

# PeopleSoft®

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## EnterpriseOne Tools 8.94 PeopleBook: Development Tools: Application Development

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November 2004

EnterpriseOne Tools 8.94 PeopleBook: Development Tools: Application Development  
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# About This PeopleBook

PeopleBooks provide you with the information that you need to implement and use PeopleSoft applications.

This preface discusses:

- PeopleSoft application prerequisites.
- PeopleSoft application fundamentals.
- Documentation updates and printed documentation.
- Additional resources.
- Typographical conventions and visual cues.
- Comments and suggestions.
- Common elements in PeopleBooks.

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**Note.** PeopleBooks document only page elements, such as fields and check boxes, that require additional explanation. If a page element is not documented with the process or task in which it is used, then either it requires no additional explanation or it is documented with common elements for the section, chapter, PeopleBook, or product line. Elements that are common to all PeopleSoft applications are defined in this preface.

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## PeopleSoft Application Prerequisites

To benefit fully from the information that is covered in these books, you should have a basic understanding of how to use PeopleSoft applications.

You might also want to complete at least one PeopleSoft introductory training course, if applicable.

You should be familiar with navigating the system and adding, updating, and deleting information by using PeopleSoft menus, and pages, forms, or windows. You should also be comfortable using the World Wide Web and the Microsoft Windows or Windows NT graphical user interface.

These books do not review navigation and other basics. They present the information that you need to use the system and implement your PeopleSoft applications most effectively.

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## PeopleSoft Application Fundamentals

Each application PeopleBook provides implementation and processing information for your PeopleSoft applications. For some applications, additional, essential information describing the setup and design of your system appears in a companion volume of documentation called the application fundamentals PeopleBook. Most PeopleSoft product lines have a version of the application fundamentals PeopleBook. The preface of each PeopleBook identifies the application fundamentals PeopleBooks that are associated with that PeopleBook.

The application fundamentals PeopleBook consists of important topics that apply to many or all PeopleSoft applications across one or more product lines. Whether you are implementing a single application, some combination of applications within the product line, or the entire product line, you should be familiar with the contents of the appropriate application fundamentals PeopleBooks. They provide the starting points for fundamental implementation tasks.

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## Documentation Updates and Printed Documentation

This section discusses how to:

- Obtain documentation updates.
- Order printed documentation.

### Obtaining Documentation Updates

You can find updates and additional documentation for this release, as well as previous releases, on the PeopleSoft Customer Connection website. Through the Documentation section of PeopleSoft Customer Connection, you can download files to add to your PeopleBook Library. You'll find a variety of useful and timely materials, including updates to the full PeopleSoft documentation that is delivered on your PeopleBooks CD-ROM.

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**Important!** Before you upgrade, you must check PeopleSoft Customer Connection for updates to the upgrade instructions. PeopleSoft continually posts updates as the upgrade process is refined.

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### See Also

PeopleSoft Customer Connection, <https://www.peoplesoft.com/corp/en/login.jsp>

### Ordering Printed Documentation

You can order printed, bound volumes of the complete PeopleSoft documentation that is delivered on your PeopleBooks CD-ROM. PeopleSoft makes printed documentation available for each major release shortly after the software is shipped. Customers and partners can order printed PeopleSoft documentation by using any of these methods:

- Web
- Telephone
- Email

#### Web

From the Documentation section of the PeopleSoft Customer Connection website, access the PeopleBooks Press website under the Ordering PeopleBooks topic. The PeopleBooks Press website is a joint venture between PeopleSoft and MMA Partners, the book print vendor. Use a credit card, money order, cashier's check, or purchase order to place your order.

#### Telephone

Contact MMA Partners at 877 588 2525.

**Email**

Send email to MMA Partners at [peoplesoftpress@mmapartner.com](mailto:peoplesoftpress@mmapartner.com).

**See Also**

PeopleSoft Customer Connection, <https://www.peoplesoft.com/corp/en/login.jsp>

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## Additional Resources

The following resources are located on the PeopleSoft Customer Connection website:

Resource	Navigation
Application maintenance information	Updates + Fixes
Business process diagrams	Support, Documentation, Business Process Maps
Interactive Services Repository	Interactive Services Repository
Hardware and software requirements	Implement, Optimize + Upgrade, Implementation Guide, Implementation Documentation & Software, Hardware and Software Requirements
Installation guides	Implement, Optimize + Upgrade, Implementation Guide, Implementation Documentation & Software, Installation Guides and Notes
Integration information	Implement, Optimize + Upgrade, Implementation Guide, Implementation Documentation and Software, Pre-built Integrations for PeopleSoft Enterprise and PeopleSoft EnterpriseOne Applications
Minimum technical requirements (MTRs) (EnterpriseOne only)	Implement, Optimize + Upgrade, Implementation Guide, Supported Platforms
PeopleBook documentation updates	Support, Documentation, Documentation Updates
PeopleSoft support policy	Support, Support Policy
Prerelease notes	Support, Documentation, Documentation Updates, Category, Prerelease Notes
Product release roadmap	Support, Roadmaps + Schedules
Release notes	Support, Documentation, Documentation Updates, Category, Release Notes
Release value proposition	Support, Documentation, Documentation Updates, Category, Release Value Proposition
Statement of direction	Support, Documentation, Documentation Updates, Category, Statement of Direction

Resource	Navigation
Troubleshooting information	Support, Troubleshooting
Upgrade documentation	Support, Documentation, Upgrade Documentation and Scripts

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## Typographical Conventions and Visual Cues

This section discusses:

- Typographical conventions.
- Visual cues.
- Country, region, and industry identifiers.
- Currency codes.

### Typographical Conventions

This table contains the typographical conventions that are used in PeopleBooks:

Typographical Convention or Visual Cue	Description
<b>Bold</b>	Indicates PeopleCode function names, business function names, event names, system function names, method names, language constructs, and PeopleCode reserved words that must be included literally in the function call.
<i>Italics</i>	Indicates field values, emphasis, and PeopleSoft or other book-length publication titles. In PeopleCode syntax, italic items are placeholders for arguments that your program must supply.  We also use italics when we refer to words as words or letters as letters, as in the following: Enter the letter <i>O</i> .
KEY+KEY	Indicates a key combination action. For example, a plus sign (+) between keys means that you must hold down the first key while you press the second key. For ALT+W, hold down the ALT key while you press the W key.
Monospace font	Indicates a PeopleCode program or other code example.
“ ” (quotation marks)	Indicate chapter titles in cross-references and words that are used differently from their intended meanings.

Typographical Convention or Visual Cue	Description
... (ellipses)	Indicate that the preceding item or series can be repeated any number of times in PeopleCode syntax.
{ } (curly braces)	Indicate a choice between two options in PeopleCode syntax. Options are separated by a pipe ( ).
[ ] (square brackets)	Indicate optional items in PeopleCode syntax.
& (ampersand)	When placed before a parameter in PeopleCode syntax, an ampersand indicates that the parameter is an already instantiated object.  Ampersands also precede all PeopleCode variables.

## Visual Cues

PeopleBooks contain the following visual cues.

### Notes

Notes indicate information that you should pay particular attention to as you work with the PeopleSoft system.

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**Note.** Example of a note.

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If the note is preceded by *Important!*, the note is crucial and includes information that concerns what you must do for the system to function properly.

---

**Important!** Example of an important note.

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### Warnings

Warnings indicate crucial configuration considerations. Pay close attention to warning messages.

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**Warning!** Example of a warning.

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### Cross-References

PeopleBooks provide cross-references either under the heading “See Also” or on a separate line preceded by the word *See*. Cross-references lead to other documentation that is pertinent to the immediately preceding documentation.

## Country, Region, and Industry Identifiers

Information that applies only to a specific country, region, or industry is preceded by a standard identifier in parentheses. This identifier typically appears at the beginning of a section heading, but it may also appear at the beginning of a note or other text.

Example of a country-specific heading: “(FRA) Hiring an Employee”

Example of a region-specific heading: “(Latin America) Setting Up Depreciation”

### **Country Identifiers**

Countries are identified with the International Organization for Standardization (ISO) country code.

### **Region Identifiers**

Regions are identified by the region name. The following region identifiers may appear in PeopleBooks:

- Asia Pacific
- Europe
- Latin America
- North America

### **Industry Identifiers**

Industries are identified by the industry name or by an abbreviation for that industry. The following industry identifiers may appear in PeopleBooks:

- USF (U.S. Federal)
- E&G (Education and Government)

### **Currency Codes**

Monetary amounts are identified by the ISO currency code.

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## **Comments and Suggestions**

Your comments are important to us. We encourage you to tell us what you like, or what you would like to see changed about PeopleBooks and other PeopleSoft reference and training materials. Please send your suggestions to:

PeopleSoft Product Documentation Manager PeopleSoft, Inc. 4460 Hacienda Drive Pleasanton, CA 94588

Or send email comments to [doc@peoplesoft.com](mailto:doc@peoplesoft.com).

While we cannot guarantee to answer every email message, we will pay careful attention to your comments and suggestions.

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## **Common Elements Used in PeopleBooks**

### **Address Book Number**

Enter a unique number that identifies the master record for the entity. An address book number can be the identifier for a customer, supplier, company, employee, applicant, participant, tenant, location, and so on. Depending on the application, the field on the form might refer to the address book number as the customer number, supplier number, or company number, employee or applicant id, participant number, and so on.

<b>As If Currency Code</b>	Enter the three-character code to specify the currency that you want to use to view transaction amounts. This code allows you to view the transaction amounts as if they were entered in the specified currency rather than the foreign or domestic currency that was used when the transaction was originally entered.
<b>Batch Number</b>	Displays a number that identifies a group of transactions to be processed by the system. On entry forms, you can assign the batch number or the system can assign it through the Next Numbers program (P0002).
<b>Batch Date</b>	Enter the date in which a batch is created. If you leave this field blank, the system supplies the system date as the batch date.
<b>Batch Status</b>	Displays a code from user-defined code (UDC) table 98/IC that indicates the posting status of a batch. Values are: <i>Blank</i> : Batch is unposted and pending approval. <i>A</i> : The batch is approved for posting, has no errors and is in balance, but it has not yet been posted. <i>D</i> : The batch posted successfully. <i>E</i> : The batch is in error. You must correct the batch before it can post. <i>P</i> : The system is in the process of posting the batch. The batch is unavailable until the posting process is complete. If errors occur during the post, the batch status changes to E. <i>U</i> : The batch is temporarily unavailable because someone is working with it, or the batch appears to be in use because a power failure occurred while the batch was open.
<b>Branch/Plant</b>	Enter a code that identifies a separate entity as a warehouse location, job, project, work center, branch, or plant in which distribution and manufacturing activities occur. In some systems, this is called a business unit.
<b>Business Unit</b>	Enter the alphanumeric code that identifies a separate entity within a business for which you want to track costs. In some systems, this is called a branch/plant.
<b>Category Code</b>	Enter the code that represents a specific category code. Category codes are user-defined codes that you customize to handle the tracking and reporting requirements of your organization.
<b>Company</b>	Enter a code that identifies a specific organization, fund, or other reporting entity. The company code must already exist in the F0010 table and must identify a reporting entity that has a complete balance sheet.
<b>Currency Code</b>	Enter the three-character code that represents the currency of the transaction. PeopleSoft EnterpriseOne provides currency codes that are recognized by the International Organization for Standardization (ISO). The system stores currency codes in the F0013 table.
<b>Document Company</b>	Enter the company number associated with the document. This number, used in conjunction with the document number, document type, and general ledger date, uniquely identifies an original document.  If you assign next numbers by company and fiscal year, the system uses the document company to retrieve the correct next number for that company.

If two or more original documents have the same document number and document type, you can use the document company to display the document that you want.

**Document Number**

Displays a number that identifies the original document, which can be a voucher, invoice, journal entry, or time sheet, and so on. On entry forms, you can assign the original document number or the system can assign it through the Next Numbers program.

**Document Type**

Enter the two-character UDC, from UDC table 00/DT, that identifies the origin and purpose of the transaction, such as a voucher, invoice, journal entry, or time sheet. PeopleSoft EnterpriseOne reserves these prefixes for the document types indicated:

*P*: Accounts payable documents.

*R*: Accounts receivable documents.

*T*: Time and pay documents.

*I*: Inventory documents.

*O*: Purchase order documents.

*S*: Sales order documents.

**Effective Date**

Enter the date on which an address, item, transaction, or record becomes active. The meaning of this field differs, depending on the program. For example, the effective date can represent any of these dates:

- The date on which a change of address becomes effective.
- The date on which a lease becomes effective
- The date on which a price becomes effective.
- The date on which the currency exchange rate becomes effective.
- The date on which a tax rate becomes effective.

**Fiscal Period and Fiscal Year**

Enter a number that identifies the general ledger period and year. For many programs, you can leave these fields blank to use the current fiscal period and year defined in the Company Names & Number program (P0010)

**G/L Date** (general ledger date)

Enter the date that identifies the financial period to which a transaction will be posted. The system compares the date that you enter on the transaction to the fiscal date pattern assigned to the company to retrieve the appropriate fiscal period number and year, as well as to perform date validations.

# Application Development Preface

This preface discusses the Application Development PeopleBook.

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## PeopleSoft Products

This PeopleBook refers to this PeopleSoft product line: PeopleSoft EnterpriseOne Tools.

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## PeopleSoft Event Rules

This PeopleBook covers Form Design Aid (FDA), a member of the PeopleSoft EnterpriseOne Tools suite. FDA is the tool that software developers use to create EnterpriseOne applications. Its chapters describe FDA in general and then provides detailed design-time and runtime information for each form and control type available.



# CHAPTER 1

## Getting Started

This chapter provides an overview of developing applications using the PeopleSoft EnterpriseOne toolset.

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### PeopleSoft Tools Application Development Overview

The PeopleSoft EnterpriseOne toolset is composed of a variety of applications. To craft effective applications—even to modify existing ones properly—you must understand the overall EnterpriseOne architecture as well as how to use the tools in concert.

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### PeopleSoft EnterpriseOne Tools Application Design Implementation

To develop EnterpriseOne applications, these tasks must be completed first:

- You must have a valid EnterpriseOne user account.  
Depending on how security has been configured, you might need one or more roles assigned to you so that you can access Object Management Workbench (OMW), the EnterpriseOne databases, and so forth.
- OMW must be configured with transfer activity rules and allowed actions so that application development can occur.
- At a minimum, you must have a default project in OMW to which you have been added in the role of Developer.



## CHAPTER 2

# Designing Interactive Applications

This chapter provides an overview of interactive software application design in general and PeopleSoft EnterpriseOne interactive application design in particular.

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## Following User-Centered Design Guidelines

This section provides an overview of user-centered design and the techniques you can use to ensure that your application is user-centric.

### Understanding User-Centered Design

To create usable designs, you need to follow a user-centered design technique. User-centered design means that you get early and frequent user interaction with the real user community to get feedback and input into the design of the application. Before beginning application development, you must clearly document and validate the goals and business objectives with users through conceptual and cognitive design reviews. All team members should understand who the application users are and what goals the users expect to achieve with the application.

### Defining the Users

You must understand your audience before you can design an application that will enhance the user experience. Therefore, you must develop a user profile for each user type (end user, power user, and so forth) that you expect to use the application. You can gather information for a user profile from various sources such as web surveys, interviews, task analyses, contextual inquiries, focus groups, and market and competitive analyses. These questions are the key questions that you should ask:

- Who are the targeted users?
- What are the targeted users' job titles?
- What are the targeted users' levels of expertise?
- What are their unique needs?
- What types of computers do the targeted users use?
- What is the targeted users' work environment like?

### Defining User and Business Goals

You must understand how users move from goals to tasks to actions. Some user goals might be as simple as "doing time entry quickly and accurately." The business goals might be to increase revenue or decrease the cost of providing support. Successful products are designed by understanding both user and business goals. You can define user goals through contextual inquiries, user interviews, and observations.

These questions are the key questions that you should ask:

- What is the user's personal goal in using the applications?
- What are the key goals for the targeted users to accomplish?
- What are the overall business goals?

## Providing Solutions for Different Users

In any given enterprise, only a fraction of the employees has access to the enterprise application suite. Most enterprises would like to achieve a better return on the technology investment and reap the benefits of consistent communication across the organization. However, they would like to meet these goals without equipping every desktop in the organization with a fully loaded desktop machine. Corporate intranets have achieved widespread popularity due, in part, to the low-cost, streamlined distribution of information that they provide. Outside of the constraints of traditional paper-based publishing, companies find they can dramatically improve the information flow within the organization.

However, most intranet-based information is relatively static. In contrast, information within the enterprise system tends to change with each new transaction. Companies would like to marry the ease of distribution afforded by the corporate intranet with the real-time accuracy and processing capabilities of enterprise applications.

PeopleSoft EnterpriseOne software enables businesses to leverage the corporate intranet to increase access to enterprise applications. Any browser-equipped device can provide a real-time window into the information resources of the enterprise. Because of the low technology overhead, businesses can include more users in the information flow, thus achieving these benefits:

- Quicker dissemination of information to a broader corporate audience.
- The bringing together of disparate business operations and distributed sites.
- Better communication of goals, priorities, and strategies.
- Improved decision making through the increased availability of information at every organizational level.

## The User Spectrum

Not every user in an organization uses enterprise applications in the same way. Some need continual access and the full suite of capabilities and desktop tools afforded by a robust client environment. Others require only the ability to review statuses and enter straightforward transactions. The spectrum of needs presupposes different technology requirements throughout the enterprise, depending on the user's skills and job requirements.

User requirements from enterprise applications vary depending on their role in the organization. Analytic users leverage multiple desktop tools to interpret and package enterprise information. Action users rely on quickly available, easily accessed information.

## Analytic Users

At one end of the spectrum are users who gather, analyze, repackage, and distribute information to the rest of the enterprise—the knowledge workers of the organization. These users rely on a range of desktop tools, including enterprise applications, spreadsheets, and publishing tools, to bring together the various islands of information in the organization and integrate them into a meaningful whole.

PeopleSoft EnterpriseOne client and server modes provide these users with the OLE-based, fully integrated desktop they need to maintain the information flow within the organization. The Windows client unites the processing tools of personal productivity applications and enterprise applications, as well as their respective data resources. Action users can then integrate this information, analyze it from various departmental perspectives, and repackage it in a context relevant to multiple functional areas, for example, requirements planning, executive decision making, marketing, purchasing, and so on.

## Action Users

At the other end of the spectrum are those users who review information so that they can perform a particular action. This class of users crosses organizational levels and, for example, might include order entry clerks, shop floor personnel, and executives. Action users often use the system to review order status and item availability, for example, but they do not repackage and publish information for subsequent distribution throughout the enterprise. In browser mode, PeopleSoft EnterpriseOne software offers action users the access they need with a point-and-click interface that minimizes training. At the same time, the low-overhead client enables the business to extend access to those action users previously out of the information flow due to the cost of equipping them with a fully loaded client workstation. The enterprise can push applications out to these users over a standard TCP/IP network to any browser-equipped device. Because no PeopleSoft EnterpriseOne code resides on the client, the business also gains the benefits of centralized software maintenance and upgrades for an entire class of users.

## Enterprise Applications Considerations

Like users, enterprise applications tend to fit better with either client/server or browser mode, depending on the role that the application plays in the information flow. Applications that provide the tools for analyzing and manipulating information from a variety of sources are well served by client/server implementations. PeopleSoft EnterpriseOne client/server modes furnish the needed interactivity and graphical support, as well as the advantage of dedicated use of the client's processor. Specific examples include:

- Modeling and prototyping.
- Budgeting and forecasting.
- High-volume transactions requiring custom interfaces by transaction or customer type.

Applications intended to communicate and distribute shared information and to support standard transaction entries work well in browser mode. The types of applications in the following list display information to good advantage without hindering the client's resources, making them ideal candidates for PeopleSoft EnterpriseOne browser mode:

- Information gathering and presentation applications.
- Inquiry-based self-service applications.
- Repetitive standard transactions applications.

Even with the complementary fit between computing mode and application environment, business needs often dictate that both modes be available to adapt to real-time changes in the business. In the PeopleSoft EnterpriseOne environment, both modes are inherent in the architecture, to be deployed when and as needed. The enterprise can use a combination of both modes, maintaining consistency in business data and processes. By offering both client/server and web-based access to enterprise applications, PeopleSoft EnterpriseOne software can meet the full spectrum of user needs within the enterprise.

Because client/server and browser modes exist in a single software solution, the business can implement PeopleSoft EnterpriseOne software to match user needs or the information requirements of a given business process. With more users accessing the information resources of the enterprise, the business realizes significant benefits:

- Tighter integration of distributed business units.

More users throughout the organization have access to a single, consistent source of information.

- Streamlined processes.

Traditional paper-based processes are more easily automated.

- More efficient decision cycles.

Decisions are not always pushed to the limited number of users who have access to enterprise applications.

Despite the differences between the two modes, enterprises are moving to combine client/server and browser solutions in a single computing solution, such as that provided with PeopleSoft EnterpriseOne software.

Where and how the enterprise deploys each mode depends on the business need and the built-in flexibility of the solution.

In considering the combined use of internet and client/server technology in the enterprise, businesses face two fundamental challenges:

- They must identify those areas of the business best served by web-based solutions and those areas best served by client/server solutions.
- They must implement solutions that accommodate both client/server and browser modes.

## Defining User Tasks

A user task analysis defines all the tasks that the users perform with the system to achieve their goals. Performing a task analysis enables you to:

- Generate ideas for new products.
- Identify essential features to include in products.
- Design the user interface for products that are already identified and for which the scope has been determined.
- Improve the usability of products already in production.

To drive a user-centered design approach rather than a function-centered design approach requires an understanding of the user's tasks and the context in which those tasks will be performed. As with goals, a user task analysis can be gathered using contextual inquiries, interviews, and observations. These questions are the essential questions that you should ask:

- What tasks do the users need to perform using the system?
- What are the critical and important aspects of their tasks?
- In what sequence do they perform those tasks?  
In other words, what is the workflow of the task?
- What are their current environmental constraints and issues?
- How can their current work processes be improved by using the system?

### Task Analysis Example

This example uses the E-procurement self-service application as a model for creating a task-based, user-centered design. This is an example of the task analysis:

- The customer accesses the application to see customer alerts on changing market needs.
- The supplier responds to the alerts in a timely manner.
- The supplier receives critical data about the buyer/seller market just in time, such as data about shortages.

- The supplier searches for the specific order request.
- The supplier browses the current schedule for shipment tracking.

This example lists all of the tasks that a user might perform in the system as a customer or a supplier:

#	Customer Task	Supplier Task
1.	Change a user profile.	Change a user profile.
2.	Request a new user ID or password.	Request a new user ID or password.
3.	Monitor daily alerts from enterprise (first).	Monitor daily alerts from enterprise.
4.	View prioritized schedules and work.	View prioritized requests, such as rejected orders.
5.	View daily and delayed delivery schedules.	Notify of daily and delayed shipment schedules.
6.	Send requests for quotes to a supplier.	View requests for quotes from buyers.
7.	View responses from suppliers.	Respond to requests for quotes from buyers.
8.	Search a status of a specific order or item ordered from a supplier.	Search for the status of a specific order or item for a buyer.
9.	Track outstanding shipment statuses.	Track deliveries.
10.	Request an unfulfilled order shipment.	Respond to a shipment request.
11.	Review outstanding invoices to be paid.	Review overdue invoices.
12.	Create sales orders.	View sales orders.
13.	View sales order status.	Respond to sales order status.
14.	Review supplier inventory.	Review buyer inventory.

## Creating Use Cases

A *use case* is a method for modeling user tasks. The purpose of use-case design is to model user tasks in flowcharts to understand the navigational structure behind the web application design. A use case describes the tasks that the user wants the system to do, such as querying the status of an existing order. A use-case approach helps define the boundaries of the system and prevents the growth of scope that can often happen without a clear model of use cases.

In the process of identifying and defining the participants and use cases, the designers define the application scope, or what can be done and what cannot be done within the application.

Use cases provide these benefits:

- An easily understood communication mechanism.
- A reduced the risk that requirements will be overlooked (when requirements are traced).
- A concise summary of what the system should do at an abstract (low modification cost) level.

- The use the language of the customer.

## Performing Usability Evaluations

You should design PeopleSoft EnterpriseOne software applications using user-centered design principles. As application development progresses, you must validate and verify the designs with the end users. Usability engineering includes conducting iterative usability evaluations of the designs during the design cycle. Incorporating user-centered design and usability engineering into the development cycle provides these benefits:

- Increases user efficiency and performance.
- Increases operational efficiencies and productivity.
- Improves user experience.
- Improves customer satisfaction.
- Increases sales and builds customer loyalty.
- Reduces the overall development costs.
- Reduces training and support costs.

The case study shows how and why designers changed a form after performing usability evaluations.

In response to the evaluation, designers sought to redesign the form to make it more usable. They decided to make these changes:

- Emphasize the PeopleSoft branding.
- Use graphical icons that are inoffensive to international audiences.
- Incorporate more meaningful labels and headings.
- Enable more user-defined layout of screen elements based on user task flow.
- Reduce the amount of on-screen text by incorporating clear labels and headings.
- Reduce clutter and visual noise.
- Incorporate a better grouping of information.

---

## Understanding Information Architecture

You use the Form Design Aid (FDA) tool to create the presentation of most of the PeopleSoft EnterpriseOne web applications. This section provides an overview of information architecture design techniques.

### Creating Wire Frames

One technique used in web application design is the process of creating wire-frame diagrams to describe the initial web-screen design mock-up. A wire-frame diagram provides a placeholder for your screen content and serves as a high-level architectural blueprint for the web application. Incorporating wire frames into the development cycle helps speed up the process of creating the web application.

Use cases enable you to:

- Conceptualize the navigational flow from one form to another.

- Identify the contents of the web application.
- Provide an overview of the web application.
- Develop a conceptual prototype of the design.
- Reveal problems in how tasks are distributed over the interaction spaces.
- Provide a rough overview of how complex the system will be for users (overly long chains of transitions invite review for possible consolidation and simplification).
- Serve as a powerful tool for understanding the overall organization of software.
- Reveal lurking problems in the existing designs and help clarify possible solutions.

## Understanding General Design Guidelines

Observe these guidelines to design web applications while working within the constraints of the FDA tool:

- Organize the information based on the user's task needs.

The layout must represent the user's task flow.

- Display critical and frequently used information first.
- Avoid horizontal scrolling; users dislike scrolling horizontally.
- Use subheadings to group information into sections.
- Avoid using long, wordy sentences or phrases in instructions or labels.

Use action verbs and active voice to describe the actions needed. The user interface should be self-evident and require minimal instructions.

## Defining the Navigation

Based on use cases and wire-frame diagrams, you define the navigation model of the web application. Currently, the PeopleSoft EnterpriseOne navigation scheme is sequential: users can move only in one direction by closing a form and returning to the previous form. However, web applications require greater flexibility in designing the navigation scheme because they include the Back button. If the users cannot achieve their goals in the web application, they are likely to click the Back button on the browser to exit an application.

### Basic Navigation Guidelines

This list presents guidelines for designing a successful navigation for web applications and web sites. Navigation should:

- Be easy to learn.
- Remain consistent across the application.
- Provide feedback to users.
- Appear in the user's context (for example, error messages).
- Offer alternative navigations.
- Be efficient for the user.
- Provide clear visual messages.
- Provide clear and understandable labels.
- Be appropriate for the application.

- Support the user's goals and behavior.

## Navigation Schemes

One important challenge for web designers is how to organize information in the web forms. The navigation scheme must provide users quick and easy access to the information they need. Depending on the purpose of your design, you should use one of these types of navigation schemes:

- Task-based

This navigation is based on the user's task flow. This scheme is the most effective for PeopleSoft EnterpriseOne web applications. The PeopleSoft EnterpriseOne Menu is an example of a task-based navigation. Task-based navigation follows a browse path, but it should not be too deep. Users should not have to go through four to six levels of hierarchy to reach their tasks.

PeopleSoft EnterpriseOne self-service applications use a task-based navigation model. Users navigate through the Collaborative Portal to access the workspaces, where they can then access specific tasks.

- Sequential

This navigation is based on one step at a time and is linear in structure. Use this type of navigation for a dialog-driven, tutorial style design.

- Informational

This navigation is a nonlinear design by which users can jump and skip pages using a hypertext model and information is organized by category. The user does not have a specific path to follow and requires flexibility in browsing a variety of information. This type of navigation scheme is used in sites such as Yahoo!.

## Links

If you are designing an application with an HTML appearance, such as a self-service application with a lot of customized HTML code, then you should use links as your navigation mechanism. If you are designing a Windows-based PeopleSoft EnterpriseOne application with grids, tabs, and other PeopleSoft EnterpriseOne controls, then it makes sense to use PeopleSoft EnterpriseOne standard navigation schemes, such as the PeopleSoft EnterpriseOne tool bar and menu bar.

The PeopleSoft EnterpriseOne software menu items such as Find, Select, OK, Cancel, and Close are familiar to the end user and offer standard runtime processing. You should use these standard menu items instead of customized buttons whenever possible.

Observe these guidelines when designing navigational links in PeopleSoft EnterpriseOne web applications:

- Use action verbs to describe the task; for example, View Account Information.
- Avoid making users take a different path when completing a task; for example, Browse Catalog.
- Provide a clearly marked and easy-to-see Close button to enable users to save and exit the application.
- Use links to connect users to additional information.

In a PeopleSoft EnterpriseOne software grid, use links instead of the two-step Select action.

- Make links easy to understand.

Avoid leaving the user guessing about what information will appear. For example, avoid providing a Travel link that displays information about travel agencies.

- Use a single word or a short phrase for links.

At the most, use two to three words.

- Avoid making links for long sentences or paragraphs.

- Avoid using an underline for labels that are not links.  
Make sure users can distinguish between a link and other words that are only being emphasized.
- Avoid using "click here" for more information.  
Create the link on the most relevant word in the sentence.

## Defining the Search Interface

For web users, you must make the search function simple and fast to perform. The search function is one of the most important user interface elements for web applications. Usability studies indicate that only 64 percent of users find what they need on the web because of poorly designed search applications. Use the guidelines in this section to design searches.

### Simple Search

A simple search is required for the novice user who knows what he or she is looking for. It must be easy to use. Typically, simple search functions include minimal filtering options. In PeopleSoft EnterpriseOne web applications, a simple search function should be provided in the Portal home page or in each workspace. Observe these guidelines to design a simple search:

- The area to search should be clear.
- The search functions should be available from the home page or from the Portal.
- A simple search should not take the user to another page using a link.
- Provide a link to the Advanced Search function from Simple Search.
- Use the Go button label when space is limited, such as in a Portal component.  
Otherwise, use the Search button label.

### Advanced Search

The Advanced Search function is used to find specific information. Users can use the Advanced Search function to narrow the scope of their search by specifying one or more fields of information. Observe these guidelines when designing an advanced search:

- For expert users, provide an advanced search option that replaces the current query-by-example (QBE) search function in PeopleSoft EnterpriseOne software.
- Provide a link for the Advanced Search function on main forms and on the Simple Search form.
- Use the search default <contains> to replace the QBE function.
- Provide users with a way to navigate to the simple search from the Advanced Search page.
- Logically group the search criteria and clearly indicate the different options for searching.
- Enable users to refine the search on the same page that displays the results.

### Displaying Search Results

Observe these guidelines to display search results:

- Display search results on the same page from which the search was performed.
- Enable users to refine the search further if required; add a Refresh button for a refined search.
- The title of the search results section should be clearly labeled Results in bold.
- Provide "bread-crumbs" navigation back to the visited pages or links, for example, 1 2 3 4.

- Provide <Next> and <Previous> links rather than <Forward> and <Back>.

### **Search Error Recovery**

Observe these guidelines to facilitate the user's ability to refine searches:

- Display the error message above the same form on which the user started the search so that the user can refine the search or correct the search parameters.
- Make all error messages clear, constructive, and specific.
- Enable users to begin a new search if no records are found.
- Offer the user tips to refine the search further.

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## **Understanding Platform Compatibility**

When you design web applications, you should be aware of web browser compatibility issues. Every browser interprets HTML tags a little differently. Table, form, link, and alignment tags work differently in each browser. Observe these guidelines when designing your web applications:

- Design for the appropriate web browser version.

Check the PeopleSoft minimum technical requirements (MTRs) to determine which versions of which web browsers are supported.

- Avoid using tags supported by only one browser.
- Test designs on multiple browsers and platforms before release.

You should select the screen resolution appropriate to the needs of your target users. Most users with 15-inch monitors are using 800 x 600 screen resolution, and users with 17-inch monitors are using 1024 x 768 screen resolution. B2B users in the manufacturing and distribution industries often use 15-inch monitors with 800 x 600 screen resolution in their facilities.

If you are designing applications for Windows CE or pocket PC, you should select the 240 x 320 pixel option in the Forms Guide menu.

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## **Understanding PeopleSoft EnterpriseOne Interactive Application Design**

Interactive Application Design is the entry point to several tools for creating, generating, running, maintaining, and securing applications. Interactive Application Design includes FDA for creating forms and Event Rules Design for attaching business logic through event rules. Use Interactive Application Design to perform these tasks:

- Access FDA for creating forms.
- Run an application.
- Create text overrides.
- Browse ER.

- Browse forms in an application.
- View the version list.
- Use Visual ER Compare to compare event rules between two versions of an application.
- Use FDA Compare to compare one version of an application with another.

You can use the PeopleSoft toolset to create applications that run in an HTML client.

To start Interactive Application Design, choose an application in Object Management Workbench (OMW) and click the Design button. In Interactive Application Design, you can change the metadata for the application.

To access application metadata, click the Summary, Category Codes, and Install/Merge Codes tabs. You can also attach text and files to an application by clicking the Attachments tab. You can access all other functions from the Design Tools tab.

### **See Also**

*EnterpriseOne Tools 8.94 PeopleBook: Object Management Workbench*, “Understanding Object Management Workbench”



## CHAPTER 3

# Designing PeopleSoft EnterpriseOne Applications

This chapter provides an overview of HTML PeopleSoft EnterpriseOne application design, multiple modes, runtime event processing, and describes how to:

- Hide menu and tool bar exits.
- Enable In-Your-Face-Errors.
- Size forms for screen sizes.
- Hide the grid row selector.
- Show an alternate grid row format.
- Show multiple currencies per column.
- Use multi-line edit to control page refresh.
- Control the number of grid rows for each page of grid records.
- Show check boxes in grid cells.
- Show links in grid cells.
- Show links in the form, group box, or tab control.
- Insert custom HTML tags into a form.
- Insert custom HTML code with Form Design Aid.
- Insert custom HTML at runtime.
- Use advanced HTML functionality.
- Insert images into a form.
- Perform custom selects and sorts for the grid.

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## Understanding HTML PeopleSoft EnterpriseOne Application Design

When using the PeopleSoft EnterpriseOne Form Design Aid (FDA) tool to develop interactive applications targeted for the web (HTML), you must consider several design strategies during the design and coding process. This section discusses several of those strategies.

HTML web applications often appear and function differently from Windows applications. The design requirements dictate how different they are and what the differences are. For example, in Employee, Customer, and Supplier Self-Service applications, one requirement was that non-PeopleSoft EnterpriseOne users must be able to navigate between applications and forms. This requirement culminated in the removal of all menu and tool bar exits, which were considered a PeopleSoft EnterpriseOne-specific navigation mechanism. To replace menu and tool bar exits, the design enables users to navigate between applications and forms using links, which are commonly found in HTML-based applications.

When designing an application for use on both the Windows platform and the HTML platform, you might want to use form modes if you want them to look different.

When creating menus in PeopleSoft EnterpriseOne to access your new applications, you can access the form in a specific form mode. If your application is web only and if you did not use form modes in FDA, you can generate the application (HTML serialized objects) in any of these modes. However, if your web-only application provides form interconnects to other applications that need to be processed in a specific mode, then you must design and generate your new application in that required mode. This is required because of the inheritance of execution modes when a form interconnect is processed. In other words, the mode of the child form is forced to be identical to the mode of the calling form.

---

**Note.** All forms accessed from a menu entry point must be generated in the same mode.

---

Performance is also an essential consideration in designing applications for web use. In addition to the types of performance issues that a Windows environment presents, a web environment presents additional performance issues to be considered before you perform any coding. When designing applications for web use, you need to:

- Separate business logic from user interface logic.

For example, you should use only event rules (ER) directly from your application to control the user interface on the form. However, you should create business logic components (business functions) that encapsulate business processes such as calculations, database access, and other types of business logic, and that access these components from the application. Doing so makes your application easier to maintain.

- Consider database access performance.

*Always set up correct indexes for your tables. Use indexes as much as possible for database access. Good design practices for three-tier architecture systems advocate separating the logic for database access into individual components (business functions) that are accessed from your application.*

- Beware of designs that suppress the display of grid lines in the **Grid Record is Fetched** or the **Write Grid Line - Before** events.

*If the form is suppressing most or almost all of the grid records that it fetches based on the search criterion, then you should devise a more focused search criterion to avoid having to suppress most grid records.*

- Do not disable page-at-a-time processing.

If you need the total number of records fetched, you can achieve this by making a JDB call from business functions. Page-at-a-time processing offers great performance benefits.

- Do not worry about the round trip from the web server to the enterprise server.

The link between the web server and enterprise server is usually fast. Additionally, both servers perform smart caching.

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## Designing Forms Using Multiple Modes

You can use control modes to develop an application with multiple interfaces, which reduces the need to maintain several different versions of the same application. You can create one base application and use modes to modify the application for different interfaces. You can enable or hide controls on forms for each mode. Only visibility and enable/disable properties for controls, columns, and menu exits are different for different modes. If you show hidden fields, they appear only for the current mode. All other properties are the same and are common for all modes. All fields are enabled and appear all forms.

The Windows runtime engine does not recognize control modes; only the HTML runtime engine recognizes them. Mode 1 is the default mode. You attach an application to a menu to run. This menu enables you to run an application in different modes. When you run an application over the web, the application runs in mode 1 by default and another mode if you specify one. If you attach an application to a Windows menu, the Windows runtime engine ignores any modes that you specified and runs the application in mode 1. Use modes consistently throughout your applications. To create web-enabled versions of your forms, you generate them in Java and HTML using eGenerator. The generator allows you to generate forms simultaneously for one or more modes.

---

## Hiding Menu and Tool Bar Exits

If you want to hide form and row exits and all other types of menu and tool bar exits (Select, Cancel, OK, or Delete) in your application, you can do so by selecting the hidden option while you are in any mode. If you choose the hidden option in mode 2, then the exit is hidden only in mode 2. In modes 1 and 3, the exit still appears.

---

## Enabling In-Your-Face-Errors

The In-Your-Face-Errors property is a form-level property that is available only for the HTML platform. Typically, the system indicates an application error by highlighting the Errors and Warnings link in the upper right-hand area of the application. When enabled, however, the In-Your-Face-Errors property causes application errors to appear on the web page.

---

## Sizing Forms for Screen Sizes

Sometimes you want to size the form according to your target user's browser size. For example, most users of Customer Self-Service applications run in 640 x 480 screen resolutions only.

To create guides for sizing appropriately, you can choose to set the Form Guide value on the Form Properties dialog. Doing so adjusts the blue-line guide in FDA appropriately. FDA does not enforce the size, but merely guides the designer to keep objects within the blue-line guides.

---

## Hiding the Grid Row Selector

The Hide Grid Row Selector property is a grid-level property that is available for the HTML platform. If you decide not to show grid row selectors on your grids, select the Hide Grid Row Selector option on the grid properties dialog box.

---

## Showing an Alternate Grid Row Format

The Use Alternate Grid Row Format property is a grid-level property that is available for the HTML platform. The property enables you to control the appearance of your grid.

To use this option, you must provide specific HTML tags by clicking the Row Format button. Follow the instructions in the HTML Alternative Grid Row Format dialog when creating your HTML tags for the grid rows. These HTML tags control the appearance of each grid row. You can also choose to output a Media Object Image or Text type object for the grid record and links.

This option is supported only in non-updateable grids.

---

## Showing Multiple Currencies per Column

When the Support Multiple Currencies option is selected for a column, the runtime engine assumes that each cell contains its own currency setting, and it formats each cell based on the currency decimal setting for the cell. The runtime engine will not apply the currency settings to other grid rows, however. Therefore, the application needs to apply currency to each grid row individually. For example, the Amount column in row 1 might have a JPY currency type and be formatted with no decimals, while the Amount column in row 2 might have a USD currency type and be formatted with two decimals.

When the Support Multiple Currencies option is cleared for a column, the runtime engine assumes that all of the cells in that column share the same currency setting, and so it applies that currency setting to other grid rows. Therefore, if you specify the currency setting in one row, the system overwrites the currency setting for all the other rows in the grid to match. This feature offers a performance benefit for those grids that contain only one currency because the application needs to specify a currency setting to one grid row only to affect the entire grid.

These currency rules apply:

- When assigning values using conventions such as target = source, if the source object does not have any currency information (currency code = null or empty string), then the target object keeps its own currency.
- When a GB object is cleared, the currency code and currency decimal information for that column is not cleared.

---

## Using Multi-Line Edit to Control Page Refresh

The Allow Multi-line Edit property is a grid-level property that is available for the HTML platform. This property is applicable only on systems running in lower interactivity mode, and only to grids that enable users to edit the grid records. Turning on this option causes the runtime batch program for HTML to show grid rows that contain editable Text Box controls in each cell (all rows) instead of only in the active grid row. It also prevents the system from refreshing the page every time the user exits a grid row. Instead, the system delays the processing of the **Grid Row is Exited** events and only processes them in groups of 3 to 5 rows using a silent post.

---

## Controlling the Number of Grid Rows for Each Page of Grid Records

The Grid Row Count property is a grid-level property. A non-zero value for this option causes the runtime batch program for HTML to show the number of grid rows specified. By default (a value of 0), the runtime batch program displays 10 records in the grid per page.

---

## Showing Check Boxes in Grid Cells

The Check Box property is a grid column-level property that is available for the HTML platform. It displays check boxes in grid cells for a specific column that provides on/off state information.

To use this option, you must provide specific values that specify the selected and cleared state value. During runtime, the system detects the value of the GC variable for the column and cross-references the value with the settings that you specified to render a selected or cleared check box.

---

## Showing Links in Grid Cells

The Clickable property is a grid column-level property that enables you to display text in grid cells for a specific column as links (clickable text). Any non-blank value in the grid cell for that column appears as a link.

Enter the logic to process when the link is clicked in the **Grid Column Clicked** event. GC values are available for the grid row that was clicked.

---

## Showing Links in the Form, Group Box, or Tab Control

To create links that are placed in the form, group box, or tab control, you can use either the text block control or static text control. Usually, the text block control is used whenever more control over the text format for the link is needed; otherwise, the static text control is used due to reduced overhead.

To use a text block control to display its text contents as links, you add a segment to hold the text of your link, and then select the Clickable option in the text block control properties dialog. The logic to process when the link is clicked should be entered in the **Text Clicked** event.

To use a static text control to display its text contents as links, you assign the link text that you want to show, and then select the Clickable option in the Static Text properties dialog. The logic to process when the link is clicked should be entered in the Text Clicked event. You cannot override the font and color for clickable text segments.

---

## Inserting Custom HTML Tags into a Form

You might want to insert your own HTML into the form to produce a more customized HTML appearance. To do this, use Text Block Control.

The text block control can be used to extend the functionality already provided by the PeopleSoft EnterpriseOne HTML platform. The HTML platform adds any text contained in the platform to the HTML of the form as it is generated. In addition, you can add, delete, and update the text within the control at runtime. Taken together, this control can greatly extend the functionality of the web client.

You can enter text in the text block control either by defining text segments in the text block control in FDA or by inserting text segments at runtime using system functions.

---

## Inserting Custom HTML Code with Form Design Aid

Place the text control block on the form, and insert segments as needed to hold the tags. You should segregate segments that are data-driven and segments that contain static HTML tags. Segments that are data-driven can be set during the **Dialog is Initialized**, **Grid Record is Fetched**, or other appropriate events by using the **Update Segment()** system function call.

### Inserting Custom HTML with FDA

To insert custom HTML with FDA:

1. In FDA, select Insert, Text Control Block.
2. Click in the form in which to place the control.
3. Click the new control, and then select Edit, Item Properties.
4. Click Add Segment and then enter the HTML text that you want to add to the form.
5. To make the segment clickable by the user, click Clickable.

This option causes the system to generate the segment as a link that runs a **Text Clicked** event when the user clicks it.

6. To override the cascading style sheet (CSS) setting for the segment, perform these steps:

---

**Note.** It is recommend that you use this option sparingly.

- a. Clear Use Default Font and Color.

- b. Select Font and Color.
- c. In Font, specify the typeface, font characteristics, and color that you want to use.

## Inserting Custom HTML at Run Time

You can use these system functions to manipulate the text block control from ER:

Function	Parameters	Comments
<b>Add Segment</b>	<i>Text Control</i> <i>Text</i> <i>Font</i> <i>Clickable</i> (true/false) <i>SegmentId</i> - Returned unique segment ID for the added segment	
<b>Get Last Clicked Segment</b>	<i>Text Control</i> <i>SegmentId</i> - Returned segment ID of the segment that was last clicked by the user	Use this on the <b>Text Clicked</b> event of the text control to determine what segment was clicked.
<b>Get Segment Information</b>	<i>Text Control</i> <i>Text</i> - Returned text of the passed in segment ID <i>Clickable</i> - Returned clickable flag of the passed in segment ID <i>SegmentId</i> - Segment ID of the segment being inquired about	
<b>Remove Segment</b>	<i>Text Control</i> <i>SegmentId</i> - Segment ID of the segment to be deleted	
<b>Update Segment</b>	<i>Text Control</i> <i>Text</i> <i>Font</i> <i>Clickable</i> <i>SegmentId</i> - Segment ID of the segment to be updated	

The parameters *Clickable* and *SegmentId* expect variables of Integer data type.

## Using Advanced HTML Functionality

Except for applying font and color (if specified) and adding the necessary tags for processing the clickable event, the text entered into this control is added unfiltered to the HTML of the form as it is generated. Therefore, you must be familiar with the CSS (Cascading Style Sheet) scheme that PeopleSoft EnterpriseOne uses to generate its HTML. By using the appropriate class names in the HTML tags in the text block control, you ensure that the text block control will have the same appearance as the form, and the appearance will change with the rest of the form if the customer changes the controlling CSS forms. This also means that the developer should never define the font and color of text segments unless necessary. The font and color for a text segment ignores the CSS definition of the form and, thus, will always look different from the rest of the form.

**Note.** The system will not format the text block control correctly in FDA because FDA currently does not communicate with the web server to determine the correct CSS settings. To see the control correctly formatted, generate the form and then view it on the HTML platform.

This table lists the common PeopleSoft EnterpriseOne CSS tags:

Class Name	Apply to	Comment
Padded	TABLE	Creates a padded table the width of the page.
Border	Generic	
NoBorder	Generic	
WideTable	Generic	Width = 100%
TallTable	Generic	Height = 100%
TallAndWideTable	Generic	Width = Height = 100%
Grid	TABLE	
MainHeading	Generic	
SectionHeading	Generic	
GroupHeading	Generic	
SubHeading	Generic	
FieldLabel	Generic	
RaisedBorders	Generic	
BlackBorders	Generic	
ClearBorders	Generic	
QBECCell	Generic	
GridHeaderCell	Generic	

Class Name	Apply to	Comment
GridCell	Generic	
InYourFaceError	Generic	
InYourFaceWarning	Generic	
ToolbarText	Generic	
GroupBox	Generic	
GroupBoxHeader	Generic	
FormLabel	Generic	
FormAboveGrid	Generic	

These HTML tags have been specified with custom style tags so that they can be used with the assurance that their text will be formatted correctly:

Tag	Comment
HR1	
HR2	
BODY	Unformatted text without any enclosing tags, classes, or both entered by the text block control will have a base style to rely on.
INPUT	
SELECT	
A	
TABLE	
TABLE TD	

---

## Inserting Images into a Form

You can place a variety of images on a form with the Bitmap Control. The image can be static, or you can make it clickable. Use the **Button Clicked** event to define what should occur when the user clicks the image.

---

## Performing Custom Selects and Sorts for the Grid

Within the **Button Clicked** event of the Find menu exit, you can customize your grid selection criterion by using the **Clear Select** system function and then performing the **Set Selection** system function. You can also choose to perform **Clear Sequencing** and then the **Set Sequencing** system function to customize the grid sequencing settings of the grid.

By using **Set Selection** or **Set Sequencing** system functions, you do not have to use hidden filter fields on the form to perform custom grid-selection criteria. Furthermore, the **Set Selection** function can support "Or" and "And" statements in the resulting SQL statements.

## CHAPTER 4

# Designing PeopleSoft EnterpriseOne Applications for Mobile Use

This chapter provides an overview of what PeopleSoft EnterpriseOne supports, the runtime architecture, and design strategies for developing applications for mobile devices.

---

## Mobile Device Compatibilities

The PeopleSoft EnterpriseOne web client provides full support for mobile devices based on the Windows CE platform, which is highly compatible with the web client architecture. Currently, all of the Windows CE devices have a good support for HTML through various versions of Internet Explorer (IE) browser.

The PeopleSoft EnterpriseOne Mobile Device architecture supports many PeopleSoft EnterpriseOne interactive applications that are run on the supported platforms. It leverages the existing architecture and requires that you make no application development changes to your applications. Currently, PeopleSoft EnterpriseOne Mobile support is available for connected users only; that is, users who are not connected to the network using a browser are not supported. Support for the Palm Computing platform is also unavailable because of its lack of good browser support.

---

## Mobile Device Runtime Architecture

The architecture providing support for mobile devices in the PeopleSoft EnterpriseOne web client is the same as the one for desktop. The output generation for the HTML4-compliant browsers remains essentially the same. However, output is generated for Windows CE browsers running IE3.01.

When the user first signs onto PeopleSoft EnterpriseOne JAS server, a session is established between the client browser and the web server. The session then holds information about the client platform and the browser. The system generates HTML output based on this information.

---

## Mobile Device Design Strategies

When you develop applications for mobile devices, use the same design strategies as for regular web-based applications. However, remember that the form factors are limiting on these devices. The form factor on Windows CE 3.0 devices is limited to 640 x 480, while the form factor on Pocket PC is limited to 240 x 320. This list presents additional design strategies to consider:

- In browser-based applications, vertical scrolling is generally more acceptable than horizontal scrolling.

- Try stacking controls top-to-bottom for the Pocket PC interface to make the applications more useful. You can limit the number of grid columns to prevent the user from scrolling too much.
- PeopleSoft EnterpriseOne supports grid tabs on HTML4-compliant browsers. However, grid tabs are not supported on Pocket PCs. Grid tabs support a feature called Default for Pervasive Device. You can use this feature to limit the number of grid columns displayed on Pocket PC for existing applications.

---

## Functional Differences between HTML and Mobile Devices

Mobile devices manage errors differently than HTML. Also, the user interacts with a mobile device differently from the way he or she interacts with a web browser displayed on a terminal.

### Event Handling

The PeopleSoft EnterpriseOne Web Client and Mobile Device manage form events similarly. However, on the Pocket PC, the **Control Is Exited** event is never processed for a control until the user changes the data in the associated field. In HTML4-compliant browsers such as IE 5.x on a desktop and IE 4.x on Windows CE 3.0, JavaScript is used to keep track of all the controls that the user has used the Tab key to move out of. This information is posted to the web server and used to run the **Control Is Exited** event. However, on the IE 3.01 browser on Pocket PC, the virtual client keeps a virtual image of the Form, and this image is used to compare the fields that are changed. Therefore, **Control Is Exited** and its associated events (such as **Control is Entered** and **Control is Exited and Changed**) are processed only if a field is modified. The logic of your application should not depend on **Control Is Exited** to be processed even if a particular field is not modified.

### Usability

The appearance of applications running on mobile devices is not as rich as the one on Desktop IE 5.x browser because the DHTML and JavaScript support on the browsers for these devices is limited. This is a list of the most important differences:

- Grid scroll bar support does not exist on any mobile device.
- The web client on a Pocket PC has limited keyboard support.
- Multi-line Grid Editing functionality does not exist on the Pocket PC. Therefore, these devices are not suitable for high-volume data entry.
- Support for Media Object RTF Editing and OLE Objects does not exist.
- No Export/Import functionality is supported on any mobile device.
- Support for text block controls is limited by the mobile device.

If an application has a text block control that relies on DHTML/JavaScript, it might not work correctly on Pocket PC platforms.

Support for viewing PDF files for submitted reports does not exist.

## CHAPTER 5

# Creating a PeopleSoft EnterpriseOne Interactive Application

This chapter provides an overview of interactive application objects and describes how to create interactive applications.

---

## Understanding Interactive Applications as PeopleSoft EnterpriseOne Objects

An application is an object. Before you can begin developing an application in Interactive Application Design, you must add it so that it exists as an object. You can add a new application or you can add a version of an existing application.

After the application exists as an object, you can start building the components of the application. You can use Form Design Aid (FDA) to design the first form in your application.

---

## Creating Interactive Applications

This section describes how to:

- Create an interactive application object.
- Create an interactive version object.

## Forms Used to Create Interactive Applications

Form Name	Form ID	Navigation	Usage
Object Management Workbench	W98220A	Object Management (GH0982), Object Management Workbench	Create a new PeopleSoft EnterpriseOne object.
Add PeopleSoft EnterpriseOne Object to the Project	W98220C	On Object Management Workbench, click Add.	Select Interactive Application.
Add Object	W9861AF	On Add EnterpriseOne Object to the Project, select Interactive Application.	Create a new interactive application.
Adding a Version	W98220R	On Add EnterpriseOne Object to the Project, select Interactive Version, and click OK.	Select an application upon which to base the version.
Version Add	W98305G	On Adding a Version, select an application.	Create a new version of an interactive application.

### Creating an Interactive Application Object

Access the Add Object form.

#### Object Name

The name that identifies a system object. PeopleSoft EnterpriseOne architecture is object-based. Discreet software objects are the building blocks for all applications, and developers can reuse the objects in multiple applications. Object Librarian tracks each object.

This field accepts up to 10 characters; however, if you enter more than eight characters, the entry will be truncated.

#### Product Code

A user-defined code (UDC) (98/SY) that identifies a system.

#### Product System Code

A UDC (98/SY) that specifies the system number for jargon and reporting purposes.

#### Object Use

Designates the use of the object. See UDC 98/FU.

### Creating an Interactive Version Object

Access the Version Add form.

#### Version

A user-defined set of specifications that control how applications and reports run. Use versions to group and save a set of user-defined processing option values and data selection and sequencing options. Interactive versions are associated with applications (usually as a menu selection).

This field accepts up to 10 characters; however, if you enter more than eight characters, the entry will be truncated.

#### Version Title

A description of the version that appears next to the version number. This field should describe the use of a version.

Provide up to a 60-character description. It should reflect the subject of the forms within the application, such as Companies and Constants.

## Security

This field enables you to restrict user access for a version. Valid values are:

- 0 No security

Anyone can design, change processing option values, change detail values, check in, check out, install, transfer, copy, delete, or run the version. This is the default configuration when adding a new version.

- 1 Medium security

Only the Last Modified By user can design, change processing option values, change detail values, check in, check out, or delete the version. Anyone can install, copy, transfer, or run the version.

- 2 Medium to full security

Only the Last Modified By user can design, change processing option values, change detail values, check in, check out, transfer, delete, or run the version. Anyone can install or copy the version.

- 3 Full security

Only the Last Modified By user can design, change processing option values, change detail values, check in, check out, install, transfer, copy, delete, or run the version.



## CHAPTER 6

# Debugging EnterpriseOne Applications

This chapter describes various debugging tools and techniques you can use while developing your PeopleSoft EnterpriseOne applications.

---

## Debugging

Debugging is the method you use to determine the state of your program at any point of execution. Use debugging to help you solve problems and to test and confirm program execution.

Use a debugger to stop program execution so you can see the state of the program at a specific point. This enables you to view the values of input parameters, output parameters, and variables at the specified point. When program execution is stopped, you can review the code line-by-line to check such issues as flow of execution and data integrity.

To debug PeopleSoft EnterpriseOne, use EnterpriseOne Event Rules Debugger and Microsoft Visual C++ Debugger. Use Event Rules Debugger for interactive applications, reports (batch applications), and table conversions. Use Visual C++ Debugger to debug C business functions.

---

## The Debugging Process

Use the debugging process to determine where problems occur and to fix those problems. Isolate each problem to a particular area, and then examine exactly how the program operates in that area.

If you change your program while you are debugging with the Event Rules Debugger, you must:

1. Disconnect the Event Rules Debugger.
2. Rebuild debug information.
3. Reset breakpoints.
4. Run the application.

Features available in the debuggers are listed and described in this table:

Feature	Available in:	Description
Go	Visual C++ and Event Rules Debugger	Command that resumes program execution after a breakpoint is reached.  In Visual C++, after you start an application, the application will run until the breakpoint is reached.

Feature	Available in:	Description
Breakpoints	Visual C++ and Event Rules Debugger	Commands that tell the debugger to stop when a particular line is reached. You can set breakpoints on lines of code where you want to start debugging.
Step, Step Over	Visual C++ and Event Rules Debugger	Command that executes the current line of code. Step lets you run the program one line at a time. You can use this feature to determine the results of every line of code as it is executed.
Step Into	Visual C++ and Event Rules Debugger	Command used when the current line of code contains a function call. The debugger will step into the function so that it can be debugged line by line. When the function is complete, the debugger returns to the next line of code after the function call in the calling routine. Step Into can be used to debug a second application that is called from within a PeopleSoft EnterpriseOne-calling application.
Stop	Visual C++ Debugger	Command that stops the debugging process. The running application is also terminated.
Disconnect	Event Rules Debugger	Command that disconnects the debugger from the current application. The application continues to run as if the debugger had not been started.
Watch	Visual C++ and Event Rules Debugger	Command that displays the value of variables while the program is running. It also lets you inspect expressions so that you can see how a particular expression changes when variables change.  Both the C++ and Event Rules debuggers enable you to change the values of watch variables.

---

## Interpretive vs. Compiled Code

PeopleSoft EnterpriseOne uses both interpretive and compiled code.

Interpretive code refers to code that is compiled as it runs. The translation from program instruction to machine instruction happens at runtime. Interpretive code resides within the application. Interpretive code enables you to customize applications without having to recompile every time you change something. The scripting code for event rules (ER) used in Form Design Aid (FDA) and Report Design Aid (RDA) is interpretive.

Compiled code is compiled and stored in an object file that can be called independently. The translation from program instruction to machine instruction happens at compile time. Compiled code resides outside the application. It is less subject to change and is typically less flexible than interpretive code. You can use Visual C++ to debug compiled code. The ER scripting language can be translated into C, Java, or your current language of choice. The logic only needs to be interpreted one time. Table ER, named event rules (NERs), and business functions are examples of compiled code.

---

## Debugging Strategies

You can use several strategies to make debugging faster and easier. Begin by observing the nature of the problem.

## Is the Program Ending Unexpectedly?

If the program is ending unexpectedly, the cause is likely an unhandled exception. An unhandled exception is a failure to handle memory correctly. It is an easy problem to track down if it is happening in the same place: simply set breakpoints at strategic points throughout the code and run the program until you find the problem.

If the problem resides in C code, you can find the problem by tracing into the code.

If the problem exists in the PeopleSoft EnterpriseOne-generated code, it might be more difficult to find. The debugger provides error messages that are helpful. The most common problem has to do with missing objects. If a business function that is being called does not exist, the tool issues an error message that identifies the missing function. For example, Business function load failed - CALLBSFN.DLL. In this case, you can either rebuild the business function or check it out and build it using BusBuild to correct this error.

Remember that *all* business functions are built into larger DLLs. The most generic of these is CALLBSFN.DLL. Most application-specific DLLs are not in CALLBSFN. For example, PeopleSoft EnterpriseOne financial business functions use CFIN.DLL. The object (business function) might need to be checked out to the workstation again and built through BusBuild again in CALLBSFN.DLL (or the specific DLL).

If other objects are missing, termination is more abrupt. Remember to transfer all Media Object (also called Generic Text) objects correctly. If an application has a Row exit to an application that does not exist, an unhandled exception in the program occurs immediately.

Termination of the program is more abrupt and less helpful when other kinds of objects are missing. You must review all of the pieces of your application to verify that they are all present and correctly built. A common error is to overlook media objects. If you cannot enter your program at all, a missing object is most likely the problem.

Ensure that the program is terminating in the same place. If the program is failing to restore memory after its use, the program might eventually have insufficient memory to run. If so, you must reboot the workstation to restore memory.

## Is the Application Encountering Errors?

When a business function is called from ER, its processing is unknown to the user. This situation is both a benefit and a hindrance. It is a benefit because it should not be a concern to the user how the function works, only that it does work. The disadvantage is that it is not uncommon to call a function with more than 50 parameters, any one of which might cause errors.

The solutions to this sort of issue include:

- Review the function specifications to make sure that you have hooked it up correctly.
- Step into the code to see what is going wrong.

## Is the Output of the Program Incorrect?

Incorrect program output typically indicates a flaw within the logic of the code. Trace into the code to find the issue.

## Where Else Could the Problem Be Coming From?

Spend some time thinking about where the source of the problem might be. For example, consider the null pointer error. Somewhere in the code, an object is referenced incorrectly. Toggle between the grid rows to force the execution of the **Row is Exited** event. If the problem occurs, you have narrowed your search for the object, because you know that it is occurring in the grid processing.

## Is the Function Being Called as Expected?

You can set a breakpoint at the beginning of a called function to ensure that it is being called and that the input is as you expected. To do so, set the breakpoint at the beginning of the business function or at the beginning of an event such as **Grid Row is Fetched**, and then perform these tasks:

- Step through every code path.

Use the debugger to test the code. Both the PeopleSoft EnterpriseOne Debugger and the Microsoft Visual C++ Debugger provide you with the ability to modify values as the code is running. Use this ability to trace through *every* line of code. This is also a powerful way to test everything that could happen to your code, not just what *should* happen to it. This method of testing will help demonstrate whether you have handled errors correctly. For example, step through an If branch and input bad data to see if errors occur as expected.

- Find the cause rather than the symptom of the problem.

---

## Debug Logs

Several sections of the `jde.ini` file relate to debugging. The first statement that must be checked is in the `[JDE_CG]` section. The line, `Target = Release`, should be modified to read `Target = Debug`. An application install of PeopleSoft EnterpriseOne will deliver the `jde.ini` file with `Target = Release`. To debug business functions, the `jde.ini` files must be changed to `Target = Debug`, and the business functions that you want to debug must be rebuilt.

```
[JDE_CG]
STDLIBDIR=c:\MSDEV\LIB
TPLNAME=EXEFORM2
ERRNAME=CGERR
TARGET=Debug
INCLUDES=c:\MSDEV\INCLUDE;$(SYSTEM)\INCLUDE;$(SYSTEM)\INCLUDEV;
    $(SYSTEM)\CG;$(APP)\INCLUDE;
LIBS=c:\MSDEV\LIB;$(SYSTEM)\LIB32;$(SYSTEM)\LIBV32;$(APP)\LIB32;
MAKEDIR=c:\MSDEV\BIN
USER=DEMO
```

You can output to a file a log of SQL statements and events by changing the line in your `jde.ini` file under `[DEBUG]` from `Output = NONE` to `Output = FILE`, as in the following sample. This is a useful debugging tool when you have narrowed a problem to a specific issue involving the JDEDB APIs.

```
[DEBUG]
TAMMULTIUSERON=0
Output=FILE
ServerLog=0
LEVEL=BSFN,EVENTS
DebugFile=c:\jdedebug.log
JobFile=c:\jde.log
Frequency=10000
RepTrace=0
```

You can set breakpoints and examine the code.

---

## Debugging Event Rules with the Event Rules Debugger

This section provides an overview of the Event Rules Debugger and discusses how to:

- Debug an application with the Event Rules Debugger.
- Inspect or modify a variable.

### Understanding the Event Rules Debugger

The Event Rules Debugger provides the essential debugging tools (such as breakpoints, step commands, and variable inspection) that you need to debug PeopleSoft EnterpriseOne interactive and batch applications. You can use the Event Rules Debugger to debug NERs and table ER. When the Event Rules Debugger generates debug information for an application, it includes NER and table ER information for that application.

Setting up and using Event Rules Debugger involves these steps:

- Running the Event Rules Debugger and setting breakpoints.
- Running and debugging the application, report, or table conversion.

If you want to save the debug information table but do not want the debugger active during your work, you can deactivate debug information. You can activate the table at any time to continue debugging.

Any event on which you want the debugger to stop must have at least one line of ER code. You cannot set a breakpoint on a comment. It automatically goes to the first code line below the comment. When you debug an application and encounter a point at which the interactive or batch application fails, you can view the appropriate variable and correct it.

By observing specific variables while the program runs, you can isolate where the program begins to fail and what exactly it is doing. For example, if a counter is supposed to increment by 1, but you observe it incrementing by random numbers, you know there is a problem with the number or variable you are adding to the counter.

The Event Rules Debugger is a standalone tools program that consists of these main components:

- Object Browse window.
- Event Rules window.
- Breakpoint Manager.
- Variable Selection and Display window.
- Search combo box.

All windows except the Event Rules window are dockable to any side of the main application. You can right-click a window to dock it or to hide it. If you close the debugger, it saves your docking settings until the next time you run the debugger.

### Object Browse Window

The Object Browse window lists applications that have debug information built and are available for debugging. You can navigate through a tree structure to a specific event and open an Event Rules window for that event. If one of the objects is a power form with subforms, the subforms are listed under the power form. Form IDs appear next to the form name.

## Event Rules Window

The Event Rules window displays the ER for one event. The event name and path, along with an abbreviated description, appear in the title bar for each Event Rule window. The Event Rules window shows the line in the ER that is currently being executed when the runtime engine is stopped on a line break.

The left side of an Event Rule window displays icons that describe the state of a line in the ER. States include breakpoint, disabled, or current line of execution.

You can use the Event Rules window to set and remove breakpoints. You can use any of these methods:

- Double-click the line in ER.
- Choose a line and select Debug, Breakpoints.
- Right-click a line and choose Breakpoints from the pop-up menu.
- Choose a line and press F9.

You cannot set a breakpoint on a comment. The breakpoint automatically goes to the first code line below the comment.

## Variable Tree and Watch Window

The Variable Tree and Watch window consists of two panes. The left pane is the Variable Tree pane. It contains a tree structure that lists the variable types as parent nodes and the current variables of each variable type as child nodes. The variables displayed are those that are in scope of the currently displayed event in the Event Rule window. The right pane is the Watch pane. It displays user-selected variables and their current values, along with the form ID of the variable. You can add a variable to the Watch pane by double-clicking the desired variable in the Variable Tree.

You can change the value of variables while you are debugging an application. To change the value of a variable, double-click the variable in the Watch pane and enter a different value. The new value appears in the Watch pane. If you enter an inappropriate value (for example, you change a numeric value to an alpha value) the new value is not set and the value is not changed.

These special values are displayed for variables:

- blank

The value for the variable contains only blanks. This value applies to string and character types only.

- null

The variable has no value, or a null or empty value.

- unknown

The value for the variable could not be obtained from the runtime engine. This value occurs when the applications are not running or when the variables are out of scope.

---

**Note.** Variable inspection and modification is not available for debugging NERs and table ER.

---

## Breakpoint Manager

Breakpoints tell the debugger where or when to halt the execution of a program. When the program is halted at a breakpoint, you can examine the state of your runtime structures, review your ER, and evaluate expressions using the Variable Selection and Display window.

The Breakpoint Manager tracks the breakpoints that are set and the location of those breakpoints in an application. When you set a new breakpoint, the system creates an entry in the Breakpoint Manager. This entry contains the application name, form name, event name, and ER line.

Right-click within Breakpoint Manager to perform these operations:

- Delete a breakpoint.
- Delete all breakpoints.
- Go to a breakpoint.

You can also double-click an entry in Breakpoint Manager to open the Event Rule window in which the breakpoint is set.

### Search Combo Box

You can use the Search combo box on the tool bar to search for ER text. Enter the text that you want to search for in the Search combo box and then press either ENTER or F3. If the system locates the search text in your ER text, it highlights the text. If you press ENTER or F3 again, the next occurrence of your search text is located and highlighted.

The search control accommodates regular expression searches. A regular expression search uses special characters to match text. For example, `^If` : will find every line that starts with If and `If$` : will find every line that ends with If.

The special characters that you can use for advanced searches are described in this table:

Character	Description
^	The caret (^) indicates the beginning of a string. For example, the expression ^A matches an A only at the beginning of the string.
^	The caret (^) immediately following the left bracket ( [ ) is used to exclude any remaining characters within brackets from matching the target string. For example, the expression [^0-9] indicates that the target character should not be a digit.
\$	The dollar sign (\$) matches the end of the string. For example, the expression abc\$ will match the substring abc only if it is at the end of the string.
	The alternation character ( ) allows the expression on either side of it to match the target string. For example, the expression a b will match a as well as b.
.	The dot (.) matches any character.
*	The asterisk (*) indicates that the character to the left of the asterisk in the expression should match 0 or more times.
+	The plus (+) is similar to the asterisk except that at least one match of the character should occur to the left of the + sign in the expression.
?	The question mark (?) matches the character to its left 0 or 1 times.
()	The parentheses affect the order of pattern evaluation and serve as a tagged expression that you can use to replace a matched substring with another expression.
[ ]	Brackets that enclose a set of characters indicate that any of the enclosed characters can match the target character.

## Debugging an Application with the Event Rules Debugger

To debug an application with the Event Rules Debugger:

1. From the Cross Application Development Tools menu (GH902), select Debug Application.
2. Select the object that you want to debug.
3. Select a form (for interactive applications) or section (for batch applications) and an event to view.
4. Select the ER line on which you want to set a breakpoint.
5. Select Debug, Breakpoint.

A red dot appears on the line, indicating the breakpoint.

You can remove the breakpoint by choosing Debug, Breakpoint again. The options on the Debug menu toggle on and off.

6. Minimize, but do not close, Debugger.
7. From EnterpriseOne Menus or from Object Librarian, run the application that you selected to debug.

As your application encounters a breakpoint, the application will pause and display the Event Rules Debugger.

When execution stops, you can use the variables view to inspect and modify the values of runtime structures.

8. From the Debug menu, select one of these options:
  - Go
  - Disconnect
  - Step Over
  - Step Into

## Inspecting or Modifying a Variable

When you debug an application and encounter a point at which the interactive or batch application fails, you can view the appropriate variable and correct it.

By observing specific variables while the program runs, you can isolate where the program begins to fail and what exactly it is doing. For example, if a counter is supposed to increment by 1, but you observe it incrementing by random numbers, you know there is a problem with the number or variable you are adding to the counter.

---

## Debugging Business Functions with Microsoft Visual C++

This section provides an overview of the Microsoft Visual C++ debugger and describes how to:

- Debug business functions attached to interactive applications.
- Use SQL log tracing.
- Use debug tracing.

## Understanding the Visual C++ Debugger

You can use Microsoft Visual C++ to debug business functions that are written in C. You can debug business functions that are attached to interactive applications or to batch applications. The business function must be configured to run locally.

If you are debugging ER for business functions and C business functions, you can use the EnterpriseOne debugger and the Visual C++ debugger together. Follow the process until you log into PeopleSoft EnterpriseOne. At that point, follow the steps for the EnterpriseOne debugger. Program execution stops if C code is accessed. You can then use Visual C++ to continue debugging. This method is useful if you are trying to locate a problem and are not sure whether the problem is in a C business function or in the application that calls the business function.

You must use the Microsoft Visual C++ Debugger to debug business functions written with the Event Rules scripting language or in C code. You can run the entire PeopleSoft EnterpriseOne system through the Visual C++ debugger (that is, you can start the `activeConsole.exe` or PeopleSoft Solution Explorer file from within the Visual C++ Debugger). This enables you to step out of the tool application code into the business functions that are called in the ER.

You can use the debugger to debug a C program and interactively stop and start it as needed. During debugging, you can check specific values of variables and parameters to determine whether a program is running correctly. You can also step through the code to see what code is actually being executed.

The debug commands are listed in the Debug menu. You can customize the tool bar to contain debug buttons, which you can use instead of the menu.

The Visual C++ has many features in the Debug menu. The Visual C++ debugger helps you efficiently solve real-world problems.

### The Go Command

You can run a program using the Go command from the Debug menu. The program runs until completion unless you set up breakpoints.

### The Step Command

The Step command is available on the Debug menu and executes the current line of code. When the line of code has been executed, the yellow arrow cursor appears on the next line of code to be executed.

### The Step Into Command

You can access the Step Into command from the Debug menu. Use this command when the current line of code contains a function call. The debugger steps into the function so that it can be debugged line by line. When the function is complete, the debugger returns to the next line of code after the function call in the calling routine. If the source code of the function to be stepped into does not exist on the workstation, the debugger skips over the line of code as though the Step command was used.

Stepping into a standard C function takes you into the function, which you might not want to do. If so, use the Step Over command to skip those functions.

### Setting Breakpoints

You use breakpoints to run the program until it reaches a certain line of code. If a breakpoint is set, the Go command runs the program until it encounters that line of code.

You can set a breakpoint by placing the cursor anywhere on the line of code. When you choose Debug, Breakpoints, a red octagon appears to the left of the line of code where the breakpoint is set. When the program is run, all lines of code up to the breakpoint are executed. To continue execution after the breakpoint, you can use Step, Step Into, or Go.

## Using Watch

You can use Watch to inspect what values variables are set to. To use Watch, click the item that you want to watch and drag it to the Watch window.

## Locals Window

All local variables and parameters to a function are listed with their data types and values in the Locals window. You can modify the values of all items in the Locals window during debugging. This is useful if you are debugging infinite loops.

## Understanding Visual C++ Debugger Tracing Utilities

Visual C++ has two tracing utilities that you might find valuable: SQL Log Tracing and debug tracing. You can use SQL Log Tracing to help you determine the exact SQL statement that is generated and sent to the database.

## Debugging Business Functions Attached to Interactive Applications

To debug a business function attached to an interactive application:

1. Close the application.  
The application must be closed to debug in Visual C++.
2. Open Visual C++ and verify that all workspaces have been closed.
3. Select File, Open.
4. Choose List Files of Type to accept executables (.exe).
5. Select activConsole.exe on path \b9\System\bin32 and click the OK button.  
The system creates a project workspace.
6. Select Project, Settings.
7. Click the Debug tab.
8. In the Category list, select Additional DLLs.
9. Click the Browse button to select the CALLBSFN.dll or other appropriate DLL on path \b9\path\bin32, where *path* varies, depending on the path code.
10. Click the OK button.
11. Select your .h and .c files for the source that you want to debug from and then select File, Open.
12. To set breakpoints in your code, select Edit, Breakpoints.

If this message appears, click the OK button:

```
cannot open *.pdb
```

If a message appears notifying you that breakpoints have been moved to the next valid lines, a source code and object mismatch might exist, and you might need to rebuild your business function.

13. Select Build, Start Debug, Go.

The PeopleSoft EnterpriseOne sign-in window appears.

14. Sign in to the application as you normally would sign in.
15. Run the application.

When your application reaches the business function in debug, the debugger opens or displays the C code in Visual C so that you can step through it.

## Using SQL Log Tracing

This task is useful only for ODBC connections.

To use SQL Log tracing:

1. From the Control Panel on your workstation, choose Administrative Tools, and then Data Sources (ODBC).
2. Choose the 32 bit ODBC driver, and then click the Tracing tab.
3. Specify when you want the system to trace.
4. Specify the log output path in the Log file Path.

## Using Debug Tracing

To use debug tracing:

1. In the jde.ini file under [DEBUG], set Output=FILE.
2. Change the value for Level= to suit your specific debugging needs.

Possible values for Level are contained in the comment line following the Level= line. Any combination is acceptable. Use commas to separate values.



## CHAPTER 7

# Improving Performance in PeopleSoft EnterpriseOne Applications

This chapter provides an overview of methods you can use to improve the performance of your PeopleSoft EnterpriseOne applications.

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## Understanding How PeopleSoft EnterpriseOne Programming Objects Affect Performance

A variety of PeopleSoft EnterpriseOne objects can affect performance.

### Triggers

Data dictionary (DD) triggers can be used for both formatting and validation. Triggers are the most costly way to format or edit data values. Most of the formatting that occurs in PeopleSoft EnterpriseOne involves date and math fields. These fields require the most overhead for editing and formatting. Ensure that all triggers are coded as efficiently as possible.

### Overrides

You can use DD overrides to override the DD characteristics of a form control, grid column, or report field at design time. This causes additional overhead at application startup because of the extra processing required to evaluate and apply the overrides. The overrides that are applied can have either a positive or negative affect on performance during runtime processing. For example, if you use the override feature to disable some of the validation functionality, then performance is increased because disabling features causes some runtime overhead to be removed. Adding overrides such as edit/format triggers or next numbering increases runtime overhead and decreases performance.

### Validation

Validation is based on the DD item that is attached to a control, column, or field. Overrides can also affect validation. Validation is most costly for data items that have triggers. Validation of user defined codes requires I/O to validate data values. General validation can be more costly for data types that require special logic to manipulate the PeopleSoft EnterpriseOne-specific data types.

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## Improving Table Design Performance

This section provides an overview of methods you can use to improve performance by optimizing your table design.

## Improving Table Design Performance

Use `SELECT` statements cautiously. Try to use existing indices for a table. Using additional keys is better than creating a new index. Additional indices create overhead.

Use a partial key only for sequential and fetch next or to review a few more records.

If you open a table and then a fetch key, the action destroys the pointer, so perform a fetch single instead. Almost any other database application programming interface (API) also destroys the pointer.

Opening a table the first time is a big performance drain.

The fetch matching key uses a greater than or equal key so it might select more than you need. Use the correct JDB API for what you need.

## Indexing and Performance

Adding a suitable index will almost always improve performance when the system selects and fetches data from the database. However, each additional index adds maintenance overhead when records are added, updated, or deleted in the database. You should consider these two factors when you weigh the decision to add a new database index over a table.

PeopleSoft EnterpriseOne is designed to access databases efficiently. Use ordinary database design considerations, including normalization considerations, when determining the optimal design of database tables and indices.

Join fields should be the keys in two tables.

The lowest common denominator for row size is the specification given in the `SQLSERVER` database. For example, SQL Server 6.5 can have as many as 2 billion tables per database and 250 columns per table. The maximum number of bytes per row is 1962. If you create tables with `varchar` or `varbinary` columns whose total defined width exceeds 1962 bytes, the system allows the table to be created; but it generates a warning message. If you insert more than 1962 bytes into such a row or update a row so that its total row size exceeds 1962, the system generates an error message and the statement fails.

When you define indexes on various columns, ensure that no two indices, one of which might be a primary unique index, are defined on the same column.

### Example: Key Column Violation

In this example, the indexes for the Credit/Collection Date Pattern table (F03B08) were defined as follows:

```
#define ID_F03B08_COMPANY_FISCAL_YEAR 1L /* PRIMARY & UNIQUE */
typedef struct
{
    char rdco[6];          /* 0 to 5 (ASC) */
    MATH_NUMERIC rdctry;  /* 6 to 54 (DESC) */
    MATH_NUMERIC rdfy;    /* 55 to 103 (DESC) */
    MATH_NUMERIC rdpn;    /* 104 to 152 (DESC) */
} KEY1_F03F08, FAR *LPKEY1_F03B08;
#define ID_F03B08_COMPANY_FISCAL_YEAR_(ASCEND) 2L /* NONUNIQUE */
typedef struct
{
    char rdco[6];          /* 153 to 158 (ASC) */
    MATH_NUMERIC rdctry    /* 159 to 207 (ASC) */
    MATH_NUMERIC rdfy;    /* 208 to 256 (ASC) */
```

```

MATH_NUMERIC rdpn;    /* 257 to 305 (ASC) */
} KEY2_F03B08, FAR *LPKEY2_F03B08;

```

This results in a Key Column violation, which is not permitted because two indexes have been defined on the same column.

## Index Limitations for Various Databases

This section discusses index limitations for these databases:

- SQLSERVER
- DB2 for OS/400
- Oracle

### SQLSERVER

These index limitations apply to SQLSERVER:

- The maximum number of clustered indices per table is one.
- The maximum number of non-clustered indices per table is 249.
- The maximum number of columns in a composite index is 16.

### DB2 for OS/400

These index limitations apply to DB2 for OS/400:

- The maximum number of identifiers for an index name is 10.
- The maximum size of an index is one terabyte.
- The maximum length of an index key is 2,000.
- The maximum number of columns per index key is 120.
- The maximum number of indexes per table is approximately 4,000.

### Oracle

These index limitations apply to Oracle:

- The maximum length for an index is 254 bytes, minus the number of keys that enable NULL values.
- The maximum number of columns per index is 16, or a maximum key length of 900.

### Example: Table Index

In the F32944 table, the index is defined as follows:

```

{
MATH_NUMERIC ktkit;    /* 0 to 48 */
char  ktmc01[251];    /* 49 to 299 */
char  ktmc02[[252];   /* 300 to 550 */
char  ktmc03[251];    /* 551 to 801 */
char  ktmc04[251];    /* 802 to 1052 */
MATH_NUMERIC ktseqn;  /* 1053 TO 1101 */
} KEY1_F32944, FAR *LPKEY1_F32944;

```

```
#define ID_F32944_KIT_CONFIGURED_STRING_ID_B 2L
```

This situation is not permitted because the key length, in this case, is 1101 (>900).

## Specification File Corruption

If you encounter specification file corruption, re-create the tables in the source database.

## Table I/O Objects

These guidelines apply to table I/O objects:

- Table I/O header size is 206 bytes.
- Table I/O mapped item size is 181 bytes.
- Maximum number of table I/O mapped items size to fit in 32K is  $(32768-206)/181$  for about 180 items.

To provide space for literal values, use a mapping size not greater than 130 elements. The 130 elements relate to the number of mappings on any table I/O statement. A table can have more than 180 columns, but you can still map fewer than 180 of them without problems. If you need to use table I/O with more than 180 mappings, it is recommended that you create several table I/O statements for specific requirements.

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## Improving Business View Performance

This provides an overview of the performance ramifications of using single-table or multiple-table business views, restricting the number of fields in a business view, unions, and joined business views.

### Single- vs. Multiple-Table Business Views

In many instances, an application must access data from multiple database tables to perform a business operation. You can accomplish this in two ways:

- Use a multiple-table business view to access all the related data fields.
- Use a single-table business view to access the data fields from the primary table, and use a business function or table I/O to access the data fields from secondary tables.

The best choice is not always obvious, but you can usually decide by examining the number of database I/O operations that will be performed. A joined business view that uses cross-data source joins causes slower performance.

If the secondary tables are master files, using a single-table business view is usually preferable because it makes better use of database caching. For example, suppose the primary table contains a company number and the related company name is stored in a secondary Company Master file. If, in practice, the same Company Master record is likely to be retrieved for several records in the primary table, then fetching the company name explicitly using a business function or table I/O is usually preferable.

PeopleSoft EnterpriseOne is particularly optimized to fetch user defined codes. User defined code tables should never be included in a multiple-table business view.

## Number of Fields in a Business View

You might need to choose between using an existing business view that contains unused fields or creating a new business view with only the required fields. Although extraneous fields cause additional work both for the server and the workstation, they are usually not a significant performance concern. In cases for which tables will be updated, PeopleSoft EnterpriseOne can automatically process all fields in a table, even if they do not exist in the business view.

Minimizing the number of fields in a data structure improves runtime performance better than minimizing the number of fields in a business view. You can create new business views that meet your specific needs and that do not affect performance.

## Table Unions

Unions are the most expensive database operation of all the SQL `SELECT` statement types. Although we recommend that you avoid using them, unions might be appropriate for applications and processes (such as the process for posting journal entries) that use the same parts of tables but at different times.

Use a joined business view if you are reading and updating two or more major tables. Use table I/O if the table being read or updated is merely an unintended result of another action.

Consider writing applications with the minimum number of grid columns required for the basic purpose of the application's . With minimal effort, you can add columns to the associated business view to supplement the basic features of the application. Therefore, adding columns to a business view is preferable to adding columns to a grid.

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## Improving Data Structure Performance

Performance measurements indicate that you should attempt to minimize the number of fields in a data structure, particularly when configurable network computing (CNC) capabilities require that the data structure be passed between the server and the workstations.

These guidelines apply to data structure objects:

- Data structure header size is 237 bytes.
- Data structure item size is 72 bytes.
- Maximum number of data structure items to fit in 32K is  $(32768-237)/72$  for 450 elements.

To provide space for literal values, limit your structure size to 350 elements or fewer. You should reconsider creating any data structure that exceeds 100 elements.

---

## Improving Data Selection and Sequencing and Performance for Reports

Use these two system functions in the **Initialize Section** event to conditionally change the data selection for that section:

- **Set User Selection**

- **Set Selection Append Flag**

The **Initialize Section** event is normally used in the first level-one section of a report to conditionally select data based on values passed through the report data structure.

For example, Bill of Material Inquiry calls the Bill of Material report and passes the Parent Item, Parent Branch, Type of Bill, and Batch Quantity. In the **Initialize Section** event of the first level-one section of the Bill of Material report, the report values for the data structure are checked. If they are not equal to blank, the **Set User Selection** system function is used to add these selections.

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## Improving Form Design and Performance

Use these guidelines to increase performance across all form types:

- Limit the number of columns in the grid to the minimum required by the application.
- Keep the number of columns in the business view to the minimum required by the application.
- Limit the number of form controls, whether hidden or visible, to the minimum required by the application.
- Use event rule variables as work fields instead of hidden form controls.
- Disable DD functions on form and grid controls that are not required, such as edits and default values, whether hidden or visible.
- Limit the amount of input and output performed for each grid row to the minimum required for the application. For example, avoid associated descriptions wherever possible.
- Use the Stop Processing system function whenever feasible to skip the processing of unnecessary event rules.
- Consider the design for the most efficient method of temporary data storage available at the time, such as cache versus either linked list or work files.

Adherence to these standards results in increased performance on find/browse forms:

- The sort order on the grid should match both an index defined in PeopleSoft EnterpriseOne and a logical defined on the iSeries, either partially or completely. The logical file and index must contain at least all fields that are in the grid sort, and the fields selected for the grid sort must be in the same sequence as the logical/index fields. Additional fields might exist in the index or logical that are not included in the grid sort. For example, in a partial match, the grid sort can be KIT, MMCU; and the logical and index can include KIT, MMCU, TBM, BQTY.

Adherence to these standards results in increased performance on header and headerless detail forms:

- The grid sort should match an index of the table in the business view. The index should exist both in the iSeries and the PeopleSoft EnterpriseOne tables.
- The sort order on the grid should match both an index defined in PeopleSoft EnterpriseOne and a logical file defined on the iSeries, either partially or completely. The logical and index must contain at least all fields that are in the grid sort, and the fields selected for the grid sort must be in the same sequence as the logical/index fields. Additional fields might exist in the index or logical that are not included in the grid sort. For example, in a partial match, the grid sort can be KIT, MMCU; and the logical and index can include KIT, MMCU, TBM, BQTY.

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## Improving Event Rules Performance

This section provides an overview of improving event rules performance.

### Improving Event Rules Performance

When you create logic, if a row did not change then skip it. Do not check every row for changes.

Put master business function end docs on the **Post Button Clicked** event.

Use system functions for repeated processes.

You can also use system functions to get to information that you cannot access, for example to write grid lines.

`FetchKeyed` is made up of `Clear Selection`, `Select Keyed`, and `Fetch`. Avoid using `FetchKeyed` unless the keys are changing.

If keys are not changing use `Select`, and then in a loop use `Fetch Next` for better performance, only if you do need to read records sequentially.

You should hide and show fields on the **Dialog is Initialized** event. You should put logic on the **Dialog is Initialized** event.

Use explicit comparisons instead of implied. It takes more code, but it runs faster.

You should make sure that the lines in a loop really need to be in there. If something does not really need to be done each time, then do not put it in a loop.

Reduce the number of returns inside code so you have only one exit point.

Use named variables to store temporary values. Do not use hidden controls or grid columns to store temporary values.

### Using jdeCache Instead of Work Tables

In the past, developers used temporary local tables to contain working arrays. This technique is now obsolete. The `jdeCache` routines provide similar capabilities but with improved performance.

When multiple business functions access the same cache, locate the related functions in the same source member. For example, assume that an `EditGridLine` function adds records to a cache and a corresponding `EndDocument` function retrieves the cached records and inserts them into the database. If the business functions are placed in different source members, a change in the CNC configuration might cause the application to fail.

### Choosing JDB API Calls in a Business Function or Table I/O Commands in Event Rule Code

When deciding whether to use JDB API calls in a business function or table I/O commands in event rule code to manage the database, let context guide your choice. Neither choice affects performance more than the other. For example, if event rule code needs to access the database, use event rule table I/O instead of writing and calling a business function.

## Using JDBFetchNext versus Multiple JDBFetch Statements

To improve performance when multiple related database records must be read from the database, it is recommended that you select the records at one time and use `JDBFetchNext` to loop through the qualifying records. The alternative, multiple calls to `JDBFetch`, is usually considerably slower.

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## Improving Business Function Performance

You can have DD edits in business functions.

If you go into a grid and do a custom select it is a big performance hit. You might want to restrict people from resequencing the grid. If there is a business need to resequence a grid, make sure there is an index over that table that matches the sort sequence.

Do not use linked lists; use caching instead.

Create a structure and pass a pointer instead of adding items.

Verify that variables are used only if needed.

Do not use static variables. They may not behave as expected when your application runs on the server.

Because `jdeAlloc` actually allocates space, you should not generally use it. You can, however, use `jdeAlloc` if you want to keep a storage area for multiple calls.

### Memory Allocation

Allocated memory that is not freed when it is no longer needed results in a memory leak. This can cause performance to degrade continuously as the application runs. You should be aware that `jdeCache` allocates memory. A cache that is created in a `BeginDoc` master business function must be destroyed in the corresponding `EndDoc` function to avoid memory leaks.

One frequent source of unexpected memory leaks comes from failing to free allocated memory when processing errors or other conditions. Failing to free allocated memory might cause the system to traverse an alternate execution path in a business function.

Review the `jddebug.log` to identify possible memory leaks in business functions. You can also use a third-party tool for detecting memory leaks.

### Balance Table Opens and Closes

Ensure that each `jdbOpen` is matched with a corresponding `jdbClose` within the same business function for all possible execution paths. Serious performance problems can arise from business functions within which table opens do not share a one-to-one correspondence with table closes.

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## Improving Error Messaging Performance

You can classify error messages in the DD as errors or warnings. An error appears as a red stop sign and a warning appears as a yellow yield sign. Validation is automatically performed using the DD. You can create error messages that are validated by event rules. Ensure that you perform these tasks:

- Use event rules to check in these error messages manually.

- Specify the field and error message number that the error is from.
- Code an If statement in event rules to prevent the system from redisplaying an error that is already displayed.

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**Note.** If the error message exists in the DD but not in event rules, the error displays every time.

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## Improving Transaction Processing Performance

When you design applications that use transaction processing, you should maintain as narrow a scope as possible and you should start your transaction at a point that allows for the shortest possible time between the start of the transaction and the commitment or rollback. When you update a record that is part of a transaction, it is locked until the transaction is committed. If any part of a transaction fails, the entire transaction rolls back.



# Glossary of PeopleSoft Terms

<b>absence entitlement</b>	This element defines rules for granting paid time off for valid absences, such as sick time, vacation, and maternity leave. An absence entitlement element defines the entitlement amount, frequency, and entitlement period.
<b>absence take</b>	This element defines the conditions that must be met before a payee is entitled to take paid time off.
<b>academic career</b>	In PeopleSoft Enterprise Campus Solutions, all course work that a student undertakes at an academic institution and that is grouped in a single student record. For example, a university that has an undergraduate school, a graduate school, and various professional schools might define several academic careers—an undergraduate career, a graduate career, and separate careers for each professional school (law school, medical school, dental school, and so on).
<b>academic institution</b>	In PeopleSoft Enterprise Campus Solutions, an entity (such as a university or college) that is independent of other similar entities and that has its own set of rules and business processes.
<b>academic organization</b>	In PeopleSoft Enterprise Campus Solutions, an entity that is part of the administrative structure within an academic institution. At the lowest level, an academic organization might be an academic department. At the highest level, an academic organization can represent a division.
<b>academic plan</b>	In PeopleSoft Enterprise Campus Solutions, an area of study—such as a major, minor, or specialization—that exists within an academic program or academic career.
<b>academic program</b>	In PeopleSoft Enterprise Campus Solutions, the entity to which a student applies and is admitted and from which the student graduates.
<b>accounting class</b>	In PeopleSoft Enterprise Performance Management, the accounting class defines how a resource is treated for generally accepted accounting practices. The Inventory class indicates whether a resource becomes part of a balance sheet account, such as inventory or fixed assets, while the Non-inventory class indicates that the resource is treated as an expense of the period during which it occurs.
<b>accounting date</b>	The accounting date indicates when a transaction is recognized, as opposed to the date the transaction actually occurred. The accounting date and transaction date can be the same. The accounting date determines the period in the general ledger to which the transaction is to be posted. You can only select an accounting date that falls within an open period in the ledger to which you are posting. The accounting date for an item is normally the invoice date.
<b>accounting split</b>	The accounting split method indicates how expenses are allocated or divided among one or more sets of accounting ChartFields.
<b>accumulator</b>	You use an accumulator to store cumulative values of defined items as they are processed. You can accumulate a single value over time or multiple values over time. For example, an accumulator could consist of all voluntary deductions, or all company deductions, enabling you to accumulate amounts. It allows total flexibility for time periods and values accumulated.
<b>action reason</b>	The reason an employee’s job or employment information is updated. The action reason is entered in two parts: a personnel action, such as a promotion, termination, or change from one pay group to another—and a reason for that action. Action reasons are used by PeopleSoft Human Resources, PeopleSoft Benefits Administration,

	PeopleSoft Stock Administration, and the COBRA Administration feature of the Base Benefits business process.
<b>action template</b>	In PeopleSoft Receivables, outlines a set of escalating actions that the system or user performs based on the period of time that a customer or item has been in an action plan for a specific condition.
<b>activity</b>	<p>In PeopleSoft Enterprise Learning Management, an instance of a catalog item (sometimes called a class) that is available for enrollment. The activity defines such things as the costs that are associated with the offering, enrollment limits and deadlines, and waitlisting capacities.</p> <p>In PeopleSoft Enterprise Performance Management, the work of an organization and the aggregation of actions that are used for activity-based costing.</p> <p>In PeopleSoft Project Costing, the unit of work that provides a further breakdown of projects—usually into specific tasks.</p> <p>In PeopleSoft Workflow, a specific transaction that you might need to perform in a business process. Because it consists of the steps that are used to perform a transaction, it is also known as a step map.</p>
<b>address usage</b>	In PeopleSoft Enterprise Campus Solutions, a grouping of address types defining the order in which the address types are used. For example, you might define an address usage code to process addresses in the following order: billing address, dormitory address, home address, and then work address.
<b>adjustment calendar</b>	In PeopleSoft Enterprise Campus Solutions, the adjustment calendar controls how a particular charge is adjusted on a student's account when the student drops classes or withdraws from a term. The charge adjustment is based on how much time has elapsed from a predetermined date, and it is determined as a percentage of the original charge amount.
<b>administrative function</b>	In PeopleSoft Enterprise Campus Solutions, a particular functional area that processes checklists, communication, and comments. The administrative function identifies which variable data is added to a person's checklist or communication record when a specific checklist code, communication category, or comment is assigned to the student. This key data enables you to trace that checklist, communication, or comment back to a specific processing event in a functional area.
<b>admit type</b>	In PeopleSoft Enterprise Campus Solutions, a designation used to distinguish first-year applications from transfer applications.
<b>agreement</b>	In PeopleSoft eSettlements, provides a way to group and specify processing options, such as payment terms, pay from a bank, and notifications by a buyer and supplier location combination.
<b>allocation rule</b>	In PeopleSoft Enterprise Incentive Management, an expression within compensation plans that enables the system to assign transactions to nodes and participants. During transaction allocation, the allocation engine traverses the compensation structure from the current node to the root node, checking each node for plans that contain allocation rules.
<b>alternate account</b>	A feature in PeopleSoft General Ledger that enables you to create a statutory chart of accounts and enter statutory account transactions at the detail transaction level, as required for recording and reporting by some national governments.
<b>analysis database</b>	In PeopleSoft Enterprise Campus Solutions, database tables that store large amounts of student information that may not appear in standard report formats. The analysis database tables contain keys for all objects in a report that an application program can use to reference other student-record objects that are not contained in the printed report. For instance, the analysis database contains data on courses that are considered for satisfying a requirement but that are rejected. It also contains information on

	courses captured by global limits. An analysis database is used in PeopleSoft Enterprise Academic Advisement.
<b>AR specialist</b>	Abbreviation for <i>receivables specialist</i> . In PeopleSoft Receivables, an individual in who tracks and resolves deductions and disputed items.
<b>arbitration plan</b>	In PeopleSoft Enterprise Pricer, defines how price rules are to be applied to the base price when the transaction is priced.
<b>assessment rule</b>	In PeopleSoft Receivables, a user-defined rule that the system uses to evaluate the condition of a customer's account or of individual items to determine whether to generate a follow-up action.
<b>asset class</b>	An asset group used for reporting purposes. It can be used in conjunction with the asset category to refine asset classification.
<b>attribute/value pair</b>	In PeopleSoft Directory Interface, relates the data that makes up an entry in the directory information tree.
<b>audience</b>	In PeopleSoft Enterprise Campus Solutions, a segment of the database that relates to an initiative, or a membership organization that is based on constituent attributes rather than a dues-paying structure. Examples of audiences include the Class of '65 and Undergraduate Arts & Sciences.
<b>authentication server</b>	A server that is set up to verify users of the system.
<b>base time period</b>	In PeopleSoft Business Planning, the lowest level time period in a calendar.
<b>benchmark job</b>	In PeopleSoft Workforce Analytics, a benchmark job is a job code for which there is corresponding salary survey data from published, third-party sources.
<b>billing career</b>	In PeopleSoft Enterprise Campus Solutions, the one career under which other careers are grouped for billing purposes if a student is active simultaneously in multiple careers.
<b>bio bit or bio brief</b>	In PeopleSoft Enterprise Campus Solutions, a report that summarizes information stored in the system about a particular constituent. You can generate standard or specialized reports.
<b>book</b>	In PeopleSoft Asset Management, used for storing financial and tax information, such as costs, depreciation attributes, and retirement information on assets.
<b>branch</b>	A tree node that rolls up to nodes above it in the hierarchy, as defined in PeopleSoft Tree Manager.
<b>budgetary account only</b>	An account used by the system only and not by users; this type of account does not accept transactions. You can only budget with this account. Formerly called "system-maintained account."
<b>budget check</b>	In commitment control, the processing of source transactions against control budget ledgers, to see if they pass, fail, or pass with a warning.
<b>budget control</b>	In commitment control, budget control ensures that commitments and expenditures don't exceed budgets. It enables you to track transactions against corresponding budgets and terminate a document's cycle if the defined budget conditions are not met. For example, you can prevent a purchase order from being dispatched to a vendor if there are insufficient funds in the related budget to support it.
<b>budget period</b>	The interval of time (such as 12 months or 4 quarters) into which a period is divided for budgetary and reporting purposes. The ChartField allows maximum flexibility to define operational accounting time periods without restriction to only one calendar.

<b>business event</b>	<p>In PeopleSoft Receivables, defines the processing characteristics for the Receivable Update process for a draft activity.</p> <p>In PeopleSoft Sales Incentive Management, an original business transaction or activity that may justify the creation of a PeopleSoft Enterprise Incentive Management event (a sale, for example).</p>
<b>business unit</b>	A corporation or a subset of a corporation that is independent with regard to one or more operational or accounting functions.
<b>buyer</b>	In PeopleSoft eSettlements, an organization (or business unit, as opposed to an individual) that transacts with suppliers (vendors) within the system. A buyer creates payments for purchases that are made in the system.
<b>campus</b>	In PeopleSoft Enterprise Campus Solutions, an entity that is usually associated with a distinct physical administrative unit, that belongs to a single academic institution, that uses a unique course catalog, and that produces a common transcript for students within the same academic career.
<b>catalog item</b>	In PeopleSoft Enterprise Learning Management, a specific topic that a learner can study and have tracked. For example, "Introduction to Microsoft Word." A catalog item contains general information about the topic and includes a course code, description, categorization, keywords, and delivery methods. A catalog item can have one or more learning activities.
<b>catalog map</b>	In PeopleSoft Catalog Management, translates values from the catalog source data to the format of the company's catalog.
<b>catalog partner</b>	In PeopleSoft Catalog Management, shares responsibility with the enterprise catalog manager for maintaining catalog content.
<b>categorization</b>	Associates partner offerings with catalog offerings and groups them into enterprise catalog categories.
<b>category</b>	In PeopleSoft Enterprise Campus Solutions, a broad grouping to which specific comments or communications (contexts) are assigned. Category codes are also linked to 3C access groups so that you can assign data-entry or view-only privileges across functions.
<b>channel</b>	In PeopleSoft MultiChannel Framework, email, chat, voice (computer telephone integration [CTI]), or a generic event.
<b>ChartField</b>	A field that stores a chart of accounts, resources, and so on, depending on the PeopleSoft application. ChartField values represent individual account numbers, department codes, and so forth.
<b>ChartField balancing</b>	You can require specific ChartFields to match up (balance) on the debit and the credit side of a transaction.
<b>ChartField combination edit</b>	The process of editing journal lines for valid ChartField combinations based on user-defined rules.
<b>ChartKey</b>	One or more fields that uniquely identify each row in a table. Some tables contain only one field as the key, while others require a combination.
<b>checkbook</b>	In PeopleSoft Promotions Management, enables you to view financial data (such as planned, incurred, and actual amounts) that is related to funds and trade promotions.
<b>checklist code</b>	In PeopleSoft Enterprise Campus Solutions, a code that represents a list of planned or completed action items that can be assigned to a staff member, volunteer, or unit. Checklists enable you to view all action assignments on one page.

<b>class</b>	In PeopleSoft Enterprise Campus Solutions, a specific offering of a course component within an academic term.  See also <i>course</i> .
<b>Class ChartField</b>	A ChartField value that identifies a unique appropriation budget key when you combine it with a fund, department ID, and program code, as well as a budget period. Formerly called <i>sub-classification</i> .
<b>clearance</b>	In PeopleSoft Enterprise Campus Solutions, the period of time during which a constituent in PeopleSoft Contributor Relations is approved for involvement in an initiative or an action. Clearances are used to prevent development officers from making multiple requests to a constituent during the same time period.
<b>clone</b>	In PeopleCode, to make a unique copy. In contrast, to <i>copy</i> may mean making a new reference to an object, so if the underlying object is changed, both the copy and the original change.
<b>cohort</b>	In PeopleSoft Enterprise Campus Solutions, the highest level of the three-level classification structure that you define for enrollment management. You can define a cohort level, link it to other levels, and set enrollment target numbers for it.  See also <i>population</i> and <i>division</i> .
<b>collection</b>	To make a set of documents available for searching in Verity, you must first create at least one collection. A collection is set of directories and files that allow search application users to use the Verity search engine to quickly find and display source documents that match search criteria. A collection is a set of statistics and pointers to the source documents, stored in a proprietary format on a file server. Because a collection can only store information for a single location, PeopleSoft maintains a set of collections (one per language code) for each search index object.
<b>collection rule</b>	In PeopleSoft Receivables, a user-defined rule that defines actions to take for a customer based on both the amount and the number of days past due for outstanding balances.
<b>comm key</b>	See <i>communication key</i> .
<b>communication key</b>	In PeopleSoft Enterprise Campus Solutions, a single code for entering a combination of communication category, communication context, communication method, communication direction, and standard letter code. Communication keys (also called <i>comm keys</i> or <i>speed keys</i> ) can be created for background processes as well as for specific users.
<b>compensation object</b>	In PeopleSoft Enterprise Incentive Management, a node within a compensation structure. Compensation objects are the building blocks that make up a compensation structure's hierarchical representation.
<b>compensation structure</b>	In PeopleSoft Enterprise Incentive Management, a hierarchical relationship of compensation objects that represents the compensation-related relationship between the objects.
<b>condition</b>	In PeopleSoft Receivables, occurs when there is a change of status for a customer's account, such as reaching a credit limit or exceeding a user-defined balance due.
<b>configuration parameter catalog</b>	Used to configure an external system with PeopleSoft. For example, a configuration parameter catalog might set up configuration and communication parameters for an external server.
<b>configuration plan</b>	In PeopleSoft Enterprise Incentive Management, configuration plans hold allocation information for common variables (not incentive rules) and are attached to a node without a participant. Configuration plans are not processed by transactions.

<b>constituents</b>	In PeopleSoft Enterprise Campus Solutions, friends, alumni, organizations, foundations, or other entities affiliated with the institution, and about which the institution maintains information. The constituent types delivered with PeopleSoft Enterprise Contributor Relations Solutions are based on those defined by the Council for the Advancement and Support of Education (CASE).
<b>content reference</b>	Content references are pointers to content registered in the portal registry. These are typically either URLs or iScripts. Content references fall into three categories: target content, templates, and template pagelets.
<b>context</b>	<p>In PeopleCode, determines which buffer fields can be contextually referenced and which is the current row of data on each scroll level when a PeopleCode program is running.</p> <p>In PeopleSoft Enterprise Campus Solutions, a specific instance of a comment or communication. One or more contexts are assigned to a category, which you link to 3C access groups so that you can assign data-entry or view-only privileges across functions.</p> <p>In PeopleSoft Enterprise Incentive Management, a mechanism that is used to determine the scope of a processing run. PeopleSoft Enterprise Incentive Management uses three types of context: plan, period, and run-level.</p>
<b>control table</b>	Stores information that controls the processing of an application. This type of processing might be consistent throughout an organization, or it might be used only by portions of the organization for more limited sharing of data.
<b>cost profile</b>	A combination of a receipt cost method, a cost flow, and a deplete cost method. A profile is associated with a cost book and determines how items in that book are valued, as well as how the material movement of the item is valued for the book.
<b>cost row</b>	A cost transaction and amount for a set of ChartFields.
<b>course</b>	<p>In PeopleSoft Enterprise Campus Solutions, a course that is offered by a school and that is typically described in a course catalog. A course has a standard syllabus and credit level; however, these may be modified at the class level. Courses can contain multiple components such as lecture, discussion, and lab.</p> <p>See also <i>class</i>.</p>
<b>course share set</b>	In PeopleSoft Enterprise Campus Solutions, a tag that defines a set of requirement groups that can share courses. Course share sets are used in PeopleSoft Enterprise Academic Advisement.
<b>current learning</b>	In PeopleSoft Enterprise Learning Management, a self-service repository for all of a learner's in-progress learning activities and programs.
<b>data acquisition</b>	In PeopleSoft Enterprise Incentive Management, the process during which raw business transactions are acquired from external source systems and fed into the operational data store (ODS).
<b>data elements</b>	<p>Data elements, at their simplest level, define a subset of data and the rules by which to group them.</p> <p>For Workforce Analytics, data elements are rules that tell the system what measures to retrieve about your workforce groups.</p>
<b>dataset</b>	A data grouping that enables role-based filtering and distribution of data. You can limit the range and quantity of data that is displayed for a user by associating dataset rules with user roles. The result of dataset rules is a set of data that is appropriate for the user's roles.
<b>delivery method</b>	In PeopleSoft Enterprise Learning Management, identifies the primary type of delivery method in which a particular learning activity is offered. Also provides

default values for the learning activity, such as cost and language. This is primarily used to help learners search the catalog for the type of delivery from which they learn best. Because PeopleSoft Enterprise Learning Management is a blended learning system, it does not enforce the delivery method.

In PeopleSoft Supply Chain Management, identifies the method by which goods are shipped to their destinations (such as truck, air, rail, and so on). The delivery method is specified when creating shipment schedules.

<b>delivery method type</b>	In PeopleSoft Enterprise Learning Management, identifies how learning activities can be delivered—for example, through online learning, classroom instruction, seminars, books, and so forth—in an organization. The type determines whether the delivery method includes scheduled components.
<b>directory information tree</b>	In PeopleSoft Directory Interface, the representation of a directory’s hierarchical structure.
<b>division</b>	In PeopleSoft Enterprise Campus Solutions, the lowest level of the three-level classification structure that you define in PeopleSoft Enterprise Recruiting and Admissions for enrollment management. You can define a division level, link it to other levels, and set enrollment target numbers for it.  See also <i>population</i> and <i>cohort</i> .
<b>document sequencing</b>	A flexible method that sequentially numbers the financial transactions (for example, bills, purchase orders, invoices, and payments) in the system for statutory reporting and for tracking commercial transaction activity.
<b>dynamic detail tree</b>	A tree that takes its detail values—dynamic details—directly from a table in the database, rather than from a range of values that are entered by the user.
<b>edit table</b>	A table in the database that has its own record definition, such as the Department table. As fields are entered into a PeopleSoft application, they can be validated against an edit table to ensure data integrity throughout the system.
<b>effective date</b>	A method of dating information in PeopleSoft applications. You can predate information to add historical data to your system, or postdate information in order to enter it before it actually goes into effect. By using effective dates, you don’t delete values; you enter a new value with a current effective date.
<b>EIM ledger</b>	Abbreviation for <i>Enterprise Incentive Management ledger</i> . In PeopleSoft Enterprise Incentive Management, an object to handle incremental result gathering within the scope of a participant. The ledger captures a result set with all of the appropriate traces to the data origin and to the processing steps of which it is a result.
<b>elimination set</b>	In PeopleSoft General Ledger, a related group of intercompany accounts that is processed during consolidations.
<b>entry event</b>	In PeopleSoft General Ledger, Receivables, Payables, Purchasing, and Billing, a business process that generates multiple debits and credits resulting from single transactions to produce standard, supplemental accounting entries.
<b>equitization</b>	In PeopleSoft General Ledger, a business process that enables parent companies to calculate the net income of subsidiaries on a monthly basis and adjust that amount to increase the investment amount and equity income amount before performing consolidations.
<b>equity item limit</b>	In PeopleSoft Enterprise Campus Solutions, the amounts of funds set by the institution to be awarded with discretionary or gift funds. The limit could be reduced by amounts equal to such things as expected family contribution (EFC) or parent contribution. Students are packaged by Equity Item Type Groups and Related Equity Item Types. This limit can be used to assure that similar student populations are packaged equally.

<b>event</b>	<p>A predefined point either in the Component Processor flow or in the program flow. As each point is encountered, the event activates each component, triggering any PeopleCode program that is associated with that component and that event. Examples of events are FieldChange, SavePreChange, and RowDelete.</p> <p>In PeopleSoft Human Resources, also refers to an incident that affects benefits eligibility.</p>
<b>event propagation process</b>	<p>In PeopleSoft Sales Incentive Management, a process that determines, through logic, the propagation of an original PeopleSoft Enterprise Incentive Management event and creates a derivative (duplicate) of the original event to be processed by other objects. Sales Incentive Management uses this mechanism to implement splits, roll-ups, and so on. Event propagation determines who receives the credit.</p>
<b>exception</b>	<p>In PeopleSoft Receivables, an item that either is a deduction or is in dispute.</p>
<b>exclusive pricing</b>	<p>In PeopleSoft Order Management, a type of arbitration plan that is associated with a price rule. Exclusive pricing is used to price sales order transactions.</p>
<b>fact</b>	<p>In PeopleSoft applications, facts are numeric data values from fields from a source database as well as an analytic application. A fact can be anything you want to measure your business by, for example, revenue, actual, budget data, or sales numbers. A fact is stored on a fact table.</p>
<b>financial aid term</b>	<p>In PeopleSoft Enterprise Campus Solutions, a combination of a period of time that the school determines as an instructional accounting period and an academic career. It is created and defined during the setup process. Only terms eligible for financial aid are set up for each financial aid career.</p>
<b>forecast item</b>	<p>A logical entity with a unique set of descriptive demand and forecast data that is used as the basis to forecast demand. You create forecast items for a wide range of uses, but they ultimately represent things that you buy, sell, or use in your organization and for which you require a predictable usage.</p>
<b>fund</b>	<p>In PeopleSoft Promotions Management, a budget that can be used to fund promotional activity. There are four funding methods: top down, fixed accrual, rolling accrual, and zero-based accrual.</p>
<b>gap</b>	<p>In PeopleSoft Enterprise Campus Solutions, an artificial figure that sets aside an amount of unmet financial aid need that is not funded with Title IV funds. A gap can be used to prevent fully funding any student to conserve funds, or it can be used to preserve unmet financial aid need so that institutional funds can be awarded.</p>
<b>generic process type</b>	<p>In PeopleSoft Process Scheduler, process types are identified by a generic process type. For example, the generic process type SQR includes all SQR process types, such as SQR process and SQR report.</p>
<b>gift table</b>	<p>In PeopleSoft Enterprise Campus Solutions, a table or so-called <i>donor pyramid</i> describing the number and size of gifts that you expect will be needed to successfully complete the campaign in PeopleSoft Contributor Relations. The gift table enables you to estimate the number of donors and prospects that you need at each gift level to reach the campaign goal.</p>
<b>GL business unit</b>	<p>Abbreviation for <i>general ledger business unit</i>. A unit in an organization that is an independent entity for accounting purposes. It maintains its own set of accounting books.</p> <p>See also <i>business unit</i>.</p>
<b>GL entry template</b>	<p>Abbreviation for <i>general ledger entry template</i>. In PeopleSoft Enterprise Campus Solutions, a template that defines how a particular item is sent to the general ledger. An item-type maps to the general ledger, and the GL entry template can involve multiple general ledger accounts. The entry to the general ledger is further controlled</p>

by high-level flags that control the summarization and the type of accounting—that is, accrual or cash.

<b>GL Interface process</b>	Abbreviation for <i>General Ledger Interface process</i> . In PeopleSoft Enterprise Campus Solutions, a process that is used to send transactions from PeopleSoft Enterprise Student Financials to the general ledger. Item types are mapped to specific general ledger accounts, enabling transactions to move to the general ledger when the GL Interface process is run.
<b>group</b>	In PeopleSoft Billing and Receivables, a posting entity that comprises one or more transactions (items, deposits, payments, transfers, matches, or write-offs).  In PeopleSoft Human Resources Management and Supply Chain Management, any set of records that are associated under a single name or variable to run calculations in PeopleSoft business processes. In PeopleSoft Time and Labor, for example, employees are placed in groups for time reporting purposes.
<b>incentive object</b>	In PeopleSoft Enterprise Incentive Management, the incentive-related objects that define and support the PeopleSoft Enterprise Incentive Management calculation process and results, such as plan templates, plans, results data, user interaction objects, and so on.
<b>incentive rule</b>	In PeopleSoft Sales Incentive Management, the commands that act on transactions and turn them into compensation. A rule is one part in the process of turning a transaction into compensation.
<b>incur</b>	In PeopleSoft Promotions Management, to become liable for a promotional payment. In other words, you owe that amount to a customer for promotional activities.
<b>initiative</b>	In PeopleSoft Enterprise Campus Solutions, the basis from which all advancement plans are executed. It is an organized effort targeting a specific constituency, and it can occur over a specified period of time with specific purposes and goals. An initiative can be a campaign, an event, an organized volunteer effort, a membership drive, or any other type of effort defined by the institution. Initiatives can be multipart, and they can be related to other initiatives. This enables you to track individual parts of an initiative, as well as entire initiatives.
<b>inquiry access</b>	In PeopleSoft Enterprise Campus Solutions, a type of security access that permits the user only to view data.  See also <i>update access</i> .
<b>institution</b>	In PeopleSoft Enterprise Campus Solutions, an entity (such as a university or college) that is independent of other similar entities and that has its own set of rules and business processes.
<b>item</b>	In PeopleSoft Inventory, a tangible commodity that is stored in a business unit (shipped from a warehouse).  In PeopleSoft Demand Planning, Inventory Policy Planning, and Supply Planning, a noninventory item that is designated as being used for planning purposes only. It can represent a family or group of inventory items. It can have a planning bill of material (BOM) or planning routing, and it can exist as a component on a planning BOM. A planning item cannot be specified on a production or engineering BOM or routing, and it cannot be used as a component in a production. The quantity on hand will never be maintained.  In PeopleSoft Receivables, an individual receivable. An item can be an invoice, a credit memo, a debit memo, a write-off, or an adjustment.
<b>item shuffle</b>	In PeopleSoft Enterprise Campus Solutions, a process that enables you to change a payment allocation without having to reverse the payment.

<b>joint communication</b>	In PeopleSoft Enterprise Campus Solutions, one letter that is addressed jointly to two people. For example, a letter might be addressed to both Mr. Sudhir Awat and Ms. Samantha Mortelli. A relationship must be established between the two individuals in the database, and at least one of the individuals must have an ID in the database.
<b>keyword</b>	In PeopleSoft Enterprise Campus Solutions, a term that you link to particular elements within PeopleSoft Student Financials, Financial Aid, and Contributor Relations. You can use keywords as search criteria that enable you to locate specific records in a search dialog box.
<b>KPI</b>	An abbreviation for <i>key performance indicator</i> . A high-level measurement of how well an organization is doing in achieving critical success factors. This defines the data value or calculation upon which an assessment is determined.
<b>LDIF file</b>	Abbreviation for <i>Lightweight Directory Access Protocol (LDAP) Data Interchange Format file</i> . Contains discrepancies between PeopleSoft data and directory data.
<b>learner group</b>	In PeopleSoft Enterprise Learning Management, a group of learners who are linked to the same learning environment. Members of the learner group can share the same attributes, such as the same department or job code. Learner groups are used to control access to and enrollment in learning activities and programs. They are also used to perform group enrollments and mass enrollments in the back office.
<b>learning components</b>	In PeopleSoft Enterprise Learning Management, the foundational building blocks of learning activities. PeopleSoft Enterprise Learning Management supports six basic types of learning components: web-based, session, webcast, test, survey, and assignment. One or more of these learning component types compose a single learning activity.
<b>learning environment</b>	In PeopleSoft Enterprise Learning Management, identifies a set of categories and catalog items that can be made available to learner groups. Also defines the default values that are assigned to the learning activities and programs that are created within a particular learning environment. Learning environments provide a way to partition the catalog so that learners see only those items that are relevant to them.
<b>learning history</b>	In PeopleSoft Enterprise Learning Management, a self-service repository for all of a learner's completed learning activities and programs.
<b>ledger mapping</b>	You use ledger mapping to relate expense data from general ledger accounts to resource objects. Multiple ledger line items can be mapped to one or more resource IDs. You can also use ledger mapping to map dollar amounts (referred to as <i>rates</i> ) to business units. You can map the amounts in two different ways: an actual amount that represents actual costs of the accounting period, or a budgeted amount that can be used to calculate the capacity rates as well as budgeted model results. In PeopleSoft Enterprise Warehouse, you can map general ledger accounts to the EW Ledger table.
<b>library section</b>	In PeopleSoft Enterprise Incentive Management, a section that is defined in a plan (or template) and that is available for other plans to share. Changes to a library section are reflected in all plans that use it.
<b>linked section</b>	In PeopleSoft Enterprise Incentive Management, a section that is defined in a plan template but appears in a plan. Changes to linked sections propagate to plans using that section.
<b>linked variable</b>	In PeopleSoft Enterprise Incentive Management, a variable that is defined and maintained in a plan template and that also appears in a plan. Changes to linked variables propagate to plans using that variable.
<b>LMS</b>	Abbreviation for <i>learning management system</i> . In PeopleSoft Enterprise Campus Solutions, LMS is a PeopleSoft Student Records feature that provides a common set of interoperability standards that enable the sharing of instructional content and data between learning and administrative environments.

<b>load</b>	In PeopleSoft Inventory, identifies a group of goods that are shipped together. Load management is a feature of PeopleSoft Inventory that is used to track the weight, the volume, and the destination of a shipment.
<b>local functionality</b>	In PeopleSoft HRMS, the set of information that is available for a specific country. You can access this information when you click the appropriate country flag in the global window, or when you access it by a local country menu.
<b>location</b>	Locations enable you to indicate the different types of addresses—for a company, for example, one address to receive bills, another for shipping, a third for postal deliveries, and a separate street address. Each address has a different location number. The primary location—indicated by a <i>1</i> —is the address you use most often and may be different from the main address.
<b>logistical task</b>	In PeopleSoft Services Procurement, an administrative task that is related to hiring a service provider. Logistical tasks are linked to the service type on the work order so that different types of services can have different logistical tasks. Logistical tasks include both preapproval tasks (such as assigning a new badge or ordering a new laptop) and postapproval tasks (such as scheduling orientation or setting up the service provider email). The logistical tasks can be mandatory or optional. Mandatory preapproval tasks must be completed before the work order is approved. Mandatory postapproval tasks, on the other hand, must be completed before a work order is released to a service provider.
<b>market template</b>	In PeopleSoft Enterprise Incentive Management, additional functionality that is specific to a given market or industry and is built on top of a product category.
<b>mass change</b>	In PeopleSoft Enterprise Campus Solutions, mass change is a SQL generator that can be used to create specialized functionality. Using mass change, you can set up a series of Insert, Update, or Delete SQL statements to perform business functions that are specific to the institution.  See also <i>3C engine</i> .
<b>match group</b>	In PeopleSoft Receivables, a group of receivables items and matching offset items. The system creates match groups by using user-defined matching criteria for selected field values.
<b>MCF server</b>	Abbreviation for <i>PeopleSoft MultiChannel Framework server</i> . Comprises the universal queue server and the MCF log server. Both processes are started when <i>MCF Servers</i> is selected in an application server domain configuration.
<b>merchandising activity</b>	In PeopleSoft Promotions Management, a specific discount type that is associated with a trade promotion (such as off-invoice, billback or rebate, or lump-sum payment) that defines the performance that is required to receive the discount. In the industry, you may know this as an offer, a discount, a merchandising event, an event, or a tactic.
<b>meta-SQL</b>	Meta-SQL constructs expand into platform-specific Structured Query Language (SQL) substrings. They are used in functions that pass SQL strings, such as in SQL objects, the <i>SQLExec</i> function, and PeopleSoft Application Engine programs.
<b>metastring</b>	Metastrings are special expressions included in SQL string literals. The metastrings, prefixed with a percent (%) symbol, are included directly in the string literals. They expand at run time into an appropriate substring for the current database platform.
<b>multibook</b>	In PeopleSoft General Ledger, multiple ledgers having multiple-base currencies that are defined for a business unit, with the option to post a single transaction to all base currencies (all ledgers) or to only one of those base currencies (ledgers).
<b>multicurrency</b>	The ability to process transactions in a currency other than the business unit's base currency.

<b>national allowance</b>	In PeopleSoft Promotions Management, a promotion at the corporate level that is funded by nondiscretionary dollars. In the industry, you may know this as a national promotion, a corporate promotion, or a corporate discount.
<b>need</b>	In PeopleSoft Enterprise Campus Solutions, the difference between the cost of attendance (COA) and the expected family contribution (EFC). It is the gap between the cost of attending the school and the student's resources. The financial aid package is based on the amount of financial need. The process of determining a student's need is called <i>need analysis</i> .
<b>node-oriented tree</b>	A tree that is based on a detail structure, but the detail values are not used.
<b>pagelet</b>	Each block of content on the home page is called a pagelet. These pagelets display summary information within a small rectangular area on the page. The pagelet provide users with a snapshot of their most relevant PeopleSoft and non-PeopleSoft content.
<b>participant</b>	In PeopleSoft Enterprise Incentive Management, participants are recipients of the incentive compensation calculation process.
<b>participant object</b>	Each participant object may be related to one or more compensation objects. See also <i>compensation object</i> .
<b>partner</b>	A company that supplies products or services that are resold or purchased by the enterprise.
<b>pay cycle</b>	In PeopleSoft Payables, a set of rules that define the criteria by which it should select scheduled payments for payment creation.
<b>payment shuffle</b>	In PeopleSoft Enterprise Campus Solutions, a process allowing payments that have been previously posted to a student's account to be automatically reapplied when a higher priority payment is posted or the payment allocation definition is changed.
<b>pending item</b>	In PeopleSoft Receivables, an individual receivable (such as an invoice, a credit memo, or a write-off) that has been entered in or created by the system, but hasn't been posted.
<b>PeopleCode</b>	PeopleCode is a proprietary language, executed by the PeopleSoft application processor. PeopleCode generates results based upon existing data or user actions. By using business interlink objects, external services are available to all PeopleSoft applications wherever PeopleCode can be executed.
<b>PeopleCode event</b>	An action that a user takes upon an object, usually a record field, that is referenced within a PeopleSoft page.
<b>PeopleSoft Internet Architecture</b>	The fundamental architecture on which PeopleSoft 8 applications are constructed, consisting of a relational database management system (RDBMS), an application server, a web server, and a browser.
<b>performance measurement</b>	In PeopleSoft Enterprise Incentive Management, a variable used to store data (similar to an aggregator, but without a predefined formula) within the scope of an incentive plan. Performance measures are associated with a plan calendar, territory, and participant. Performance measurements are used for quota calculation and reporting.
<b>period context</b>	In PeopleSoft Enterprise Incentive Management, because a participant typically uses the same compensation plan for multiple periods, the period context associates a plan context with a specific calendar period and fiscal year. The period context references the associated plan context, thus forming a chain. Each plan context has a corresponding set of period contexts.
<b>person of interest</b>	A person about whom the organization maintains information but who is not part of the workforce.

<b>personal portfolio</b>	In PeopleSoft Enterprise Campus Solutions, the user-accessible menu item that contains an individual's name, address, telephone number, and other personal information.
<b>plan</b>	In PeopleSoft Sales Incentive Management, a collection of allocation rules, variables, steps, sections, and incentive rules that instruct the PeopleSoft Enterprise Incentive Management engine in how to process transactions.
<b>plan context</b>	In PeopleSoft Enterprise Incentive Management, correlates a participant with the compensation plan and node to which the participant is assigned, enabling the PeopleSoft Enterprise Incentive Management system to find anything that is associated with the node and that is required to perform compensation processing. Each participant, node, and plan combination represents a unique plan context—if three participants are on a compensation structure, each has a different plan context. Configuration plans are identified by plan contexts and are associated with the participants that refer to them.
<b>plan template</b>	In PeopleSoft Enterprise Incentive Management, the base from which a plan is created. A plan template contains common sections and variables that are inherited by all plans that are created from the template. A template may contain steps and sections that are not visible in the plan definition.
<b>planned learning</b>	In PeopleSoft Enterprise Learning Management, a self-service repository for all of a learner's planned learning activities and programs.
<b>planning instance</b>	In PeopleSoft Supply Planning, a set of data (business units, items, supplies, and demands) constituting the inputs and outputs of a supply plan.
<b>population</b>	In PeopleSoft Enterprise Campus Solutions, the middle level of the three-level classification structure that you define in PeopleSoft Enterprise Recruiting and Admissions for enrollment management. You can define a population level, link it to other levels, and set enrollment target numbers for it.  See also <i>division</i> and <i>cohort</i> .
<b>portal registry</b>	In PeopleSoft applications, the portal registry is a tree-like structure in which content references are organized, classified, and registered. It is a central repository that defines both the structure and content of a portal through a hierarchical, tree-like structure of folders useful for organizing and securing content references.
<b>price list</b>	In PeopleSoft Enterprise Pricer, enables you to select products and conditions for which the price list applies to a transaction. During a transaction, the system either determines the product price based on the predefined search hierarchy for the transaction or uses the product's lowest price on any associated, active price lists. This price is used as the basis for any further discounts and surcharges.
<b>price rule</b>	In PeopleSoft Enterprise Pricer, defines the conditions that must be met for adjustments to be applied to the base price. Multiple rules can apply when conditions of each rule are met.
<b>price rule condition</b>	In PeopleSoft Enterprise Pricer, selects the price-by fields, the values for the price-by fields, and the operator that determines how the price-by fields are related to the transaction.
<b>price rule key</b>	In PeopleSoft Enterprise Pricer, defines the fields that are available to define price rule conditions (which are used to match a transaction) on the price rule.
<b>primacy number</b>	In PeopleSoft Enterprise Campus Solutions, a number that the system uses to prioritize financial aid applications when students are enrolled in multiple academic careers and academic programs at the same time. The Consolidate Academic Statistics process uses the primacy number indicated for both the career and program at the institutional level to determine a student's primary career and program. The system also uses the

	number to determine the primary student attribute value that is used when you extract data to report on cohorts. The lowest number takes precedence.
<b>primary name type</b>	In PeopleSoft Enterprise Campus Solutions, the name type that is used to link the name stored at the highest level within the system to the lower-level set of names that an individual provides.
<b>process category</b>	In PeopleSoft Process Scheduler, processes that are grouped for server load balancing and prioritization.
<b>process group</b>	In PeopleSoft Financials, a group of application processes (performed in a defined order) that users can initiate in real time, directly from a transaction entry page.
<b>process definition</b>	Process definitions define each run request.
<b>process instance</b>	A unique number that identifies each process request. This value is automatically incremented and assigned to each requested process when the process is submitted to run.
<b>process job</b>	You can link process definitions into a job request and process each request serially or in parallel. You can also initiate subsequent processes based on the return code from each prior request.
<b>process request</b>	A single run request, such as a Structured Query Report (SQR), a COBOL or Application Engine program, or a Crystal report that you run through PeopleSoft Process Scheduler.
<b>process run control</b>	A PeopleTools variable used to retain PeopleSoft Process Scheduler values needed at runtime for all requests that reference a run control ID. Do not confuse these with application run controls, which may be defined with the same run control ID, but only contain information specific to a given application process request.
<b>product category</b>	In PeopleSoft Enterprise Incentive Management, indicates an application in the Enterprise Incentive Management suite of products. Each transaction in the PeopleSoft Enterprise Incentive Management system is associated with a product category.
<b>programs</b>	In PeopleSoft Enterprise Learning Management, a high-level grouping that guides the learner along a specific learning path through sections of catalog items. PeopleSoft Enterprise Learning Systems provides two types of programs—curricula and certifications.
<b>progress log</b>	In PeopleSoft Services Procurement, tracks deliverable-based projects. This is similar to the time sheet in function and process. The service provider contact uses the progress log to record and submit progress on deliverables. The progress can be logged by the activity that is performed, by the percentage of work that is completed, or by the completion of milestone activities that are defined for the project.
<b>project transaction</b>	In PeopleSoft Project Costing, an individual transaction line that represents a cost, time, budget, or other transaction row.
<b>promotion</b>	In PeopleSoft Promotions Management, a trade promotion, which is typically funded from trade dollars and used by consumer products manufacturers to increase sales volume.
<b>prospects</b>	In PeopleSoft Enterprise Campus Solutions, students who are interested in applying to the institution.  In PeopleSoft Enterprise Contributor Relations, individuals and organizations that are most likely to make substantial financial commitments or other types of commitments to the institution.
<b>publishing</b>	In PeopleSoft Enterprise Incentive Management, a stage in processing that makes incentive-related results available to participants.

<b>rating components</b>	In PeopleSoft Enterprise Campus Solutions, variables used with the Equation Editor to retrieve specified populations.
<b>record group</b>	A set of logically and functionally related control tables and views. Record groups help enable TableSet sharing, which eliminates redundant data entry. Record groups ensure that TableSet sharing is applied consistently across all related tables and views.
<b>record input VAT flag</b>	Abbreviation for <i>record input value-added tax flag</i> . Within PeopleSoft Purchasing, Payables, and General Ledger, this flag indicates that you are recording input VAT on the transaction. This flag, in conjunction with the record output VAT flag, is used to determine the accounting entries created for a transaction and to determine how a transaction is reported on the VAT return. For all cases within Purchasing and Payables where VAT information is tracked on a transaction, this flag is set to Yes. This flag is not used in PeopleSoft Order Management, Billing, or Receivables, where it is assumed that you are always recording only output VAT, or in PeopleSoft Expenses, where it is assumed that you are always recording only input VAT.
<b>record output VAT flag</b>	Abbreviation for <i>record output value-added tax flag</i> . See <i>record input VAT flag</i> .
<b>recname</b>	The name of a record that is used to determine the associated field to match a value or set of values.
<b>recognition</b>	In PeopleSoft Enterprise Campus Solutions, the recognition type indicates whether the PeopleSoft Enterprise Contributor Relations donor is the primary donor of a commitment or shares the credit for a donation. Primary donors receive hard credit that must total 100 percent. Donors that share the credit are given soft credit. Institutions can also define other share recognition-type values such as memo credit or vehicle credit.
<b>reference data</b>	In PeopleSoft Sales Incentive Management, system objects that represent the sales organization, such as territories, participants, products, customers, channels, and so on.
<b>reference object</b>	In PeopleSoft Enterprise Incentive Management, this dimension-type object further defines the business. Reference objects can have their own hierarchy (for example, product tree, customer tree, industry tree, and geography tree).
<b>reference transaction</b>	In commitment control, a reference transaction is a source transaction that is referenced by a higher-level (and usually later) source transaction, in order to automatically reverse all or part of the referenced transaction's budget-checked amount. This avoids duplicate postings during the sequential entry of the transaction at different commitment levels. For example, the amount of an encumbrance transaction (such as a purchase order) will, when checked and recorded against a budget, cause the system to concurrently reference and relieve all or part of the amount of a corresponding pre-encumbrance transaction, such as a purchase requisition.
<b>regional sourcing</b>	In PeopleSoft Purchasing, provides the infrastructure to maintain, display, and select an appropriate vendor and vendor pricing structure that is based on a regional sourcing model where the multiple ship to locations are grouped. Sourcing may occur at a level higher than the ship to location.
<b>relationship object</b>	In PeopleSoft Enterprise Incentive Management, these objects further define a compensation structure to resolve transactions by establishing associations between compensation objects and business objects.
<b>remote data source data</b>	Data that is extracted from a separate database and migrated into the local database.
<b>REN server</b>	Abbreviation for <i>real-time event notification server</i> in PeopleSoft MultiChannel Framework.
<b>requester</b>	In PeopleSoft eSettlements, an individual who requests goods or services and whose ID appears on the various procurement pages that reference purchase orders.

<b>reversal indicator</b>	In PeopleSoft Enterprise Campus Solutions, an indicator that denotes when a particular payment has been reversed, usually because of insufficient funds.
<b>role</b>	Describes how people fit into PeopleSoft Workflow. A role is a class of users who perform the same type of work, such as clerks or managers. Your business rules typically specify what user role needs to do an activity.
<b>role user</b>	A PeopleSoft Workflow user. A person's role user ID serves much the same purpose as a user ID does in other parts of the system. PeopleSoft Workflow uses role user IDs to determine how to route worklist items to users (through an email address, for example) and to track the roles that users play in the workflow. Role users do not need PeopleSoft user IDs.
<b>roll up</b>	In a tree, to roll up is to total sums based on the information hierarchy.
<b>run control</b>	A run control is a type of online page that is used to begin a process, such as the batch processing of a payroll run. Run control pages generally start a program that manipulates data.
<b>run control ID</b>	A unique ID to associate each user with his or her own run control table entries.
<b>run-level context</b>	In PeopleSoft Enterprise Incentive Management, associates a particular run (and batch ID) with a period context and plan context. Every plan context that participates in a run has a separate run-level context. Because a run cannot span periods, only one run-level context is associated with each plan context.
<b>search query</b>	You use this set of objects to pass a query string and operators to the search engine. The search index returns a set of matching results with keys to the source documents.
<b>search/match</b>	In PeopleSoft Enterprise Campus Solutions and PeopleSoft Enterprise Human Resources Management Solutions, a feature that enables you to search for and identify duplicate records in the database.
<b>seasonal address</b>	In PeopleSoft Enterprise Campus Solutions, an address that recurs for the same length of time at the same time of year each year until adjusted or deleted.
<b>section</b>	In PeopleSoft Enterprise Incentive Management, a collection of incentive rules that operate on transactions of a specific type. Sections enable plans to be segmented to process logical events in different sections.
<b>security event</b>	In commitment control, security events trigger security authorization checking, such as budget entries, transfers, and adjustments; exception overrides and notifications; and inquiries.
<b>serial genealogy</b>	In PeopleSoft Manufacturing, the ability to track the composition of a specific, serial-controlled item.
<b>serial in production</b>	In PeopleSoft Manufacturing, enables the tracing of serial information for manufactured items. This is maintained in the Item Master record.
<b>service impact</b>	In PeopleSoft Enterprise Campus Solutions, the resulting action triggered by a service indicator. For example, a service indicator that reflects nonpayment of account balances by a student might result in a service impact that prohibits registration for classes.
<b>service indicator</b>	In PeopleSoft Enterprise Campus Solutions, indicates services that may be either withheld or provided to an individual. Negative service indicators indicate holds that prevent the individual from receiving specified services, such as check-cashing privileges or registration for classes. Positive service indicators designate special services that are provided to the individual, such as front-of-line service or special services for disabled students.

<b>session</b>	<p>In PeopleSoft Enterprise Campus Solutions, time elements that subdivide a term into multiple time periods during which classes are offered. In PeopleSoft Contributor Relations, a session is the means of validating gift, pledge, membership, or adjustment data entry . It controls access to the data entered by a specific user ID. Sessions are balanced, queued, and then posted to the institution's financial system. Sessions must be posted to enter a matching gift or pledge payment, to make an adjustment, or to process giving clubs or acknowledgements.</p> <p>In PeopleSoft Enterprise Learning Management, a single meeting day of an activity (that is, the period of time between start and finish times within a day). The session stores the specific date, location, meeting time, and instructor. Sessions are used for scheduled training.</p>
<b>session template</b>	In PeopleSoft Enterprise Learning Management, enables you to set up common activity characteristics that may be reused while scheduling a PeopleSoft Enterprise Learning Management activity—characteristics such as days of the week, start and end times, facility and room assignments, instructors, and equipment. A session pattern template can be attached to an activity that is being scheduled. Attaching a template to an activity causes all of the default template information to populate the activity session pattern.
<b>setup relationship</b>	In PeopleSoft Enterprise Incentive Management, a relationship object type that associates a configuration plan with any structure node.
<b>share driver expression</b>	In PeopleSoft Business Planning, a named planning method similar to a driver expression, but which you can set up globally for shared use within a single planning application or to be shared between multiple planning applications through PeopleSoft Enterprise Warehouse.
<b>single signon</b>	With single signon, users can, after being authenticated by a PeopleSoft application server, access a second PeopleSoft application server without entering a user ID or password.
<b>source key process</b>	In PeopleSoft Enterprise Campus Solutions, a process that relates a particular transaction to the source of the charge or financial aid. On selected pages, you can drill down into particular charges.
<b>source transaction</b>	In commitment control, any transaction generated in a PeopleSoft or third-party application that is integrated with commitment control and which can be checked against commitment control budgets. For example, a pre-encumbrance, encumbrance, expenditure, recognized revenue, or collected revenue transaction.
<b>speed key</b>	See <i>communication key</i> .
<b>SpeedChart</b>	A user-defined shorthand key that designates several ChartKeys to be used for voucher entry. Percentages can optionally be related to each ChartKey in a SpeedChart definition.
<b>SpeedType</b>	A code representing a combination of ChartField values. SpeedTypes simplify the entry of ChartFields commonly used together.
<b>staging</b>	A method of consolidating selected partner offerings with the offerings from the enterprise's other partners.
<b>standard letter code</b>	In PeopleSoft Enterprise Campus Solutions, a standard letter code used to identify each letter template available for use in mail merge functions. Every letter generated in the system must have a standard letter code identification.
<b>statutory account</b>	Account required by a regulatory authority for recording and reporting financial results. In PeopleSoft, this is equivalent to the Alternate Account (ALTACCT) ChartField.

<b>step</b>	In PeopleSoft Sales Incentive Management, a collection of sections in a plan. Each step corresponds to a step in the job run.
<b>storage level</b>	In PeopleSoft Inventory, identifies the level of a material storage location. Material storage locations are made up of a business unit, a storage area, and a storage level. You can set up to four storage levels.
<b>subcustomer qualifier</b>	A value that groups customers into a division for which you can generate detailed history, aging, events, and profiles.
<b>Summary ChartField</b>	You use summary ChartFields to create summary ledgers that roll up detail amounts based on specific detail values or on selected tree nodes. When detail values are summarized using tree nodes, summary ChartFields must be used in the summary ledger data record to accommodate the maximum length of a node name (20 characters).
<b>summary ledger</b>	An accounting feature used primarily in allocations, inquiries, and PS/nVision reporting to store combined account balances from detail ledgers. Summary ledgers increase speed and efficiency of reporting by eliminating the need to summarize detail ledger balances each time a report is requested. Instead, detail balances are summarized in a background process according to user-specified criteria and stored on summary ledgers. The summary ledgers are then accessed directly for reporting.
<b>summary time period</b>	In PeopleSoft Business Planning, any time period (other than a base time period) that is an aggregate of other time periods, including other summary time periods and base time periods, such as quarter and year total.
<b>summary tree</b>	A tree used to roll up accounts for each type of report in summary ledgers. Summary trees enable you to define trees on trees. In a summary tree, the detail values are really nodes on a detail tree or another summary tree (known as the <i>basis</i> tree). A summary tree structure specifies the details on which the summary trees are to be built.
<b>syndicate</b>	To distribute a production version of the enterprise catalog to partners.
<b>system function</b>	In PeopleSoft Receivables, an activity that defines how the system generates accounting entries for the general ledger.
<b>TableSet</b>	A means of sharing similar sets of values in control tables, where the actual data values are different but the structure of the tables is the same.
<b>TableSet sharing</b>	Shared data that is stored in many tables that are based on the same TableSets. Tables that use TableSet sharing contain the SETID field as an additional key or unique identifier.
<b>target currency</b>	The value of the entry currency or currencies converted to a single currency for budget viewing and inquiry purposes.
<b>tax authority</b>	In PeopleSoft Enterprise Campus Solutions, a user-defined element that combines a description and percentage of a tax with an account type, an item type, and a service impact.
<b>template</b>	A template is HTML code associated with a web page. It defines the layout of the page and also where to get HTML for each part of the page. In PeopleSoft, you use templates to build a page by combining HTML from a number of sources. For a PeopleSoft portal, all templates must be registered in the portal registry, and each content reference must be assigned a template.
<b>territory</b>	In PeopleSoft Sales Incentive Management, hierarchical relationships of business objects, including regions, products, customers, industries, and participants.
<b>3C engine</b>	Abbreviation for <i>Communications, Checklists, and Comments engine</i> . In PeopleSoft Enterprise Campus Solutions, the 3C engine enables you to automate business processes that involve additions, deletions, and updates to communications, checklists,

and comments. You define events and triggers to engage the engine, which runs the mass change and processes the 3C records (for individuals or organizations) immediately and automatically from within business processes.

<b>3C group</b>	Abbreviation for <i>Communications, Checklists, and Comments group</i> . In PeopleSoft Enterprise Campus Solutions, a method of assigning or restricting access privileges. A 3C group enables you to group specific communication categories, checklist codes, and comment categories. You can then assign the group inquiry-only access or update access, as appropriate.
<b>TimeSpan</b>	A relative period, such as year-to-date or current period, that can be used in various PeopleSoft General Ledger functions and reports when a rolling time frame, rather than a specific date, is required. TimeSpans can also be used with flexible formulas in PeopleSoft Projects.
<b>trace usage</b>	In PeopleSoft Manufacturing, enables the control of which components will be traced during the manufacturing process. Serial- and lot-controlled components can be traced. This is maintained in the Item Master record.
<b>transaction allocation</b>	In PeopleSoft Enterprise Incentive Management, the process of identifying the owner of a transaction. When a raw transaction from a batch is allocated to a plan context, the transaction is duplicated in the PeopleSoft Enterprise Incentive Management transaction tables.
<b>transaction state</b>	In PeopleSoft Enterprise Incentive Management, a value assigned by an incentive rule to a transaction. Transaction states enable sections to process only transactions that are at a specific stage in system processing. After being successfully processed, transactions may be promoted to the next transaction state and “picked up” by a different section for further processing.
<b>Translate table</b>	A system edit table that stores codes and translate values for the miscellaneous fields in the database that do not warrant individual edit tables of their own.
<b>tree</b>	The graphical hierarchy in PeopleSoft systems that displays the relationship between all accounting units (for example, corporate divisions, projects, reporting groups, account numbers) and determines roll-up hierarchies.
<b>tuition lock</b>	In PeopleSoft Enterprise Campus Solutions, a feature in the Tuition Calculation process that enables you to specify a point in a term after which students are charged a minimum (or <i>locked</i> ) fee amount. Students are charged the locked fee amount even if they later drop classes and take less than the normal load level for that tuition charge.
<b>unclaimed transaction</b>	In PeopleSoft Enterprise Incentive Management, a transaction that is not claimed by a node or participant after the allocation process has completed, usually due to missing or incomplete data. Unclaimed transactions may be manually assigned to the appropriate node or participant by a compensation administrator.
<b>universal navigation header</b>	Every PeopleSoft portal includes the universal navigation header, intended to appear at the top of every page as long as the user is signed on to the portal. In addition to providing access to the standard navigation buttons (like Home, Favorites, and signoff) the universal navigation header can also display a welcome message for each user.
<b>update access</b>	In PeopleSoft Enterprise Campus Solutions, a type of security access that permits the user to edit and update data.  See also <i>inquiry access</i> .
<b>user interaction object</b>	In PeopleSoft Sales Incentive Management, used to define the reporting components and reports that a participant can access in his or her context. All Sales Incentive Management user interface objects and reports are registered as user interaction objects. User interaction objects can be linked to a compensation structure node through a compensation relationship object (individually or as groups).

<b>variable</b>	In PeopleSoft Sales Incentive Management, the intermediate results of calculations. Variables hold the calculation results and are then inputs to other calculations. Variables can be plan variables that persist beyond the run of an engine or local variables that exist only during the processing of a section.
<b>VAT exception</b>	Abbreviation for <i>value-added tax exception</i> . A temporary or permanent exemption from paying VAT that is granted to an organization. This terms refers to both VAT exoneration and VAT suspension.
<b>VAT exempt</b>	Abbreviation for <i>value-added tax exempt</i> . Describes goods and services that are not subject to VAT. Organizations that supply exempt goods or services are unable to recover the related input VAT. This is also referred to as exempt without recovery.
<b>VAT exoneration</b>	Abbreviation for <i>value-added tax exoneration</i> . An organization that has been granted a permanent exemption from paying VAT due to the nature of that organization.
<b>VAT suspension</b>	Abbreviation for <i>value-added tax suspension</i> . An organization that has been granted a temporary exemption from paying VAT.
<b>warehouse</b>	A PeopleSoft data warehouse that consists of predefined ETL maps, data warehouse tools, and DataMart definitions.
<b>work order</b>	In PeopleSoft Services Procurement, enables an enterprise to create resource-based and deliverable-based transactions that specify the basic terms and conditions for hiring a specific service provider. When a service provider is hired, the service provider logs time or progress against the work order.
<b>worker</b>	A person who is part of the workforce; an employee or a contingent worker.
<b>workset</b>	A group of people and organizations that are linked together as a set. You can use worksets to simultaneously retrieve the data for a group of people and organizations and work with the information on a single page.
<b>worksheet</b>	A way of presenting data through a PeopleSoft Business Analysis Modeler interface that enables users to do in-depth analysis using pivoting tables, charts, notes, and history information.
<b>worklist</b>	The automated to-do list that PeopleSoft Workflow creates. From the worklist, you can directly access the pages you need to perform the next action, and then return to the worklist for another item.
<b>XML schema</b>	An XML definition that standardizes the representation of application messages, component interfaces, or business interlinks.
<b>yield by operation</b>	In PeopleSoft Manufacturing, the ability to plan the loss of a manufactured item on an operation-by-operation basis.
<b>zero-rated VAT</b>	Abbreviation for <i>zero-rated value-added tax</i> . A VAT transaction with a VAT code that has a tax percent of zero. Used to track taxable VAT activity where no actual VAT amount is charged. Organizations that supply zero-rated goods and services can still recover the related input VAT. This is also referred to as exempt with recovery.

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