release

This section discusses:

• Understanding the New Release

• Reviewing Release Notes

• Reviewing Product Documentation

• Reviewing Red Papers

• Reviewing Installation and Upgrade Guides

• 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:

• Release notes.

• Product documentation.

• Red papers.

• The PeopleSoft PeopleTools installation guide for your new release.

• The installation and upgrade guides for your product line, for the new release.

Task 1-1-1: Reviewing Release Notes

Read the release notes prior to starting your upgrade. They will help you to determine what has changed in the system and to familiarize yourself with the new features. Release notes provide detailed information regarding application changes. In addition to preparing you for the new features in the new release, the release notes are also valuable for the following:

• Establishing test strategies.

   For more information on establishing test strategies, see the task titled, "Defining a Testing Strategy."

• Determining end-user training needs.

   Determining your end-user training needs prior to starting your upgrade will save you time and money.

You can download the release notes from My Oracle Support. Because PeopleSoft release notes are not cumulative, you need to review release notes for each release that occurred after your current release through the new release. For example, if you are upgrading from Oracle's PeopleSoft Financials/Supply Chain Management (FSCM) 8.8x to PeopleSoft FSCM 9.1, you need to review the release notes for PeopleSoft FSCM 8.9, PeopleSoft FSCM 9.0, and PeopleSoft FSCM 9.1.

Download and review the release notes for Oracle's PeopleSoft PeopleTools and for your product.

See My Oracle Support, select the Knowledge tab, then PeopleSoft Enterprise, Tools and Technology. Search on Release Notes for PeopleSoft PeopleTools.

Download the release notes for your new PeopleSoft PeopleTools release. Repeat this for each PeopleSoft PeopleTools release between your current release and the new release.

See My Oracle Support, select the Knowledge tab, then PeopleSoft Enterprise. Search on Release Notes for your product.

Select your product and then download the release notes for your new application release. Repeat this for each product release between your current release and the new release.

Task 1-1-2: Reviewing Product Documentation

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

See the PeopleTools installation guide for your new release, "Installing PeopleSoft Online Help."

Task 1-1-3: 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.

See My Oracle Support, select the Knowledge tab, then select PeopleSoft Enterprise. Search on Red Papers.

Task 1-1-4: Reviewing Installation and Upgrade Guides

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

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

See "Starting Your Upgrade," Retrieving and Applying Upgrade Files.

Task 1-1-5: 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.

See Training Upgrade Team Members.

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

Based on the release notes review and the knowledge of your customizations, assess the various fits and 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 re-customization effort. Consider the following 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 impacts.
- Know your customizations. You should have detailed documentation available regarding your customizations. This is your corporate documentation for the customizations and modifications you've made to your Oracle-delivered applications. You will use this information during fit/gap 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 will identify all the modifications you've made to the online environment.

- Allocate the people 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 guides 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. Prior to 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.

See My Oracle Support, select the Knowledge tab, then select PeopleSoft Enterprise. Select your product. Search on hardware and software requirements.

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 above and beyond the baseline PeopleSoft PeopleTools requirements are documented separately in a product-specific requirements guide for that application release.

See My Oracle Support, select the Certifications tab, enter PeopleSoft PeopleTools for Product, enter the release you are going to (for example, 8.53) for Release, 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.

See 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 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 very 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 PeopleTools hardware and software requirements on the Certifications tab on My Oracle Support.

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 of the hardware and software requirements. You will need to evaluate existing structure and assets, including network, servers, Oracle-delivered software, software supplied by third-party vendors, and client workstations. The detail in which you complete this depends on the degree to which your organization intends to utilize existing assets.

Note. Order all required upgrades or new purchases from third-party vendors 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

- Contact your hardware vendor for assistance in 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. It is important that you 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 to better manage those 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 Conducting a Business Fit/Gap Analysis.

  See Performing a Technical Fit/Gap Analysis.

- Review your upgrade path.

- Review the databases involved.

- Identify any concurrent development; in other words, 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 at the end of this documentation.

  See 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, including setting your major milestone dates. The general guideline for a major upgrade is typically two to six months. A wide range is given here because there are project variables to consider, according to the size, complexity, and customizations of your current system, your product line, and your specific tasks, such as hardware procurement.

Task 1-4-3: Establishing a Budget

Determine 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 Application Solution Centers 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, provide knowledge transfer on the upgrade process, support the upgraded application they deliver to you, and provide recommendations on streamlining your future upgrade efforts.

See http://www.oracle.com/consulting/applications/solution-center-upgrades.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

It is recommended that the upgrade team maintains ongoing communication with all key resources throughout the upgrade process, including the end users. It is helpful to the team to be aware of all milestones, schedule changes, and enhancements ahead of time. This makes 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 impact the progress of the upgrade. Depending upon 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 effort 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 between the upgrade team members.

*   Provides regular upgrade updates to management.

*   Supports the upgrade team in all upgrade efforts.

Task 1-5-3: Selecting a Technical Analyst

It is recommended that the technical analyst is a certified PeopleSoft upgrader and is 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, it is recommended that the technical upgrade resource have team leadership and management experience.

The technical analyst performs the following tasks:

*   Executes 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 fill the following roles:

- Install Oracle-delivered PeopleSoft software.

- Create and install a PeopleSoft Demo and Sys database.

- Configure the application server domain, web server, and Process Scheduler.

- Complete and install the verification test.

Task 1-5-5: Designating a Database Administrator

Your DBA must be a dedicated upgrade resource and will be involved throughout the upgrade process. Although the DBA's responsibilities may be on a part-time or on-call basis, it is critical to have DBA support. The DBA will work closely with the technical upgrade resource to resolve various script and database-related issues.

Your DBA may be responsible for the following tasks:

- Review scripts and modify, if necessary, for customer standards.

- Monitor database and provide database support.

- Perform backups and recoveries.

- Troubleshoot and tune 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 may be responsible for the following duties:

- Manage network security and connectivity.

- Troubleshoot network-related issues.

- Set up workstations.

- Network configuration.

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 position is responsible for the following 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, Crystal Reports, and PS/nVision experience, depending upon your customizations.

Developers will fill the following roles:

- Retrofit customizations.

- Unit, system, and interface test changes.

- Work closely with functional resources to ensure that business needs are met.

- Document 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, there should be one team leader 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 release notes.

- Identify customizations and assist developers with resolving issues.

- Create and execute 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 of these 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/or provide help in specialized areas, such as installation of the new release, fit/gap analysis, testing, training, security redesign, and so on. During this step you should assess your organization's upgrade goals, time frames, and in-house resource 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 on Oracle Consulting's upgrade services.

See http://www.oracle.com/us/products/consulting/index.htm

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. You will use the upgrade instructions to outline the detailed activities for the actual execution 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 the end-users.

It is also important to 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 for a description of testing strategies. Using this information, develop a test plan for the testing that you will perform.

See Appendix: "Planning for Upgrade Testing."

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 Databases
- 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 on accomplishing some of the more complex upgrade procedures.

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

Task 2-1: Understanding Upgrade Databases

The following databases will be used 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 you want to add. The New Release Demo database is also referred to as the Demo database later in the upgrade. This database needs to have a base language of English.

- 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 Copy of Current Demo refers to the copy of the Demo database for the release you are currently using.

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 just consist of software programs; there is also the database to consider.

In a PeopleSoft system, the process of upgrading can be defined as: *migrating objects from one database to another, or 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 *one thousand* new PeopleSoft objects into production. It is also true if you are only upgrading 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 object(s) into your database and adjust all your system components—such as application data, SQL tables, indexes, views, batch programs, and so forth—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.

There are three passes in the upgrade process, as follows:

- Initial Pass

  The first pass is called the initial pass. In this pass, you create a copy of your production database referred to as the Copy of Production. You then identify all of your customizations by comparing the Copy of Production with a copy of demo for the release you are currently using. You then 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 called the New Copy of Production. You take the upgraded Copy of Production (the one created in the initial pass) and 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.

The Test Move to Production is repeated until it runs smoothly. A New Copy of Production is created for every Test Move to Production pass and 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 productions) is your Source and your production database is the Target.

The following graphic illustrates the three passes in the application upgrade process:
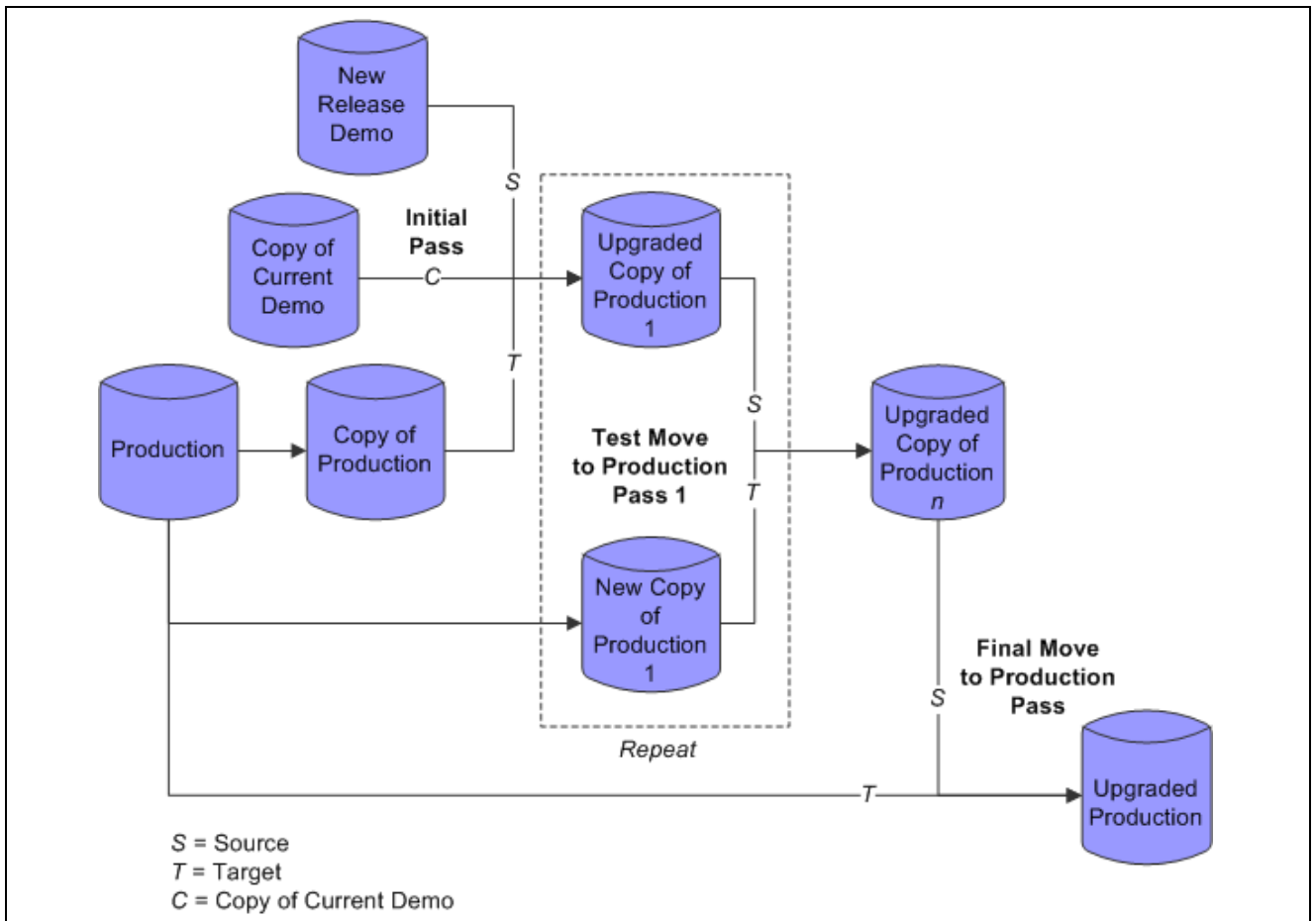
Three passes in the upgrade process

Note. The concepts of Source database, Copy of Current Demo database, initial pass, and Move to Production pass do not apply to PeopleSoft PeopleTools-only 8.4x to 8.4x upgrades.

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 plan regular maintenance 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 minor 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 minor releases that cannot be back-ported as a patch.

Warning! Do not install any application fixes, bundles, or maintenance packs 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 for Installation or Required for Upgrade fixes. You can apply application fixes, bundles, and maintenance packs after you complete the upgrade.

See PeopleTools: Change Assistant PeopleBook, for your current PeopleTools release, for information on migrating change packages or maintenance updates.

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

Whether you are only 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 is displayed on the screen, how and what kind of data can be entered, 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 Release Notes.

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 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 Data Mover utility scripts and reports that you can use to monitor and maintain your system, such as DDDAUDIT and SYSAUDIT, 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.

PeopleSoft 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

Compare reports are run in PeopleSoft Application Designer.

See PeopleTools: Application Designer Developer's Guide PeopleBook, for your current release.

Task 2-6-4: Reviewing Message Catalog Entries

When a new PeopleSoft PeopleTools release is delivered, PeopleSoft will also deliver new system messages that support added or modified functionality. You must run a provided 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.

As of PeopleSoft PeopleTools 8.x, you have the ability to upgrade messages as a regular upgrade object type.

Task 2-6-5: Reviewing COBOL SQL Statements

It may be necessary 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 Data Mover script to update your stored statements.

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

This section discusses:

- Reviewing PeopleSoft PeopleTools Table Structure

- Reviewing PeopleSoft PeopleTools Table Contents

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

There are two facets to these tables that you should understand 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 losing 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 what PeopleSoft PeopleTools release you are running, select Help, About PeopleTools from any PeopleSoft menu bar. This opens a window displaying 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 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 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 execute SQL against your database to view these contents.

With each new application release, the object definitions stored in the PeopleSoft PeopleTools tables are updated. This 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 readily accept these new objects 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 what version you want to keep. The comparison process is probably the most difficult part of an application upgrade because it requires careful review of these 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 defined in the table below.

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.
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.
Customer	When you create custom application tables, you own those tables and their data.

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

See "Planning Your Upgrade," Reviewing Release Notes.

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 release notes 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 PeopleSoft PeopleTools Upgrades

• Understanding Full Application Upgrades

• Understanding Customization Upgrades

• Summarizing Upgrade Types

Task 2-8-1: Defining Upgrade Types

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

There are three types of upgrades, as described in the table below:

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. This type of upgrade also usually involves a PeopleSoft PeopleTools upgrade.
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 (PeopleSoft PeopleTools, application, or customization), and your release level (your current release and your new release).

Task 2-8-2: Understanding PeopleSoft PeopleTools Upgrades

A PeopleSoft PeopleTools upgrade is required when moving to a new major or maintenance PeopleSoft PeopleTools release.

This kind of upgrade involves:

- Installing new PeopleSoft PeopleTools software, messages, stored statements, and utility scripts.
- Updating the PeopleSoft PeopleTools table structure (running rel scripts).
- Copying new or modified PeopleSoft PeopleTools objects into your database.

Note. This type of upgrade may also require you to update your environment hardware, or software, or both to remain on a supported platform.

Task 2-8-3: Understanding Full Application Upgrades

You perform a full application upgrade when you do not want to overwrite any of your modifications but you want to take advantage of most or all of the new features in a new, major (or enterprise-level) PeopleSoft application release.

This kind of upgrade involves:

- A PeopleSoft PeopleTools upgrade.
- Comparing application object definitions between our database and yours.
- Reviewing any conflicting definitions and deciding whose 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 maintenance PeopleSoft PeopleTools release level (by performing a PeopleSoft PeopleTools upgrade), a database comparison upgrade is usually optional; you do not have to upgrade your applications. However, when you are moving to a new enterprise release level, a full 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 a full application upgrade can be very 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.

Note. When you start to upgrade a PeopleSoft application, 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 2-8-4: 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 2-8-5: Summarizing Upgrade Types

The following tables explain the various types and sub-types of upgrades, when you perform each kind of upgrade, and what system components they affect.

PeopleSoft PeopleTools Upgrade Type	New Release Type	System Components Possibly Affected	Comments
Software	PeopleSoft PeopleTools enterprise release or 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 Type	New Release Type	System Components Possibly Affected	Comments
Full Application	Enterprise release or major application release	Executable programs, system files, and scripts Messages and stored statements PeopleSoft PeopleTools table structure Application object definitions Application data Batch programs	Major database changes Always requires a PeopleSoft PeopleTools project upgrade to the same release level

Custom Upgrade Type	New Release Type	System Components Possibly Affected	Comments
Custom	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

After determining the report action, PeopleSoft Application Designer defines the status—in both the Source and the Target—of each object to be compared or reported. The following table explains 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.
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 of your 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 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 prior to 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.

Object Status	Definition
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 as 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 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 table below:

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.
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 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 chart 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
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 release notes for your product. These notes identify and explain object changes in the Source database.

Upgrade reports can be a little intimidating at first glance, 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, then other key columns that vary by object type, then the Source and Target status, then the action value and upgrade flag (Yes or No).

After these columns, there are three more that you do not find in Application Designer. The first is Attribute. This 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. In addition to this, there is a Source column and a Target column. 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" while the Target column is 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 anything 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 between various objects. These reports are delivered in the form of SQRs (found in *PS_HOME*\SQR), Crystal Reports (found in *PS_HOME*\CRW\ENG), and Queries.

See the product documentation for PeopleTools for information about PeopleSoft Crystal Reports.

The cross-reference reports are described below:

Object Type(s)	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.

Object Type(s)	Report Name	Report Description
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.
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	XRFPNPC	Lists all pages that contain fields with PeopleCode attributes. For each page, the report includes the name of the record definition(s) 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.

It is recommended 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), full application (FA), 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 four 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 FA
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, SQL back up database.	PT or FA
Comparison	Set upgrade controls, compare databases, review upgrade reports, adjust upgrade values as needed, copy project.	FA 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, setup menu security, and audit your database.	All
Testing	Test your move to production and develop testing strategies.	All
Move to Production	Freeze production database, move copy of production to production database, 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 on upgrading your system are delivered as well.

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 an upgrade template (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, the Change Assistant displays documentation relevant to the current step.

PeopleSoft Change Assistant can improve the quality of your upgrade, reduce errors, and shorten 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, product documentation for PeopleTools: Change Assistant and Update Manager describes how to install and use PeopleSoft Change Assistant. This guide is available through your product upgrade page in My Oracle Support and delivered with your software. In this guide, 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 the PeopleTools: Change Assistant PeopleBook 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 Production Database

• Retrieving and Applying Upgrade Files

• Creating and Configuring an Upgrade Job

• Setting the Configuration Manager Profile

• 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 new release:

1. Download the PeopleSoft PeopleTools installation guide for your database platform.

   See My Oracle Support, select the Knowledge tab, then PeopleSoft Enterprise. Select Tools and Technology, then select the PeopleTools Installation guide for your new release. Download the installation guide.

2. Download the product-specific installation guide for the product release that you are installing.

   See My Oracle Support, select the Knowledge tab, then PeopleSoft Enterprise. Select your product, then select the PeopleTools Installation guide for your new release. Download the installation guide.

3. Install your new PeopleSoft software and Demo database following the instructions in the PeopleTools installation guide for your database platform along with the application installation guide for your product line.

Warning! *Do not install any application fixes, bundles, or maintenance packs 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 for Installation or Required for Upgrade fixes. You can apply application fixes, bundles, and maintenance packs after you complete the upgrade.

Task 3-2: Applying PeopleSoft PeopleTools Patches

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

Important! Because the release of an upgrade is often intimately 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, it is recommended 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 your Source database at the beginning or end of an upgrade pass. If you apply a PeopleSoft PeopleTools patch at the beginning of the upgrade pass to your Source database, the changes will automatically be migrated 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 in the beginning of the upgrade.

To apply all PeopleSoft PeopleTools Required for Upgrade patches:

1. Go to My Oracle Support and select the Patches & Updates tab.

2. Select 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 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.

   • Click the plus icon to add another search filter.

   • In the new search filter, select *Install/Upgrade (PeopleSoft)* from the drop-down menu. In the adjacent field, select *Required at Upgrade*.

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 page, it is recommended that you take the latest PeopleSoft PeopleTools patch so that you are completely up to date with all PeopleSoft PeopleTools updates.

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7. Before applying each fix, review the documentation included with the fix.

8. Download and install the PeopleSoft PeopleTools patch.

Task 3-3: Installing PeopleSoft Change Assistant

As part of the PeopleSoft PeopleTools installation and/or the application of the PeopleSoft PeopleTools patch, PeopleSoft Change Assistant has been installed.

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.

The PeopleTools: Change Assistant PeopleBook documentation for your current release is delivered with your software. You can also access this documentation through your upgrade page on My Oracle Support.

See My Oracle Support, Knowledge tab, PeopleSoft Enterprise.

Task 3-4: Making a Copy of 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. 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 on copying databases.

Note. Move to Production: This is a second Copy of Production, 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.

Properties

Database Orientation	Initial or MTP	Products	Platforms	Languages
Target	Both	All	All	All

Task 3-5: Retrieving and Applying Upgrade Files

This section discusses:

• Understanding Upgrade Files

• Downloading Baseline Files from the Upgrade Page

• Applying Required for Upgrade Fixes

Understanding Upgrade Files

In this task, you download and apply all objects from the upgrade page on My Oracle Support. In addition, you download all Required for Upgrade fixes from Patches & Updates on My Oracle Support. This will bring you completely up to date with all upgrade objects and any changes made to the upgrade process or conversion code.

Note. You cannot continue with this task until the upgrade documentation for your product is released on My Oracle Support. When the upgrade scripts and templates and upgrade documentation are available, complete the remaining tasks in this chapter before beginning the actual upgrade.

This step is just one of the steps in an upgrade in which you can apply Required for Upgrade fixes. There are other places in the upgrade process where applying updates may be applicable as well. How you apply the updates varies depending on where you are in the upgrade. The high-level view of where, when, and how to apply Required for Upgrade fixes is discussed in your product-specific upgrade guide.

See Appendix: "Applying Fixes Required for Upgrade" in your product-specific upgrade guide.

Task 3-5-1: Downloading Baseline Files from the Upgrade Page

The files attached to the upgrade page on My Oracle Support are considered baseline. You must download these before you apply any fixes from My Oracle Support.

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

Note. As of the PeopleSoft 9.2 application release, only upgrade templates and documentation are delivered on the upgrade home page. All other upgrade files are delivered on the CD or updated through fixes.

Task 3-5-2: Applying Required for Upgrade Fixes

Required for Upgrade fixes can be found on My Oracle Support. You can search for these fixes through the Patches & Updates tab on My Oracle Support.

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. There may be interdependencies between the upgrade programs for various paths, and if you do not apply all fixes you may introduce errors.

To apply Required for Upgrade fixes from Patches & Updates on My Oracle Support:

1.   Go to My Oracle Support and select the Patches & Updates tab.

2. Select the *Product or Family (Advanced)* link.

3. Select the *Include all products in a family* check box.

4. Select the following search criteria:

    • In the *Product* search filter, select your PeopleSoft product line.

    • In the *Release* search filter, select your PeopleSoft release.

    • In the next search filter, select *Language* from the drop-down menu. In the adjacent field, select *American English* as your language.

    • Click the plus icon to add another search filter.

    • In the new search filter, select *Install/Upgrade (PeopleSoft)* from the drop-down menu. In the adjacent field, select *Required at Upgrade*.

    • Click Search.

       The Patch Search results page appears with a list of patches required at upgrade.

5. Note the *Patch Name* for any Required for Upgrade fixes.

6. Before applying each fix, review the documentation included with the fix.

    There may be manual steps that need to be performed to successfully apply the fix.

7. Use PeopleSoft Change Assistant to apply the fixes to your Demo database.

    See PeopleTools: Change Assistant PeopleBook, for your current release, "Using Change Assistant For Software Updates."

Warning! DO NOT INSTALL ANY APPLICATION FIXES, BUNDLES, OR MAINTENANCE PACKS AT THIS TIME! The only fixes that you can apply at this time are Required for Installation or Required for Upgrade fixes. Installing other application fixes during the upgrade process can break data conversion and other scripts for the upgrade. This includes 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, bundles, and maintenance packs 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 by performing the same set of instructions given above, and apply any updates that are newly available.

Task 3-6: Creating and Configuring an Upgrade Job

In order to run an upgrade using PeopleSoft Change Assistant, you need to configure PeopleSoft Change Assistant as well as an upgrade job.

Launch PeopleSoft Change Assistant and perform the following steps:

1. Configure the PeopleSoft Change Assistant options:

    a. Select Tools, Change Actions.

    b. Select Application Upgrade and click Next.

     c. If you will be using PeopleSoft Change Assistant to run processes on a separate host server, select the Enable Server Processing check box.

     d. On the General Options page, fill in the rest of the information and click Next.

     e. When you are finished, click OK.

        See the PeopleTools: Change Assistant PeopleBook for your current release, "Configuring Change Assistant for Upgrades.

2. Import the upgrade template contained within the UpgradeTemplates.zip file:

     a. Select File, Import Template.

     b. Select the template for your product and path.

     c. Click Import.

3. Define the upgrade environment information for the upgrade:

     a. Select File, New Environment.

     b. Enter a name for the environment for this upgrade pass.

     c. Click OK.

     d. Fill in all required information on each screen.

4. Set the documentation directory:

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 PeopleTools: Change Assistant PeopleBook for your current release, "Configuring Change Assistant for Upgrades.

5. Create the upgrade job for the Initial upgrade pass.

The upgrade job contains all steps specific to your upgrade environment.

See the PeopleTools: Change Assistant PeopleBook for your current release, "Configuring Change Assistant for Upgrades."

Task 3-7: Setting the Configuration Manager Profile

When you create your Change Assistant job, PeopleSoft Change Assistant edits some of the workstation Configuration Manager profiles. Now you need to verify the other settings that are used during the upgrade. These are settings on the workstation and you need to do this for each workstation that you may use during the upgrade.

Verify that the Configuration Manager settings are appropriate for your *old* release directory (for example, similar to your current production environment). PeopleSoft Change Assistant uses the information in your Configuration Manager profile to run automated steps on the old release early in the upgrade. You will update Configuration Manager to point to your *new* release directory later in the upgrade.

To set the profile:

1. Open Configuration Manager.

2. On the Profile tab, select the Default profile, click Edit, and then select the Common tab.

    The Edit Profile - 'Default' dialog box appears.
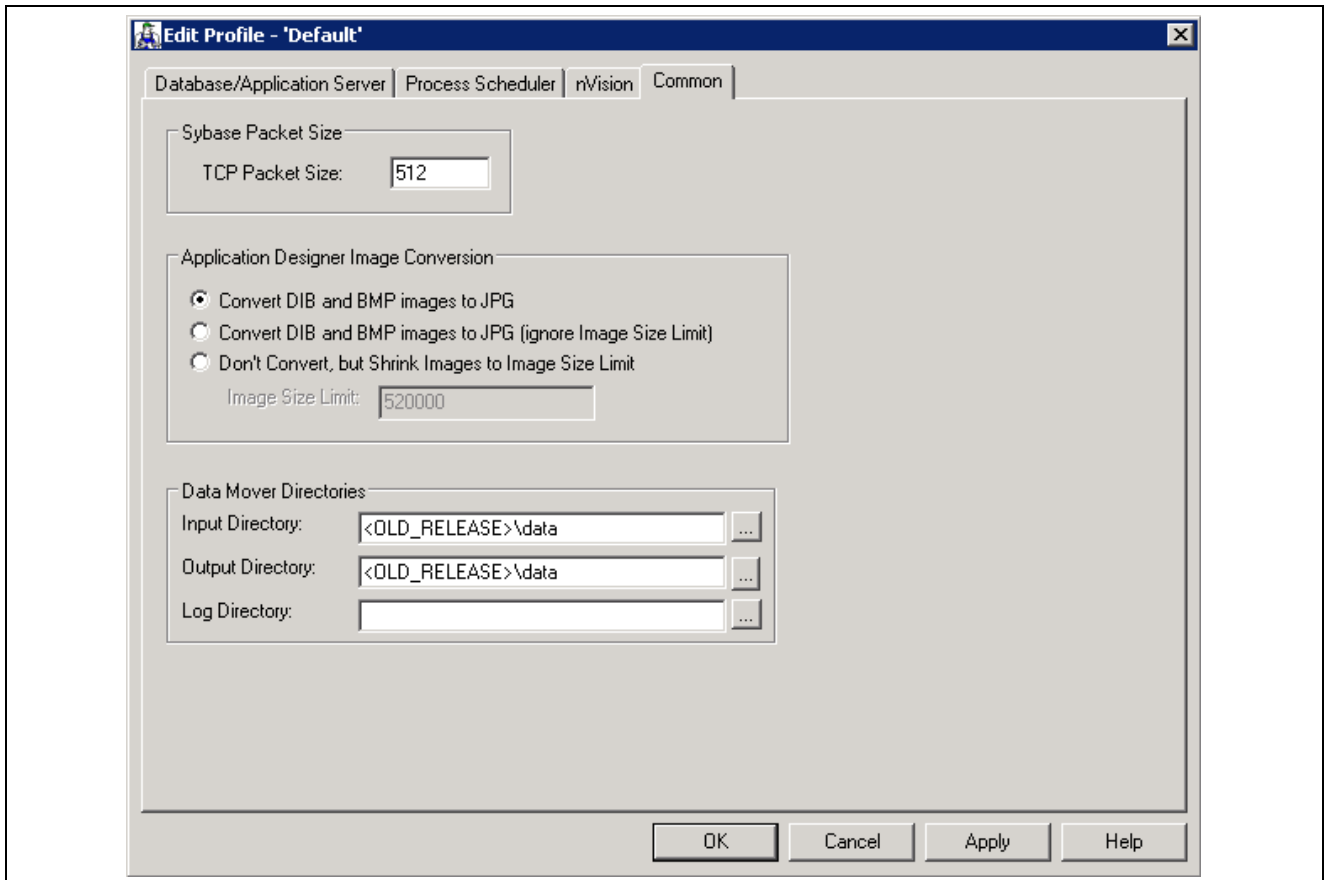
Edit Profile - 'Default': Common tab

3. Set the Input Directory to <OLD_RELEASE>\data\, where OLD_RELEASE is the name of your actual PeopleSoft application's directory.

4. Set the Output Directory name to the same name as the Input Directory.

5. Leave the Log Directory field as is.

    The Log Directory value is set by Change Assistant.

6. Select the Process Scheduler tab and verify your SQR settings.

    PeopleSoft Change Assistant will use these settings to launch SQR.

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, there is a table that specifies the property values that apply to that step. The following graphic provides an example of the property information that is displayed in the upgrade documentation:

Properties

Database Orientation	Initial or MTP	Products	Platforms	Languages
Target	Both	All	All	All

Properties table example

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

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.
Database Orientation	Copy of Current Demo	The step runs on the Copy of Current Demo database. This is the copy of the Demo database for the PeopleSoft release that you are currently using.
Initial or MTP	Initial	The step runs only in the Initial pass of the upgrade.
Initial or MTP	Move to Production	The step runs only in Move to Production upgrade passes. The step is not applicable to the Initial pass.
Initial or MTP	Both	The step runs in both the Initial and Move to Production 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.

Property	Value	Definition
Platforms	One or more of the following platform names: • DB2 z/OS • DB2 UNIX/NT • Informix • MS SQL Server • Oracle • Sybase	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 UDB for OS/390 and z/OS" is the official IBM name for the RDBMS. In the current PeopleSoft PeopleTools release, Oracle no longer supports the OS/390 operating system, only z/OS, its replacement. For the sake of brevity, PeopleSoft upgrade documentation often refers to "DB2 UDB for OS/390 and z/OS" as "DB2 z/OS," and it sometimes refers to "DB2 UDB for Linux, UNIX, and Windows" as "DB2 UNIX/NT."

CHAPTER 4

Reviewing Additional Upgrade Notes and Tips

This chapter discusses:

* Understanding Upgrade Notes and Tips
* Improving Upgrade Data Conversion Performance
* 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.

It is also very important that you 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 upgrade.

Task 4-1: Improving Upgrade Data Conversion Performance

Check the database for tables, indexes, or tablespaces that may be fragmented; for example, for sites using the Oracle RDBMS, check for extents greater than 40. For tables that are fragmented, for example, greater than 40 extents, resize the INITIAL and NEXT extents on these tables. Incorporate these sizing parameters into the Alter without Deletes script and the Create Index script, where applicable, as well as within Application Designer.

Task 4-2: 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 appendices.

See Appendix: "Improving Performance."

Task 4-3: Altering the Tablespace for PSIMAGE

Oracle RDBMS customers need to alter the tablespace for PSIMAGE and increase it to 200 MB; autoextend on the next 10 MB; set the maxsize to *unlimited*.

Task 4-4: Updating Statistics During Data Conversion

Update statistics are run dynamically during the Application Engine data conversion programs in this upgrade. DB2 z/OS sites will need to implement the DSNUTILS stored procedure and/or follow the enhanced installation path in order to take advantage of this feature. If you do not implement the DSNUTILS stored procedure and/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 server(s) to disable recognition of the %UpdateStats feature. See the chapter "Creating a Database" in *PeopleTools Installation for DB2 z/OS* for further information.

Note. If you disable the %UpdateStats feature of Application Engine, it will adversely affect the performance of your data conversion programs, as 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 Your Upgrade for Performance

• Performing the Upgrade

• Improving Performance for Your Platform

• Consulting Oracle Software Support

Understanding Performance Improvement

Performance is always a challenge when you are upgrading. 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 Your Upgrade for 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.

Configure that server similarly to your production environment.

• Size the Copy of Production database (Target) like your production database — allow for growth.

• Use a dedicated workstation, configured like the production environment.

• 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

• Performing Data Conversion

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

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

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

The following list provides tips to use when performing the "Modifying the Database Structure" task.

• Perform all recommended update statistics, so 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 (PSY*recname*).

• Run your create table script concurrently with the alter tables without 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: Performing Data Conversion

Oracle delivers the PeopleSoft Change Assistant templates to run the data conversion steps on the client by default. You may want to run these programs on the server to increase performance.

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.

You should also consider running data conversion application engine programs concurrently, as they were designed with no dependencies between programs. Any exceptions to this are noted in the documentation. If you would like to take advantage of concurrent processing, modify the step properties and set the Run Concurrently option to *Yes*.

See PeopleTools: Change Assistant PeopleBook, for your current release.

Task A-3: Improving Performance for Your Platform

This section discusses:

• Using Oracle

• Using DB2

• Using Informix

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." This hint performs like an Oracle Direct Load Insert and 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 and will be useful during the upgrade process since tablespaces grow several times larger than they would in production.

Alter the tablespace for PSIMAGE and increase it to 200 MB; autoextend on the next 10 MB; set 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.

  This will allow you 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.

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

- You implemented the DSNUTILS stored procedure.

- You followed the enhanced installation path.

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

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

- Prior to creating any LOBs, you must properly configure DB2 ZPARMS as detailed in your installation guide in the step "Defining ZPARMS Associated with LOBs."

  See the information on defining ZPARMS associated with LOBs in the product documentation for PeopleTools 8.53 Installation for DB2 for z/OS, chapter "Preparing for Installation," task "Defining DB2 for z/OS Subsystem Configuration."

- Additionally, you must also apply all the required IBM patches listed in the document "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-3-3: Using Informix

As of PeopleSoft PeopleTools 8.51, the minimum Dbspace page size is 4 KB. Customers on AIX (default page size 4 KB) or those who already use a Dbspace of 4 KB page size or larger will not have any impact. However, those on Solaris/HP with a Dbspace of 2 KB page size need to export the data, re-create a Dbspace of 4 KB page size, and import the data back to Dbspaces prior to using the new release of PeopleSoft PeopleTools.

Task A-4: Consulting Oracle Software Support

If you do have a problem with your upgrade, contact Oracle Software Support (OSS). Oracle will be able to give you a solution to the problem faster if you supply the following information:

- Include details about the table row counts and indexes available on the tables involved in the processing:

  - Include indexes in your physical database, not those defined in PeopleSoft Application Designer.

  - Mention any additional indexes that you custom-added; they could be getting in the way.

- Include 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.

- Include the PeopleSoft upgrade path for both PeopleSoft PeopleTools and the application.

- Provide 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 you 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, there are some general testing guidelines that you can follow to assist with your upgrade testing. In this section, you will find information that will help you plan your testing efforts.

Task B-1: Deciding When to Test

An effective testing strategy involves an understanding of the stages of a PeopleSoft upgrade and where, 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 to have educated testers to ensure adequate test coverage of new functionality.

The testing types 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 and/or your customizations.

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. However, 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. The processes for performing unit testing are described below:

- 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.

- Each customization is tested individually along with all related processes.

- Business processes are not tested.

- 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 execute 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. The processes for performing system testing are described below:

- 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, nVision, and Crystal).

- 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. The following list of activities describes integration testing:

- 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. The processes for performing parallel testing are described below:

- 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. The processes for conducting performance testing are described below:

- 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. The processes for performing user acceptance testing are described below:

- Functional resources should execute 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.

- User testing should not be performed 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.
- Execute 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 wherever 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, base them on existing test scripts from your implementation project or previous upgrade.

If you have test scripts from your original implementation, recycle 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 have upgraded successfully.

If you do not have test scripts from your 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 a feature of an application 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 procedure 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; what User ID, Role, and Permission List should be used to perform the test.

- Specify key data elements: 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 frame of an upgrade, is to execute 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. This can be achieved by taking two copies of the production database at the start of the upgrade. Only one copy is upgraded, while the other remains at current release. The testing time is now reduced by only performing the tests on 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 the two efforts 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 may require dual maintenance of data during the parallel testing period, it may minimize the impact 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 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, simply 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

It is very important that you 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, there is a great potential for failure.

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, it may be required to perform the tests 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.
- Execute test scripts on the remaining database.
- Perform tests on the upgraded database and compare 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 effort. The following tips should be considered while tracking issues:

- Categorize issues: 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 (like 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 that manages test scripts—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 pre-defined migration procedures. Remember that a master database will also be required to perform the Move to Production.

Task B-7-8: Discussing Backup Procedures

The following tips should be considered when backing up your data:

- Back up at baseline before testing (use a backup technique that will allow 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, it should be reported to Oracle Software Support. Check My Oracle Support to see whether a fix has been posted to resolve the issue.

See My Oracle Support, Patches and Updates.

Task B-7-10: Evaluating Reasons for Failure

The list below identifies some of the reasons why your test plan might have failed:

- Testing strategy was poorly defined

- Test plans were poorly defined

- Test scripts were poorly defined

- Lack of resources and resource commitment

- Lack of understanding of the upgrade process

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