PeopleSoft®

PeopleTools 8.42
Development Tools
PeopleTools Global Technology

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PeopleTools 8.42
Development Tools
PeopleTools Global Technology
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PeopleBooks Contributors: Teams from PeopleSoft Product Documentation and Development.

Contents

Part 2
Working With PeopleSoft Applications in Multiple Languages

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.
- Related documentation.
- Typographical elements and visual cues.
- Comments and suggestions.
- Common elements in PeopleBooks.

Note. PeopleBooks document only page elements 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.

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.

See *Using PeopleSoft Applications.*

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

You should be familiar with navigating the system and adding, updating, and deleting information by using PeopleSoft windows, menus, and pages. 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.

PeopleSoft Application Fundamentals

Each application PeopleBook provides implementation and processing information for your PeopleSoft database. However, additional, essential information describing the setup and design of your system appears in a companion volume of documentation called the application fundamentals PeopleBook. Each PeopleSoft product line has its own version of this documentation.

The application fundamentals PeopleBook consists of important topics that apply to many or all PeopleSoft applications across a product line. 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 this central PeopleBook. It is the starting point for fundamentals, such as setting up control tables and administering security.

Related 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.

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.

See Also

PeopleSoft Customer Connection Website, http://www.peoplesoft.com/corp/en/login.asp

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 PeopleSoft Press Website under the Ordering PeopleBooks topic. The PeopleSoft Press Website is a joint venture between PeopleSoft and Consolidated Publications Incorporated (CPI), the book print vendor. Use a credit card, money order, cashier's check, or purchase order to place your order.

Telephone

Contact CPI at 800 888 3559.

Email

Send email to CPI at psoftpress@cc.larwood.com.

See Also

PeopleSoft Customer Connection Website, http://www.peoplesoft.com/corp/en/login.asp

Typographical Conventions and Visual Cues

This section discusses:

- Typographical conventions.
- Visual cues.

Typographical Conventions

The following table contains the typographical conventions that are used in PeopleBooks:

Typographical Convention or Visual Cue	Description
Bold	Indicates PeopleCode function names, method names, language constructs, and PeopleCode reserved words that must be included literally in the function call.
Italics	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 number 0, not the letter *O*.
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 W.
`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.
(ISO)	Information that applies to a specific country, to the U.S. federal government, or to the education and government market, is preceded by a three-letter code in parentheses. The code for the U.S. federal government is USF; the code for education and government is E&G, and the country codes from the International Standards Organization are used for specific countries. Here is an example: (GER) If you're administering German employees, German law requires you to indicate special nationality and citizenship information for German workers using nationality codes established by the German DEUEV Directive.
Cross-references	PeopleBooks provide cross-references either below 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.

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.

Note. Example of a note.

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

Important! Example of an important note.

Warnings

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

Warning! Example of a warning.

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.

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

Common Elements in These PeopleBooks

As of Date	The last date for which a report or process includes data.
Business Unit	An ID that represents a high-level organization of business information. You can use a business unit to define regional or departmental units within a larger organization.
Description	Enter up to 30 characters of text.
Effective Date	The date on which a table row becomes effective; the date that an action begins. For example, to close out a ledger on June 30, the effective date for the ledger closing would be July 1. This date also determines when you can view and change the information. Pages or panels and batch processes that use the information use the current row.
Once, Always, and **Don't Run**	Select Once to run the request the next time the batch process runs. After the batch process runs, the process frequency is automatically set to Don't Run. Select Always to run the request every time the batch process runs. Select Don't Run to ignore the request when the batch process runs.

Report Manager	Click to access the Report List page, where you can view report content, check the status of a report, and see content detail messages (which show you a description of the report and the distribution list).
Process Monitor	Click to access the Process List page, where you can view the status of submitted process requests.
Run	Click to access the Process Scheduler request page, where you can specify the location where a process or job runs and the process output format.
Request ID	An ID that represents a set of selection criteria for a report or process.
User ID	An ID that represents the person who generates a transaction.
SetID	An ID that represents a set of control table information, or TableSets. TableSets enable you to share control table information and processing options among business units. The goal is to minimize redundant data and system maintenance tasks. When you assign a setID to a record group in a business unit, you indicate that all of the tables in the record group are shared between that business unit and any other business unit that also assigns that setID to that record group. For example, you can define a group of common job codes that are shared between several business units. Each business unit that shares the job codes is assigned the same setID for that record group.
Short Description	Enter up to 15 characters of text.

See Also

Using PeopleSoft Applications

PeopleSoft Process Scheduler

PeopleTools Global Technology Preface

This preface provides an overview of the contents of the *PeopleTools 8.42 PeopleBook: PeopleTools Global Technology*.

PeopleTools Global Technology

The *PeopleTools 8.42 PeopleBook: PeopleTools Global Technology* provides information on the role of PeopleTools in the globalization of PeopleSoft applications.

PeopleSoft applications are functionally equipped for implementation in global enterprises. However, country-specific application business logic is not enough to make an application global-ready. The technology behind the applications, PeopleTools, needs to provide the core global abilities that are common to all PeopleSoft application products, such as support for multiple languages in a single database, formatting data displayed to users using standards that they expect based on their language and country, and dealing with the complexities of a system spanning multiple time zones. PeopleTools is designed so that a single implementation can serve users in different regions: users who share the same data while operating in different languages and applying different date/time and numeric formatting conventions.

This book covers PeopleTools features that are critical to a global implementation and is divided into three parts:

- PART 1: Configuring Your System for Global Implementation. This part discusses some of the technological considerations you should take into account if you are implementing in multiple countries (even if you only use English language data).
- PART 2: Working with PeopleSoft Applications in Multiple Languages. This part discusses tasks to perform if you're using the non-English translations delivered by PeopleSoft, and/or processing application data in multiple languages.
- PART 3: Translating PeopleSoft Applications. This section discusses tasks to perform if you need to translate objects into languages not supplied by PeopleSoft, products not translated by PeopleSoft, or if you need to translate your customizations.

PART 1

Configuring Your System for Global Implementation

CHAPTER 1

Global Development and Environment Considerations

When you implement a global PeopleSoft application, there are a number of factors related to globalization that can affect system performance and the efficiency of the implementation effort. This chapter discusses:

- Tips for developing easily translatable applications.
- Designing global-ready pages.
- Considering your options when adding or upgrading languages into the database.
- Accessing global documentation.

Tips for Developing Easily Translatable Applications

When designing application objects—especially pages:

- Avoid using page-based text in page element labels and other labels that can be derived from field labels (such as query heading names and string definitions in the Strings table).

  Overriding field labels on the page with page-based text associates a new label with a field that is specific to the current page; the new label cannot be shared with other pages in the system, so if it us used multiple times, it would require translation for each occurrence. Instead, associate the new label with the field that it is labeling, and choose your new label for the occurrence of the field on your page. That way, the label can be used on other pages without having to be translated again.

- Design pages so that they have enough room to accommodate object labels that become longer when translated.

  A good rule of thumb if developing in English is to allow at least 15 percent extra space between a label and its field, and 50 percent extra space for abbreviations.

- Try to complete the layout of your pages early in the development cycle.

- Because the positions of fields and other objects on a page are stored individually for each language, you may need to reapply any changes you make to the page layout after the page has been translated. Translate field labels first.

  Translated field labels appear throughout the system in page element labels, search dialog box field labels, record field names, strings table definitions, query heading labels, and so on. Translating these labels before translating other objects will help you build a glossary of terms for your application and give you a head start in translating each page, as the majority of text on a page is derived from field labels.

Selective Translation

If you add custom functionality or data tables to a PeopleSoft application, you may want to translate the new PeopleTools objects and data fields for display in multiple languages. PeopleTools is designed to permit selective translation of the elements in an application database, depending on an organization's requirements and the time and resources it devotes to a translation project.

Because the system displays base-language versions of any language-sensitive elements for which no translation is provided, you can choose to translate only the pages, menus, messages, and so on that are required by the operators who are working in non-base languages. Often, customers building new pages can easily determine if the page will be accessed only by administrative staff who share a common language with the developers, or if it will be deployed widely to end-users, and will therefore require translation.

Just because an object is not translated into a user's preferred language doesn't mean that the user can't access that object—the user simply sees the object in the base language of the system.

Designing Global-Ready Pages

You can simplify a global development project and make a global system easier to maintain by making your base-language pages as translation-ready as possible. This minimizes the work that is required to translate each page. Typically, you should strive to reduce or eliminate textual elements that are maintained on the page definition and, instead, derive those text strings from other PeopleTools objects such as field labels or messages. This way, a translator needs to translate a text string only once, and the new translation will take effect across all pages where that string is referenced.

Following are some tips for designing global-ready base language pages.

- Use page control labels that derive from field descriptions.

  On the Label tab of the Page Field Properties dialog box, use the RFT Short or RFT Long setting whenever possible. This causes the control labels, as well as the push button Tooltip text, to be derived from the language-sensitive descriptions that are stored in the field definition. Avoid using any other non-language-sensitive text on the page, such as page-based floating text labels.

- Associate group boxes with record fields

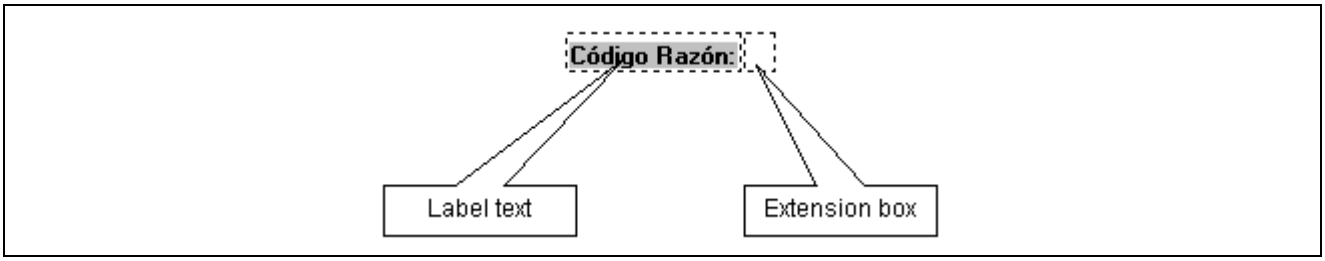
  Using the Page Field Properties dialog box, you can associate group boxes with record fields. In this way, the label for the group box can be derived from field's RFT Short or RFT Long value. The only effect of this association is the label derivation. It has no other effect on the page's operation.

- As much as possible, complete and freeze the layout of the pages early in your development cycle.

  Adding and removing page objects and PeopleCode to a page takes effect across all languages, however the layout of a page is language-specific. Once you start translating pages, any alignment or page layout changes you make to the base language page will have to be re-applied to each translation of the page.

- Size and arrange the page controls so that there is enough space to accommodate data in non-base languages.

English strings for both labels and data tend to be shorter than strings in other languages. As you work with pages, you will notice that when you select a field, the dotted boundary box has two components—the surround box for the label, and an extension box to the right of the label. This extension box is typically 10 percent of the label size and is a useful guide as to the minimum amount of space that you should leave between a field and its label to allow for expansion during translation. As much as possible, try to ensure that there is enough space between the field and the label so that the extension box doesn't overlap the field or other page controls.



Page control label and extension box

Considering Your Options When Adding or Upgrading Additional Languages Into Your Database

If you installed a PeopleSoft 8.4x English database and want to add PeopleSoft translations you have since licensed, you must determine how to perform your upgrade.

The method you use for adding languages depends upon if you have or have not customized PeopleTools-based objects. If you have not customized objects, you load new objects. If you have customized your database, you must perform an upgrade Compare before you can add the new languages.

Choose the most appropriate option:

- Add the translations provided on the PeopleSoft Global Multi-Language CD-ROM to your existing PeopleSoft 8.4x English database.

  This option is available only if you have not customized PeopleTools-based objects in your existing PeopleSoft 8.4x English database. PeopleTools-based objects include any objects you maintain using the PeopleSoft Application Designer or the PeopleSoft Tree Manager (such as pages fields and menus). If you have *added* only new PeopleTools objects to your database without modifying existing definitions, you can use this option.

- Add the translations to an existing *customized* PeopleSoft 8.4x English database.

  If you customized the PeopleTools-based objects in your database, you cannot simply add the translations contained on the PeopleSoft Global Multi-Language CD-ROM to your existing database. You must create a new database containing all your licensed translations and use the PeopleSoft Application Designer's Upgrade process to copy the PeopleSoft translated objects from the multi-language database to the database that contains English and your customizations. In upgrade terminology, this database is referred to as your "copy of production" database.

  See Chapter 1, "Global Development and Environment Considerations," Upgrading Languages Into Your Customized PeopleSoft 8.4x Database, page 8.

Note. PeopleSoft recommends that you install the PeopleSoft Global Multi-Language CD-ROM when you install the English release. This saves the extra effort of following one of these procedures to add a language after your initial database creation has been completed.

Adding or customizing system data such as account codes, departments, and locations, is not considered changing PeopleTools objects. If you have performed only these types of transactions against your English-only PeopleTools 8.4x database and have not modified any objects using the PeopleSoft Application Designer or PeopleSoft Tree Manager, you can use the first option mentioned above.

When using the upgrade functionality in PeopleSoft Application Designer, you have options to help you compare objects across databases. These comparisons are language-sensitive.

See Also

PeopleSoft Application Designer, "Upgrading with PeopleSoft Application Designer"

Adding Translations to an Existing PeopleSoft 8.4x English-Only Database

Please read the instructions at the beginning of this chapter before performing the steps in this section.

Note. This upgrade path may not be available to you, depending on the customizations you have performed on your English-only database.

To add translations to an existing PeopleSoft 8.4x English-only database:

1. Load your PeopleSoft Multi-Language CD-ROM.

   Remember that this CD-ROM uses a different license code than the other PeopleSoft CD-ROMs.

   See *PeopleTools 8.42 Installation Guide for Your Database Platform*, "Setting up the File Server."

2. Re-run the "Setting up the Batch Environment" steps.

   If you are running a Windows NT PeopleSoft Process Scheduler (PSNT), you must re-run the steps documented in *PeopleTools 8.42 Installation Guide for Your Database Platform* "Setting up the Batch Environment." Because the PeopleSoft Global Multi-Language CD-ROM contains translations for your Crystal Reports and PS/nVision layouts, you must transfer these to your Windows NT Process Scheduler. If you run only non-Windows NT Process Schedulers, you can skip this step.

3. Create PeopleSoft Data Mover import scripts (DMSs) using the PeopleSoft Database Setup program.

   See *PeopleTools 8.42 Installation Guide for Your Database Platform*, "Creating a Database."

   You should see both the English database objects and your new translated objects in the Database Setup program. Be sure to enter the same database parameters you entered the first time you ran the Database Setup program to install your English database.

   Before clicking the Create Scripts button, select a directory for output scripts that differs from the directory you specified when you ran this program to install your English-only database. This way, the newly generated script won't overwrite any existing scripts you may have generated using the PeopleSoft Database Setup program.

4. Edit the DMS generated by the PeopleSoft Database Setup program.

As PeopleSoft databases always contain English translations when shipped, the PeopleSoft Database Setup program automatically includes English translations in any DMS created. To import only the non-English data into your existing PeopleSoft database, you must remove the steps in the generated DMS script to remove the English load process.

Locate the DMS in the directory specified in the PeopleSoft Database Setup program, for example, c:\pt842\scripts. The DMSs have the extension .DMS and contain statements to load data from .DAT files into your database. As you have already run PeopleSoft Data Mover to install English data, you must remove the lines from the DMS pertaining to ENG, or the PeopleSoft Data Mover script will fail.

The following file excerpt is an example of a DMS file and the edits you must make. In this example for Spanish PeopleSoft HRMS, the PeopleSoft Database Setup program has created the file HCSYSORA.DMS. The parts you must remove are in *italics*. This DMS assumes that you'll load English (ENG) data. If you previously loaded English, you must remove all paragraphs in this file that include references to English language data files. Remember, if you are installing a DEMO database, there may be many paragraphs that load English data and you must remove them all. In addition, remove the "cleanup" steps at the end of the script. (The cleanup steps ran when you installed the English data files; you do not need to re-run them).

```
REM - HCSYSORA.DMS
REM - Created by DBSETUP 8.40.0   6/18/01 11:41:38 PM
/
REM - HRMS Demo Database  HCSYS US English Database import
/
set log c:\temp\hcengs.log;
set input c:\apps\pt750\data\hcengs.db;
set no view;
set no space;
set no trace;
set commit 30000;
import *;

REM - HRMS Language Objects  HLSYS Spanish Database import
/
set log c:\temp\hlesps.log;
set input c:\apps\pt840\data\hlesps.db;
set no view;
set no space;
set no trace;
set commit 30000;
import *;

REM - Final Database cleanup for Oracle installations.
/
insert into PS.PSDBOWNER values('HCSYS','SYSADM');
update PSLOCK set OWNERID = 'SYSADM';
update PSOPRDEFN set ACCESSID = 'SYSADM', ACCESSPSWD = 'SYSADM', OPERPSWD =⇒
 '0000000000000000' where OPRTYPE = 0;
update PSACCESSPRFL set ACCESSID = 'SYSADM', ACCESSPSWD = 'SYSADM', VERSION = 0,⇒
 ENCRYPTED = 0;
update PS_INSTALLATION set HR='Y',benefit_administrn='Y',fsa_claims='Y',installed_⇒
pay_na='Y',pa='Y',tl='Y';
```

```
create view syskeys
 (ixcreator, ixname, colname, colno,
  colseq, ordering, function)
 as select
 a.ownerid, b.index_name, b.column_name,
 b.column_position, b.column_position, 'a', ' '
 from pslock a, user_ind_columns b
/
create view sysindexes
 (tbcreator, name, tbname, creator,
  uniquerule, colcount, ixtype, clusterrule, ixsize, percentfree)
 as select
 table_owner, index_name, table_name,
 table_owner, substr(uniqueness,1,1), 1, 'b', 'n', 1, pct_free
 from user_indexes
/
set log c:\temp\grant.log;
grant_user *;
encrypt_password *;
```

5. Run your modified DMS against your existing PeopleSoft database.

   See *PeopleTools 8.42 Installation Guide for Your Database Platform*, "Creating a Database."

   Because you already created your database and set up the appropriate database-specific objects, you can move directly to the tasks in the step, Run Data Mover Import Scripts. Ensure that you run PeopleSoft Data Mover in bootstrap mode by logging in using your database's access ID.

6. Run the VERSION Application Engine program against your database to update your PeopleTools version numbers.

   This re-synchronizes the PeopleTools version numbers, taking the new translations into account.

7. Swap your base language if you are planning on running with a non-English base language.

8. Re-run your database audits to ensure that your database is complete

   See *PeopleTools 8.42 Installation Guide for Your Database Platform*, "Creating a Database," Check Database.

Upgrading Languages Into Your Customized PeopleSoft 8.4x Database

Please read the instructions at the beginning of this chapter before performing the steps in this section.

To upgrade languages into your customized PeopleSoft 8.4x database:

1. Load your PeopleSoft Multi-Language CD-ROM.

   Remember that this CD-ROM uses a different license code than the other PeopleSoft CD-ROMs.

   See *PeopleTools 8.42 Installation Guide for Your Database Platform*, "Setting up the File Server."

2. Re-run the Setting up the Batch Environment steps.

If you are running a Windows NT PeopleSoft Process Scheduler (PSNT), you must re-run the steps documented in *PeopleTools 8.42 Installation Guide for Your Database Platform*, "Setting up the Batch Environment." Because the PeopleSoft Global Multi-Language CD-ROM contains translations for your Crystal reports and PS/nVision layouts, you must transfer these to your Windows NT Process Scheduler. If you run only non-Windows NT Process Schedulers, you can skip this step.

3. Create and load your new PeopleSoft Multi-Language database.

   Keep in mind that you need to load the English objects provided by PeopleSoft, even if you don't plan to run your system in English. Follow all of the steps in "Creating a Database" chapter that are applicable to your installation, except the "Change Base Language" step. You cannot change the base language of your new database until you have copied your customizations into it.

   See *PeopleTools 8.42 Installation Guide for Your Database Platform*, "Creating a Database."

4. Compare and copy languages into your customized PeopleSoft 8.4x database.

   Using the PeopleSoft Application Designer's Upgrade Compare functionality, compare the PeopleSoft multi-language database to your "copy of production" or existing PeopleSoft 8.4x database. With the Upgrade Copy utility, copy the language objects from the new database to the copy or existing 8.4x database. Remember that for this compare/copy process, your source database is the newly installed PeopleSoft multi-lingual database, and your target database (for the comparison) is the existing English database or database that does not contain the languages that you want to add.

   When performing the compare report, make sure that your compare options are set for the languages that you want to add. Also, make sure that the Target Orientation is set to *Keep Customizations.* This sets the compare statuses and actions so that objects delivered by PeopleSoft don't overwrite your customizations. You also must choose the appropriate comparison release.

PeopleTools Release	Comparison Release
PeopleSoft 8.41	8.41.00.000
PeopleSoft 8.40	8.40.00.000
PeopleSoft 8.0	8.00.00.000

   The Compare process generates a project that contains all of the language objects that are to be copied to your customized database. Use the Upgrade Copy functionality to copy the project that contains these languages objects into your customized database.

   For the Copy process make sure that the Copy Language options on the Upgrade Options dialog box Copy Options tab are set the same as they were for the compare process.

   Remember that during the Upgrade Copy process, your source database is the newly installed PeopleSoft Multi-Lingual database, and your target database is the existing English database or database that does not contain the translations that you want to add.

5. Run the VERSION Application Engine program against your database to update your PeopleTools version numbers.

   This re-synchronizes the PeopleTools version numbers, taking the new translations into account.

6. If you decide to run your database in a non-English base language, swap your base language.

Before running this step, ensure that you have copied all of your customizations into your new PeopleSoft Multi-Language database. After you have swapped the base language of your new database, you can't copy any more objects from your existing English-only database unless you also swap the base language of this database.

7. Re-run your database audits to ensure that your database is complete.

   See *PeopleTools 8.42 Installation Guide for Your Database Platform*, "Creating a Database," Check Database.

See Also

PeopleSoft Application Designer, "Upgrading with PeopleSoft Application Designer"

Accessing Global Documentation

If a user accesses a document from a PeopleSoft application by clicking Help in a PeopleSoft page or by pressing F1 from the Windows client, the system opens the version of the document that corresponds to the database's current language preference. If the system doesn't find a version of the documentation in the appropriate language, it brings up the English documentation, if available.

CHAPTER 2

Controlling International Preferences

This chapter provides an overview of international, locale and browser language preferences and discusses how to:

- Set up and change language preferences in PeopleSoft Internet Architecture.
- Understand and apply browser language preferences.
- Set up and change Windows Designer Tools language preferences.
- Understand, set up and apply locale-based formatting.

Understanding International Preferences

The international preference settings control the language in which users view and use the PeopleSoft system, as well as locale formatting conventions for dates, times, and numbers.

How you define preferences depends on whether you access PeopleSoft using the PeopleSoft Internet Architecture or using the Windows-based Designer tools. The current language code and locale are read from different places. This is due to the architecture differences between these two environments.

This section provides an overview of language codes.

See Also

Chapter 2, "Controlling International Preferences," Understanding PeopleSoft Internet Architecture Locale-Based Formatting, page 21

Understanding Language Codes

Every PeopleSoft session is associated with a language that is determined when you sign on to the system. PeopleSoft language codes contain three characters that represent the name of the language, and some cases, the region in which the language is spoken. (However, most PeopleSoft language codes don't include a country or region component.)

This *user* or *session* language is used by PeopleTools when determining the language of the user interface such as field and menu labels, and also for the language of the data that is maintained or viewed during the session. For example, if a user's language code for a particular session is Spanish, PeopleTools will attempt to display the menus and field labels in Spanish for each page viewed in that session, and if the table from which the data is being fetched has a related language record associated with it, PeopleTools will also attempt to fetch the Spanish translations of the data from this table.

Setting Up and Changing Language Preferences in the PeopleSoft Internet Architecture

In the PeopleSoft Internet Architecture, the *signon language* is the language selected by the user on the Signon page before they enter their username and password. The signon language controls the language in which the user views language-sensitive data and objects in the application for the duration of that session.

If the signon language is the database's base language, then all language-sensitive data, messages, and objects appear in the base language. If the signon language is a non-base language, then any language-sensitive data, messages, and objects that have been translated appear in the preferred language; those that have not been translated appear in the base language.

This section discusses how to:

- Choose a signon language.
- Change the signon language while signed on.
- Change the signon language programmatically.
- Determine the signon language when the signon screen is bypassed.
- Control the user profile language preference.

See Also

Chapter 10, "Using Related Language Tables," page 167

Choosing a Signon Language

Users choose a signon language at the time they sign on to the system. Users can change their signon language during the PeopleSoft session; however, this is typically done only for development or testing purposes. You can also program your applications to change their signon languages so that your application has its own language selection options.

When the signon page initially appears, the page elements on that page appear in the language designated in the user's browser language settings. To use this browser-default language during the session, simply enter a username and password and click the Sign In button.

Signon page

Alternatively, to choose a different signon language, click one of the available language links, enter a password, and click the Sign In button. Clicking the link updates the signon screen to reflect the new language choice, and signing on using the updated screen confirms the new signon language. Only languages that have been installed and enabled by the system administrator can be used to signon to the database. If you select a language that has not been enabled in the database to which you are logging in, you will receive an error message during signon:

```
The language you have selected is not enabled for use with this database. Please⇒
 select another language or contact your System Administrator.
```

To enable and disable languages for signon to the database, use the Maintain Languages page. To access this page, select PeopleTools, Utilities, Maintain Languages.

If you will not be using all languages delivered by PeopleSoft, or if you need to add a new language to the system, you can modify the signon page to add or remove any of the language links. Remember, the base language of your system should always be available to your users.

See Also

Chapter 12, “Adding New Languages,” page 193

Changing the Signon Language While Signed On

In some cases, such as during development, testing or debugging, you may want to change the language of your session without logging out of PeopleSoft.

The International Preferences page enables you to change your signon language during a session. Any change to the current signon language made via this page is valid only for the remaining duration of the current session. Once you sign out of PeopleSoft, the language of the next session will again be determined by the language selected on the Signon page.

To change your session language without signing out:

1. Open the International Preferences page.

   Select PeopleTools, Utilities, International, Preferences. The International Preferences page appears.

2. Select a language in the Language Preference field.

   The language you select overrides the language that was used to sign on to the database. This change lasts until you exit the PeopleSoft session or change the language preference again.

3. Save the page.

Changes take effect immediately.

Changing the Signon Language Programmatically

PeopleCode language functions enable you to change the user language preferences programmatically for the remainder of the PeopleSoft Internet Architecture session. This feature is useful if you are building a front-end to your PeopleSoft system that does not involve the signon screen, and if you want to allow users to change their language preference "on-the-fly."

For example, an Internet Store application may allow anonymous signon by customers of the store to browse a catalog, and therefore would not display the signon screen. The PeopleCode **SetLanguage** built-in function could be linked to a PeopleCode program behind a button on a page to allow the user to change the language of the interface after they have already been signed in as a guest user.

The **SetLanguage** function temporarily overrides the user's default language preference and the *%Language* system variable, which evaluates to the language code for the current preferred language.

Calling the **SetLanguage** function is the same as changing the Language Preference field on the International Preferences page.

The *%Language_Base* system variable makes it simple for application developers to determine the current preferred language and build language-specific functionality in PeopleCode. The *%Language_Base* system variable can be used in PeopleCode to determine the base language of the current database.

See Also

PeopleCode Reference, "PeopleCode Built-in Functions," SetLanguage

PeopleCode Reference, "System Variables," %Language

PeopleCode Reference, "System Variables," %Language_Base

Determining the Signon Language When the Signon Screen Is Bypassed

PeopleSoft offers the following ways to sign on to a PeopleSoft session without ever seeing the signon screen:

- Direct access: you can configure the Web server to enable users to access PeopleSoft without having to sign on. In these cases, users access the system using a predetermined user ID.

  The language preference for users who access the system this way is determined by the user profile language preference for that user ID. User profile language preferences are described later in this chapter.

- When bypassing the signon screen, you can override the user profile language preference by explicitly setting the language code within a direct query string using the parameter *&languageCd=<target language>*.

- Single-signon: PeopleSoft users who take advantage of PeopleSoft single-signon capabilities need to select a language preference only once during the single signon.

  All subsequent PeopleSoft sessions that are controlled by the single signon use the same language preference.

See Also

PeopleTools Security, "Setting up Digital Certificates and Single Signon"

Controlling the User Profile Language Preference

In addition to the session language preference that is selected at signon time and valid for the current session only, the PeopleSoft Internet Architecture also maintains a language preference on each user's User Profile. This language preference is used when the system needs to determine the user's preferred language when that user is not logged onto PeopleSoft.

For example, when the PeopleSoft Process Scheduler runs an SQR report or if the workflow system sends an email to the user, the user language preference is used.

In these cases, the user may not be logged into PeopleSoft, or another user may have initiated the transaction, so there is no session language that can be used. For example, a manager may be sent an email by the workflow system requesting approval for a purchase requisition. Since this email event is triggered not by the person to whom the message is addressed, but by the requester, it does not make sense to send the message in the language preference of the sender; since the recipient may not understand that language. Instead PeopleTools reads the User Profile language preference of the email's intended recipient and sends the email in that user's preferred language.

If you are setting the language preference for a user, use the User Profiles page. If you are changing your own language preference, you can use the simplified My Profile page.

This section describes how to:

- Set the user profile language preference for another user using the User Profiles page.
- Set your user profile language preference using the My Profile page.

To set the user profile language preference for another user:

1. Select PeopleTools, Security, User Profiles, User Profiles. The User Profile search page displays.
2. Use the standard search method to choose the desired user ID and click the Search button. The User Profiles —General tab displays.
3. From the Language Code dropdown list, select a language.

   The Enable multilingual support option on the User Profile — General page determines whether the user can edit language-sensitive data in multiple languages without overriding the user language preference.
4. Save the page.

To set your user profile language preference:

1. On the PeopleTools main menu, select My Profile. The General Profile Information page displays.
2. In the Personalization section, choose a language in the following dropdown list: My preferred language for reports and email is.
3. Save the page.

See Also

Chapter 11, “Working With Language-Sensitive Application Data,” page 185

Understanding the Browser Language Preference

Web browsers allow users to specify a list of preferred languages for Web content.

PeopleTools uses the preferred language list to determine the default language of the signon page. When the user loads the signon page into the browser, PeopleTools works down the list of languages in the browser’s preferred language list until it finds an entry that maps to a PeopleSoft language code in the pstools.properties file on the Web server.

If none of the user’s preferred languages are available as specified in the pstools.properties file, the default signon screen is displayed in U.S. English (en-US).

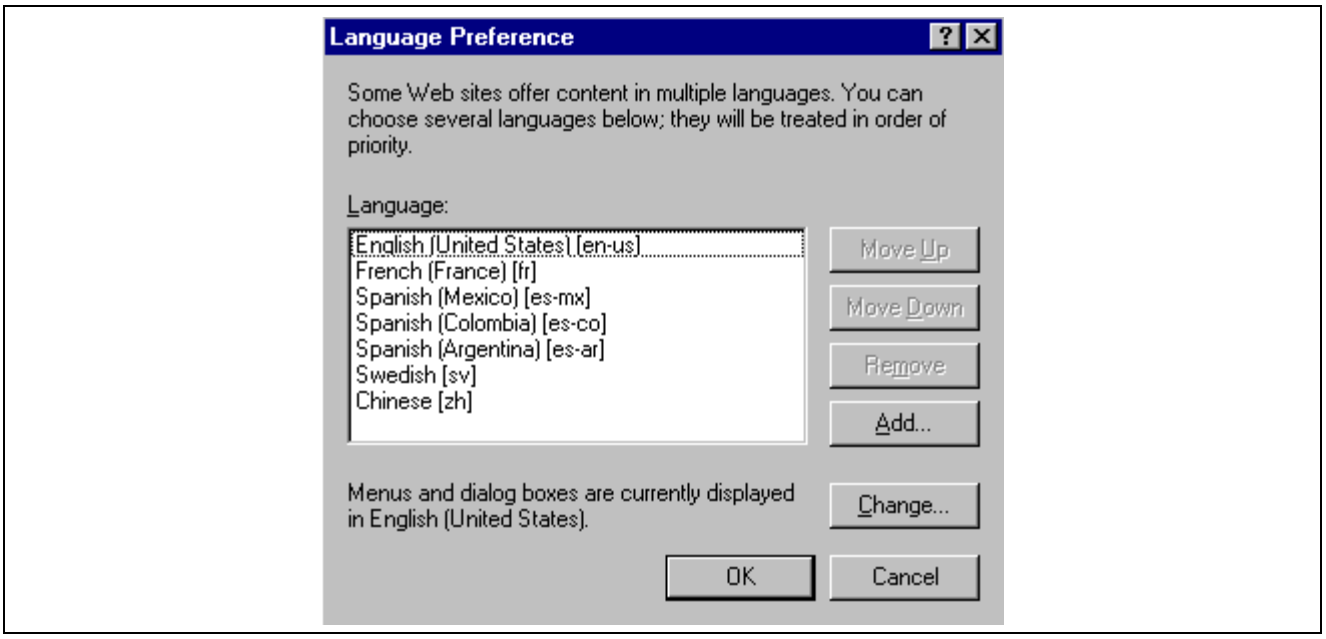
Setting the Browser Language Preference

In Microsoft Internet Explorer the preferred language list is located in the Language Preferences dialog.

To access the Language Preferences dialog box:

1. From the Internet Explorer Tools menu, select Internet Options. The Internet Options dialog box appears.
2. Select the General tab, if not already selected.
3. Click the Languages button. The Language Preference dialog box appears.
4. Click the Add button . The Add Language dialog box displays.
5. Select a language from the list and click OK.
6. Repeat steps 4 and 5 to add additional languages.

   This list you create is iterated by the Web server until the server finds a language in which it offers Web content. Because the list is processed top-down, the user’s most preferred language should appear at the top of the list, with their next preferred language second and so on.
7. When you have finished adding languages, click OK, then click Apply.



Microsoft Internet Explorer Language Preference dialog box

The representation of language codes in the browser's preferred language list uses two to five character POSIX standard locale codes comprised of a language and country portion. In the example above, *es* represents Spanish and *ar* represents Argentina. A two-letter code represents only a language without reference to a specific country or territory.

Netscape and other browsers have a similar dialog that allows you to create your ordered list of language preferences.

Using Browser Language Settings to Determine Signon Language

For PeopleTools to display the signon page in the user's preferred language as determined from their browser settings, the two- to five-character language codes used by the browser must be mapped to PeopleSoft three-letter language codes. PeopleSoft reads the pstools.properties file located on the Web server to perform this mapping.

As delivered, PeopleSoft includes the following PeopleSoft language code to POSIX locale mappings:

PeopleSoft Language Code	Description	Corresponding POSIX Locales
CFR	Canadian French	fr_CA
DAN	Danish	da_DK
DUT	Dutch	nl_NL, nl_BE
ENG	English	en_US,en_GB

PeopleSoft Language Code	Description	Corresponding POSIX Locales
ESP	Spanish	es_ES,es_AR,es_CO,es_MX
FRA	French	fr_FR,fr_BE,fr_CH
GER	German	de_DE,de_AT,de_AU,de_CH
GRK	Greek	el_EL
ITA	Italian	it_IT,it_CH
JPN	Japanese	ja_JP
KOR	Korean	ko_KR
POR	Portuguese	pt_BR
SVE	Swedish	sv_FI
THA	Thai	th_TH
ZHS	Simplified Chinese	zh_SG,zh_CN
ZHT	Traditional Chinese	zh_HK,zh_TW

The two-part POSIX locale provides flexibility when languages vary from country to country. For example, the POSIX code for French is *fr*. French is spoken in several countries, each with its own two-character country code, including France (FR), Belgium (BE), Canada (CA), and Switzerland (CH). The full locale code consists of a lowercase language code, an underscore, and an uppercase country code. So the code for Canadian French is *fr_CA*.

In many cases, the country distinction between languages is not relevant, or PeopleSoft does not deliver a country-specific translation. In these cases, many individual POSIX locale codes may be mapped to a single PeopleSoft Language code. For example, PeopleSoft delivers a Canadian French translation with the PeopleSoft language code of *CFR*. Therefore, the POSIX locale of *fr_CA* is mapped to the PeopleSoft language code of *CFR*. However, PeopleSoft does not provide a Belgian French or Swiss French translation, so the *fr_BE* and *fr_CH* POSIX locales are both mapped to the FRA PeopleSoft language code.

Setting Up and Changing Windows Designer Tools Language Preferences

In the Windows Designer Tools, the language setting within PeopleSoft Configuration Manager controls the language in which the user views almost all language-sensitive data and objects in the application.

Just like in the PeopleSoft Internet Architecture, if the language selected in the PeopleSoft Configuration Manager is the base language, then all language-sensitive data, messages, and objects appear in the base language. If the language in PeopleSoft Configuration Manager is a non-base language, then any language-sensitive data, messages, and objects that have been translated appear to the user in the preferred language; those that have not been translated appear in the base language.

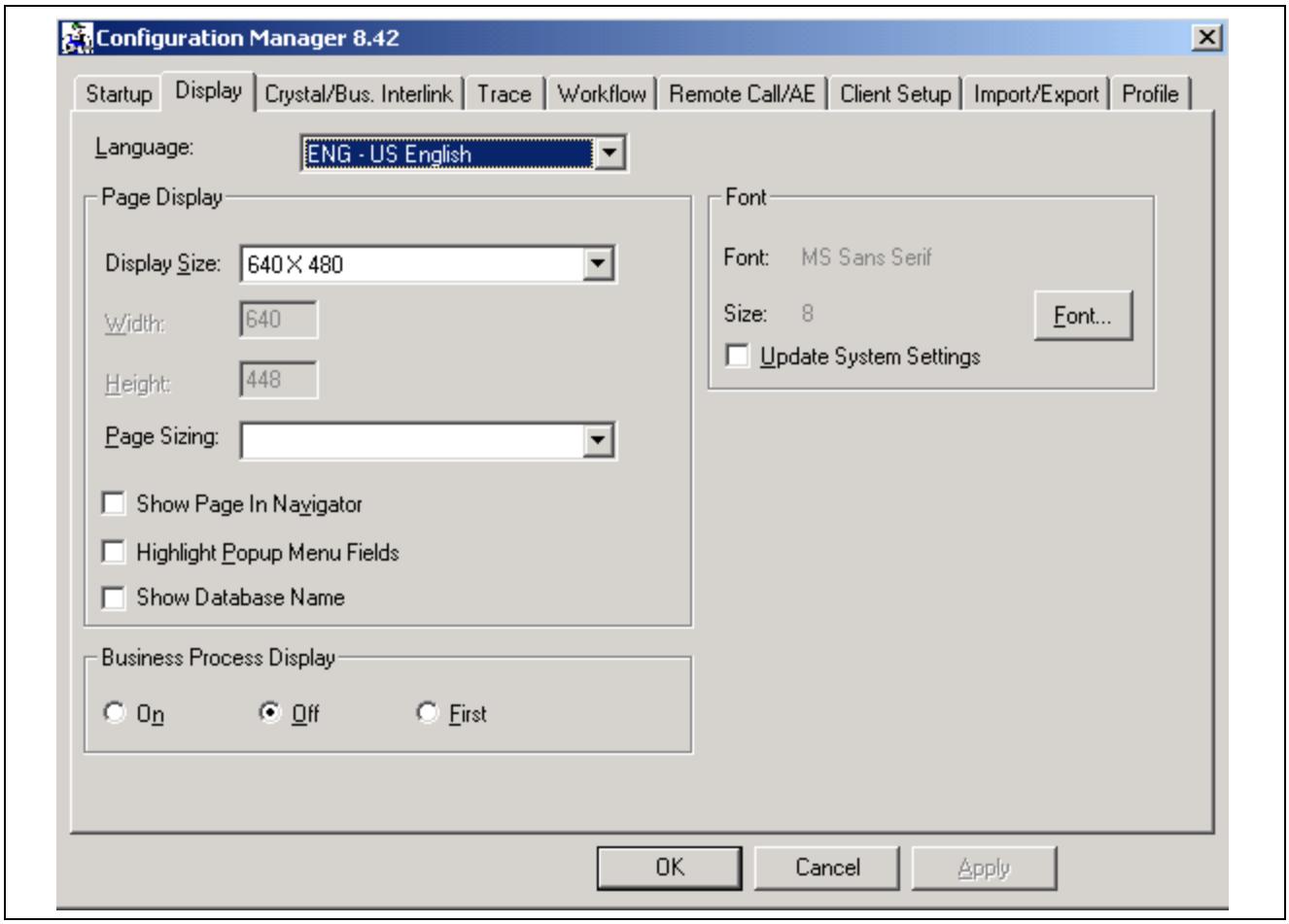
See Also

Chapter 10, "Using Related Language Tables," page 167

PeopleSoft Administration Tools, "PeopleSoft Configuration Manager"

Controlling PeopleSoft Configuration Manager Language Settings

The PeopleSoft Configuration Manager language setting is maintained on each Windows client workstation and determines the language in which the user views and maintains almost all language-sensitive data and objects in the Windows Designer tools.



Configuration Manager —Display tab

To set the PeopleSoft Configuration Manager language:

1. Start PeopleSoft Configuration Manager.
2. Select the Display tab.
3. Select a language in the Language field.
4. Click OK.

Controlling Windows Regional Settings

The Windows Regional Settings Properties dialog box (accessed through Windows Control Panel) enables users to choose the format for display of numbers, dates, times, and currencies while operating in the Application Designer and other Windows components of PeopleTools.

Windows Regional Settings do not take effect in the PeopleSoft Internet Architecture. Bear in mind that these are Windows settings, not PeopleTools settings. The Windows settings affect the entire Windows system and remain in effect until you change them in the Windows control panel.

Currency formatting is controlled by PeopleTools and is independent of Windows Regional Settings Properties dialog box.

See Also

Chapter 5, “Controlling Currency Display Format,” page 63

Understanding PeopleSoft Internet Architecture Locale-Based Formatting

The locale-based personalization architecture in PeopleSoft Internet Architecture provides a flexible framework for formatting locale-sensitive data. There are three main levels of locale-based personalization. This section provides an overview of locale based formatting drivers and discusses:

- User-specific.
- Locale-specific.
- System-wide defaults.

See Also

Chapter 5, “Controlling Currency Display Format,” page 63

PeopleTools Security, “Managing PeopleSoft Personalizations”

PeopleSoft Server Tools Administration, “Administering Web Servers,” Modifying PeopleSoft Web Server Configuration Files

Understanding Locale-Based Formatting Drivers

There are three levels of personalization settings that drive the formatting of locale-based data in the PeopleSoft Internet Architecture:

- User-specific
- Locale-specific
- System-wide

These levels ensure that each user can have complete flexibility to specify their personal preference for formatting locale-based data such as numbers, dates and times and so forth, while maintaining an intelligent set of default formats for inexpert users and users who don’t have specific preferences.

When determining how to format these types of data, PeopleTools checks for formatting preferences at each of these levels in the order of user-specific, locale-specific and finally system-wide— and at whichever level the preferences are first found are those used for the session.

For example, a first-time user may login to the PeopleSoft Internet Architecture as a French user. As a first-time user of the system, PeopleTools will not have any personalization information specific to the user, and does not know any specific preferences that person has for formatting their locale-sensitive data. Next, PeopleTools will check the personalizations tables to see if a locale-specific formatting setting exists for the French language (given that the user is signing in as a French language user). In this case, the locale-specific settings for French users are found, and the system formats all numbers, dates and times for that session using the settings defined by the system administrator for French users.

However, it is possible that the user, even though they are logged in using the French language, may prefer another type of formatting for their numbers. Let's suppose that instead of the locale-specific formatting for numbers that was specified by the system administrator (in which the comma is used as a decimal point, and the space is used as a thousands separator), the user prefers to use a period as a decimal separator. To register this user-specific preference, the user simply opens the My Personalizations page, and clicks the Personalization Option for the Interntl & Regional Settings and overrides the Digit Group Separator with a period. This way, whenever that user access the PeopleSoft Internet Architecture, their decimal separator will be a period, regardless of their language choice. All other preferences are read from the locale-specific personalizations based on their current language choice.

Should a user sign in to the PeopleSoft Internet Architecture using a language for which locale-specific personalizations have not been setup by the system administrator, PeopleTools defaults the formatting of locale-sensitive data for that session to the system-wide defaults. These defaults are also maintained by the system administrator in the personalization system and are used as a last resort if no other formatting information is found.

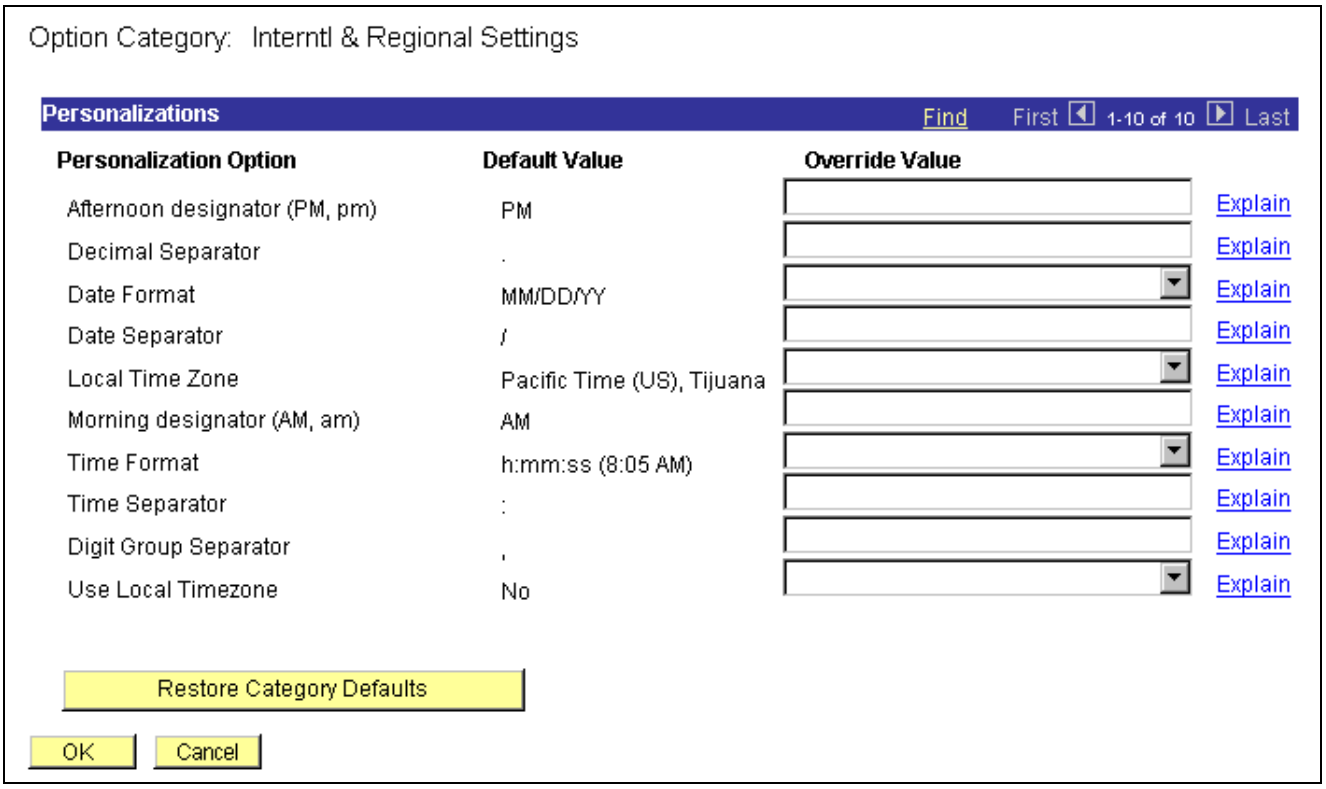
Using the personalizations system in PeopleTools, the system administrator can restrict which personalization options are driven by a locale, or which may be overridden by a user. In certain organizations where a corporate-wide policy exists for formatting numbers, dates or times, the system administrator may wish to disable the locale-sensitivity or user overrides for some or all of the locale-sensitive data formats. In this case, the system-wide defaults would take effect for each personalization option disabled by the system administrator via the Personalizations page. To access the Personalizations page, select PeopleTools, Personalizations.

Defining User-Specific Formatting

If the system administrator has allowed users to override the locale-sensitive formatting options (using the Maintain Personalizations pages), you can use the My Personalizations page to specify exactly how PeopleTools should format each field that contains numbers, dates and times. Each individual formatting element can be overridden on a user-by-user basis.

Setting and Applying User-Specific Formatting

Page Name	Navigation	Usage
My Personalizations	My Personalizations, click *Interntl & Regional Settings* Personalize Options button.	End users access this page to view and modify personalizations.



International and regional settings

See *PeopleTools Security*, "Managing PeopleSoft Personalizations," Understanding Locale Options.

To override any or all of these values, in the Override Value column, enter the appropriate value or select one from the dropdown list. For example, if you prefer to use a dash (-) instead of a slash (/) to separate the components of dates, simply enter a dash character in the Override Value column for the Date Separator personalization option. Values maintained here are specific to your user ID.

If you leave any of these override values blank, they will be evaluated next time you sign on based on your language code, and if locale-specific preferences aren't found for your language, they will be defaulted to the system-wide values as shown in the Default Value column on this page.

See Also

PeopleTools Security, "Managing PeopleSoft Personalizations," Working with the My Personalizations Interface

Setting Up and Applying Locale-Specific Formatting

Locale-based personalizations enable PeopleTools to intelligently determine appropriate data formatting based on the language of the user logging into PeopleTools should they not have specified individual user-based overrides for each formatting option. Locale-based personalizations are treated differently than the other personalizations in that they have three levels of defaulting; user overrides, locale-specific and system-wide defaults.

You use the following pages to manage these personalization options:

Page Name	Navigation	Usage
Locale Definition	PeopleTools, Personalization, Locales	Control the locales for which you can specify defaults.
Locale Defaults	PeopleTools, Personalization, Locale Defaults	Specify Personalization Option defaults for locales appearing on the Locale Definition page.

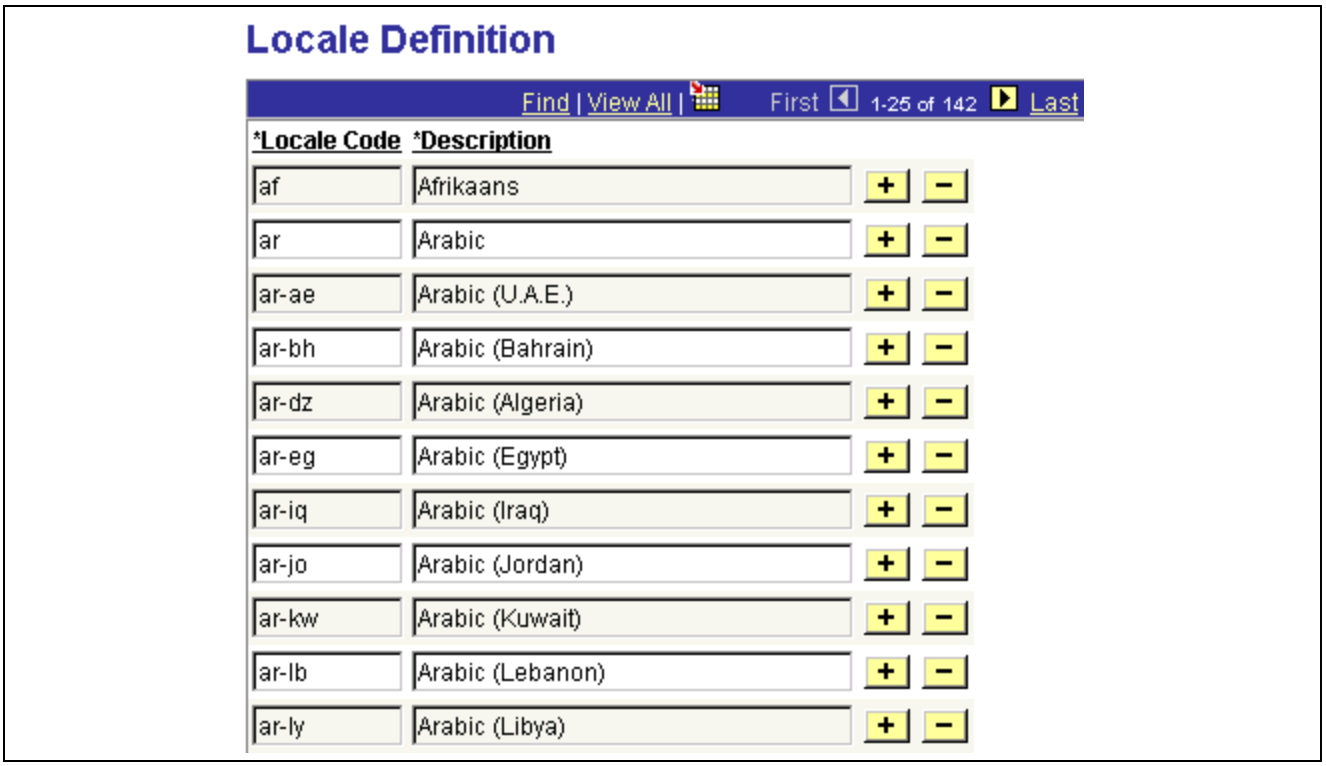
Locale Definition Page

The Locale Definition page controls the locales that can have defaults specified on the Locale Defaults page. These locales are markedly different from PeopleSoft language codes discussed earlier in this chapter in that they typically contain both language and country information. When formatting data fields, both these elements are typically needed, given that many languages are spoken in different countries with each country often following different formatting conventions. Having only information on the user's language is not sufficient to determine even a default level of locale-sensitive data formatting.

For example, English is spoken in several countries that radically disagree on date formatting. In the United States, dates are typically formatted as month, day, year whereas in the United Kingdom and elsewhere they are typically formatted as day, month, year. Therefore if PeopleTools only has a signon language of English and no country information, it could not determine which of the two possible date formats to use.

To determine the specific locale for a session, the session language code cannot be used due to its lack of country information. Instead, the browser's language preference list is read, and the top (the most preferred) locale in that list is used to look up locale-specific formats in the Personalizations Locale Definitions page. Therefore, you should ensure that each browser locale used by your system's users appears in the Locale Definition page if you wish to provide intelligent locale-default formatting.

See Chapter 2, "Controlling International Preferences," Setting the Browser Language Preference, page 16.



Locale Definition page

Locale Code Shows the locale code that represents a particular language preference. This must match exactly the locale code in the browser's Language Preference dialog box.

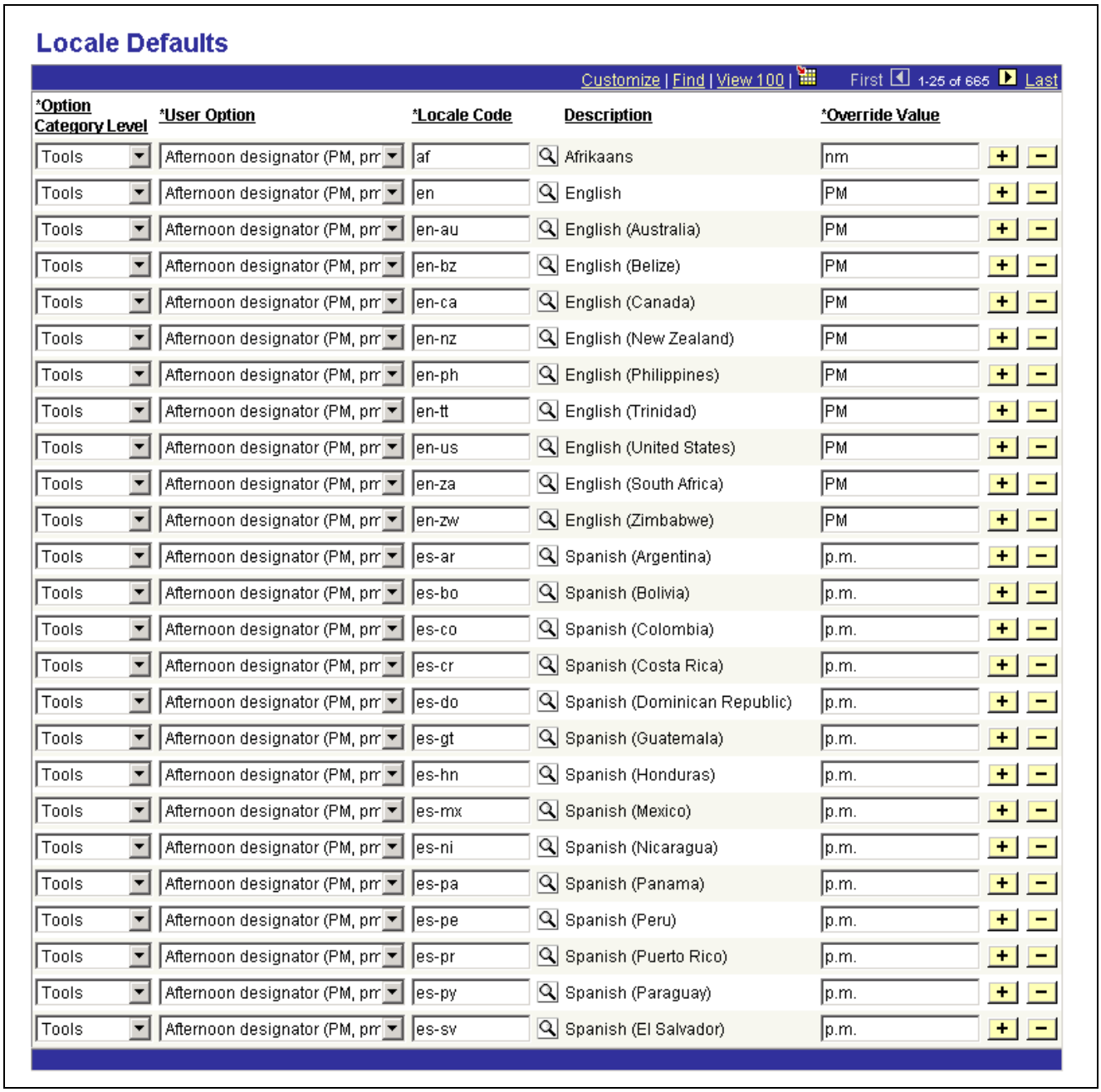
Description Displays a description of the code for identification purposes.

Locale Defaults Page

The Locale Defaults page enables you to assign defaults to various personalization options per locale code. If a user has not overridden each Personalization Option at a user level, PeopleTools looks up the locale-specific value in this table based on the top-ranked locale in their browser's Language Preference list. Should neither a user-specific or locale-specific value be found, the system-wide default as defined against that Personalization Option is used for the session. Only values for the locales that appear on the Locale Definition page can have defaults assigned on this page.

To view all the defaults for a particular locale, you will find it easier to sort the data on this page by the Locale Code instead of the default sort of User Option. Click on the Locale Code column heading to perform this sort.

Note. For some international locales, a space character is used as a digit group separator (for example, thousands). However, the PeopleSoft Internet Architecture interprets a single space in a field as a NULL value. To use the space character as a digit group separator, define the Override Value as a space between single quotes (*'value'*). This personalization can be defined at the system-wide, locale-default or individual user level. This special treatment of the space character currently only takes effect for the Digit Group Separator User Option.



Locale Defaults

Customize | Find | View 100 | First 1-25 of 665 Last

*Option Category Level	*User Option	*Locale Code	Description	*Override Value
Tools	Afternoon designator (PM, pm	af	Afrikaans	nm
Tools	Afternoon designator (PM, pm	en	English	PM
Tools	Afternoon designator (PM, pm	en-au	English (Australia)	PM
Tools	Afternoon designator (PM, pm	en-bz	English (Belize)	PM
Tools	Afternoon designator (PM, pm	en-ca	English (Canada)	PM
Tools	Afternoon designator (PM, pm	en-nz	English (New Zealand)	PM
Tools	Afternoon designator (PM, pm	en-ph	English (Philippines)	PM
Tools	Afternoon designator (PM, pm	en-tt	English (Trinidad)	PM
Tools	Afternoon designator (PM, pm	en-us	English (United States)	PM
Tools	Afternoon designator (PM, pm	en-za	English (South Africa)	PM
Tools	Afternoon designator (PM, pm	en-zw	English (Zimbabwe)	PM
Tools	Afternoon designator (PM, pm	es-ar	Spanish (Argentina)	p.m.
Tools	Afternoon designator (PM, pm	es-bo	Spanish (Bolivia)	p.m.
Tools	Afternoon designator (PM, pm	es-co	Spanish (Colombia)	p.m.
Tools	Afternoon designator (PM, pm	es-cr	Spanish (Costa Rica)	p.m.
Tools	Afternoon designator (PM, pm	es-do	Spanish (Dominican Republic)	p.m.
Tools	Afternoon designator (PM, pm	es-gt	Spanish (Guatemala)	p.m.
Tools	Afternoon designator (PM, pm	es-hn	Spanish (Honduras)	p.m.
Tools	Afternoon designator (PM, pm	es-mx	Spanish (Mexico)	p.m.
Tools	Afternoon designator (PM, pm	es-ni	Spanish (Nicaragua)	p.m.
Tools	Afternoon designator (PM, pm	es-pa	Spanish (Panama)	p.m.
Tools	Afternoon designator (PM, pm	es-pe	Spanish (Peru)	p.m.
Tools	Afternoon designator (PM, pm	es-pr	Spanish (Puerto Rico)	p.m.
Tools	Afternoon designator (PM, pm	es-py	Spanish (Paraguay)	p.m.
Tools	Afternoon designator (PM, pm	es-sv	Spanish (El Salvador)	p.m.

Local Defaults page

Applying System-Wide Default Formatting

System-wide formatting is the last resort in the locale-sensitive formatting hierarchy. Only if a particular personalization option can't be found that is specific to the user or their browser's locale is the system-wide default applied for the session. System-wide defaults are defined by the system administrator using the Define Personalizations page. To apply system-wide default formatting, select PeopleTools, Personalization, Personalization Options, and click the Format tab.

See Also

PeopleSoft Server Tools Administration, "Administering Web Servers," Modifying PeopleSoft Web Server Configuration Files

PeopleTools Security, "Managing PeopleSoft Personalizations"

CHAPTER 3

Understanding Time Zones

This chapter provides an overview of time zones and discusses how to:

- Set the base time zone.
- Control the time zone display.
- Maintain time zones.

Time Zones Overview

PeopleSoft applications store times based on a system-wide base time zone and support the display of times relative to a user's local time zone or relative to the time zone in which a transaction is entered.

For example, if the base time zone is Universal Coordinated Time (also known as Greenwich Mean Time), a time entered as 10 a.m. U.S. Eastern Standard (EST) time is stored as 3 p.m. because of the time difference between the two locations. Although the time is stored as 3 p.m., it can still appear to the user as 10 a.m. EST. In fact, it can appear as the appropriate time for any time zone that you choose. You can also set up the system to enable users to choose the time zone for specific time or datetime displays.

To support display in alternate time zones, PeopleSoft maintains a global list of time zones, including information about daylight savings time observances. When a time zone begins or ends in daylight savings time, both the description of the zone and the times that are associated with that zone are adjusted to reflect the change. This approach ensures chronological consistency throughout an organization's geographically dispersed locations, while allowing for flexibility in how users see times.

Note. All time zone functionality applies to displayed values only. Internally all values are stored and manipulated in the base time zone. This means that all time values in PeopleCode are in database time, even when the time appears to the user in another time zone. This allows for easy comparison and manipulation of times so that the PeopleCode developer does not have to worry about time zone differences. Additionally, all batch processes, such as SQR and COBOL, operate in the base time zone of the system.

Types of Time Zones

PeopleTools defines three types of time zones that are important to the operation of the system:

Base Time Zone This time zone is the primary system-wide time zone in which PeopleTools processes dates internally and which is used for display when no other time zone is specified. The base time zone must match the time zone in which the database server is operating, specifically the time zone to which the Meta SQL **%currentdatetime** token returns. For example, in an Oracle

database, the base time zone is the time zone in which the *SYSDATE* system variable is returned. You must enter this time zone on the PeopleTools Options page for your system to function correctly.

The base time zone is also used for the following:

- All effective-date processing. Rows become effective when midnight passes on the effective date according to the base time zone of the system.
- Internal processing in PeopleCode and all batch processes.
- Display on pages and in reports, if no other time zone information is specified or available

User Time Zone This is the time zone in which each system user is currently operating. It is read from the operating system of the user's Web browser PeopleSoft Internet Architecture. Although users cannot change their user time zones while logged into PeopleTools, they can do so in their local operating system. Therefore, no validation or business rules are processed based on the user time zone in PeopleSoft. The user time zone is used only for display and data entry purposes.

Specified Time Zone This is a time zone that a user or the system enters on a page as a fixed time zone for a specific row of data. This time zone is useful for applications where users must see the same time and time zone as those who enter transactions, such as in call processing systems. To implement a specified time zone field, your record must contain a time zone control field.

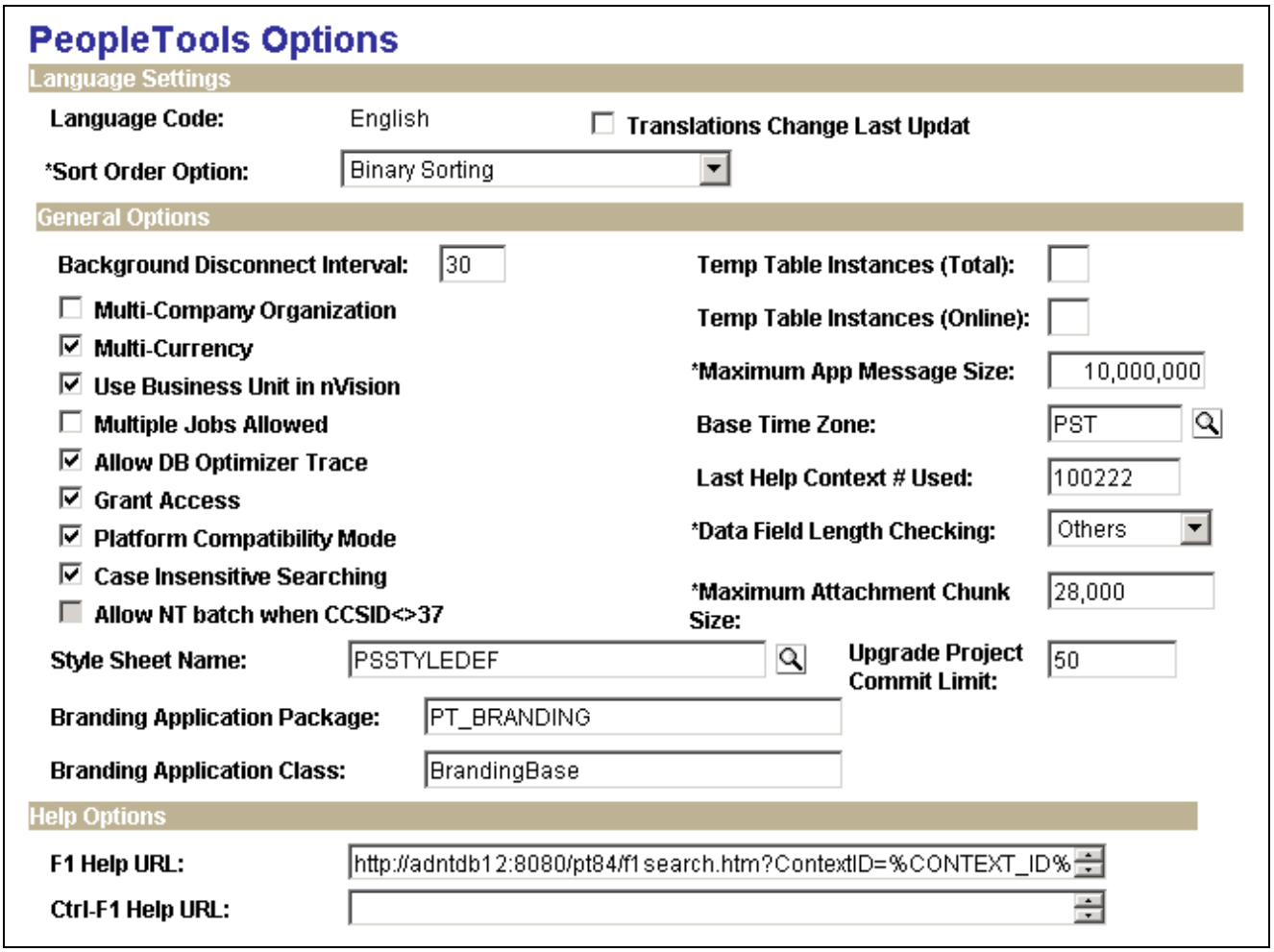
See Also

Chapter 3, "Understanding Time Zones," Controlling Time Zone Display, page 31

Setting the Base Time Zone

The base time zone for PeopleTools is the same as the time zone used by the database. For PeopleSoft to properly manage time data, the system must know which time zone that is. Enter base time zone information on the PeopleTools Options page. To access this page, select PeopleTools, Utilities, Administration, PeopleTools Options page.

The base time zone for PeopleTools that you define must match the time zone used by your database. Any discrepancy between the two will lead to inaccurate time processing.



PeopleTools, Utilities, Administration, PeopleTools Options

To set the base time zone:

1. Select PeopleTools, Utilities, Administration, PeopleTools Options.

   The PeopleTools Options page appears.

2. In the Base Time Zone field, select a valid value.

   Values are maintained in the Time Zone component.

3. Click the Save button.

Note. After selecting a base time zone during installation, avoid changing it. There is no automated processing to translate existing time information in the database to a new base time zone, and if you change the time zone defined on the PeopleTools Options page, no adjustment is made to the existing time data in your database.

Controlling Time Zone Display

Although times are always stored in the base time zone, you can choose whether a page displays a time in base time or some other time zone.

Time zone display and processing functions operate only on time or datetime fields, not on date fields. This is because all time zone processing requires the knowledge of the time component of the field, which is not provided in date fields. Even if some databases store PeopleSoft date fields internally, as datetime fields, PeopleSoft does not use the time component of these fields.

Control the display using a combination of settings:

Record field properties Choose whether the time display is based on the base time zone or on another time zone. If you base the display on another time zone, you can specify a time zone control field: the field that is used to determine the time zone.

Page field properties Choose whether to automatically include the time zone abbreviation in a field that displays time or datetime values.

These two settings work together to control the time display on pages in the PeopleSoft Internet Architecture.

- If the record field properties option specifies that time appears in the base time zone, setting the page field properties to show the time zone helps users interpret the time shown on the page.
- If the record field properties option specifies that the time zone of a particular time or datetime field is determined by the time zone control field, then put that control field directly on the page to allow the user to manually select the time zone for a field.
- If you put the time zone control field on the page where users are permitted to enter a time zone, disable the page field properties option that includes the time zone abbreviation in the time field. It's redundant to show the time zone in both places.
- If you do not permit users to enter a time zone manually, for example you use the *%clienttimezone* or *%basetimezone* system variables to set the time zone, then display the time zone either by including the control field on the page or by setting the page field properties appropriately—not both.

In the Windows client, users can display time values in their local time zones or in the system's base time zone, regardless of how the record field properties and page field properties are set. By default, all Windows client time and datetime fields appear in the base time zone, but each user can override this option by selecting View, Time Display, Local Time or View, Time Display, Database Time.

This section discusses how to:

- Set time zone options in record field properties.
- Set time zone options in page field properties.
- Use PeopleCode functions.

Setting Time Zone Options in Record Field Properties

When a record includes a time or datetime field, choose whether PeopleSoft displays the time in the system's base time zone, or in another time zone such as a time zone that corresponds to the user's location. Set this option for all time and datetime fields.

To set the time zone that controls the display time:

1. In the record, open the Record Field Properties dialog box for the time field by double-clicking the field that displays the time.

   The Use tab appears.

2. In the Time Zone group box, set the time zone property.

   If you leave the Specified Time Zone check box clear, the time appears in the database's base time zone, unless overridden by the user using the View, Time Display menu in the Windows client to display in the user's local time zone.

   If you select the Specified Time Zone check box, the system converts the time according to the time zone that is specified in the Time Zone Control Field field. You must specify a time zone control field in this record

   A single time zone control field can control multiple time and datetime fields on the record. Using a single control field causes all times to appear in the same time zone. If you want multiple time or datetime fields to appear in different time zones, you need separate control fields for each of them.

   You may want to set the default value of the time zone field to *%clienttimezone* or *%basetimezone*. However, the default time zone is used only when the transaction is created. Because the time zone is saved along with the transaction itself, future users who access the transaction will see the time relative to that time zone.

3. Click OK.

Setting Time Zone Options in Page Field Properties

When you place a time or datetime field on a page, you can choose whether to display the time zone in the same field where the time appears.

You would normally want to display the time zone this way when you want users to be aware of the time zone of a field without changing the time zone.

If, on the other hand, you want users to be able to set the time zone, don't display the time zone in the time field. Instead, design your page so that it includes a separate dropdown list box referencing the time zone control field. With this design, users can both see and change the time zone.

To show the time zone in the time field:

1. On the page, open the Page Field Properties dialog box for the time field by double-clicking the page control that displays the time

   The Record tab appears.

2. Check the Display Time Zone box.

   When you check this box, the page displays the time zone in the same field as the time and resizes the edit box to allow space for up to 10 additional characters.

   This option has no affect on data entry. Users cannot override the time zone. Users who see the time in Greenwich Mean Time (GMT) must enter the time in GMT.

   If the field that is associated with this page control is not a time or datetime field, checking the Display Time Zone box has no effect.

3. Click OK.

Using PeopleCode Functions

There are a number of PeopleCode functions you can use to support the appropriate time zone display on pages. There are two functions that convert times to their base time zone equivalent: **ConvertTimeToBase( )** and **ConvertDatetimeToBase( )**. Another function, **IsDaylightSavings( )**, establishes whether daylight savings time is in effect on a particular date.

Additionally, you can use system variables *%clienttimezone* and *%basetimezone* in PeopleCode programs or as field default values. *%clienttimezone* returns the current user's local time zone and *%basetimezone* returns the base time zone of the database.

See Also

PeopleCode Reference, "PeopleCode Built-in Functions," Date and Time

Maintaining Time Zones

You maintain a list of time zones on the Time Zone Data page. PeopleSoft delivers a comprehensive list of time zones, including information about daylight savings time observances. You can update the data if necessary. For example, you can include a time zone for a locality with daylight savings observances that differ from other parts of its time zone.

This section discusses how to:

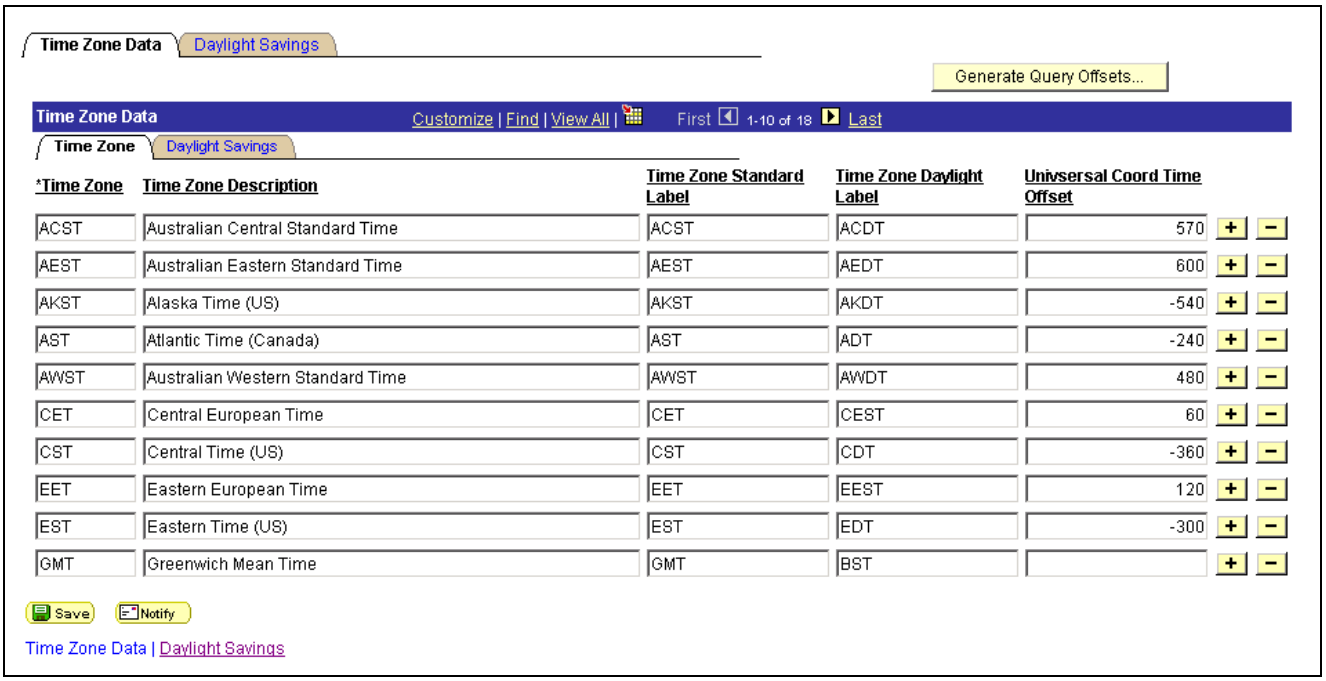
- View time zone definitions.
- View daylight savings start and end dates.

This table provides an overview of the three different pages you can use to maintain time zone information.

Page Name	Navigation	Usage
Time Zone Data	PeopleTools, Utilities, International, Time Zones.	Review or update time zone data. Specify the start and end days for daylight savings time by referencing a list of standard start and stop days. This list can include days in absolute format (for example, October 1) or in relative format (for example, Last Sunday in October). Entries on this list are not associated with any particular year.
Time Zone Offset Generation	Click the Generate Query Offsets button on the Time Zone Data page.	Generate query offsets.
Daylight Savings	PeopleTools, Utilities, International, Time Zones and select the Daylight Savings tab.	Review or update daylight savings time data.

Viewing Time Zone Definitions

To view time zone definitions, access the Time Zone Data page, and under the Time Zone Data section, click the Time Zone tab. To access the Time Zone Data page, select PeopleTools, Utilities, International, Time Zones.



Time Zone Data page —Time Zone tab

Time Zone Standard Label The label that appears for the time zone during standard time.

Time Zone Daylight Label The label that appears for the time zone during daylight savings time.

Universal Coord Time Offset (universal coordinated time offset) The number of minutes the time is offset from Universal Coordinated Time (UTC), also known as GMT.

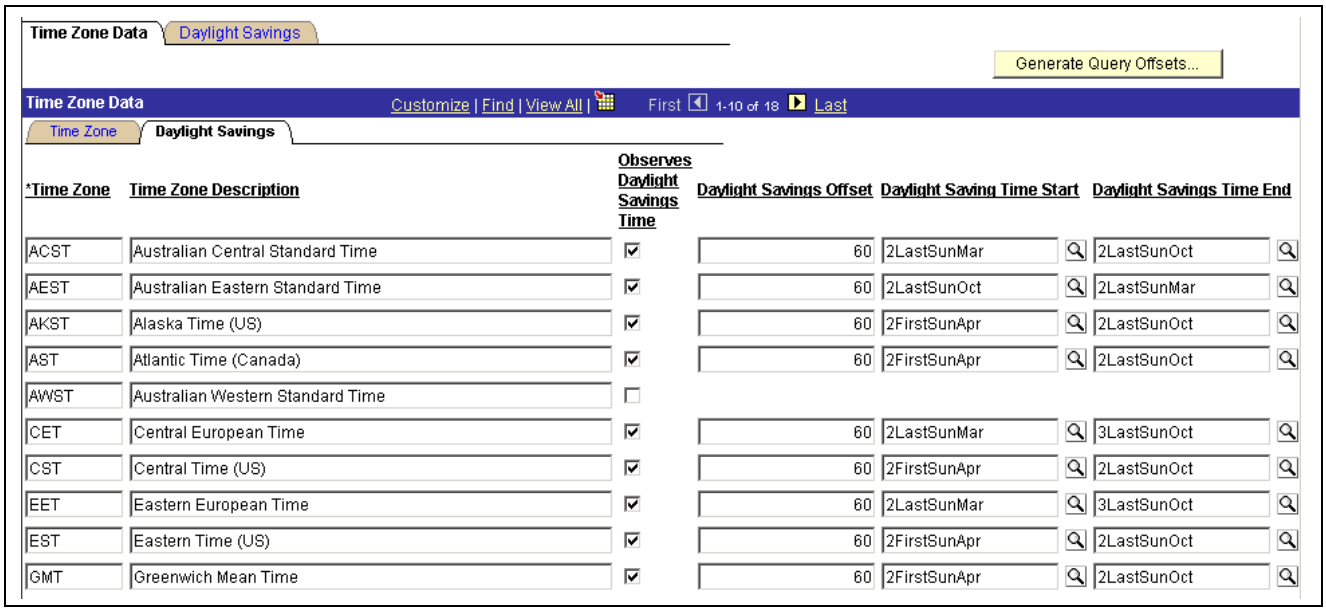
A positive offset indicates a time zone east of UTC; a negative offset indicates a time zone west of UTC.

For example, the time zone for India, which is 5 ½ hours east of UTC, has an offset of +330. U.S. Pacific Standard Time (PST), which is 8 hours west of UTC, has an offset of −480.

Generate Query Offsets Takes the information from the Time Zone Data page and populates the PSTZOFFSET table with offsets for all the time zones and their daylight savings time periods for a specified period of time. This makes the time zone information available in a format that can be easily accessed with SQL. This may be useful for the PeopleSoft Query tool.

Daylight Savings Tab

To access the Daylight Saving tab, select PeopleTools, Utilities, International, Time Zones. The Time Zones Data page displays. Click the Daylight Savings tab.



Daylight Savings tab

Daylight Savings Offset The number of minutes by which the time is offset during daylight savings time.

Daylight Savings Time Start The day that daylight savings time begins. This field prompts against values from the Daylight Savings page.

Daylight Savings Time End The day that daylight savings time ends. This field prompts against values from the Daylight Savings page.

Generate Query Offsets Click this button to open the Time Zone Offset Generation page.

Takes the information from the Time Zone Data page and populates the PSTZOFFSET table with offsets for all the time zones and their daylight savings time periods for a specified period of time. This makes the time zone information available in a format that can be easily accessed with SQL. This may be useful for the PeopleSoft Query tool.

PeopleSoft does not require that you populate this table; you need to do so only if you require access to this information. If you do use the information, regenerate the offsets anytime the underlying time zone data is changed.

Generating Query Offsets

To generate query offsets:

1. From the Time Zone Data page, click the Generate Query Offsets button.

   The Time Zone Offset Generation page appears.

2. Enter a Start Date and an End Date.

   Select a reasonable range of dates. With the time zones delivered by PeopleSoft, more than 100 rows are generated for each year.

3. Click OK.

   The data is generated for the table. Any existing data for the same range of dates is overwritten.

For example, the following data from the PSTZOFFSET table represents one time zone, EST for a two-year period, from 01/01/1999 to 01/01/2001. It is based on a system with PST as the base time zone. When you generate query offsets, the PSZOFFSET table contains similar data for all the time zones.

TIMEZONE	STARTDATETIME	ENDDATETIME	BASEOFFSET	TIMEZONELABEL
EST	1999-01-01 00:00:00.000	1999-04-03 23:00:00.000	180	EST
EST	1999-04-03 23:00:00.000	1999-04-04 02:00:00.000	240	EDT
EST	1999-04-04 02:00:00.000	1999-10-30 23:00:00.000	180	EDT
EST	1999-10-30 23:00:00.000	1999-10-31 02:00:00.000	120	EST
EST	1999-10-31 02:00:00.000	2000-04-01 23:00:00.000	180	EST
EST	2000-04-01 23:00:00.000	2000-04-02 02:00:00.000	240	EDT
EST	2000-04-02 02:00:00.000	2000-10-28 23:00:00.000	180	EDT
EST	2000-10-28 23:00:00.000	2000-10-29 02:00:00.000	120	EST
EST	2000-10-29 02:00:00.000	2001-01-01 00:00:00.000	180	EST

PSTZOFFSET Table

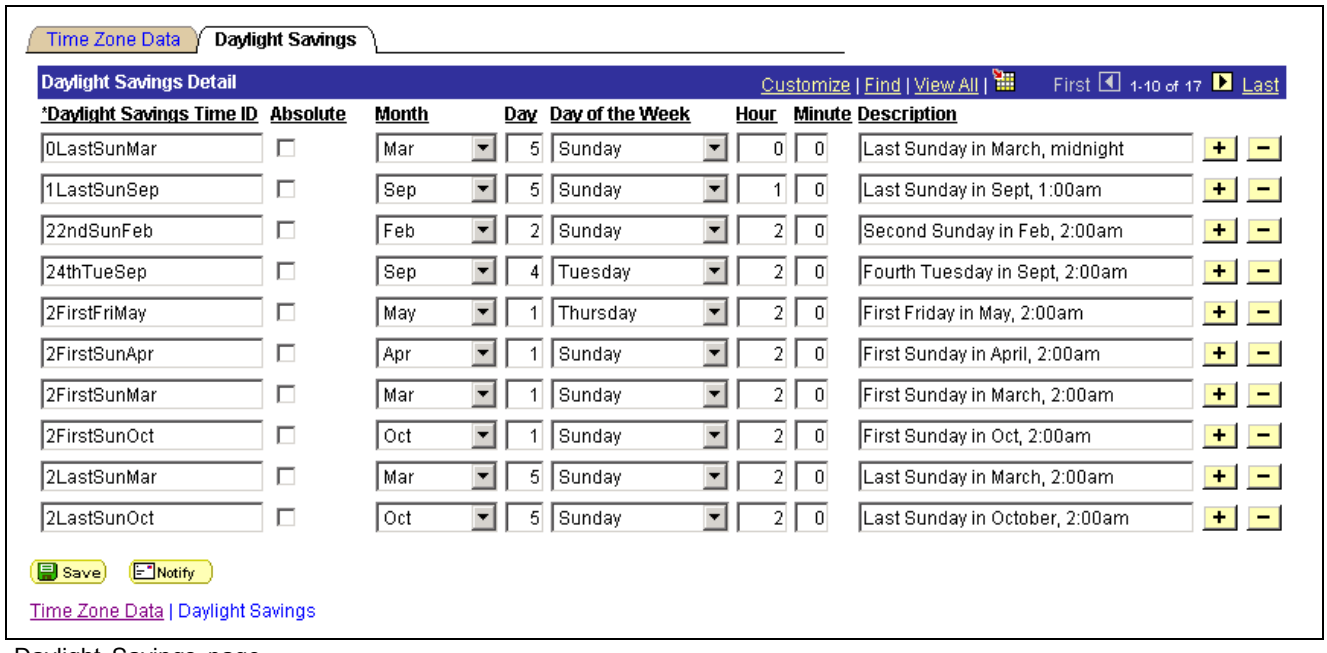
The first row of data shows that from 1999-01-01 at midnight until 1999-04-03 at 11 p.m. (base time—PST, in this case), the offset between EST and the base time zone is 180 minutes, meaning that EST is 180 minutes ahead of PST. The label for EST during this period is *EST*.

The second row shows that from 1999-04-03 at 11 p.m. until 1999-04-04 at 2 a.m., there is a three-hour time period during which EST is 240 minutes ahead of PST. This is because EST has changed to daylight savings time, but PST hasn't changed yet. The label for EST during this period is *EDT:* Eastern Daylight Time.

Viewing Daylight Savings Start and End Dates

The Daylight Savings page enables you to view daylight savings start and end dates. To access the page, select PeopleTools, Utilities, International, Time Zones. The Time Zone Data pages displays. Click the Daylight Savings tab.

The Daylight Savings page contains the following information related to daylight savings.



Daylight Savings page

Daylight Savings Time ID A unique identifier for the date.

Absolute Indicates whether the date is an absolute date. Leave this check box clear to indicate a relative date, such as *Last Sunday in October*.

Day For absolute dates, this is the day of the month.

For relative dates, the numbers *1*, *2*, *3*, and *4* represent the first, second, third, and fourth occurrence of the day of the week; for example, to describe the second Sunday in February, enter *2*.

The number *5* for a relative date indicates the last occurrence of the specified day of the week, even if that day of the week occurs only four times in the month.

CHAPTER 4

Character Sets and Language Input/Output

This chapter describes how to select and configure the appropriate character set for PeopleSoft client workstations, application servers, and database servers. It outlines the decisions that need to be made when installing and configuring a multilingual PeopleSoft system.

This chapter provides an overview of character sets and describes how to:

- Validate field length.
- Handle international characters in PeopleTools.
- Detect and convert characters.

Understanding Character Sets

A *character set*, also known as a *codepage*, is an ordered set of characters in which each character is mapped to a numeric index, called a *codepoint*. This codepoint is used to store character data in a computer system. Many hundreds of character sets exist. Some are international standards, sanctioned by the International Organization for Standardization (ISO), some are country-specific standards, and others are not standardized at all, but are specific to a particular computer system vendor. Given the number of separate computers that are involved in a typical PeopleSoft installation, it is likely that your system uses several different character sets.

This section discusses:

- Common character sets.
- Unicode standard.
- Non-Unicode character sets.
- Character sets in the PeopleSoft Internet Architecture.
- Database character sets.
- Client workstation character sets and language management.
- Email character sets.

Common Character Sets

Although there is general agreement on the content and arrangement of most character sets, especially those standardized by the ISO, many different names are used by vendors and software packages for similar or identical character sets. ASCII is the most common character set used worldwide, and it encodes the basic characters and symbols that are needed to write the English language. However ASCII is limited to 127 characters and cannot represent many characters needed by Western European languages such as French and German, let alone ideographic languages such as Japanese and Chinese, where each character represents a word or concept. Many character sets, however, use ASCII as their base and include all ASCII characters in addition to their other characters.

The following table illustrates just a few common character sets that you are likely to encounter and some of the names that are used by different vendors to refer to them:

Character Set	Description and Comments	Type	PeopleSoft and SQR Name	Oracle DBMS Name	Microsoft Windows Name
ISO 8859-1	Western European "Latin-1." ASCII-based. Contains all characters required to represent Western European languages. Does not include the euro symbol.	ISO	LATIN1 or ISO_8859-1	WE8ISO8859P1	CP28591
Microsoft Codepage 1252	Microsoft Codepage 1252 - Western European. Very similar to ISO 8859-1, except for the inclusion of line drawing and other characters in place of some symbols. Includes the euro symbol, but using a different codepoint than ISO 8859-15.	Vendor (Microsoft)	CP1252	WE8MSWIN1252	CP1252

Character Set	Description and Comments	Type	PeopleSoft and SQR Name	Oracle DBMS Name	Microsoft Windows Name
ISO 8859-2	Central/Eastern European "Latin-2". ASCII-based. Contains characters that are required for Central European languages, including Czech, Hungarian, and Polish. Does not include the euro symbol.	ISO	LATIN2 or ISO_8859-2	EE8ISO8859P2	CP28592
ISO 8859-15	Western European extended "Latin-9." ASCII-based and similar to ISO 8859-1, but contains the euro symbol and several characters that are required for Icelandic.	ISO	LATIN9 or ISO_8859-15	WE8ISO8859P15	CP28605
Shift-JIS	Japanese PC-based, double-byte character set. ASCII-based.	Vendor	SJIS	JA16SJIS	CP932
IBM CCSID 37	IBM Coded Character Set ID 37. Western European Multilingual EBCDIC-based character set.	Vendor (IBM)	EBCDIC	WE8EBCDIC37	CP1140

Some of these character sets, such as ISO 8859-1 and IBM CCSID 37 are single-byte character sets (SBCS), meaning that they require only 1 byte to represent each character. For example, in ISO 8859-1, the hexadecimal number 61 represents the lowercase Latin letter *a*. However, for ideographic languages such as Japanese, more characters exist in the language than the 256 values that can be represented by a single byte. Therefore, two bytes need to be used for each character. These character sets, such as Shift-JIS, are known as double-byte character sets (DBCS).

The Unicode Standard

The most important consideration when dealing with character sets across your system is ensuring that all characters that you plan on representing with in your PeopleSoft system exist in the character set used by each component of the system.

For example, if you are planning on maintaining Japanese characters in your employee names, you must ensure the following:

- Character sets used by your database system includes Japanese characters.
- Each external system feeding in to or out of PeopleSoft expects data in a character set that includes Japanese characters.
- Workstations and printers are installed with fonts that include those characters.

For example, the Japanese Shift-JIS character set contains Japanese and many ASCII characters; it is sufficient for encoding both English data and the primary characters required in Japanese. However, it does not include the accented Latin characters that are needed for French and German, so it is not a suitable character set for implementations that encompass Western European countries.

Given the sample list of common character sets in the previous table and the number of languages required by a typical global PeopleSoft implementation, selecting a character set can be daunting, especially when you are planning to support a large list of languages.

To simplify this type of situation, an industry consortium of vendors devised a universal character set: The Unicode standard (Unicode). This internationally recognized character set encodes every character required to write virtually every written language. The repertoire of characters is jointly maintained by the Unicode Consortium and ISO, and is synchronized with ISO standard 10646: Universal Multiple-Octet Coded Character Set (UCS).

PeopleSoft uses Unicode throughout PeopleTools to simplify character handling. PeopleSoft allows the use of Unicode within PeopleSoft databases to enable you to maintain a single database with characters from virtually any language.

Unicode Encodings

Unicode provides space for more than one million characters. Of course, only a small percentage of this encoding space is actually used today. The latest Unicode version, version 3.1, encodes 94140 characters.

To manage such a large repertoire of characters, the Unicode Standard defines 16 planes. Each plane consists of 65,533 character positions. Plane zero, known as the Basic Multilingual Plane (BMP) contains approximately 49000 characters and is generally sufficient for everyday business use. The other planes are intended to encode extended or rarely used ideographic characters (such as Japanese, Chinese and Korean ideographs), archaeic scripts and other rarely used characters such as braille and advanced mathematical symbols.

Note. PeopleTools 8.4 only supports the use of characters from the BMP, otherwise known as Plane 0. Support for characters on other planes is planned for a later release of PeopleTools.

Based on the concept of 16 planes, each Unicode character has a unique four-byte code. As you can imagine, using four bytes of storage per character seems very wasteful, especially considering that most applications today use a small collection of characters and that the vast majority of characters in business applications will be from the BMP. Therefore, several different encoding forms for Unicode characters have been standardized and adopted by vendors who are implementing the standard.

See The Unicode Standard Version 3.0, The Unicode Consortium, Reading, MA, USA, Addison-Wesley Developers Press, 2000. ISBN 0-201-61633-5. The standard is also available online at http://www.unicode.org/unicode/uni2book/u2.html

Four encodings of the Unicode standard are widely used. All of them are fully compatible with each other and share the same repertoire of characters. They differ, however, in how each character is represented at the byte level. These encodings are as follows:

- UTF-32
- UCS-2
- UTF-16
- UTF-8

Given that PeopleSoft currently supports only the BMP, only UCS-2 and UTF-8 encodings are used by PeopleSoft; however, following is a brief overview of each.

Note. PeopleSoft supports only UTF-8 and several Asian character sets for outgoing email messages from PeopleTools application servers. See Email Character Sets in this chapter.

Encoding	Description
UTF-32 (Universal Transformation Form - 32-bit)	UTF-32 is the full 32-bit (4-byte) encoding of Unicode. Each Unicode character is represented by a 4-byte number. For example, the character LATIN SMALL LETTER A (a) is represented in hexadecimal as 0x00000061. UTF-32 was formerly called UCS-4. PeopleSoft systems do not use UTF-32.
UCS-2 (Universal Character Set - 2-byte)	UCS-2 uses two bytes (16 bits) to represent each Unicode character. As such, it can reference only 65,535 codepoints and is limited to characters on the BMP. PeopleSoft uses UCS-2 in memory on the Windows development tools, the application server, and in Unicode Microsoft SQL Server and IBM DB2/UDB databases.

Encoding	Description
UTF-16 (Universal Transformation Form - 16-bit)	UTF-16 is an extension of UCS-2 that allows the application to reference characters on planes other than the BMP by combining two UCS-2 code units to designate a single non-BMP character. UCS-2 is upward compatible with UTF-16 in that each UCS-2 character is also a valid character in UTF-16. However, UTF-16 allows characters outside the BMP to be referenced. These additional characters are known as surrogate characters because they require two UTF-16 code units to be represented: a low surrogate and a high surrogate. When no surrogate characters are present, UTF-16 is identical to UCS-2. PeopleSoft plans to use UTF-16 in future versions of PeopleTools, but does not use UTF-16 in PeopleTools 8.42.
UTF-8 (Universal Transformation Form - 8-bit)	UTF-8 is a transformation of Unicode that encodes each character as one to four bytes, depending on which character is being encoded. All ASCII characters are encoded in UTF-8 as one byte, and this byte is identical to the encoding in ASCII. UTF-8 data is therefore backward compatible with ASCII data. All characters in the BMP are encoded as one, two, or three UTF-8 bytes. Characters in other planes are encoded as four bytes in UTF-8. UTF-8 has three main advantages: it is fully ASCII compatible, ASCII data can be considered as UTF-8 data, and it does not require that all characters use two or more bytes of storage. PeopleTools uses UTF-8 for serving HTML pages in PeopleSoft Internet Architecture (PIA). PeopleSoft also uses UTF-8 in Oracle Unicode databases.

The following table summarizes the four Unicode encodings and their uses in PeopleSoft:

Unicode Encoding	Minimum Bytes Per Character	Maximum Bytes Per Character	PeopleSoft Usage
UTF-32	4	4	None.
UTF-16	2	4	None; planned for future.

Unicode Encoding	Minimum Bytes Per Character	Maximum Bytes Per Character	PeopleSoft Usage
UTF-8	1	4	PeopleSoft Internet Architecture HTML pages; inbound and outbound XML; Oracle Unicode databases.
UCS-2	2	2	In-memory Windows client; application server; SQL Server and DB2/UDB Unicode databases.

Encoding Examples

This section includes Unicode encoding examples for the following characters:

a Latin small letter *a*.

ñ Latin small letter *n*.

 Hiragana letter *ka*.

The following table shows examples of these characters in each of the Unicode encodings:

Unicode Encoding	Latin Small Letter *a*	Latin Small Letter *n* With Tilde	Hiragana Letter *ka*
UTF-32	0x00000061	0x000000f1	0x0000304b
UTF-16	0x0061	0x00f1	0x304b
UTF-8	0x61	0xc3b1	0xe3818b
UCS-2	0x0061	0x00f1	0x304b

Non-Unicode Character Sets

Although much of the PeopleSoft system runs using Unicode, there are several components that you can choose to configure with a non-Unicode character set. When making these choices, you should understand the types of character sets other than Unicode that exist.

Note. For the sake of terminology, some systems, such as Microsoft Windows, refer to two types of character sets: Unicode and ANSI. ANSI, in this context, refers to the American National Standards Institute, which maintains equivalent standards for many national and international standard character sets. In the context of this book, ANSI character sets refer to non-Unicode character sets, which can be any international, national, or vendor standard character set, such as those discussed at the beginning of this chapter.

This section discusses:

- Single-byte character sets.
- Double-byte character sets.

Single-Byte Character Sets

Most character sets use one byte to represent each character and are therefore known as single-byte character sets (SBCS). These character sets are relatively simple and can represent up to 255 unique characters. Examples of single-byte character sets are ISO 8859-1 (Latin1), ISO 8859-2 (Latin2), Microsoft CP1252 (similar to Latin1, but vendor specific), and IBM CCSID 37.

Double-Byte Character Sets

Double-byte character sets (DBCS) use one or two bytes to represent each character and are typically used for writing ideographic scripts such as Japanese, Chinese, and Korean. Most double-byte character sets allow a mix of one-byte and two-byte characters, so you cannot assume an even-string byte length.

PeopleSoft supports the use of two distinct types of DBCS:

- Non-shifting double-byte character sets.
- Shifting double-byte character sets.

The difference between these types of DBCS is in the way in which the system determines whether a particular byte represents one character or is part of a two-byte character.

Non-Shifting Double-Byte Character Sets

Non-shifting double-byte character sets use ranges of code points, specified by the character set definition, to determine whether a particular byte represents one character or is part of a two-byte character.

In non-shifting DBCS, the two bytes used to form a character are called *lead bytes* and *trail bytes*. The lead byte is the first in a two-byte character, and the trail byte is the last in the two-byte sequence. Non-shifting DBCS differentiate single-byte characters from double-byte characters by the numerical value of the lead byte. For example, in the Japanese Shift-JIS encoding, if a byte is in the range 0x81-0x9F or 0xE0-0xFC, then it is a lead byte and must be paired with the following byte to form a complete character.

The most popular client-side Japanese codepage, Shift-JIS, uses this lead byte/trail byte encoding scheme, as do most Microsoft Windows and UNIX ASCII-based double-byte character sets that represent Chinese, Japanese, and Korean characters. Contrary to its name, Shift-JIS is a non-shifting double-byte character set.

Shifting Double-Byte Character Sets

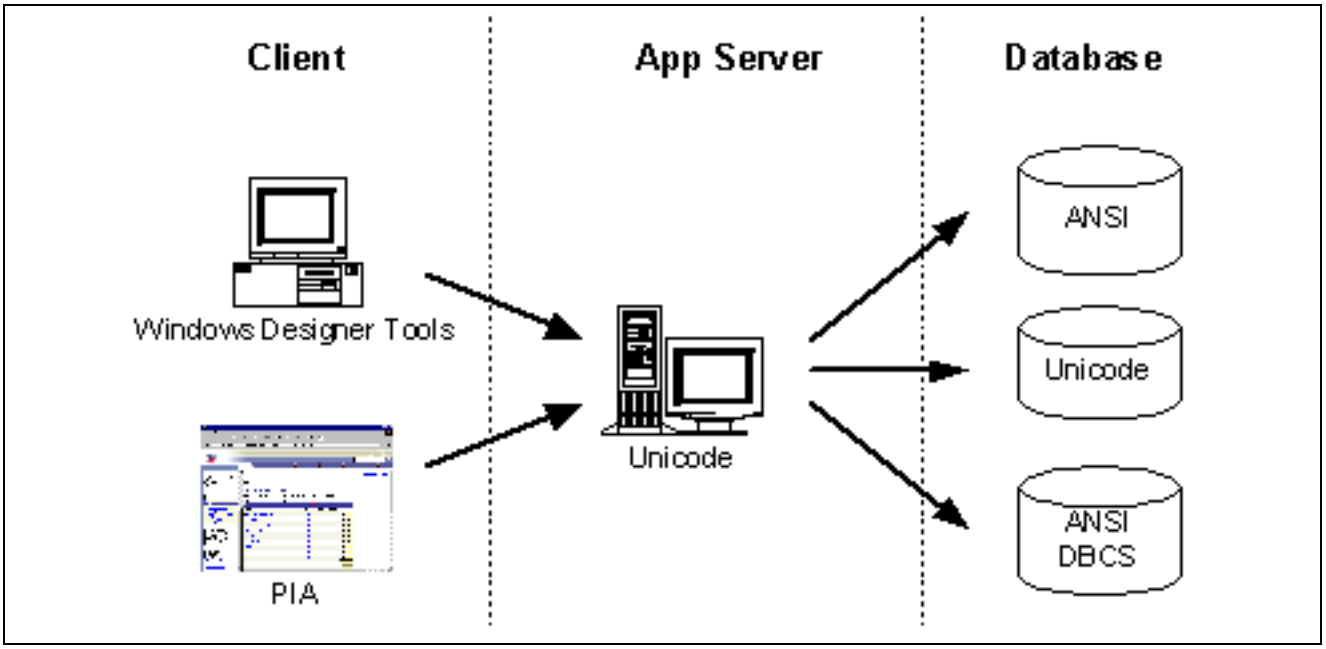
A shifting double-byte character set is another double-byte encoding scheme in use that doesn't make use of the lead byte/trail byte concept. The IBM DB2/390 EBCDIC-based Japanese, Chinese, and Korean character sets use this shifting encoding scheme.

Instead of reserving a range of bytes as lead bytes, shifting double-byte character sets always keep track of whether they are in double-byte or single-byte mode. In double-byte mode, every two bytes form a character. In single-byte more, every byte is a character in itself. To track what mode the character set is in, the system uses *shifting* characters. By default, the character set is expecting single-byte data. As soon as a double-byte character needs to be represented, a shift-in byte is added to the string. From this point on, all characters are expected to be two bytes per character. This continues until a shift-out byte is detected, which indicates that the character set should go back to single-byte per character mode.

This scheme, while more complex than the lead byte/trail byte scheme, provides greater performance, because the system always knows how many bytes should be in any particular character. Unfortunately, it also increases the length of the string. For example, a character string that is comprised of a mixture of single-byte and double-byte characters will require more space to store in a shifting character set because you need to include the shift-in and shift-out bytes, as well as the data itself.

Character Sets in PeopleSoft Internet Architecture

PeopleSoft installations include multiple components, each of which must handle differing character sets.



PeopleSoft Unicode Architecture

PeopleSoft clients and application servers use Unicode exclusively and do not rely on other character sets for the representation and processing of data. However, depending on your environment, not all system components support Unicode encoded data, so you may not be able to run all parts of your system in Unicode. Therefore, PeopleTools enables you to configure several components of the system to use other character sets. The following enable you to specify a non-Unicode character set:

- PeopleSoft database.

  Not all database platforms support Unicode data storage. Even when Unicode storage is available, not all PeopleSoft implementations require the flexibility in language choices that are available with Unicode, so you may choose to use a non-Unicode encoding for your database.

- COBOL.

  The character set used for PeopleSoft COBOL processing must match the character set of your database. If you created a Unicode database for PeopleSoft, you must run your COBOL in Unicode also.

- File input/output.

  All file operations in PeopleTools, including file layout objects, trace and log files, and file operations from Structured Query Reports (SQRs) can be performed in Unicode or any supported non-Unicode character set. This is useful in situations where you must interface with an external system that does not support Unicode.

- Third-party products that are non-Unicode compliant.

  Some third-party products that are supported by PeopleTools do not yet support the Unicode standard. In this case, PeopleTools converts application data to a specific non-Unicode character set before communicating with these tools. Some of the products that do not yet support Unicode data are Crystal Reports, Hyperion Essbase, and Cognos PowerPlay.

When Unicode is not used for any of these types of operations or data storage, PeopleSoft transparently handles the conversion from Unicode to a non-Unicode character set. Which non-Unicode character set is used depends on several settings, which are discussed in detail later in this chapter.

The following table lists the character sets that are supported by PeopleSoft and the names by which they can be referred to in PeopleSoft applications. You can use these character set names in the following places:

- In PeopleCode programs for manipulating file layout objects.
- In SQR code for controlling the character set of input, output, and report files.
- In PSSQR.INI to determine the default character set for files manipulated by SQR.
- In the UNIX application server configuration to determine the default non-Unicode character set for log files, trace files, and UNIX operating system interfaces.
- When creating your database. A limited number of the character sets in this table are supported as database character sets.

  See the *PeopleTools 8.42 Hardware and Software Requirements Guide* for details about the character sets that are supported for your database platform.

This PeopleBook also contains information about supported character set encodings for SQR for PeopleSoft globalization.

See Chapter 8, “Global Reporting and Analysis,” SQR for PeopleSoft Supported Character Set Encodings, page 127.

Character Set Name	Description and Comments	Character Set Type
ANSI	Current ANSI-based code page. Not really a character set, but causes the system to use the default non-Unicode character set of the host operating system. Under Windows NT, the ANSI codepage is dependent on the language version of the Windows operating system. For example, Japanese Windows NT uses CP932 as its ANSI codepage. English Windows NT uses CP1252 as its ANSI codepage. Windows 2000 and XP allow the system administrator to select the ANSI codepage independently of the language release of Windows.	SBCS
ASCII	US 7-bit ASCII	SBCS
Big5	Big5 (Traditional Chinese)	Non-shifting DBCS
CCSID1027	IBM EBCDIC 1027 (Japanese-Latin)	SBCS
CCSID1047	IBM EBCDIC 1047 (Latin1)	SBCS
CCSID290	IBM EBCDIC 290 (Katakana)	SBCS
CCSID300	IBM EBCDIC 300 (Kanji)	Non-shifting DBCS
CCSID930	IBM EBCDIC 930 (Kana-Kanji)	Shifting DBCS
CCSID935	IBM EBCDIC 935 (Simplified Chinese)	Shifting DBCS
CCSID937	IBM EBCDIC 937 (Traditional Chinese)	Shifting DBCS
CCSID939	IBM EBCDIC 939 (Latin-Kanji)	Shifting DBCS
CCSID942	IBM EBCDIC 942 (Japanese PC)	Non-shifting DBCS
CP1026	Windows 1026 (EBCDIC)	SBCS

Character Set Name	Description and Comments	Character Set Type
CP1250	Windows 1250 (Eastern Europe)	SBCS
CP1251	Windows 1251 (Cyrillic)	SBCS
CP1252	Windows 1252 (Latin1)	SBCS
CP1253	Windows 1253 (Greek)	SBCS
CP1254	Windows 1254 (Turkish)	SBCS
CP1255	Windows 1255 (Hebrew)	SBCS
CP1256	Windows 1256 (Arabic)	SBCS
CP1257	Windows 1257 (Baltic)	SBCS
CP1258	Windows 1258 (Vietnamese)	SBCS
CP1361	Windows 1361 (Korean Johab)	SBCS
CP437	MS-DOS 437 (US)	SBCS
CP500	Windows 500 (EBCDIC 500V1)	SBCS
CP708	Windows 708 (Arabic - ASMO708)	SBCS
CP720	Windows 720 (Arabic - ASMO)	SBCS
CP737	Windows 737 (Greek - 437G)	SBCS
CP775	Windows 775 (Baltic)	SBCS
CP850	MS-DOS 850 (Latin1)	SBCS
CP852	MS-DOS 852 (Latin2)	SBCS
CP855	MS-DOS 855 (IBM Cyrillic)	SBCS

Character Set Name	Description and Comments	Character Set Type
CP857	MS-DOS 857 (IBM Turkish)	SBCS
CP860	MS-DOS 860 (IBM Portuguese)	SBCS
CP861	MS-DOS 861 (Icelandic)	SBCS
CP862	MS-DOS 862 (Hebrew)	SBCS
CP863	MS-DOS 863 (Canadian French)	SBCS
CP864	MS-DOS 864 (Arabic)	SBCS
CP865	MS-DOS 864 (Nordic)	SBCS
CP866	MS-DOS 866 (Russian)	SBCS
CP869	MS-DOS 869 (Modern Greek)	SBCS
CP870	Windows 870	SBCS
CP874	Windows 864 (Thai)	SBCS
CP875	Windows 875 (EBCDIC)	SBCS
CP932	Windows 932 (Japanese)	Non-shifting DBCS
CP936	Windows 936 (Simplified Chinese)	Non-shifting DBCS
CP949	Windows 949 (Korean)	Non-shifting DBCS
CP950	Windows 950 (Traditional Chinese)	Non-shifting DBCS
EBCDIC	IBM EBCDIC CCSID37 (USA)	SBCS
EUC-JP	Extended UNIX code (Japanese)	Non-shifting DBCS
EUC-KR	Extended UNIX code (Korean)	Non-shifting DBCS

Character Set Name	Description and Comments	Character Set Type
EUC-TW	Extended UNIX code (Taiwan)	Non-shifting DBCS
EUC-TW-1986	Extended UNIX code (TW-1986)	Non-shifting DBCS
GB12345	GB 2312 (Simplified Chinese)	Non-shifting DBCS
GB2312	GB 2312 (Simplified Chinese)	Non-shifting DBCS
ISO-2022-JP	ISO-2022-JP Japanese	Shifting DBCS
ISO-2022-KR	ISO-2022-JP Korean	Shifting DBCS
ISO_8859-1	ISO 8859-1 (Latin1)	SBCS
ISO_8859-10	ISO 8859-10 (Latin6)	SBCS
ISO_8859-11	ISO 8859-11 (Thai)	SBCS
ISO_8859-14	ISO 8859-14 (Latin8)	SBCS
ISO_8859-15	ISO 8859-15 (Latin9 / Latin0)	SBCS
ISO_8859-2	ISO 8859-2 (Latin2)	SBCS
ISO_8859-3	ISO 8859-3 (Latin3)	SBCS
ISO_8859-4	ISO 8859-4 (Latin4)	SBCS
ISO_8859-5	ISO 8859-5 (Cyrillic)	SBCS
ISO_8859-6	ISO 8859-6 (Arabic)	SBCS
ISO_8859-7	ISO 8859-7 (Greek)	SBCS
ISO_8859-8	ISO 8859-8 (Hebrew)	SBCS
ISO_8859-9	ISO 8859-9 (Latin5)	SBCS

Character Set Name	Description and Comments	Character Set Type
JIS_X0201	Japanese Half-width Katakana	Non-shifting DBCS
JIS_X_0208	Japanese Kanji	Non-shifting DBCS
Java	Java (Unicode encoding)	Unicode
Johab	Johab (Korean)	Non-shifting DBCS
Shift_JIS	Shift-JIS (Japanese)	Non-shifting DBCS
UCS2	Unicode UCS-2	Unicode
UTF7	Unicode UTF-7. (An outdated Unicode seven-bit clean transformation sometimes used for e-mail that must pass through gateways that do not support 8-bit characters.)	Unicode
UTF8	Unicode UTF-8	Unicode

Note. Although the PeopleSoft use of Unicode incorporates all languages, PeopleSoft does not currently support Arabic or Hebrew. These languages require bi-directional rendering because they are written with a right-to-left general orientation.

See Also

For more information and code charts for Microsoft codepages, visit http://www.microsoft.com /globaldev/reference/cphome.asp

For more information and code charts for the ISO 8859 series of character sets, visit http://czyborra.com/charsets/iso8859.html

For more information and code charts for Unicode, visit http://www.unicode.org

Database Character Sets

The primary character set decision that you must make when installing PeopleSoft is the character set used for the database system. Ideally, all databases are encoded in Unicode; however, as can be seen from the Unicode encoding chart earlier in this chapter, in some cases Unicode requires several bytes to represent each character when only one byte may be required in a non-Unicode character set. Therefore, PeopleSoft still allows you to use a non-Unicode character set for your database character set, provided you don’t require the mix of languages enabled by a Unicode database.

Using a Unicode encoded database, you can maintain a single database with data in any combination of languages you choose. A single PeopleSoft application server can serve multiple users connecting to the mixed-language database, regardless of the language or character set of those users' client machines. The only restriction on a user's ability to access mixed-language data is the capability of the user's client workstation to interpret, display, and accept keyboard entry of the characters from the various languages.

Most language or region-specific non-Unicode character sets provide sufficient characters for only a few languages. If you create a non-Unicode database, you must ensure that all the characters for all the languages that you plan on using can be represented in the character set you choose. See your operating system and database guides for the contents of each character set and to determine whether the languages you require are represented.

Depending on the data you store and how your database stores Unicode characters, a Unicode database can be significantly larger than a non-Unicode database. Keep in mind, however, that only the storage of character data is impacted; the space required for non-character data, such as numbers and dates (which are stored by your database system as numbers), is not affected.

Depending on your database platform, you can use one of the four character set types when creating your database (SBCS, non-shifting DBCS, shifting DBCS, and Unicode). However, the number of characters you can store in each column is affected greatly by the type of character set you choose for your database encoding.

See Also

PeopleTools 8.42 Hardware and Software Requirements Guide

PeopleTools 8.42 Installation Guide for Your Database Platform

Application Server Character Sets

All data stored in memory and processed by the PeopleTools application server is held in Unicode. However. the application server allows the creation of files on the server through the use of PeopleCode file layout objects, and for log and trace files. Although the PeopleSoft application server uses Unicode internally for all data processing, it can create these files in Unicode or in a non-Unicode character set.

Each PeopleSoft application server is configured with a default non-Unicode character set. If a file operation must create a non-Unicode file, this is the character set used, unless another character set is explicitly specified in the file operation. For example, if you create a file layout object to write a non-Unicode file, but you don't specify which character set the file should be created in, the default non-Unicode character set of the application server is used.

On Windows NT application servers, the operating system's default ANSI character set is used for the PeopleSoft application server's default non-Unicode character set. In Windows NT 4.0, this default ANSI character set is hard-wired into the operating system, based on the language of the Windows version being used and you cannot change it. For example, in English Windows NT 4.0, the default non-Unicode character set is Microsoft CP1252. In Japanese Windows NT 4.0, the default non-Unicode character set is Microsoft CP932. You can determine the default ANSI character set of your Windows machine by issuing the "chcp" command at a command prompt.

Windows 2000 and XP allows you to change the default character set of the system, although as installed, the default character set matches the default locale of the Windows 2000 or XP installation. To change the system default locale (and therefore the character set), on Windows 2000 servers, use the Control Panel's Regional Options applet and in the Language settings for the system section click the Set Default button.

When running on UNIX, the PeopleSoft application server enables you to specify the default non-Unicode character set in the application server's configuration file, which is selected using the PSADMIN tool. Any valid PeopleSoft character set, as listed in the table earlier in this chapter, with a character set type of SBCS or non-shifting DBCS is a valid default non-Unicode character set for PeopleSoft application servers that run on UNIX.

See Also

Chapter 4, "Character Sets and Language Input/Output," Character Sets in PeopleSoft Internet Architecture, page 47

Client Workstation Character Sets and Language Management

The client components of PeopleTools must be considered when you are planning your language strategy. The requirements for language support on your client workstations are markedly different, depending on whether you are using PeopleSoft Internet Architecture or the PeopleTools Windows development tools.

This section discusses:

- Character sets and fonts in PeopleSoft Internet Architecture.
- Fonts and the Windows client.
- Input methods.

Character Sets and Fonts in PeopleSoft Internet Architecture

PeopleSoft Internet Architecture serves all HTML pages using the UTF-8 encoding of Unicode. This encoding is recognized automatically by the Web browser, because the encoding of the page is announced in the HTTP header when the browser communicates with the Web server. Most modern browsers can support the use of UTF-8 encoded HTML pages, including all browsers supported by PeopleTools.

However, other components are needed by your browser to correctly display and enter the vast array of characters that are available in Unicode. Specifically, you need appropriate fonts to display the various scripts in which you expect data to be maintained, and you may need alternative keyboard layouts or, in the case of ideographic scripts such as Chinese, Japanese, and Korean, you will need input method editors (IMEs) to convert sequences of keystrokes into ideographs. The requirement for alternate keyboard and IMEs is the same for both PeopleSoft Internet Architecture and the Windows client, and this is discussed later in this chapter.

Not all fonts contain a full repertoire of Unicode characters, because many fonts are tailored to address a specific list of languages and contain only the glyphs that are required by those languages. If you try to view Unicode data with a font that does not contain the appropriate characters for the displayed language, you will most likely see square boxes in place of the appropriate characters. Your data has not been corrupted; there is just no glyph available in the current font for the character that the system is trying to display. For this reason, you may need to license or configure several fonts for a global PeopleSoft system.

PeopleSoft Internet Architecture includes a set of style sheets, defined with PeopleSoft Application Designer, that determine the font used to display HTML pages. In some cases, your application data may contain characters that are not present in this font and that require a different font. For example, none of the default fonts in the English version of Microsoft Windows NT 4.0 include sufficient Japanese characters to display most Japanese translated data.

You may need to obtain and configure fonts that contain the characters for the languages that you are planning to use, if your workstations are not already configured with these fonts. Obtain fonts from the following sources:

- Many Windows and other operating system applications are packaged with Unicode fonts containing glyphs covering a large range of languages. Microsoft Office 2000 is packaged with several fonts containing a large portion of the characters in the Unicode standard, including the Microsoft Sans Serif font. These fonts can be used in PeopleSoft Internet Architecture by specifying them in the PeopleSoft Application Designer style sheet definitions or by following the browser-specific instructions below.
- Several public domain fonts exist that contain a large character repertoire for use in Web browsers. For a list of such fonts, see http://www.hclrss.demon.co.uk/unicode/fonts.html.
- Several font foundries license fonts for individual or corporate use. Some of these foundries include Agfa Monotype, Bitstream, and Tiro Typeworks.

Depending on your browser, you can also download fonts from your browser's manufacturer.

Microsoft Internet Explorer 5.0 or later allows you to download fonts for most popular languages from the Microsoft Web site. Trigger these downloads by visiting the Internet Explorer Web site at http://www.microsoft.com/ie and downloading the Internet Explorer Language pack in the language of your choice. Alternatively, from Internet Explorer select View, Encoding to select the encoding for a language for which you want to download fonts. This causes Internet Explorer 5.0 (or later) to automatically download the font pack from the Microsoft Web site. After this download is completed, select View, Encoding again in order to reset your encoding to UTF-8 so that PeopleSoft Internet Architecture pages appear correctly.

Microsoft Internet Explorer automatically selects the appropriate font for displaying data in the language that is presented in the HTML page. The appropriate font is the one that most closely matches the font specified by PeopleSoft in the page's style sheet definition.

Netscape Navigator 6.0 also performs this automatic font matching, based on the language of the page, but does not provide international fonts.

Netscape Navigator 4.0 versions do not perform automatic font matching, and you must configure the browser manually if the font specified on the style sheet does not exist on particular workstations. Select Edit, Preferences and then selecting Fonts from the tree on the left side of the dialog box that appears. All PeopleSoft Internet Architecture pages are served using the UTF-8 Unicode encoding, so you must change the font setting for the Unicode character set in the Netscape Font dialog box.

Note. PeopleSoft does not support the display or maintenance of Japanese, Chinese and Korean data using Netscape 4 due to significant limitations in that browser's handling of UTF-8 encoded data. To view or maintain Japanese, Chinese and Korean data using PeopleSoft Internet Architecture, you must use Microsoft Internet Explorer 5.0 or later or Netscape Navigator 6 or later. Please refer to the PeopleSoft Platforms Database on Customer Connection for more information.

Fonts and the Windows Designer Tools

The Windows client allows you to specify the font used for all graphical components in PeopleSoft Application Designer, the Windows client panel processor, and all other PeopleTools Windows modules. There are three separate areas that allow you to specify a font:

- Configuration Manager font setting (Display tab)

  This setting affects the font used by all the designer components of PeopleTools, including all the text contained in the Windows resource files

  See Chapter 13, "Translating PeopleTools," page 203.

Changing this font setting may be necessary if your workstation's default locale does not contain the characters that are used for the language you are attempting to display or maintain. For example, if you are attempting to view Japanese characters on an English Windows workstation, you can change the PeopleSoft Configuration Manager font setting to select a font that contains the characters for the language that you are trying to display.

Several fonts shipped with Microsoft Windows 2000 and Microsoft Office 2000, including Arial Unicode MS and Microsoft Sans Serif, contain a large number of glyphs covering most of the languages supported by the Unicode Standard. Windows 2000 and Windows XP can also be configured with fonts for most worldwide languages by selecting the required languages under the Regional Settings Control Panel applet.

- PeopleCode font

  The PeopleCode editor in PeopleSoft Application Designer also enables you to select a font for character display in the editor's window itself. This is useful if the PeopleCode programs you are working on contain Unicode characters. To set the font in PeopleSoft Application Designer, select Tools, Options and then select the PeopleCode tab.

Input Methods

If users will enter foreign language data using PeopleSoft Internet Architecture or the Windows client, you must ensure that an appropriate keyboard layout or input method editor is installed on the workstation.

Most alphabetic languages can be typed using a relatively simple keyboard layout. Several specialized keyboard layouts exist for most languages; configure these keyboard layouts through your operating system. For example, a Spanish keyboard layout contains keys for the n-tilde character (ñ) and several other accented characters.

There are several ways of entering these characters using a non-localized keyboard. Your operating system manual can help you use specialized keyboard layouts, such as the English International layout, which allows the entry of accented characters using two keystrokes. Microsoft's Web site contains information about keyboards that are supported by Windows and instructions for installing and configuring Windows keyboard layouts.

Ideographic languages, such as Chinese, Japanese, and Korean, require the use of a front-end processor to intercept multiple keyboard strokes and transform them into an ideographic character. These are known as *input method editors* (IMEs), and they must be installed on each workstation where you plan to enter the ideographic languages.

Most localized versions of operating systems for these languages come preconfigured with IMEs that are appropriate for the language supported by the operating system. But on systems where the default locale is not Chinese, Japanese, or Korean, you may need to configure or license an IME from a third-party vendor. PeopleSoft Internet Architecture supports any IME that is supported by your browser. The Windows designer tools support all standard Microsoft IMEs.

See Also

PeopleSoft Application Designer, "Creating Style Sheet Definitions"

Email Character Sets

PeopleSoft supports UTF-8 for outgoing SMTP email messages from PeopleTools application servers. In addition, since many email products in Asian markets support only traditional character sets, PeopleSoft supports several additional character sets for outgoing email.

PeopleSoft application servers support the following character sets for outgoing email:

- UTF-8 (Default)

- ISO-2022-JP, Shift_JIS, EUC-JP (for Japanese)
- ISO-2022-KR, EUC-KR (for Korean)
- GBK, Big5 (for Chinese)

Specifying Email Character Sets

You specify an email character set in the SMTPCharacterSet parameter in the application server configuration file, psappsrv.cfg. By default, the SMTPCharacterSet parameter is set to *UTF-8*.

Note. PeopleSoft strongly recommends that you specify a value for the SMTPCharacterSet. If you do not specify a value for the parameter, email is sent as-is, with no encoding. Leave the parameter set to the default value of *UTF-8* if you are not certain what value to use.

For example, to use ISO-2022-JP encoding for outgoing SMTP mail, in the psappsrv.cfg file set the SMTPCharacterSet parameter equal to *ISO-2022-JP*, as shown in the following example.

```
[SMTP Setting]
..
SMTPCharacterSet=ISO-2022-JP
SMTPEncodingDLL=<blank>
```

Writing Custom SMTP Encoding Modules

As in previous versions of PeopleTools, you can also write your own SMTPEncodingDLL modules, if necessary.

Validating Field Length

This section discusses:

- PeopleSoft Application Designer field length semantics.
- Field length checking for non-Unicode databases.

Application Designer Field Length Semantics

Your database character set choice determines the way that PeopleTools interprets the column length defined in PeopleSoft Application Designer.

If you create a Unicode database, the field length, as shown in Application Designer, indicates the maximum number of Unicode BMP characters that are permitted in the field, regardless of the Unicode encoding used by your database. Some database platforms, such as Oracle, use byte lengths to measure column sizes when operating in a Unicode database, while others use character lengths.

When the database uses byte-sized column lengths, PeopleSoft sizes your database columns based on the worst-case ratio between bytes and characters in the Unicode encoding used by your database. For example, the UTF-8 character set is used by Oracle; therefore, the worst-case character-to-byte ratio, when running against an Oracle Unicode database, is 1:3, so column sizes will be tripled when creating a Unicode database on Oracle. For example, a field defined in the Application Designer as a CHAR(10) will be created on an Oracle Unicode database with a type of VARCHAR2(30). This tripling of column maximum size does not have any effect on the actual size of your database, as variable length character fields do not reserve space in the database.

Other database platforms use character-based column lengths, whose sizes represent the maximum number of Unicode of characters instead of bytes that may be stored. Examples of this implementation are Microsoft SQL Server's NCHAR data type and IBM DB2/UDB for UNIX/NT's GRAPHIC data type.

If you create a non-Unicode database, the field length in PeopleSoft Application Designer represents the number of bytes permitted in the field, based on the character set you used to create your database. Therefore, a PeopleSoft Unicode database will allow you significantly more space for character data within the database when dealing with ideographic languages, such as Japanese, that require more than one byte storage per character.

The following table shows some of the possible database encodings for database platforms that are supported in Unicode and/or DBCS by PeopleSoft, and their effects on database column sizes.

Database Platform	Database Character Set	Database Representation of a Character Field With Length 10 in PeopleSoft Application Designer	Number of Characters (Worst Case) Allowed in a Character Field With Length 10 in PeopleSoft Application Designer
Oracle	Unicode (UTF-8)	VARCHAR2(30)	10
	Any SBCS	VARCHAR2(10)	10
	Shift-JIS (JA16SJIS)	VARCHAR2(10)	5
Microsoft SQL Server	Unicode (UCS-2)	NCHAR(10)	10
	Any SBCS	CHAR(10)	10
	Shift-JIS (CP932)	CHAR(10)	5
Sybase	Any SBCS	CHAR(10)	10
	Non-Shifting DBCS	CHAR(10)	5
IBM DB2 for OS/390	Any SBCS	CHAR(10)	10

Database Platform	Database Character Set	Database Representation of a Character Field With Length 10 in PeopleSoft Application Designer	Number of Characters (Worst Case) Allowed in a Character Field With Length 10 in PeopleSoft Application Designer
	Shifting DBCS (CCSID 930/939)	CHAR(10)	4 (4 x 2 byte characters, plus shift-in & shift-out bytes)
All Others	Any SBCS	CHAR(10)	10

Field Length Checking for Non-Unicode Databases

The maximum number of characters permitted in a PeopleSoft field varies, depending on the character set of your database (see previous table). Because all components of PeopleTools use Unicode for internal storage, by default, field length checking occurs in terms of Unicode character counts. This calculation is appropriate for Unicode databases and for any single-byte character set (SBCS) databases.

However, if you are using a non-Unicode DBCS, special length checking has to occur each time you move off a field to ensure that the string you entered will fit in the database column when the string is converted to the database's character set.

For graphically sizing page fields, PeopleTools uses the Unicode length of the field as defined in Application Designer. For example, if a field is defined in Application Designer as a 10-character field, page fields in both PeopleSoft Internet Architecture and the PeopleTools Windows clients allow 10 characters to be displayed unless manually resized by the developer.

However, if your database is encoded in a non-Unicode DBCS character set such as Japanese Shift-JIS or IBM CCSID 930/939, special length validation will need to take place because your database column size is created relative to a byte count, not a character count as is used by the simple field length validation.

For example, if a user enters 10 Japanese characters into a field that is defined as CHAR(10) in Application Designer, this string needs 20 bytes of storage in a non-shifting DBCS character set and 22 bytes of storage in a shifting character set. This 10-character input would fail insertion in both of these databases.

To address this issue, the page processor checks the Data Field Length Checking option on the PeopleTools Options page and performs character-set specific length validation against the contents of each field when the field is validated. Typically length validation occurs when the field's FieldChange PeopleCode event fires, so the actual time of validation may differ, depending on whether your page uses deferred mode processing.

Enabling or Disabling Data Field Length Checking

To enable or disable data field length checking:

1. Select PeopleTools, Utilities, Administration, PeopleTools Options .

   The PeopleTools Options page appears.

2. From the Data Field Length Checking dropdown list, select a value based on the character set you are using for the database.

   The valid values are:

   Others Choose this option if you are using a Unicode encoded database or a non-Unicode SBCS database. This option prevents special field length checking, which is not required by these types of databases.

   DB2 MBCS Choose this option if you are running a Japanese database on the DB2/MVS platform. This options enables field length checking based on a shifting DBCS.

   MBCS Choose this option if you are running a non-Unicode Japanese database on any other platform. This option enables field length checking based on a non-shifting DBCS.

   Note. The non-Unicode DBCS settings are specifically oriented to Japanese language installations, as Japanese is the only language supported by PeopleSoft in a non-Unicode DBCS encoding. All other languages requiring double-byte character sets are supported by PeopleSoft only when using Unicode encoded databases.

3. Save the page

Handling International Characters in PeopleTools

PeopleTools contains several features that allow the manipulation of character data based on the language, script, or type of character being processed. Some field formats, such as the Name format, are dependent on the language of the data being maintained. Several PeopleCode functions allow the manipulation of language-dependent characters.

This section discusses standard name formats for Chinese, Japanese, and Korean characters.

Standard Name Formats for Chinese, Japanese, and Korean Characters

The PeopleSoft standard name format is:

```
[lastname] [suffix],[prefix] [firstname] [middle name/initial]
```

However, if the name contains any of the following types of characters you must separate the first and last names by a space, instead of a comma.

- Chinese, Japanese and Korean Unified Ideographs (Chinese Hanzi, Japanese Kanji, Korean Hanja).
- Japanese half-width or full-width Katakana.
- Japanese Hiragana.
- Korean Hangul.

The following example shows the PeopleSoft standard name format when any one of the previous types of characters appear:

```
[lastname] [suffix] [prefix] [firstname] [middle name/initial]
```

This format allows for Chinese, Japanese, and Korean names, which are traditionally separated by spaces, and which would appear incorrectly if separated by a comma.

Detecting and Converting Characters

PeopleTools also provides PeopleCode string functions that recognize and convert between different characters within the Japanese character set. This lets you detect, convert, and enforce the types of characters that you can enter in any PeopleSoft field. PeopleSoft uses these functions in the development of Alternate Character Architecture in some PeopleSoft applications. *Alternate Character Architecture* is used in several PeopleSoft applications to provide a feature that enables the entry of, and enforces the characters contained in, Japanese phonetic spellings (Furigana) using the Hiragana or Katakana scripts.

The following PeopleCode string functions recognize and convert between different characters within the Japanese character set:

- **CharType**
- **ContainsCharType**
- **ContainsOnlyCharType**
- **ConvertChar**

See Also

PeopleCode Reference, “PeopleCode Built-in Functions,” CharType

CHAPTER 5

Controlling Currency Display Format

This chapter discusses how to:

- Maintain currency-specific settings.
- Set up a currency amount field.
- Set currency field display properties.
- Use system-wide multi-currency settings.
- Resize currency fields using the international field size report.

Maintaining Currency-Specific Settings

PeopleTools can format a currency amount that appears on a page or a report based on both your numerical format preferences and on the currency that the amount represents.

Some display settings, such as the characters that are used for the thousands and decimal separators, are based on your language preference. Others, such as the currency symbol and the decimal precision, are based on the properties of the currency in which the amount appears. Those properties include the following:

- A currency symbol, such as *$* for the Australian dollar or *L* for the Italian lira.
- A decimal precision.

  For example, there are two decimal positions for Australian dollars ($5.00), but no decimal positions for the Italian lira (500 L).

Currency information is stored in the Currency Code table (CURRENCY_CD_TBL) record definition along with other information about all the currencies used in your implementation.

The currency symbol is controlled by the CUR_SYMBOL field.

The decimal precision for a currency is controlled by the DECIMAL_POSITIONS field.

Note. PeopleSoft provides updates to the Currency Code table containing the latest values from the ISO Standard 4217, "Codes for the representation of currencies," with each PeopleTools minor release. See the *PeopleTools 8.42 Installation Guide for Your Database* for details on how to load these updates. Even though PeopleSoft provides these standardized values, a full list of the symbols used by each currency is not provided, as this is not part of the ISO standard. Use the Currency Code page to check and set the appropriate currency symbol for each currency that you plan to use in your implementation.

The navigation to the page where you maintain currency code information depends on which applications you are using. Information about maintaining currency codes is in the *PeopleSoft PeopleBook: Application Fundamentals* for your product line.

Setting Up Currency Amount Fields

To set up a currency amount field:

1. Ensure that the record definition has an appropriate currency control field.

   The currency control field must be in the same record as the currency display field and hold a valid Currency Code value. This means it must be a Char (character) field with a length of *3*, formatted in *Upper* (uppercase). You can use an existing field or define a new field. The field does not need to be named *CURRENCY_CD*. It can have any valid PeopleSoft field name. However if there is only one amount field on the record, PeopleSoft recommends that you stick with the *CURRENCY_CD* field name for consistency with other PeopleSoft applications.

   An example of a record with two currency-controlled amount fields is the CURRENCY_EXCHNG (currency exchange) record. The two amount fields on this record are FROM_AMT (from amount) and CONVERTED_AMT (converted amount). Each has a currency control field of FROM_CUR (from currency) and TO_CUR (to currency), respectively.

2. Ensure that the edit properties of the currency control field are set up correctly.

3. Set the currency control field property of the currency amount record field.

   You must associate the field containing the amount with the currency control field.

   Open the Record Field Properties dialog box for the currency amount field by right-clicking the record field in the record definition and selecting Record Field Properties from the popup menu.

   In the Currency Control Field dropdown list, select the appropriate currency control field for the currency amount field.

4. Click OK to accept the property settings.

5. Save the record definition.

Setting Currency Field Display Properties

When you place a currency amount field on a page, you can choose whether to display the currency symbol in the amount field along with the numerical amount and whether to display a thousands separator. Regardless of whether you choose to display the symbol in the field, it is not stored in the database. Currency field formatting is only performed if the Multi-Currency option is enabled on the PeopleTools Option page. See the following section for details.

To set currency field display properties:

1. Display the field's Page Field Properties dialog box.

   To open the Page Field Properties dialog box for the currency field, right-click on the page field and select Page Field Properties from the popup menu.

2. Set the currency display options.

   Select the Currency Symbol box to display the currency symbol (as defined for the currency in the Currency Code table). Clear the box if you don't want to display the symbol.

   Select the 1000 Separator box if you want the currency amount to appear using a thousands separator character. The specific character used as the thousands separator is determined by your international preference.

3. Click OK to accept the dialog box settings.
4. Save the page definition.

See Also

Chapter 2, "Controlling International Preferences," Understanding PeopleSoft Internet Architecture Locale-Based Formatting, page 21

Chapter 5, "Controlling Currency Display Format," Using System-Wide Multi-Currency Settings, page 65

Using System-Wide Multi-Currency Settings

The Multi-Currency box on the PeopleTools Options page is a system-wide switch that enables the following actions in the system:

- Automatic formatting of those currency amount fields that have associated currency control fields.
- Validation of user entry against the currency's defined decimal precision and causes the system to issue an error if the user attempts to enter a decimal precision that is greater than the precision allowed by the currency code definition.
- The display of global currency control fields.

  To navigate to the PeopleTools Options page, select PeopleTools, Utilities, Administration, PeopleTools Options.

You can design an application so that fields that are specifically related to multiple currencies can appear globally or hidden depending on the implementation. Remember that although fields flagged as multi-currency fields are hidden from pages when the multi-currency options is disabled, the field still exists in the page buffer, so if it is a required field it must have a default value.

- The hiding of all fields.

  If you implement the application in an enterprise that uses only a single currency, you can hide all the fields by clearing the Multi-Currency check box. If the enterprise later begins to use multiple currencies, you can redisplay the multi-currency fields by selecting the check box. You should apply this technique only to fields that can be globally hidden without affecting the functionality of the application when working in a single currency. Use this technique for user-operated currency control fields, but not fields that actually display currency. You would also need to set the defaults of the currency display fields to the single currency used by the enterprise.

  Unless you specifically want to maintain your entire system in a single currency, the Multi-Currency box will remain selected.

This section discuss how to:

- Connect a currency control field to the system-wide multi-currency check box.
- Enable or disable system-wide currency settings.

Connecting a Currency Control Field to the Multi-Currency Check Box

You can control the visibility of a page field used for currency control from the PeopleSoft Options page, PSOPTIONS.

To navigate to the PeopleTools Options page, select PeopleTools, Utilities, Administration, PeopleSoft Options.

To connect a currency control field to the system-wide multi-currency check box:

1. Display the field's Page Field Properties dialog box.

   To open the Page Field Properties dialog box for the currency field, right-click on the page field, and select Page Field Properties from the popup menu. In the Field Properties dialog box, select the Use tab.

2. Check the Multi-Currency Field box to specify that the field can appear or hide from the PeopleTools Options page.
3. Click OK.
4. Save the page definition.

Examples

The following examples demonstrate the different outcomes of setting the Multi-Currency Field option in a field's Field Properties and in PSOPTIONS to control a field's visibility.

- On page.EXAMPLE there is a field called MONEY field type Number. The field properties*do not* include the Multi-Currency Field check box being selected. On the PSOPTIONS page the Multi-Currency check box is *not* selected.

  In this case, page.EXAMPLE.Field.MONEY's visibility *is not controlled* by the PSOPTIONS page so it will or will not display based on the developer coding.

- On page.EXAMPLE there is a field called MONEY field type Number. The field properties *do not* include the Multi-Currency Field check box being selected. On the PSOPTIONS page the Multi-Currency check box *is* selected.

  In this case, the field's visibility *is not controlled* by the PSOPTIONS page so it will or will not display based on the developer coding.

- On page.EXAMPLE there is a field called MONEY field type Number. The field properties *do* include the Multi-Currency Field check box being selected. On the PSOPTIONS page the Multi-Currency check box is selected.

  In this case, the field's visibility *is controlled* by the PSOPTIONS page so it will display.

- On page.EXAMPLE there is a field called MONEY field type Number. The field properties *do* include the Multi-Currency Field check box being selected. On the PSOPTIONS page the Multi-Currency check box is *not* selected.

  In this case, the field's visibility *is controlled* by the PSOPTIONS page so it will NOT display.

Enabling or Disabling System-Wide Currency Settings

To enable or disable system-wide currency settings:

1. Select PeopleTools, Utilities, Administration, PeopleTools Options.

   The PeopleTools Options page appears.

2. Select or clear the Multi-Currency box.

   Selecting the check box activates automatic currency formatting; clearing the check box disables automatic currency formatting.

   If any page fields have the Multi-Currency Field option selected in the Page Field Properties dialog box, selecting the Multi-Currency check box displays those page fields; clearing the check box hides the page fields.

3. Click Save.

Resizing Currency Fields Using the International Field Size Utility

PeopleSoft applications are typically shipped with amount fields sized at fifteen integer positions and three decimal positions. However, some older applications may be shipped with smaller field sizes, and should you wish to use a greater precision, you may need to run the International Field Size utility. If the *PeopleSoft Installation Guide for Your Product* requires it, you should use the Set International Field Sizes (TLSINST1) Structured Query Report (SQR) utility to increase the length and number of decimal position settings of field definitions. For example, you may need to do this if you process low-value currencies that require numeric fields that are longer than those provided in your standard application.

PeopleTools delivers the International Field Sizes table populated with suggested lengths for numeric fields that may require a large number of digits for certain currencies. You can edit the contents of this table to suit your own requirements, adding and deleting fields and adjusting the new field sizes and decimal positions as necessary.

Keep in mind the limitations on numeric field size and precision imposed by your database platform, and the fact that some numeric fields are used in COBOL and may require COBOL working storage changes in addition to the changes performed by this utility.

To resize international currency fields:

1. Start the PeopleTools International Field Size utility.

   Select PeopleTools, Utilities, International, Process Field Size to display the International Field Size page. The International Field Size page shows the name of each field that will be adjusted, the current size of the field, and the proposed new size of the field (stored in the International Field Sizes table [PS_INTL_FLDSIZ_TBL]).

2. Edit the data in the International Field Sizes table.

   Adjust the new field sizes to meet your own requirements. You can insert or delete rows from the page.

3. Save your changes.

4. Run the Process Request Dialog.

   Click Run to open the Process Scheduler Request page. Set the report options, and then click OK to run the TLSINST1 SQR.

   The utility updates the field definitions and creates a report showing all page fields that have been impacted by the changes in field size.

5. Check all affected pages, and rearrange page fields as necessary to rectify overlap.

   Check each page where the page field size has changed, and rearrange the fields on the page as necessary to prevent page fields from overlapping.

   The process does not update page field information such as overlapping fields that may be caused by an increase in field length, however, the system automatically adjusts the sizes of any page fields with a Size property set to *Average* or *Maximum*. If the page field size is set to *Custom*, it will not be adjusted. If the page field is too small, the larger amount can still be entered; however, users may have to scroll to the right to see the full amount, and the truncated amount may be misleading.

6. Rebuild (SQL ALTER) any tables that have been affected by the changes in field sizes.

   Use the Application Designer Build feature, with the Alter Tables option, to build (using SQL ALTER) any tables that have been affected by the changes in field size. Use the Find Object References features to determine which tables have been affected, or create a query against the PSRECDEFN, PSRECFIELD and PS_INTL_FLDSIZ_TBL tables. For example:

```
SELECT DISTINCT A.RECNAME
FROM PSRECDEFN A, PSRECFIELD B, PS_INTL_FLDSIZ_TBL C
WHERE A.RECNAME = B.RECNAME
  AND B.FIELDNAME = C.FIELDNAME
  AND A.RECTYPE = 0
```

CHAPTER 6

COBOL Globalization

This chapter discusses:

- Unicode encodings in PeopleSoft COBOL.
- COBOL and Unicode.
- COBOL conversion utility.
- Manual fine-tuning COBOL programs.

See Also

Chapter 4, "Character Sets and Language Input/Output," Understanding Character Sets, page 39

Unicode Encodings in PeopleSoft COBOL

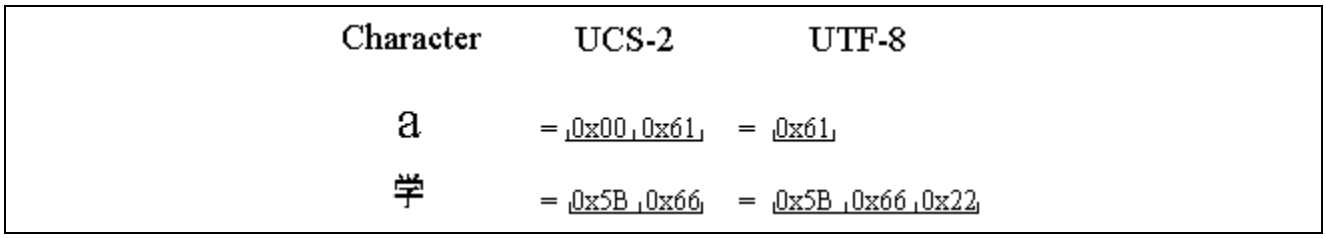
The character set used for PeopleSoft COBOL processing must match the character set for your database. If you created a Unicode database for PeopleSoft, you must also run your COBOL in Unicode.

The Unicode standard provides several methods of encoding Unicode characters into a byte stream. Each of these encodings have specific properties that make them suitable for use in different environments. The two main encodings important to understanding how PeopleSoft COBOL operates when running in Unicode are UCS-2 and UTF-8. PeopleSoft uses both these Unicode encodings:

- UCS-2 is the Unicode encoding that PeopleTools uses internally for data held in memory on the Application Server. UCS-2 encodes all characters in to a fixed storage space of two bytes.
- UTF-8 is the encoding that PeopleSoft uses in COBOL. UTF-8 is a variable format of one to four bytes per character. Currently PeopleSoft supports only one to three byte characters. Four byte UTF-8 characters are required only to represent characters outside Unicode's BMP. In UTF-8, the actual number of bytes used to store a character can be determined by the first three bits of the first, or only byte of a character.

Bit Pattern of First Byte	Character Length
*0xx*xxxxx	One byte
*110*xxxxx	Two bytes
*111*xxxxx	Three bytes

For example, the following graphic shows the different UCS-2 and UTF-8 encodings for two sample characters:



UCS-2 and UTF-8 encodings

PeopleSoft transparently handles the conversion between UCS-2 and UTF-8 when data is passed into the COBOL program from the database. If you are reading or writing files directly from your COBOL program, the input and/or output files will be UTF-8 encoded when running PeopleSoft COBOL programs in Unicode.

Note. In this document, the word *character* refers to a single character in any language, regardless of how many bytes are required to store the character.

See Also

Chapter 6, "COBOL Globalization," COBOL and Unicode, page 70

COBOL and Unicode

This section discusses:

- Expanded storage space requirements.
- Special logic for parsing Unicode strings.
- Sorting in COBOL.
- Unicode-specific error messages.

Expanded Storage Space Requirements

Moving to a COBOL Unicode environment means that character data can potentially require three times the storage space required in a single-character environment, given the variable length of a character encoded in UTF-8 from one to three bytes. To allow for this, all internal data definitions for character-type data in COBOL programs must be expanded to allow for three times as many bytes. This expansion is critical as in a Unicode PeopleSoft database, column sizes are calculated based on a character length, not a byte length. So, a CHAR(10) column on a Unicode database allows the storage of 10 characters, regardless of how many bytes each character takes to store. Given the three-bytes-per-character maximum requirement of UTF-8 (four byte UTF-8 characters are not yet supported by PeopleSoft), the maximum byte size of this CHAR(10) column is 30 bytes. Therefore, a COBOL type of PIC X(30) may be required to store the contents of a CHAR(10) field on a Unicode database.

PeopleSoft provides a COBOL conversion utility to automatically expand the character-data fields in the working storage to accommodate the number of bytes in the UTF-8 encoding scheme.

See Also

Chapter 6, “COBOL Globalization,” The COBOL Conversion Utility, page 72

Special Logic for Parsing Unicode Strings

In a non-Unicode COBOL installation, parsing through a string is easy because you can assume that all characters coming in are one byte in length. But in UTF-8, a character can vary between one byte and three bytes in length. Therefore, you must incorporate special logic to handle string parsing when you are dealing with characters in UTF-8 format.

See Also

Chapter 6, “COBOL Globalization,” Identifying Unicode and ANSI Data, page 84

Chapter 6, “COBOL Globalization,” Defining Single Character Arrays, page 86

Sorting in COBOL

Any in-memory sorting performed using COBOL language functions is performed as a binary sort in the current character encoding used for COBOL processing and may not necessarily match the sort order returned by the database in response to an ORDER BY clause. If you require the database to return data sorted using a binary sort of its encoding rather than the default linguistically correct sort, you must use the **%BINARYSORT** Meta SQL function around each column in the WHERE or ORDER BY clause where binary ordering is important.

However, for OS/390 or z/OS implementations, you must remember that this binary sorting is equivalent only when the COBOL program is run on a OS/390 or z/OS server. For example, the binary sort produced in COBOL differs from the binary sort produced by the database, as the database is encoded in EBCDIC and the client is in an ASCII-based encoding. Therefore, use the **%BINARYSORT** Meta SQL function only in COBOL programs that are not run via RemoteCall (the OS/390 or z/OS platforms are not supported as RemoteCall servers).

When running against non-OS/390 or z/OS systems, the **%BINARYSORT** function can be used in both RemoteCall and non-RemoteCall programs.

For example:

```
SELECT RECNAME FROM PSRECDEFN  WHERE %BINARYSORT(RECNAME) < %BINARYSORT('xxx')
SELECT RECNAME FROM PSRECDEFN  ORDER BY %BINARYSORT(RECNAME)
```

Note. Using the**%BINARYSORT** token in your WHERE and ORDER BY clauses often negates the use of any indexes, as most databases can’t use indexes for functional comparisons (for example, where `%BINARYSORT(column) > 'X'`). Use this syntax only when sorting equivalence of SQL statement results and when COBOL memory order is absolutely required.

See Also

PeopleCode Reference, “Meta-SQL,” Meta-SQL Reference

PeopleSoft Server Tools Administration, “PeopleTools Utilities,” PeopleTools Options

Unicode-Specific Error Messages

The following error messages can occur when you are running a COBOL program against a Unicode database:

- `Fetch failed: unsuccessful UCS-2 to UTF-8 conversion on column <column number>.`
- `Bind of parameter failed: unsuccessful UTF-8 to UCS-2 conversion on column <column number>.`
- `Attempting to use an ANSI API to access a Unicode database.`
- `Attempting to use an ANSI COBOL with a Unicode database.`
- `Attempting to use a Unicode API to access an ANSI database.`
- `Fetch failed: the converted Unicode length of <length> exceeds the allocated buffer length <length> for column <column number>.`

These messages appear in the COBOL output log file.

The COBOL Conversion Utility

As delivered by PeopleSoft, all COBOL programs are configured to run only on non-Unicode databases. To run the PeopleSoft-delivered COBOL on a Unicode database, it first must be converted using the PeopleTools COBOL Conversion Utility. This utility is typically called automatically by the PeopleSoft installation process, however in certain circumstances, such as when you make customizations to your COBOL code or apply a PeopleSoft-provided patch to a COBOL program, you may need to run the COBOL Unicode conversion utility manually.

Moving to a COBOL Unicode environment means that character data can potentially require three times the storage space required in a single-character environment. To allow for this, all internal data definitions for character-type data in COBOL programs must be expanded to allow for three times as many bytes.

PeopleSoft recommends customizing and applying patches to only one set of COBOL source code − non-Unicode source. It is much easier to write COBOL programs without having to remember to triple the size of your working storage as you go. Once your customization or patch is complete and you are ready to compile the program, first run it through the COBOL Conversion Utility, then compile. This approach has several benefits over customizing the converted code:

- You maintain a single source tree for all your COBOL − the non-Unicode source. This way you don't run the risk of accidentally making customizations to both the non-Unicode COBOL programs *and* the Unicode converted COBOL programs, and potentially losing the modifications to the converted programs next time you run the converter.
- Although PeopleSoft tests all delivered COBOL programs and patches on both Unicode and non-Unicode environments, only non-Unicode versions of the source are delivered. Therefore, any time you apply a PeopleSoft COBOL patch to a Unicode system, the patched source code must be run through the COBOL converter. If you had already modified the post-converted source, the re-conversion would obliterate your modifications.

Should the COBOL Conversion utility make modifications to your code that are undesirable, instead of modifying the post-converted code, PeopleSoft provides a series of directives to the utility that can tell it how specific lines of code should (or should not be) converted. This allows you to limit your changes only to the non-converted code, and make the conversion completely automated.

In a non-Unicode (also known as ANSI) implementation, one character typically occupies one byte of storage. So for a 10-character field, you can define a PICTURE clause of PIC X(10). In a Unicode implementation, however, you must allow for the maximum number of storage bytes required for any character field. Therefore, in the Unicode environment, you must define this same 10-character field with a PICTURE clause of PIC X(30).

To accommodate the number of bytes in the UTF-8 encoding scheme, PeopleSoft provides a COBOL conversion utility to expand the character fields in the working storage.

This section discusses the various elements involved when converting COBOL from ANSI to Unicode, including how to:

- Run the conversion utility.
- Identify converted COBOL programs.
- Understand what is expanded.
- Use utility directives.
- Understand error logs.

Running the Conversion Utility

Use the following command syntax to run the COBOL conversion utility:

```
<PS_HOME>\bin\client\winx86\pscblucvrt.exe  -s:<Source Directory> -t:<Destination⇒
 Directory>  [-r:<TEMP Directory>]
```

Command	Description
-s:<Source Directory>	Specify the source directory where the ANSI version of COBOL resides. For the directory, you must specify where the COBOL subdirectories reside (\BASE, \WIN32, \UNIX, and so on). Example: -s:d:\PT8\SRC\CBL
-t:<Destination Directory>	Specify where you want to place the expanded version of COBOL. The utility puts the modified source file in the same COBOL subdirectory it was found in. Example: -t:d:\PT8\SRC\CBLUNICODE
-r or -rd:<Temp directory>	See Chapter 6, "COBOL Globalization," Understanding Error Logs, page 81. -r generates only the summary log file; -rd generates all the log files.

The utility produces a new source file for each .CBL file that is found. These new files are placed in the PS_HOME\src\ directory.

As delivered by PeopleSoft, the batch utilities that compile your COBOL programs include logic to convert all programs and copybooks prior to compiling. This logic is triggered only when the Unicode version of PeopleTools is installed.

Compiling COBOL in Windows NT or Windows 2000

The <PS_HOME>\setup\cbl2uni.bat command converts all the COBOL programs and copybooks found in the <PS_HOME>\src\cbl directory. After the conversion, <PS_HOME>\src\cbl unicode contains the expanded COBOL source codes.

Compiling COBOL in UNIX

The <PS_HOME>/install/pscbl.mak command triggers the conversion before any COBOL programs are compiled. This utility stores all converted programs in the <PS_HOME>/src/cblunicode directory.

Identifying Converted COBOL Programs

When the COBOL conversion utility runs, it places a comment at the beginning of each COBOL program that it converts:

```
******* Converted for Unicode: <date converted>
******************** DO NOT MODIFY THIS FILE *******************
**** ALL SOURCE CODE CHANGES MUST BE DONE TO THE ANSI VERSION ****
******************** FOUND IN %PS_HOME%/SRC/CBL *****************
```

This comment line identifies converted programs in two ways:

- A person looking at the program can tell whether it has been converted.
- If you attempt to convert the COBOL source file again, this comment line prevents the conversion utility program from expanding the working storage of this COBOL source file again.

Understanding What Is Expanded

In order for the utility to recognize when it is appropriate to expand data, strict adherence to the PeopleSoft COBOL coding standards is required. The utility looks for certain code-style patterns to make these decisions.

The conversion utility expands all PIC X[(N)] data fields to triple their original size, with the following exceptions:

- SQL buffer setup data that refers to numeric or date data types SELECT-SETUP or BIND-SETUP is not expanded.
- Character fields that are redefined to a numeric field and group-level fields that contain such character fields are not expanded. In instances where the redefined field is also redefined as a character field, the original character field and the redefinition that is a character field are expanded.
- Fields and group-level fields that appear to be dates are not expanded, unless the EXPAND directive is specified for this field or group-level field.
- For arrays that comprise a single character, the PIC clause is expanded for character data, but the OCCURS clause is not expanded. However, if the data name ends with *-POS*, *-CHAR*, or *-BYTE*, the OCCURS clause is expanded instead of the element size.

The utility also converts copybooks on the fly: the first time that a copybook is referenced inside a code module, it is expanded immediately.

The utility processes an entire set of COBOL modules in a single run. It maintains a record of what it has converted to avoid converting copybooks twice.

Note. The COBOL conversion utility ensures that edited lines do not go past the 72nd column. If the conversion would normally cause a line to exceed that limitation, the utility removes some of the blank spaces between the field name and the PIC X string so that the line fits in the allowed area.

This section discusses the following exceptions:

- Exception 1: SQL buffer setup data.
- Exception 2: Redefined character fields.
- Exception 3: Fields that appear to be dates.
- Exception 4: Arrays comprising a single character.

Exception 1: SQL Buffer Setup Data

SQL buffer setup data that refers to numeric or date data types SELECT-SETUP or BIND-SETUP is not expanded.

For the interface to PTPSQLRT, a COBOL program passes a SELECT list (SELECT-DATA) and a descriptor area (SELECT-SETUP). The program also passes similar data and setup areas for bind variables. The descriptors that are passed are always character-type data with embedded values that signal the actual data type and length of the data fields. Because these descriptors represent the lengths of the associated data fields in the corresponding SELECT-DATA/BIND-DATA structures, the utility adjusts only the length of the descriptors that are representing character-type data.

Example 1: In the following code, the select list contains two character fields (EMPLID and NAME), a small integer (EMPL_RCD), and a date (EFFDT):

```
SELECT-SETUP.
02  FILLER   PIC X(60)   VALUE ALL 'C'.
02  FILLER   PIC X(2)   VALUE ALL 'S'.
02  FILLER   PIC X(10)   VALUE ALL 'D'.
02  FILLER   PIC X(90)   VALUE ALL 'C'.
SELECT-DATA.
02  EMPLID   PIC X(60).
02  EMPL_RCD   PIC 99   COMP.
02  EFFDT   PIC X(10).
02  NAME      PIC X(90).
```

In the Unicode world, the only fields that should be expanded are the two character fields (EMPLID and NAME). Numeric data is never impacted by Unicode, and (according to the PeopleTools definition), dates are not impacted either: they are treated as numeric strings and cannot have special characters.

Thus, the utility converts this code as follows:

```
SELECT-SETUP.
02  FILLER  PIC X(60)  VALUE ALL 'C'.
02  FILLER  PIC X(2)  VALUE ALL 'S'.
```

```
02  FILLER  PIC X(10)  VALUE ALL 'D'.
02  FILLER  PIC X(90)  VALUE ALL 'C'.

SELECT-DATA.
02  EMPLID  PIC X(60).
02  EMPL_RCD  PIC 99  COMP.
02  EFFDT  PIC X(10).
02  NAME    PIC X(90).
```

Example 2: The following code represents ANSI COBOL (COBOL that has not yet been expanded):

```
01  I-ERRL.
           05  SQL-STMT            PIC X(18)   VALUE
                                               'INPXPROC_I_ERRL'.
           05  BIND-SETUP.
               10  FILLER          PIC X(10)   VALUE ALL 'C'.
               10  FILLER          PIC X(6)    VALUE '0PPPPP'.
               10  FILLER          PIC X(4)    VALUE ALL 'I'.
               10  FILLER          PIC X       VALUE 'H'.
               10  FILLER          PIC X(18)   VALUE ALL 'C'.
               10  FILLER          PIC X(4)    VALUE ALL 'I'.
               10  FILLER          PIC X(4)    VALUE ALL 'N'.
               10  FILLER          PIC X(30)   VALUE ALL 'H'.
               10  FILLER          PIC X(30)   VALUE ALL 'C'.
               10  FILLER          PIC X(30)   VALUE ALL 'H'.
               10  FILLER          PIC X(10)   VALUE ALL 'C'.
               10  FILLER          PIC X(6)    VALUE '0PPPPP'.
               10  FILLER          PIC X(8)    VALUE '0PPPPPPP'.
               10  FILLER          PIC X       VALUE 'Z'.
           05  BIND-DATA.
               10  TSE-JOBID       PIC X(10)   VALUE SPACES.
               10  TSE-PROC-INSTANCE PIC 9(10) VALUE ZERO  COMP-3.
               10  TSE-SET-NBR     PIC 9(6)    VALUE ZERO  COMP.
               10  TSE-EDIT-TYPE   PIC X       VALUE SPACE.
               10  TSE-FIELDNAME   PIC X(18)   VALUE SPACES.
               10  MESSAGE-SET-NBR PIC 9(5)    VALUE ZERO  COMP.
               10  MESSAGE-NBR     PIC 9(5)    VALUE ZERO  COMP.
               10  MESSAGE-PARM    PIC X(30)   VALUE SPACES.
               10  MESSAGE-PARM2   PIC X(30)   VALUE SPACES.
               10  MESSAGE-PARM3   PIC X(30)   VALUE SPACES.
               10  BUSINESS-UNIT   PIC X(10)   VALUE SPACES.
               10  TRANSACTION-NBR PIC 9(10)   VALUE ZERO  COMP-3.
               10  SEQ-NBR         PIC 9(15)   VALUE ZERO  COMP-3.
               10  FILLER          PIC X       VALUE 'Z'.
```

The utility converts this code as follows:

```
01  I-ERRL.
           05  SQL-STMT            PIC X(54)   VALUE
                                               'INPXPROC_I_ERRL'.
           05  BIND-SETUP.
```

```
    10  FILLER          PIC X(30)   VALUE ALL 'C'.
    10  FILLER          PIC X(6)    VALUE '0PPPPP'.
    10  FILLER          PIC X(4)    VALUE ALL 'I'.
    10  FILLER          PIC X(3)   VALUE  ALL 'H'.
    10  FILLER          PIC X(54)   VALUE ALL 'C'.
    10  FILLER          PIC X(4)    VALUE ALL 'I'.
    10  FILLER          PIC X(4)    VALUE ALL 'N'.
    10  FILLER          PIC X(90)   VALUE ALL 'H'.
    10  FILLER          PIC X(90)   VALUE ALL 'C'.
    10  FILLER          PIC X(90)   VALUE ALL 'H'.
    10  FILLER          PIC X(30)   VALUE ALL 'C'.
    10  FILLER          PIC X(6)    VALUE '0PPPPP'.
    10  FILLER          PIC X(8)    VALUE '0PPPPPPP'.
    10  FILLER          PIC X       VALUE 'Z'.
05  BIND-DATA.
    10  TSE-JOBID       PIC X(30)   VALUE SPACES.
    10  TSE-PROC-INSTANCE PIC 9(10) VALUE ZERO  COMP-3.
    10  TSE-SET-NBR     PIC 9(6)    VALUE ZERO  COMP.
    10  TSE-EDIT-TYPE   PIC X(3)    VALUE SPACES.
    10  TSE-FIELDNAME   PIC X(54)   VALUE SPACES.
    10  MESSAGE-SET-NBR PIC 9(5)    VALUE ZERO  COMP.
    10  MESSAGE-NBR     PIC 9(5)    VALUE ZERO  COMP.
    10  MESSAGE-PARM    PIC X(90)   VALUE SPACES.
    10  MESSAGE-PARM2   PIC X(90)   VALUE SPACES.
    10  MESSAGE-PARM3   PIC X(90)   VALUE SPACES.
    10  BUSINESS-UNIT   PIC X(30)   VALUE SPACES.
    10  TRANSACTION-NBR PIC 9(10)   VALUE ZERO  COMP-3.
    10  SEQ-NBR         PIC 9(15)   VALUE ZERO  COMP-3.
    10  FILLER          PIC X       VALUE 'Z'.
```

Exception 2: Redefined Character Fields

Character fields that are redefined to a numeric field (and group-level fields that contain such character fields) are not expanded. In instances where the redefined field is also redefined as a character field, the original character field and the redefinition that is a character field *are* expanded.

Example 1: In this example, the DB-PIC-PRECIS-CHAR is not expanded:

```
07  DB-PIC-PRECIS-CHAR  PIC X(2).
07  DB-PIC-PRECIS-NUM   REDEFINES
     DB-PIC-PRECIS-CHAR PIC 9(2).
```

Example 2: In this example, the I-REMIT-ADDR-SEQ is not expanded:

```
02  I-REMIT-ADDR-SEQ        PIC 9(04).
02  I-REMIT-ADDR-SEQ-C REDEFINES
    I-REMIT-ADDR-SEQ        PIC X(04).
```

Example 3: In this example, the original definition is a character-type field. Although some of the redefined fields are numeric fields, all the character fields, including the original definition, are expanded.

```
02  MSGDATA1                PIC X(30)   VALUE SPACES.
```

```
02  FILLER       REDEFINES MSGDATA1.
    03  MSGDATA1-INT        PIC Z(9)9-.
    03  INT-FILL1           PIC X(19).
02  FILLER       REDEFINES MSGDATA1.
    03  MSGDATA1-DOL        PIC Z(9)9.99-.
    03  DOL-FILL1           PIC X(16).
02  FILLER       REDEFINES MSGDATA1.
    03  MSGDATA1-DEC        PIC Z(9)9.9(5)-.
    03  DEC-FILL1           PIC X(13).
```

Exception 3: Fields That Appear to Be Dates

Fields and group-level fields that appear to be dates are not expanded, unless the EXPAND directive is specified for this field or group-level field.

The following table describes the criteria used to determine fields or group-level fields as dates:

DATE Data Type	Field or Group-Level Field Name	Field Length or Total Length of a Group-Level Field*
Date	Contains -DT or DATE	10
Time	Contains -TM or TIME	15
Date-Time	Contains -DTTM, DATE or TIME	26

* When calculating the total length, the utility takes into consideration that a group-level field may contain REDEFINE fields. The length of the REDEFINE field is not included when determining the total length of the group field.

Example 1: The field in this example is not expanded:

```
10  START-DATE          PIC X(10)   VALUE SPACES.
```

Example 2: The fields in this example are not expanded:

```
02  W-EMP-BIRTHDATE.
03 YEAR             PIC 9(4).
03 FILLER           PIC X(1).
03 MONTH            PIC 99.
03 FILLER           PIC X(1).
03 DAYS             PIC 99.
```

Example 3: The fields in this example are not expanded:

```
03  PAY-DATE-TIME.
04  PAY-DTTM-DATE   PIC X(10).
04  PAY-DTTM-DELIM1 PIC X         VALUE '-'.
04  PAY-DTTM-TIME   PIC X(15).
```

Example 4: The fields in this example are not expanded:

```
05  BEGIN-DTTM-TIME.
07  SYS-HOUR          PIC 99      VALUE ZERO.
07  FILLER            PIC X       VALUE SPACE.
07  SYS-MINUTE        PIC 99      VALUE ZERO.
07  FILLER            PIC X       VALUE SPACE.
07  SYS-SECOND        PIC 99      VALUE ZERO.
07  FILLER            PIC X       VALUE SPACE.
07  SYS-MICRO-SECOND  PIC 9(6)  VALUE ZERO.
```

Example 5: In this example, the group field contains REDEFINE fields. The conversion utility expands the fields because the group field meets the criteria for expansion: it has a total length of 10 and the field name includes the *-DT* string.

```
02  END-DT.
03  END-DT-YY            PIC X(4).
03  END-DT-YY-NUM        REDEFINES END-DT-YY
PIC 9999.
03  FILLER               PIC X.
03  END-DT-MM            PIC XX.
03  END-DT-MM-NUM        REDEFINES END-DT-MM
PIC 99.
03  FILLER               PIC X.
03  END-DT-DD            PIC XX.
03  END-DT-DD-NUM        REDEFINES END-DT-DD
PIC 99.
```

Exception 4: Arrays Comprising a Single Character

For arrays that comprise a single character, the PIC clause is expanded for character data, but the OCCURS clause is not expanded. However, if the data name ends with *-POS*, *-CHAR,* or *-BYTE,* the OCCURS clause is expanded, instead of the element size.

Example 1: In this example, the field is expanded:

```
01  CHAR-ARRAY  PIC X    OCCURS 80 TIMES.
   Is expanded to:
 01  CHAR-ARRAY  PIC X(3)  OCCURS 80 TIMES.
```

Example 2: In this example, the data name ends with *-POS*, therefore, the OCCURS clause is expanded, instead of the element size:

```
01  CHAR-POS  PIC X    OCCURS 80 TIMES.
   Is expanded to:
 01  CHAR-POS  PIC X    OCCURS 240 TIMES.
```

Using Utility Directives

The COBOL conversion utility accepts various directives in the first six columns of COBOL code. You can use these directives to override the utility's normal mode of processing for a single source code line or for a block of lines.

Directive	Description	Purpose
NOCBGN	No conversion: begin	Starting with this line, do not perform expansions.
NOCEND	No conversion: end	End the NOCBGN directive after this line (the directive line is not expanded).
NOCLN	No conversion: line	Do not perform expansions in this single line.
COCCUR	Convert occurrence	Expand the OCCURS clause instead of the PIC clause in this line.
EXPEOF	Expand end of field	Expand a group item by increasing the length of the last field in the group.
EXPAND	Instruct utility to expand field	Force expansion of fields that would normally not be expanded because they appear to be date, time, or datetime fields.

The following examples use existing PeopleSoft COBOL programs to illustrate possible uses for the utility directives.

NOCBGN, NOCEND, and NOCLN Directives

One of the PeopleSoft Human Resources COBOL programs has a unique way of setting the PAY-PERIODS group field. The program defines an 88–level definition based on the concatenated value of the five one-column, character-type fields. If the conversion utility were to convert the program without the special directives, none of the cases defined in the 88-level field would ever be true.

```
NOCBGN          03  PAY-PERIODS.
                    88  PAY-PERIODS-ALL             VALUE 'YYYYY'.
                    88  PAY-PERIODS-ALL-BIWEEKLY    VALUE 'YYYNN'.
                    88  PAY-PERIODS-ALL-SEMIMONTHLY VALUE 'YYNNN'.
                    88  PAY-PERIODS-NONE            VALUE 'NNNNN'.
                    04  PAY-PERIOD1     PIC X.
                    04  PAY-PERIOD2     PIC X.
                    04  PAY-PERIOD3     PIC X.
                    04  PAY-PERIOD4     PIC X.
                    04  PAY-PERIOD5     PIC X.
                03  FILLER REDEFINES PAY-PERIODS.
                    04  PAY-PERIOD      PIC X       OCCURS 5.
                        88  PAY-PERIOD-YES          VALUE 'Y'.
NOCEND                  88  PAY-PERIOD-NO           VALUE 'N'.
```

```
        01  S-DEDPDS.
            02  SQL-STMT                PIC X(18)   VALUE
                                                    'PSPDCFSA_S_DEDPDS'.
            02  BIND-SETUP.
                03  FILLER              PIC X(10)   VALUE ALL 'C'.
                03  FILLER              PIC X(10)   VALUE ALL 'H'.
                03  FILLER              PIC X(10)   VALUE ALL 'D'.
                03  FILLER              PIC X(10)   VALUE ALL 'A'.
NOCBGN          03  FILLER              PIC X       VALUE ALL 'C'.
                03  FILLER              PIC X       VALUE ALL 'H'.
                03  FILLER              PIC X       VALUE ALL 'C'.
                03  FILLER              PIC X       VALUE ALL 'H'.
NOCEND          03  FILLER              PIC X       VALUE ALL 'C'.
                03  FILLER              PIC X       VALUE 'Z'.
            02  BIND-DATA.
                03  COMPANY             PIC X(10).
                03  PAYGROUP            PIC X(10).
                03  PAY-END-DT          PIC X(10).
                03  YEAR-END-DT         PIC X(10).
NOCLN           03  PAY-PERIODS         PIC X(5).
                03  FILLER              PIC X       VALUE 'Z'.
```

COCCUR Directive

The conversion utility wouldn't normally expand the size of the array in this line from one of the PeopleTools COBOL programs. Using the COCCUR directive ensures that the OCCURS clause is expanded:

```
   02  PARM.
COCCUR   05  PARM-CH              OCCURS 30 TIMES
                          PIC X.
```

EXPEOF Directive

In the example below, the FIELDNAME group-level field is broken down to check the first four characters of the string. In this instance, it makes more sense to adjust the length of the FILLER field. By using the EXPEOF directive, you direct the utility to expand the FILLER field to a length of 50:

```
EXPEOF  02  FIELDNAME.
    03  FIELDNAME4          PIC X(4)    VALUE SPACE.
    88  FIELDNAME-TSE                VALUE 'TSE_'.
    03  FILLER              PIC X(14)   VALUE SPACE.
```

Understanding Error Logs

The COBOL conversion utility produces a set of error and warning logs with messages that identify non-standard code styles and inconsistencies. The utility also logs expansion actions that may require manual review.

The utility produces the following logs:

Exception Log This log contains warnings that occurred because of ambiguous working storage definitions. You may need to modify code or add utility directives to resolve the issues logged.

Exception BIND/SELECT Log	This log contains warnings and errors that occurred because of ambiguous BIND and SETUP definitions.
Exception Date Log	This log lists all group-level date fields detected by the utility.
Summary	This log provides general statistics regarding the number of programs processed.

When you specify the *-4* flag, you see only the summary log. Set the -rd flag on the conversion utility command line if you want the utility to produce all the detail logs: exception, BIND/SELECT, and exception date.

Messages From the Exception Log

The following tables summarize all the messages that can appear in the three exception log files. Errors indicate problems that are encountered by the conversion utility.

Message	Type	Note
Non-matching conversion block found in line <line number>.	Error	Detected the NOCBGN directive, but couldn't find the corresponding NOCEND.
Error in determining numeric length in line <line number>.	Error	Program couldn't decipher the numeric PICTURE clause.
The size of the one character array will be expanded in line <line number>.	Warning	Detected a one-character array where field contains the string -BYTE, -POS, or -CHAR.
A one-character array is found in <line number>. The conversion routine will expand this to PIC X(3).	Warning	None.
Unable to find the copy library <copy library name>.	Error	Program references a copy library, but the file couldn't be located.

Messages From the Exception BIND/SELECT Log

The following table lists messages from the BIND/SELECT Log:

Message	Type	Note
Didn't find the corresponding DATA section for <DATA field name> in line <line number>.	Error	Detects either a BIND-DATA or a SELECT-DATA, but cannot find the SETUP group field.

Message	Type	Note
No delimiter found on <group field name> section in line <line number>.	Warning	Didn't find a FILLER field with a value *Z* in a DATA or SETUP group field.
Unable to convert the <group field name> section due to problems reading the Copylib.	Error	DATA or SETUP refers to a copy library that cannot be located.
The <group field name> found in line <line number> has a mismatch count.	Warning/Error	The number of columns in DATA doesn't match the count for the corresponding SETUP.
Incompatible date type match for field in line <line number>.	Error	The data type definition in SETUP doesn't correspond to the data type in DATA.

Messages From the Exception Date Log

The following table lists messages from the Exception Date Log:

Message	Type	Note
Date/time/datetime detected and will not be expanded in line.	Warning	None.
Verify if a date/time/datetime field in line number: <line number>.	Warning	Found a character-type field or group field with a total length of 10, 15, or 26 that could be a date, time, or datetime.

Manual Fine-Tuning of COBOL Programs

Although the COBOL conversion makes most of the changes that are needed to run COBOL in a Unicode environment, some manual fine-tuning may still be necessary.

This section discusses how to:

- Identify Unicode and ANSI data.
- Specify column lengths in dynamic SQL.
- Define single character arrays.

Identifying Unicode and ANSI Data

Your COBOL program may need to determine whether it's dealing with ANSI or Unicode data. For example, if your program parses a string character, it must apply different logic depending on whether the string is an ANSI string or a Unicode string. The program can get this information from the ENCODING-MODE-SW in the PTCSQLRT copy library:

```
03  ENCODING-MODE-SW    PIC X(3)    VALUE SPACE.
                  88  ANSI-MODE                  VALUE 'A'.
                  88  UNICODE-MODE               VALUE 'U'.
```

The ENCODING-MODE-SW value is set by the COBOL application programming interface (API), which determines which type of data it's dealing with by checking the value of the UNICODE_ENABLED field in the PSSTATUS table. When the value of the UNICODE_ENABLED flag is set to *1* (TRUE), this signals the COBOL API that it is accessing a Unicode database.

The PeopleSoft COBOL trace file provides information about the encoding scheme that the COBOL API used:

```
PeopleSoft Batch Timings Report: cobsql_0416165133.trc

Encoding Scheme Used: Unicode

                        PeopleSoft Batch Statistics
                          (All timings in seconds)

                  R e t r i e v e    C o m p i l e    E x e c u t e      F e t c h
Statement          Count     Time   Count     Time   Count     Time   Count     Time

APIBNN                 0     0.00       0     0.00  266043     4.71       0     0.00
APISSB                 0     0.00       0     0.00    1315     0.00       0     0.00
COMMIT                 0     0.00       0     0.00      10     0.22       0     0.00
CONNECT                0     0.00       0     0.00      75     0.92       0     0.00
DISCONNECT             0     0.00       0     0.00      75     1.91       0     0.00
```

Sample trace file

Note that the COBOL API also performs the necessary translations between the UTF-8 encodings that are required by COBOL and the UCS-2 encodings that are used elsewhere in the PeopleSoft system.

Specifying Column Lengths in Dynamic SQL

Perhaps the biggest effort in getting COBOL fully functional in a Unicode environment is setting up the bind parameters and select buffers of any dynamic SQL statements.

Programs that use dynamic SQL must specify the column lengths for bind or select fields prior to calling the PTPDYSQL program. Within a COBOL program, there are two ways bind parameters and select buffers of dynamic SQL statements can be assigned:

- Using a predefined working storage area in conjunction with the dynamic SQL statement.

  This method is similar to the method used for stored SQL statements.

  In this case, PTPDYSQL adjusts the length of character-data fields that are passed to PTPSQLRT. This is necessary because the COBOL Unicode conversion utility expands only the working storage fields; it does not modify the length of fields that are hard-coded in the PROGRAM-DIVISION section of the COBOL programs.

  Because PTPDYSQL sends the correct length to PTPSQLRT, no changes to the COBOL program are necessary.

- Use a buffer array.

  At runtime, this array is partitioned based on the properties of all the fields that are referenced by the dynamic SQL statement. The properties of those fields are retrieved from the PSDBFIELD table, and include both the field's data type and the field's length.

  In this case, you must modify the COBOL program to adjust the length specified for a character field. Adjust the length by a factor of three.

To adjust the length of the character field appropriately, the program must recognize the encoding scheme that is used by the COBOL API. The program can take advantage of the ENCODING-MODE-SW field in PTCSQLRT to determine when the length of the field needs to be adjusted.

The following example illustrates the use of a buffer array to calculate the length of a character field in the Unicode environment:

```
02  SELECT-DATA.
               03  FIELDNAME           PIC X(54)   VALUE SPACE.
               03  FIELDNUM            PIC 9(3)    VALUE ZERO  COMP.
               03  DEFFIELDNAME        PIC X(90)   VALUE SPACES.
               03  FIELDLEN            PIC 9(3)    VALUE ZERO  COMP.
               03  FIELDTYPE           PIC 9(2)    VALUE ZERO  COMP.
                   88  RDM-CHAR                    VALUE ZERO.
                   88  RDM-LONG-CHAR               VALUE 1.
                   88  RDM-NUMBER                  VALUE 2.
                   88  RDM-SIGNED-NUMBER           VALUE 3.
                   88  RDM-DATE                    VALUE 4.
                   88  RDM-TIME                    VALUE 5.
                   88  RDM-DATETIME                VALUE 6.
               03  DECIMALPOS          PIC 9(2)    VALUE ZERO  COMP.
               03  FILLER              PIC X       VALUE 'Z'.
                   88  RDM-NUMBER                  VALUE 2.
                   88  RDM-SIGNED-NUMBER           VALUE 3.
                   88  RDM-DATE                    VALUE 4.
                   88  RDM-TIME                    VALUE 5.
                   88  RDM-DATETIME                VALUE 6.
               03  DECIMALPOS          PIC 9(2)    VALUE ZERO  COMP.
               03  FILLER              PIC X       VALUE 'Z'.
       . . .
MOVE CORR SELECT-DATA OF S-RECFLD
                      TO FLD-ARRAY OF RECFLD (FLD-IDX)
            *  CONVERT FIELD TYPE FROM PSDBFIELD TYPE TO SQLRT CODE.
MOVE FIELDLEN OF S-RECFLD TO SETUP-LENGTH OF RECFLD (FLD-IDX)
IF RDM-CHAR OF S-RECFLD
           SET SETUP-TYPE-CHAR OF RECFLD (FLD-IDX) TO TRUE
           IF UNICODE-MODE OF SQLRT
               COMPUTE SETUP-LENGTH OF RECFLD (FLD-IDX) =
                       SETUP-LENGTH OF RECFLD (FLD-IDX) * 3
           END-IF
               END-IF
```

See Also

Chapter 6, "COBOL Globalization," Identifying Unicode and ANSI Data, page 84

Defining Single Character Arrays

Some COBOL programs define single-character arrays to parse or examine a string of characters, one character at a time. In a Unicode environment, be sure that you're examining the string one character at a time, not one byte at a time.

The following is an example of a code fragment in which the program is examining a string one character at a time:

```
01  CHAR-ARRAY.
    02  CHAR-POS    PIC X  OCCURS 256 TIMES
          INDEXED BY CHAR-IDX.
        88  FIELD-DELIM        VALUE '*'.
. . .
. . .
SET CHAR-IDX  TO  1
SEARCH CHAR-ARRAY
    WHEN FIELD-DELIM(CHAR-IDX)
        SET W-OFFSET  TO  CHAR-IDX
        DISPLAY 'FIELD DELIMITER FOUND AT POSITION ' W-OFFSET
END-SEARCH
```

The intent of the code in the previous example is to examine each character of the array, looking for the first delimiter character. When that character is found, the code displays the position of the delimiter.

In an ANSI environment that uses only the Latin1 character set, this works because there is one byte (one array element) per character. In a Unicode environment (or in an ANSI environment that allows double-byte character sets), this fails because what could potentially be examined is the second or third byte of a two- or three-byte character. It is possible for the second or third byte to match the bit pattern of the delimiter character, thus falsely passing the test and ending the search loop.

To correct this situation, you must know the length (in bytes) of each character that is being processed. A new COBOL function, PTPSTRFN, is available that returns the length of a character so that the code can take this into account when performing a character search. The PTPSTRFN subroutine works for both Unicode character sets and ANSI double-byte characters sets.

The PTPSTRFN subroutine offers two ways of retrieving the character length of a character database type field:

- Requesting the length of a single character.
- Requesting a map of an entire character string.

  Choose this option if the application program needs to get the length information of all characters within a string.

Requesting the Length of a Single Character

Input parameters:

Parameter	Value	Notes
ACTION-TYPE	ACTION-CHARLEN	None.
CHAR-CD	The character whose length you want to verify.	This variable is included in the PTCSTRFN.CBL copy library.

Values returned:

Parameter	Value	Notes
CHAR-LENGTH	The subroutine returns one of the following values, representing the length of the character referenced by CHAR-CD: • ONE-BYTE • TWO-BYTES • THREE-BYTES	This variable is included in the PTCSTRFN.CBL copy library.
STRFN-RC	Returns one of the following values: • STRFN-RC-OK • STRFN-INVALID-ACTION	This variable is included in the PTCSTRFN.CBL copy library.

At the beginning of this section, there was a code fragment in which the program was examining a string, one character at a time, looking for the first delimiter character:

```
01  CHAR-ARRAY.
    02  CHAR-POS    PIC X  OCCURS 256 TIMES
          INDEXED BY CHAR-IDX.
        88  FIELD-DELIM        VALUE '*'.
. . .
. . .
SET CHAR-IDX  TO  1
SEARCH CHAR-ARRAY
    WHEN FIELD-DELIM(CHAR-IDX)
        SET W-OFFSET  TO  CHAR-IDX
        DISPLAY 'FIELD DELIMITER FOUND AT POSITION ' W-OFFSET
END-SEARCH
```

After the code is modified for Unicode, it looks like this:

```
01  CHAR-ARRAY.
    02  CHAR-POS    PIC X  OCCURS 256 TIMES
        INDEXED BY CHAR-IDX.
        88  FIELD-DELIM     VALUE '*'.
01  STR-FUNC                  COPY 'PTCSTRFN'.
```

```
. . .
. . .
SET CHAR-IDX  TO  1
SEARCH CHAR-ARRAY
    WHEN FIELD-DELIM(CHAR-IDX)
        SET W-OFFSET  TO  CHAR-IDX
        DISPLAY 'FIELD DELIMITER FOUND AT POSITION ' W-OFFSET
    WHEN OTHER
       MOVE CHAR-POS(CHAR-IDX)   TO CHAR-CD OF STR-FUNC
       CALL 'PTPSTRFN'  USING   ACTION-CHARLEN
                                STR-FUNC
       IF TWO-BYTES OF STR-FUNC
          SET CHAR-IDX UP BY 1
       ELSE IF THREE-BYTES OF STR-FUNC
          SET CHAR-IDX UP BY 2
       END-IF
END-SEARCH
```

The modification ensures that the code continues to function properly in a Unicode environment. However, we can be sure that modification works only when the character for which the program is searching is one byte in length.

Consider the following code fragment, where the character that the program is searching for may be longer than one byte:

```
01  W-DELIMITER    PIC X(3)  VALUE '<some extended character>'.
01  CHAR-ARRAY.
    02  CHAR-POS        PIC X  OCCURS 256 TIMES
          INDEXED BY CHAR-IDX
                     CHAR-IDX2
           CHAR-IDX3.
        88  FIELD-DELIM      VALUE '*'.
. . .
. . .
SET CHAR-IDX  TO  1
SEARCH CHAR-ARRAY
        WHEN CHAR-POS(CHAR-IDX)  =  W-DELIMITER
    SET W-OFFSET  TO  CHAR-IDX
    DISPLAY 'FIELD DELIMITER FOUND AT POSITION ' W-OFFSET
END-SEARCH
```

For this code to work in a Unicode environment, a Unicode-specific search algorithm must be used. Ensure that the program always compares the correct bytes from the array (up to three bytes, based on the current character length) to the fixed three-byte field containing the search value.

The proper search method looks like this:

```
01  CHAR-ARRAY.
    02  CHAR-POS    PIC X  OCCURS 256 TIMES
        INDEXED BY CHAR-IDX.
        88  FIELD-DELIM         VALUE '*'.
01  STR-FUNC                  COPY 'PTCSTRFN'.
```

```
. . .
. . .
SET CHAR-IDX  TO  1
PERFORM UNTIL CHAR-IDX > 256
    MOVE CHAR-POS(CHAR-IDX)   TO CHAR-CD OF STR-FUNC
    CALL 'PTPSTRFN'    USING   ACTION-CHARLEN
                               STR-FUNC
    INITIALIZE W-WORK
    EVALUATE TRUE
        WHEN ONE-BYTE OF STR-FUNC
            MOVE CHAR-POS(CHAR-IDX)  TO  W-WORK
            SET CHAR-IDX UP BY 1
        WHEN TWO-BYTES OF STR-FUNC
            SET CHAR-IDX2  TO  CHAR-IDX
            SET CHAR-IDX2  UP  BY 1
            STRING  CHAR-POS(CHAR-IDX)
                    CHAR-POS(CHAR-IDX2)
                    DELIMITED BY SIZE
                    INTO W-WORK
            END-STRING
            SET CHAR-IDX UP BY 2
        WHEN THREE-BYTES OF STR-FUNC
            SET CHAR-IDX2  TO  CHAR-IDX
            SET CHAR-IDX2  UP  BY 1
            SET CHAR-IDX3  TO  CHAR-IDX
            SET CHAR-IDX3  UP  BY 2
            STRING  CHAR-POS(CHAR-IDX)
                    CHAR-POS(CHAR-IDX2)
                    CHAR-POS(CHAR-IDX3)
                    DELIMITED BY SIZE
                    INTO W-WORK
            END-STRING
            SET CHAR-IDX UP BY 3
    WHEN OTHER
        DISPLAY '**ERROR** INVALID CHARACTER LENGTH'
        <ABEND>
    END-EVALUATE
    IF W-WORK  =  W-DELIMITER
        SET W-OFFSET  TO  CHAR-IDX
        DISPLAY 'FIELD DELIMITER FOUND AT POSITION ' W-OFFSET
    END-IF
END-PERFORM
```

As you can see from the previous example, searching a string array for a particular value that may be an extended character can be difficult; if possible, avoid such a search.

Requesting a Map of an Entire Character String

Parameter	Value	Notes
ACTION-TYPE	ACTION-STRMAP.	None.
STRING-LENGTH	Length of the character string <String Parameter 1>.	This variable is included in the PTCSTRFN.CBL copy library.
<String Parameter 1>	The character string.	None.
<String Parameter 2>	The buffer area to be updated by the subroutine.	None.

Values returned:

Parameter	Value	Notes
<String Parameter 2>	This buffer is updated with the appropriate values. This field contains at least one of these values • *1*. The next character position is part of a one-byte character. • *2X*. The next two character positions are part of a two-byte character. • *3XX*. The next three character positions are part of a three-byte character.	Refer to the example following this table to see how the function works.
STRFN-RC	Returns one of the following values: • STRFN-RC-OK • STRFN-INVALID-ACTION	This variable is included in the PTCSTRFN.CBL copy library.

The PTPSTRFN COBOL subroutine provides an option to map the byte length of an entire character string. The following sample COBOL code provides an example of how this feature is used. The code reads all fields from the following Unicode table:

LANGUAGE	UNITEXT
Catalan	Quan el món vol conversar, parla Unicode
Chinese (Simplified)	当世界需要沟通时，请用Unicode！
Chinese (Traditional)	當世界需要溝通時，請用統一碼(Unicode)
Danish	Når verden vil tale, taler den Unicode
Dutch	Als de wereld wil praten, spreekt hij Unicode
English	When the world wants to talk, it speaks Unicode
Esperanto	Kiam la mondo volas paroli, ĝi parolas Unicode
Finnish	Kun maailma haluaa puhua, se puhuu Unicodea
French	Quand le monde veut communiquer, il parle en Unicode

Sample Unicode table

For each row shown in the table, the code performs the following functions:

- Calls PTPSTRFN to get the string mapping of the UTF-8 character string of the text retrieved for the UNITEXT field.
- Displays the UTF-8 string equivalent of the text.
- Tallies the number of one-byte, two-byte, and three-byte characters of the text.

The COBOL code analyzes the text as follows:

```
       01  W-WORK.
            02  LANGUAGE                PIC X(20).
            02  UNICODE-TEXT            PIC X(300).
            02  UNICODE-TEXT-MAP        PIC X(300).
            02  DATA-LEN                PIC 9(3)    COMP.
            02  BYTE-POS-MAX            PIC 9(4)    COMP.
            02  COUNTERS.
                05  COUNT-1BYTE-CHAR    PIC 9(02)   VALUE ZEROS.
                05  COUNT-2BYTE-CHAR    PIC 9(02)   VALUE ZEROS.
                05  COUNT-3BYTE-CHAR    PIC 9(02)   VALUE ZEROS.
        01  BYTE-ARRAY.
            02  BYTE-POS                PIC X   OCCURS 300   TIMES
                                         INDEXED BY BYTE-IDX.
                88  ONE-BYTE-CHAR               VALUE '1'.
                88  TWO-BYTES-CHAR              VALUE '2'.
                88  THREE-BYTES-CHAR            VALUE '3'.
                88  BYTE-STRING-END             VALUE SPACE.
        01  STR-FUNC                  COPY 'PTPSTRFN'.
        . . .
        . . .
         <Code to retrieve the text from the database and assign to the appropriate⇒
fields>
        . . .
        . . .
       * Initialize the string map before calling the function
           MOVE SPACES    TO UNICODE-TEXT-MAP
           CALL 'PTPSTRFN'    USING   ACTION-STRMAP
                                      STR-FUNC
                                      UNICODE-TEXT
```

```
                                    UNICODE-TEXT-MAP
           IF NOT STRFN-RC-OF OF STR-FUNC
               <ABEND PROGRAM>
           END-IF
           SET BYTE-POS-MAX TO 300
           MOVE 300 TO DATA-LEN OF W-WORK
           MOVE UNICODE-TEXT-MAP  TO  BYTE-ARRAY
           PERFORM VARYING BYTE-IDX FROM 300  BY -1
               UNTIL BYTE-IDX  <=  1
               OR NOT BYTE-STRING-END(BYTE-IDX)
                SUBTRACT 1  FROM  DATA-LEN OF W-WORK
           END-PERFORM
       * Initialize counters
           MOVE ZEROS   TO COUNT-1BYTE-CHAR
           MOVE ZEROS   TO COUNT-2BYTE-CHAR
           MOVE ZEROS   TO COUNT-3BYTE-CHAR
           PERFORM UNTIL BYTE-IDX > DATA-LEN OF W-WORK
               EVALUATE TRUE
                  WHEN ONE-BYTE-CHAR
                       ADD 1 TO COUNT-1BYTE-CHAR
                  WHEN TWO-BYTES-CHAR
                       ADD 1 TO COUNT-2BYTE-CHAR
                  WHEN THREE-BYTES-CHAR
                       ADD 1 TO COUNT-3BYTE-CHAR
               END-EVALUATE
               SET BYTE-IDX UP BY 1
           END-PERFORM
           DISPLAY ' LANGUAGE = ' LANGUAGE
           DISPLAY '   UTF8 TEXT: (LENGTH = ' DATA-LEN ')'
           DISPLAY '          ' UNICODE-TEXT
           DISPLAY ' '
           DISPLAY '   UTF8 BYTE MAPPING:'
           DISPLAY '          ' UNICODE-TEXT-MAP
           DISPLAY ' '
           DISPLAY '   TALLY:'
           DISPLAY '     NUMBER OF ONE-BYTE CHAR:    '
                     COUNT-1BYTE-CHAR
           DISPLAY '     NUMBER OF TWO-BYTES CHAR:   '
                     COUNT-2BYTE-CHAR
           DISPLAY '     NUMBER OF THREE-BYTES CHAR: '
                     COUNT-3BYTE-CHAR
           DISPLAY ' '
           DISPLAY ' '
```

The output of this program appears as follows. Note that certain strings appear to be garbled. This is because there is no font to display the characters properly.

```
LANGUAGE = Catalan
   UTF8 TEXT: (LENGTH = 0041)
          Quan el mÃ³n vol conversar, parla Unicode
```

```
  UTF8 BYTE MAPPING:
         1111111112X11111111111111111111111111111
  TALLY:
    NUMBER OF ONE-BYTE CHAR:    039
    NUMBER OF TWO-BYTES CHAR:   001
    NUMBER OF THREE-BYTES CHAR: 000

LANGUAGE = Chinese (Simplified)
  UTF8 TEXT: (LENGTH = 0043)
         å½"ä¸-ç•Œéœ?è¦?æ²Ÿé?šæ—¶ï¼Œè¯·ç"¨Unicodeï¼?
  UTF8 BYTE MAPPING:
         3XX3XX3XX3XX3XX3XX3XX3XX3XX3XX3XX11111113XX
  TALLY:
    NUMBER OF ONE-BYTE CHAR:    007
    NUMBER OF TWO-BYTES CHAR:   000
    NUMBER OF THREE-BYTES CHAR: 012

LANGUAGE = Chinese (Traditional
  UTF8 TEXT: (LENGTH = 0055)
         ç•¶ä¸-ç•Œéœ?è¦?æ°?é?šæ™?ï¼Œè«?ç"¨çµ±ä¸?ç¢¼ï¼Unicodeï
  UTF8 BYTE MAPPING:
         3XX3XX3XX3XX3XX3XX3XX3XX3XX3XX3XX3XX3XX3XX11111113XX
  TALLY:
    NUMBER OF ONE-BYTE CHAR:    007
    NUMBER OF TWO-BYTES CHAR:   000
    NUMBER OF THREE-BYTES CHAR: 016

LANGUAGE = Danish
  UTF8 TEXT: (LENGTH = 0039)
         NÃ¥r verden vil tale, taler den Unicode
  UTF8 BYTE MAPPING:
         12X1111111111111111111111111111111111111
  TALLY:
    NUMBER OF ONE-BYTE CHAR:    037
    NUMBER OF TWO-BYTES CHAR:   001
    NUMBER OF THREE-BYTES CHAR: 000

LANGUAGE = Dutch
  UTF8 TEXT: (LENGTH = 0045)
         Als de wereld wil praten, spreekt hij Unicode
  UTF8 BYTE MAPPING:
         111111111111111111111111111111111111111111111
  TALLY:
    NUMBER OF ONE-BYTE CHAR:    045
    NUMBER OF TWO-BYTES CHAR:   000
    NUMBER OF THREE-BYTES CHAR: 000

LANGUAGE = English
  UTF8 TEXT: (LENGTH = 0047)
         When the world wants to talk, it speaks Unicode
```

```
  UTF8 BYTE MAPPING:
         1111111111111111111111111111111111111111111111111
  TALLY:
    NUMBER OF ONE-BYTE CHAR:    047
    NUMBER OF TWO-BYTES CHAR:   000
    NUMBER OF THREE-BYTES CHAR: 000

LANGUAGE = Esperanto
  UTF8 TEXT: (LENGTH = 0047)
         Kiam la mondo volas paroli, Ä¥i parolas Unicode
  UTF8 BYTE MAPPING:
         11111111111111111111111112X11111111111111111
  TALLY:
    NUMBER OF ONE-BYTE CHAR:    045
    NUMBER OF TWO-BYTES CHAR:   001
    NUMBER OF THREE-BYTES CHAR: 000

LANGUAGE = Finnish
  UTF8 TEXT: (LENGTH = 0043)
         Kun maailma haluaa puhua, se puhuu Unicodea
  UTF8 BYTE MAPPING:
         1111111111111111111111111111111111111111111
  TALLY:
    NUMBER OF ONE-BYTE CHAR:    043
    NUMBER OF TWO-BYTES CHAR:   000
    NUMBER OF THREE-BYTES CHAR: 000

LANGUAGE = French
  UTF8 TEXT: (LENGTH = 0052)
         Quand le monde veut communiquer, il parle en Unicode
  UTF8 BYTE MAPPING:
         11111111111111111111111111111111111111111111111111111
  TALLY:
    NUMBER OF ONE-BYTE CHAR:    052
    NUMBER OF TWO-BYTES CHAR:   000
    NUMBER OF THREE-BYTES CHAR: 000
```

CHAPTER 7

Sorting in PeopleTools

Sorting data in English is reasonably simply given the very well-defined and simple sorting rules of the language. Additionally, most character sets are based on the ASCII standard which allocates characters to numerical codes in English alphabetical order; therefore when sorting ASCII data by its binary representation, you automatically get a sort that makes sense in English; data is sorted from A to Z and numerics are sorted from 0 to 9.

However, sorting non-English languages is significantly more complex; some languages have special rules for sorting characters with diacritic marks, others, such as Japanese and Thai, can be sorted in several different orders depending on the usage or context of the sort.

In linguistic circles, sorting is also known as *collation*. In this book, the two terms are used interchangeably.

This chapter provides an overview of sorting in PeopleTools and PeopleTools-based applications and discusses how to:

- Sort in PeopleTools.
- Set the sort order.
- Force binary sort in SQL.
- Sort in COBOL.
- Sort in SQR.

Understanding Sort Orders

A *sort order* identifies how PeopleTools assembles, compares, and displays data. For example, a sort order specifies whether *A* is less than, equal to, or greater than *Z*. The simplest way of sorting data in a computer system is to sort it in the order that the characters appear in the character set. This is known as a *binary sort* as it is simply sorting the numerical codes of each character as they are stored in memory without any special sorting cases or linguistic considerations. A binary sort works well for sorting English language data; English sorting rules are very simple and can be implemented as a binary sort as long as the underlying character set is laid out from A to Z. English characters in ASCII, EBCDIC and Unicode are all laid out in this fashion, so a binary sort on data in any of these character sets is sufficient for sorting English data.

However, when sorting data in languages other than English, there are many more considerations that must be taken into account. These include:

- Sorting characters with diacritics. Should characters that have diacritic marks (such as á, ñ, and ö) be sorted after the letter Z, or after the base character without the diacritic? In most character sets, these characters appear after the letter Z in binary order, however in most languages they sort after the base form of the character.

- Sorting special characters and ligatures. Some European languages use ligatures (such as æ and œ) and others use representative characters (such as ß). In most cases, these characters must be expanded to their full form before being sorted. For example, æ is often expanded to *ae* when sorted.
- Sorting ideographic languages. The Chinese, Japanese and Korean languages use a very large repertoire of characters in their written languages; such that it would be impossible for the average person to remember an arbitrary sort order. Instead, several schemes exist for sorting Chinese, Japanese and Korean characters including sorting based on core, common parts of each character (radicals), or by counting the number of brush or pen strokes it takes to write the character (stroke count).

Unfortunately, most of these sorting schemes are very language-specific, and sometimes even specific to a country in which a language is spoken. For example, the German sharp-S character (ß) is sorted in Germany as if it were written as *SS*, but in Austria it is sorted as if it were written *SZ*. Other times, multiple possible sort orders can be in use in a single country; in Spain, it is common to sort the character sequence *ch* after *cz* but before *d*, however in more recent times many Spanish organizations have reverted to sorting the *ch* sequence as individual characters, and it would therefore appear between *cg* and *ci*; which is correct depends on personal or organizational preference.

In the majority of cases where data is sorted in PeopleTools, it relies on the host database management system to perform the sort via an ORDER BY clause in SQL, and the result is displayed directly to the user. It is therefore critical that when you create your database, you select an appropriate sort order based on the languages you plan to maintain in your database, the countries in which you plan to operate, and any specific preferences or policies your organization maintains relating to sorting (such as which Spanish *ch* sort is preferred). Most database systems require you to choose a sort order during database creation, as it will affect the way that SQL indexes are stored on disk to optimize sorting performance.

Note. Due to limitations in most database packages and for performance reasons, PeopleTools 8.42 supports only one sort order per database. Support for multiple sort orders when running against database systems supporting multiple sort orders is planned for a future release of PeopleTools.

In some cases, PeopleTools also sorts data in memory, and must use internal tables to determine the appropriate order for character data. This is particularly prevalent when sorting dropdown lists on pages displaying translate values, and within the PeopleSoft Query product. It is therefore important that you not only create your database with the appropriate sort order, but you also tell PeopleTools which sort order you have chosen for the database so it can emulate this sort for lists that are sorted in memory by PeopleTools.

Note. Sorting in PeopleTools is case-sensitive (lowercase letter *a* sorts after uppercase letter *Z*) and accent-sensitive (the accented letter *á'* is considered distinct from the unaccented letter *a*). Sorting in PeopleTools is also kana-sensitive for Japanese data, meaning that certain forms of Japanese characters (Hiragana and Katakana) are considered distinct rather than equivalent. PeopleTools does not support case-insensitive, accent-insensitive or kana-insensitive sorting.

Sorting in PeopleTools

There are many different components of PeopleTools that sort character data, most of which rely on the database system to perform their sorting using a SQL ORDER BY clause. However PeopleTools does perform some sorting in memory.

See Chapter 7, "Sorting in PeopleTools," PeopleTools In-Memory Sort, page 98.

Other parts of PeopleTools supports only a binary sort for logistical or performance reasons. The following table indicates each of the common areas of PeopleTools that presents sorted lists of data to the user, and the mechanism that each uses to perform the sort.

Functional Area	Sorting Engine
Component Search Dialogs.	Database-level SQL ORDER BY sort.
Scroll Buffers.	Database-level SQL ORDER BY sort.
SQL Operations in PeopleSoft Query, PS/n Vision, Crystal and SQR.	Database-level SQL ORDER BY sort.
SQL functions called from PeopleCode (SQL Objects, ExecSQL) containing BETWEEN, <, >, MIN, MAX etc.	Database-level SQL ORDER BY sort.
PeopleCode ScrollSelect( ) / ScrollSelectNew( ), RowScrollSelect( ) and RollScrollSelectNew( ) functions.	Database-level SQL ORDER BY sort.
Column-specific re-sort in PIA (by clicking on column heading).	PeopleTools in-memory sort.
PeopleCode SortScroll( ).	PeopleTools in-memory sort.
Dropdown list of translate values.	PeopleTools in-memory sort.
PeopleCode binary comparison functions (<, >, =).	Binary sort.
%BINARYSORT Meta SQL function.	Binary sort.
Greater than and less than COBOL operations.	Binary sort.
Greater than and less than comparisons in SQR.	Binary sort.

Database-Level SQL ORDER BY Sort

PeopleTools relies on the sorting capabilities of the host database system for each functional area as identified in the table in the previous section as using a database-level SQL ORDER BY sort. In this case, the SQL statement used to retrieve the data to be displayed to the user is coded to include an ORDER BY statement, and the sort order of the database determines in what order data is retrieved. Obviously, this relies on the database system being correctly configured for the appropriate linguistic sort you determined is required for your database.

Each database management system has a different mechanism of determining the sort order for SQL ORDER BY statements. For example, Microsoft SQL Server requires the user to select a sort order when the server is installed, or when each database is created. Oracle allows the database administrator to specify the appropriate sort order in the init.ora parameter file. Refer to the documentation delivered by your database vendor along with the *PeopleTools 8.42 Installation Guide for Your Platform* to determine how to correctly configure the sort order of your database system.

PeopleTools In-Memory Sort

To avoid round-trips to the database, PeopleTools performs some sorting in-memory, typically of short lists, such as a list of translate values. PeopleTools supports a significant number of linguistic sorts for in-memory sorting. The sort order used for PeopleTools in-memory sorting is controlled by the Sort Order Option on the PeopleTools Options page. While PeopleTools cannot emulate exactly each sort order offered by your database vendor, it provides an appropriate sort order for most popular business languages. Select the sort order that most closely corresponds to the sort order of your database. Conflicting sort order selection between the database and PeopleTools will result in lists of values sorted by PeopleTools appearing in a significantly different order than lists of values sorted by the database.

See Chapter 7, "Sorting in PeopleTools," Setting Sort Order, page 99.

Binary Sort

When comparing values in PeopleCode, SQR and COBOL using less than (<), greater than (>) or other character comparison operators, a binary sort is used. The specific sort performed depends on the character set of data in memory at the time. For example, all binary sorts performed in PeopleCode, SQR syntax and Unicode COBOL will take place based on the Unicode binary order. Binary sorts performed in non-Unicode COBOL will take place in the non-Unicode character set of the batch server. Binary sorts performed by the **%BINARYSORT** PeopleCode Meta SQL function will take place in the character set of the database engine.

Therefore, you should be very careful not to write code that depends on the sorting of data using binary operators matching the sorting of data by the database as the result of sorting operators in SQL statements.

For example, the following PeopleCode statement is performed as a Unicode binary comparison, and *á* is located in the Unicode tables after the character *z*, so it will always return *True*:

```
if 'z' < 'á' then. . .
```

However, when the same comparison is executed in SQL (as in the following example), it is up to the database's sort order to determine which character is greater. In a database configured for binary sorting, it will return "true", however in a database configured for French sorting (where *á* is sorted after *a* but before *b*), it will return *False*.

```
SELECT . . .
WHERE 'z' < 'á'
```

It is important that these functional areas use binary sorting instead of attempting to perform a linguistically-sensitive sort because:

- Any linguistically-sensitive sort performed in-memory can only be an approximation of the sort that the database system would perform in the same situation given the large number of sort orders provided by database vendors and significant variations to these orders in minor versions of the database software. It should not be assumed that a binary sort performed in PeopleTools will match the sort of the same characters in a SQL statement using the <, > or BETWEEN operators.

- Performing a guaranteed database-compatible sort for each comparison in PeopleCode would require a round-trip to the database to perform the sorting, and would greatly impact performance of PeopleCode operations.

Setting Sort Order

As noted previously in this chapter, some components of PeopleTools cannot rely on the database to sort data, and must do so in-memory. The Sort Order option on the PeopleTools Options page allows you to select which sort order should be used by PeopleTools when sorting data in-memory.

Generally, you should set this option soon after you have completed the installation of the database, and choose the option that most closely approximates the sort order you selected when creating your database.

To set sort order:

1. Select PeopleTools, Utilities, Administration, PeopleTools Options
2. From the Sort Order Option dropdown list, select an option.
3. Click Save.

Forcing Binary Sort in SQL

When writing PeopleCode and other procedural logic, it is sometimes expected that sorting a list of data in-memory will produce the same results of sorting the same list in the database via a SQL ORDER BY statement. When working in some languages, such as English, whose sorting logic is relatively simple, this equivalence may be taken for granted.

However, when running PeopleTools against a database that is using a linguistic sort, it is likely that a greater than, less than or between comparison of values in memory may produce different results then if the same comparison were performed by the database.

Take, for instance, the following PeopleCode syntax:

```
If START_NAME < END_NAME then
   Error("Start name must be less than end name");
End-If
```

As all character comparisons in PeopleCode are performed based on the binary value of the character in Unicode (and not on the linguistic weight of the character), this code may produce unexpected results in languages where binary sorting is not sufficient. For example, if START_NAME had a value of *Über* and END_NAME had a value of *Zeifang*, this code would produce the error as in the Unicode character set, the uppercase *U* with umlaut (*Ü*) appears after the uppercase *Z*. However, in a German sort, *Ü* should precede *Z*. If the database were created with a German sort order, this would be reflected by the database's sort if the same statement were reflected in SQL called from PeopleCode:

```
SQLExec("SELECT 'X' FROM PSLOCK WHERE :1 < :2"
        ,START_NAME, END_NAME, &X);
```

```
If &X != 'X' then
   Error("Start name must be less than end name");
End-If
```

The example shows that when you use a linguistically sorted database, it is likely that these string comparisons may return different results when executed via the database using SQL than they may when performed in PeopleCode. Of course numerical values and dates will always sort equivalently − this behavior is limited to the sorting of characters and character strings.

In some situations, you may want to disable the linguistic sort performed by the database on a statement-by-statement level, and have the database perform the comparison at a binary level.

To force a SQL query to return sort-sensitive results based on a binary sort instead of a linguistic sort, a Meta SQL token, **%BINARYSORT**, is provided. This token is used to wrap each column in an ORDER BY, less-than, greater-than or BETWEEN operation where a binary comparison is required. For example, to return all employee names ordered by last name in binary ordering, the following SQL would be used:

```
SELECT NAME FROM PS_PERSONAL_DATA
ORDER BY %BINARYSORT(NAME)
```

This may be useful if you are building an ordered array of names in memory that you plan to parse or manipulate with PeopleCode less than or greater than operators.

Similarly, to fetch a list of names from the database where the NAME field is greater than START_NAME using a binary comparison parallel to that used in PeopleTools, the following syntax can be used:

```
SELECT NAME FROM PS_PERSONAL_DATA
WHERE %BINARYSORT(NAME) < %BINARYSORT(:1)
```

Similar constructs could be used with the BETWEEN predicate.

Note. The **%BINARYSORT** Meta SQL token ensures that the database will evaluate the column wrapped by the token based on its binary value in the character set of the database. The sorting of this representation will match its binary sort position in PeopleTools only if the character set of the database contains the character in the same order as Unicode which is used for binary representation of data in PeopleTools memory. Therefore, if you are running an ASCII, Latin-1 (ISO 8859-1) or Unicode database, the sorting of all alphabetic characters will match the Unicode sort in memory. However if you are running a database encoded in EBCDIC or in Japanese Shift-JIS, the order may be markedly different, and the **%BINARYSORT** Meta SQL token cannot be relied upon to match the binary order used within PeopleTools.

See Also

PeopleCode Reference, "Meta-SQL," %BINARYSORT

Sorting in COBOL

Character string comparisons performed in COBOL are performed based on the binary representation of each character in the character set being used by the COBOL program. Typically, this will match the character set of your database, so any ORDER BY clause or string comparison performed by SQL statements called by your program that you wish to sort the same as it would in COBOL memory should be wrapped by the **%BINARYSORT** Meta SQL token.

See Also

Chapter 6, "COBOL Globalization," Sorting in COBOL, page 71

Sorting in SQR

Similar to PeopleCode, all string comparisons and sorting in SQR are performed based on a Unicode binary sort. However, as SQR does not process PeopleTools Meta SQL tokens, **%BINARYSORT** cannot be used from SQR, and allowances should be made in SQR programs not to depend on memory sorting matching the sort performed by the database in ORDER BY and similar SQL clauses.

CHAPTER 8

Global Reporting and Analysis

This chapter discusses:

- Language-sensitive queries.
- Crystal Reports.
- PeopleSoft Cube Manager.
- The Strings table.
- SQR for PeopleSoft globalization.
- PS/nVision.
- International versions of Microsoft Excel.

Language-Sensitive Queries

PeopleSoft Query supports language-sensitive query output. If you create a query on a table that has a related language record, or if your query includes such a table, PeopleTools automatically performs the language lookup on the related language record. This means that the output of the query appears in the current, preferred language, if translations exist in the related language tables.

For example, if you built a simple query on the Country table (COUNTRY_TBL), the country descriptions in your query would appear in your preferred language, even through you queried the base language record (COUNTRY_TBL) and not the related language record (COUNTRYTBL_LANG). PeopleSoft Query performs the necessary join to the related language table to retrieve the translations; if they don't exist, it retrieves the descriptions in the database's base language.

The related language join is performed only when you run the query. Therefore, if you create a query as an English user and then execute the same query as a French user, the output appears in French, even though the query was created in English. The language preference of the user who is running the query drives the language joins.

Note. WHERE criteria, HAVING criteria, and ORDER BY clauses are applied only to the base-language data. For example, assuming that the base language of your database is English, if you set a WHERE criterion that restricts country descriptions to those that begin with *Ger*, PeopleSoft Query retrieves the *Allemagne* country description when the query is run by a French language user. This is because the English description of *Allemagne* is *Germany*.

The automatic language join features in PeopleSoft Query are also used when you access your PeopleSoft database via the PeopleSoft Open Query ODBC interface.

Scheduled Queries

For scheduled queries, the system uses the language specified in the user's profile. It does not use the language selected during signon. The system will also use the international and regional settings the user has specified using the My Personalizations page. If no personal setting have been specified, the system uses the default installation international settings.

Note. Most PeopleSoft components can default to international settings from the browser if the user has not set any user-specific settings. However, this is not available for scheduled queries or any Process Scheduler processes.

See Also

PeopleTools 8.42 PeopleBook: PeopleSoft Query

Crystal Reports

There are three very distinct components when working with Crystal Reports in multiple languages:

- Data returned by the report.
- Report layout and boilerplate text.
- Crystal Reports Designer/Runtime language version.

Data Returned by the Report

Data returned by Crystal Reports is fetched from the database using PeopleSoft Query, and therefore is already language-sensitive due to the automatic joining to related language tables that PeopleSoft Query performs. No special logic is required to ensure that appropriate descriptions from related language tables are returned in Crystal Report output.

Report Layout and Boilerplate Text

The Crystal Reports .RPT file contains the layout of the report and any text that is hard-coded into the layout such as column headings, headers and footers. Since Crystal Reports does not provide any ability to maintain multiple translations of this boilerplate text in a single RPT file, you must maintain separate copies of the report layout for each language.

On the file and report servers, PeopleTools maintains separate directories within the <PS_HOME>\CRW directory that correspond to the language codes that are available for your PeopleSoft implementation. Each directory contains the appropriate report in the specified language, if the report has been translated. Based on the user's preferred language, PeopleTools tries to find the directory that corresponds to the user's language preference and reads the report from there. If the system cannot find the report in the directory that corresponds to the user's language code, then it goes back to the base language directory <PS_HOME>\CRW and uses the report that it finds there. Finally, if the report is not found in the directory corresponding to the user's current language or in the base directory, the copy of the report in the <PS_HOME>\CRW\ENG directory is used.

Crystal Reports Designer/Runtime Language Version

The Crystal Reports product is available in several different language editions. PeopleSoft ships the appropriate edition of Crystal Reports based on the languages you license from PeopleSoft. Each language version of Crystal Reports is functionally identical, the primary difference being the language of the Crystal Reports designer user interface. You don't need to match the language of the Crystal Reports design or runtime engine to the language of the report you are creating.

However, there is one important exception. The **ToWords( )** function in Crystal Reports converts numerical amounts into a textual representation of that amount, such as required on checks. For example, `ToWords(10,500)` returns *ten thousand, five hundred*. The language of the output of the **ToWords( )** function depends on the language of the Crystal Reports engine you have installed on your report server. If you are planning on running reports using **ToWords( )**, you must ensure that the appropriate language version of Crystal for the language of the output of **ToWords( )** is installed on your report server. This may require several reports servers, as each Windows installation can only support one version of Crystal Reports at a time.

Note. Because the Crystal Reports product does not support Unicode, you are limited to a single character set in each report. For example, you can't mix French and Japanese data in the same report; instead, you must run the report once in each language on a Windows installation with a default non-Unicode (ANSI) codepage matching the character set required for the language.

For example, you must run Crystal Reports containing Japanese characters on a Japanese Windows machine, or a Windows 2000 machine with a default ANSI codepage of CP932 (Japanese). However, you can run Crystal Reports containing Spanish characters on *any* Windows machine using a Western European (CP1252) codepage, including English, German, French and Spanish versions of Windows.

Language Parameter for PSCRRUN.EXE

PeopleSoft Process Scheduler uses the PSCRRUN.EXE process to execute Crystal Reports. The process's language code parameter specifies the language directory that PSCRRUN.EXE uses to fully qualify the report path. Unlike Structure Query Reports (SQRs), PSCRRUN.EXE searches for a separate Crystal Report file for each translation of the report. The language directory parameters are needed because each language-specific report is stored in a separate language directory. If the report is not found in the language that is specified by the parameter, PSCRRUN.EXE looks in the default, base-language directory.

Typically, the language parameter is passed to PSCRRUN.EXE from the run control that is associated with your Crystal Report.

See Also

PeopleTools 8.42 PeopleBook: PeopleSoft Process Scheduler

PeopleSoft Cube Manager

In PeopleSoft Cube Manager, you can build Cognos PowerPlay cubes and Hyperion Essbase cubes that display translated data. The cubes themselves do not have to be translated; they work by accessing the translations (stored in related language tables) of language-sensitive query output and tree nodes that correspond to the cube's members.

This section discusses:

- Cognos PowerPlay local-language cubes.
- Hyperion Essbase multiple-language cubes.

See Also

Chapter 14, "Translating Application Definitions," Translating Trees, page 233

Chapter 11, "Working With Language-Sensitive Application Data," page 185

PeopleTools 8.42 PeopleBook: PeopleSoft Cube Manager

Cognos PowerPlay Local-Language Cubes

Cognos PowerPlay cubes are not language-sensitive. You must build a separate cube in each language that your implementation supports. Users must then access the language version of the cube that matches their language preferences.

When you build a PowerPlay cube instance, you can override the default language in which the cube is built. If you do not override the language, PeopleSoft Cube Manager builds the PowerPlay cube using the database's base language.

Each PowerPlay cube instance is built using a single language. This language can be the database's base language or any non-base language that your implementation supports. If the cube is built in the base language, then all language-sensitive elements appear in the base language. If the cube is built in a non-base language, then the cube's language-sensitive elements appear in that language using translations of language-sensitive query output and tree nodes. If the language-sensitive fields for the query output and tree nodes have not been translated into the cube's language, the cube displays the base-language descriptions.

To override the language of a Cognos PowerPlay cube:

1. Select PeopleTools, Cube Manager, Build, Cube Instances.

   Use the standard search method to access the Cube Inst Def (cube instance definition) page.
2. Confirm that the Analysis Platform field is set to *Cognos PowerPlay*.
3. Click the Platform Options link.

   The PowerPlay Options page appears.
4. Select the desired language in the Language Override field.
5. Click OK to close the page.
6. Save the component.

Hyperion Essbase Multiple-Language Cubes

When building a Hyperion Essbase cube instance, you specify the languages that the cube supports. These can be the database base languages and any other languages supported by the implementation. When users access the cube in Essbase Administrator (or in the Essbase Excel Client), they can choose to view aliases for the cube members (stored on Essbase alias tables) in any of the supported languages. The translations of the aliases are derived from language-sensitive query output and tree nodes, so the translated aliases appear only if the tree nodes have been translated and the query data is language-sensitive and has been translated. Specific elements that have not been translated appear in the database's base language.

See the Essbase documentation for information about using Essbase alias tables.

Specify the languages that supported by an Essbase cube when you define the Essbase cube instance. If no languages are specified, no local-language Essbase alias tables are built, and the cube member descriptions appear in the database's base language.

To specify the languages of an Essbase cube instance:

1. Select PeopleTools, Cube Manager, Build, Cube Instance.

   Use the standard search method to access the Cube Inst Def (cube instance definition) page.
2. Confirm that the Analysis Platform field value is *Hyperion Essbase*.
3. Click the Platform Options link.

   The Essbase Advanced Options page appears.
4. From the Language Code dropdown list, select the cube's supported languages.

   To set the value of a prompt field, click in the field and then choose from the list of supported languages. To insert a new language, click the Add button. To remove a language from the list of languages that are supported by the cube, click the Delete button.
5. Click OK to close the page.
6. Save the component.

The Strings Table

The PeopleTools Strings table (STRINGS_TBL) stores textual strings used for language-sensitive labels and other text in PS/nVision and SQRs to avoid hard-coding labels into the report files themselves. The use of strings rather than hard-coded text in reports enables translators to translate the report layout in the database without editing the report's code itself. This enables you to run a single copy of a report in multiple languages, while avoiding the duplication of code and report logic.

Each row in the Strings table keys each string to a STRING_ID, which is associated with one of two different string types:

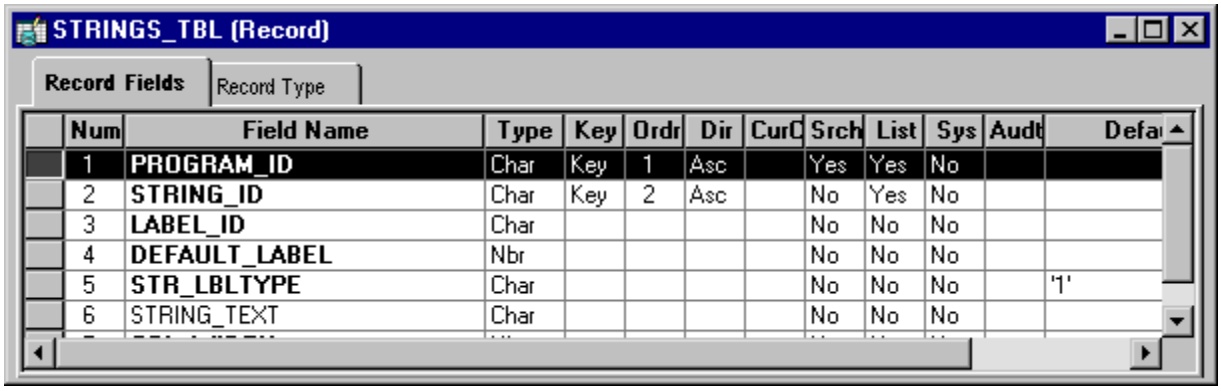
- The short (RFT Short) or long (RFT Long) field description of the field.

The STRING_ID must equal the field name.

- A free-form text string.

In either case, when a report requests a string in a particular language, the system returns the translated string if a translation is available. If no translation exists, the base language string is returned.

The Strings table is also keyed by a PROGRAM_ID field, which enables you to classify strings into groups that are used in similar reports. PROGRAM_ID can refer to a specific SQR or PS/nVision report name, or it can be a mnemonic for a group of common strings that are shared between reports.



Num	Field Name	Type	Key	Ordr	Dir	CurC	Srch	List	Sys	Audt	Defa
1	PROGRAM_ID	Char	Key	1	Asc		Yes	Yes	No		
2	STRING_ID	Char	Key	2	Asc		No	Yes	No		
3	LABEL_ID	Char					No	No	No		
4	DEFAULT_LABEL	Nbr					No	No	No		
5	STR_LBLTYPE	Char					No	No	No		'1'
6	STRING_TEXT	Char					No	No	No		

STRINGS_TBL record definition

See Also

Chapter 8, "Global Reporting and Analysis," SQR for PeopleSoft Globalization, page 110

Chapter 14, "Translating Application Definitions," Translating Strings, page 236

Evaluation of PS/nVision String Variables

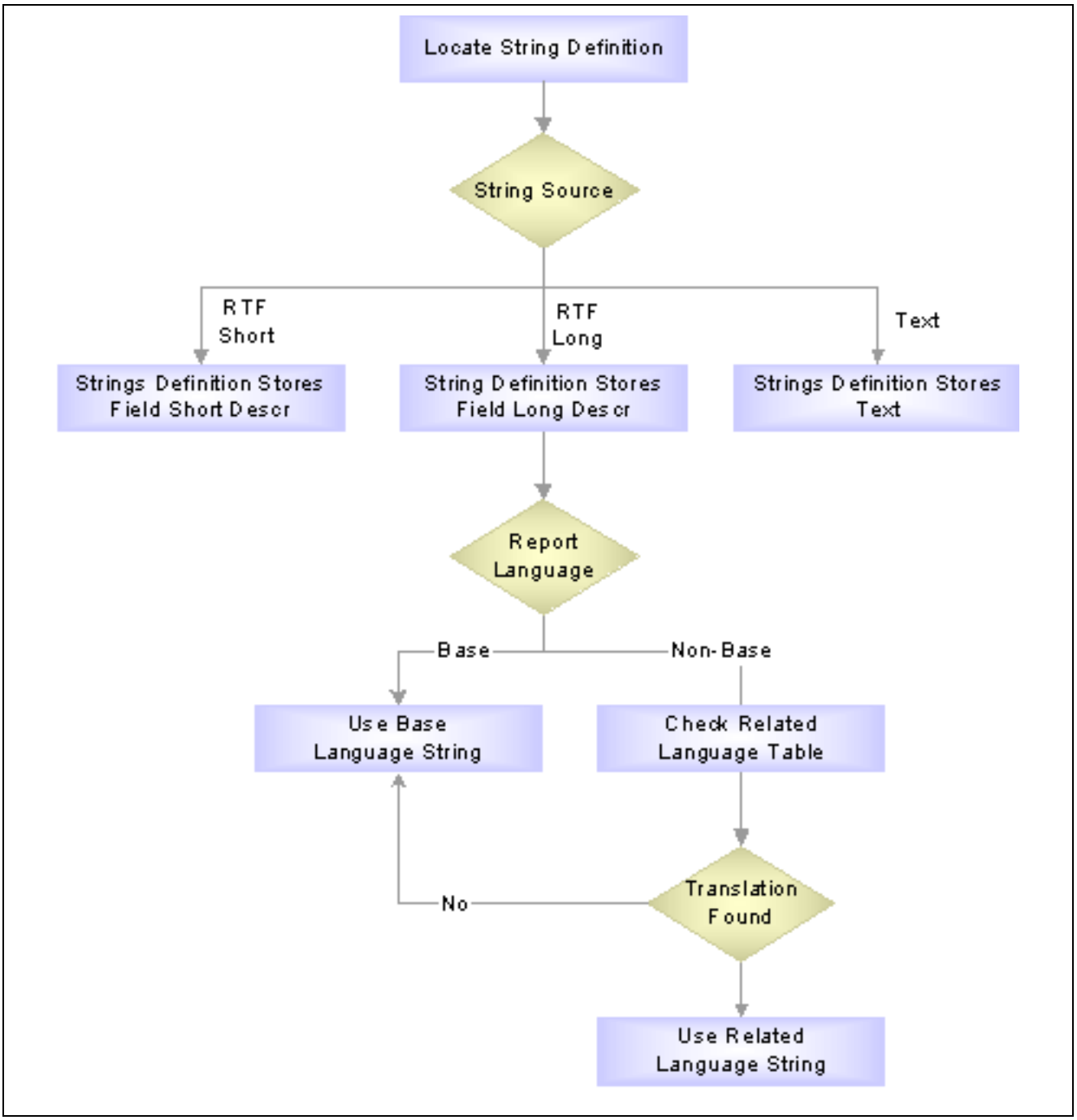
The system uses the string definitions in the Strings table to evaluate PS/nVision variables based on three factors:

- A program ID, which identifies a set of strings used in similar reports.
- A string ID, which uniquely identifies the string definition within a program ID group.
- The language of the report request. If no language is specified, the system assumes the preferred language of the current user.

The syntax of a PS/nVision string variable includes the string ID and the program ID:

```
%.StringID,ProgramID%
```

The following flowchart shows how the system evaluates language-sensitive string variables:



Evaluation of SQR and PS/nVision string variables

The evaluation follows this sequence:

1. The system locates a string definition in the Strings table using values for the program ID and string ID.

   The text string stored in the Strings table (or its related language table) can be a short or long field description (validated against the PSDBFIELD or PSDBFIELDLANG table) or a free-form text string that is not associated with a field.

2. The system determines the language of the report request. If the value is unspecified, the system uses the user's current language preference setting.

3. If the language is the system's base language, the system retrieves the string values from the base-language Strings table (STRINGS_TBL).
4. If the system is a non-base language, the system looks for a string with the correct language code in the related-language table (STRINGS_LNG_TBL).
5. If no translation exists in the related-language table, the system uses the string in the base-language table (Default).

See Also

Chapter 14, "Translating Application Definitions," Translating Strings, page 236

SQR for PeopleSoft Globalization

SQR for PeopleSoft provides a range of features to allow not only for multi-language reports, but also for handling international date/time formatting, paper sizes, numeric formatting and much more. This section discusses some of the internationalization features of SQR for PeopleSoft:

- Printing for A4 paper.
- Currency precision.
- Date and time formatting.
- Report translation
- PSSQR.INI and PSSQR.UNX files.
- Configuring SQR for PeopleSoft to process international text.
- Configuring SQR for PeopleSoft to print international text.
- Working with international text in SQR for PeopleSoft programs.
- SQR for PeopleSoft supported character set encodings.

See Also

SQR for PeopleSoft Language Reference, "SQR Command Reference"

Printing for A4 Paper

PeopleTools supports printing A4 and US Letter sized paper. Changing the PAPER_SIZE setting in SETENV.SQC changes the paper size from Letter to A4 for all reports that share the same file/report/batch server directory.

Currency Precision

NUMBER.SQC enables you to make use of currency precision, both in terms of character string values (with an edit mask) and numeric values, rounded to a specified precision. Use these functions to achieve your currency precision requirements:

```
Format_Currency_Amt
```

```
Format_Currency_Amt_Numeric
```

See the comments block at the beginning of the NUMBER.SQC SQR include file for documentation of these functions.

Date and Time Formatting

The DATETIME.SQC program provides several procedures to aid in the formatting of date and time values for display in report output. While DATETIME.SQC provides generic procedures for formatting dates and times, the actual format used for date and time values can vary in each report. By default, when printing dates and times, reports use the system-wide default date and time formats that are specified in SETENV.SQC.

During your PeopleSoft installation, you should edit SETENV.SQC to specify the system-wide default format you prefer for date and time values. Edit the following lines in your SETENV.SQC to tell the SQR which format you prefer, if it is not otherwise specified in the SQR report source.

```
#define Year4       '1'             !0 = 2 digit year
#define Prompt-Date mm/dd/yyyy
#define Prompt-Mask 'MDY'
#define DateType    '0'             !iDate 0 = mdy, 1 = dmy 2 = ymd
#define TimeDisplay '1'             !iTime 0 = 12hr, 1 = 24hr
```

Based on these settings or any overrides, procedures in DATETIME.SQC provide support for various date formats. The following table identifies these formats.

SQR Date Format	Description
{DEFDMY}	DD/MM/YYYY
{DEFMDY}	MM/DD/YYYY
{DEFKAN}	Japanese Kanji-format dates (using the Japanese Imperial calendar).
{DEFROM}	Japanese Romaji-format dates (using the Japanese Imperial calendar).

The following table includes examples for SQR for PeopleSoft date formats for the date December 14, 2000.

14/12/2000	{DEFDMY}
12/14/2000	{DEFMDY}
平成12年12月14日	{DEFKAN}
H.12.12.14	{DEFROM}

For details on how to include date/time formatting in your own SQR reports, refer to the documentation inside the comment block of the DATETIME.SQC SQR include file on your file server. If you plan to use Japanese date formatting in your SQR report, remember to include *#define JapaneseDates* at the top of your SQR report.

Report Translation

PeopleTools enables you to print or format SQR output for multiple languages using string definitions that are stored in the Strings table. The procedures defined in SQRTRANS.SQC enable your SQR program to access these strings dynamically.

To enable the use of the Strings table in your SQR, you must include the PeopleTools SQC file SQRTRANS.SQC, which includes the routines that are necessary to initialize and load translated strings from the Strings table.

SQRTRANS.SQC has four main functions that you can call from the report:

- Init_Report_Translation
- Get_Field_Information
- Append_Report_Translation
- Add_Report_Translation

Init_Report_Translation

Call the Init_Report_Translation procedure from your SQR before using any of the String table information. Typically, you should call Init_Report_Translation in the Init-Report section of your SQR. Init_Report_Translation takes two parameters:

Parameter Name	Description
$Report_ID	$Report_ID is normally the name of your SQR. This parameter is used as the program ID when looking up strings in the Strings table.
$Report_Language	$Report_Language indicates the preferred language for the strings that are being retrieved. Init_Report_Translation attempts to load all strings in the language specified; however, if a translation for any string does not exist, it loads the base language description for that string.

If you want to change languages during the processing of an SQR report (for example, if you want each page of the report to be in a different language), you can call Init_Report_Translation multiple times within a single SQR, each time passing a new $Report_Language value.

Get_Field_Information

Call the Get_Field_Information procedure for each string that you want to retrieve from the Strings table. It retrieves the label or string table entry for the field specified and places it in a report variable. You can then print the contents of this variable on your report as a label, column heading, or free text. Get_Field_Information takes four parameters:

Parameter Name	Description
$Report_ID	$Report_ID is normally the name of your SQR. This parameter is used as the program ID when looking up strings in the Strings table. You must have already called Init_Report_Translation specifying this $Report_ID before passing it to Get_Field_Information.
$Field_ID	This is the string ID of the string whose text you want to retrieve. It must exist as an entry in the Strings table under the $Report_ID that you specified.
$Field_Text	$Field_Text is the output variable. Get_Field_ Information populates this variable with the text that corresponds to the $Report_ID and $Field_ID that are specified in the preferred language or in the database's base language (if a translation doesn't exist in the preferred language).
$Field_Width	$Field_Width is an output variable that Get_Field_ Information populates with the width of the text string that is returned.

Append_Report_Translation

If your SQR program uses strings from more than one Strings table program ID, call Append_Report_Translation to add the strings from another program ID to the initialization array created by Init_Report_Translation. This function is particularly useful if you have a set of strings that are used across many of your SQR programs. You can group these strings under a generic program ID and use them in multiple SQRs.

Append_Report_Translation takes a single argument, $Report_ID. It assumes the same language that was specified in Init_Report_Translation. It must be called after Init_Report_Translation.

Add_Report_Translation

The Add_Report_Translation procedure calls Init_Report_Translation or Append_Report_Translation, depending on whether the Strings table has been initialized. It takes the same arguments as Init_Report_Translation. If Init_Report_Translation has not yet been called during the processing of this SQR, this function calls it, passing both parameters. If Init_Report_Translation has already been called, Add_Report_Translation calls Append_Report_Translation, passing only the $Report_ID parameter.

This function is useful in your own SQC files if you cannot be certain that the calling SQR program has already initialized the Strings table. The function ensures that the table is initialized or appended correctly.

Sample Strings Table Enabled SQR

The following sample code demonstrates how to use the Strings table to retrieve string values in SQR, using the procedures described in the preceding sections.

```
!***********************************************
!  SAMP001:  Report on database's base language *
```

```
!***********************************************
#include 'setenv.sqc'    !Set environment
begin-report
  do Init-Report
  do Process-Main
  do Reset
end-report
begin-heading 6
do Get_Field_Information ('SAMP001',    'REPORT_TITLE', $REPORTTITLE,   #DWRT)
do Get_Field_Information ('SAMP001',    'EXPLAIN_TEXT', $EXPTEXT,       #DWET)
PRINT $REPORTTITLE       (1)    CENTER
PRINT $EXPTEXT           (+2,1)
end-heading
begin-procedure Init-Report
move 'SAMP001' to $ReportID
move 'ENG' to $Language_cd
do Init_Report_Translation ($ReportID, $Language_cd)
do Append_Report_Translation ('GEN')
end-procedure
begin-procedure Process-Main
do Get_Field_Information ('GEN',        'BASELANGUAGE', $BASELANGUAGE,  #DWBL)
do Get_Field_Information ('GEN',        'ENDOFREPORT',  $ENDOFREPORT,   #DWER)
begin-SELECT
LANGUAGE_CD &Base_Language
   let $langlabel = $BASELANGUAGE || ':'
   print $langlabel  (+1,1)
   let #fieldpos = #DWBL + 3
   print &Base_Language (0,#fieldpos)
FROM PSOPTIONS
end-SELECT
print $ENDOFREPORT      (+4,1)
end-procedure
#Include 'reset.sqc'     !Reset printer procedure
#Include 'sqrtrans.sqc'  !SQR Strings Table procedures
```

See Also

Chapter 8, "Global Reporting and Analysis," The Strings Table, page 107

Understanding the PSSQR.INI and PSSQR.UNX Files

The SQR for PeopleSoft configuration file that you must modify to process and print in non-Western European languages is the pssqr.ini file in the Windows environment, or the pssqr.unx file in the UNIX environment.

The configuration file is located in the %PS_HOME%\SQR directory.

In some sections of this document, the configuration file is referenced as pssqr.ini/unx to include both the Windows and UNIX versions of the file.

See Also

Chapter 8, "Global Reporting and Analysis," Configuring SQR for PeopleSoft to Process International Text, page 115

Chapter 8, "Global Reporting and Analysis," Configuring SQR for PeopleSoft to Print International Text, page 117

Configuring SQR for PeopleSoft to Process International Text

SQR for PeopleSoft uses Unicode for internal storage of character data regardless of whether you are running against a Unicode encoded PeopleSoft database. This enables a single instance of SQR to process data in virtually any language.

Although SQR runs using Unicode internally, it automatically converts data read from and to files to the appropriate non-Unicode encoding based on the operating system environment in which it is running. Alternatively, you can configure SQR to input and output Unicode data if your system is capable of handling it.

For report output, file output, and file input, SQR running on Windows or UNIX determines the appropriate encoding based on the locale setting of your operating system. For example, SQR running on Japanese Windows will generate report output containing Japanese characters correctly without any configuration, as the report output encoding is automatically set to Microsoft Windows Japanese character set, Shift-JIS.

Note. You can independently configure the file input and output encodings for SQR from the operating system defaults. For example, you can generate Chinese report output on English Windows. To configure SQR's encoding settings independently from the operating system's language settings, edit the pssqr.ini file in the <PS_HOME>\SQR directory.

See Chapter 8, "Global Reporting and Analysis," Understanding the PSSQR.INI and PSSQR.UNX Files, page 114.

This section describes:

- DB2 platform-specific encoding settings.
- Advanced pssqr.ini/unx encoding settings.

DB2 Platform-Specific Encoding Settings

There are specific encoding settings that need to be made for OS/390 or z/OS and DB2 platforms.

- PSSQR.INI/UNX configuration for DB2/NT and DB2/UNIX (Unicode databases only).

  If you are running SQR on UNIX against a DB2/NT or a DB2/UNIX database, and if you are using a Unicode database, on DB2:

  1. Set the DB2 registry entry DB2CODEPAGE to *1208* by running the following command from the Command Line Processor:

     ```
     db2set DB2CODEPAGE=1208
     ```

  2. Set ENCODING-DATABASE-API to *UCS-2* in the [Environment: DB2] section of pssqr.ini/unx file. The [Environment: DB2] section of pssqr.ini/unx should look like the following.

     ```
     [Environment:DB2]
     ```

```
SQR_DB_DATE_FORMAT=YYYY-MM-DD-HH.MI.SS.NNNNNN
SQR_DB_TIME_ONLY_FORMAT=HH.MI.SS
SQR_DB_DATE_ONLY_FORMAT=YYYY-MM-DD
ENCODING-DATABASE-API=UCS-2
```

By setting DB2CODEPAGE, DB2 returns the query result from the Unicode data column in Unicode. ENCODING-DATABASE-API in pssqr.ini/unx allows SQR to process fetched Unicode data correctly, and also binds all variables in the GRAPHIC data type.

For SQR on NT, the above pssqr.ini/unx setting is not required, as SQR connects through ODBC.

- PSSQR.INI/UNX configuration for DB2/OS390 (zOS)

  If you are running SQR on NT against a DB2/OS390 (zOS) database and are using database encoding other than EBCDIC (CCSID37), set the ENCODING-DATABASE-API parameter of the [Environment:DB2] section of pssqr.ini/unx to match the client codepage. For example, if your database is using CCSID930 (IBM DBCS Host Japanese) encoding, the [Environment: DB2] section of the pssqr.ini/unx file should look like the following:

```
[Environment:DB2]
SQR_DB_DATE_FORMAT=YYYY-MM-DD-HH.MI.SS.NNNNNN
SQR_DB_TIME_ONLY_FORMAT=HH.MI.SS
SQR_DB_DATE_ONLY_FORMAT=YYYY-MM-DD
ENCODING-DATABASE-API=SJIS
```

  If you are running SQR on an IBM OS/390 or z/OS system and need to generate reports or files in encoding other than EBCDIC (CCSID37), set the ENCODING-FILE-OUTPUT, ENCODING-FILE-INPUT, ENCODING-REPORT-OUTPUT parameters in the [Environment: Common] section of the pssqr.ini file. The valid values for these parameters are any valid PeopleSoft encoding supported for your language on OS/390 or z/OS. For example, on a Japanese OS/390 or z/OS system you would set the following values:

```
ENCODING-FILE-OUTPUT=CCSID930
ENCODING-FILE-INPUT=CCSID930
ENCODING-REPORT-OUTPUT=CCSID930
```

  As delivered by PeopleSoft, all SQR sources delivered for the OS/390 or z/OS platform are encoded in EBCDIC (CCSID37). If you plan to maintain your SQR source in a different EBCDIC encoding you also need to set the ENCODING-SQR-SOURCE parameter. For example, on a Danish/Norwegian OS/390 or z/OS system, you would set the following value in the pssqr.ini/unx file:

```
ENCODING-SQR-SOURCE=CCSID277
```

  See the previous section on pssqr.ini/unx configuration for SQR DB2 to set database encoding correctly.

Advanced PSSQR.INI/UNX Settings

The following settings under the [Environment:Common] section in pssqr.ini/unx are the default settings. SQR can automatically determine encoding used for report and file input/output by checking the operating system's language settings. However, if you would like to make SQR work independently from the operating system, remove the comment from the ENCODING entry and set one of the PeopleSoft supported encodings.

```
;ENCODING=LATIN1
;ENCODING=SJIS
```

The ENCODING parameter sets the default encoding for all types of operations, including report output, file input/output, SQR source, and console output. You can, however, control encodings for each operation independently by adding the following parameters in the [Environment: Common] section of the pssqr.ini/unx file.

```
ENCODING-SQR-SOURCE
ENCODING-FILE-OUTPUT
ENCODING-FILE-INPUT
ENCODING-REPORT-OUTPUT
ENCODING-CONSOLE
```

If an individual encoding parameter is explicitly included, this specific setting overrides the default encoding specified by the ENCODING parameter.

- The ENCODING-SQR-SOURCE parameter specifies the encoding in which the SQR source (*.SQR, *.SQC) files are encoded.
- The ENCODING-FILE-OUTPUT and ENCODING-FILE-INPUT parameters control the character set that is used to read and write files using the SQR OPEN command. If no character set is specified explicitly in the OPEN command, the character set specified in these parameters is used to read or write the file. If SQR detects a BOM at the top of file, it always reads as a Unicode file, regardless of this setting.
- The ENCODING-REPORT-OUTPUT parameter determines the encoding for the report output file (.LIS, .PDF, .HTM, and so on). The parameter should be set to a character set that contains all the characters you expect to print using the SQR. If you are using a Unicode database, and your printer or report browser supports Unicode, you can set the character set to either UTF–8 or UCS–2. However, you must ensure that your output devices support this encoding.
- The ENCODING-CONSOLE parameter determines the character set that is used to write progress and other messages to the console during an SQR run. In Windows, the encoding used by DOS consoles, such as the one that is used by SQR, is known as an OEM encoding; this is often different from the character set that is used by Windows. See http://www.microsoft.com/globaldev for a list of Microsoft Windows OEM codepages. For UNIX systems, this setting should match the character set that is supported by your terminal device.

See Also

Chapter 8, “Global Reporting and Analysis,” Understanding the PSSQR.INI and PSSQR.UNX Files, page 114

Configuring SQR for PeopleSoft to Print International Text

The delivered SQR for PeopleSoft product is configured to generate report output in Western European languages, including English, French, German, Spanish, Portuguese, Dutch, Italian, Danish and Swedish. To print reports in languages other than these, you need to set options in the SQR for PeopleSoft configuration file to correctly print international text. In addition, for some of the printer-specific settings, you set parameters in SQR for PeopleSoft programs.

This section discusses how to:

- Set up encoding parameters.
- Set up fonts.
- Set up PDF fonts.
- Set up files for PCL and line printing.

• Set up files for PostScript printing.

This section also discusses limitations of SQR for PeopleSoft to print international text.

Setting Up Encoding Parameters

SQR for PeopleSoft handles all the strings internally in Unicode and supports Unicode for file or database input/output. However, some printing devices, such as PCL/PostScript printers and Adobe Acrobat Reader, do not support Unicode.

The ENCODING parameter in the pssqr.ini/unx file controls the encoding of the report or file that you are generating. As a result, it is important to set this parameter to the encoding that covers the language in which you intend to print the report or generate the file.

The following table shows the encodings supported for report output/file input output in SQR.

Note. Follow the instructions in this section only if you would like to run SQR for PeopleSoft independently of your operating system's locale setting. You do not have to modify the pssqr.ini/unx file if you are using the language version of Windows or if you set up an ANSI codepage for the target language on Windows through Regional Options in Control Panel, or the system locale on UNIX is set for the target language.

You can set the ENCODING parameter to any of the following values.

Language	Encoding Entry	Actual Encoding
Western European	Latin1	ISO 8850-1 (Latin1)
Central/Eastern European	Latin2	ISO 8859-2 (Latin2)
Japanese	SJIS	Microsoft Shift-JIS (CP932)
Simplified Chinese	CP936	GBK
Traditional Chinese	BIG5	Big5
Thai	Thai	ISO8859-11 (Based on TIS620)
Korean	CP949	Microsoft Korean

To set up encoding parameters:

1. Open the pssqr.ini/unx file located in %PS_HOME%/SQR.
2. In the [Environment: Common] section, uncomment one of the ENCODING entries and set the appropriate value for the target language.

   For example, if you intend to print Traditional Chinese, edit this section as follows.

```
[Environment: Common]
```

```
ENCODING=BIG5
;ENCOIDNG=SJIS
```

3. To use different encodings for printing from file input/output, you can add the following entries to the [Environment: Common] section.

```
ENCODING-REPORT-OUTPUT
ENCODING-FILE-INPUT
ENCODING-REPORT-OUTPUT
```

Note. SQR for PeopleSoft supports more encoding than listed in this section. See the SQR for PeopleSoft Supported Character Set Encodings section in this chapter.

Setting Up Fonts

SQR for PeopleSoft represents fonts internally as numbers, and the pssqr.ini/unx file controls the mapping between the font number and the actual font for the selected print device (for example, SPF and EHTML).

To ensure that SQR for PeopleSoft prints report output in your target language, you must edit the [Fonts] section of the pssqr.ini/unx file.

Note. It is not necessary to modify the [Fonts] section if you are generating output in Western European or Eastern European languages. If you are generating output in Japanese, Korean, Chinese, or Thai, follow the steps described in this section.

To set up fonts:

1. Open the pssqr.ini/unx file located in %PS_HOME%/SQR.
2. In the [Fonts] section, the following default values display. Use the chart to replace each of the entries for your target language.

```
3=Courier New,fixed
300=Courier New,fixed,bold
4=Arial,proportional
400=Arial,proportional,bold
5=Times New Roman,proportional
500=Times New Roman,proportional,bold
6=AvantGarde,proportional
8=Palatino,proportional
800=Palatino,proportional,bold
11=Symbol,symbol
900=unknown,proportional
901=Times New Roman,proportional
28825=MS UI Gothic,proportional
```

Font Number	Japanese	Simplified Chinese	Traditional Chinese	Thai	Korean
3	MS Gothic, proportional	SimHei, proportional	MingLiu, proportional	CordiaUPC, proportional	GulimChe, proportional
300	MS Gothic, proportional, bold	SimHei, proportional, bold	MingLiu, proportional, bold	CordiaUPC, proportional, bold	GulimChe, proportional, bold
4	MS Gothic, proportional	SimHei, proportional	MingLiu, proportional	CordiaUPC, proportional	GulimChe, proportional
400	MS Gothic, proportional, bold	SimHei, proportional, bold	MingLiu, proportional, bold	CordiaUPC, proportional, bold	GulimChe, proportional, bold
5	MS Mincho, proportional	SimSun, proportional	MingLiu, proportional	AngsanaUPC, proportional	BatangChe, proportional
500	MS Mincho, proportional, bold	SimSun, proportional, bold	MingLiu, proportional, bold	AngsanaUPC, proportional, bold	BatangChe, proportional, bold
6	MS Gothic, proportional	SimHei, proportional	MingLiu, proportional	CordiaUPC, proportional	GulimChe, proportional
8	MS Gothic, proportional	SimHei, proportional	MingLiu, proportional	CordiaUPC, proportional	GulimChe, proportional
800	MS Gothic, proportional, bold	SimHei, proportional, bold	MingLiu, proportional, bold	CordiaUPC, proportional, bold	GulimChe, proportional, bold
901	MS Mincho, proportional	SimSun, proportional	MingLiu, proportional	CordiaUPC, proportional	GulimChe, proportional
28825	MS UI Gothic, proportional	N/A	N/A	N/A	N/A

Setting Up PDF Fonts

SQR for PeopleSoft can generate PDF output in all the languages covered by Latin1 encoding, Japanese, Simplified Chinese, Traditional Chinese, and Korean. For Chinese, Japanese, and Korean, you must set up PDF fonts for the target language.

Use the [PDF Fonts] section of the pssqr.ini/unx file to set up PDF fonts for the target language. By default, the pssqr.ini/unx file is enabled for Latin1/Japanese. To generate PDF output in another language, comment out the Latin/Japanese option, and uncomment the section for the target language.

See *PeopleTools 8.42 Installation Guide for Your Database Platform*

Setting Up Files for PCL and Line Printing

Most of the configurations for printing international text from SQR for PeopleSoft are performed by setting options in the pssqr.ini/unx file. However, for some of the printer-specific settings, you must set parameters in SQR for PeopleSoft programs because of the SQR for PeopleSoft syntax.

For example, SQR for PeopleSoft enables users to control printer parameters for PCL format in DEFINE-PRINTER or ALTER-PRINTER commands. PeopleTools provides default setup values for PCL format in three SQC files (ptset01.sqc, ptset02.sqc and ptset02a.sqc). If you intend to print languages in PCL format other than those covered by Latin1, you must add printer setup parameters to the SQC files.

Before you perform the configuration tasks described in this section, make sure that you have properly configured your printers to print in the target language.

For printing Japanese, Simplified Chinese, and Traditional Chinese, you need to purchase fonts in ROM from your printer vendor and install them on your printer.

The parameters you set for PCL printing must be consistent with the ENCODING parameters set in the pssqr.ini/unx file. You must set up the ENCODING parameters for each language before you set the parameters for PCL printing. See Setting Up Encoding Parameters in this chapter.

This section discusses how to:

- Set up PCL printing parameters for Japanese.
- Set up PCL printing parameters for non-Japanese languages.

To set up PCL printing parameters for Japanese:

1. Open setenv.sqc file under %PS_HOME%\SQR.
2. Uncomment the following parameter:

   ```
   #define PRINT_JAPANESE
   ```

3. Save and close the file.

To set up PCL printing parameters for languages other than Japanese:

Note. If you intend to print a language other than those covered by Latin1, and if it is not Japanese, follow these steps to setup the SQC files.

---

1. Open the ptset01.sqc file located under %PS_HOME%\SQR.
2. Between the declare printer DEFAULT-HP and end-declare statements, add the following information with the appropriate values:

   ```
   font
   symbol-set
   ```

The values you set differ from language to language. The following table shows sample values for several languages commonly used by PeopleSoft customers.

Language	Font	Symbol Set
Central/Eastern European	No need to set.	2N
Traditional Chinese	33269	18T
Simplified Chinese	37058	18C

For example, if you are setting ptset01.sqc for Simplified Chinese printing, try the following setting:

```
declare-printer DEFAULT-HP
#ifdef PRINT_JAPANESE
  init-string=<27>&t31P
  font=28825
  symbol-set=19K
#endif
  font=37058
  symbol-set=18C
  point-size=7.2
  pitch=17
end-declare
```

3. Under the declare printer DEFAULT-LP statement, locate the init-string parameter.

   Modify the init-string parameter based on the language to print. The following example shows sample values for HP LaserJet printer's line printer mode. Consult your printer manual for correct values for this parameter.

Language	init-string
Eastern European	<27>E<27> (2N<27>&l0O<27>&l6C<27>&l0E<27>&l95F<27> (s16.66H<27>&k2G
Traditional Chinese	<27>E<27> (18T<27>&l0O<27>&16C<27>&10E<27>&195F<27> (s16.66H<27>&k2G<27>(s1p7.25v0s0b33269T
Simplified Chinese	<27>E<27> (18C<27>&l0O<27>&16C<27>&10E<27>&195F<27> (s16.66H<27>&k2G<27>(s1p7.25v0s0b37058T

4. Save and close the file.
5. Open ptset02.sqc from %PS_HOME%\SQR and repeat steps 2 through 4.
6. Open ptset02a.sqc from %PS_HOME%\SQR and repeat steps 2 through 4.

Setting up Files for PostScript Output

In addition to PCL and line printer format, SQR for PeopleSoft supports output in PostScript format, which can be printed with a printer that has PostScript interpreter. Like PCL and line printing, you must configure the pssqr.ini/unx file for international text output. However, you configure fonts in a setup file provided for PostScript printing.

The parameters you set for PostScript printing must to be consistent with the ENCODING parameters you set in the pssqr.ini/unx file. You must set up the ENCODING parameters for each language before you set the parameters for PostScript printing. See Setting Up Encoding Parameters.

Your PostScript printer should have resident fonts that support each language. The values listed in this section are based on commonly used PostScript printers and may be changed for some printers. Consult your printer manual for correct font names. Depending on your device, you may need to install additional fonts for language support.

To set up files for PostScript output:

1. Open the piostscri.str file from %PS_HOME%\bin\sqr\%DB Platform%\binw, or from the directory where the SQR executable resides.
2. Locate the following section:

   ```
   /Fonts [   % Array of point sizes and font names
   ```

3. Replace each font with the appropriate font name installed on your printer that can print your target language.

   For CJK languages (Chinese, Japanese, Korean), PostScript printer accepts the font name in the following format:

   ```
   (Font Name)-(CMap name)
   ```

   Font Name represents the name of the font installed on your printer and that supports the language that you want to print. *CMap* is a file PostScript printer used to find the glyph that corresponds to the codepoint passed to the printer. You need to use the *CMap* that matches with the encoding specified in the ENCODING parameter in the pssqr.ini/unx file.

   The following example shows setup values for each of the CJK languages. Supported font names and CMap files may vary depending on your printer. For details, refer to your printer documentation.

Language	Report Output Encoding	Serif Typeface	San Serif Typeface
Japanese	SJIS	Ryumin-Light-RKSJ-H	GothicBBB-Medium-RKSJ-H
Traditional Chinese	Big5	MSung-Light-B5-H	MHei-Medium-B5-H

Language	Report Output Encoding	Serif Typeface	San Serif Typeface
Simplified Chinese	CP936	STSong-Light-GBK-EUC-H	STHeiti-Regular-GBK-EUC-H
Korean	CP949	HYSMyoeongJo-Medium-KSCms-UHC-H	HYGoThic-Medium-KSCms-UHC-H

4. Save and close the file.

Limitations in Printing International Text from SQR for PeopleSoft

If you run SQR for PeopleSoft from PeopleSoft Process Scheduler, you can set up SQR to process only one character set per Process Scheduler process. If you need output in multiple character sets from a single PeopleSoft system, perform the following:

1. Create separate Process Scheduler processes for each character set.
2. Create separate copies of the pssqr.ini/unx file and apply language-appropriate modifications to each file.
3. Setup each Process Scheduler process to use the appropriate language-specific pssqr.ini/unx file.
4. If you need multiple languages printed on an PCL printing device, you must create printer setup SQC files under %PS_HOME%/SQR for each language, apply modifications to the SQC files as described above, and setup Process Scheduler to pick up the modified SQC files from separate source directories for each language.

SQR for PeopleSoft is a Unicode application and can process more than one language at a time, but for printing, Unicode support is limited because printing devices, including Adobe Acrobat Reader, do not fully support Unicode natively. Printers usually do not accept Unicode encoded output files. In addition, font support is limited. Because of these limitations, PeopleSoft recommends using ANSI encoding that is appropriate for your target language for report output, and that you generate output a single language at one time. If you need multiple languages at one time from single run of a report, use Enhanced HTML output, since it supports UTF-8 encoding and browsers can usually handle rendering of multiple languages on a single HTML file.

For printer output, your printer needs to support the encoding and font that can print your target language from SQR for PeopleSoft correctly. For PCL printers, some languages need fonts that printer vendors provide in external font ROM as an option. For PostScript printers, printers that have internal font support are available in local markets, or you can purchase fonts for your printer. SQR for PeopleSoft cannot print languages for which your printer does not provide native support.

The ability of SQR for PeopleSoft to print international text in PDF format is limited to the languages for which Adobe Acrobat natively provides font and encoding support. Currently, Acrobat natively supports languages printable in Latin1 encoding. CJK languages are supported by using a specific language version of Acrobat or by installing the Asian font pack. For other languages, PDF output is not supported. Please use SPF or HTML as alternative output types.

Currently, SQR does not support languages that require bidirectional text rendering, such as Arabic and Hebrew.

Working With International Text in SQR for PeopleSoft Programs

This section discusses:

- System variables to check encoding settings.
- String length.
- OPEN command.

System Variables to Check Encoding Settings

You can reference the values set for the ENCODING parameters in pssqr.ini/unx from your SQR for PeopleSoft programs using the following system variables:

- *$sqr-encoding*

  Stores value set to the ENCODING parameter of pssqr.ini/unx. If no value is set for this parameter, SQR automatically determines the appropriate encoding for input and output based on the operating system locale and stores values in this variable.

- *$sqr-encoding-database-api*

  Stores value set to ENCODING-DATABASE-API parameter of pssqr.ini/unx file. Except for DB2, the value for this parameter is automatically determined by the system and cannot be overridden by editing pssqr.ini/unx. In this case, this variable stores the encoding value automatically determined and used by system. For example, on an Oracle platform, this variable value is always *UTF-8*.

- *$sqr-encoding-file-input*

  Stores value set to ENCODING-FILE-INPUT parameter in pssqr.ini/unx file. If no value is set for this parameter, the input files are considered to be encoded in the encoding specified in the ENCODING parameter and this variable stores the same value as $sqr-encoding.

- *$sqr-encoding-file-output*

  Stores value set to ENCODING-FILE-OUTPUT parameter in pssqr.ini/unx file. If no value is set for this parameter, the same encoding set in the ENCODING parameter is used for file output encoding and this variable stores the same value as $sqr-encoding.

- *$sqr-encoding-report-output*

  Stores value set to ENCODING-REPORT-OUTPUT parameter in pssqr.ini/unx file. If no value is set for this parameter, the same encoding set in the ENCODING parameter is used for report output encoding and this variable stores the same value as $sqr-encoding.

- *$sqr-encoding-source*

  Stores value set to ENCODING-SQR-SOURCE parameter in pssqr.ini/unx file. If no value is set for this parameter, SQR source files are considered to be encoded in the character set encodings specified in the ENCODING parameter and this variable stores the same value as $sqr-encoding.

- *$sqr-encoding-console*

  Stores value set to ENCODING-CONSOLE parameter in pssqr.ini/unx file. If no value is set for this parameter, the same encoding set in the ENCODING parameter is used for console output encoding and this variable stores the same value as $sqr-encoding.

Note. The system variables are read-only and cannot be overwritten at runtime. They can be used with functions and commands that take encodings as parameters, such as **substrt()**, **lengtht()**, and **open**.

String Length

When you work with strings in SQR, you must consider three different ways of measuring string length:

- The number of characters in the string.
- The number of print columns occupied by these characters.

  For example, characters from the Latin alphabet normally require one print column; characters in Japanese often require two.
- The number of bytes used to store the character.

  SQR uses the Unicode UCS-2 method of encoding characters, which means that every character occupies two bytes; however, your database may use a different encoding that requires a different number of bytes for each character.

SQR provides the following functions to help you manage string length according to each of these criteria.

Note. Although SQR uses Unicode internally, it can still read/write with non-Unicode (ANSI) databases and files. Refer to the OPEN command in the SQR documentation for details.

- **Length()** and **Substr()**.

  Length() and **Substr()** deal with the number of characters in a string. As the PeopleSoft field lengths (as defined in PeopleSoft Application Designer) are character-based, the **Length( )** and **Substr( )** functions are useful for calculating the length of the string as it is stored in the database.

  For example, the following code determines whether string *&abc* will fit into a database field that is 10 characters long. If the string won't fit into the field, the code truncates the string to use only the first 10 characters.

```
If length(&abc) > 10 then
&abc = substr(&abc,1,10)
End-if
```

- **Lengthp()** and **Substrp()**.

  Lengthp() and **Substrp()** deal with the number of print columns required to print the character using a monospace (nonproportional) font.

  For example, the following code determines whether string *&abc* will fit into a print area that is 10 columns wide. If the string won't fit into the print area, the code truncates the string to use only the first 10 columns of characters.

```
If lengthp(&abc) > 10 then
&abc = substrp(&abc,1,10)
End-if
```

- **Lengtht()** and **Substrt()**.

Lengtht() and **Substrt()** deal with the number of bytes that the string occupies in a specified character set. Typically, you would use **lengtht( )** and **substrt( )** if you are writing to a file in a specific character set, and you need to check or limit the byte length of the string in the output file, as would be required by most interface files.

For example, the following code determines whether string *&abc* will require more than 10 bytes in an output file. If the string is more than 10 bytes, the code truncates the string to use only the first 10 bytes worth of characters. The SQR system variable *$sqr-encoding-file-output* is used to reference the *SQR.INI ENCODING-FILE-OUTPUT* variable, which determines the default character set of any file that is written to by the SQR OPEN command. You can substitute any valid PeopleSoft encoding for the *$sqr-encoding-file-output* variable.

```
If lengtht(&abc, $sqr-encoding-file-output) >10 then
&abc = substrt(&abc, $sqr-encoding-file-output,1,10)
End-if
```

OPEN Command

The SQR OPEN command, used to read and write files from within SQRs, enables the report designer to specify the character set of the file being opened. You can specify a character set explicitly in the OPEN command. If you do not specify a character set, the SQR uses the character set specified in the SQR.INI parameter ENCODING-FILE-OUTPUT or ENCODING-FILE-INPUT, depending on whether you are opening the file for reading or writing.

To integrate with a third-party system, specify the character set for SQRs to match the target data. For example, a mainframe-based payroll system may expect an EBDCIC format file. Specifying the character set directly in the OPEN command enables the SQR program to be independent of the SQR.INI settings and enables the SQR to create the file directly in the character set expected by the target system (without the need to convert the output in a separate step).

See Also

Chapter 4, “Character Sets and Language Input/Output,” page 39

SQR for PeopleSoft Language Reference, “SQR Command Reference,” OPEN

SQR for PeopleSoft Supported Character Set Encodings

This section lists the character set encodings that are supported by SQR for PeopleSoft 8.42. The character set encodings are organized by the following character sets:

- Arabic
- Baltic
- Celtic
- Chinese (Simplified)
- Chinese (Traditional)
- Cyrillic
- Gurmukhi
- Greek

- Hebrew
- Icelandic
- Japanese
- Korean
- Latin
- Latin (Canadian French)
- Latin (Central European)
- Latin (Southeastern European)
- Malayalam
- Nordic
- Slavic
- Symbol
- Thai
- Turkish
- Unicode
- Vietnamese

Understanding Supported Character Set Encodings

You can specify the values in the Encoding Parameter column in the ENCODING parameter in the pssqr.ini/unx file.

ENCODING-REPORT-OUTPUT applies to all output types.

In the Output Supported column of the following tables, note that:

PCL	*PCL* denotes PCL printing format. Values in parentheses next to PCL, for example *PCL (8V)*, are symbol sets. If PCL is not listed for an encoding parameter, the encoding is not supported output. Additional hardware support (font ROM) may be required to get correct output. *PCL (*)* indicates that the level of GBK supported by the font simm is limited to GBK Level 1/2. GBK encoding can contain up to GBK/4, but because of limited support of font ROM, SQR for PeopleSoft cannot print level 3/4 characters.
PS	*PS* denotes a PostScript printer.
PDF	*PDF* denotes Portable Document Format.
CSV	CSV denotes comma-separated value format.

CSV (*) means output is supported but Microsoft Excel may not read the output correctly. To read the output in Excel, use a supported encoding other than those indicated with an asterisk (*).

HMTL

HTML denotes Hypertext Markup Language.

HTML (*) denotes that output is supported but Windows Internet Explorer may not be able to read the output correctly. Support differs based on platform and browser.

Flat file

Flat file denotes that the output is generated by the WRITE command or that the text encoding is readable with the READ command.

SPF and Enhanced HTML can output all the supported languages and encodings. For these two output types, SQR uses UTF-8 encoding (Unicode), even if ENCODING and ENCODING-REPORT-OUTPUT is set to non-Unicode encoding in the pssqr.ini/unx file.

Data processing of Arabic/Hebrew and other languages normally written in right-to-left order is supported, but SQR for PeopleSoft will does not generate reports in right-to-left page order.

Arabic

The following table lists the supported encodings for the Arabic character set:

Encoding Parameter	Description	Output Support
CP720	Arabic - Transparent ASMO	PCL (8V), HTML (*), Flat file
CP708	ASMO708	HTML (*), Flat file
CP20240	IBM EBCDIC - Arabic	Flat file
CP28596	ISO 8859-6 (Arabic)	CSV, HTML (*), Flat file
Arabic	ISO 8859-6 (Arabic)	PCL (11N), CSV, HTML (*), Flat file
CP10004	Macintosh Arabic	CSV (*), Flat file
CP1256	MS Windows Arabic	PCL (9V), CSV, HTML (*), Flat file
CP864	MS-DOS Arabic	CSV (*), HTML (*), Flat file

Baltic

The following table lists the supported encodings for the Baltic character set:

Encoding Parameter	Description	Output Support
CP28594	ISO 8859–4 (Baltic)	CSV, HTML, Flat file
ISO-8859–4, Latin4	ISO 8859–4 (Baltic)	4N, CSV (*), HTML, Flat file
CP1257	MS Windows Baltic	CSV, HTML, Flat file
CP775	MS-DOS Baltic	PCL (19L), CSV (*), Flat file

Celtic

The following table lists the supported encodings for the Celtic character set:

Encoding Parameter	Description	Output Support
ISO-8859–14	ISO 8859–14 (Latin 8)	Flat file

Chinese (Simplified)

The following table lists the supported encodings for the Simplified Chinese character set:

Encoding Parameter	Description	Output Support
GB18030	GB 18030-2000	Flat file
GB2312	GB 2312-80	PCL (18C), PS, PDF, CSV, HTML, Flat file
HZ	HZ GB2312-80	HTML, Flat file
CP936	MS Windows Schinese/MS-DOS Schinese (GBK)	PCL (18C)(*), PS. PDF, CSV, HTML, Flat file
EUC-CN	Simplified Chinese EUC	PS, PDF, CSV (*), Flat file

Chinese (Traditional)

The following table lists the supported encodings for the Traditional Chinese character set:

Encoding Parameter	Description	Output Support
Big5	Big5	PCL (18T), PS, PDF, CSV, HTML, Flat file
CNS-11643-1986	CNS-11643-1986	CSV (*), Flat file
CNS-11643-1992	CNS-11643-1992	CSV (*), Flat file
GB12345	GB12345	Flat file
CP10002	Macintosh Traditional Chinese	Flat file
CP950	MS Windows Tchinese/MS-DOS Tchinese (Big5)	PCL (18T), PS, PDF, CSV, HTML, Flat file
EUC-TW	Traditional Chinese EUC	PS, PDF, CSV (*), Flat file

Cyrillic

The following table lists the supported encodings for the Cyrillic character set:

Encoding Parameter	Description	Output Support
CP20880	IBM EBCDIC - Cyrillic (Russian)	Flat file
CP21025	IBM EBCDIC - Cyrillic (Serbian, Bulgarian)	Flat file
CP28595	ISO 8859-5 (Cyrillic)	CSV, HTML, Flat file
ISOLatinCyrillic	ISO 8859-5 (Cyrillic)	PCL (5T), CSV, HTML, Flat file
CP10007	Macintosh Cyrillic	CSV (*), Flat file
CP1251	MS Windows Cyrillic (Slavic)	PCL (5T), CSV, HTML, Flat file
CP855	MS-DOS Cyrillic	CSV (*), HTML, Flat file
CP866	MS-DOS Russian	CSV (*), Flat file

Encoding Parameter	Description	Output Support
CP20866	Russian — K018	CSV (*), HTML, Flat file
CP21866	Ukranian — K018 — RU	HTML, Flat file

Greek

The following table lists the supported encodings for the Greek character set:

Encoding Parameter	Description	Output Support
CP20423	IBM EBCDIC - Greek	Flat file
CP28597	ISO 8859-7 (Greek)	CSV, Flat file
Greek	ISO 8859-7 (Greek)	CSV, HTML, Flat file
CP10006	Macintosh Greek 1	CSV (*), Flat file
CP1253	MS Windows Greek	CSV, HTML, Flat file
CP737	MS-DOS Greek 437G	CSV (*), Flat file
CP869	MS-DOS Modern Greek	CSV (*), Flat file

Gurmukhi

The following table lists the supported encodings for the Gurmukhi character set:

Encoding Parameter	Description	Output Support
CP10010	Macintosh Romanian	CSV (*), Flat file

Hebrew

The following table lists the supported encodings for the Hebrew character set:

Encoding Parameter	Description	Output Support
CP38598	ISO 8859-8 (Hebrer Logical Ordering)	CSV, HTML (*), Flat file
Hebrew	ISO 8859-8 (Hebrer Logical Ordering)	CSV, HTML (*), Flat file
CP28598	ISO 8859-8 (Hebrer Visual Ordering)	HTML (*), Flat file
CP10005	Macintosh Hebrew	CSV (*), Flat file
CP1255	MS Windows Hebrew	CSV, HTML (*), Flat file
CP862	MS-DOS Hebrew	CSV (*), HTML (*), Flat file

Icelandic

The following table lists the supported encodings for the Icelandic character set:

Encoding Parameter	Description	Output Support
CP10079	Macintosh Icelandic	CSV (*), Flat file
CP861	MS-DOS Icelandic	CSV (*), Flat file

Japanese

The following table lists the supported encodings for the Japanese character set:

Encoding Parameter	Description	Output Support
CP21027	Ext Alpha Lowercase	Flat file
CCSID-1027	IBM EBCDIC - Japanese	CSV (*), Flat file
CP20290	IBM EBCDIC - Japanese Kana Extention	Flat file
CCSID939, EBCDIK1027	IBM EBCDIC MBCS-HOST - Japanese (1027+ 0300)	PDF, CSV (*), Flat file

Encoding Parameter	Description	Output Support
CCSID-290	IBM EBCDIK - Japanese Kana Extention	CSV (*), Flat file
CCSID930, EBCDIK290	IBM EBCDIK MBCS-HOST - Japanese (290+0300)	PDF, CSV (*), Flat file
CCSID-942	IBM MBCS-PC OS2 (1041+941) - Japanese	CSV (*), Flat file
ISO-2022-JP	ISO 2022-JP	CSV (*), Flat file
EUC-J, JEUC	Japanese EUC	PS, PDF, CSV (*), HTML, Flat file
JIS_X_0201	JIS X 0201	CSV (*), Flat file
JIS_X_0208	JIS X 0208	CSV (*), Flat file
CP10001	Macintosh Japanese	Flat file
Shift-JIS, SJIS	MS Windows Japanese/MS-DOS Japanese	PCL (19K), PS, PDF, CSV, HTML, Flat file
CP932	MS Windows Japanese/MS-DOS Japanese	PCL (19K), PS, PDF, CSV, HTML, Flat file

Korean

The following table lists the supported encodings for the Korean character set:

Encoding Parameter	Description	Output Support
ISO-2022-KR	ISO-2022-KR	CSV (*)
EUC-KR	Korean EUC	PS, PDF, CSV (*), Flat file
CP1361	Korean Johab	PS, PDF, CSV (*), Flat file
Johab	Korean Johab	PS, PDF, CSV (*), Flat file

Encoding Parameter	Description	Output Support
CP10003	Macintosh Korean	Flat file
CP949	MS Windows Korean/MS-DOS Korean	PS, PDF, CSV, Flat file

Latin

The following table lists the supported encodings for the Latin character set:

Encoding Parameter	Description	Output Support
CP20277	IBM EBCDIC - Denmark/Norway	Flat file
CP20278	IBM EBCDIC - Finland/Sweden	Flat file
CP20297	IBM EBCDIC - France	Flat file
CP20273	IBM EBCDIC - Germany	Flat file
CP20871	IBM EBCDIC - Icelandic	Flat file
CP500	IBM EBCDIC - International	CSV (*), Flat file
CP20280	IBM EBCDIC - Italy	Flat file
CP20833	IBM EBCDIC - Korean Extended	Flat file
CP20284	IBM EBCDIC - Latin America/Spain	Flat file
CCSID1047	IBM EBCDIC - Latin1/Open System	PDF, Flat file
CP875	IBM EBCDIC - Modern Greek	CSV (*), Flat file
CP870	IBM EBCDIC - Multilingual /ROECE (Latin2)	CSV (*), Flat file
CP20285	IBM EBCDIC - United Kingdom	Flat file

Encoding Parameter	Description	Output Support
CP20269	ISO 6937 Non-Spacing Accent	Flat file
CP28591	ISO 8859-1 (Latin 1)	CSV (*), Flat file
ISO-8859-1, Latin1	ISO 8859-1 (Latin 1)	PCL (0N), PS, PDF, CSV, HTML, Flat file
ISO-8859-15	ISO 8859-15 (Latin 9)	CSV (*), Flat file
ISO-8859-2, Latin2	ISO 8859-2 (Central Europe)	PCL (2N), CSV, HTML, Flat file
CP28593	ISO 8859-3 (Latin 3)	CSV (*), Flat file
CP10082	Macintosh Croatia	CSV (*), Flat file
CP10029	Macintosh Latin2	CSV (*), Flat file
CP1252	MS Windows Latin1	PCL (19U), PS, PDF, CSV, HTML, Flat file
CP850	MS-DOS Multilingual Latin1	PCL (12U), CSV (*), Flat file
CP860	MS-DOS Portugese	Flat file
CP20261	T.61	Flat file

Latin (Canadian French)

The following table lists the supported encodings for the Latin (Canadian French) character set:

Encoding Parameter	Description	Output Support
CP863	MS-DOS Canadian French	CSV (*), Flat file

Latin (Central European)

The following table lists the supported encodings for the Latin (Central European) character set:

Encoding Parameter	Description	Output Support
CP28592	ISO 8859-2 (Central Europe)	CSV, HTML, Flat file
CP1250	MS Windows Central European	PCL (9E), CSV, HTML, Flat file

Latin (Southeast European)

The following table lists the supported encodings for the Latin (Southeast European) character set:

Encoding Parameter	Description	Output Support
ISO-8859-3, Latin3	ISO 8859-3 (Latin 3)	CSV, HTML, Flat file

Latin (US English)

The following table lists the supported encodings for the Latin (US English) character set:

Encoding Parameter	Description	Output Support
CP20105	IA5 IRV International Alphabet No.5	Flat file
EBCDIC, CP037	IBM EBCDIC - US/Canada	PS, PDF, CSV (*), Flat file
CP037	IBM EBCDIC - US/Canada	CSV (*), Flat file
CP437	MS-DOS US	CSV (*), Flat file
ASCII, ANSI	US-ASCII	PCL (0U), PS, PDF, CSV, HTML, Flat file

Latin (Western European)

The following table lists the supported encodings for the Latin (Western European) character set:

Encoding Parameter	Description	Output Support
CP10000	Macintosh Roman	CSV (*), Flat file

Malayalam

The following table lists the supported encodings for the Malayalam character set:

Encoding Parameter	Description	Output Support
CP10017	Macintosh Malayalam	Flat file

Nordic

The following table lists the supported encodings for the Nordic character set:

Encoding Parameter	Description	Output Support
ISO-8859-10, Latin6	ISO 8859-10 (Latin 6)	PCL (6N), Flat file
CP865	MS-DOS Nordic	CSV (*), Flat file

Slavic

The following table lists the supported encodings for the Slavic character set:

Encoding Parameter	Description	Output Support
CP852	MS-DOS Slavic	PCL (17U), CSV (*), Flat file

Symbol

The following table lists the supported encodings for the Symbol character set:

Encoding Parameter	Description	Output Support
Adobe-Symbol-Encoding	Adobe Symbol Encoding	Flat file
CP10008	Macintosh RSymbol	Flat file

Thai

The following table lists the supported encodings for the Thai character set:

Encoding Parameter	Description	Output Support
CP20838	IBM EBCDIC - Thai	Flat file
Thai	ISO 8859-11 (Thai)	CSV, HTML, Flat file
CP874	MS Windows Thai/MS-DOS Thai	CSV, HTML, Flat file

Turkish

The following table lists the supported encodings for the Turkish character set:

Encoding Parameter	Description	Output Support
CP20905	IBM EBCDIC - Turkish	CSV (*), Flat file
CP1026	IBM EBCDIC - Turkish (Latin 5)	CSV (*), Flat file
CP28599	ISO 8859-9 (Latin 5)	CSV, HTML, Flat file
ISO-8859-9, Latin5	ISO 8859-9 (Latin 5)	PCL (5N), CSV, HTML, Flat file
CP10081	Macintosh Turkish	CSV (*), Flat file
CP1254	MS Windows Turkish	PCL (5T), CSV, HTML, Flat file
CP857	MS-DOS Turkish	PCL (9T), CSV (*), Flat file

Unicode

The following table lists the supported encodings for the Unicode character set:

Encoding Parameter	Description	Output Support
Java	Java Encoding (represents Unicode in ASCII)	Flat file
Big-Endian	Unicode Big-Endian Order	CSV (*), Flat file
BMP	Unicode BMP	Flat file
Little-Endian	Unicode Little-Endian Order	CSV, Flat file
UCS-2, UCS2	Unicode UCS-2 Encoding	CSV (*), HTML, Flat file
UTF-8, UTF8	Unicode UTF-8 Encoding	CSV (*), Flat file
UTF8-EBCDIC	UTF-8 EBCDIC	Flat file

Vietnamese

The following table lists the supported encodings for the Vietnamese character set:

Encoding Parameter	Description	Output Support
CP1258	MS Windows VietNum	CSV, HTML, Flat file

PS/nVision Reports

In PS/nVision, you can specify the language of the user who is designing or requesting a report, the language of the user who makes a report request, and the language of the ultimate audience of a report (the person or group of people for whom the report was generated). The primary goal of these features is to allow a single layout to produce several instances of a report in a requested alternate language or group of languages. To that end, the features are designed to present reports to end users in their preferred languages. Thus, there is a distinction between the designer's language and the user's language.

Most of the strings in PS/nVision output are fetched from the Strings table and they are delivered with the report instance. However, many labels used in macros and dialog boxes have to be translated directly in the file, as they cannot be fetched at runtime. When a PS/nVision report happens to contain labels in macros or dialog boxes, the layout needs to be translated in Excel, and a separate copy of the layout maintained for each language. In this case, each language has its own version of the file, and the same rules for locating the appropriate language of the PS/nVision layout spreadsheet files are used as for Crystal Reports described above. Each PS/nVision layout and drill-down directory can contain a subdirectory for each language. PS/nVision searches the appropriate directory for the user's current language, and performs the appropriate fallback if a translation is not found.

Language-sensitive features of PS/nVision can be broken into two distinct parts:

Design-Time Features These are features related to designing PS/nVision layouts.

Runtime Features These are features activated when a user makes a PS/nVision report request.

See Also

PeopleTools 8.42 PeopleBook: PS/nVision

PS/nVision Design-Time Globalization Features

The following design-time features of PS/nVision adapt to the current user's language and enable you to build a layout that can produce reports in multiple languages

Column Headings When the user selects a column from a list, the list appears in the user's language (unless database field names are requested). Wherever the heading is stored in the layout, it's stored in the base language.

Tree Names When prompting for tree names or presenting a tree description—for example, when adding tree criteria for a field—the tree description appears in the

user's language. Depending on the structure of your tree, this may require adding related language records to one or more prompting views.

String Variables

Layouts typically contain a considerable amount of constant text, such as the column headings Last Year to Date and Current Budget. PS/nVision provides the option to build multilingual layouts where these text strings are replaced by specially formatted strings whose user-language equivalent can be retrieved from the PeopleTools Strings table. This enables a single PS/nVision layout definition to be used in multiple languages without duplicating the layout itself. These string names resemble user-defined PS/nVision variables.

PS/nVision translates only the strings that occupy a layout cell and are in the following format:

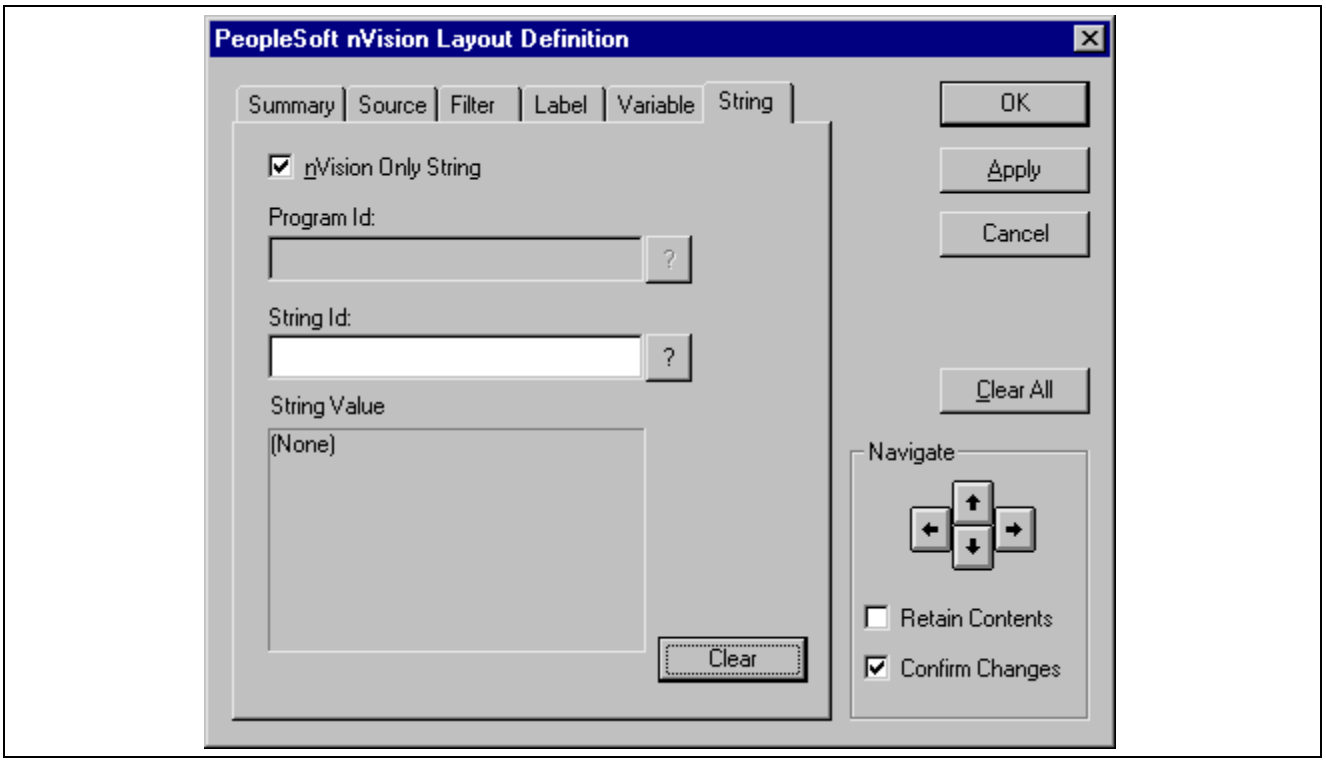
```
%.name,program%
```

Where *name* is the string name and *program* is the optional group that is used to collect a common set of strings used on similar reports. You can look up the *name* in the Strings table using the Strings Table utility.

Note. This is similar to the approach used by PeopleSoft application SQRs. Names are case sensitive.

Setting Up String Criteria

Use the PeopleSoft nVision Layout Definition dialog box: String tab to set up string criteria for the current cell selection.



PeopleSoft nVision Layout Definition dialog box: String tab

To set up string criteria for the current cell selection:

1. Open the PeopleSoft nVision Layout Definition dialog box.
2. Select the String tab.

   The String tab in the PeopleSoft nVision Layout Definition dialog box appears.

   Use this tab to insert a string from the Strings table into a cell in your layout.
3. Clear the nVision Only String box, if appropriate.

   By default, this tab displays only the strings that were created for use with PS/nVision—those with a program ID of NVISION. If you want to select from all available strings, clear the nVision Only String box.
4. If the nVision Only String box is cleared, select a Program ID.

   Note. If the nVision Only String check box is selected, the program ID is *NVISION*.
5. In the String ID field, select the ID of the string you want to insert.

   Select any of the strings assigned to the program ID that you specified.
6. Click Apply to save your changes and define string criteria for a different cell, or click OK to save your changes and close the dialog box.

   If you clicked Apply, and you want to reuse all or part of the criteria you just applied, select the Retain Contents box. This preserves all the dialog box information when you navigate to a new cell selection. Then repeat steps 3 through 5 to define additional string criteria.

See Also

Chapter 8, "Global Reporting and Analysis," The Strings Table, page 107

PS/nVision Run-Time Language Features

The following features are activated when a user makes a PS/nVision report request:

Path Search

As PS/nVision looks for a file (such as an Excel spreadsheet, layout, or template), it steps through the directories listed in the appropriate paths. The paths are defined in different ways for the Windows client and the Web. In the Windows client, the paths are defined in PeopleSoft Configuration Manager. In the Web, the paths are defined in the [nVision] section of the PeopleSoft Process Scheduler configuration file (psprcs.cfg).

Before looking in each directory, PS/nVision looks in a subdirectory named by the user's language code. If the file is not there, or if the appropriate directory does not exist, PS/nVision looks in the directory named in the path. If the file is not there, PS/nVision moves to the next directory in the path and repeats the process.

For example, when searching for NVSUSER files for a user with France as the preferred language and the defined path for macros is %PS_HOME%\EXCEL, PS/nVision searches for %PS_HOME%\EXCEL\FRA directory first. If the files are not found, PS/nVision uses the files in the %PS_HOME%\EXCEL.

This feature supports users who need or prefer different layouts and for users of different languages. For example, it may be necessary to create an earnings report differently in Germany and France because differences in accounting rules or management requirements dictate different criteria and formatting. So, if a French user runs a PS/nVision report, PeopleTools first looks in the FRA directory under the PS/nVision directory that is defined for an installation. If the required report layout isn't found in the FRA directory, PeopleTools uses the generic report layout in the base PS/nVision directory.

Request Language

The PS/nVision Report Request page includes a Language Template text box on the Advanced Options page. In the Foreign Language Translation field, enter an alternate language code to automatically generate a translated report. If you are applying a scope to the report request, enter a string containing one or more PS/nVision variables.

If you enter one or more variables in the Foreign Language Translation field, then the value of each variable is interpreted at runtime to get the language code for each report instance. This enables retrieval of the language code from a tree node or value table that is associated with the values in the scope.

The syntax of this variable is as follows:

```
%DES.[scopefield].{detailfield|.nodefield|detailfield.nodefield}%
```

Note that the field names required vary, depending on the type of scope you're using. However, the periods between the values must always exist—except in the case of a trailing period. The *scopefield* parameter is optional. If you don't specify one, PS/nVision uses the first scope field you defined. If you want to use a field other than the first one defined in the scope, then you must specify which one.

You can provide a *detailfield*, *nodefield* or both. PS/nVision uses the appropriate field type based on your scope. Consequently, specifying one of each type enables you to change your scope definition without necessarily changing this variable. The detail and node table fields you specify should store PeopleSoft language codes and can be found on the same node or detail value table associated with the *scopefield*. Typically, the field name used is *LANGUAGE_CD*.

The follow example shows a common implementation of this variable (note the inclusion of the extra period):

```
%DES..LANGUAGE_CD.LANGUAGE_CD%
```

If your scope consists of multiple scope fields (PRODUCT and BUSINESS_UNIT), your variable might look like this:

```
%DES.BUSINESS_UNIT.LANGUAGE_CD.LANGUAGE_CD%
```

If you don't include a *scopefield* or *detailfield* value, it's important that you still include the extra periods that follow those values. For example:

```
%DES...nodefield%
%DES.scopefield..nodefield%
```

However, if you don't include a *nodefield* there's no need to include the trailing period after the *detailfield*. For example:

```
%DES..detailfield%
```

Using a *scopefield* to drive the language of the PS/nVision report enables you to run a single report in multiple languages. Each time the contents of the *scopefield* changes, PS/nVision resets the language of the report and reloads the strings and other language-sensitive objects in the new language. This enables you to create a PS/nVision report in multiple languages so that the report can be separated and delivered to multiple recipients, each of whom may have a different language preference.

Labels

When retrieving node or detail row and column labels, PS/nVision uses the appropriate alternate language record, if one has been defined through PeopleSoft Application Designer, to get labels in the user's language.

PS/nVision Variables

When retrieving a descriptive value for a PS/nVision variable, such as *Business Unit Description*, PS/nVision determines whether the table being queried has a related language record and if the field being retrieved is on that record. If so, and if the user does not use the base language, PS/nVision retrieves the value from the related language record or, if the row doesn't exist on the related language record, from the base record.

International Versions of Microsoft Excel

Microsoft Excel is available in numerous languages. PeopleTools is designed to work with all international editions of Excel as long as the base version of Excel is supported by that version of PeopleTools. For example, if your current PeopleTools version supports Excel 2000, then all language editions of Excel 2000, such as Japanese Excel 2000, are supported by PeopleSoft.

See Also

PeopleTools 8.42 Hardware and Software Requirements Guide

PART 2

Working With PeopleSoft Applications in Multiple Languages

CHAPTER 9

Modifying Terminology

This chapter provides an overview of terminology management and search statuses and discusses how to:

- Grant search privileges.
- Search.
- View and replace search results.
- View and undo replace results.
- Selecting search objects.
- Make upgrade considerations.

Understanding Terminology Management

PeopleTools includes a Terminology Management tool that enables you to streamline certain user interface language changes through the use of text search and replace processing. This is particularly relevant to the task of adapting a language that is based on another language. For example, if your Mexican users require that their Spanish user interface reflect terms specific to Mexico, you can use the Terminology Management tool to adapt the PeopleSoft-delivered Spanish translations to substitute Mexican Spanish terms where appropriate.

You can also use this tool to change PeopleSoft-provided user interface terminology to better suit your organization's internal terminology or corporate vocabulary, even if English is your only user interface language.

The Terminology Management tool only adapts an existing installed language—it cannot create a new language based on the changes you define. If you want to preserve the existing translation and use your modifications to create a new PeopleSoft language, you must first define the new language and copy the existing translations to your new language.

To access the Terminology Management tools, select PeopleTools, Translations, Modify Terminology.

Searching and replacing terms is a multi-step process, with several opportunities to back out the changes. The process breaks down into the following three phases, each of which is discussed in this section:

1. Searching
2. Replacing
3. Undoing

Each phase consists of three separate steps: setting up the process, running the process, and reviewing the results. However, you don't have to use all three processes all the time. You can use the Search process without ever invoking the Replace or Undo processes.

See Also

Chapter 13, “Translating PeopleTools,” Prerequisites, page 203

Searching

The first phase in terminology management is the Search phase, and features three steps.

Step	Description
Setting up the Search.	On the Define Search Criteria page, specify which languages to search, which database objects to search, and the term for which to search. To replace the term with a new term, also specify the replacement text.
Processing the Search.	Using PeopleSoft Process Scheduler, run the Search process.
Reviewing the results.	Review the results in one of two places, depending on whether Replace processing is enabled. Replace processing can be disabled for specific searches or for specific users. For example, if you are considering replacing terminology and want to determine the potential exposure of such a change, disable the Defining a Search with Replacementoption. This ensures that there is no risk of accidental text replacement. If Replace processing is enabled, review the results in the . If you don’t want to replace the text, you can mark the process as complete. If Replace processing is disabled, review the results on the Search Only Results page.

Replacing

The second phase in terminology management is the Replace phase, which features three steps.

Step	Description
Setting up the Replace.	If your original search criteria specified replacement text, you’ll see both the original text and the replacement text on the Search Results/Replace pages. At this point, nothing has actually been replaced. Accept, reject, or modify the replacement text for each search result.

Step	Description
Processing the Replace.	Using PeopleSoft Process Scheduler, run the Replace process.
Reviewing the Replace.	Go to the Replace Results/Undo page to see the list of results, along with any replacement text. This page displays all results from the original search and indicates whether you replaced text. At this point, the replacement has happened, but you can still back out the changes by continuing to the undo step. If you don't want to undo any of the replacements, mark the process as complete.

Undoing

The third phase in terminology management is the optional Undo phase, which features three steps.

Step	Description
Setting up the Undo.	As you review your replace results on the Replace Results/Undo page, specify whether to undo any of the replacements.
Processing the Undo.	Using PeopleSoft Process Scheduler, run the Undo process.
Reviewing the Undo.	Go to the Inquiry page that displays all search results to see the final results of all your searching, replacing, and undoing. This page displays all results from the original search, regardless of whether you replaced the term or used undo for any replacement. The Search and Replace is final and the record of what you did is permanent. If you ever need to back out the changes, you can use this information to research what replacements took place.

Understanding Search Statuses

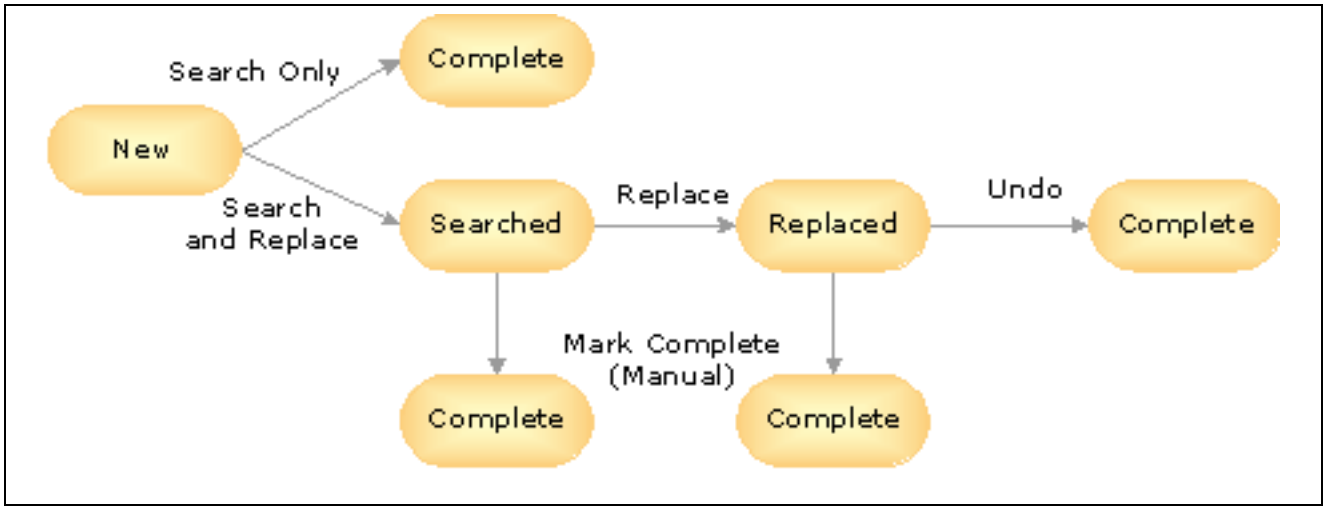
As you proceed through the Search and Replace process, you'll notice that all of the pages display a Status field. This status is updated automatically to reflect where you are in the process.

The default status for all new searches is *New*.

If you configure the search type to disable replacing (that is, if you choose the search-only option when you set up your search criteria), then no further action is possible after the search. Therefore, after the search, the status is updated to *Complete*. Otherwise, the status is updated to *Searched*.

Running the Replace process updates the status to *Replaced*; running the Undo process updates the status to *Complete*.

If you don't want to run the full Search, Replace, and Undo processes, manually mark the status *Complete* after searching or replacing. Once the status is *Complete*, you cannot change your mind. If you decide to make further terminology changes, you must recreate the search criteria using the Copy Search Criteria feature on the Search Criteria Inquiry page.



Search statuses

Granting Search Privileges

Use the User Search Options page to grant search and view access to your users

To set user search options:

1. Select PeopleTools, Translations, Modify Terminology, User Search Options.
2. Search for an existing user ID or add a new one.

   Adding a user ID does not mean that you are creating new users; it means that you are adding a user to the list of those who have permission to use the search and replace functionality.

   Add a user ID to grant access to someone who does not already have access. Search for an existing user ID to modify permissions for someone who already has access.

   Use the standard search or add method to enter the user ID and access the User Defaults page.
3. Set the user's search permissions.

   Search Only Select this option to grant the user permission to search, but not to replace or undo. When a user with this level of access defines search criteria, the Search Only (No Replace) option is selected automatically.

Search, Replace and Undo Select this option to grant the user full access to all aspects of the PeopleSoft terminology management functionality.

4. Choose which searches the user can access.

   Select View Other User's Activity to grant the user permission to see searches created by all users.

   Leave this check box clear to deny access to all searches other than the user's own searches.

   Only users with access to Search, Replace, and Undo can be granted access to other users' activity.

5. Save the page.

Searching

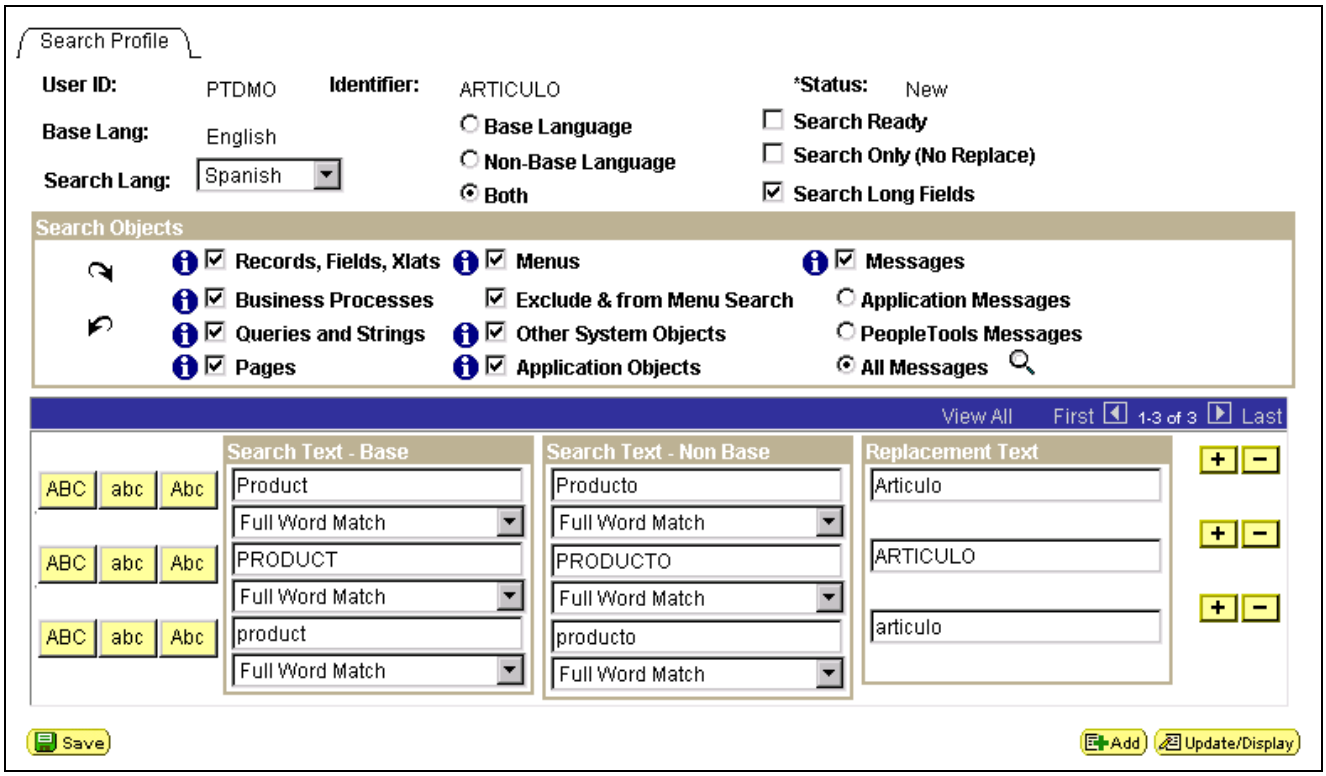
This section discusses how to:

- Define search criteria.
- Run the Search process.

Defining Search Criteria

The first step in a Search and Replace process is to define your search criteria. To define your search, select PeopleTools, Translations, Modify Terminology, Define Search Criteria.

Note. In addition to using the standard add method to create a new search, you can copy an existing search and then modify the definition as necessary.



Define Search Criteria - Search Profile page

Note. The Search Profile page displays only searches where the status is *New*. This means that you can edit the search criteria only while the status is *New*. You cannot edit the search criteria after running the search.

This section discusses how to:

- Enable Search processing.
- Choose which languages to search.
- Disable the Replace process.
- Define the search scope.
- Define search text.

Enabling Search Processing

To enable search processing, select the Search Ready box.

Choosing Languages to Search

To choose languages to search:

1. Select a search language in the Search Lang (search language) dropdown list.

   The Base Lang (base language) display-only field displays the base language of the database.

   The search language determines which language tables are searched. If you select the base language as your search language, you can search and replace data on the base language tables only. If you select a non-base language as your search language, your basis for searching can be dependent on either the base language, the search language, or both. However, you can still replace data only in the search language tables.

2. If the search language is different from the base language, select the basis for your search.

   Select one of the following options:

   Base Language — You can specify search text only for the base language tables. The system searches the base language tables, but the search returns results only when there's a match in the base language tables *and* a corresponding translation in the search language. That is, the Search process ignores occurrences of the word in the base language tables if there is no corresponding translation on the related language table.

   Non-Base Language — You can specify search text only for the related language tables. The system searches the related language tables for the text that you've specified and return the results.

   Both — You can specify search text for both the base language tables and the related language tables. In this case, the results returned are only those instances where the search criteria for both the base language and related language have been met.

Disabling the Replace Process

To disable the Replace process, select the Search Only (No Replace)check box.

Selecting this check box ensures that the criteria is used only for searching, not for searching and replacing. By selecting this option, you prevent the system from doing anything further after you run the search.

This check box also determines whether the status is set to *Complete* or *Searched* after you search. If you select the Search Only (No Replace) check box, then no further action is possible after the search and the status is updated to *Complete*. Otherwise, the status is updated to *Searched* .

Defining Your Search Scope

To define your search scope:

1. Specify whether to search long text fields.

   Select the Search Long Fields check box to include the long description field in your searches. This setting applies to any type of object that you're searching.

2. Specify which groups of database objects to search.

   Searchable text exists in many parts of the database: fields, queries, menus, and even your application data. Before you search, you must choose which types of database objects you want to search.

   Use the Search Objects group box to specify which types of objects are searched. Each check box in this group box represents a group of searchable objects. Select the groups that you want to search.

   Note. With certain PeopleSoft Application Designer objects, the translatable text shows up only in PeopleSoft Application Designer dialog boxes and on property sheets. For example, you see page descriptions in the PeopleSoft Application Designer Open dialog box, but end users don't see the descriptions when they look at the actual page. The important exception to this situation are fields, translate values, page text, and menus. The descriptions for these four types of objects are visible to end users.

   Select one or more of these groups:

Records, Fields, Xlats Includes record descriptions, field labels, and translate (xlat) values.

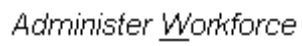
Business Processes Includes the descriptions for activities and business process maps, and the labels of the icons on those maps.

Queries and Strings Includes the descriptions for queries and strings.

Pages Includes descriptions of pages and page text that does not come from a field definition or translate value.

Menus Includes all levels of navigation, including the component name.

Some menu descriptions include an extra ampersand to designate a hot key. For example, a menu that looks like:



is actually stored in the system as *Administer &Workforce.* Most likely you would prefer to disregard the ampersand when you search; to do so, select Exclude & from Menu Search.

Other System Objects Includes all other PeopleTools objects, such as application messages, business components, and process definitions.

Other Application Objects Includes translatable application data—application tables with related language tables. There doesn't have to be a translation in your search language; the existence of the related language table is enough to qualify a table for inclusion.

PeopleSoft provides a PeopleSoft Data Mover script, TSRECPOP.dms, which creates this list of translatable application tables. If you've customized the system with new translatable tables, you must run this script to recreate the table.

Messages Includes both the messages and the longer explanatory text that is associated with each message.

When searching messages, you can select the range of message to search. In PeopleSoft, message sets 1−999 are reserved for PeopleTools messages. Messages sets 1000−19999 are used by the applications. Selecting either the Application Messages or PeopleTools Messages check boxes narrows your search to the selected numeric range. You can also select All Messages.

Alternatively, you can narrow your search to a specific range of messages. To do this, select the All Messages check box, and then click the prompt button to the right to open the page where you can enter the desired message set range.

Defining the Search Text

To define the search text:

1. Enter the search and text for the base language, the search language or both.

There are three columns for search text. Different choices are available depending on the languages you've selected to search and whether you've allowed replacing.

Search Text - Base This option is available if you're searching the base language or both the base and non-base languages.

Search Text - Non Base This option is available if you're searching the non-base language or both the base language and the non-base language.

Replacement Text This option is available unless you selected the Search Only (No Replace) check box.

For each language that you're searching, enter the text for which you want to search. The system searches only the appropriate language tables.

Note. You can enter multiple rows in each column. This is useful if you want to search for several different terms, or if you want to search for several forms of the same word. For example, if you want to search for *mouse* and *mice* in the same search, create two search rows and use one for each word.

---

2. Make sure that your search text is in the proper case.

   Searching is case sensitive. When you want to search for all occurrences of a word, regardless of case, create multiple search rows and enter the word multiple times—once for each variation.

   Use the three abc buttons to automatically put the text in the specified case.

   ABC Capitalizes the text.

   abc Lowercases the text.

   Abc Puts the text in title case (the first letter of each word is capitalized).

   These buttons modify all text in the associated row. So if you are not using the same case in all three columns, take care not to inadvertently reset the case in one column when intentionally resetting the case in another.

3. Choose the matching method for the search.

   Directly underneath each search text field, select one of the following matching methods to use when searching for that text:

   Exact Text Match Returns any instance where the text constitutes the entire contents of the field. For example, if you perform an exact text search on *Department,* your results won't include fields that contain *Department Code*.

   Full Word Match Returns all occurrences of the text string where the string is not embedded in another word. In this case, searching for *Department* returns occurrences of *Department Code*, but will not return occurrences of *Departments* or *Departmentalize*.

   Like Text Match Returns all occurrences of the text string

See Also

Chapter 8, "Global Reporting and Analysis," Understanding the PSSQR.INI and PSSQR.UNX Files, page 114

Chapter 9, "Modifying Terminology," Reviewing Search Criteria, page 163

Chapter 9, "Modifying Terminology," Modifying Searchable Objects, page 165

Running the Search Process

Once you define and save your search criteria (and select the Search Ready check box), you are ready to run a search.

To run a search:

1. Select PeopleTools, Translations, Modify Terminology, Search.
2. Search for an existing run control ID or add a new one.

   Use the standard search or add method to enter your run control ID and access the Search page.
3. Verify that the appropriate search definitions will be processed.

   By default, the search includes all previously unprocessed search definitions (that is, definitions with the status *New*) where the Search Ready check box is selected. If a search appears here that you do not want to run, go back to the Search Profile page and clear the Search Ready check box. If a search is missing, go back to the Search Profile page and select the Search Ready check box.

   Click the View Search Criteria button to display a read-only version of the search criteria. This is useful when you want to confirm that you're satisfied with the search criteria. Remember that running the search won't affect your data, but it can still be inconvenient to run the wrong search, as you can't go back and modify the search criteria.
4. ClickRun.

   The Process Scheduler Request page appears.
5. Complete the Process Scheduler Request page.
6. Click OK.

   The search runs. Once the Search process is complete, you can navigate to the Search Results/Replace page to see the results.

Viewing and Replacing Search Results

After a search is completed, select PeopleTools, Translations, Modify Terminology, Search Results/Replace to review the search results.

This section discusses how to:

- Replace non-message text.
- Replace message text.

• Run the Replace process.

Replacing Non-Message Text

The Replace Data page displays the database object search results, but not the Message Catalog search results. Use this page to review search results, verify replacement text, and indicate when to run the Replace process.

This section discusses how to:

• Review search results.

• Verify replacement text.

• Enable or disable replace processing.

Reviewing Search Results

To review search results:

1. Examine the search results in both the base language and the non-base language.

   The search results appear in a grid where you can see details about each occurrence of the search text.

   Base Text — Displays the occurrences of the text that you searched for in the base language tables.

   Non-Base Text — Displays the occurrences of the text you searched for in the non-base language tables. This is the text that is replaced if you decide to run the Replace process. If you searched the base language only, there is no non-base text, and the base text is replaced.

   Replacement Text, Too Long, and Replace — These columns are used to finalize the replacement text.

   See Chapter 9, "Modifying Terminology," Viewing and Replacing Search Results , page 156.

2. Look to see which pages display the search text.

   Pages — This column indicates the number of pages on which the instance of the search text appears. This number appears only for objects that are placed on pages: fields, translate values, and (hard-coded) page text.

   View Text Search Details — Click this button to display details about that occurrence of the search text.

   View the record and field where this instance was found, as well as the keys for each occurrence of the text in the record. Also view the text from the base language table, the corresponding translation from the related language table, and the suggested replacement text.

   View Text Found — Click this button to display information about which search words were found. Remember that a single set of search criteria can include searches for many terms. For example, if you searched for both *Codigo* and *Departamento*, the Text Found page shows which word or words were found in this record.

3. (Optional) Review the information about the record and field where the text was found.

Field Name System name of the field where the text resides.

Length Displays the length of the field. This information is useful when you plan to replace text because it tells you the maximum length of any replacement text.

Record Name of the record where the occurrence was found.

RLang Rec (related language record) Name of the corresponding related language table.

4. (Optional) Inspect the original search criteria.

View Search Criteria Click this button to display a read-only version of the search criteria. This can help you understand the search results.

Verifying Replacement Text

To verify replacement text:

1. Inspect the suggested replacement text.

Replacement Text Shows the suggested replacement text, based on your original search criteria. At this point no replacement has occurred. Remember that the replacement text replaces the non-base text unless you searched only the base language, in which case it replaces the base text.

2. If necessary, modify the replacement text.

Modify the replacement text if you're not happy with the suggested text or if the suggested text is too long for the field.

Too Long The system selects this check box when the suggested replacement text is too long for the field. This can occur when the replacement text is longer than the search text. When this happens, you must edit the replacement text (perhaps using an abbreviation) so that it fits in the field. It may help to look at the Length column to see the maximum allowable length.

Once the replacement text is an acceptable length, the system clears the Too Long check box.

You don't need to modify the text if you decide that you don't want the replacement to happen at all; the next step describes a different mechanism for disabling replacement for specific rows.

Note. When the replacement text is too long, the search text won't be replaced during the Replace process.

---

3. Selectively enable and disable replacement processing.

Replace Use this check box to replace some occurrences of the search text without replacing all of them.

Select the check box for the occurrences that you want to replace; clear the check box for the occurrences that you want left as they are. When you run the Replace process, only the selected rows are updated.

After you run a search, the Replace check box is automatically selected for all occurrences other than those where the suggested replacement text is too long for the field.

To clear the Replace check box in all rows, click the arrow that curves to the left.

To select the Replace check box in all rows (other than those where the replacement text is too long for the field), click the arrow that curves to the right.

Enabling or Disabling Replace Processing

To enable or disable replace processing

1. To enable replace processing, select the Replace Ready check box.

   The replace process picks up only searches where this check box is selected.

2. To permanently disable replace processing for this specific search, click the Complete button.

   This button changes the status of the results to Complete. Once this happens, no further processing is possible. If you've edited messages on the Replace Messages page, those changes become permanent.

3. Save the page.

See Also

Chapter 9, "Modifying Terminology," Replacing Message Text, page 159

Replacing Message Text

The Replace Messages page provides a focused view of all the Message Catalog entries that satisfy the search criteria. Use this page to review the messages and make replacement changes manually. You can use this feature at any time in the Search, Replace, and Undo process.

Note. You must manually update message text. If you continue to the Undo step, you must also manually back out of your changes. The automatic Replace and Undo process for other database objects does not apply to message text.

To review search results and update message text:

1. Click the Review Messages button to load the results into the page.

   Once the results are loaded, you can see each message that contained the search text from your search.

2. (Optional) Inspect the original search criteria.

   Click the View Search Criteria button to display a read-only version of the search criteria.

3. Review the messages.

   You can see only one message at a time on this page. To review the messages, page through them and look at each one individually.

4. Edit the messages as necessary.

As you review the messages, determine whether it is appropriate to replace the text or reword the message. When you decide to make changes, edit the text directly on this page. Saving the page updates the Message Catalog.

Note. You must update message text manually. The automatic Replace process for other database objects does not apply to message text.

5. Save the page.

Running the Replace Process

After you've finalized your replacement text and settings in the Search Results/Replace page, you must run a Replace process to actually make the replacements. Running the Replace process updates the search status from *Searched* to *Replaced*.

After you run the Replace process, you have one last chance to back out any changes made by the process.

See Chapter 9, "Modifying Terminology," Replacing Message Text, page 159.

Warning! Once you change the search status and update the search status, you can no longer view this search in the Search Result/Update pages. Be sure that you are finished with *both* pages, that is, you've finished manually editing your messages, before you change the status.

To run the Replace process:

1. Select PeopleTools, Translations, Modify Terminology, Replace.
2. Search for an existing run control ID or add a new one.

   Use the standard search or add method to enter your run control ID and access the Replace page.
3. Verify that the appropriate search definitions will be processed.

   By default, the Replace includes all search definitions that have the status *Searched* and have the Replace Ready check box selected. If a search appears here that you do not want to run, go back to the Search Results/Replace page and clear the Replace Ready check box. If a search is missing, go back to the Search Results/Replace page and select the Replace Ready check box.

   Click the View Search Criteria button to display a read-only version of the search criteria. This is useful when you want to confirm which set of criteria you're processing.
4. Click the Run button.

   The Process Scheduler Request page appears.
5. Complete the Process Scheduler Request page.
6. Click OK.

   The Replace process runs. Once the replace is complete, you can navigate to the Replace Results/Undo page to view the results.

Viewing and Undoing Replace Results

This section discusses how to:

- Undo data replacements.
- Undo text replacements.
- Run the Undo process.

Undoing Data Replacements

After you run the Replace process, select PeopleTools, Translations, Modify Terminology, Replace Results/Undo Replace to review your results and decide whether to undo any of the replacements.

This section discusses how to:

- Replace replacement text.
- Enable or disable undo processing.

Reviewing Replacement Text

To review replacement text:

1. Review the results of the Replace process.

   The Replace Results/Undo page shows the same information as the Replace Data page.

   The Base Text and, if applicable, the Non-Base Text show the original text.

   You can see how many pages display the text, and you can click the View Text Search Details button to see details about these pages.

   The Replacement Text field shows what was—or would have been—substituted for the original search text.

   The Replaced check box indicates whether the original search text was replaced. At this point, the original text has been replaced, but the change has not been finalized.

   The Field Name, Length, Record and RLang Rec columns provide details about where the text is stored in the database.

2. Selectively enable and disable undo processing.

   You can undo some of the replacements without undoing all of them. Control which occurrences are replaced using the Undo check boxes.

   Select Undo for those rows where you want to back out of your changes. Leave the Undo check box clear for the rows where you're satisfied with the replacement. When you run the Undo process, only the selected rows are affected.

3. Save the page.

Enabling or Disabling Undo Processing

To enable or disable undo processing:

1. To enable replace processing, select the Undo Ready check box.

The Undo process picks up only the rows where this check box is selected.

2. To permanently disable undo processing for this search, click the Complete button.

   This button changes the status of the results to *Complete*. Once this happens, no further processing is possible. Any replacements that have been made, including changes to messages, are now finalized.

   See Chapter 9, "Modifying Terminology," Replacing Message Text, page 159.

3. Save the page.

Undoing Text Replacements

The Undo Messages page displays the search results in the Message Catalog. If you edited the messages during the replace step, the text reflects those changes.

The Undo Messages page is identical to the Replace Messages page, and you can review and update messages using the same procedures.

To access the Undo Messages page, select PeopleTools, Translations, Modify Terminology, Undo.

Note. Just as you have to replace message text manually, so must you back out of any changes manually. The automatic replace and Undo process for other database objects does not apply to message text.

See Also

Chapter 9, "Modifying Terminology," Replacing Message Text, page 159

Running the Undo Process

To run the Undo process:

1. Select PeopleTools, Translations, Modify Terminology, Undo.
2. Search for an existing run control ID or add a new one.

   Use the standard search or add method to enter your run control ID and access the Undo page.

3. Verify that the appropriate search definitions will be processed.

   By default, the undo includes all search definitions that have the status *Replaced* and the Undo Ready check box selected. If a search appears here that you do not want to run, go back to the Replace Results/Undo page and clear the Undo Ready check box. If a search is missing, go back to the Replace Results/Undo page and select the Undo Ready check box.

   Click the View Search Criteria button to display a read-only version of the search criteria. This is useful when you want to confirm which set of criteria you're processing.

4. Click the Run button.

   The Process Scheduler Request page appears.

5. Complete the Process Scheduler Request page.

6. Click OK.

The Undo process runs. Once the undo is complete, navigate to the All Search Results page to view the results.

Reviewing Search Information

Three read-only pages provide you with information about searches.

This section discusses how to:

- Review search criteria.
- View results for search-only searches.
- View search results for all searches.

Reviewing Search Criteria

To see the search criteria for any search that's been defined, select PeopleTools, Translations, Modify Terminology, Search Criteria.

This page is a display-only version of the Search Profile page.

To transfer to the page that is appropriate to the current status of the search, click the View Details button. For example, if the status is *Searched,* then in order to continue the Search, Replace and Undo process, you must go to the Search Results/Replace pages. The following table explains which component you'll see, based on the status of the search:

Status	Component	Navigation
New	Define Search Criteria	PeopleTools, Translate, Use, Define Search Criteria
Searched	Search Results/Replace	PeopleTools, Translate, Use, Search Results/Replace
Replaced	Replace Results/Undo	PeopleTools, Translate, Use, Replace Results/Undo
Complete	All Search Results	PeopleTools, Translate, Inquire, All Search Results
Complete	Search Results Only	PeopleTools, Translate, Inquire, Search Results Only

Click the Copy Search Criteria button to clone this search definition.

Viewing Results for Search Only Searches

When a search is defined as Search Only (No Replace), the status is set to *Complete*, and prevents you from viewing the search results on the Search Results/Replace pages. Instead, you must access the result using one of the Inquiry pages.

To see the search results for a completed Search Only (No Replace) search, select PeopleTools, Translations, Modify Terminology, Search Only Results.

This page is a display-only version of the Search Results/Replace page.

See Also

Chapter 9, "Modifying Terminology," Viewing and Replacing Search Results , page 156

Viewing Search Results for All Searches

To see the search results for any search, select PeopleTools, Translations, Modify Terminology, All Search Results.

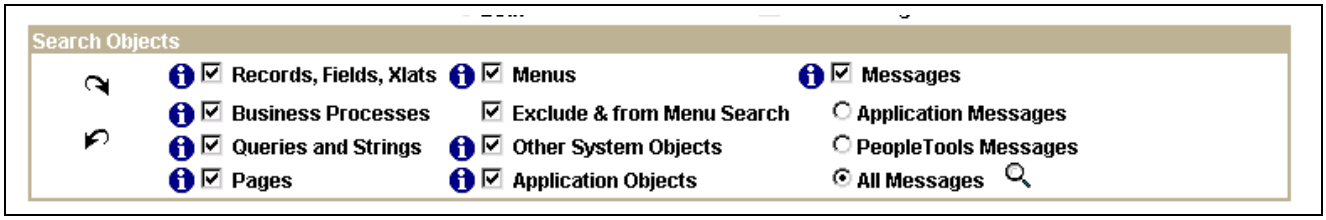
This page is a display-only version of the Replace Results/Undo page.

See Also

Chapter 9, "Modifying Terminology," Viewing and Undoing Replace Results, page 161

Selecting Search Objects

When you define your search, you select the types of objects to include in your search. You do this by selecting from predefined groups of object types.



Groups of object types

PeopleSoft has already defined each group by associating particular tables in each group. You can see which tables are included in each group by clicking the View Objects button, denoted by the "i" icon.

You can use the Text Search Records page to view additional information about these records. Specifically, you can identify the key fields and the searchable fields.

You can use the same page to change the association between searchable fields and the groups of object types. However, this is not advisable. The only time you should modify the object groups is when you want to add newly created tables to the Application Objects group. PeopleSoft provides a PeopleSoft Data Mover script to do this for you.

This section discusses how to:

- View searchable objects.
- Modify searchable objects.

Viewing Searchable Objects

Use the Text Search Records page to view additional information about the searchable records.

To view the searchable fields in any searchable record:

1. Select PeopleTools, Translations, Modify Terminology, Text Search Records.

   You are prompted to identify the record to view.

   You can search for records either by record (table) name or by object type. The object types are the same as the groups you use when defining a search.

2. Search for the record to view.

   Use the standard search or add method to enter the user ID and access the Text Search Records page.

3. Examine the information about this record.

   The Record and Related Language Record Name fields identify the record you're viewing.

   The Combined Language Table check box is selected when the base record and the related language record are the same; you cannot change this setting.

   The Object Type field identifies which searchable group of objects includes this record.

   Warning! Although you can modify the Object Type field on this page, it is not advisable. As delivered, records are already logically organized into appropriately named groups; changing the association causes the group names to no longer reflect the records in the group.

   The Keys and the Searchable Text Fields fields display additional information about the record. All translatable fields (that is, the non-key fields in the related language record) are searchable.

Modifying Searchable Objects

If you create additional related language tables for delivered tables or develop a new translatable structure, you can make those tables searchable by adding them to the Application Objects group. To do this, run the PeopleSoft Data Mover script TSRECPOP.dms. This script refreshes the Application Objects group so that it includes all application tables that have related language tables.

Making Upgrade Considerations

Be aware that terminology updates are registered as changes to the affected database objects. This means that when you upgrade to a new PeopleSoft release, your object definitions are out of sync with those in the new PeopleSoft database.

This means that your upgrade reports, which identify changed objects, will include all the objects that have new or changed terms. Depending on the extent of your terminology changes, this can significantly impact the amount of time you spend analyzing the differences.

If you have implemented the PeopleSoft system with no customizations, you can deal with this issue by accepting the new PeopleSoft-delivered objects and then reapplying your terminology changes.

If you've customized your system and modified the delivered terminology, you may want to minimize the upgrade compare differences by doing one of the following:

- Reversing your terminology changes before the upgrade and then redoing the terminology changes after the upgrade.
- Applying your terminology changes to the PeopleSoft-delivered software before running the upgrade and compare reports.

Both of these methods cause the upgrade reports to disregard any terminology-only changes, which simplifies your analysis of these reports.

Note. Upgrading becomes more complicated and involves extra steps when you've made terminology changes. Be sure to consider this cost when you decide whether terminology changes are necessary.

CHAPTER 10

Using Related Language Tables

This chapter provides an overview of related language tables and discusses how to:

- Install PeopleSoft-provided translations.
- Swap the base language.
- Create related language tables.
- Create related language views.

Understanding Related Language Tables

PeopleTools can store multiple translations of application data and PeopleTools objects in a single database. Each PeopleSoft database has a single *base language*. The base language of a new PeopleSoft database upon installation is always English, but can be changed by an administrator. The base language should be the language most commonly used by application users, and is the language in which data is stored in the core PeopleSoft tables known as *base language tables*.

All PeopleTools objects, such as pages, fields and queries, can be maintained in multiple languages. Descriptions of application data elements, such as departments, locations and job codes, can also be maintained in multiple languages.

The key to maintaining this data in multiple languages is through the use of special tables known as related language tables. A *related language table* stores descriptions and other language-sensitive elements in all languages other than the base language of the database. In this way, while any table in the database can store data in the base language of that database, only tables that have related language tables can maintain the same data in multiple languages simultaneously. For example, it is unlikely that you will want to maintain the descriptions of your general ledger journal lines in multiple languages − the sheer volume of the journal lines in most systems would preclude any effort to maintain translations of their descriptions. The cost of hiring a translator to translate each journal line would be prohibitive, and in most cases only the person entering the journal line, and possibly their supervisor, would be likely to want to view it again. However for frequently used values, such as a chart of accounts, many users across your entire organizations would often need to refer to this data, and so you would most likely want to maintain the descriptions of each chartfield entry in each language spoken by your users.

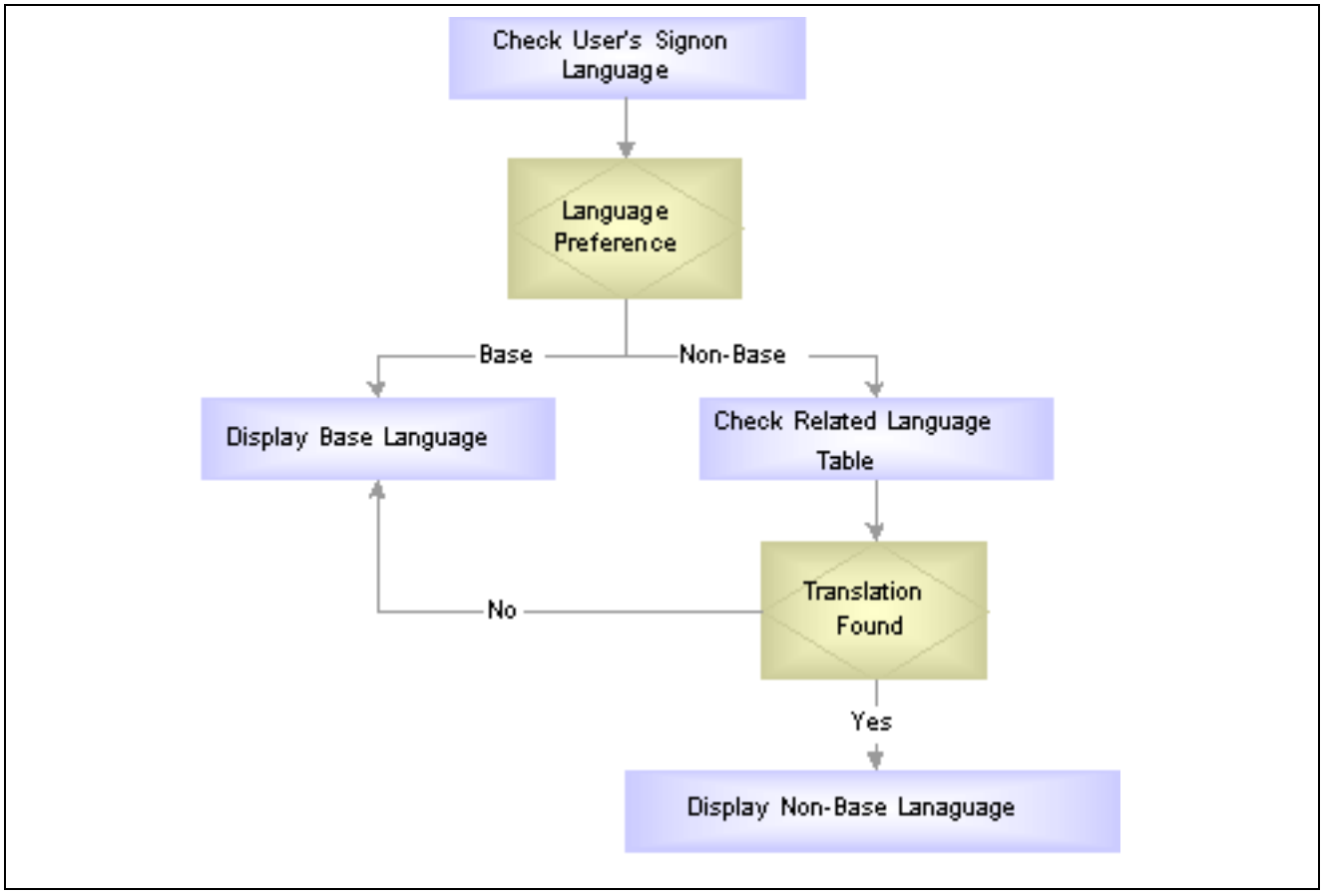
In this case, you would not need a related language table for your Journal Lines table, as you would be maintaining Journal Line descriptions in a single language only, and this would be in the base table, but you would need a related language table for each of your chartfield tables.

When the system displays a language-sensitive field value, it retrieves the text from either the base table or the related language table, depending on the following:

- The current language preference.
- Whether any translated rows for the field are found in the related language table.

The *language preference* refers to either the PeopleSoft Internet Architecture signon language or in the case of the Application Designer, the language preference as determined by the PeopleSoft Configuration Manager language setting.

If the current language preference is the system's base language, the text is retrieved from the base table. If the language preference is a non-base language, then the system looks for a translation of the text in the related language table. If it finds a translation, it displays the translated text; if no translation exists, the system uses the text in the base table. This enables developers to selectively translate portions of the system, while keeping the system fully functional at all times, even if not all rows have been translated. The following flowchart shows this flow of execution:



System display of base and non-base language text

Synchronization of related language tables with their base tables is automatically maintained by PeopleTools. When you translate a language-sensitive field, the system adds a new row to the related language table. When you delete a row from a base table, any child rows in the related language table are deleted. The primary responsibility of the application developer in the language architecture is to define and maintain the related language tables.

Note. PeopleTools automatically handles the storage and display of data in related language tables and their synchronization with corresponding entries in the base language tables based on each user's language preference. However, PeopleTools cannot automatically translate data! PeopleSoft provides translations of PIA components and user interfaces for most application products into several languages. Also, translations of several key application data tables, such as country and currency codes, are also provided by PeopleSoft. However, you will need to plan a way to translate application data entered by your users that needs to be maintained in multiple languages. Some users who are familiar with several languages may wish to translate the data elements they enter themselves using the Multilingual Support feature. In other cases, you may wish to bring in translators periodically to translate key elements into each language used in your organization. PeopleTools provides an architecture to store these translations, but does not perform "machine translation" or provide other automated linguistic translation technologies.

In releases prior to PeopleTools 8.4, some PeopleTools tables were language-sensitive but did not conform to the standard related language table architecture described in this chapter. These tables stored all languages, both base and non-base, in their base language table. These tables were designed in PeopleTools 8.4 to follow the standard architecture of related language tables.

The re-designed tables include:

- XLATTABLE
- PSPNLFIELD (and child tables)
- PSPNLDEFN
- MESSAGE_CATALOG
- MESSAGE_SET_TBL

See Also

Chapter 2, "Controlling International Preferences," page 11

Chapter 11, "Working With Language-Sensitive Application Data," Editing Data in Multiple Languages , page 187

Related Language Table Structure

Related language tables store multiple translations of language-sensitive fields from an associated base table. For example, description (DESCR) and short description (DESCRSHORT) fields are commonly language sensitive.

Each table in your database that is not a related language table is, by definition, a base language table. The Action Reason table, ACTN_REASON_TBL, is one example of a base table. Note that it has DESCR and DESCRSHORT fields which would typically be language-sensitive. All other fields in the table are translate value or prompt table editable codes and are therefore not language sensitive. In the following example, the developer has decided that it is likely that each user would need to see the description of the Action Reason in their own language, and so a related language table is needed to store translations of DESCR and DESCRSHORT.

ACTN_REASON_TBL (Record)

Record Fields | Record Type

Num	Field Name	Type	Len	Format	Short Name	Long Name
1	ACTION	Char	3	Upper	Action	Action
2	ACTION_REASON	Char	3	Upper	Reason	Reason Code
3	EFFDT	Date	10		Eff Date	Effective Date
4	EFF_STATUS	Char	1	Upper	Status	Status as of Effective D
5	**DESCR**	Char	30	Mixed	Descr	Description
6	DESCRSHORT	Char	10	Mixed	Short Desc	Short Description
7	**BEN_STATUS**	Char	4	Upper	Ben Status	Benefits Employee Statu
8	**BAS_ACTION**	Char	3	Upper	Ben Action	Benefits Administration A
9	**COBRA_ACTION**	Char	3	Upper	CBR Action	COBRA Action
10	ACTRSN_CAN_SBR	SRec				
11	ACTRSN_GER_SBR	SRec				

ACT_REASON_TBL record

The developer has therefore created a new record definition, ACTN_RSN_LANG, to act as the related language table for ACTN_REASON_TBL. Related Language records are defined in Application Designer just like any other record definitions. However, as they often contain many of the same fields as their base language table, it is often quicker to create the related language table by *cloning* the base table. To clone a base table, open the base language table and the use the Save As option on the File menu and enter a name for the new record. Once cloned, any fields not required on the related language record can be deleted from the new record.

A related language table must:

- Share all key record fields with its base table.
- Have an additional key record field, which must be LANGUAGE_CD.
- Have language-sensitive fields matching those in the base table. These are typically DESCR and DESCRSHORT, or LONGNAME and SHORTNAME.
- Not contain any fields that are not present on the base table, except the LANGUAGE_CD key field.
- Not contain any non-key, non-language-sensitive fields from the base table.

The related language table, ACTN_RSN_LANG, meets all of these requirements:

ACTN_RSN_LANG (Record)

Record Fields | Record Type

Num	Field Name	Type	Len	Format	Short Name	Long Name
1	ACTION	Char	3	Upper	Action	Action
2	ACTION_REASON	Char	3	Upper	Reason	Reason Code
3	LANGUAGE_CD	Char	3	Upper	Lang Cd	Language Code
4	EFFDT	Date	10		Eff Date	Effective Date
5	DESCR	Char	30	Mixed	Descr	Description
6	DESCRSHORT	Char	10	Mixed	Short Desc	Short Description

ACT_RSN_LANG record

The base table must be explicitly associated with its related language table.

To associate a base table with its related language table:

1. Open the Record Properties dialog box for the base table record.
2. Click the Use tab.
3. Under Record Relationships, in the Related Language Record field enter the name of the related language table.
4. Click OK.

How Related Language Tables Store Translations

Base tables store language-sensitive descriptions in the database's base language. Related language tables store translations of these descriptions in non-base languages. For each row in the base table, there can be zero rows or one row in the related language table for each non-base language.

For example, the following table shows a row of data from the ACTN_RSN_TBL table.

Action	Action_Reason	Effdt	Descr	DescrLong
PAY	PRO	01/01/98	Promotion	Promotion

The following table shows child rows of data from the ACTN_RSN_LANG table. For each LANGUAGE_CD, there is a row with appropriate translations of the language-sensitive fields in the parent row.

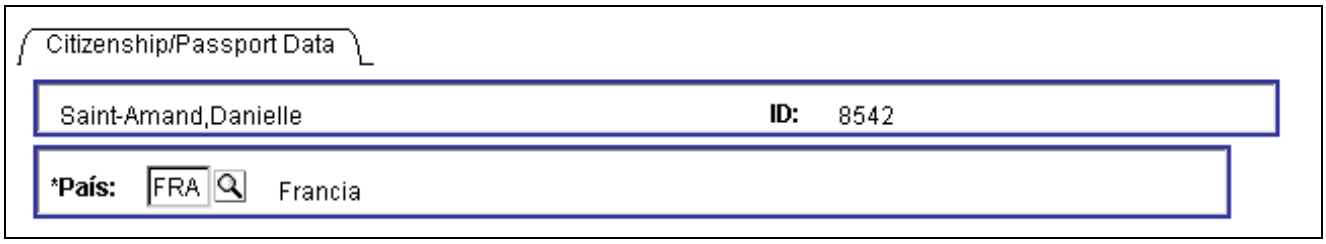
Action	Action_ Reason	Effdt	Language_ Cd	Descr	DescrLong
PAY	PRO	01/01/98	ESP	Promoción	Promoción
PAY	PRO	01/01/98	FRA	Promotion	Promotion
PAY	PRO	01/01/98	GER	Beförderung	Beförderung

How Related Language Tables Are Used

Related language tables are the primary means of storing language translations in the PeopleSoft system. They store translations of descriptive text for data, such as a standard list of expense categories, and system objects, such as descriptions of fields and records.

Related language tables that store descriptive text for data are generally associated with edit tables that store lists of values that are used for validation and prompting. When a page field prompts against a table that has an associated related language table, and, if the user's language preference is a non-base language, the description fields that have been translated into the current language appear in place of the base language descriptive text.

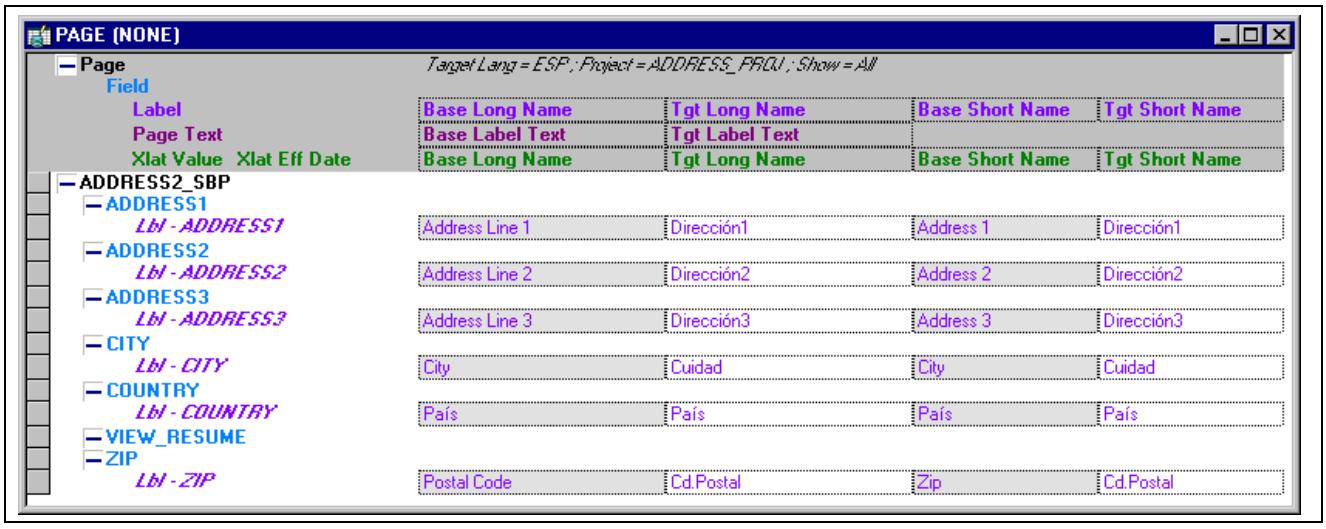
For example, the following page appears when the user's language preference is Spanish (ESP). The Country field (País) prompts against the Country table (COUNTRY_TBL). The translated description (Francia) comes from the Country table's related language table (COUNTRYTBL_LANG).



Page with translated descriptive text

Many PeopleTools object definitions, including fields, records, and components, also have associated related language tables. This makes maintenance of multiple language PeopleTools objects, and therefore the system user interface, relatively straightforward. The system uses a single mechanism for maintaining translated data and for maintaining the system objects themselves. Field translation is particularly powerful because translated field descriptions appear on search pages and on pages where the descriptive text for the field is used as the field label.

In the following example all the fields on the ADDRESS2_SBP subpage are translated into Spanish:



Translation of fields in ADDRESS2_SBP

Because the fields are translated, the translated versions of field labels appear when a user whose language preference is Spanish accesses a page that shows the long name or short name of any of these fields. No additional development work on the part of the developer is required.

Of course, whenever the base labels change, you must also update the translations of the object names.

See Also

Chapter 11, “Working With Language-Sensitive Application Data,” page 185

Chapter 14, “Translating Application Definitions,” page 211

Chapter 8, “Global Reporting and Analysis,” Language-Sensitive Queries, page 103

Swapping the Base Language

As delivered, the PeopleSoft database has a base language of English. The system has English data in its base language tables and, if you have licensed and installed the PeopleSoft-provided translations, non-English data in the related language tables. To choose a language other than English as your base language, you must move all English data to the related language tables (with an appropriate language code) and move all of the data in your new base language to the base tables. This process is called *swapping the base language* of your database. If you later decide to change base languages again, you must go through the same process.

PeopleSoft Data Mover provides the following command to automate this process:

```
SWAP_BASE_LANGUAGE <target language>;
```

To swap the base language of your database, you must identify the language to swap in as the new base language. PeopleSoft Data Mover finds all the affected tables and loads the appropriate language data into them.

This process handles all related language tables in the system: PeopleTools tables and application tables. Changes are committed after each table is swapped; a log file records the process of the swap and can help you troubleshoot any errors during the process.

You can check the existing base language code by looking in the Options page. To navigate to the Options page, select PeopleTools, Utilities, Use, Options. You can't change the Base Language Code setting in this page; it is for display purposes only. To change your base language, use the SWAP_BASE_LANGUAGE PeopleSoft Data Mover command.

This section lists prerequisites and discusses how to:

- Run the auditing report.
- Check space and resources.
- Swap the base language.

Prerequisites

Before swapping the base language of your database, you must have:

- A clean audit report to ensure that there are no data integrity problems.
- Sufficient space and resources to run the swapping process.

Running the Auditing Report

The SQR process SWPAUDIT.SQR ensures that there are no data integrity problems that will cause errors during the swap process.

For information on how to run SQRs manually in your environment. This SQR does not have a run control, and therefore cannot be run with PeopleSoft Process Scheduler. See *PeopleTools Installation Guide*, "Creating a Database".

SWPAUDIT.SQR may report one or more of the following errors. Refer to the instructions below to correct these errors before continuing with your swap process, and rerun the audit until it reports no errors.

Warning! Errors reported during the audit process indicate that the swap base language process will fail unless the errors are corrected.

(SWAP-1) Related Language Records That are not Valid Records

The records listed are defined as related language records for one or more base records, but they do not exist in your database.

To fix this problem, do one of the following:

- Create the related language record, as appropriate, based on the keys and translatable fields of the base record.
- Open the base language record in PeopleSoft Application Designer, and remove its association with the related language record in the Object Properties dialog box.

(SWAP-2) The Field LANGUAGE_CD is not a Key in the Following Related Language Record(s)

A record is defined as a related language record, but it does not have LANGUAGE_CD as a component of its key. LANGUAGE_CD must be a key field on every related language record.

To fix this problem, make LANGUAGE_CD into a key field on the related language record.

(SWAP-3) The Following Related Language View(s) Have the Wrong Key Structure Defined

The keys of a view used as a related language record by one or more records do not conform to the requirements for PeopleSoft related language records. The related language record must share all of the same keys as its base language record, plus an additional key (LANGUAGE_CD).

To fix this problem, correct the key structure to ensure that it conforms to this requirement and then recreate the view in the database.

(SWAP-4) The Following Related Language Table(s) Have the Wrong Key Structure Defined

The keys of a table used as a related language record by one or more records do not conform to the requirements for PeopleSoft related language records. The related language record must share all of the same keys as its base language record, plus an additional key (LANGUAGE_CD).

To fix this problem, correct the key structure to ensure that it conforms to this requirement, and then alter the table in the database to match the new key structure.

(SWAP-5) The Following Related Language Table(s) Have the Wrong Structure Defined

The fields of a table used as a related language record by one or more records do not conform to the requirements for PeopleSoft related language records. The related language record must share all of the same fields as its base language record, plus an additional key (LANGUAGE_CD).

To fix this problem, correct the field structure to ensure that it conforms to this requirement, and then alter the table in the database to match the new field structure.

(SWAP-6) The Following Related Language Table(s) Have the Orphan Row Defined

For each row on the related language record there must be a single row on the base table with matching keys. An orphan row is a row of data on the related language record that does not have a corresponding parent row on the base table. Orphan rows must be deleted.

To fix this problem, using your platform's query tools select against the related language table, using the fields listed in the report, where the values do not match a row on the base table. For every row on the report there is an orphan row on the table. Do a SELECT first to ensure you are getting the same row count as the report then DELETE the selected rows. Here is sample SQL for a Microsoft SQL database.

```
SELECT * FROM PSCONTDEFNLANG A WHERE NOT EXISTS
(SELECT 'X' FROM PSCONTDEFN B WHERE A.ALTCONTNUM = B.ALTCONTNUM
AND A.CONTNAME = B.CONTNAME AND A.CONTTYPE = B.CONTTYPE)

DELETE FROM PSCONTDEFNLANG WHERE NOT EXISTS
(SELECT 'X' FROM PSCONTDEFN B WHERE PSCONTDEFNLANG.ALTCONTNUM = B.ALTCONTNUM
AND PSCONTDEFNLANG.CONTNAME = B.CONTNAME AND PSCONTDEFNLANG.CONTTYPE = B.CONTTYPE)

SELECT * FROM <Related Language Record> A WHERE NOT EXISTS
(SELECT 'X' FROM <Base Record> B WHERE A.<Field Name> = B.<Field Name> ...for each⇒
 field name listed)
```

(SWAP-7) The Following Base Records do not Have an Unique Index

A base record that has a corresponding related language record must have a unique index, that is, a key field.

To fix this problem, open the base recorded listed in the report using Application Designer, select a field you want to make a key field. Right mouse click on the field and select Record Field Properties. In the dialog that pops up select the Key check box and save the record. Then click on the Build bar item, select Current Definition, click Key, select Execute SQL Now, click the Build button.

Checking Space and Resources

Before running the SWAP_BASE_LANGUAGE command, be sure that your database has sufficient space and resources to perform the swap process. Although the swap base language process commits after each table is successfully swapped, you need sufficient log space, or rollback space in the case of Oracle databases, to hold the contents of the largest table to be swapped.

On a newly installed PeopleSoft database, the PSPNLFIELD table is typically the largest table to be swapped, and this can be used as a benchmark for sizing your log space. Plan on at least 50 to 75 MB log or rollback segment space before running the swap process.

Swapping the Base Language

Once you are ready to swap the base language, start PeopleSoft Data Mover in non-bootstrap mode by logging in using a regular PeopleSoft user ID (not the access ID). Once PeopleSoft Data Mover begins, type and run SWAP_BASE_LANGUAGE command:

```
SWAP_BASE_LANGUAGE <target language>;
```

PeopleSoft Data Mover provides feedback during the swap process, including the name of the record currently being swapped and the number of records that remain to be swapped.

Even when SWPAUDIT completes with no errors, the swap base language process may fail. Typically, environmental issues, such as lack of database space, log space, or rollback segment space, causes any errors during this stage of the process. If a failure occurs, note the database-specific error message issued and take the appropriate action according to your database platform documentation.

PeopleSoft Data Mover stops when errors are encountered once you have corrected the problems that caused the failure in the swap base language process, you can restart the process without having to restore your database or remember where the first error occurred. To restart the swap process, rerun the SWAP_BASE_LANGUAGE command. PeopleSoft Data Mover recognizes the tables whose data has already been swapped and does not attempt to swap the data in those tables again; it will report that zero rows were swapped for those tables.

It is safe to rerun this command as many times as needed, correcting errors between runs, until the log file reports no errors.

In some situations, you may want to swap a specific record. Typically, you would swap a single record only if errors occurred during the swap base language process and you want to verify that the swap will succeed without having to re-swap all the records in the database or trace or troubleshoot the swap process.

To swap a specific table, use the following PeopleSoft Data Mover commands:

```
SET BASE_LANGUAGE <target language>;
SWAP_BASE_LANGUAGE <recname>;
```

Note. You should swap individual tables only when there has been an error with system-wide swapping.

If you want PeopleSoft Data Mover to not stop when errors are encountered and continue the swap process, set the following:

```
SET IGNORE_ERRORS;
SWAP_BASE_LANGUAGE <LANGUAGE_CD>;
```

If you chose to ignore errors during the swap, after the swap process is complete carefully review the log file to ensure that no errors occurred. If errors occur, fix the errors and then re-swap each table using the SWAP_BASE_LANGUAGE command in individual table mode for each table that failed.

See Also

PeopleTools 8.42 Installation Guide for Your Database Platform

PeopleSoft Administration Tools, “PeopleSoft Data Mover”

Creating Related Language Tables

PeopleSoft applications provide related language tables for most edit tables that you are likely to translate, so in most cases, you won’t have to create your own related language tables. However, if during a customization you create a new table that requires translation, you must create your own related language table.

The following procedure assumes that you know how to design and build records in PeopleSoft Application Designer.

Note. If there is a field defined as a Long (DESCRLONG) on the related language table, then you must ensure that the table is in a tablespace dedicated to tables containing LONG/IMAGE columns (for example, PSIMAGE tablespace for PeopleTools-owned tables). This is needed to support DB2 OS/390 and z/OS restrictions on bufferpool sizes.

To create a related language table:

1. Check the structure of the base table record, noting its key fields, and make sure that it has fields that can be language-sensitive, such as DESCR and DESCRSHORT.

   If the base table has no fields that are language sensitive, then it does not need a related language record.

2. Design the related language record.

   By convention, the related language record name should reflect its relationship to the base table and end with *LANG*. For example, if the base table is *MY_NEW_TBL*, the related language table might be named *MY_NEW_LANG*.

   The related language record must:

   - Have all the same key fields as the base table.
   - Have an additional key field, which must be *LANGUAGE_CD*.
   - Have the language-sensitive fields from the base table.
   - Not contain any fields that are not present on the base table except the LANGUAGE_CD key field.
   - Not contain any non-key, non-language-sensitive fields from the base table.

3. Build the related language table.

   An easy way to build the related language table is to copy the base record definition using the Save As option on the File menu. Once you save the record with a new name, you can remove the fields that are not required on the related language table and add the LANGUAGE_CD key. By using this approach, you avoid having to remember the key structure and column names of the base table.

   Note. When using Save As to create the related language record, you do not need to also save the PeopleCode that is associated with the base record. PeopleCode programs on related language records are not executed; therefore, they are redundant and may be misleading. For this reason, PeopleSoft recommends that you not maintain PeopleCode programs on related language records.

4. Associate the related language table with the base table record.

   Open the Record Properties dialog box for the base table. On the Use tab, select the related language record in the Related Language Record field.

   Click OK to close the Record Properties dialog box.

5. Save the record.

See Also

PeopleSoft Application Designer, “Creating Record Definitions”

PeopleSoft Application Designer, “Building SQL Tables and Views”

Creating Related Language Views

Just as records with language-sensitive fields require related language records, views with language-sensitive fields require related language views. This is necessary because the view is created at the database-level outside of PeopleTools and cannot recognize when one or more of the tables it selects from has a related language table. If you create a view over a table that has a related language record and don't create the corresponding related language view, any data selected from your view will appear only in the base language of the database.

Related language views work the same way as related language records:

- You can create a related language view for any view that selects language-sensitive fields from a table with a related language record. Anytime you create a view over a table that has a related language record, you typically also need a related language view.
- The related language view consists of all the key fields from the base view, a language code, and the language-sensitive fields.
- You associate the base view and the related language view in the Record Properties dialog box of the base view.
- When a user logs on in a non-base language, PeopleSoft retrieves the data with the appropriate language code from the related language view.
- It's best to use the same naming convention for related language views as you do for related language records: append a *LANG* suffix to the view name.

Related language views have one additional issue: the SELECT statement from the original view must be modified to select any language-sensitive fields from the appropriate related language tables.

The SELECT statements behind the views vary in complexity, depending on how many tables are involved and how many of those tables have related language records.

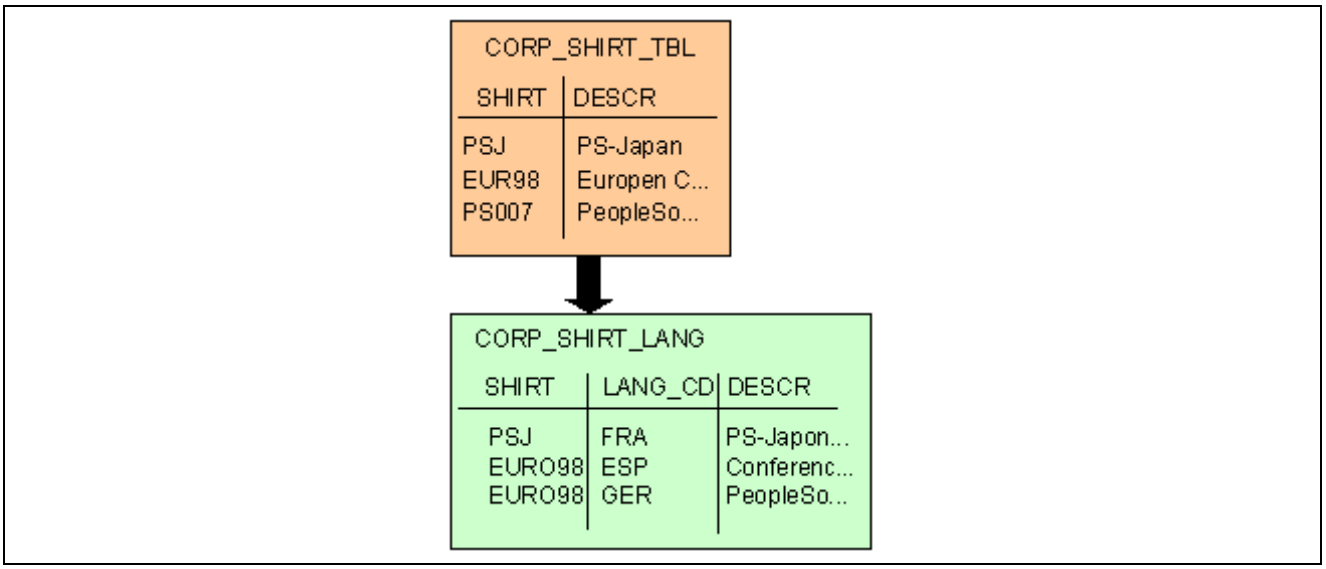
This section discusses how to construct the SELECT statements for the following language-sensitive views:

- One base table, one related language table.
- Two base tables, one related language table.
- Two base tables, two related language tables.

One Base Table, One Related Language Table

When you have a view that selects data from a single table, the select statement for the language-sensitive view is straightforward: select the data from the related language table, making sure to also select LANGUAGE_CD.

For example, consider a view on the CORP_SHIRT_TBL, a table keyed by SHIRT and with one language-sensitive field (DESCR):



One base table, one related language table

Let's assume you must create a view that selects only the rows where the SHIRT key field begins with the letter *P*.

Following is the SELECT statement for the base view:

```
SELECT SHIRT, DESCR FROM PS_CORP_SHIRT_TBL WHERE SHIRT LIKE 'P%'
```

Following is the select statement for the language-sensitive view:

```
SELECT SHIRT, DESCR, LANGUAGE_CD FROM PS_CORP_SHIRT_LANG WHERE SHIRT LIKE 'P%'
```

Because this view is simple and selects only columns that exist both in the base table and in the related language table, the related language view is straightforward. It differs from the base view in only two ways:

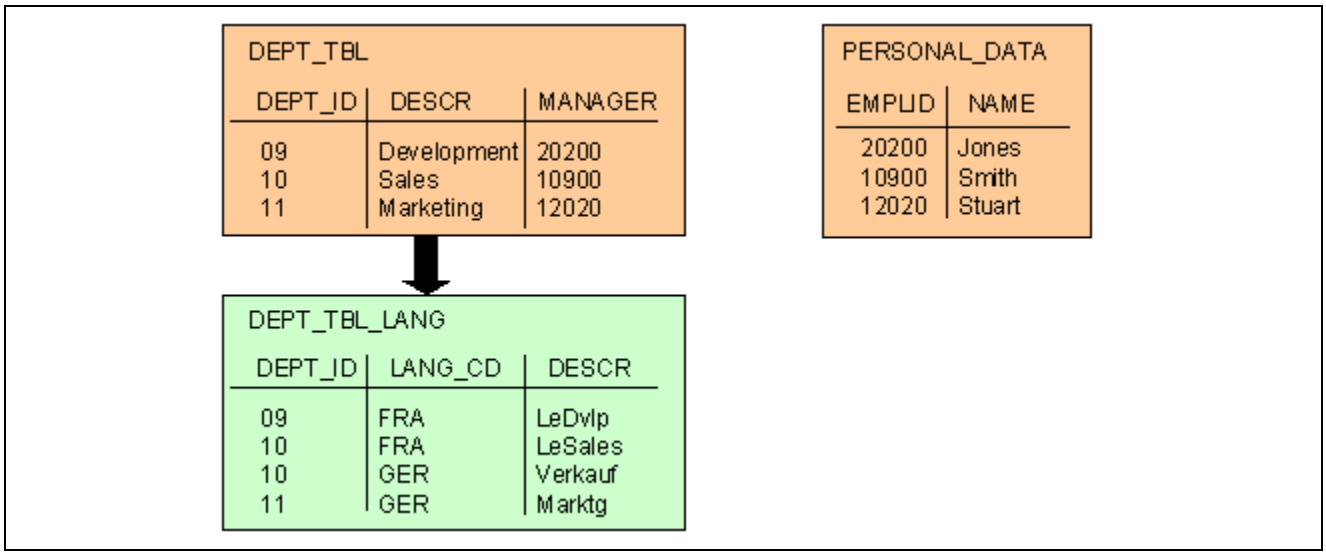
- The name of the table from which it selects.
- The addition of the LANGUAGE_CODE column.

If the base view also selected non-key, non-language-sensitive columns from the base table, there would be no need to select those columns in the related language view because non-language-sensitive fields don't need to be included in related language records.

Two Base Tables, One Related Language Table

When you join two tables, one of which has a related language record, the SELECT statement becomes only slightly more complex.

For example, consider a view that joins DEPT_TBL, which has a related language record, with PERSONAL_DATA, which does not:



Two base tables, one related language table

The following SELECT statement is for the base view that selects the department ID and description and the name of the manager for each department:

```
SELECT A.DEPT_ID, A.DESCR, B.NAME
FROM PS_DEPT_TBL A,
 PS_PERSONAL_DATA B
WHERE A.MANAGER = B.EMPLID
```

The following SELECT statement is for the language-sensitive view:

```
SELECT A.DEPT_ID, A.DESCR, C.NAME, A.LANGUAGE_CD
FROM PS_DEPT_TBL_LANG A,
  PS_DEPT_TBL B,
  PS_PERSONAL_DATA C
WHERE A.DEPT_ID = B.DEPT_ID
AND B.MANAGER = C.EMPLID
```

In this case, the related language view can't get all the information from the related language table. This is because the MANAGER field, which is used to get the manager's name from PS_PERSONAL_DATA, is not language-sensitive and is therefore not part of the related language table.

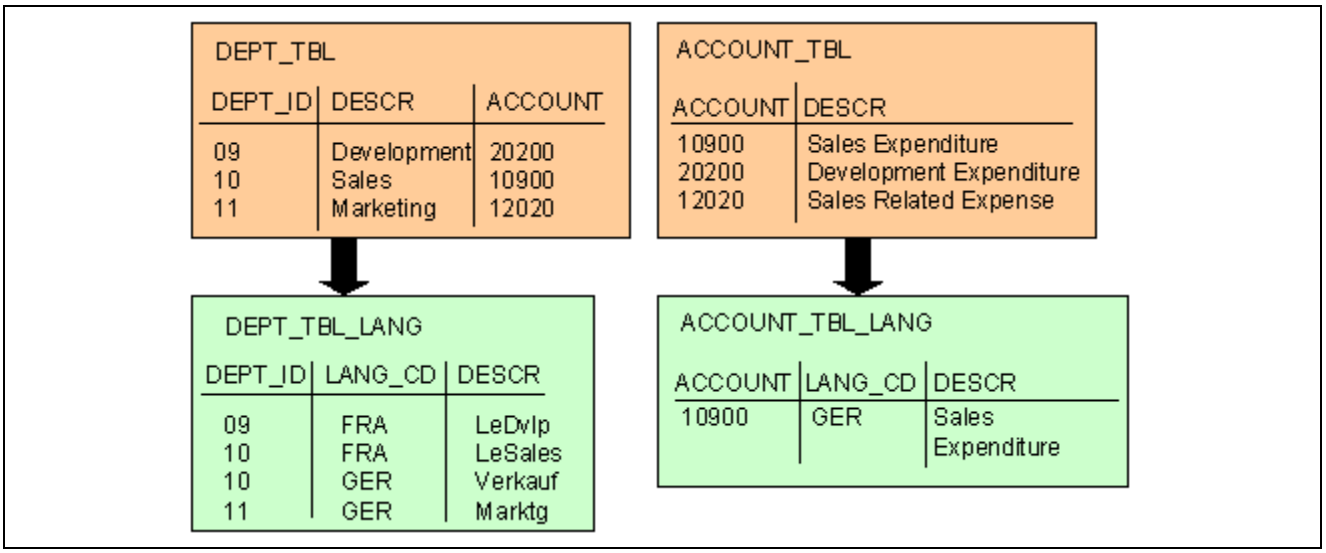
To retrieve the MANAGER field, PS_DEPT_TBL_LANG needs to be joined to PS_DEPT_TBL.

Because the PERSONAL_DATA record does not have a related language table, no special logic is required for fetching the manager's name because it is the same in all languages.

Two Base Tables, Two Related Language Tables

When you join two tables that both have related language records, the SELECT statement becomes complex.

For example, consider a view that joins DEPT_TBL with ACCOUNT_TBL:



Two base tables, two related language tables

In this example, the base view joins DEPT_TBL with ACCOUNT_TBL to retrieve the description of the account. The following SELECT statement is for the base view:

```
SELECT A.DEPT_ID, A.DESCR, B.ACCOUNT, B.DESCR
FROM PS_DEPT_TBL A,
  PS_ACCOUNT_TBL B
WHERE A.ACCOUNT = B.ACCOUNT
```

Creating the related language view is difficult because both tables referenced in the base view have related language records. Because the related language architecture does not require that all rows have translations, creating the related language view is not as simple as joining DEPT_TBL_LANG with ACCOUNT_TBL_LANG.

The related language view needs to take into account the following scenarios:

- A translated department may reference a translated account.
- A translated department may reference an untranslated account.
- An untranslated department may reference a translated account.

  In this scenario, there is no row in DEPT_TBL_LANG, but there is a row in ACCOUNT_TBL_LANG. If you join DEPT_TBL_LANG with ACCOUNT_TBL_LANG in the view, no translation is retrieved by the related language view because the department doesn't have a translation—even though the account did.
- An untranslated department may reference an untranslated account.

  The related language view doesn't need to address this situation because no translation exists in this case. It's correct for the related language view to return no rows.

To address these scenarios, the SQL statement for the related language view must include logic for the first three scenarios—those where translations exist. Following is the SELECT statement for the language-sensitive view:

```
SELECT A.DEPT_ID, A.DESCR, C.ACCOUNT, C.DESCR, A.LANGUAGE_CD
FROM PS_DEPT_TBL_LANG A,
  PS_DEPT_TBL B,
  PS_ACCOUNT_TBL_LANG C
WHERE A.DEPT_ID = B.DEPT_ID
```

```
  AND B.ACCOUNT = C.ACCOUNT
  AND A.LANGUAGE_CD = C.LANGUAGE_CD
UNION
SELECT E.DEPT_ID, E.DESCR, G.ACCOUNT, G.DESCR, E.LANGUAGE_CD
FROM PS_DEPT_TBL_LANG E,
  PS_DEPT_TBL F,
  PS_ACCOUNT_TBL G
WHERE E.DEPT_ID = F.DEPT_ID
  AND F.ACCOUNT = G.ACCOUNT
  AND NOT EXISTS (SELECT 'X'
    FROM PS_ACCOUNT_TBL_LANG H
    WHERE H.ACCOUNT = G.ACCOUNT
    AND H.LANGUAGE_CD = E.LANGUAGE_CD)
UNION
SELECT I.DEPT_ID, I,DESCR, J.ACCOUNT, J.DESCR, J.LANGUAGE_CD
FROM PS_DEPT_TBL I,
  PS_ACCOUNT_TBL_LANG J
WHERE I.ACCOUNT = J.ACCOUNT
  AND NOT EXISTS (SELECT 'X'
    FROM PS_DEPT_TBL_LANG K
    WHERE K.DEPT_ID = I.DEPT_ID
    AND K.LANGUAGE_CD = J.LANGUAGE_CD)
```

This view is really three separate SQL statements whose output is concatenated using the SQL UNION operator. Each SELECT statement in the view addresses one of the first three scenarios previously described. Let's examine this view, statement by statement.

Statement One

This following statement addresses scenario one. It retrieves the rows where translations for both the department and the account exist.

```
SELECT A.DEPT_ID, A.DESCR, C.ACCOUNT, C.DESCR, A.LANGUAGE_CD
FROM PS_DEPT_TBL_LANG A,
  PS_DEPT_TBL B,
  PS_ACCOUNT_TBL_LANG C
WHERE A.DEPT_ID = B.DEPT_ID
  AND B.ACCOUNT = C.ACCOUNT
  AND A.LANGUAGE_CD = C.LANGUAGE_CD
```

Statement Two

The following statement addresses scenario two; it addresses instances where the department translation exists, but the account translation does not exist.

The sub-SELECT statement is required in order to prevent this statement from retrieving records that have already been selected by the statements that address scenario one, where a translated account may exist.

```
SELECT E.DEPT_ID, E.DESCR, G.ACCOUNT, G.DESCR, E.LANGUAGE_CD
FROM PS_DEPT_TBL_LANG E,
  PS_DEPT_TBL F,
```

```
  PS_ACCOUNT_TBL G
WHERE E.DEPT_ID = F.DEPT_ID
  AND F.ACCOUNT = G.ACCOUNT
  AND NOT EXISTS (SELECT 'X'
    FROM PS_ACCOUNT_TBL_LANG H
    WHERE H.ACCOUNT = G.ACCOUNT
    AND H.LANGUAGE_CD = E.LANGUAGE_CD)
```

Statement Three

The following SELECT statement addresses scenario three, where translations exist for the account but not the department. Again, the sub-SELECT statement is needed to avoid returning rows that have already been selected by the other SELECT statements in the SQL statement where a translated department exists.

```
SELECT I.DEPT_ID, I,DESCR, J.ACCOUNT, J.DESCR, J.LANGUAGE_CD
FROM PS_DEPT_TBL I,
  PS_ACCOUNT_TBL_LANG J
WHERE I.ACCOUNT = J.ACCOUNT
  AND NOT EXISTS (SELECT 'X'
    FROM PS_DEPT_TBL_LANG K
    WHERE K.DEPT_ID = I.DEPT_ID
    AND K.LANGUAGE_CD = J.LANGUAGE_CD)
```

CHAPTER 11

Working With Language-Sensitive Application Data

This chapter discusses how to:

- Maintain related language tables and base tables.
- Edit data in multiple languages.

See Also

Chapter 14, "Translating Application Definitions," page 211

Chapter 8, "Global Reporting and Analysis," page 103

Chapter 10, "Using Related Language Tables," page 167

PeopleTools Internet Technology, "Administering Portals"

Maintaining Related Language Tables and Base Tables

When a user changes data on a language-sensitive page, the system responds by changing the contents of the base table, the related language table, or both, depending on the language of the user and which field was modified. The following table explains at the database table level the actions that are performed when you work with language-sensitive tables.

Action	Signon Language	Result
Translate a language-sensitive field. (The base language field has never been translated.)	Non-base	Adds a new row to the related language table that is keyed to the current signon language.
Edit a language-sensitive field.	Base	Changes a field in the base table without affecting the related language table.
Edit a language-sensitive field.	Non-base	Changes a field in a row of the related language table that is keyed to the current signon language. Doesn't affect the base table.

Action	Signon Language	Result
Edit a non-language-sensitive field.	Base	Changes a field in the base table without affecting the related language table.
Edit a non-language-sensitive field.	Non-base	Changes a field in the base table without affecting the related language table. As the related language table contains only language-sensitive fields, no changes to this table are necessary.
Add a row (new key).	Base	Adds a new row to the base table without changing the related language table.
Add a row (new key).	Non-base	Adds a new row to the base table and a new row, keyed to the current signon language, to the related language table. This could introduce non-base language descriptions into the base language table.
Insert a row (effective-dated).	Base	Adds a new effective-dated row to both the base table and related language table. Add a new effective-dated rows to the related language table for each language for which translations exist for the object. Any updates to language-sensitive fields are applied only to the base table.
Insert a row (effective-dated).	Non-base	Adds a new effective-dated row to both the base table and the related language table for all languages for which translations exist for the object. Any updates to language-sensitive fields are applied to the current language in the related language table and to the base table.
Delete a row.	Base or non-base	Deletes the base table row and all dependent rows in the related language table.

Editing Data in Multiple Languages

There are two methods of maintaining translations of application data.

- By logging into the system in a language other than the database's base language and updating a field that is language-sensitive.
- By using the Multi Language Entry option.

This section provides an overview of the Multi Language Entry option and discusses how to:

- Enable Multi Language Entry.
- Maintain data in multiple languages using Multi Language Entry.

Understanding Multi Language Entry

Using the Multi Language Entry option provides significant benefits over simply changing the session language and overwriting existing base language descriptions with their translations. It allows you to:

- Enter or edit data in multiple languages during the same session without changing the signon language.
- View all translations of a row of data in a single session, which may be important for multilingual implementations that need to describe data in a different language.
- Easily recognize which fields on a page are language-sensitive and which are language-neutral.

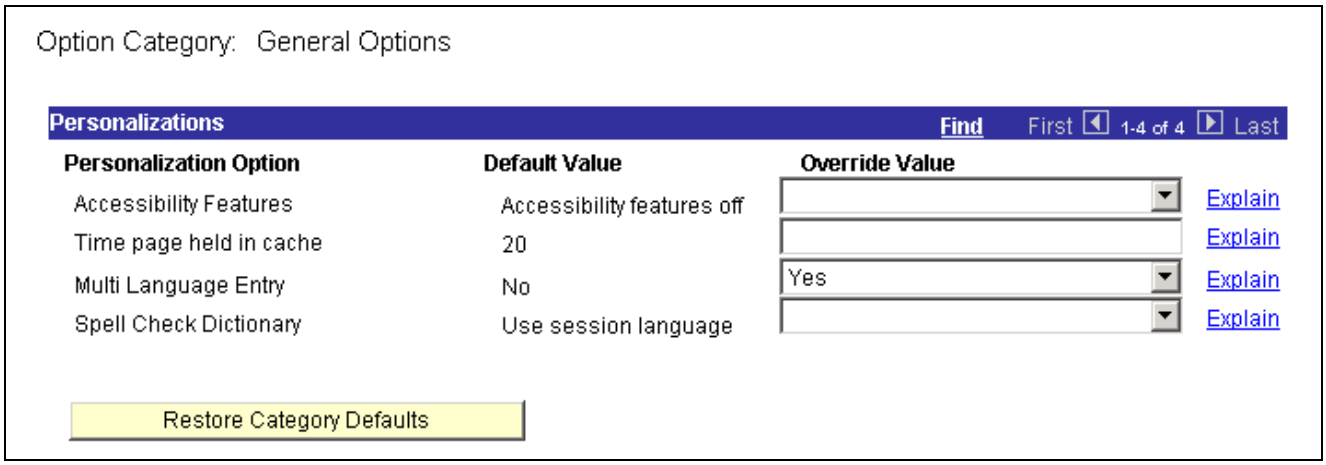
Multi Language Entry makes it more intuitive for a multilingual user, such as a Canadian operator who is proficient in both French and English, to maintain data in several languages before saving a page.

Multi Language Entry is active if both of the following are true:

- The Multi Language Entry option is enabled for the user operator.
- The current page contains a record that has a related language record.

Enabling Multi Language Entry

Multi-language entry makes it more intuitive for a multilingual user to maintain data in several languages before saving a page.



Multi Language Entry enabled

To enable multi language entry:

1. Select My Personalizations on the navigation menu from your homepage.

   The My Personalization page appears.

2. Click the Personalize Options button on the General Options line.

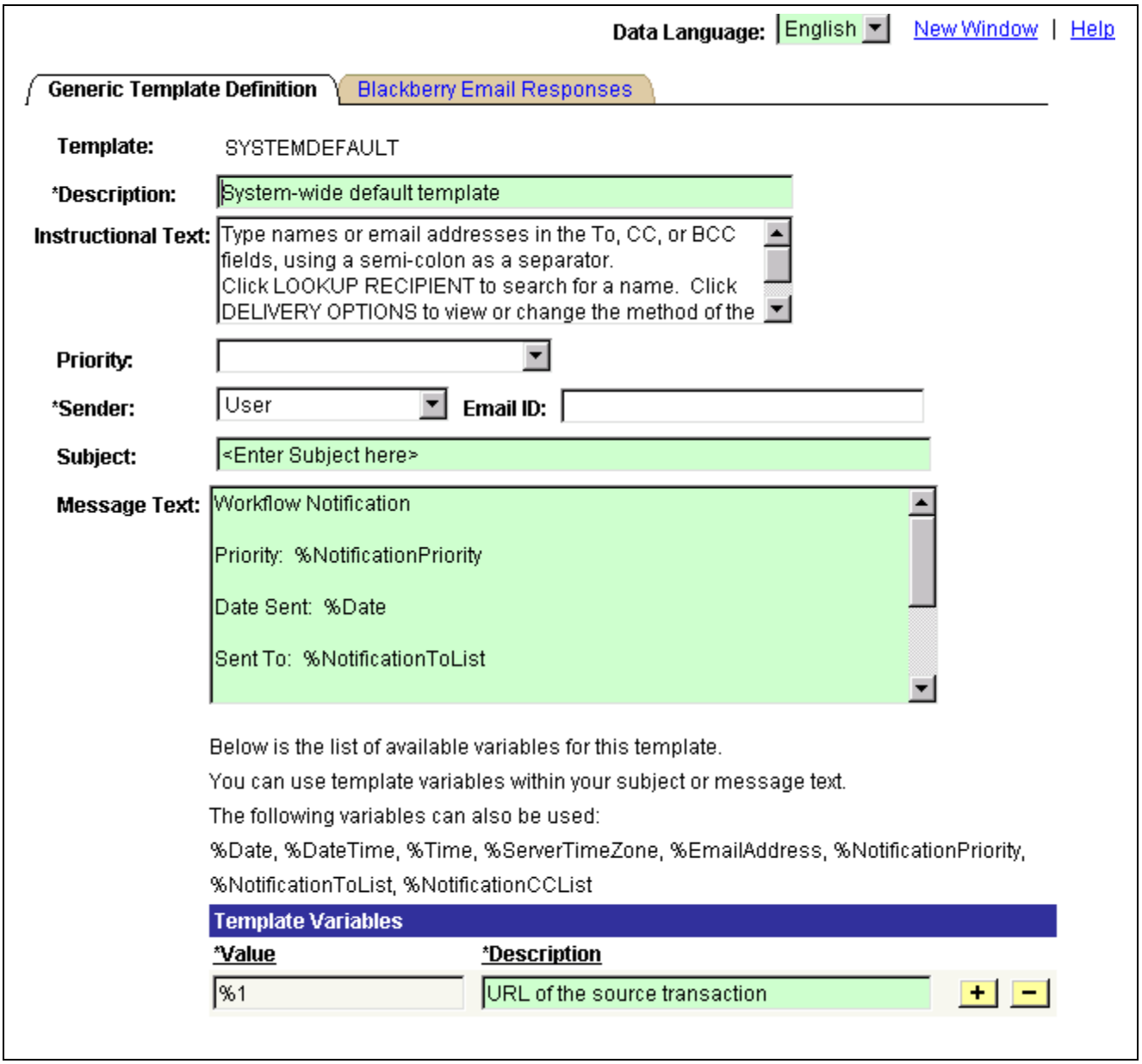
   The Option Category General Options page appears.

3. Change the value in the Multi Language Entry Override Value dropdown list to *Yes*.

4. Click OK.

Entering Data in Multiple Languages

Once Multi Language entry has been enabled in My Personalizations, you will notice two important changes to the display of a page.



Multi Language Entry enabled

1. A Data Language dropdown list appears at the top of each page. The Data Language dropdown list indicates in which language the language-sensitive fields on the current page are being maintained. You can switch the display of the page between different data languages and maintain translations in each, by changing the selected language in the dropdown menu.

2. Any fields that are language-sensitive (that is, they are translatable as they exist both on the base language and related language records and are not keys) appear with a pale green shaded background. This makes it very easy to determine if the changes you make to the data will take effect in the current language only, or take effect across all languages in the database.

   For example, in the previous graphic, the Subject field is language-sensitive. A different translation of the subject can be entered for each language enabled in the database, but the Email ID field is not, so any changes to the Email ID will be visible to all system users.

To translate this data into another language, simply pick a new language from the Data Language dropdown list. If translations exist for the current row of data in the new language, those translations will appear. If not, the base language values will still be displayed, and you can translate these into to the new language selected.

Note. Changing the data language of a page using Multi Language Entry only changes the language of application data; it does not change the language of the user interface of the page such as field labels and help text. The language of the user interface is controlled only by your signon language preference.

As changing the data language does not change the labels and other user interface elements of a page, it is also useful to determine terminology in different languages. For example, if Department descriptions in your Department table have been translated into several different languages, you can view the description of a department in each language simply by navigating to the Department table page and changing the data language. Because this only changes the language of the application data and not the user interface, you can "look up" terminology in other languages without needing to be able to navigate or use a page that has been translated into that language.

To enter data in multiple languages:

1. Enable the Multi Language Entry function.

   See Chapter 11, “Working With Language-Sensitive Application Data,” Enabling Multi Language Entry, page 187.

2. Navigate to the page on which the data is to be maintained.

   Any language-sensitive fields on the page are highlighted in green to make it easy to identify fields that permit data maintenance in multiple languages.

3. From the Languages menu, choose a target language.

   The language that appears on the page remains the same; only the language-sensitive data is reloaded in the selected language.

4. Enter or edit data in any language-sensitive fields in the target language.

5. When finished editing the multilingual fields, save the page.

The system updates the base and related-language tables for the page.

PART 3

Translating PeopleSoft Applications

CHAPTER 12

Adding New Languages

This chapter provides an overview of the steps required to add a new language to the PeopleSoft database.

Understanding Custom Translations

PeopleSoft provides translations in several languages for all end-user objects, and these translations can be licensed from PeopleSoft. However, you can maintain data in your PeopleSoft database in as many languages as required, as long as the characters needed to represent these languages exist in the character set used to create your database. Of course, if you are running a Unicode database, you can maintain data in all languages supported by the Unicode standard in a single PeopleSoft database.

As shipped, PeopleTools includes definitions for only the languages provided by PeopleSoft. If you plan to use additional languages in your system, you must first define these languages in PeopleTools.

There are several places where you must define new languages before PeopleTools can use and recognize them. Work with your system administrator to ensure that you complete all the necessary steps described in this section before using a new language in PeopleTools.

Note. You do not need to perform these steps for any language for which PeopleSoft has provided translations.

Creating New Languages

This section discusses how to:

- Add a new language code to the system.
- Determine PeopleSoft and POSIX standard codes for your language.
- Determine the appropriate non-Unicode character set.
- Add a new language to the translate table (PSXLATDEFN).
- Add a new language to the PSLANGUAGES table.
- Modify Configuration Manager Windows resources.
- Modify the PeopleSoft Internet Architecture signon page.
- Add a new language to the pstools.properties file.

Adding New Language Codes to the System

To add a new language code to the system:

1. Determine the PeopleSoft and POSIX codes for your language.
2. Determine the default non-Unicode character set for your language.
3. Add the new language to the Translate table (PSXLATDEFN).
4. Add the new language to the PSLANGUAGES table.
5. Modify the PeopleSoft Configuration Manager Windows resources to include the new language in the Configuration Manager language selection dropdown list.
6. Modify the PeopleSoft Internet Architecture signon page to include a selection for the new language.
7. Add the new language to the PeopleSoft Internet Architecture pstools.properties file, and provide a mapping between the browser's POSIX language code and your PeopleSoft language code.

See Also

PeopleTools 8.42 Installation Guide for Your Database Platform, "Loading Translations"

Determining PeopleSoft and POSIX Codes for Your Language

PeopleSoft does not currently use the POSIX standard language and locale identifiers in PeopleTools. Instead, PeopleTools uses a proprietary three-letter language code that is determined and maintained by PeopleSoft. When adding a new language, you must choose a three-letter language code to represent the name of your language.

Because this code is used to key several PeopleTools database objects and the PeopleTools cache file, ensure that the language code contains only three uppercase U.S. ASCII letters—no numbers, spaces or accented characters.

The existing PeopleSoft language codes that have been allocated are as follows:

Code	Language
ENG	English
CFR	Canadian French
DUT	Dutch
ESP	Spanish
FRA	French
GER	German
JPN	Japanese
POR	Portuguese

Code	Language
SVE	Swedish
THA	Thai
ZHT	Traditional Chinese
ZHS	Simplified Chinese

In our example, we'll choose *NRS* for Norwegian (the NRS code is derived from the Norwegian name for their language, Norsk) as our additional language.

Once you have chosen a three-letter code for your new language, you must determine which POSIX locale corresponds to that language. POSIX locales are comprised of two components, a language identifier and a territory identifier, separated by an underscore or a hyphen. Typically, the language component is in lowercase letters, and the territory identifier is in uppercase letters. For example, *en_US* is the POSIX locale for U.S. English, and *de_CH* is the POSIX locale for Swiss German.

The language component of the locale is the two-letter language code defined by the ISO 639 standard. The territory component of the locale is the two-letter country code defined by the ISO 3166 standard.

The territory portion of the POSIX locale can be omitted if you want to indicate only a language and not a country-specific derivation of that language. In our example, we plan to add the Norwegian language, so the appropriate POSIX locale is *no*. If we were adding a specific dialect of Norwegian, we would use a specific POSIX locale, such as *no_NO*. But as long as we're adding the generic Norwegian language, we can use *no* as the complete POSIX locale code.

In most situations, you can use only the language portion of the POSIX locale. However, the two-component locale is important if you are planning to add derivations of existing languages, such as Mexican Spanish (es_MX) or Australian English (en_AU). You can easily create those language derivations from a related language using the PeopleTools Terminology Management tool.

See Also

Chapter 9, "Modifying Terminology," page 147

Determining Appropriate Non-Unicode Character Sets

Although the majority of the PeopleSoft system runs in Unicode, some operations cannot use Unicode characters, such as file system operations on UNIX platforms and integration to some third-party products. For each language in your database, you must determine which non-Unicode character set should be used when Unicode operations cannot be performed. The following table lists some of the non-Unicode character sets that are supported by PeopleTools. The complete list is in the PSCHARSETS table in your PeopleTools database. For each new language you add, select the appropriate non-Unicode character set from this table.

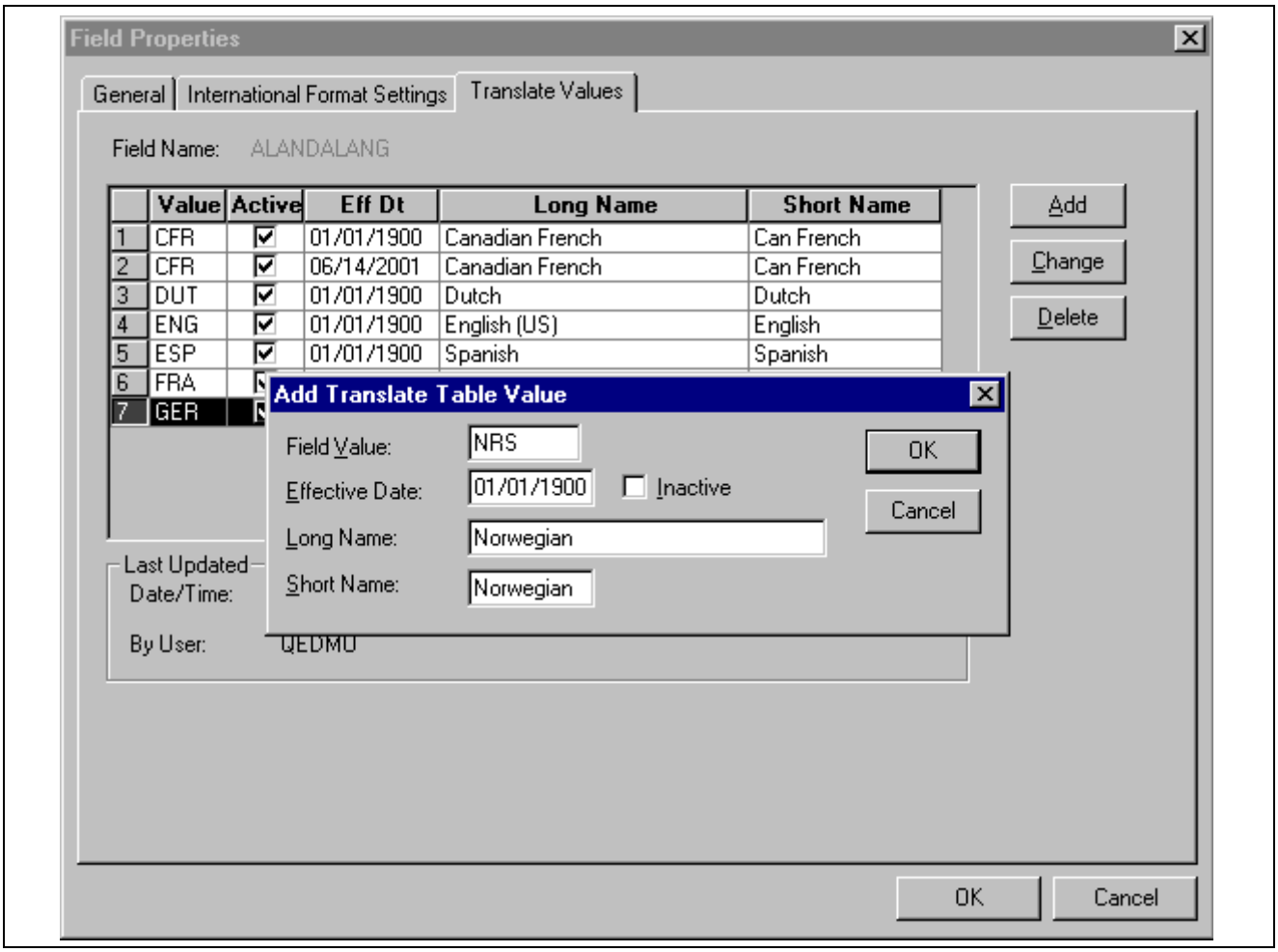
If you are not using a Unicode PeopleSoft database, the character set you select must be the character set you used to create your PeopleSoft database. For example, if you are using an IBM OS/390 or z/OS database, you must specify the EBCDIC CCSID specified in your subsystem's ZPARMS.

Remember that this table is an excerpt from the complete list of character sets that are supported by PeopleTools. For the complete list, query the PSCHARSETS table in your SQL tool or in PeopleSoft Query.

Character Set	Description
ISO-2022-KR	ISO-2022-JP Korean
ISO_8859-1	ISO 8859-1 (Latin1)
ISO_8859-10	ISO 8859-10 (Latin6
ISO_8859-11	ISO 8859-11 (Thai)
ISO_8859-14	ISO 8859-14 (Latin8)
ISO_8859-15	ISO 8859-15 (Latin9 / Latin0)
ISO_8859-2	ISO 8859-2 (Latin2)
ISO_8859-3	ISO 8859-3 (Latin3)
ISO_8859-4	ISO 8859-4 (Latin4)
ISO_8859-5	ISO 8859-5 (Cyrillic)
ISO_8859-6	ISO 8859-6 (Arabic)
ISO_8859-7	ISO 8859-7 (Greek)
ISO_8859-8	ISO 8859-8 (Hebrew)
ISO_8859-9	ISO 8859-9 (Latin5)
Shift_JIS	Shift-JIS (Japanese)

Adding New Languages to the Translate Table (PSXLATDEFN)

Once you have determined the PeopleSoft three-letter language code for your new language, you must add it to the Translate table so that other PeopleTools utilities and PeopleSoft applications can recognize it.



Adding a new language code

To add the language code to the Translate table:

1. In Application Designer, open a field whose field length is four-characters or less.
2. Select File, Definition Properties.
3. Move to the Translate Values tab, and click the Add button.

   The Add Translate Table Value dialog box appears.
4. Add the new three-letter language code and a description of your new language.

   Use an effective date of 01/01/1900 to ensure that the language is always accessible to your applications. When adding the long and short names for your new language code, enter the name of the language as it is referred to in the base language of your database. Once you have defined the translate value for your language code, you can translate it into each language.

In our example, the database's base language is English, so we'll use *Norwegian* as both the long and short name of our new language. Once we have finished defining this new language, our Norwegian translators may want to translate this new value into Norwegian as *Norsk*.

Adding New Languages to the PSLANGUAGES Table

You can update and add the languages used by PeopleSoft to the PSLANGUAGES table using the Manage Installed Languages page. To access this page, select PeopleTools, Utilities, International, Languages.

Use the Manage Installed Languages page to specify:

- Languages in use.

  The PSLANGUAGES table is used by many PeopleTools utilities to determine which languages defined in the database are actually in use, rather than being defined but unused.

- Default non-Unicode character sets.

  The PSLANGUAGES table also provides a mapping to a default non-Unicode character set that is used to represent that language when a Unicode representation is not possible, for example, during some file system operations.

- Verity locale for search indexing.

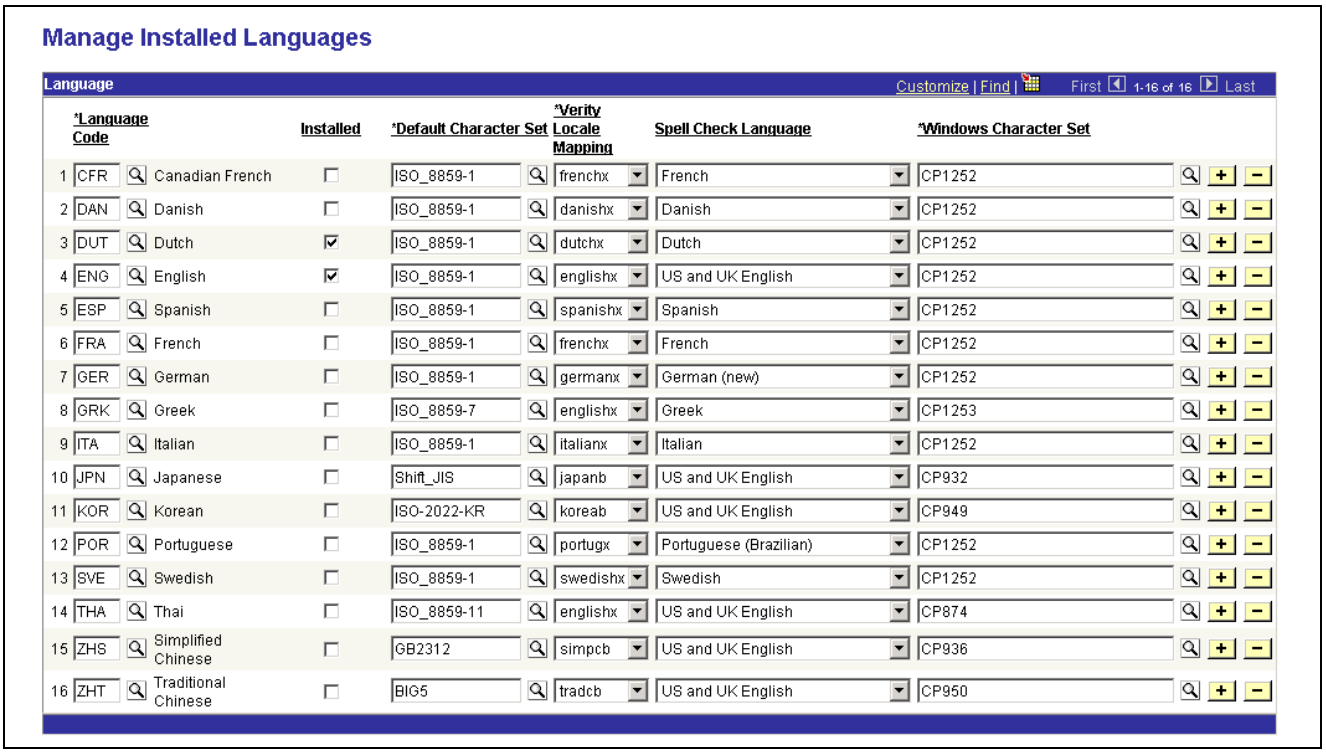
- Spell check languages for language codes.

  You also use the PSLANGUAGES table to select the language of the spell check dictionary that is associated with a given language code. The spell check language that you select for a language code is the default spell check dictionary that is associated with that language when the user signs on to the system in that language. The user can override the default spell check dictionary through the My Personalizations option on the homepage.

  See *Using PeopleSoft Applications*.

- Character sets for encoding Comma Separated-Formatted (CSV) query results.

  PeopleSoft downloads query results to a file in comma separated value format (CSV). You can use the PSLANGUAGES table to select a charset value for a given language code to encode the results.



Manage Installed Languages page

Language Code Enter the PeopleSoft three-letter language code.

Installed Select the check box to indicate the language that is in use.

Default Character Set Enter the appropriate character set for the language code selected.

Verity Locale Mapping Use the dropdown list to select which Verity locale should be used when indexing data for search in this language.

Spell Check Language Use the dropdown list to associate the selected Language Code with a spell check language.

Windows Character Set Use the Lookup option to select a charset to use to encode comma separated value (CSV) formatted query results for the corresponding language code. The charset must be valid for Java encoding and mime-type, or downloads will fail with an error. The default value for all language codes is *CP1252*.

Modifying Configuration Manager Windows Resources

PeopleSoft Configuration Manager provides a list of languages that are available to users for their PeopleTools Windows client and Application Designer sessions. This list is embedded in the Windows Resource File for PeopleSoft Configuration Manager itself.

To add your new language to the list of languages in PeopleSoft Configuration Manager:

1. Create a new directory \RES\<newlang>\PSCFG for your new language.
2. Copy \RES\<lang>\PSCFG into \RES\<newlang>\PSCFG.

PSCFG.RC stores the list of languages used in the Display tab of PeopleSoft Configuration Manager. These languages are stored as strings with the name *IDS_LANGx*, where *x* is a sequential number. You can edit PSCFG.RC using any text editor. To add your new language, find the next available IDS_LANG entry, and change the text to match your new language using the format *LanguageCode - Description.*

3. Once you have updated the next available IDS_LANG entry, update the entry IDS_NUMLANGUAGES to specify the new highest IDS_LANG entry you used.

   Make the changes to both \RES\<newlang>\PSCFG\pscfg.rc and \RES\ENG\PSCFG\pscfg.rc.

4. Translate all strings within \RES\<newlang>\PSCFG\pscfg.rc into your newly added language.

5. Once you have modified the resource files to add your new language, use the MAKEALTL.BAT batch file to compile the alternate language dynamic-link library (DLL) for PeopleSoft Configuration Manager in each language where you added the new entry.

Note. Typically, no alternate language DLLs are required for the English language, as English resources are included in each core PeopleTools DLL. However, in this case, you must modify the English language resources for PeopleSoft Configuration Manager in order to add your new language. This means that you must compile an English alternate language DLL for PeopleSoft Configuration Manager (PSCFGENG.DLL), just as you do for any other language. Use the MAKEALTL.BAT batch file to compile your English resources, specifying *ENG* as the language code argument.

If you plan to translate Windows resources into the new language, create another directory structure under %PS_HOME%\SRC\RES on the file server to contain the new translations. To do so, copy the existing %PS_HOME%\SRC\RES\ENG tree (or use another language, if you prefer not to use English as the source for your translations) to a new directory under %PS_HOME%\SRC\RES, matching the PeopleSoft three-letter code for the new language.

See Also

Chapter 13, "Translating PeopleTools," page 203

Modifying the PeopleSoft Internet Architecture Signon Page

The PeopleSoft Internet Architecture enables users to select their signon language by selecting the language from the Signon page. This page is maintained on the web server as a static HTML file and is not generated from a PeopleTools page definition. You must edit this HTML file to add the new language code.

Work with your web server administrator to edit the signin.html file on your PeopleTools web server. The signin.html file contains an HTML table that lists each PeopleTools language. Add a new entry to this table to reference the name of your new language *in the language of the new language*. If the language does not use Latin characters, you may want to reference an image that contains the name of the language to ensure that all users can correctly see the language name, even if their web browser settings are not configured appropriately for that language.

In the following example, we added the last three lines to the signin.html file. Note the Japanese entry demonstrating how to reference an image that contains the language name for a non-Latin language:

```
<tr>
   <td> </td>
   <td><a HREF="<%=servletLoc%>?cmd=login&languageCd=JPN"><img src="<%=psHome%>⇒
/images/kanji.gif" width="37"
```

```
  height="15" align="bottom" alt="Japanese" border="0"></a>    ⇒
 </td>
   <td class="PSHYPERLINK"><a HREF="<%=servletLoc%>?cmd=login&languageCd=⇒
POR">Portugu&ecirc;s</a>  
     </td>
   <td class="PSHYPERLINK"><a HREF="<%=servletLoc%>?cmd=login&languageCd=⇒
DUT">Nederlands</a>  </td>
  <td class="PSHYPERLINK"><a HREF="<%=servletLoc%>?cmd=login&languageCd=NRS">Norsk
  </a>  </td>
</tr>
```

Adding New Languages to the pstools.properties File

You must add an entry for your language needs to the pstools.properties file, also located on your web server. This file provides a mapping between the POSIX locale used by the browser and the three-letter PeopleTools language code that you selected for your language. The mapping is used by the PeopleSoft Internet Architecture to provide the signon screen in the user's preferred language based on the web browser's language preference settings.

Work with your web server administrator to edit the pstools.properties file in the same directory as the signin.html file that you edited in order to modify the signon page.

The pstools.properties file includes a section that maps POSIX locales to the equivalent PeopleSoft three-letter language code. Each PeopleSoft language code can be mapped to any number of POSIX locales to deal with the case where multiple POSIX locales are handled by a single PeopleSoft language. For example, by default, *en*, *en_US*, and *en_GB* are all mapped to the PeopleSoft language code ENG because separate English translations are not provided for these locales.

In the following example, a mapping to the new NRS Norwegian PeopleSoft language code (see line *no=NRS*) was added:

```
#iso language and country code to psft language code cross reference
en=ENG
en_US=ENG
en_GB=ENG
es=ESP
es_ES=ESP
es_AR=ESP
es_CO=ESP
es_MX=ESP
fr=FRA
fr_FR=FRA
fr_BE=FRA
fr_CH=FRA
fr_CA=CFR
it=ITA
it_IT=ITA
it_CH=ITA
ja=JPN
ja_JP=JPN
nl=DUT
```

```
nl_BE=DUT
no=NRS
de=GER
de_DE=GER
de_AT=GER
de_AU=GER
de_CH=GER
pt=POR
pt_BR=POR
sv=SVE
sv_FI=SVE
```

See Also

Chapter 2, “Controlling International Preferences,” Understanding the Browser Language Preference, page 16

CHAPTER 13

Translating PeopleTools

This chapter lists prerequisites for translating PeopleTools and discusses how to:

- Use alternate language dynamic-link libraries (DLLs).
- Locate resource directories.
- Translate resource files.
- Translate property files, text files, and images.

Understanding Translating PeopleTools

PeopleSoft provides utilities and methods for translating all definitional objects built using PeopleTools, such as pages and reports. However, there are some PeopleTools components that are visible to end-users and should be translated. These include messages issued by the Application Server, the Windows components of PeopleTools (such as the PS/nVision designer and PeopleSoft Query) and images used for standard navigation in the PeopleSoft Internet Architecture.

This chapter explains the different translatable PeopleTools components, and how you can customize the translations delivered by PeopleSoft or translate PeopleTools into new languages.

See Also

Chapter 8, "Global Reporting and Analysis," page 103

Prerequisites

Before you begin modifying or creating new translations of PeopleTools, ensure that you have the required files and software tools.

This section discusses:

- Required files.
- Required tools.

To modify translations of PeopleTools or to translate PeopleTools into a new language, you must have installed the PeopleTools Language Development Kit. When you install PeopleTools, you have the option to install the PeopleTools Language Development Kit when you install the file server. If you have installed this kit, you will find a directory <PS_HOME>\SRC\RES on your file server. You can install the PeopleTools Language Development Kit at any time − if this directory does not exist on the file server where you are planning to perform the translation, re-run the PeopleTools setup program and select only this option.

PeopleSoft provides source code to the English language resource files and selected local language resources, as well as supporting header files that you need to produce your own alternate language DLLs. PeopleSoft also provides batch files to automate the resource compilation process.

In addition to the source code to the resource files that are delivered in the PeopleTools Language Development Kit, PeopleSoft also delivers pre-compiled alternate language DLLs for each language provided by PeopleSoft. These are installed by selecting the PeopleTools Language Pack from the PeopleTools installer. If you intend on using a translation that PeopleSoft provides but don't plan on modifying PeopleTools translations, you only need to install the language pack, not the Language Development Kit.

The tools that you need to customize Windows resources are part of Microsoft's Visual C++ compiler package. You won't have to change or compile any C++ code, but you must use the resource compiler and linker. If you are translating any resources other than strings, you must use the Microsoft Developer Studio. See the *PeopleTools 8.42 PeopleBook: Hardware and Software Requirements Guide* for the exact version of C++ required.

Using Alternate Language DLLs

Although the vast majority of PeopleTools user interface elements viewed by the end user are stored in the database, PeopleTools' executable modules do contain some translatable elements. When running PeopleTools components (such as the application server, PS/nVision and PeopleSoft Query) on Windows, these translations are read from alternate language DLLs. An alternate language DLL is a file that stores translated strings for an associated PeopleTools DLL or EXE file (module). At runtime, the system uses the resources in the alternate language DLLs that correspond to the user's language preference.

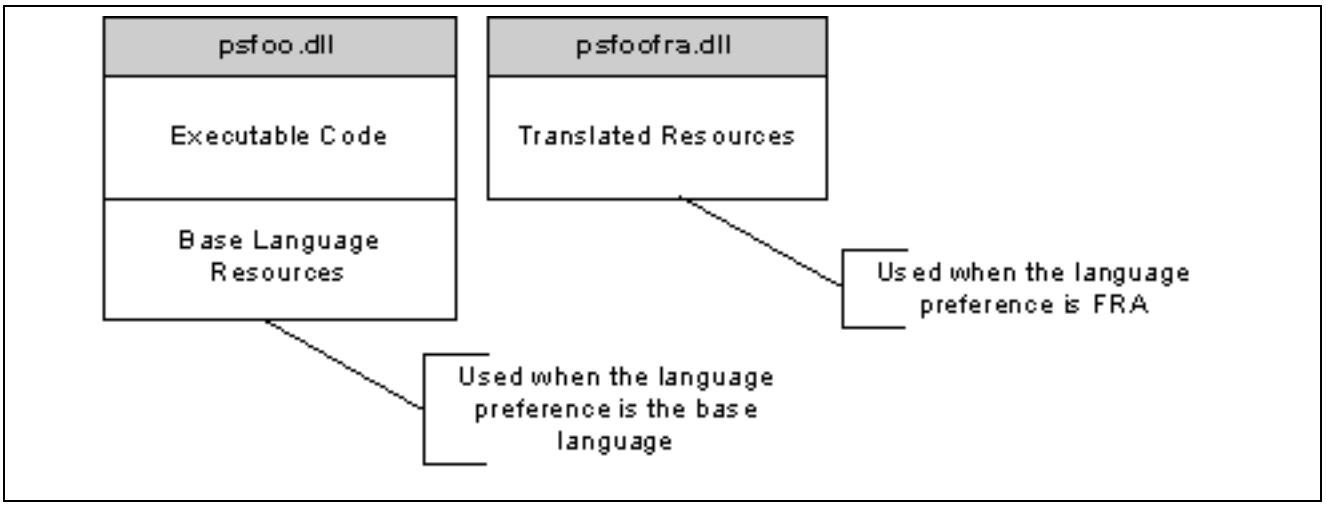
PeopleSoft uses a naming convention that includes the name of the base executable (the executable with which the alternate language DLL is associated) and the language code that identifies the language of the alternate language DLL. An alternate language DLL is named as follows:

PS*ZZZXXX*.DLL

ZZZ Three-character code that identifies the PeopleTools module associated with the alternate language DLL.

XXX Three-character code that identifies the language of the alternate language DLL.

The alternate language DLL is used only to store translated resources. All code is executed from the base-language executable. The following diagram illustrates the structure of a base-language module (PSFOO.DLL) and its French alternate language DLL (PSFOOFRA.DLL).



Base language DLL and alternate language DLL

The system uses the resources that are stored in the alternate language DLL that matches the user's language preference, if the DLL exists. Otherwise, it uses the resources that are stored in the base executable file.

Locating Resource Directories

Alternate language DLLs must be present on all application servers. Windows clients in a three-tier installation also must have the alternate language DLLs present.

Windows NT application servers and Windows client machines use Windows resources from the base language and alternate language DLLs. UNIX application servers, however, store resources for all languages and modules in a single file, PSAPPSERV.RES. This file contains the same resources as the alternate language DLLs.

The following table shows the content of the directories that are used to support translated resources. These directories are distributed with PeopleTools and contain user-customizable resource files and other supporting files that are needed to compile, bind, name, and copy alternate language resource DLLs.

Directories and Files	Purpose
\SRC\RES	The root directory for alternate language resource DLLs. The files in this directory include some batch files that are used in constructing alternate language DLLs.
\SRC\RES\ENG	A prototypical alternate language development directory for the English language. There is one of these directories for each alternate language. Copy this directory for each new alternate language that you create.

Directories and Files	Purpose
\SRC\RES\ENG\INC	Holds header (.H) files that are common to several DLLs and various icons and bitmaps.
\SRC\RES\ENG\xxxxx	Within this directory, there is a directory for most PeopleTools DLL and EXE files found in \SRC\BIN. These directories contain the following file types: • *.RCX: string table resource files. • *.RC: menu and dialog box resource files. • *.CUR: cursors. • *.H: header files containing resource identifiers. • *.BMP: bitmap files used for icons and other graphical components. • *.ICO: icon files for Windows Explorer.

See Also

Chapter 13, "Translating PeopleTools," Using MAKEUNIX.BAT, page 208

Translating Resource Files

To translate resource files into a new language, we recommend that you start by copying the source code for the English translations provided by PeopleSoft and use this as a starting point for your new language. Alternatively, if you are only making minor modifications to an existing translation provided by PeopleSoft (such as to change terminology), you can use any of the languages provided by PeopleSoft as your starting point. This chapter assumes that you are using the English translations as your start, and that you're adding a new translation.

Note. Keep in mind that PeopleSoft provides pre-translated PeopleTools alternate language DLLs for many languages, including French, Spanish, Dutch, Portuguese, Japanese, German, Italian, Danish, Traditional Chinese, and Canadian French. You must follow these steps only if you want to translate PeopleTools into a language that is not provided by PeopleSoft or if you want to modify one of the provided translations.

This section discusses how to:

- Translate English resource files.
- Use MAKEALTL.BAT.
- Use MAKEUNIX.BAT.

Translating Resource Files

To translate resource files:

1. Determine the three-letter designation of the new language.

In this example, *NRS* is the designation for Norwegian. For consistency in referring to languages throughout the system, use one of the standard code values stored in the Translate table for the LANGUAGE_CD field. PeopleSoft does not use standard POSIX codes for languages, but three-letter codes instead. You can decide the appropriate three-letter code for your language, but you should ensure that it is consistently used across PeopleTools whenever you use this language.

See Chapter 12, "Adding New Languages," page 193.

2. Copy the contents of \SRC\RES\ENG to the target resource directory.

   For Norwegian, the target resource directory is \SRC\RES\NRS.

3. Use Microsoft Developer Studio to convert the English resources to the alternate language.

   A text editor is adequate to change string resources contained in the *.RCX files, however when modifying *.RC files that contain Windows dialog boxes and other graphical elements, you should use the resource editor provided in Microsoft Developer Studio bundled with Microsoft Visual C++. The resource editor enables you to size and position elements in dialog boxes, edit bitmaps, cursors and other graphic components of the resource files.

4. Set up the environment variables.

   Before compiling your translated resource files, you must set the appropriate environment variables for the C++ resource compiler. Typically, Microsoft Visual C++ provides a batch file, VCVARS32.BAT, which sets the variables for you. In addition to the variables set in this batch file, set the environment variable TOOLBIN to the <PS_HOME>\BIN\CLIENT\WINX86 directory of your file server, and append the <PS_HOME>\SRC\RES\ENG\INC directory to the environment variable INCLUDE.

5. Compile alternate language DLLs using MAKEALTL.BAT.

6. (NT application servers only) Copy the resultant alternate language DLLs to the BIN\SERVER\WINX86 directory of your NT application server.

7. (UNIX application servers only) Compile UNIX application server resources and transfer to the UNIX application server.

   If you are using a UNIX application server, you must run MAKEUNIX.BAT to compile the resource files into a format that is readable by the UNIX application server.

Note. If you have changed any menu item text, update the Security settings to give users access to the menu items.

See Also

Chapter 13, "Translating PeopleTools," Using MAKEALTL.BAT, page 207

Using MAKEALTL.BAT

The MAKEALTL.BAT file calls the Microsoft Visual C++ Resource Compiler and Linker to compile translated resources into a Windows DLL. Before running MAKEALTL.BAT, ensure that the environment variables required by the Resource Compiler and Linker are set correctly in your current DOS window. These environment variables are as follows:

Environment Variable	Description	Example
%path%	Must include your Microsoft Visual C++ executables directory.	C:\MSDEV\BIN
%include%	Must include your Microsoft Visual C++ INC directory and the Microsoft Foundation Classes (MFC) BIN directory. It must also include a copy of the PeopleTools resource include directory.	C:\MSDEV\INC C:\MSDEV\MFC\INC C:\PT810\SRC\RES\ENG\INC
%lib%	Must include your Microsoft Visual C++ library directory.	C:\MSDEV\LIB
%toolbin%	Must point to the directory containing your PeopleTools executables.	C:\PT810\BIN\CLIENT\WINX86

Once you have verified that the variables in the table above are correct, you can run MAKEALTL.BAT.

To run MAKEALTL.BAT:

1. In a DOS window, go to the SRC\RES directory.
2. Run the MAKEALTL batch file with <language> and <PeopleTools module> parameters.

   This process compiles the resources into language-specific DLLs and copies the files to your PeopleTools executables directory.

   The syntax of the command is as follows:

```
MAKEALTL <language> <PeopleTools module>
```

- <*language*> is the three-letter code for the language that you are compiling (such as NRS).
- <*PeopleTools module*> is the name of the directory that contains the resource files that you have translated (such as PSSYS).

  Pass *ALL* in place of the directory name to compile all PeopleTools modules in the language that you specified.

Using MAKEUNIX.BAT

MAKEUNIX.BAT compiles the translated resources into a single file that is readable by the PeopleSoft UNIX application servers. It reads the same translated resources as MAKEALTL.BAT, but instead of producing a separate DLL for each language/module combination, MAKEUNIX.BAT produces a single indexed resource file called PSAPPSRV.RES.

To run MAKEUNIX.BAT, you must also have the Microsoft Visual C++ development environment installed on your workstation. MAKEUNIX.BAT calls the C++ compiler to parse the resource files from all languages and to create PSAPPSRV.RES. In addition to the environment variables that are required to run MAKEALTL.BAT, MAKEUNIX.BAT requires that you set the %PSVER% environment variable. Set this variable to the base directory in which you installed PeopleTools.

If you have added any new languages as part of your PeopleTools translations, you must edit MAKEUNIX.BAT to include the new languages so that they are included in the PSAPPSRV.RES file.

To run MAKEUNIX.BAT:

1. Open a DOS command prompt window.
2. Change the directory to your \PT810\RES directory.
3. Run the MAKEUNIX batch file.

   MAKEUNIX doesn't require that you pass the module or language name arguments; it compiles the UNIX application server resources for all languages and modules in one pass.

   The output from MAKEUNIX.BAT, and PSAPPSRV.RES is placed in <PS_HOME>\APPSERV\UNIX. You must transfer PSAPPSRV.RES to the BIN directory of your UNIX application server using a network file transfer utility, such as FTP.

Translating Property Files, Text Files, and Images

Not all translatable elements used internally by PeopleTools can be contained in resource files. Some strings referenced by Java and other components of PeopleTools are stored in Java-style property files. The PeopleSoft Internet Architecture makes use of images for many navigational and user interface elements. Some of these images contain text which must also be translated.

This section discusses:

- Translating property and text files.
- Translating images.
- Translating HTML definitions.

Translating Properties Files

Java components of PeopleTools such as the servlets on the Web Server derive some strings from Java-style properties files. Java properties files are simple text files that are read at runtime by the servlet and contain strings that are displayed to the user, typically in error messages.

These files can be translated using any standard text editor, and are located on the Web Server. The following files contain translatable text:

Base Properties File	Translated Properties File
text.properties	text_<language_code>.properties
errors.properties	errors_<language_code>.properties

The base version of the file (without a language code) contains the English version of the strings. Copy this file to a new file containing the language code of your target language before translating the contents. For example, if you are translating the resources into Norwegian, you would create text_NRS.properties and errors_NRS.properties, and update these files with Norwegian translations of the contents.

See Chapter 12, "Adding New Languages," page 193.

When translating into a language that cannot be represented by the Latin-1 character set, such as Japanese, Chinese and Korean, the contents of the Java properties files must be converted into escaped Unicode character references. The Sun Java Development Kit (JDK) contains the native2ascii utility that you can use to convert Unicode character references in a Java properties file into a native character set and vice versa. Refer to the native2ascii utility documentation in the JDK for more information.

Translating Images

The PeopleTools Internet Architecture uses many images as part of its user interface component, and some of these images contain text. You will typically translate only images that contain textual elements or elements that are specific to one language or culture.

Translating an Image

To translate an image:

1. Change the PeopleSoft Configuration Manager language preference to the target language.
2. Open PeopleSoft Application Designer.
3. Open the image.

   Choose File, Open and select the image you want to open.
4. Export the image to a file.

   From the File menu select Export Image, and select a filename and image format to save the image to disk.
5. Use a graphics editor to modify the saved image file and update the translation.
6. From the Edit menu select Update Image.

   A standard Open dialog box appears.
7. Open the file with the translated image.

   The new graphic replaces the original graphic in the image.
8. Save the image.

   The translated image is saved into the related language table under the language that you selected in the Configuration Manager in the first step.

CHAPTER 14

Translating Application Definitions

This chapter provides an overview of how to translate PeopleTools application definitions into new languages, and how to translate customizations. It discusses how to:

- Use Translation Designer.
- Use the translation pages.
- Translate application definitions.

Understanding Translation Options

If you are running PeopleSoft applications with a multiple language user interface, you will want to translate any customizations you make to the product using PeopleTools into each of the languages that you are using. PeopleTools provides a full suite of tools to help you translate the application user interface; the same tools that PeopleSoft uses internally to provide the translations we ship on the Global Multi Language CDs.

The main definitions requiring translation in order to provide a fully multilingual user interface are pages and fields. However, PeopleTools allows the translation of many other definitions; everything that the end user sees via the PeopleSoft Internet Architecture can be translated into multiple languages.

You can translate PeopleTools definitions with PeopleSoft Application Designer, PeopleSoft Tree Manager, or the translations utilities. The translations utilities are a particularly powerful option for translating fields, translate values, and hard-coded text on pages (that is, text that is not derived from the field description). Given the definitional approach to PeopleTools applications however, the order in which you translate objects is critical in order to obtain the most leverage from your translation work.

Using Translation Designer

Translation Designer within PeopleSoft Application Designer provides an efficient mechanism for translating the highest volume and highest profile definitions: pages.

Page definitions include:

- Field labels.
- Page text (not derived from field labels).
- Translate values (which normally appear either as radio button labels or as values in dropdown lists).

Translation Designer facilitates translations with an easy-to-use grid where you can view the base-language text and enter a translation simultaneously, enabling translators to review their translations side-by-side instead of simply overwriting source text with a translation.

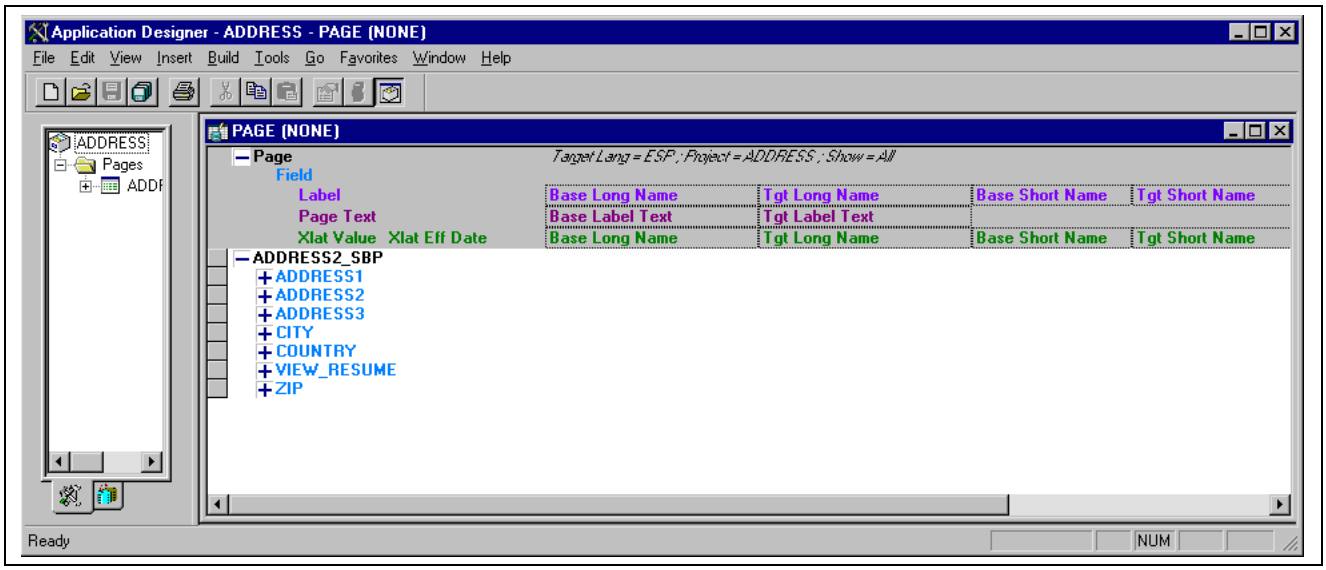
This section discusses how to:

- Open Translation Designer.
- Use Translation Designer display options.
- Work in Translation Designer.
- Translate system definitions.

Opening Translation Designer

Translation Designer shows all the translatable definitions in your current PeopleSoft Application Designer project, along with their base-language and translated text.

The grid contents are based on the PeopleSoft Application Designer project that is open when Translation Designer is started. This association with PeopleSoft Application Designer projects is a handy mechanism for organizing your translation effort. However, it also means that, to use Translation Designer, you must have a project open, and it must contain one or more pages. If you modify the project, Translation Designer won't pick up the new objects in the project until you save the changes and refresh.



Translating Page Definitions in Translation Designer

To open Translation Designer:

1. Set your language preference to the target language.

   Because you'll be using the PeopleSoft Application Designer to access Translation Designer, set your language preference using PeopleSoft Configuration Manager.

2. Open PeopleSoft Application Designer.
3. Create or open the project containing the definitions to be translated.

It makes sense to use projects with the non-base language versions of any pages. That way you're sure to include all definitions on the pages. If you are creating a new project, you must save it before opening Translation Designer. It is a good idea to keep the number of pages in the project being translated to a minimum, as all the fields and other translatable definitions on each page in the project are loaded into memory when Translation Designer starts. A project with a lot of pages may take some time to open due to the sheer volume of fields on the page. PeopleSoft recommends that you keep the number of pages in a project to be translated using Translation Designer under 20.

4. Open Translation Designer.

   - To translate the pages in your project, from the Tools menu select Translate and choose Translate Page Definitions.

     This is the most versatile option because it shows you all translatable definitions that are associated with a page. You can use it to translate field labels, panel text (not derived from field labels), and translate values—all in one grid.

   - To translate only the fields in your project, from the Tools menu select Translate and choose Translate Fields.

     This option lets you translate fields that are directly included as definitions in your project. Fields that are part of records or pages in your project are not included unless they are also explicitly included in your project as fields.

   - To translate only the translate values in your project, from the Tools menu select Translate and choose Translate Xlats.

     You can also access all of these commands in the popup menu that appears when you right-click in the project workspace.

     After you select one of the translate options, Translation Designer appears in the object workspace.

     Depending on which translation grid you opened, different translatable definitions from the active project appear in the grid. All definitions are arranged hierarchically: pages (if included) are at the top level; fields are at the next level; and field labels, panel text, and translate (xlat) values are at the lowest level.

     Use standard tree controls to expand and collapse the view in order to display definitions at different levels. You can also collapse or expand all levels of the tree by right-clicking on the tree node and selecting the appropriate option from the popup menu.

5. (Optional) Arrange the window to maximize Translation Designer.

   If you want more space for the translation grid, maximize the PeopleSoft Application Designer window and then maximize Translation Designer within the window. For even more space, hide the other frames in the PeopleSoft Application Designer window. To toggle the display of the project workspace, from the View menu select Project Workspace, or press ALT+0 (zero). To toggle the display of the output window, from the View menu select Output Window, or press ALT+1.

See Also

Chapter 2, "Controlling International Preferences," Setting Up and Changing Windows Designer Tools Language Preferences, page 19

Using Translation Designer Display Options

This section discusses how to:

- Use the information bar.
- Expand and collapse nodes.
- Choose which rows to view.
- Resize columns and rows.

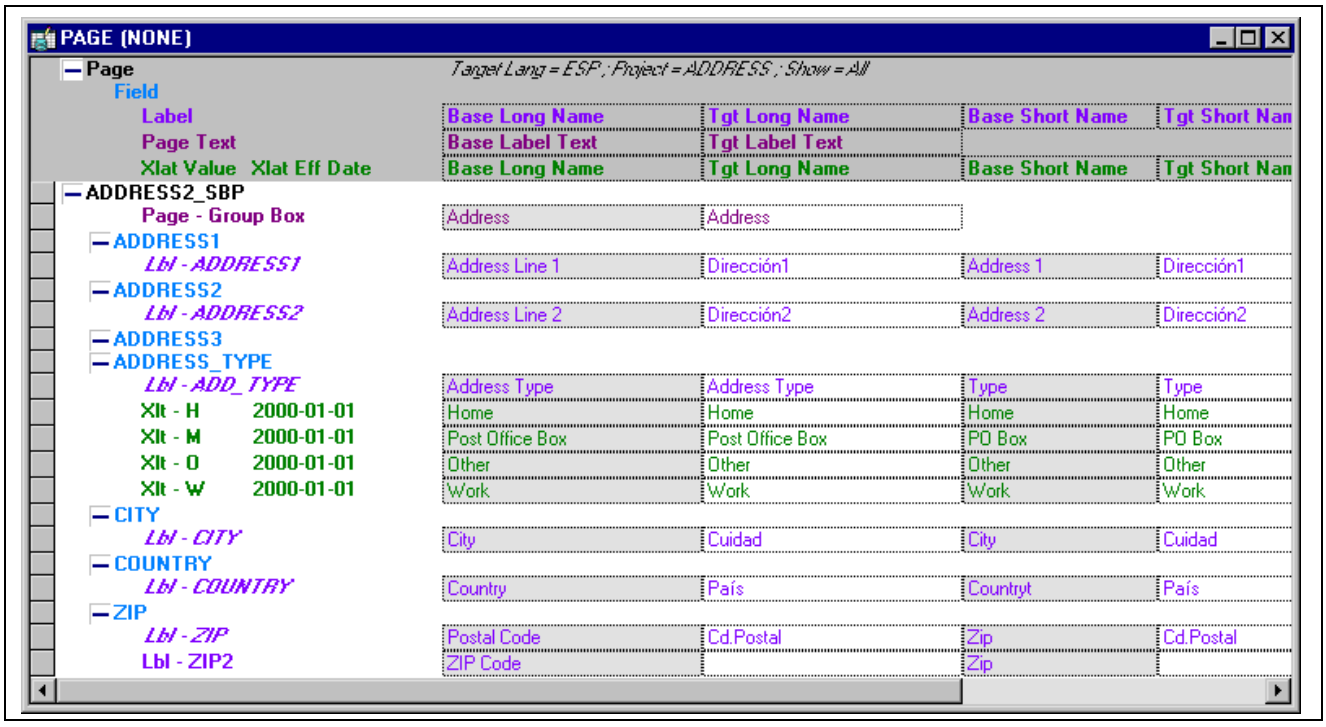
Using the Information Bar

Across the top of the translation grid, an information bar displays helpful information about the project. The target language, current project, and current viewing option (all, translated, untranslated, or modified) are set in italic.

On the left side of the bar, you can see the hierarchical organization that is used to display definitions in the grid: pages (at the highest level), fields (at the next level), and translatable definitions—field labels, page text, and translate values—at the lowest level.

Each definition is color-coded to remind you with which definition type you're working.

- Fields: blue.
- Field labels: light purple.
- Page text (not derived from a field label): dark purple.
- Translate values: green.



Color-coded definitions

In this example, notice that there is a group box with page text that is not derived from a field label. The ADDRESS_TYPE field has a set of associated translate values. All other translatable definitions are field labels.

Notice also that field labels that appear on the page are in italic. This is apparent when you look at the ZIP field, which has two labels. The other field labels appearing in the grid are associated with the field, but not used on the page being translated; they are displayed primarily so the translator can see the context in which they are translating the label and ensure consistency of terminology across labels.

Expanding and Collapsing Nodes

The left side of the translation grid is a hierarchical tree control that displays all the definitions on the page.

+	Click once to expand the definition by one level.
−	Click once to collapse the definition by one level.

To expand the entire tree structure, from the View menu select Expand All. To collapse the entire tree structure, from the View menu select Collapse All. Right-clicking anywhere in the grid displays a popup menu that contains these options. Another option on the popup menu, Expand Current Definition, expands the selected definition by one level.

Choosing Which Rows to View

Right-click anywhere in the translation grid to see a popup menu that lets you choose which rows are displayed in the grid:

All	Shows all translatable definitions.
Translated	Shows only the definitions that have already been translated—that is, where the base language label and target language label do not match.
Untranslated	Shows only the definitions that have not been translated—that is, where the target language label is blank or the base language label and target language label match.
Modified	Shows the definitions that have been modified in the translation grid. Translation Designer defaults to this mode when it encounters a save conflict.

Keep in mind that the options you select in the popup menu work together. If you select Expand Current Object while Untranslated is activated, you might not see anything. This means that everything in the current definition is translated.

Resizing Columns and Rows

To change the column width, place the cursor over the column divider on the information bar. When the cursor changes, drag the column divider to the desired position. You can resize only translatable columns; you cannot resize the columns that display the hierarchical tree of page definitions. Use the same technique to change row height.

Working in Translation Designer

This section discusses how to:

- Enter translations.

- Navigate in Translation Designer.
- Search and replace.
- Use PeopleSoft Application Designer functionality.
- Integrate with other applications.

Entering Translations

The working area of Translation Designer consists of four columns of data:Base Long Name, Tgt Long Name (target long name), Base Short Name, and Tgt Short Name(target short name).

As the column names imply, the two base language columns display the base language labels for the definitions in the grid. To translate the labels, type the translation into the Tgt Long Name and Tgt Short Name fields.

The grid incorporates standard text editing functionality. Cut, copy, and paste operations are available under the Edit menu. To force a line break within a label (so that the text wraps on the page), press CTRL+ENTER.

The first time that you translate a particular field label, the same translation is entered into any other occurrence of that field in the current grid. This ensures consistency and saves time.

The grid automatically limits the length of the text you enter based on the maximum length of the fields. When you reach the maximum length, you cannot add any more characters.

As with any PeopleSoft Application Designer definition, changes are not permanent until you save them.

Note. To save related language data, you must have values in all fields. You cannot partially translate a single PeopleTools definition. For example, if you translate the long name but not the short name for a field, the short name defaults to the base language short name, and this value is saved in the related language table. Similarly, if you translate some but not all translate values for a particular field, any untranslated values pick up the base language text, which is then saved to the related language table.

Navigating Translation Designer

Click to move to a cell or node in Translation Designer, or use the standard Windows keyboard shortcuts:

- Press TAB or ENTER to move to the right; press SHIFT+TAB to move to the left.
- Use any of the arrow keys to move from cell to cell.

  For example, the UP ARROW key moves you to the cell above the current cell.
- To move from the text cells to the tree, press the LEFT ARROW key.
- To move from the hierarchical tree to the text cells, press TAB.

  You can use the RIGHT ARROW key only when there are text cells in the same row—that is, if the current node is a translatable definition.
- Use the UP ARROW and DOWN ARROW keys to move around in the hierarchical tree—for example, from a field to an adjacent field or to a page.

  To move to a lower level, first press TAB to move into the main Translation Designer. Then move up or down to the desired node. Then use the LEFT ARROW key to move back into the tree.
- If there are several pages in your project, scroll directly to the node for a particular page by right-clicking that page in the project workspace and from the menu select Translate and choose Translate Page Definitions from the popup menu.

Searching and Replacing

To search for a specific word within a single column:

- Place the cursor anywhere in that column, and select Edit, Find and Replace In Current Column.

  If you are searching a non-editable column, from the Edit menu choose Find in Current Column.

- The Find and Replace dialog boxes provide standard search and replace functionality, including the Find Next, Replace, and Replace All buttons. In either dialog box, select the Match case check box if you want to enable case-sensitive searching.

- The Find option provides enables you to search up or down the column.

  When you reach the top or the bottom of the column, the search does not cycle back through the column. Therefore, if you want to search the entire column, ensure that you're in the top row when you press Find Next.

- The Replace function always searches down the column.

  If you want to replace all occurrences in the column, ensure that you're in the top row when you press Replace.

Using PeopleSoft Application Designer Functionality

Because Translation Designer is integrated into the PeopleSoft Application Designer, you can use all standard PeopleSoft Application Designer features while Translation Designer is open. Some features that are particularly useful during translations are:

- Using the Find Definition References option to research where in the system a particular definition is used. To use this option, from the Edit menu select Find Definition References.

- Opening a translated page in order to realign translated definitions.

- Opening definitions to see the properties.

  Remember, as long as you're logged on using a non-base language, modifying labels in the definition updates the related language tables, not the base language tables.

There are several ways to open a definition:

- Use standard PeopleSoft Application Designer functionality to open the definition from the project window.

- From the File menu, select Open.

- Double-click or right-click the definition within Translation Designer and select View Definition from the popup menu that appears.

  When you've selected page text that is not associated with a field definition, the page itself opens.

If there is a version of the page for the user's language preference, that version appears; if not, the base language page appears.

Note. Security controls access to different PeopleSoft Application Designer definitions. If you cannot open a particular type of definition from within Translation Designer, you may not have the necessary level of access.

See *PeopleTools 8.42 PeopleBook: PeopleTools Security*

Integrating with Other Applications

Because Translation Designer emulates a Microsoft Excel spreadsheet, you can use the standard Windows copy and paste tools to copy translations from Translation Designer into Excel or another Windows application. This is useful when running spell check against your translations or when saving your translations in a spreadsheet for offline review.

To copy the entire contents of the currently open Translation Designer into the clipboard:

1. Select the entire grid.

   From the Edit menu choose Select All or click in the top left cell of the grid border.

2. From the Edit menu select Copy.

Note. With Translation Designer, you can copy an entire grid to the clipboard, but you can paste only individual field values back into the grid. You cannot paste the entire grid into Translation Designer after reviewing it in another application.

Using the Translation Pages

For definitions that cannot be translated via Translation Designer, PeopleTools contains several translation pages that are especially useful if the translator has limited experience using PeopleTools. A translator who has good technical skills and who is familiar with PeopleTools may prefer to translate using the design tools as described later in this chapter.

To locate the translation pages, select PeopleTools, Translations, Translate System Definitions. The translation pages will help you to translate system definitions, including records, menus, menu items, components, component interfaces, queries, message channels, messages, message definitions, portal definitions, process definitions, PeopleSoft Application Engine programs, Business Interlinks, review page text, and HTML definitions.

Translating Using the Translation Pages

You should translate PeopleTools definitions in the following order to ensure the least amount of duplication during your translation process:

1. Translate pages, messages, and menus—in any order (using Translation Designer).
2. Translate business processes, Process Scheduler, mobile pages, and portals—in any order.
3. Translate trees, records, queries, strings, application data, and PeopleSoft Application Engine—in any order.

Translating Pages

All page objects except the HTML definitions can be translated directly in Translation Designer. However, you can also translate pages, translate values and fields directly in PeopleSoft Application Designer if you are familiar with the designer tools.

Definition	Base Table	Related Language Table	Where to Translate
Field Labels	PSDBFLDLABL	PSDBFLDLABLLANG	Translation Designer
Translate Values	PSXLATITEM	PSXLATITEMLANG	Translation Designer
Page Definitions	PSPNLDEFN	PSPNLDEFNLANG	Translation Designer
Page Fields (Page text)	PSPNLFIELD	PSPNLFIELDLANG	Translation Designer
Page Buttons	PSPNLBTNDATA	PSPNLBTNLANG	Translation Designer
Page HTML	PSPNLHTMLAREA	PSPNLHTMLLANG	Application Designer

Note. Don't be confused by the name *Translate table*. It is a common table that is used throughout PeopleTools and PeopleSoft applications and is not used for translation purposes.

To translate values from the Translate table in PeopleSoft Application Designer:

1. Change the PeopleSoft Configuration Manager language preference to the target language.
2. Open PeopleSoft Application Designer.
3. Open the field whose translate values you want to access.
4. From the File menu, select Definition Properties.
5. Access the translate values tab in the Field Properties dialog box.
   a. Click the Properties icon (or right-click in the field definition and choose Field Properties).
   b. Click the Translate Values tab (this tab is visible only for fields with a length of four or less).
      If the descriptions have not been translated, they appear in the base language.
6. Translate the descriptions into the target language.
   a. For each translate value, click the Change button to display the Change Translate Table dialog box.
   b. Translate the Long Name and Short Name fields.
      Don't change any other fields.
   c. Click OK to accept the changes and close the dialog box.
7. Click OK to close the Field Properties dialog box.
8. Save the field.

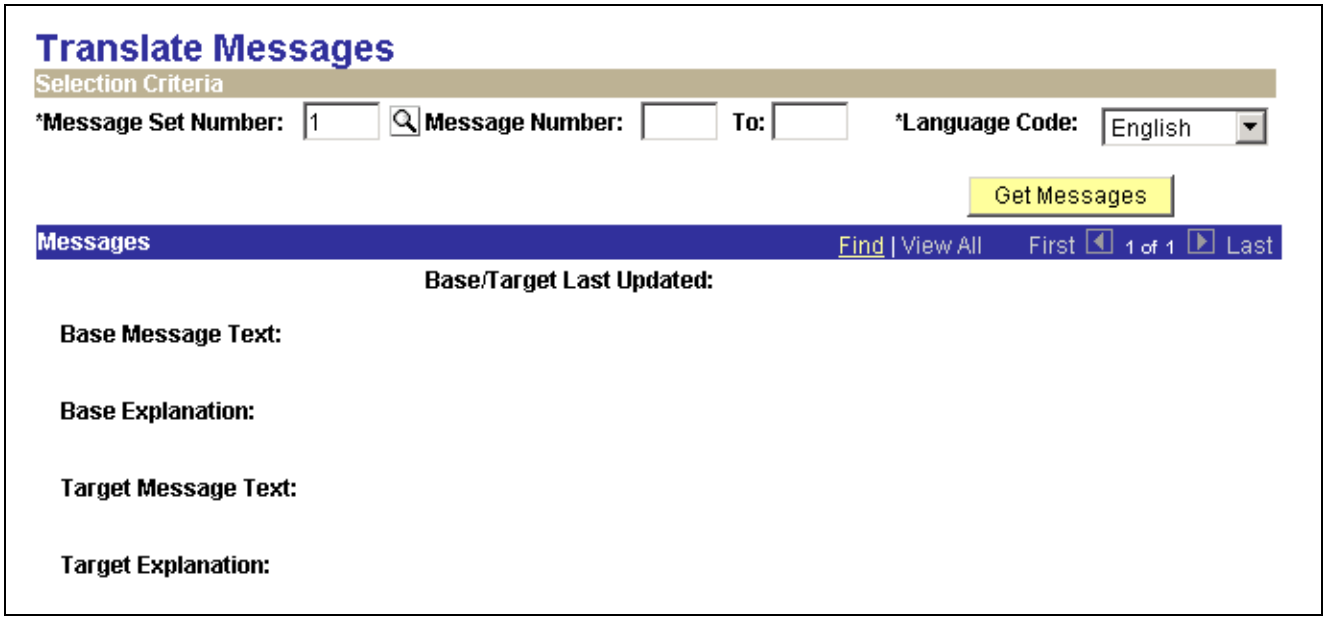
Translating Messages

When you translate messages, you translate the message set description, the messages, and the detailed explanations of the messages into a specific target language.

The following table lists the objects, base tables and related language tables related to translating message sets and message catalogs.

Object	Base Table	Related Language Table	Where to Translate
Message Sets	PSMSGSETDEFN	PSMSGSETLANG	Translate Messages page.
Message Catalog	PSMSGCATDEFN	PSMSGCATLANG	Translate Messages page.

To translate messages, use the Translate Message page. To access this page, select PeopleTools, Translate System Definitions, Messages.



Translate Messages page

To translate messages:

1. Select PeopleTools, Translations, Translate System Definitions, Messages. The Translate Message page displays.

2. Select a message set with which to work.

   Enter a Message Set Number in the field or click the Prompt button to search for a specific message set number.

3. Select messages within the message set with which to work.

   a. To select all messages within the message set, leave the Message Number field blank.

   b. To select a range of messages within the message set, enter the range in the Message Number fields.

4. Select the target language.

   a. From the Language Code dropdown list, select a target language.

b. Click the Get Messages button.

The message set description you selected appears under the Message Set Number.

The first message in the set or in the range you selected displays in the Messages section. The Base Message Text and Base Explanation fields display the message and its explanation in the base language.

Use the arrow buttons or the First and Last links on the Messages bar to navigate to the messages retrieved.

5. Translate the message set description into the target language.
   a. Click the Information icon next to the Get Messages button. The Add Message Set page displays.
   b. Enter a Description in the target language for the message set.
   c. Enter a Short Description for the message set in the target language. The short description must be 10 characters or less.
   d. Click OK to return to the Translate Messages page.
6. Translate the message text and explanation into the target language.
   a. In the Target Message Text field, enter a translation in the target language for the information in the Base Language Text field.
   b. In the Target Explanation field, enter a translation in the target language for the information that appears in the Base Explanation field.
7. Click Save.
8. Repeat steps 6 and 7 for each message in the message set.

On the Messages bar, use the Forward or Back arrows or the First and Last links to navigate to other messages within the set to translate.

See Also

PeopleSoft Server Tools Administration, "PeopleTools Utilities," Message Catalog

Translating Menus

The following table lists where to translate menu and component objects:

Object	Base Table	Related Language Table	Where to Translate
Menu Definitions	PSMENUDEFN	PSMENUDEFNLANG	Translate Menu page.
Menu Items	PSMENUITEM	PSMENUITEMLANG	Translate Menu Item page.

Object	Base Table	Related Language Table	Where to Translate
Component Descriptions	PSPNLGRPDEFN	PSPNLGDEFNLANG	Translate Components page.
Components	PSPNLGROUP	PSPNLGROUPLANG	Translate Components page.

This section discusses how to:

- Translate menu definitions.
- Translate menu items.
- Translate folder tabs in PeopleSoft Application Designer.
- Translate folder tab labels using the translation utilities.

Translating Menu Definitions

Use the Translate Menus page to translate menu definitions and menu group labels.

In a portal, the names that appear in the menu are actually content references. You must translate these using the Translate Menus Page. Use PeopleSoft Application Designer to change only popup menus.

To translate menus:

1. Select PeopleTools, Translations, Translate System Definitions, Menus.

   The Translate Menu page displays. The Translate Menus page enables you to select a set of menu definitions and translate the labels for its menu and menu group into a specific target language.

2. In the Target Language field, select the language into which you want to translate the message set.
3. In the Menu Name field, select a set of menu definitions.

   Leave the Menu Name field blank if you want to select all the menus in the system.

   If you want to work through the menus alphabetically, enter the first characters of the menu name in the Menu Name field. If you want to translate a specific menu, enter the menu name in the field or click the Search button to prompt for a specific menu.

4. Click the Get Menu button to bring the menu descriptions into the menu list.
5. Translate the menu label and menu group into the target language.

   The base-language descriptions for each label appear on the left; enter the translations in the fields on the right.

   If you want to include accelerator keys for use with Windows client navigation, position the accelerator key ampersand to the left of the character that will serve as the accelerator key for the menu or menu group.

6. Save the page.

Translate Menu Items

To translate menu items:

1. Select PeopleTools, Translations, Translate System Definitions, Menu Items.

   The Translate Menu Items page displays. The Translate Menu Items page enables you to select a set of menu definitions and then translate the labels for its menu bars and menu items into a specific target language.

2. In the Target Language field, select the language into which to translate the menu bar and menu item labels.
3. In the Menu Name field, select a set of menu definitions.

   Leave the Menu Name field blank if you want to select all the menus in the system.

   If you want to work through the menus alphabetically, enter the first characters of the menu name in the Menu Name field. If you want to translate a specific menu, enter the menu name in the field or click the Search button to prompt for a specific record.

4. Click the Get Menu Items button to bring the menus into the Menu Item List.
5. Translate the bar label and item label into the target language.

   The base-language descriptions for each label appear on the left; enter the translations in the fields on the right.

   The translated menu bar label appears at runtime if the user's language preference is set to the target language. It will also appear if one or more menu items that appear in the menu bar have a menu bar label translated into the target language.

   To include accelerator keys for use with Windows client navigation, position the accelerator key ampersand to the left of the character that will serve as the accelerator key for the menu or menu group.

   After you translate a menu bar label and exit the field, you must select whether to use the same translation for all occurrences of the bar label:

   - Click *Yes* if you want the translation you just entered to be copied to each of the menu items in the list that share the same bar label. This is merely a data entry shortcut; no translations are saved until you explicitly save the page.
   - Click *No* if you want to leave some of the menu items untranslated.

6. Save the page.

Translating Folder Tabs in PeopleSoft Application Designer

Folder tabs should be translated directly in the Translate Components page. However, if you are familiar with design tools you can also translate folder tabs directly in the PeopleSoft Application Designer, Translation Designer.

Component definitions include two labels for each page in the component: an item label and a folder tab label. In the PeopleSoft Internet Architecture, only one of these is visible to the user. If a folder tab label exists, it is used on the folder tab for the corresponding page; the item label is ignored. If no folder tab label exists, the item label is used as the folder tab label.

To translate folder tab labels in PeopleSoft Application Designer:

1. Change the PeopleSoft Configuration Manager language preference setting to the target language.
2. Log in to PeopleSoft.
3. Open PeopleSoft Application Designer.
4. Open the component definition.

5. Translate the item labels and folder tab labels into the target language.

   Edit the labels directly in the Item Label and Folder Tab Label columns on the grid.

   If the cell in the folder tab label column is blank, the item label appears in the folder tab.

   If there is both an item label and a folder tab label, be aware that only the folder tab label is visible in the PeopleSoft Internet Architecture. The item label appears only on Windows menus.

   For items that users access in Windows menus, you may want to include ampersands within the item label text to create accelerator keys.

6. Save the component definition.

Translating Folder Tab Labels Using Translation Utilities

To translate folder tab labels using the translation utilities:

1. Select PeopleTools, Translations, Translate System Definitions, Components.

   The Translate Components page displays. The Translate Components page enables you to select a set of component definitions and then translate the labels for the pages that make up the component.

   There are two translatable labels for each page in the component: an item label and a folder tab label.

   In the portal, only one of these labels appears to the user. If a folder tab label exists, it is used on the folder tab for the corresponding page. The item label is ignored. If no folder tab label exists, the item label is used as the folder tab label.

   In Windows, item labels become part of the navigational structure, so if the item label and folder tab label are different, they should both be translated. However, because folder tabs use the item label when the folder tab label is missing, it is common to have item labels only.

2. In the Target Language field, select the language into which to translate the component labels.

3. In the Component Name edit box, select a set of component definitions.

   Leave the Component Name field blank to select all the components in the system.

   If you want to work through the components alphabetically, enter the first characters of the component name in the Component Name field. If you want to translate a specific component, enter the component name into the edit box or click the Search button to prompt for a specific record.

4. Click the Get Component button to bring the components into the component list.

   If a component item has no folder tab text, the item label appears in the folder tab. In these cases, you can leave the translation for the folder tab text blank.

5. Translate the item label and folder tab into the target language.

   The base-language descriptions for each label appear on the left; enter the translations in the fields on the right.

   If you want to include accelerator keys for use with Windows client navigation, position the accelerator key ampersand to the left of the character that will serve as the accelerator key for the menu or menu group.

6. Save the page.

See Also

PeopleSoft Server Tools Administration, “PeopleTools Utilities”

Translating Business Processes

Translate menus before business processes, PeopleSoft Process Scheduler, and portals because the terms are related.

The following table lists where to translate business process objects:

Object	Base Table	Related Language Table	Where to Translate
Business Process Definition	PSBUSPROCDEFN	PSBUSPROCLANG	PeopleSoft Application Designer.
Activities	PSACTIVITYDEFN	PSACTIVITYLANG	PeopleSoft Application Designer.
Business Process Items	PSBUSPROCITEM	PSBUSPROCITEMLANG	PeopleSoft Application Designer.
Component Interfaces	PSBCDEFN	PSBCDEFNLANG	Translate Component Interfaces page.
Message Channels	PSCHNLDEFN	PSCHNLDEFNLANG	Translate Message Channels page.
Business Interlinks	PSIODEFN	PSIODEFNLANG	Translate Business Interlinks page.

This section discusses how to translate:

- Business process definitions (and their related objects).
- Component Interface messages.
- Message channels.
- Business Interlinks.

Translating Business Process Definitions (and their related objects)

To translate business process definitions:

1. Set the language in PeopleSoft Configuration Manager.
2. Open PeopleSoft Application Designer.
3. Open the Business Process Map.
4. Overwrite the English with the translation.
5. Save.

Translating Component Interface Messages

To translate component interface messages:

1. Select PeopleTools, Translations, Translate System Definitions, Component Interfaces.

   The Translate Component Interfaces page displays. The Translate Component Interfaces page enables you to select a component interface and then translate the description of the component interface into a specific target language.
2. In the Target Language field, select the language into which to translate the message set.
3. In the Name field, enter a component interface.

   Click the Search button to prompt for a list of component interfaces.
4. Click the Get Objects button to bring the component interface into the definition list.

   A set of component interface names appears in the Object List.
5. Translate the component interface description into the target language.
   a. Click the Update button to display the Add Message Set page.
   b. Enter descriptions for the message set in the target language.
   c. Click OK to accept the change and return to the Translate Component Interfaces page.
6. Save the page.

Translating Message Channels

To translate channels:

1. Select PeopleTools, Translations, Translate System Definitions, Message Channels.

   The Translate Message Channels page displays. The Message Channels page enables you to select a channel and then translate the descriptions of the channel into a specific target language.
2. In the Target Language field, select the language into which to translate the message set.
3. In the Channel field, enter a channel name.

   Click the Search button to prompt for a list of channel names.
4. Click the Get Objects button to bring the message channels into the definition list.

   A set of channel names appears in the Look Up List.
5. Translate the channel description into the target language.

   Enter descriptions for the message set in the target language.
6. Save the page.

Translating Business Interlinks

To translate interface objects:

1. Select PeopleTools, Translations, Translate System Definitions, Business Interlinks.

   The Translate Business Interlinks page displays. The Translate Business Interlinks page enables you to select the base description of an interface object name and then translate the description into a specific target language.

2. In the Target Language field, select the language into which to translate.
3. In the IO Name field, enter an Interface Object name.

   Click the Search button to prompt for a list of interface object names.
4. Click the Get Objects button to bring the interface object names into the definition list.

   A set of interface object names appears in the Look Up List.
5. Translate the base descriptions into the target language.

   Enter descriptions for the interface object name in the target language.
6. Save the page.

Translating PeopleSoft Process Scheduler

PeopleSoft Process Scheduler has three language-sensitive definitions:

- Process type definitions.
- Job definitions.
- Process definitions.

The following table lists where to translate PeopleSoft Process Scheduler objects:

Object	Base Table	Related Language Table	Where to Translate
Process Definitions	PRCSDEFN	PRCSDEFNLANG	Translate Process Definitions page.
Process Types	PRCSTYPEDEFN	PRCSTYPEDEFNLNG	PeopleTools, Process Scheduler, Process Types.
Process Jobs	PRCSJOBDEFN	PRCSJOBDEFNLANG	PeopleTools, Process Scheduler, Jobs.
Process Recurrences	PRCSRECUR	PRCSRECURLANG	PeopleTools, Process Scheduler, Recurrences.

To translate a PeopleSoft Process Scheduler Types, Jobs and Recurrences definitions:

1. Sign on to PeopleSoft using the target language.
2. Select PeopleTools, Process Scheduler Manager to open PeopleSoft Process Scheduler.
3. Open the definition to translate.
   - To open a process type definition, select Process Type.
   - To open a job definition, select Job.
   - To open a process definition, select Recurrences.

4. Translate the descriptive text fields into the target language.

   Translate the Description field.

5. Save the page.

Translating Process Definitions

To translate process definitions:

1. Select PeopleTools, Translations, Translate System Definitions, Process Definitions.

   The Translate Process Definitions page displays. The Process Definitions page enables you to select a process name and type and then translate the long descriptions of the Process Definitions into a specific target language.

2. In the Target Language field, select the language into which to translate the Process Definitions.
3. Enter Process Name and process type into the appropriate fields.

   Click the Search button to prompt for a list of names.

4. Click the Get Objects button to bring the Process Definitions into the definition list.

   A set of Process Definitions appears in the Look Up List.

5. Translate the process definitions description into the target language.

   Enter descriptions for the process definitions in the target language.

6. Save the page.

Translating Mobile Data

This section describes how to translate:

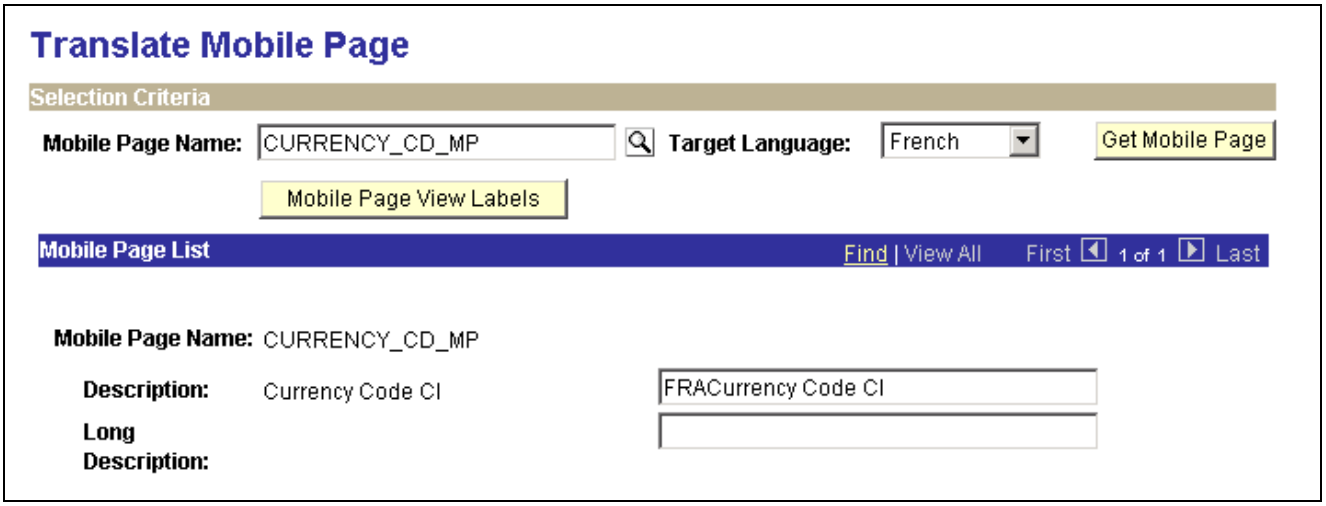
- Mobile page names.
- Mobile view labels.
- Mobile page items, such as fields.

The following table lists where to translate mobile data.

Object	Base Table	Related Language Table	Where To Translate
Mobile page	PSMPDEFN	PSMPDEFN	Translate Mobile Page page.
Mobile page	PSMPDEFNDEV	PSMPDEFNDEVLANG	Translate Mobile Page page.
Mobile Page Items	PSMPCONTDEV	PSMPCONTDEVLANG	Translate Mobile Page Items page.

Translating Mobile Page Names and View Labels

Use the Translate Mobile Page Names page to translate Mobile page names and view labels.



Translate Mobile Page

The fields with which you can work on the Translate Mobile Page are:

Mobile Page Name	Name of the mobile page to translate.
Target Language	From the dropdown list select the target language for the translations.
Get Mobile Page	Click the button to refresh the page and display the Mobile Page List section, including the Description and Long Description fields.
Description	Enter the description for the page in the target language.
Long Description	Enter the long description for the page in the target language.
Mobile Page View Labels	Click the button to refresh the page and display the View Labels section, including the Detail View Label field and the List View Label field.
Detail View Label	Enter the detail view label in the target language.
List View Label	Enter the list view label in the target language.

To translate Mobile pages:

1. Select PeopleTools, Translations, Translate System Definitions, Mobile Pages. The Translate Mobile Page displays.
2. In the Mobile Page Name field, enter the name of the page to translate, or use the Lookup button to search for a page.
3. From the Target Language dropdown list, select the target language.
4. Click the Get Mobile Page button. The page refreshes and the Mobile Page List displays.
5. Translate the Mobile page name:

Note. If available, the descriptions that you can translate display next to the fields in the base language.

---

a. In the Description field, enter a translation for the page description in the target language.

b. In the Long Description field, enter a translation for the long description in the target language.

Note. A default description in the target language may display in the field. If so, clear the field then enter a new description in the target language.

6. Translate the Mobile view labels:

Note. If available, the descriptions that you can translate display next to the fields in the base language.

a. Click the Mobile Page View Labels button. The page refreshes and the View Labels page displays.

b. In the Detail View Label field, enter a translation for the Detail View in the target language.

c. In the List View Label field, enter a translation for the List View in the target language.

Note. A default description in the target language may display in the field. If so, clear the field then enter a new description in the target language.

d. Click OK.

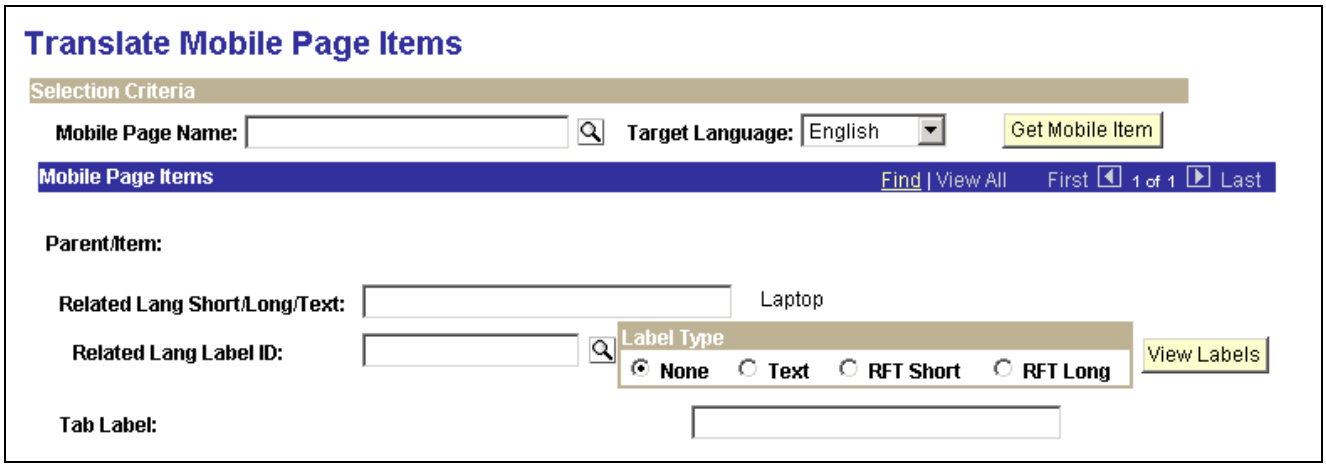
7. Click Save.

Translating Mobile Page Items

To translate Mobile page items use the Translate Mobile Page Items page.

This section provides and overview of the Translate Mobile Page Items page and describes how to:

- Select a mobile page and mobile page item(s) to translate.
- Choose pre-defined field label descriptions in the target language.
- Specify static text for a field label description in the target language.
- Suppress the display of field descriptions.



Translate Mobile Page Items page

The fields with which you can work on this page are:

Mobile Page Name Name of the mobile page that contains the items to translate.

Target Language Select from the dropdown list the target language for the translations of the mobile page items.

Get Mobile Item Click this button to retrieve the mobile page items for the selected mobile page name.

Parent/Item This field is read-only. The Parent is the collection or object that contains the item. The Item is a collection or field on a page.

Base Label Text Name of the mobile page item to be translated, in the base language.

Related Lang Short/Long/Text Field that displays or where you enter the translation for the base label text. The translation that displays in this field is based upon your selection in the Label Type box.

To the right of this field, the mobile device to which this field applies, such as laptop, PDA and so forth, displays.

View Label Click this button to apply changes to the Related Lang Short/Long/Text field.

Related Lang Label ID Click the Look Up button to select a different label ID and its associated long or short description.

Label Type Determines the description of the label ID that displays in the Related Lang Short/Long/Text field when you click the View Labels button

The options are:

- None
- Text
- RFT Short
- RFT Long

Detail View Label In the target language, enter a label for the detail view of the page.

List View Label In the target language, enter a label for the list view of the page.

Tab Label In the target language, enter a label for the tab.

To select a mobile page and mobile page item(s) to translate:

1. Select PeopleTools, Translations, Translate System Definitions, Mobile Page Items. The Translate Mobile Page Item page displays.
2. In the Mobile Page Name field, enter the name of the page that contains the page items you want to translate, or use the Lookup button to search for the page.
3. From the Target Language dropdown list, select the target language.
4. Click the Get Mobile Item button.

   The page refreshes and in the Mobile Page Items section, the first item associated with the Mobile page displays.

Click View All, or the Show Previous and Show Next buttons, to navigate through the results.

To choose pre-defined field label descriptions in the target language:

1. Select a mobile page with which to work.
2. In the Label Type box click the RFT Long button or the RFT Short button.
3. Click View Labels. The corresponding pre-defined RFT long or RFT short translation displays in the Related Lang Short/Long/Text field.
4. Click Save.

To specify static text for a field label description in the target language:

1. Select a mobile page and mobile page item with which to work.
2. In the Label Type box, click Text.
3. Click the View Labels button. Notice the value in the Related Lang Short/Long/Text field clears.
4. In the Related Lang Short/Long/Text field, enter a translation in the target language.
5. Click Save.

To suppress the display of a field description:

1. Select a mobile page and the mobile page item with which to work.
2. In the Label Type box click the None button.
3. Click Save.

Translating Portals

The following table lists where to translate PeopleSoft portal objects:

Object	Base Table	Related Language Table	Where to Translate
Portal Structures	PSPRSMDEFN	PSPRSMDEFNLANG	Translate Portal Objects page.
Portal Attribute Values	PSPRSMATTRVAL	PSPRSMATTRVALNG	Translate Portal Objects page.
Portal Attributes	PSPRSMATTR	PSPRSMATTRLANG	Translate Portal Objects page.

To translate portal objects:

1. Select PeopleTools, Translations, Translate System Definitions, Portal Objects. The Translate Portal Objects page displays.

   The Translate Portal Objects page enables you to select a portal objects name and portal reference type and then translate the label and description of the portal into a specific target language.

2. In the Target Language field, select the language into which to translate the Portal Objects.
3. Enter the Portal Object Name and the Portal Reference Type into the appropriate fields.

   Click the Search button to prompt for a list of names.
4. Click the Get Objects button to bring the Portal Objects into the definition list.

   A set of portal objects appears in the Look Up List.
5. Translate the Portal Objects description and label into the target language.

   Enter descriptions for the portal objects in the target language.
6. Save the page.

See Also

PeopleTools Internet Technology, "Administering Portals," Managing Portal Objects

Translating Trees

The following table lists where to translate tree definitions:

Object	Base Table	Related Language Table	Where to Translate
Tree Definitions	PSTREEDEFN	PSTREEDEFNLANG	Tree Manager, Tree Manager.

In PeopleSoft Tree Manager, you can translate the tree description and the labels of nodes that correspond to language-sensitive record fields.

Definition	Where Displayed	Where Translated With Design Tools
Tree	Search dialogs in Tree Manager dialog boxes.	Tree definition in Tree Manager.
Tree Level	Tree Level label.	Application page accessed via edit level command in PeopleSoft Tree Manager.
Tree Detail Value	Tree Detail Value label.	Application page accessed via edit detail value command in PeopleSoft Tree Manager.
Tree node	Tree node label.	Application page accessed via edit tree node in PeopleSoft Tree Manager.

The translated tree descriptions appear in PeopleSoft Tree Manager list boxes.

Descriptive labels on tree nodes are derived from description fields in the record associated with the node. If you double-click the tree node, PeopleTools transfers you to the page where the node's properties are defined. If the record is language-sensitive (that is, if it has an associated related language table), the tree nodes' descriptive text is language-sensitive and can be translated using this page in the same way that you translate other application data.

This section discusses how to:

- Translate trees.
- Translate the tree structure description.

Translating Trees

To translate trees:

1. Ensure you have the specific language installed.
2. Log into PeopleSoft in the target language.
3. Select Tree Manager, Tree Manager.
4. Open the tree whose description you want to translate.

   Click on the root or children.
5. Click the Edit Data button (the pencil icon). The Tree Node page displays.
6. In the Description field, enter a translation in the target language.
7. Click OK.
8. Save the page.

Translating Tree Structure Descriptions

To translate the tree structure description:

1. Ensure you have the specific language installed.
2. Log in to PeopleSoft in the target language.
3. Select Tree Manager, Maintain Tree Structure.
4. Select the Structure ID to translate.
5. Open the tree whose description you want to translate.

   Click on the root or children.
6. In the Description field, enter a translation in the target language.
7. Click OK.
8. Save the page.

Translating Records

The following table lists where to translate record definitions:

Object	Base Table	Related Language Table	Where to Translate
Record Definitions	PSRECDEFN	PSRECDEFNLANG	Translate Records page.

To translate record descriptions:

1. Select PeopleTools, Translations, Translate System Definitions, Records. The Translate Records page displays.

   The Translate Records page lets you select a set of record definitions and then translate the short and long descriptions for those records into a specific target language.

2. In the Target Language field, select the language into which to translate the record descriptions.
3. In the Record field, select a set of record definitions.

   Leave the Record field blank if you want to select all record definitions in the system.

   If you want to work through the records alphabetically, enter the first characters of the record name in the Record field. If you want to translate a specific record, enter the record name in the Record field or use the Search button to prompt for a specific record.

4. Click the Get Record button to bring the record descriptions into the record list.

   A set of record definitions appears in the Record List field based on the value you entered into the Record field.

5. Translate the short and long descriptions into the target language.

   The base-language descriptions for each record appear on the left; enter the translations in the fields on the right.

6. Save the page.

Translating Queries

The following table lists where to translate queries:

Object	Base Table	Related Language Table	Where to Translate
Query Definitions	PSQRYDEFN	PSQRYDEFNLANG	Translate Queries page.

Object	Base Table	Related Language Table	Where to Translate
Query Fields	PSQRYFIELD	PSQRYFIELDLANG	Translate Queries page.
Query Binds	PSQRYBIND	PSQRYBINDLANG	Translate Queries page.

To translate queries using the Translate Query utility:

1. Select PeopleTools, Translations, Translate System Definition, Queries. The Translate Query page displays.

   The Queries page enables you to translate query descriptions, heading labels, and query prompt descriptions into a specific target language.

2. In the Target Language field, select the language into which to translate the query descriptions and labels.
3. In the Query Name field, select a query.

   Leave the Query Name field blank if you want to select all the queries in the system.

   If you want to work through the fields alphabetically, enter the first characters of the query name in the Query Name field. If you want to translate a specific query, enter the query name in the Query Name field, or click the Search button to prompt for a specific record.

4. Click the Get Query button to bring the query descriptions into the query list.

   A set of query descriptions appears in the field Query List based on the value that you entered in the Query Name field.

5. Translate the base-language descriptions into the target language.

   The base-language descriptions appear on the left; enter the translations in the fields on the right.

6. Translate query field headings and prompt names.

   Click the Show Item Details button to display the Query Headings page.

   By default, field headings in queries are derived from RFT Long or RFT Short field descriptions, which means that they are automatically language-sensitive (provided that the field descriptions have been translated). Query prompt names are similarly derived from the prompt table description. The Query Headings page displays any field heading labels and prompt descriptions that are *not* derived from field or table descriptions, that is, descriptions that have override text in the query definition.

   Translate the description text for the field headings and prompt descriptions in the fields, and then click OK to accept the change and return to the Translate Query page.

7. Save the page.

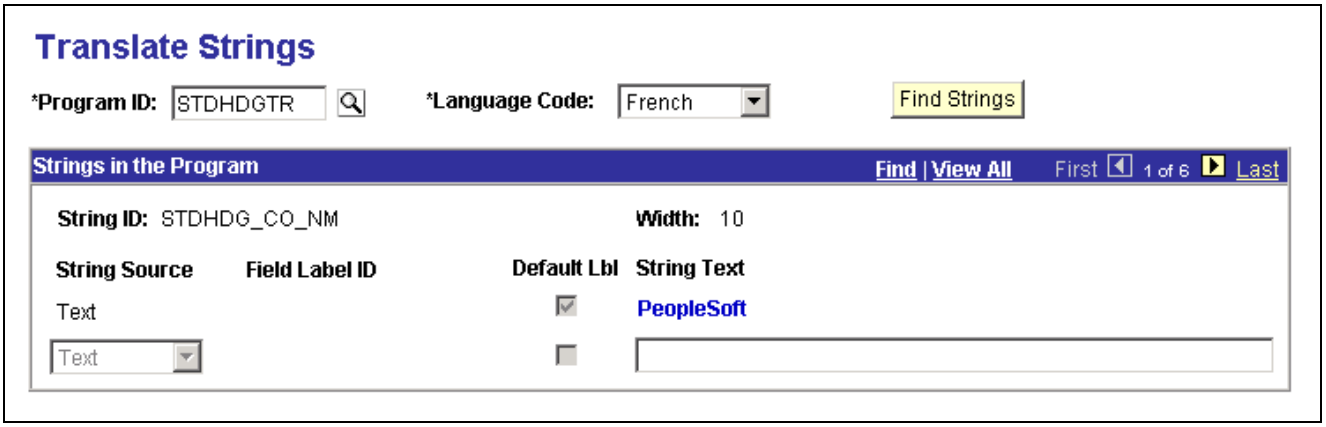
See Also

PeopleTools 8.42 PeopleBook: PeopleSoft Query

Translating Strings

The following table lists where to translate strings:

Object	Base Table	Related Language Table	Where to translate
Strings	STRINGS_TBL	STRINGS_LNG_TBL	Translate Strings page.



Translate Strings page

Translating String Definitions into a Non-Base Language

To translate string definitions into a non-base language:

1. Select PeopleTools, Translations, Translate System Definitions, Strings. The Translate Strings page displays.
2. In the Program ID field, enter or search for a program ID.
3. From the Language Code dropdown list, select the target language.
4. Click the Find Strings button.

   The page refreshes and displays the first of all strings for the program ID.

   Click the View All link or use the Show Next and Show Previous arrows to navigate through the results.
5. In the String Text field, enter the a translation for the string that displays directly above the field.

   There are three situations in which you can translate strings IDs.

   - The String ID matches a field name in the database whose labels have been translated. In this case, you can use the Translate Strings page to choose among any of the labels of that field or static text for the string label. If none of the labels is appropriate for this context (or they are too long) then you can select Text as the label type and enter the translation. It is preferable that, whenever possible, you use field labels.
   - The String ID matches a field name in the database whose labels have *not* been translated. In this case, the message Untranslated Field displays in red. This message means that there is a field in the database with the same name as the String ID, but it has not been translated, so you cannot use the translated labels for the string. In this situation, you must translate the field first and then return to the Translate Strings page and select the label that is more appropriate for the string.
   - The String ID does not match a field name in the database. In this case, you may not select a label type. Text is the only option.
6. Save the page.

See Also

Chapter 8, "Global Reporting and Analysis," The Strings Table, page 107

Translating Application Engine Descriptions

The following table lists where to translate PeopleSoft Application Engine and Application Message definitions.

Object	Base Table	Related Language Table	Where to translate
Application Engine Definitions	PSAEAPPLDEFN	PSAEAPPLLANG	Translate Application Engine Programs page.
Application Message Definitions	PSMSGDEFN	PSMSGDEFNLANG	Translate Message Definitions.

Translating Application Engine Programs

To translate Application Engine programs:

1. Select PeopleTools, Translations, Translate System Definition, Application Engine Programs.
   The Translate Application Engine Programs page displays.

   This page enables you to translate Application Engine program descriptions into a specific target language.
2. In the Target Language field, select the language into which to translate.
3. In the Program field, select an Application Engine program.

   Leave the Program name field blank if you want to select all the programs in the system.

   If you want to work through the fields alphabetically, enter the first characters of the program name in the Program field. If you want to translate a specific Application Engine program, enter the program name in the Program field, or click the Search button to prompt for a specific record.
4. Click the Get Objects button to bring the program name and base descriptions into the object list.

   A set of base program descriptions appears in the Object List field based on the value that you entered in the Program field.
5. Translate the base-language descriptions into the target language.

   The base-language descriptions appear on the left; enter the translations in the fields on the right.
6. Save the page.

See *PeopleSoft Application Engine*, "Introducing Application Engine".

Translating Message Definitions

To translate message definitions:

1. Select PeopleTools, Translations, Translate System Definition, Translate Message Definitions.

   The Translate Message Definitions page displays. This page enables you to translate message definition descriptions into a specific target language.

2. In the Target Language field, select the language into which to translate.
3. In the Program field, select a message definition program.

   Leave the Message name field blank if you want to select from all the programs in the system.
4. Click the Get Objects button to bring the message definition, description and long descriptions into the object list.

   The message name description appears in the Object List field based on the value that you entered in the Message field.
5. Translate the base-language descriptions into the target language.

   The descriptions appear on the left; enter the translations in the fields on the right.
6. Save the page.

See *PeopleSoft Integration Broker*, "Defining Message Channels and Messages," Defining a Message.

Translating Review Page Text

Most page text is derived from language-sensitive field descriptions. Text derived from field descriptions is translated automatically when you clone the base-language page definition (provided that the field descriptions have already been translated). However, page control definitions give you the option to override the field description with a text description.

If you use Translation Designer to translate pages, you can translate all such override text right along with labels that are derived from field descriptions. This feature of Translation Designer helps to ensure that the entire page gets translated.

PeopleSoft also provides a Page Text inquiry page that identifies override text in pages to help you identify areas where you may have missed translating. You can translate the override text in the target-language page definition in PeopleSoft Application Designer.

To check for override text in pages:

1. Select PeopleTools, Translations, Translate System Definitions, Review Page Text. The Review Page Text page displays. The Review Page Text page lets you generate a list of all override text (that is, text that is not derived from field descriptions) in a set of page definitions.
2. In the Page Name field, select a set of page names.

   Leave the Page Name field blank if you want to select all the pages in the system.

   If you want to work through the pages alphabetically, enter the first characters of the page name in the Page Name field. If you want to translate a specific page, enter the page name in the Page Name field, or click the Search button to prompt for a specific record.
3. In the Language Code field, select the language code of the page set.

   For example, if the Page Name field contains *B,* and the Language Code field contains *French,* the page set will consist of page definitions that begin with *B* and whose language code is *FRA*.
4. Click the Get Page Text button to display the overridden page text.

   A set of page definitions appears based on the settings in the Page Name and Language Code fields.

For each page that appears in the list, the label text is the override text on the page. Looking at the label text, you can tell whether it has been translated. If it hasn't been translated, use Translation Designer to do the translation.

See Chapter 14, "Translating Application Definitions," Using Translation Designer, page 211.

5. Save the page.

Translating Application Data

The Application Data page enables you to translate system and customer data. This page does not allow you to translate managed objects.

To access the Translate Application Data page, select PeopleTools, Translations, Translate System Definitions, Application Data.

Note. To use the Application Data page you must be logged into the PeopleSoft Internet Architecture (PIA) in the base language.

Before you can use this feature, you must enable access to the Translate Application Data page. This section describes how to:

- Enable access to the Translate Application Data page.
- Translate record fields or ignore record fields for translation.

Enabling Access to the Translate Application Data Page

To enable access to the Translate Application Data page:

1. Select PeopleTools, Security, Permissions & Roles, Permission Lists. The Permissions List page displays.
2. Click the permission list that your user ID is using. Your permission list displays.
3. Click the Pages tab.
4. Navigate to the Translate menu name and click the Edit Components link. The Component Permissions list displays.
5. Navigate to the TRANSLATE_DATA component and click the Edit Pages link. The Page Permissions page displays.
6. Click the Select All button.
7. Click the OK button, and then click the Save button.
8. Repeat steps 2 through 7 for other groups that need access to the page.

Translating Application Data

To translate application data:

1. Select PeopleTools, Translations, Translate System Definitions, Application Data. The Translate Application Data page displays.
2. In the Record to Translate field, enter the base table name.
3. From the Target Language Code dropdown list, select the target language.

4. Select the record fields to translate and click Search.

   When you click Search, the page displays the related language record, the number of rows or values found, and the first of all key names and key values for the table. For each value, the translatable fields display in the Base Text column in the base language of the database. The Lang Text fields display translations for the fields, if they exist. Use the View All link or the Show Previous and Show Next arrows to navigate through the results retrieved.

   Note. The following information describes how to work with all rows in a record or specific rows in a record.

   - To work with all rows in a record, click Search.
   - To select specific rows in a record, click the Filter with SQL? link.

     A WHERE clause page displays that provides you with an area to enter an SQL statement that will filter the record data. Enter a WHERE clause to filter the data.

     The field names that you can use in the WHERE clause display in the Record Fields box. To expand the list, click the View All link.

     After you enter a WHERE clause, click OK to return to the Translate Application Data page. Click Search.

5. Translate or ignore the record fields.

   Some related language tables contain fields that should never be translated. You can choose to translate the record fields or tell the system to ignore them for translation.

   - To translate a field, in the Lang Text box, enter a translation for the item in the Base Text field.
   - To ignore a field for translation, check the Ignore? box next to the Lang Text box. The following message displays:

     ```
     Ignoring field: Translations for this field will be overwritten with base⇒
      language values, proceed? (102,83)

     By ignoring this field, any translation for this field will be overwritten with⇒
      the base language values. Do you want to proceed?
     ```

     Click Yes.

     Note. This message displays the first time you check the Ignore? box for a translatable field. If you check this box again for the same field, the message will not display and the system copies, in the base language, the text in the Base Text field over to the Lang Text field. This text will appear in all rows in the table. Therefore, do not use the Ignore? option to simply copy the information in the Base Text field to the Lang Text box. To remove an entry in the Lang Text box made under these circumstances, clear the Ignore? box and delete the entry.

6. Click Save.

Translating HTML Definitions

You typically translate HTML definitions when they contain hard-coded text. Most HTML definitions should contain JavaScript and references to the Message Catalog, only and therefore don't require separate translation, however it is possible to hardcode text into HTML definitions which may require translation using this method.

To translate an HTML definition:

1. Change the PeopleSoft Configuration Manager language preference to the target language.
2. Login to PeopleSoft.
3. Open PeopleSoft Application Designer.
4. Open the HTML definition.

   Choose File, Open and select the HTML definition you want to open.
5. Edit any language-sensitive text in the HTML object.
6. Save the HTML object.

Glossary of PeopleSoft Terms

absence entitlement 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.

absence take This element defines the conditions that must be met before a payee is entitled to take paid time off.

account You use an account code to record and summarize financial transactions as expenditures, revenues, assets, or liabilities balances. The use of this delivered PeopleSoft ChartField is typically defined when you implement PeopleSoft General Ledger.

accounting class 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.

accounting date 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.

accounting entry A set of related debits and credits. An accounting entry is made up of multiple accounting lines. In most PeopleSoft applications, accounting entries are always balanced (debits equal credits). Accounting entries are created to record accruals, payments, payment cancellations, manual closures, project activities in the general ledger, and so forth, depending on the application.

accounting split The accounting split method indicates how expenses are allocated or divided among one or more sets of accounting ChartFields.

accumulator 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.

action reason 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 anotherand 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.

activity In PeopleSoft Enterprise Learning Management, an instance of a catalog item delivery methodit may also be called a class. The activity defines such things as meeting times and locations, instructors, reserved equipment and materials, and detailed costs that are associated with the offering, enrollment limits and deadlines, and waitlisting capacities.

allocation rule 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.
alternate account	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.
application agent	An application agent is an online agent that is loaded into memory with a PeopleSoft page. It detects when a business rule has been triggered and determines the appropriate action.
asset class	An asset group used for reporting purposes. It can be used in conjunction with the asset category to refine asset classification.
attachment	In PeopleSoft Enterprise Learning Management, nonsystem-defined electronic material that supplements a learning resource, such as an equipment items user handbook or the site map of a large facility.
background process	In PeopleSoft, background processes are executed through process-specific COBOL programs and run outside the Windows environment.
benchmark job	In PeopleSoft Workforce Analytics, a benchmark job is a job code for which there is corresponding salary survey data from published, third-party sources.
branch	A tree node that rolls up to nodes above it in the hierarchy, as defined in PeopleSoft Tree Manager.
budgetary account only	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.
budget check	In commitment control, the processing of source transactions against control budget ledgers, to see if they pass, fail, or pass with a warning.
budget control	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.
budget period	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.
business event	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).
catalog item	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.
category	In PeopleSoft Enterprise Learning Management, a way to classify catalog items so that users can easily browse and search relevant entries in the learning catalog. Categories can be hierarchical.
ChartField	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.
ChartField balancing	You can require specific ChartFields to match up (balance) on the debit and the credit side of a transaction.

ChartField combination edit The process of editing journal lines for valid ChartField combinations based on user-defined rules.

ChartKey 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.

child In PeopleSoft Tree Manager trees, a child is a node or detail on a tree linked to another, higher-level node (referred to as the parent). Child nodes can be rolled up into the parent. A node can be a child and a parent at the same time depending on its location within the tree.

Class ChartField 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 *sub-classification.*

clone In PeopleCode, to make a unique copy. In contrast, to *copy* may mean making a new reference to an object, so if the underlying object is changed, both the copy and the original change.

collection 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.

compensation object 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.

compensation structure In PeopleSoft Enterprise Incentive Management, a hierarchical relationship of compensation objects that represents the compensation-related relationship between the objects.

configuration parameter catalog 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.

configuration plan 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.

content reference 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.

context 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.

corporate account Equivalent to the Account ChartField. Distinguishes between the chart of accounts typically used to record and report financial information for management, stockholders, and the general public, as opposed to a chart of statutory (alternate) accounts required by a regulatory authority for recording and reporting financial information.

cost profile 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.

cost row A cost transaction and amount for a set of ChartFields.

data acquisition 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).

data elements Data elements, at their simplest level, define a subset of data and the rules by which to group them.

For Workforce Analytics, data elements are rules that tell the system what measures to retrieve about your workforce groups.

data row Contains the entries for each field in a table. To identify each data row uniquely, PeopleSoft applications use a key consisting of one or more fields in the table.

data validation In PeopleSoft Enterprise Incentive Management, a process of validating and cleansing the feed data to resolve conflicts and make the data processable.

DAT file This text file, used with the Verity search engine, contains all of the information from documents that are searchable but not returned in the results list.

delivery method In PeopleSoft Enterprise Learning Management, identifies a learning activitys delivery method type. An activity can have one or more delivery methods.

delivery method type In PeopleSoft Enterprise Learning Management, specifies a method that your organization uses to deliver learning activities, for example, scheduled or self-paced learning.

distribution The process of assigning values to ChartFields. A distribution is a string of ChartField values assigned to items, payments, and budget amounts.

double byte character If youre working with Japanese or other Asian employees, you can enter the employee's name using double-byte characters. The standard double byte character set name format in PeopleSoft applications is: [last name] space [first name].

dynamic tree A tree that takes its detail valuesdynamic detailsdirectly from a table in the database, rather than from a range of values entered by the user.

edit table 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.

effective date 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.

EIM job Abbreviation for *Enterprise Incentive Management job.* In PeopleSoft Enterprise Incentive Management, a collection of job steps that corresponds to the steps in an organizations compensation-related business process. An EIM job can be stopped to allow manual changes or corrections to be applied between steps, and then resumed from where it left off, continuing with the next step. A run can also be restarted or rolled back.

EIM ledger Abbreviation for *Enterprise Incentive Management ledger.* 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.

equipment In PeopleSoft Enterprise Learning Management, resource items that can be assigned to a training facility, to a specific training room, or directly to an activity session. Equipment items are generally items that are used (sometimes for a fee) and returned after the activity is complete.

event Events are predefined points either in the application processor flow or in the program flow. As each point is encountered, the event activates each component, triggering any PeopleCode program associated with that component and that event. Examples of events are FieldChange, SavePreChange, and OnRouteSubscription. In PeopleSoft Human Resources, *event* also refers to incidents that affect benefits eligibility.

event propagation process 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.

external system In PeopleSoft, any system that is not directly compiled with PeopleTools servers.

fact 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.

filter In PeopleSoft applications, a filter creates a subset of information. Filters are used in templates to limit your information from a pick list of attribute values.

generic process type 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.

group Any set of records associated under a single name or variable in order to run calculations in PeopleSoft business processes. In PeopleSoft Time and Labor, for example, employees are placed in groups for time reporting purposes.

homepage Users can personalize the homepage, or the page that first appears when they access the portal.

incentive object 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.

incentive rule 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.

key 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.

learner group In PeopleSoft Enterprise Learning Management, a group of learners within the same learning environment that share the same attributes, such as department or job code.

learning activity See *activity.*

learning history In PeopleSoft Enterprise Learning Management, a self-service repository for all of a learner's completed learning activities.

learning plan In PeopleSoft Enterprise Learning Management, a self-service repository for all of a learner's planned and in-progress learning activities.

ledger mapping 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 *rates*) 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.

level A section of a tree that organizes groups of nodes.

library section 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.

linked section 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.

linked variable 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.

load The feature that initiates a process to automatically load information into a PeopleSoft applicationfor example, populating the PeopleSoft Benefits database with plan-level election information.

local functionality 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.

location Locations enable you to indicate the different types of addressesfor 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 locationindicated by a *1*is the address you use most often and may be different from the main address.

market template 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.

material In PeopleSoft Enterprise Learning Management, a resource item that can be assigned to the sessions of an activity. Material items are generally consumed during the duration of an activity and not returned, and they may have an associated cost.

message definition An object definition specified in PeopleSoft Application Designer that contains message information for PeopleSoft Application Messaging.

meta-SQL Meta-SQL constructs expand into platform-specific SQL substrings. They are used in functions that pass SQL strings, such as in SQL objects, the SQLExec function, and PeopleSoft Application Engine programs.

metastring 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.

multibook Processes in PeopleSoft applications that can create both application entries and general ledgers denominated in more than one currency.

multicurrency The ability to process transactions in a currency other than the business unit's base currency.

objective In PeopleSoft Enterprise Learning Management, an individual's learning goal. An example of a learning goal is a competency gap.

override In PeopleSoft Enterprise Incentive Management, the ability to make a change to a plan that applies to only one plan context.

pagelet Each block of content on the homepage 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.

parent node A tree node linked to lower-level nodes or details that roll up into it. A node can be a parent and a child at the same time, depending on its location within the tree.

participant In PeopleSoft Enterprise Incentive Management, participants are recipients of the incentive compensation calculation process.

participant object Each participant object may be related to one or more compensation objects.

See also *participant object*.

payout In PeopleSoft Enterprise Incentive Management, the resulting incentive plan computation that is provided to payroll.

PeopleCode 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.

PeopleCode event An action that a user takes upon an object, usually a record field, that is referenced within a PeopleSoft page.

PeopleSoft Internet Architecture The fundamental architecture on which PeopleSoft 8 applications are constructed, consisting of an RDBMS, an application server, a Web server, and a browser.

performance measurement 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.

period context 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.

per seat cost In PeopleSoft Enterprise Learning Management, the cost per learner, based on the total activity costs divided by either minimum attendees or maximum attendees. Organizations use this cost to price PeopleSoft Enterprise Learning Management activities.

plan 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.

plan context 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 contextif 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.

plan section In PeopleSoft Enterprise Incentive Management, a segment of a plan that handles a specific type of event processing.

plan template 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.

portal registry 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.
private view	A user-defined view that is available only to the user who created it.
process	See *Batch Processes.*
process definition	Process definitions define each run request.
process instance	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.
process job	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.
process request	A single run request, such as an SQR, a COBOL program, or a Crystal report that you run through PeopleSoft Process Scheduler.
process run control	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.
product category	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.
publishing	In PeopleSoft Enterprise Incentive Management, a stage in processing that makes incentive-related results available to participants.
record definition	A logical grouping of data elements.
record field	A field within a record definition.
record group	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.
record input VAT flag	Abbreviation for *record input value-added tax flag.* 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.
record output VAT flag	Abbreviation for *record output value-added tax flag.* See *record input VAT flag.*
reference data	In PeopleSoft Sales Incentive Management, system objects that represent the sales organization, such as territories, participants, products, customers, channels, and so on.
reference object	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).
reference transaction	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.
relationship object	In PeopleSoft Enterprise Incentive Management, these objects further define a compensation structure to resolve transactions by establishing associations between compensation objects and business objects.
results management process	In PeopleSoft Sales Incentive Management, the process during which compensation administrators may review processing results, manually change transactions, process draws, update and review payouts, process approvals, and accumulate and push payments to the EIM ledger.
role user	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.
role	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.
roll up	In a tree, to roll up is to total sums based on the information hierarchy.
routing	Connects activities in PeopleSoft Workflow. Routings specify where the information goes and what form it takesemail message, electronic form, or worklist entry.
run control	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.
run control ID	A unique ID to associate each user with his or her own run control table entries.
run-level context	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.
search query	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.
section	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.
security event	In commitment control, security events trigger security authorization checking, such as budget entries, transfers, and adjustments; exception overrides and notifications; and inquiries.
self-service application	Self-service refers to PeopleSoft applications that are accessed by end users with a browser.
session	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.
session template	In PeopleSoft Enterprise Learning Management, enables you to set up common activity characteristics that may be reused while scheduling a PeopleSoft Enterprise

	Learning Management activitycharacteristics 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.
setup relationship	In PeopleSoft Enterprise Incentive Management, a relationship object type that associates a configuration plan with any structure node.
sibling	A tree node at the same level as another node, where both roll up into the same parent. A node can be a sibling, parent, and child all at the same time, depending on its location in the tree.
single signon	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.
source transaction	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.
SpeedChart	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.
SpeedType	A code representing a combination of ChartField values. SpeedTypes simplify the entry of ChartFields commonly used together.
SQR	See *Structured Query Report (SQR)*.
statutory account	Account required by a regulatory authority for recording and reporting financial results. In PeopleSoft, this is equivalent to the Alternate Account (ALTACCT) ChartField.
step	In PeopleSoft Sales Incentive Management, a collection of sections in a plan. Each step corresponds to a step in the job run.
Structured Query Report (SQR)	A type of printed or displayed report generated from data extracted from a PeopleSoft SQL-based relational database. PeopleSoft applications provide a variety of standard SQRs that summarize table information and data. You can use these reports as is, customize them, or create your own.
Summary ChartField	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).
summary ledger	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.
summary tree	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 *basis* tree). A summary tree structure specifies the details on which the summary trees are to be built.

table The underlying PeopleSoft data format, in which data is stored by columns (fields) and rows (records, or instances).

TableSet sharing Specifies control table data for each business unit so that redundancy is eliminated.

target currency The value of the entry currency or currencies converted to a single currency for budget viewing and inquiry purposes.

template 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.

territory In PeopleSoft Sales Incentive Management, hierarchical relationships of business objects, including regions, products, customers, industries, and participants.

TimeSpan 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.

transaction allocation 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.

transaction loading process In PeopleSoft Enterprise Incentive Management, the process during which transactions are loaded into Sales Incentive Management. During loading, the source currency is converted to the business unit currency while retaining the source currency code. At the completion of this stage, the transaction is in the first state.

transaction state 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.

transaction type In PeopleSoft Enterprise Incentive Management, a way to categorize transactions to identify specific transaction types (for example, shipment, order, opportunity, and so on). Plan sections process only one type of transaction type. Transaction types can be defined based on a company's specific processes model.

Translate table 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.

tree 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.

unclaimed transaction 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.

uniform resource locator (URL) In PeopleSoft, the term URL refers to the entire query string. The following is an example of a URL: http://serverx/InternetClient /InternetClientServlet?ICType=Script&ICScriptProgramName=WEBLIB_BEN_ 401k.PAGES.FieldFormula.iScript_Home401k

universal navigation header 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.

URL See *uniform resource locator (URL).*

user interaction object 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).

variable 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.

warehouse A PeopleSoft data warehouse that consists of predefined ETL maps, data warehouse tools, and DataMart definitions.

worksheet 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.

workflow The background process that creates a list of administrative actions based on selection criteria and specifies the procedure associated with each action.

worklist 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.

zero-rated VAT Abbreviation for *zero-rated value-added tax.* 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.

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