PeopleSoft®

Enterprise PeopleTools 8.46 PeopleBook: PeopleSoft Component Interfaces

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Enterprise PeopleTools 8.46 PeopleBook: PeopleSoft Component Interfaces
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Contents

About This PeopleBook

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

This preface discusses:

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

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

PeopleSoft Application Prerequisites

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

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

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

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

PeopleSoft Application Fundamentals

Each application PeopleBook provides implementation and processing information for your PeopleSoft applications.

Note. Application fundamentals PeopleBooks are not applicable to the PeopleTools product.

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

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

Documentation Updates and Printed Documentation

This section discusses how to:

- Obtain documentation updates.
- Order printed documentation.

Obtaining Documentation Updates

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

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, https://www.peoplesoft.com/corp/en/login.jsp

Ordering Printed Documentation

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

- Web
- Telephone
- Email

Web

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

Telephone

Contact MMA Partners at 877 588 2525.

Email

Send email to MMA Partners at peoplebookspress@mmapartner.com.

See Also

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

Additional Resources

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

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

Resource	Navigation
Release value proposition	Support, Documentation, Documentation Updates, Category, Release Value Proposition
Statement of direction	Support, Documentation, Documentation Updates, Category, Statement of Direction
Troubleshooting information	Support, Troubleshooting
Upgrade documentation	Support, Documentation, Upgrade Documentation and Scripts

Typographical Conventions and Visual Cues

This section discusses:

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

Typographical Conventions

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

Typographical Convention or Visual Cue	Description
Bold	Indicates PeopleCode function names, business function names, event names, system function names, method names, language constructs, and PeopleCode reserved words that must be included literally in the function call.
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 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 the W key.
`Monospace font`	Indicates a PeopleCode program or other code example.

Typographical Convention or Visual Cue	Description
“ ” (quotation marks)	Indicate chapter titles in cross-references and words that are used differently from their intended meanings.
. . . (ellipses)	Indicate that the preceding item or series can be repeated any number of times in PeopleCode syntax.
{ } (curly braces)	Indicate a choice between two options in PeopleCode syntax. Options are separated by a pipe (|).
[ ] (square brackets)	Indicate optional items in PeopleCode syntax.
& (ampersand)	When placed before a parameter in PeopleCode syntax, an ampersand indicates that the parameter is an already instantiated object. Ampersands also precede all PeopleCode variables.

Visual Cues

PeopleBooks contain the following visual cues.

Notes

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

Note. Example of a note.

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

Important! Example of an important note.

Warnings

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

Warning! Example of a warning.

Cross-References

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

Country, Region, and Industry Identifiers

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

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

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

Country Identifiers

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

Region Identifiers

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

- Asia Pacific
- Europe
- Latin America
- North America

Industry Identifiers

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

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

Currency Codes

Monetary amounts are identified by the ISO currency code.

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 Used in 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.
Process Monitor	Click to access the Process List page, where you can view the status of submitted process requests.
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).
Request ID	An ID that represents a set of selection criteria for a report or process.
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.
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.
User ID	An ID that represents the person who generates a transaction.

See Also

Enterprise PeopleTools 8.46 PeopleBook: PeopleSoft Process Scheduler

Enterprise PeopleTools 8.46 PeopleBook: Using PeopleSoft Applications

PeopleSoft Component Interfaces Preface

This book describes PeopleSoft Component Interfaces. It is written for programmers who will be accessing PeopleSoft components, usually using external systems.

PeopleSoft Component Interfaces

A component interface is a PeopleSoft PeopleTools definition that you create in PeopleSoft Application Designer. It enables synchronous access to a PeopleSoft component from another application.

CHAPTER 1

Getting Started with PeopleSoft Component Interfaces

This chapter provides an overview of PeopleSoft Component Interfaces and discusses how to implement them.

PeopleSoft Component Interfaces Technology Overview

A component interface is a set of application programming interfaces (APIs) that you can use to access and modify PeopleSoft database information programmatically. PeopleSoft Component Interfaces expose a PeopleSoft component (a set of pages grouped for a business purpose) for synchronous access from another application (PeopleCode, Java, C/C++, or Component Object Model [COM]). A PeopleCode program or an external program (Java, C/C++, or COM) can view, enter, manipulate, and access PeopleSoft component data, business logic, and functionality. Additionally, you can use the Component Interface Tester to check the validity of your component interface and the Excel to Component Interface Utility to manage your data.

Component interfaces are created in PeopleSoft Application Designer, so you should ensure that you are familiar with PeopleTools and PeopleSoft Application Designer.

See *Enterprise PeopleTools 8.46 PeopleBook: PeopleSoft Application Designer*.

This section provides information to consider before you begin to use PeopleSoft Component Interfaces. In addition to implementation considerations presented in this section, take advantage of all PeopleSoft sources of information, including the installation guides, release notes, and PeopleBooks.

Implementing PeopleSoft Component Interfaces

The functionality to create component interfaces for your applications is delivered as part of standard PeopleSoft PeopleTools that are provided with all PeopleSoft products.

You must complete these activities before you begin to create component interfaces for your implementation:

- Install your PeopleSoft application according to the installation guide for your database type.

  See the PeopleSoft installation guide for your platform and product line.

- Establish a user profile that gives you access to PeopleSoft Application Designer and any other processes that you will use.

  See *Enterprise PeopleTools 8.46 PeopleBook: Security Administration*, “Understanding PeopleSoft Security”.

Implementing the Excel to Component Interfaces Utility

There are several tasks involved in setting up the Excel to Component Interfaces Utility.

See Chapter 9, “Using the Excel to Component Interface Utility,” Getting Started with the Excel to Component Interface Utility, page 100.

CHAPTER 2

Introducing Component Interfaces

This chapter discusses:

- Component interface architecture.
- Component interface concepts, such as names and properties.
- Component interface definition in PeopleSoft Application Designer.

Understanding Component Interfaces

A component interface enables exposure of a PeopleSoft component (a set of pages grouped together for a business purpose) for synchronous access from another application (such as PeopleCode, Java, C/C++, COM, or XML). Component interfaces can be viewed as "black boxes" that encapsulate PeopleSoft data and business processes, and hide the details of the underlying page and data. Component interfaces can be used to integrate one PeopleSoft application with another PeopleSoft application or with external systems. Component interfaces execute the business logic built into the component and as a result, they provide a higher level of data validation than a simple SQL insert.

A component interface maps to one, and only one, PeopleSoft component. However, you can create multiple component interfaces on top of the same component. You create component interfaces in PeopleSoft Application Designer. Record fields on the PeopleSoft component are mapped to the keys and properties of the component interface. Methods are used to find, create, modify or delete data.

Component Interface Architecture

The component interface architecture comprises three fundamental elements—components, component interfaces, and the component interface API.

Every component interface has the following main attributes:

- Name
- Keys (get keys, create keys, and find keys)
- Properties and collections (fields and records)
- Methods

Note. In most cases, component interfaces behave like their associated components meaning that PeopleCode events typically trigger in the same order as the component. However, several runtime exceptions relate to component interfaces and PeopleCode processing and search dialog box processing.

See Also

Enterprise PeopleTools 8.46 PeopleBook: PeopleCode Developer's Guide, "PeopleCode and the Component Processor"

Component Interface Attributes

This section discusses the name, keys, properties, collections, and methods of component interfaces.

Name

Each component interface requires a unique name that is specified when the component interface is created. The calling programs use the name of the component interface to access properties and methods.

Keys

Keys are special properties containing values that retrieve an instance (get keys) or a list of instances (find keys) of the component interface. When you create a new component interface, get and find keys are created based on the search record definition for the underlying component. However, you can add, remove, or change keys in PeopleSoft Application Designer. Create keys get created for components that have the Add action enabled.

Properties

Properties provide access to both component data and component interface settings. Component interfaces include two types of properties: standard and user-defined.

- Standard properties are assigned automatically when a component interface is created.

  Standard properties can be set to true or false. These properties are not displayed in the PeopleSoft Application Designer. Examples of standard properties include InteractiveMode, GetHistoryItems, and EditHistoryItems.

- User-defined properties map to record fields on the PeopleSoft component and are displayed in the PeopleSoft Application Designer.

  A property can correspond to a field or a scroll (collection). You have control over which user-defined properties are included on the component interface.

Note. Every PeopleSoft Application Designer definition—including the component interface—has a definition properties dialog box in which you make design-time settings for the definition. Those properties should not be confused with the runtime properties that are discussed here.

Collections

A component interface collection is a special type of property that corresponds to a scroll. It contains fields and subordinate scrolls as defined in its underlying component. By default, each collection uses the name of the primary record for the underlying scroll.

Methods

A method is a function that performs a specific task on a component interface at runtime. As with component interface properties, there are two main types of methods: standard and user-defined. For example, you can use methods to save or create a new purchase order. Runtime access to each method is determined by the security that you have for that specific method.

- Standard methods are those that are available for all component interfaces.

  The Find, Get, Save, and Cancel methods are automatically generated by PeopleSoft Application Designer when a new component interface is created. The Create method gets created for components that have the Add action enabled. In the component interface designer, standard methods are highlighted in gray.

- User-defined methods are created in PeopleSoft Application Designer to provide added functionality to the component interface.

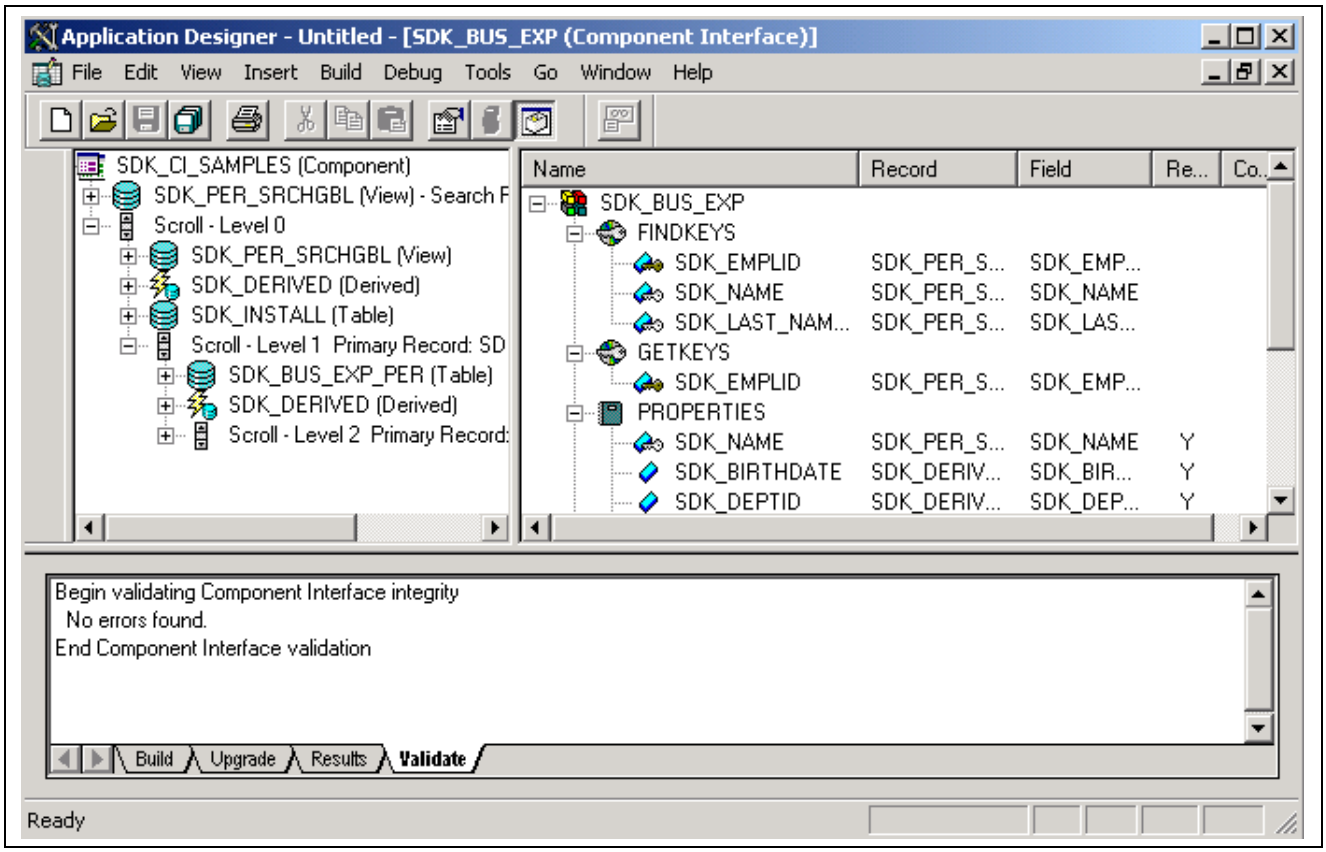
  These methods are functions that are made accessible through the component interface. Each function maps to a user-defined method. In the component interface designer, user-defined methods are highlighted in blue.

Component Interface Definitions and Views

You create, modify, and review your component interface definition by using PeopleSoft Application Designer. You open the component interface definition just as you would any other definition, such as a page or record.

When working with a component interface definition in PeopleSoft Application Designer, you see the component view on the left and the component interface view on the right.

This screen shot shows the component and component interface view in PeopleSoft Application Designer.



Component and component interface views

The component view shows records and scrolls in the component, using a tree representation. The structure is the same as the one you see on the structure tab of a component in PeopleSoft Application Designer. Drag the fields and collections that you want exposed to the component interface view.

The component interface view shows the exposed keys, properties, and methods, using a tree representation. When you open a component interface, properties are displayed in the order in which they appear in the component view.

The tree nodes in both the component view and the component interface view have different icons. Some icons are used in both the component view and the component interface view with slightly different meanings. The following tables explain the meaning of each icon and column in the component interface view.

Component Interface View Icons

Following is a list of the component interface view icons:


Component interface.


Group of keys.


Property that is a key field from the underlying record.


Alternate search key.

	Group of properties or methods.
	Collection.
	Property or user-defined method.
	Standard method.
	Property that is a required field for the underlying record.
	Item in a component interface that is no longer in sync with the underlying component. For example, if a field on which a property depends is deleted from the component, this icon appears.

Component Interface View Columns

The following terms describe the columns in the component interface view.

Name	Name of a specific element of a component interface (such as the name of a property or method). The default name for field properties is the field name. The default name for collections is the primary record name.
Record	Name of the underlying record on which a specific element is based. If the underlying record name changes, the component interface continues to point to the appropriate record.
Field	Name of the field to which a component interface property points. Like the record name, the underlying field name can change, and the component interface continues to point to the appropriate field.
Read Only	Y in this column indicates that a specific property has been marked read-only.
Comment	Identifies comments that exist in the Edit Property dialog box for the selected key, property, or collection.

Note. In the component interface view, properties appear in the same order as they appear in the component and are not sorted alphabetically.

CHAPTER 3

Developing the Component Interface

This chapter discusses how to:

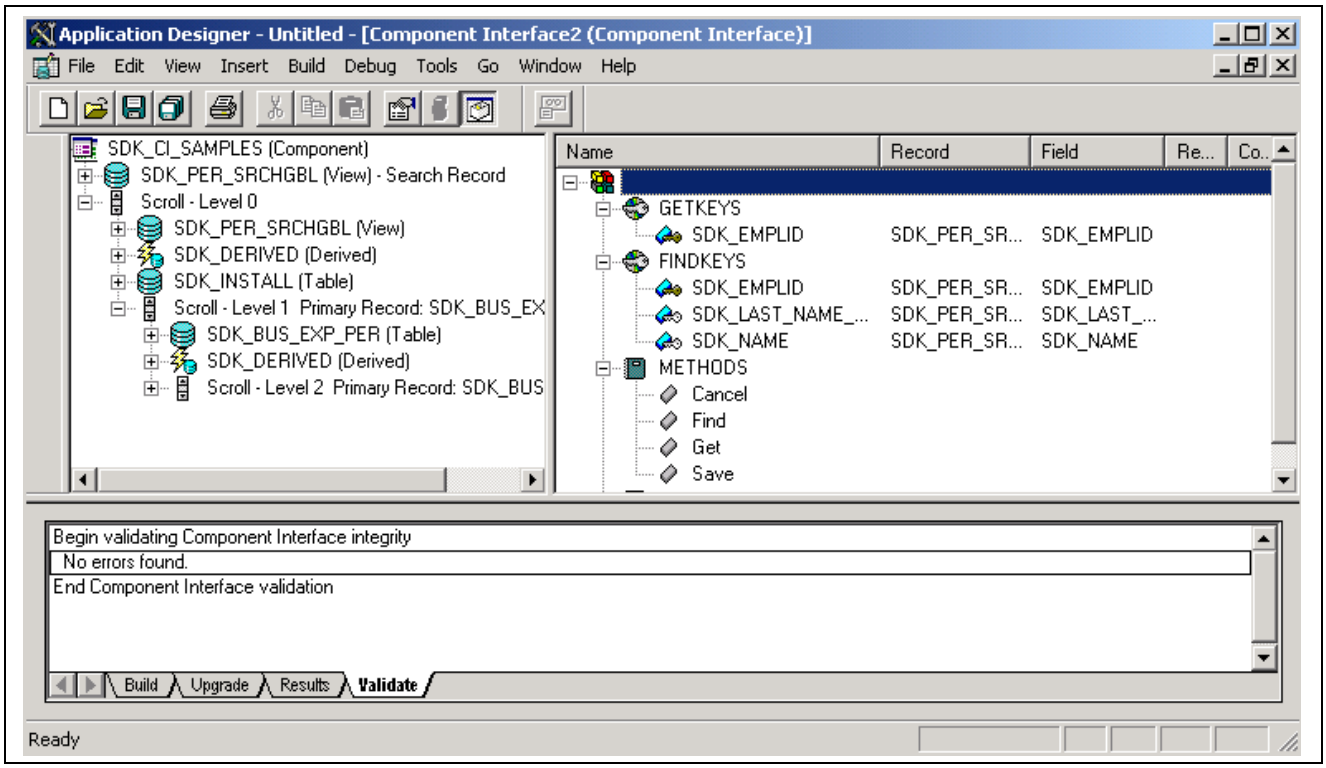
- Create a component interface definition.
- Use component interface keys, properties, collections, and methods.
- Validate the component interface.
- Set component interface security.
- Test the component interface.
- Understand runtime considerations.

Creating the Component Interface Definition

Because each component interface refers to a single component, you must know the structure of the component for which you're constructing a component interface. You can use an existing component within your application or create a new one for the sole purpose of constructing a component interface. Many parts of the component interface, such as the keys, are created based on settings in the referenced component.

Creating a New Component Interface

This section discusses how to create a new component interface.



New component interface with no properties

To create a new component interface:

1. Select File, New from the PeopleSoft Application Designer menu.
2. Select Component Interface from the New dialog box.
3. Select the component on which this component interface will be based.

   After you select the appropriate component, you see a message asking if you want the fields exposed in the selected component to become the default properties of the component interface.

   Note. Not all fields on the component interface can have automatic defaults created for them.

4. Click *Yes* to confirm the default property definitions or *No* if you don't want any properties initially created.

   If you elect to have the property definitions automatically defaulted by the system, then all properties that appear on the pages of the underlying component are added to the component interface. Even though the system adds the default properties, you may need to move other properties into the component view for the component to work.

   An untitled component interface appears, showing the Get keys and Find keys. Create keys are produced only if the underlying component is able to run in Add mode (the example preceding this procedure does not have Create keys, because the search record of the underlying component cannot run in Add mode). PeopleSoft Application Designer generates the keys for you as you drag definitions.

   The standard methods Cancel, Find, Get, and Save are automatically created. The Create method is not automatically created unless the component supports the Add mode.

   Note. You can begin adding properties to a new component interface at any point. However, you cannot add any user-defined methods to the component interface until you have saved the component interface.

5. Save the component interface.

   Once you have saved the component interface, you can further define user-defined methods.

Criteria for Defaulting Properties

To be able to set automatic defaults for fields in the new component interface, the system needs the properties to be of a specific field or page control type.

The fields should be of the following types:

- Character
- Long character
- Number
- Signed number
- Date
- Time
- Datetime

The field should be one of the following page control types:

- Edit box
- Drop-down list box
- Check box
- Radio button

The field cannot be invisible and should not be the same as the immediate parent's key field.

Collections must have at least one child property that satisfies the field or page control criteria for defaulting the field. Collections with no properties are not added.

For a field on a secondary page to be selected for the default properties process, it must satisfy all the criteria for field type and page control and must be at the same level as the host page.

Additionally, the component tree that a component interface uses to order the properties lists the fields in the record based on their order in the record definition and not the order of the fields on the page. If the component tree lists the fields of a record based on the page, the properties of the component interface will reflect that order.

Naming the Component Interface Definition

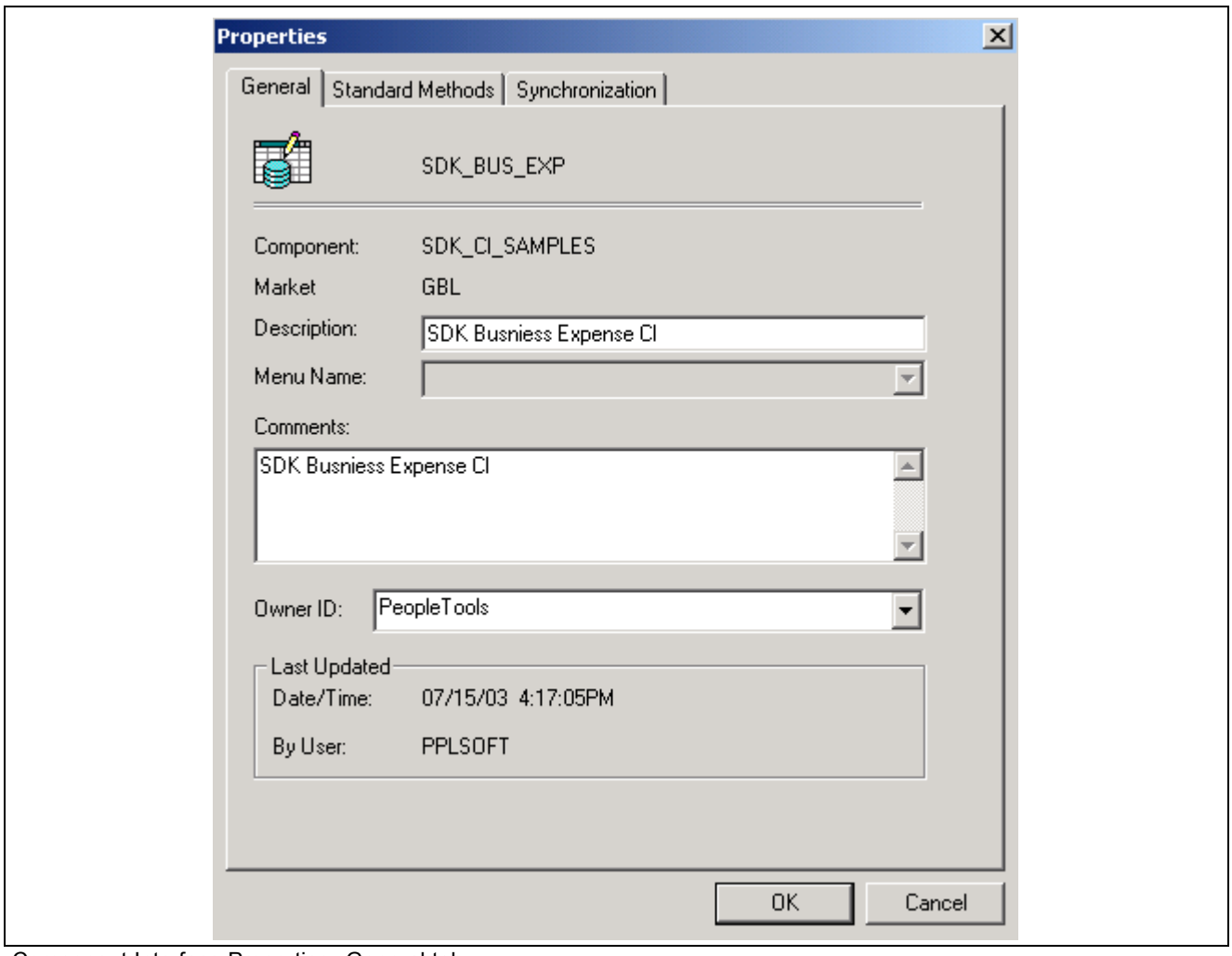
Like every other definition in PeopleTools, component interfaces must have unique names. The naming of component interfaces should be consistent and systematic. Also, the name should not be changed once the component interface is part of a production system—other applications depend on a consistent name with which to reference the component interface.

If you are changing the structure of a component interface such that an existing program can no longer access it correctly, create a new component interface rather than updating the existing one. There is no version property on a component interface, so if you must create a new version of a delivered component interface, adhere to a standard naming guideline to avoid confusion. A suggested naming guideline is:

- LOCATION (original component interface).
- LOCATION_V2 (version two of the component interface).

Associating a Component Interface with a Menu

This applies to component interfaces built from components that are already attached to one or more menus.



Component Interface Properties: General tab

To associate a component interface with a menu:

1. Select File, Open from the PeopleSoft Application Designer menu to open an existing component interface.
2. Select File, Definition Properties from the PeopleSoft Application Designer menu.

   The Definition Properties dialog box appears.
3. Select the appropriate menu name on the General tab for this component interface.

Note. Associate a menu with a component interface only when there is PeopleCode in the component that uses the %Menu system variable.

Determining Which Fields to Expose

You expose fields from a component in the component interface by dragging a record field or a scroll from the component view into the component interface view. However, some forethought is required before exposing a component as a component interface. You need to have a thorough understanding of the underlying component so that you expose fields that are required in the external system. For example, if the component has a field called SSN, you need to be sure that the SSN field is required before exposing it to the external system. Expose only those properties that are necessary.

The component view displays fields that are available in the component buffer at runtime. For example, if a record containing 10 fields has only 3 fields included on a page, then the component view will list only those 3 fields.

The first time that you drag a scroll from the component view to the component interface view, the system uses the following rules to determine what properties to expose:

- Keys are exposed only at the highest-level collection in which they first appear.

  In some cases, this is not appropriate. When an effective-dated component that has the same level-zero and level-one record is exposed through a component interface, it should be exposed the same way in which it appears on a page in the component. In this case, only one key field typically appears at level zero and the effective-date keys appear at level one. The component interface wrapper should expose the page in the same fashion—removing keys that do not appear in the level-zero scroll from the component interface top-level collection and manually adding keys that appear in level-one scroll to the second-level collection.

  Typically, you do not want to expose Get keys or Create keys as properties, because these are set before a Get or Create operation and might be inadvertently changed.
- Make sure that you do not delete all the properties within the collection; that would result in an empty collection. If such empty collections exist, remove them; otherwise, they appear with *X* in the component interface view.
- If your page does not support Add mode, then you should not expose the level-zero record of the component, because it contains data that is not specific to the component interface that you are creating.
- Do not expose fields that are not visible in the component view.

  The component optimization code might eliminate unused fields from its buffers, which results in an error when that field is accessed by the component interface.

Using Keys

This section discusses how to add and delete keys.

Understanding Keys

The following table shows the three types of component interface keys:

Key Type	Key Characteristics
Get keys	These keys automatically map to search key fields in the search record for the underlying component. You must change Get keys only if you modify the keys of the component after you create a component interface.
Find keys	These map to both search key fields and alternate search key fields in the search record for the underlying component. You may remove any Find keys based on alternate search key fields that you don't want to make available for searching.
Create keys	If the underlying component allows the Add action, then Create keys are generated for the component interface automatically. They map to fields marked as *Srch* (search) in the search record for the component (or the add search record, if one is specified).

Keys are created automatically when you create a component interface. Typically, you must manually add keys only if new search key fields are added to the underlying component after the creation of the component interface. However, you might want to modify the Find keys—either to restrict a user from searching on a particular key or to add an alternate search key that didn't exist when the component was created.

Component interface keys are based only on the search key fields and alternate search key fields that are designated as list box items in the search record of the underlying component. When you create the component interface, the keys are automatically generated from all key fields that qualify.

- Each search key field produces a Get key and a Find key.
- Each search key field also produces a Create key if the underlying component allows Add mode.
- Each alternate search key field produces a Find key.

Valid Conditions for Modifying Keys

The following conditions are valid for modifying keys.

- You can add or delete a Find key if it's based on an alternate search key field.
- You can add any type of key based on a qualifying search key field in the component, if it isn't already the basis of an existing key of the same type.

  This is necessary only if a new search key field is added to the component after you create the component interface.
- You can delete any type of key if its underlying search key field meets one of these criteria:
  - It is no longer defined as a search key field.
  - It is no longer designated as a list box item.
  - It has been deleted from the component.

Note. An *X* icon precedes a name in the component interface view if the field underlying a component interface key no longer qualifies as a key. Remove keys (or any other properties) that are marked with this symbol to ensure proper operation of the component interface.

Adding and Deleting Keys

To add a key:

1. Expand the search key collection (the first collection) in the component view.
2. Drag the key to the component interface view.

To delete a key:

1. Select the key in the component interface view.
2. Press the Del key.

Setting Properties

This section discusses how to:

- Create user-defined properties.
- Delete properties.
- Rename properties.
- Make properties read-only.
- Name component interface properties.

Standard Properties

Standard properties do not appear in the component interface view in PeopleSoft Application Designer. These tables name and define the standard properties, and list the interfaces for PeopleCode, Java, C++, and Visual Basic.

This table contains the component interface properties:

Name	Description, Programming Syntax
CreateKeyInfoCollection	Returns a collection of items that describes the Create keys. This property is read-only. Use these interfaces to call with other programming languages. • Java: IcompIntfcPropertyInfoCollection getCreateKeyInfoCollection() • C++: HPSAPI_ COMPINTFCPROPERTYINFOCOLLECTION <CI_NAME>_GetCreateKeyInfoCollection (HPSAPI_<CI_NAME>) • COM: CompIntfcPropertyInfoCollection CreateKeyInfoCollection
GetKeyInfoCollection	Returns a collection of items that describes the Get keys. This property is read-only. Use these interfaces to call with other programming languages. • Java: IcompIntfcPropertyInfoCollection getGetKeyInfoCollection() • C++: HPSAPI_ COMPINTFCPROPERTYINFOCOLLECTION <CI_NAME>_GetGetKeyInfoCollection(HPSAPI_ <CI_NAME>) • COM: CompIntfcPropertyInfoCollection GetKeyInfoCollection
FindKeyInfoCollection	Returns a collection of items that describes the Find keys. This property is read-only. Use these interfaces to call with other programming languages. • Java: IcompIntfcPropertyInfoCollection getFindKeyInfoCollection() • C++: HPSAPI_ COMPINTFCPROPERTYINFOCOLLECTION <CI_NAME>_GetFindKeyInfoCollection(HPSAPI_ <CI_NAME>) • COM: CompIntfcPropertyInfoCollection FindKeyInfoCollection

Name	Description, Programming Syntax
GetHistoryItems	Controls whether the component interface runs in Update/Display mode or Correction mode when the underlying component is effective dated. If GetHistory is set to true, then historical data can be retrieved but not modified. GetHistory items work in accordance with EditHistory items. The default value is False. This property is read-only. Use these interfaces to call with other programming languages. • Java: boolean getGetHistoryItems(), void setGetHistoryItems(boolean) • C++: BOOL <CI_NAME>_GetGetHistoryItems (HPSAPI_<CI_NAME>), void <CI_NAME>_ SetGetHistoryItems(HPSAPI_<CI_NAME>, BOOL) • COM: Boolean GetHistoryItems
EditHistoryItems	Controls whether the component interface runs in Update/Display All mode, Update/Display mode, or Correction mode when the underlying component is effective dated. If EditHistory items are set to true, then historical data can be modified. EditHistory items work in accordance with GetHistory items. The default value is False. This property is read-only. Use these interfaces to call with other programming languages. • Java: boolean getEditHistoryItems(), void setEditHistoryItems(boolean) • C++: BOOL <CI_NAME>_GetEditHistoryItems (HPSAPI_<CI_NAME>), void <CI_NAME>_ SetEditHistoryItems(HPSAPI_<CI_NAME >, BOOL) • COM: Boolean EditHistoryItems

Name	Description, Programming Syntax
InteractiveMode	Controls whether to apply values and run business rules immediately, or whether items are queued and business rules are run later, in a single step. **Note.** You should use interactive mode when testing and debugging a component interface. Interactive mode in a production environment slows performance because of the number of server trips required. If you're using a component interface as part of a batch process in which thousands of rows are to be inserted, running in interactive mode may reduce performance so much on some UNIX servers that the application times out with a connection failure. The default value is False. This property is read-only. Use these interfaces to call with other programming languages. • Java: boolean getInteractiveMode(), void setInteractiveMode(boolean) • C++: BOOL <CI_NAME>_GetInteractiveMode (HPSAPI_<CI_NAME>), void <CI_NAME>_ SetInteractiveMode(HPSAPI_<CI_NAME>, BOOL) • COM: Boolean InteractiveMode
StopOnFirstError	When this property is set to True, the first error generated by the component interface halts the program. The default value is False. This property is read-only. • Java: boolean getStopOnFirstError(), setStopOnFirstError(boolean) • C++: BOOL <CI_NAME>_GetStopOnFirstError (HPSAPI_<CI_NAME>), void <CI_NAME>_ SetStopOnFirstError(HPSAPI_<CI_NAME>, BOOL) • COM: Boolean StopOnFirstError
CompIntfcName	Returns the name of the component interface class as named in PeopleSoft Application Designer. This property is read-only. • Java: String getCompIntfcName() • C++: LPTSTR <CI_NAME>_GetCompIntfcName((HPSAPI_<CI_NAME>) • COM: String GetCompIntfcName

Name	Description, Programming Syntax
ComponentName	Returns the name of the component interface class as named in Application Designer. This property is read-only. • Java: boolean getComponentName() • C++: LPTSTR <CI_NAME>_GetComponentName (HPSAPI_<CI_NAME>) • COM: Boolean GetComponentName
Description	Returns the description of the component interface class as set in Application Designer. This property is read-only. • Java: boolean getDescription() • C++: LPTSTR <CI_NAME>_GetDescription((HPSAPI_<CI_NAME>) • COM: String Description
Market	Returns the Market setting of the component used to build this component interface. This property is read-only. • Java: String getMarket() • C++: LPTSTR <CI_NAME>_GetMarket((HPSAPI_ <CI_NAME>) • COM: String Market

Name	Description, Programming Syntax
GetDummyRows	When a new scroll is inserted on a page, that scroll is displayed even though it has no underlying data. Any scroll that is empty has one dummy row displayed with only the defaults set. This property is True if the dummy row is to be displayed, False if you do not want to display the dummy row. The default value for this property is True. This property is read-write. • Java: boolean getGetDummyRows(), void setGetDummyRows(boolean) • C++: BOOL <CI_NAME>_GetGetDummyRows (HPSAPI_<CI_NAME>), void <CI_NAME>_ SetGetDummyRows(HPSAPI_<CI_NAME>, BOOL) • COM: Boolean GetDummyRows
PropertyInfoCollection	Returns a collection of items that describes a specific property. The specific properties that are available in the propertyinfocollection are listed here. This property is read-only. Use these interfaces to call with other programming languages. • Java: IcompIntfcPropertyInfoCollection getPropertyInfoCollection() • C++: HPSAPI_ COMPINTFCPROPERTYINFOCOLLECTION <CI_NAME>_GetPropertyInfoCollection(HPSAPI_ <CI_NAME>) • COM: CompIntfcPropertyInfoCollection PropertyInfoCollection

The CompIntfPropInfoCollection object supports the following properties:

PropertyName	Description
Name	This property returns the name of the object executing the property as a string. This property is read-only. • Java: String getName() • C++: LPTSTR CompIntfcPropertyInfo_GetName (HPSAPI_COMPINTFCPROPERTYINFO) • COM: String name

PropertyName	Description
RecordName	This property returns the Record Name associated with the object executing the property. This property is read-only. • Java: String getRecordName() • C++: LPTSTR CompIntfcPropertyInfo_ GetRecordName(HPSAPI_ COMPINTFCPROPERTYINFO) • COM: String RecordName
FieldName	This property returns the Field Name associated with the object executing the property. This property is read-only. • Java: String getFieldName() • C++: LPTSTR CompIntfcPropertyInfo_GetFieldName (HPSAPI_COMPINTFCPROPERTYINFO \) • COM: String FieldName
LabelLong	This property returns the record field LongName value as a string. If there is a component override for this value, it is not included. This property is read-only. • Java: String getLabelLong() • C++: LPTSTR CompIntfcPropertyInfo_GetLabelLong (HPSAPI_COMPINTFCPROPERTYINFO) • COM: String LabelLong
LabelShort	This property returns the record field ShortName value as a string. If there is a component override for this value, it is not included. This property is read-only. • Java: String getLabelShort() • C++: LPTSTR CompIntfcPropertyInfo_GetLabelShort (HPSAPI_COMPINTFCPROPERTYINFO) • COM: String LabelShort
IsCollection	This property returns True if the object executing the property is a data collection, False otherwise. If IsCollection is True, other field-oriented properties like Required, Type, Xlat, YesNo, Prompt and Format are undefined. If IsCollection is False, the object represents a field and all the previous properties are defined as described. This property is read-only. • Java: boolean getIsCollection() • C++: BOOL CompIntfcPropertyInfo_GetIsCollection (HPSAPI_COMPINTFCPROPERTYINFO) • COM: Boolean IsCollection

PropertyName	Description
Type	This property returns the field type, as a number, of the object. Complete list of values can be found in (Link to the PeopleCode book > PeopleCode Reference > Component Interface Classes > CompIntfPropInfoCollection Object Properties). This property is read-only. • Java: long getType() • C++: PSI32 CompIntfcPropertyInfo_GetType(HPSAPI_COMPINTFCPROPERTYINFO) • COM: Long Type
OAType	This property returns the field type, as a number, of the object. This property is read-only. • Java: long getOAType() • C++: PSI32 CompIntfcPropertyInfo_GetOAType (HPSAPI_COMPINTFCPROPERTYINFO) • COM: Long OAType
Format	This property returns the field format for the object executing the property (that is, name, phone, zip, SSN, and so on) as a number. This property is read-only. See *Enterprise PeopleTools 8.46 PeopleBook: PeopleCode API Reference*, "Component Interface Classes," CompIntfPropInfoCollection Object Properties. • Java: String getFormat() • C++: PSI32 CompIntfcPropertyInfo_GetFormat (HPSAPI_COMPINTFCPROPERTYINFO) • COM: Long Format
Key	This property returns True if the object executing the property is a key, False otherwise. This property is read-only. • Java: boolean getKey() • C++: BOOL CompIntfcPropertyInfo_GetKey (HPSAPI_COMPINTFCPROPERTYINFO hCompIntfcPropertyInfo) • COM: Boolean Key
Required	This property returns True if the object executing the property is a required property, False otherwise. This property is read-only. • Java: boolean getRequired() • C++: BOOL CompIntfcPropertyInfo_GetRequired (HPSAPI_COMPINTFCPROPERTYINFO) • COM: Boolean Required

PropertyName	Description
Xlat	This property returns True if the object executing the property is associated with an XLAT table, False otherwise. This property is read-only. • Java: String getXlat() • C++: BOOL CompIntfcPropertyInfo_GetXlat(HPSAPI_COMPINTFCPROPERTYINFO) • COM: String Xlat
Yesno	This property returns True if the object executing the property is associated with the Yes/No table, False otherwise. This property is read-only. • Java: boolean getYesno() • C++: BOOL CompIntfcPropertyInfo_GetYesno (HPSAPI_COMPINTFCPROPERTYINFO) • COM: Boolean Yesno
Prompt	This property returns True if the object executing the property is associated with a prompt table, False otherwise. This property is read-only. • Java: boolean getPrompt() • C++: BOOL CompIntfcPropertyInfo_GetPrompt (HPSAPI_COMPINTFCPROPERTYINFO) • COM: Boolean Prompt
Length	This property returns the length of the object executing the property. This property is read-only. • Java: long getLength() • C++: PSI32 CompIntfcPropertyInfo_GetLength (HPSAPI_COMPINTFCPROPERTYINFO) • COM: Long Length
DecimalPosition	This property returns the decimal position for the object executing the property. This property is read-only. • Java: long getDecimalPosition() • C++: PSI32 CompIntfcPropertyInfo_ GetDecimalPosition(HPSAPI_ COMPINTFCPROPERTYINFO) • COM: Long DecimalPosition

PropertyName	Description
IsReadOnly	This property returns True if the property marked read-only in the component interface definition; False otherwise. This property is read-only. • Java: boolean getIsReadOnly() • C++: BOOL CompIntfcPropertyInfo_GetIsReadOnly (HPSAPI_COMPINTFCPROPERTYINFO) • COM: Boolean IsReadOnly
Altkey	This property returns True if the object executing the property is an alternate key, False otherwise. This property is read-only. • Java: boolean getAltkey() • C++: BOOL CompIntfcPropertyInfo_GetAltkey (HPSAPI_COMPINTFCPROPERTYINFO) • COM: Boolean Altkey
Listboxitem	This property returns True if the object executing the property is associated with a list box, False otherwise. This property is read-only. • Java: boolean getListboxitem() • C++: BOOL CompIntfcPropertyInfo_GetListboxitem (HPSAPI_COMPINTFCPROPERTYINFO) • COM: Boolean Listboxitem

Example for PropertyInfoCollection

Here is a Java example that calls PropertyInfoCollection:

```
IcompIntfcPropertyInfoCollection oLO_PropInfoColl
IcompIntfcPropertyInfo oLO_PropInfoItem

oLO_PropInfoColl = oCI.getPropertyInfoCollection();
for (int I=0; I < oLO_PropInfoColl.getCount(); I++) {
   oLO_PropInfoItem = oLO_PropInfoColl.item(i);

   System.out.println("\t Name = " + oLO_PropInfoColl.getName());
   System.out.println("\t Record Name = " + oLO_PropInfoColl.getRecordName());
   System.out.println("\t Field Name = " + oLO_PropInfoColl.getFieldName());
   System.out.println("\t Label Long = " + oLO_PropInfoColl.getLabelLong());
   System.out.println("\t Label Short = " + oLO_PropInfoColl.getLabelShort());
   System.out.println("\t IsCollection = " + oLO_PropInfoColl.getIsCollection());
   System.out.println("\t Type = " + oLO_PropInfoColl.getType());
   System.out.println("\t OAType = " + oLO_PropInfoColl.getOAType());
   System.out.println("\t Format = " + oLO_PropInfoColl.getFormat());
   System.out.println("\t Is Get Key? = " + oLO_PropInfoColl.getKey());
     System.out.println("\t Is Required = " + oLO_PropInfoColl.getRequired());
   System.out.println("\t Is Xlat? = " + oLO_PropInfoColl.getXlat());
```

```
   System.out.println("\t Is Yesno? = " + oLO_PropInfoColl.getYesno());
   System.out.println("\t Prompt = " + oLO_PropInfoColl.getPrompt());
   System.out.println("\t Length = " + oLO_PropInfoColl.getLength());
   System.out.println("\t DecimalPosition = " + oLO_PropInfoColl.getDecimal⇒
Position());
   System.out.println("\t Is Read Only? = " + oLO_PropInfoColl.getIsReadOnly());
   System.out.println("\t Is Alt Key? = " + oLO_PropInfoColl.getAltkey());
   System.out.println("\t Is ListBox item? = " + oLO_PropInfoColl.getListboxitem⇒
());
```

Object Adapter

The name of the property is OAType, and it holds the value of the object adapter type. Exposing this property and supplying the associated methods enables you to detect possible data type mismatches between the database and the component interface object.

The Java methods are:

getOAType() Returns the object adapter type.

getType() Returns the type of the property of a particular database field.

For example:

```
public static void printPropertyType(String propName, ICompIntfcPropertyInfo i⇒
PropertyInfo) {

String strOAType = null;
String strDBType = null;

    try {
        switch ((int)iPropertyInfo.getOAType()) {
            /* Object Adapter Type == 0 */
            case CIPropertyTypes.PSPROPERTY_OA_TYPE_BOOL:
                    strOAType = "BOOL";
                    break;
             /* Object Adapter Type == 1 */
             case CIPropertyTypes.PSPROPERTY_OA_TYPE_NUMBER:
                    strOAType = "INTEGER";
                    break;
             /* Object Adapter Type == 2 */
             case CIPropertyTypes.PSPROPERTY_OA_TYPE_FLOAT:
                    strOAType = "FLOAT";
                    break;
             /* Object Adapter Type == 3 */
             case CIPropertyTypes.PSPROPERTY_OA_TYPE_STRING:
                    strOAType = "STRING";
                    break;
            }

        switch ((int)iPropertyInfo.getType()) {
```

```
            /* Database Type == 0 */
            case CIPropertyTypes.PSPROPERTY_DB_TYPE_CHARACTER:
                    strDBType = "CHARACTER";
                    break;
            /* Database Type == 1 */
            case CIPropertyTypes.PSPROPERTY_DB_TYPE_LONG_CHARACTER:
                    strDBType = "LONG_CHARACTER";
                    break;
            /* Database Type == 2 */
            case CIPropertyTypes.PSPROPERTY_DB_TYPE_NUMBER:
                    strDBType = "NUMBER";
                    break;
            /* Database Type == 3 */
            case CIPropertyTypes.PSPROPERTY_DB_TYPE_SIGNED_NUMBER:
                    strDBType = "SIGNED NUMBER";
                    break;
            /* Database Type == 4 */
            case CIPropertyTypes.PSPROPERTY_DB_TYPE_DATE:
                    strDBType = "DATE";
                    break;
            /* Database Type == 5 */
            case CIPropertyTypes.PSPROPERTY_DB_TYPE_TIME:
                    strDBType = "TIME";
                    break;
            /* Database Type == 6 */
            case CIPropertyTypes.PSPROPERTY_DB_TYPE_DATETIME:
                    strDBType = "DATETIME";
                    break;
            }

        }
        catch (Exception e) {
            e.printStackTrace();
        }

        System.out.println("\n" + propName +
             " Object Adapter Type is:  " + strOAType +
             ", Database Type is:  " + strDBType);
    }
```

Component Interface Collection Property

This table contains the component interface collection property Count.

Name	Description, Programming Syntax
Count	Returns the number of items in a collection. • Java: long getCount() • C++: PSI32 CompIntfcCollection_GetCount (HPSAPI_<CI_NAME>) • COM: Integer Count

Data Item Property

This table contains the data item property ItemNum:

Name	Description, Programming Syntax
ItemNum	Returns the position of the row within the given collection of a DataRow. • Java: long getItemNum() • C++: PSI32 <CI_NAME>_GetItemNum(HPSAPI_ <CI_NAME>) • COM: Integer ItemNum

Note. The Component Interface classes contain information about PropertyInfo properties and related PeopleCode.

Creating User-Defined Properties

User-defined properties are those properties on the underlying component that are exposed through the component interface. User-defined properties are derived from component with which the component interface is associated and must be added manually. They are the specific record fields that you expose to an external system with the component interface. You create user-defined properties in addition to the standard properties to enable data manipulation of the component. When you create a new component interface, if you accept the default properties, user-defined properties are created automatically for each field displayed to the user on the underlying component.

User-defined properties are the points where the component and the underlying database are exposed to the external system. This is the means that component interfaces use to add or change fields and data in the database.

To create a user-defined property, drag a record, field, or scroll from the component view to the component interface view.

It does not matter where you insert the definition in the component interface view. When the component interface is opened, the system automatically converts the field or record into a component interface property and places it in the appropriate place in the list of properties. Also, when you drag a definition from the component view into the component interface view, all “child” definitions are brought into the component interface automatically. Once these child properties are added to the component interface, you can remove each property individually, if desired.

Dragging a key from the search records, which precede the level-zero record in the page view, adds a key to all appropriate key collections (Get, Create, and Find) in the component interface. Because appropriate keys are added automatically when a component interface is first created, you typically must add keys only if the new keys are added to the underlying component after the creation of the component interface.

Deleting User-Defined Properties

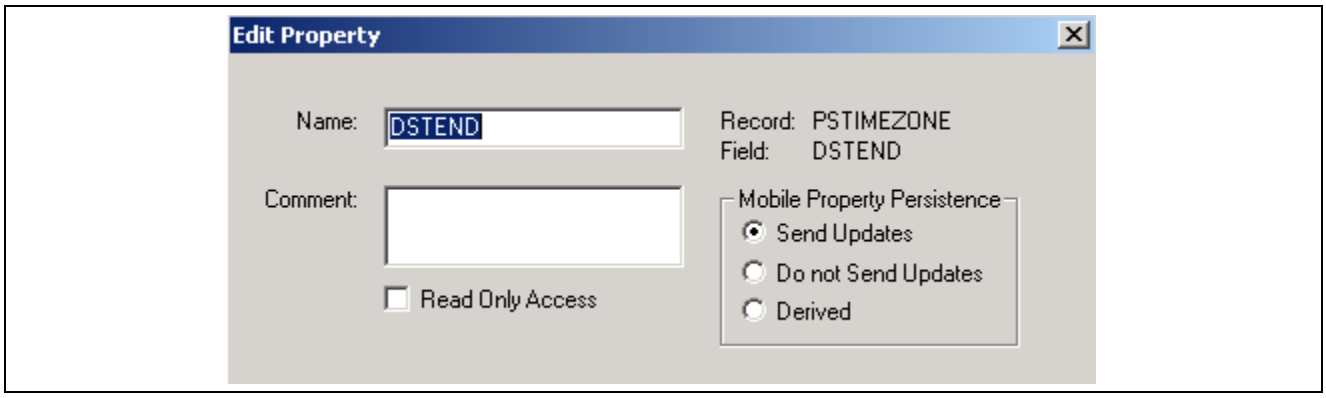
To delete a property:

1. Select the property to be deleted.
2. Either press the Del key on the keyboard, or right-click the key and select Delete.

   Standard Windows behavior is employed for selecting multiple properties using the SHIFT and CTRL keys.

Renaming User-Defined Properties

Property names are automatically generated according to the corresponding fields from the component. If these names are cryptic, you might want to rename these properties to explain them better. Renaming a property does not change the field that the property references.



Edit Property dialog box

To rename a property:

1. Double-click the property name or right-click the property name and select Edit Name from the pop-up menu.
2. Enter the new property name.

   Programs accessing this component interface must reference the new property name. For example, if SDK_NAME was changed to NAME, programs must use NAME instead of SDK_NAME.
3. Add any comments that might be helpful.
4. Select the Read-Only check box to make this property read-only.
5. If this property if for a mobile application, select a radio button that sets the persistence of the property.
   - Send Updates is the default behavior for a mobile property.

     Any changes or additions to this property on a mobile instance are synchronized to the server.
   - If a mobile property is set to Do not Send Updates, this property is not synchronized up to the server, but the value is maintained on the device.

- A Derived property is used only at mobile runtime. Any values set or added to this property exist only for the runtime life of the object. There is no persistence of this data on the device, so it is subsequently never uploaded to the server.

Note. Application Designer generates an error message if it detects that a component interface has properties that resolve to the same name when creating, saving, or opening a given component interface.

For example, NAME1 and NAME_1 both resolve to the same name when PeopleSoft APIs are built. The set and get functions that are generated for the properties RTE_CNTL_TYPE1 and RTE_CNTL_TYPE_1 are:

public String getRteCntlType1()

public void setRteCntlType1(String inRteCntlType1)

This results in a compile error. To fix this condition, name the properties so that they do not resolve to the same name.

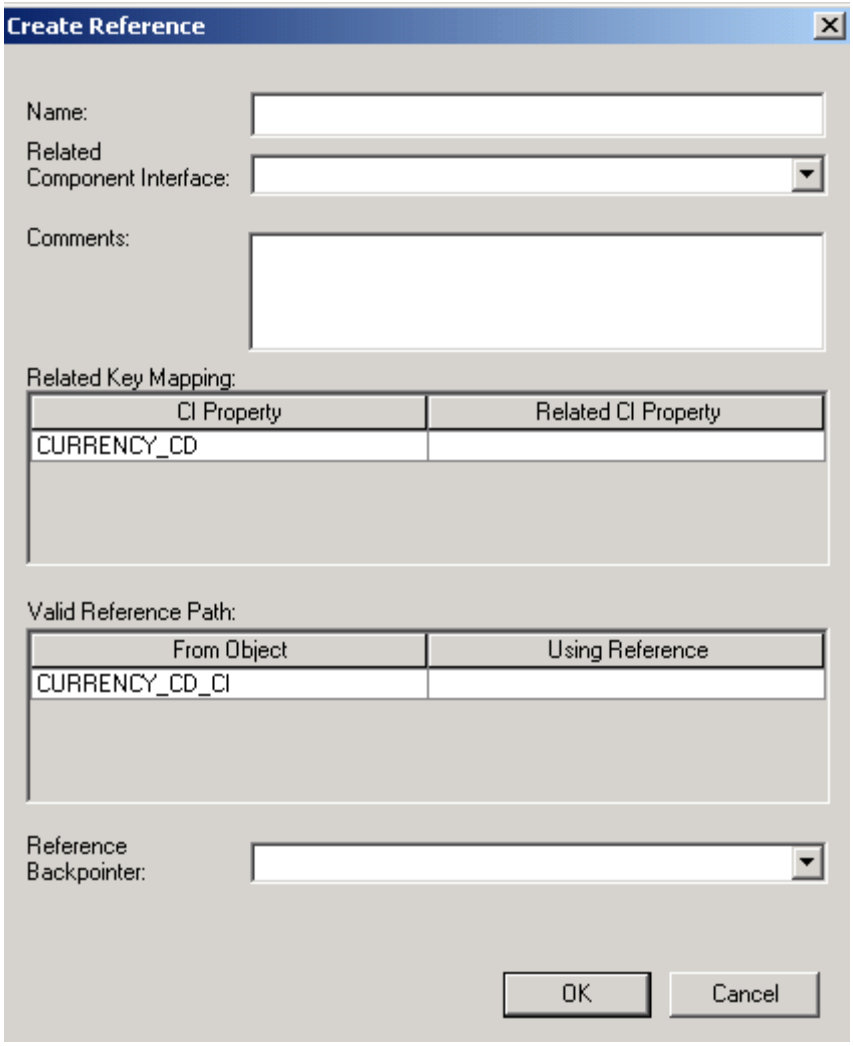
Creating Reference Properties

Each component interface is isolated and unaware of the other component interfaces in the system. In order to access and update information from other component interfaces, references establish relationships between component interfaces.

Create a reference property in one component interface to access data exposed in another component interface. For example, the Customer object and the component interface exposing its properties include properties such as the customer's name, address, and telephone numbers. Another object, Contact, includes data associated with all contacts in the system. The link between a specific customer and its associated contacts is owned by the Contact record, not the Customer record.

Therefore, to access contact data, the Customer component interface needs a reference property referring to the Contact component interface. To update contact data from the Customer component interface, the reference must include a valid reference path and reference backpointer to the customer ID.

Access the Create Reference dialog box by right-clicking the property and selecting Create Reference.



Create Reference dialog box

The Create Reference dialog box has the following fields:

Name Describes the name of the reference you are creating.

Related Component Interface Designates the component interface referenced from the current component interface.

Comments Enter any comments to track the reference.

Related Key Mapping Maps the property from the related component interface to the selected component interface property.

Valid Reference Path Supports dynamic enumeration of the objects that can be selected as the value of the reference property being defined. This effectively filters these values so that you can select only objects that support the defined reference.

Because references use the concept of a *walkpath* to go from level zero of one component interface to level zero of another component interface, and then "walk" down to the lower levels of the component interface, only the level zero references are displayed in the Valid Reference Path drop-down list of a reference definition.

Reference Backpointer Refers to the path back to the original component interface.

Making Properties Read-Only

You can make any property read-only. At runtime, the value of a read-only property can be read but not updated.

To make a property read-only:

1. Select the property.
2. Select Edit, Toggle Read Only Access from the PeopleSoft Application Designer menu.

   A *Y* appears in the Read Only column of the component interface view corresponding to each property that you selected to be read-only.

Note. You can double-click the icon of any existing user-defined property to edit its name or comment or to toggle read-only access.

Working with Collections

A collection is a property that points to a scroll, rather than a field, in the underlying component for a component interface. A collection groups multiple fields in a scroll. All the fields in the scroll are mapped to a property. These properties are part of the collection.

You create collections the same way you create properties—drag the scroll from the component view into the component interface view. Consider these points when creating collections:

- When dragging a scroll into the component interface view, all child scrolls come with it.

  This is the same behavior that you would expect when creating a property. Child properties are always added automatically when you drag a field from the component view to the component interface view. After the property or collection has been created, you can delete individual child properties or collections manually, if necessary.
- When dragging a scroll into the component interface view, all record fields contained in that scroll come with it—not just those from the record that defines the scroll.

  The fields from all records at that scroll level are exposed as part of the same collection.
- Keys that appear in parent and child scrolls are not added to child collections.

  For the component interface to function as expected, the keys must remain synchronized at all levels of the component. Having keys at lower levels makes it possible to compromise this synchronization. Therefore, lower-level keys are not introduced into the component interface and are not exposed to the user because those keys have already been set at the parent level.
- When you drag a child scroll into the component interface view, parent collections are created automatically.

  For example, if you drag just the level-two scroll from the component view into the component interface view, a level-zero collection and a level-one collection are created automatically in the component interface. This hierarchy of collections is necessary so that it's possible to navigate to the child collection at runtime.

Working with Methods

This section discusses how to:

- Enable and disable standard methods.
- Create user-defined methods.

Working with Session Functions and Methods

The session functions and methods connect to a session on a PeopleSoft application server. This connection must be made before you can use the component interface methods.

Component Interface Session Functions

This table contains the component interface session function createSession:

Name	Description, Programming Syntax
createSession (In PeopleCode, &session = %session)	Returns a session object. • Java: ISession API.createSession() • C++: HPSAPI_SESSION PSApiCreateSession() • COM: PeopleSoft_PeopleSoft.Session CreateObject("PeopleSoft.Session")

Component Interface Session Methods

This table contains the component interface session methods:

Name	Description, Programming Syntax
Connect (not used in PeopleCode)	Connects to the application server. Use these interfaces to call with other programming languages. • Java: boolean connect(long apiVersion, string server, string username, string password, byte[ ] ExternalAuth) • C++: Bool session_Connect(HPSAPI hSession, PSI32 ApiVersion, LPTSTR server, LPSTR username, LPTSTR password, PSAPIVAPBLOB ExternalAuth) • COM: connect(apiVersion As Long, server As string, username As string, password As String, externalAuth As Integer) As Boolean
getCompIntfc	Returns a reference to a Component Interface. getCompIntfc also checks to see if the given user that is connecting has the appropriate security to access the component interface. Use these interfaces to call with other programming languages. • Java: I<CI_Name> getCompIntfc(string ciName) • C++: HPSAPI_<CI_Name> Session_GetCompIntfc (HPSAPI_SESSION hsession, LPTSTR ciName) • COM: <CI_Name> GetCompIntfc(ciName As String)

Standard Methods

A method is a definition that performs a specific function on a component interface at runtime. Each standard method is added by default when the component interface is created and is available in PeopleCode and other programming languages. Like properties, methods are saved as part of a component interface definition. There are two main types of methods: standard methods and user-defined methods.

Standard Methods	Description, Programming Syntax
Cancel	Backs out of the current component interface, canceling any changes made since the last save. Equivalent to clicking the Return to Search button online. Returns True on success, and False on failure. Use these interfaces to call with other programming languages. • Java: boolean cancel() • C++: BOOL <CI_NAME>_Cancel(HPSAPI_<CI_ NAME> hObj) • COM: Function Cancel() As Boolean
Create	Creates a new instance of a component interface. Equivalent to creating a new record in Add mode online.Returns True on success, and False on failure. Use these interfaces to call with other programming languages. • Java: boolean create() • C++: BOOL <CI_NAME>_Create(HPSAPI_<CI_ NAME> hObj) • COM: Function Create() As Boolean
Find	Performs a partial key search for a particular instance of a component interface, using the search keys at level 0. Returnsa collection of component interface instances which match the search criteria. If no component interface instances match the search criteria, the count on the collection is zero. Use these interfaces to call with other programming languages. • Java: <CI_NAME>Collection find() • C++: HPSAPI_<CI_NAME>COLLECTION <CI_NAME>_Find(HPSAPI_<CI_NAME> hObj) • COM: Function Find() As <CI_NAME>Collection

Standard Methods	Description, Programming Syntax
Get	Retrieves a particular instance of a component interface. Equivalent to opening a record in Update/Display or Correction mode when online with a PeopleSoft application. Returns True on success, and False on failure. Use these interfaces to call with other programming languages. • Java: boolean get() • C++: BOOL <CI_NAME>_Save(HPSAPI_<CI_NAME> hObj) • COM: Function Get() As Boolean
Save	Saves an instance of a component interface. Equivalent to clicking the Save button in the online system. Returns True on success, and False on failure. You should do a save after a cancel. Use these interfaces to call with other programming languages. • Java: boolean save() • C++: BOOL <CI_NAME>_Save(HPSAPI_<CI_NAME> hObj) • COM: Function Save() As Boolean
GetPropertyByName	Returns the value of a property that is specified by name. This function typically is used only in applications that cannot get the names of the component interface properties until runtime. Use these interfaces to call with other programming languages. • Java: Object getPropertyByName(String str) • C++: HPSAPI_OBJECT <CiCollectionItem>_GetPropertyByName(HPSAPI_<CI_COLLECTION_ITEM> hColItem, LPTSTR Name) • COM: Function GetPropertyByName(name As String)

Standard Methods	Description, Programming Syntax
SetPropertyByName	Sets the value of a property that is specified by name. This function typically is used only in applications that cannot set the names of the component interface properties until runtime. Use these interfaces to call with other programming languages. • Java: long setPropertyByName(String str, Object o) • C++: PSI32 <CiCollectionItem>_SetPropertyByName (HPSAPI_<CI_ COLLECTION_ITEM> hColItem, LPTSTR name, HPSAPI_OBJECT Value) • COM: Function SetPropertyByName(name As String, value) As Long
GetPropertyInfoByName (In PeopleCode, CompIntfPropInfoCollection)	Returns specific information, such as length, about the definition of a property that is specified by name. This function typically is used only in applications that cannot get the names of component interface properties until runtime or by applications that need to provide a dynamic list of values that would normally be found in prompt tables. Use these interfaces to call with other programming languages. • Java: IcompIntfcPropertyInfo getPropertyInfoByName(String name) • C++: HPSAPI_ COMPINTFCPROPERTYINFO<CiPropOrItem>_ GetPropertyInfoByName(HPSAPI_ <CIPROPORITEM> hPropOrItem, LPTSTR name) where CiPropOrItem is the name of either a property or an item in a collection. • COM: Function GetPropertyInfoByName(name As String) As CompIntfcPropertyInfo See *Enterprise PeopleTools 8.46 PeopleBook: PeopleCode API Reference*, "Component Interface Classes," CompIntfPropInfoCollection Object Properties.

By default, each component interface is created with four standard methods—Cancel, Find, Get, and Save. Additionally, the Create standard method is generated if Create keys have been added to the component interface.

Example for GetPropertyInfoByName

The GetPropertyInfoByName method returns an object containing the property information. Here is a Java example that calls GetPropertyInfoByName:

```
IcompIntfcPropertyInfo oCompIntfcPropertyInfo
oCompIntfcPropertyInfo = oCI.getPropertyInfoByName(tempName);
System.out.println(oCompIntfcPropertyInfo.getName());
if (!oCompIntfcPropertyInfo.getIsCollection()) {
  System.out.println("\t Format = " + oCompIntfcPropertyInfo.getFormat());
    System.out.println("\t Type = " + oCompIntfcPropertyInfo.getType());
}
System.out.println("\t Is Required = " + oCompIntfcPropertyInfo.getRequired());
System.out.println("\t Is Collection? = " + oCompIntfcPropertyInfo.getIsCollection⇒
());
System.out.println("\t Is Read Only? = " + oCompIntfcPropertyInfo.getIsReadOnly());
System.out.println("\t Is Get Key? = " + oCompIntfcPropertyInfo.getKey());
System.out.println("\t Label Long = " + oCompIntfcPropertyInfo.getLabelLong());
System.out.println("\t Label Short = " + oCompIntfcPropertyInfo.getLabelShort());
System.out.println("\t Length = " + oCompIntfcPropertyInfo.getLength());
System.out.println("\t Name = " + oCompIntfcPropertyInfo.getName());
System.out.println("\t Is Xlat? = " + oCompIntfcPropertyInfo.getXlat());
System.out.println("\t Is Yesno? = " + oCompIntfcPropertyInfo.getYesno());
```

Note. When creating a new component interface, you must save the component interface before the standard methods are created. PeopleSoft Application Designer adds the standard methods upon the first save of a new component interface.

Collection Methods

The first item in a component interface collection is always indexed as item 1 from PeopleCode and COM programs, which is consistent with other PeopleCode processing. From Java and C++ programs, this item is indexed as item 0.

Component Interface Collection Properties

This table contains the component interface collection properties:

Data Collection Method	Action, Usage
Count	Returns the number of items in a collection. Use these interfaces to call with other programming languages. • Java: long getCount() • C++: PSI32 <CiCollectionName>_GetCount (HPSAPI_<CI_COLLECTION_NAME> hCol) • COM: Count As Long

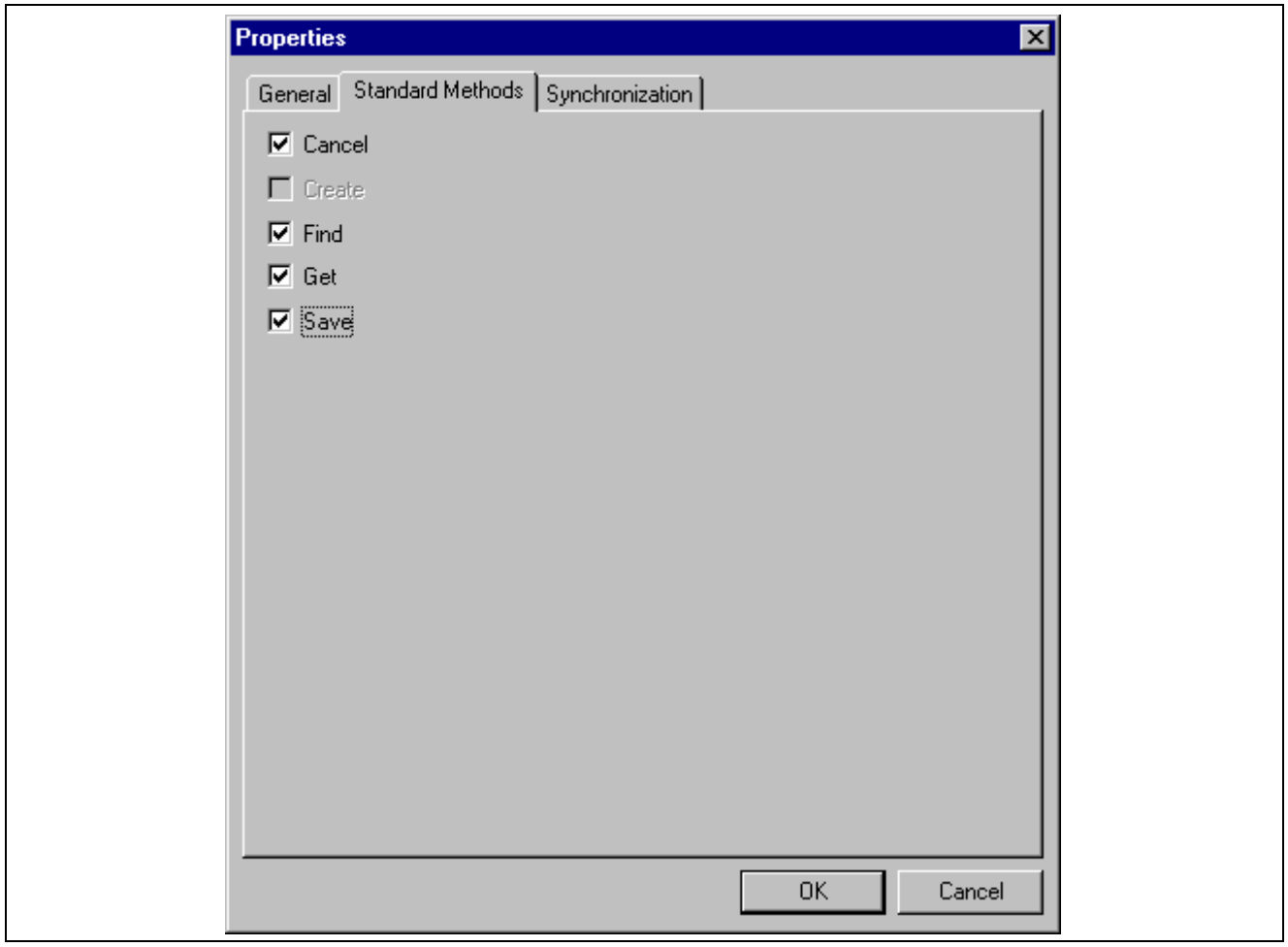
Data Collection Method	Action, Usage
ItemByName (not used in PeopleCode)	Returns the property in the collection. It takes *Name* as a parameter. Use these interfaces to call with other programming languages. • Java: ICompIntfcPropertyInfo itemByName(String Name) • C++: CompIntfcPropertyInfoCollection_ ItemByName (HPSAPI_ COMPINTFCPROPERTYINFOCOLLECTION, LPTSTR Name) • COM: Function ItemByName(name As String) As CompIntfcPropertyInfo
InsertItem(Index)	Inserts a new item. This is equivalent to clicking the Add button to insert a new row when online. It takes *Index* as a parameter and follows the same conventions for performing business rules (PeopleCode) as the online system. Use these interfaces to call with other programming languages. • Java: <CiCollectionName> insertItem(long Index) • C++: HPSAPI_<CI_COLLECTION_ITEM> <CiCollectionName>_InsertItem(HPSAPI_<CI_ COLLECTION_NAME> hCol, PSI32 Index) • COM: Function InsertItem(index As long) As <CI_COLLECTION_ITEM>
DeleteItem(Index)	Deletes the item that is designated by *Index*. This is equivalent to clicking the Delete button to delete the selected row when online. Use these interfaces to call with other programming languages. • Java: boolean deleteItem(long Index) • C++: BOOL <CiCollectionName>_DeleteItem (HPSAPI_<CI_COLLECTION_NAME> hCol, PSI32 Index) • COM: Function DeleteItem(index As Long) As Boolean

Data Collection Method	Action, Usage
Item(Index)	Takes an item number as a parameter and returns a definition of the type that is stored in the specified row in the collection. For example, if the collection is a data collection, the return value is a DataRow. If the return value is a PropertyInfoCollection, then the return value is a PropertyInfo definition, and so on. Use these interfaces to call with other programming languages. • Java: <CiCollectionName> item(long Index) • C++: HPSAPI_<CI_COLLECTION_ ITEM> <CiCollectionName>_Item (HPSAPI_<CI_ COLLECTION_ NAME> hCol, PSI32 Index) (HPSAPI_ COMPINTFCPROPERTYINFOCOLLECTION, PSI32) • COM: Function Item(item As Long) As <CI_COLLECTION_ITEM>
ItemByKeys(keys)	Identifies and finds a specific item, based on keys. The keys vary according to the design of the collection. Use these interfaces to call with other programming languages. • Java: <CiCollectionName> itemByKeys(String Key1, String Key2, …) • C++: HPSAPI_<CI_COLLECTION_ITEM> <CiCollectionName>_ItemByKeys (HPSAPI_<CI_ COLLECTION_NAME > hCol, LPTSTR Key1, LPTSTR Key2, …) • COM: Function ItemByKeys(KEY_1 As String, KEY_2,…) As <CI_COLLECTION_ITEM>
CurrentItem	Returns the current effective DataRow in the collection. The behavior is consistent with effective date rules that are used online. This method works with effective-dated records only. Use these interfaces to call with other programming languages. • Java: <CiCollectionName>currentItem() • C++: HPSAPI_<CI_COLLECTION_ITEM> <CiCollectionName>_ CurrentItem(HPSAPI_<CI_ COLLECTION_NAME> hCol) • COM: Function CurrentItem() As <CI_ COLLECTION_ITEM>

Data Collection Method	Action, Usage
CurrentItemNum (CurrentItemNumber)	Returns the item number of the current effective DataRow in the collection. The behavior is consistent with effective date rules that are used online. This method works with effective-dated records only. Use these interfaces to call with other programming languages. • Java: long currentItemNum() • C++: PSI32 <CiCollectionName>_ _CurrentItemNum (HPSAPI_<CI_COLLECTION_NAME> hCol) • COM: Function CurrentItemNum() As Long
GetEffectiveItem(DateString, SeqNum)	Returns the DataRow that would be effective for the specified date and sequence number. This is a more general case of the GetCurrentItem function, which returns the definition that is effective at this moment. This method works with effective-dated records only. Use these interfaces to call with other programming languages. • Java: <CiCollectionName> getEffectiveItem(String Date, long SeqNum) • C++: HPSAPI_<CI_COLLECTION_ITEM> <CiCollectionName>_ GetEffectiveItem(HPSAPI_ <CI_COLLECTION_NAME> hCol, LPTSTR Date, PSI32 SeqNum) • COM: Function GetEffectiveItem(Date As String, SeqNum As Long) As <CI_COLLECTION_ITEM>
GetEffectiveItemNum(DateString, SeqNum)	Returns the item number of the DataRow in the collection that would be effective for the specified date and sequence number. This is a more general case of the GetCurrentItemNum function, which returns the number of the definition that is effective at this moment. This method works with effective-dated records only. Use these interfaces to call with other programming languages. • Java: long getEffectiveItemNum(string Date, long SeqNum) • C++: <CiCollectionName>_GetEffectiveItemNum(HPSAPI_<CI_COLLECTION_NAME> hCol, LPTSTR Date,PSI32 SeqNum) • COM: Function GetEffectiveItemNum(Date As String, SeqNum As Long)

Enabling and Disabling Standard Methods

You can control whether standard methods are accessible at runtime.



Enabling standard methods

To enable or disable standard methods:

1. Select File, Definition Properties from the PeopleSoft Application Designer menu.

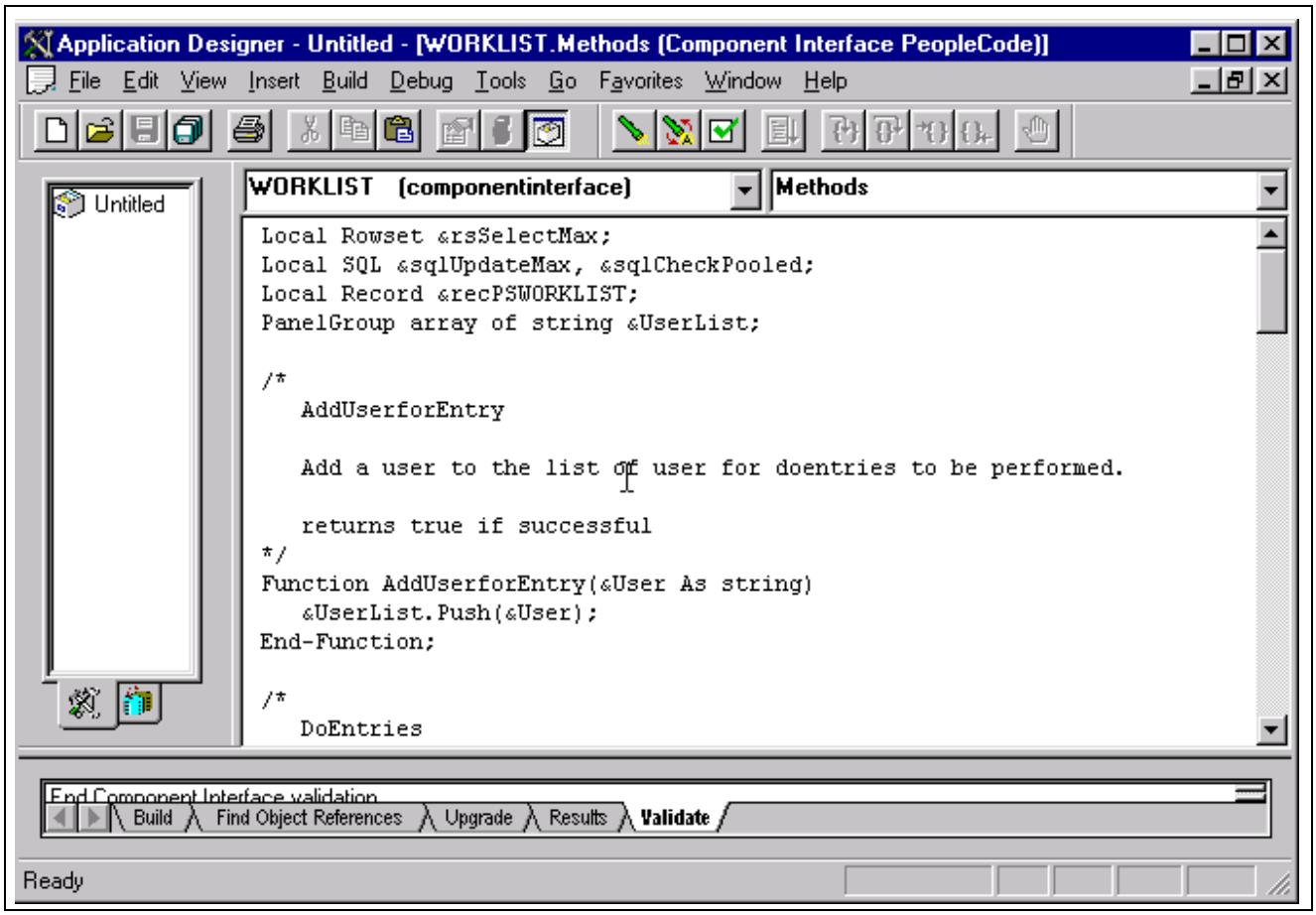
   The Definition Properties dialog box appears.

2. Select the Standard Methods tab.

   You can enable or disable any of the standard methods selecting the corresponding check box. Doing so determines whether the method is available at runtime when the component interface is accessed. The Create option is available only if the component interface has Create keys.

Creating User-Defined Methods

This section discusses how to create user-define methods.



Creating user-defined methods in PeopleCode

To create a user-defined method:

1. Right-click anywhere in the component interface view.
2. Select View PeopleCode from the pop-up menu.

   The PeopleCode editor appears. If you are using a new component interface, no PeopleCode will appear in the editor because no user-defined methods have been created.
3. Write the required PeopleCode functions.

   PeopleCode functions that you write are stored in a single PeopleCode program that is attached to the component interface and associated with the Methods event.

   Note. New user-defined methods do not appear in the list of methods until you save the component interface. Double-click the icon of any existing user-defined method to return to this PeopleCode program.
4. Set permissions for the methods that you created.

   You must set permissions for every user-defined method. If you set permission to Full Access, at runtime that function is exposed to external systems as a method on the component interface object.

Validating the Component Interface

Validation ensures that a component interface's structure is still valid. Over time, the structure of a component interface can become invalid due to component structural changes and modifications. For example, this can happen whenever a component deletes or adds a record or field. It can also happen if the keys on the component are added or removed. Properties and keys that no longer synchronize with their associated components are marked with an X icon.

Note. The validation process only determines whether the underlying component of a component interface has changed. It does not validate the PeopleCode that is associated with a component interface. To validate the PeopleCode, open the component and select Tools, Validate from the PeopleSoft Application Designer menu.

To correct an invalid component interface, you might have to delete properties for which there are no longer appropriate fields or records. If the structure of the source component has changed, you might have to delete old properties and re-add the new properties in their appropriate locations. You may also need to rename a property or collection.

To validate a component interface:

1. Open the component interface in PeopleSoft Application Designer.

   Validation occurs automatically whenever you open a component interface in PeopleSoft Application Designer.

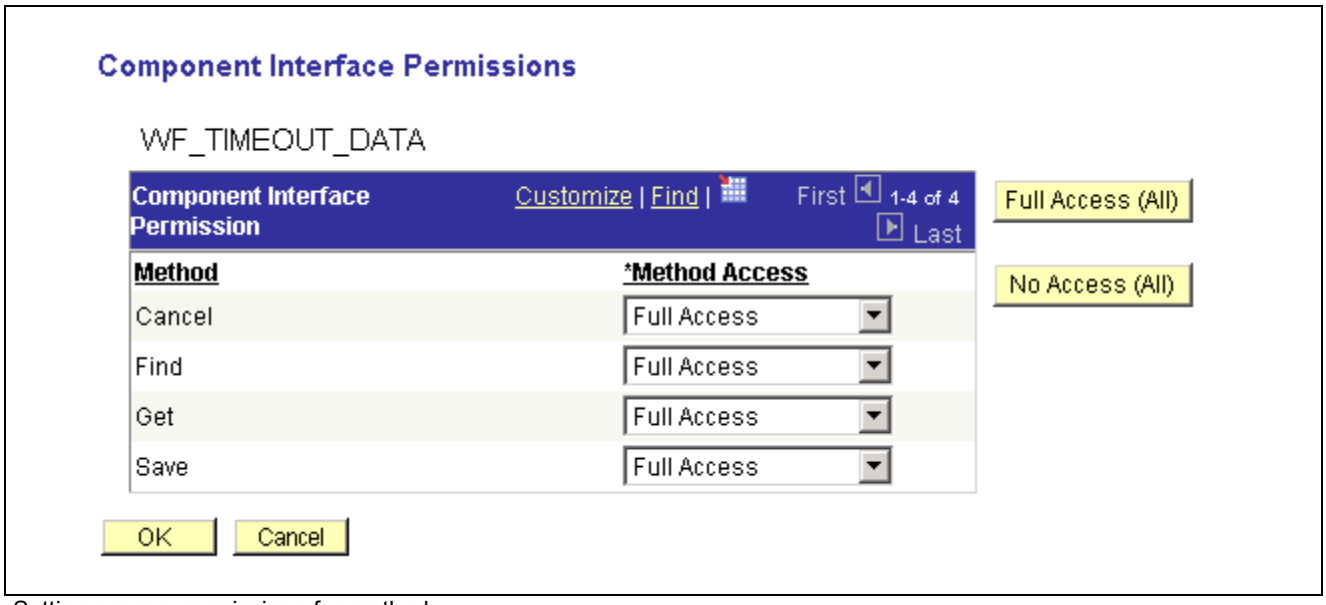
2. Select Tools, Validate for Consistency from the PeopleSoft Application Designer menu to validate an open component interface.

   As you change components or other related definitions, you should validate a component interface that is already open in PeopleSoft Application Designer.

Note. PeopleSoft Application Designer also validates each component interface upon its creation.

Setting Component Interface Security

After creating a component interface, you must set security for it. Each individual method also needs to be provided security. Security for the component interface is provided through the PeopleSoft Internet Architecture pages. Component interface permissions are set at the permission list level in PeopleSoft security.



Setting access permissions for methods

To set up component interface security:

1. Log in to PIA through the browser, and select PeopleTools, Security, Permissions & Roles, Permission Lists.
2. Select the permission list for which you want to set security.

   The Permission List component appears.
3. Access the Component Interfaces page.
4. Select the component interface for which you want to set security.

   To add another component interface to the list, click the Add button.
5. Click Edit.

   The Component Interface Permissions page appears, showing all of the methods (both standard and user-defined) in the component interface and their method access.
6. Set the access permission for each method.

   Select Full Access or No Access. You must grant full access to at least one method to make the component interface available for testing and other online use.
7. Click OK when you're done.
8. Save the page.

Testing the Component Interface

After setting the security for a component interface, you can test the contents and behavior using the component interface tester. You should test the component interface before using it in your external system. This proactive tool helps you discover problems with the underlying component or the component interface itself, including user defined methods. When you are testing a component interface, real data from the database is used. Therefore, if you save the information that you change by calling the Save method, the information is changed in the database.

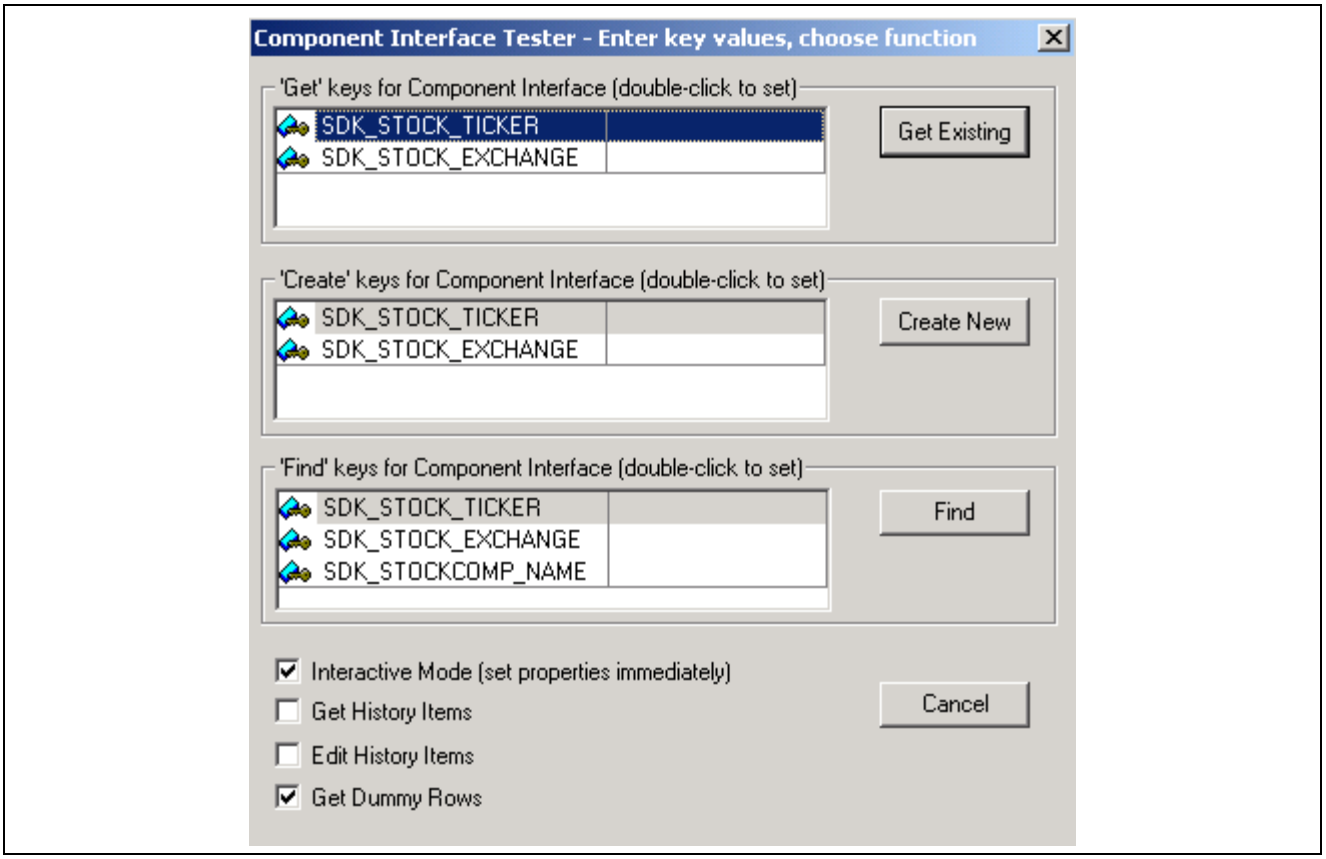
With the component interface tester, you can:

- Test the component interface in interactive mode.
- Retrieve history items.
- Test the standard, custom, and collection methods.

Searching for a Component Interface to Test

To test the component interface, you search for the component interface to test, then you test it.

Access the Component Interface Tester search dialog box:



Component Interface Tester search dialog box

To search for a component interface to test:

1. Open the component interface in PeopleSoft Application Designer.
2. Select Tools, Test Component Interface from the PeopleSoft Application Designer menu.

   The Component Interface Tester search dialog box appears. This dialog box displays the keys (in the left-hand columns) for getting, creating, or finding an instance of the component interface. The right-hand columns provide a place for you to enter sample key values for testing.
3. Enter key values.
   a. Double-click the column to the right of any displayed keys.
   b. Enter the value in the right-hand column.

The data that is used for the test corresponds to the key values that you enter here. In the preceding example, we've entered an employee ID of 6602.

Interactive Mode

In interactive mode any action request occurs immediately. Each property being set causes an immediate trip to the application server (or database server in two-tier mode). This differs from noninteractive mode, in which actions are often held and later sent in batches. For example, in noninteractive mode, if you set a property, the property is not validated until you perform the save. However, in interactive mode the property is validated immediately. This means that edit processing (and other processing, such as FieldChange PeopleCode) occurs for each set property.

Whether you select this option depends on how you expect a particular component interface to be used and what you are currently testing. In a real production system, this parameter can significantly affect performance, but it makes little difference in the test component. In noninteractive mode, errors and properties are not updated until a method is run. By default, Interactive Mode is selected in the component interface tester.

Get History Items

Selecting Get History Items retrieves history data. This option applies to effective-dated fields only and is equivalent to running in either Update/Display or Correction mode.

Edit History Items

Selecting Edit History Items enables editing and saving of history data. This option applies to effective-dated fields only and is equivalent to running in either Update/Display or Correction mode.

Get Dummy Rows

Specify whether to get dummy rows. This option is selected as a default.

The component processor provides dummy rows to enable quick data entry when the level you are accessing does not have any data. Because of this an API that does not need this row finds it and ends up exposing it to the user. The application that uses the API now has to determine if the row is a dummy row or not and accordingly decides to execute Item or InsertItem.

Setting the GetDummyRow to false enables the component interface processor to handle the counts accordingly. With this property set to false users do not have to use item and InsertItem when adding new data at levels 1 to 3. Instead they can comfortably always use InsertItem.

Get Existing

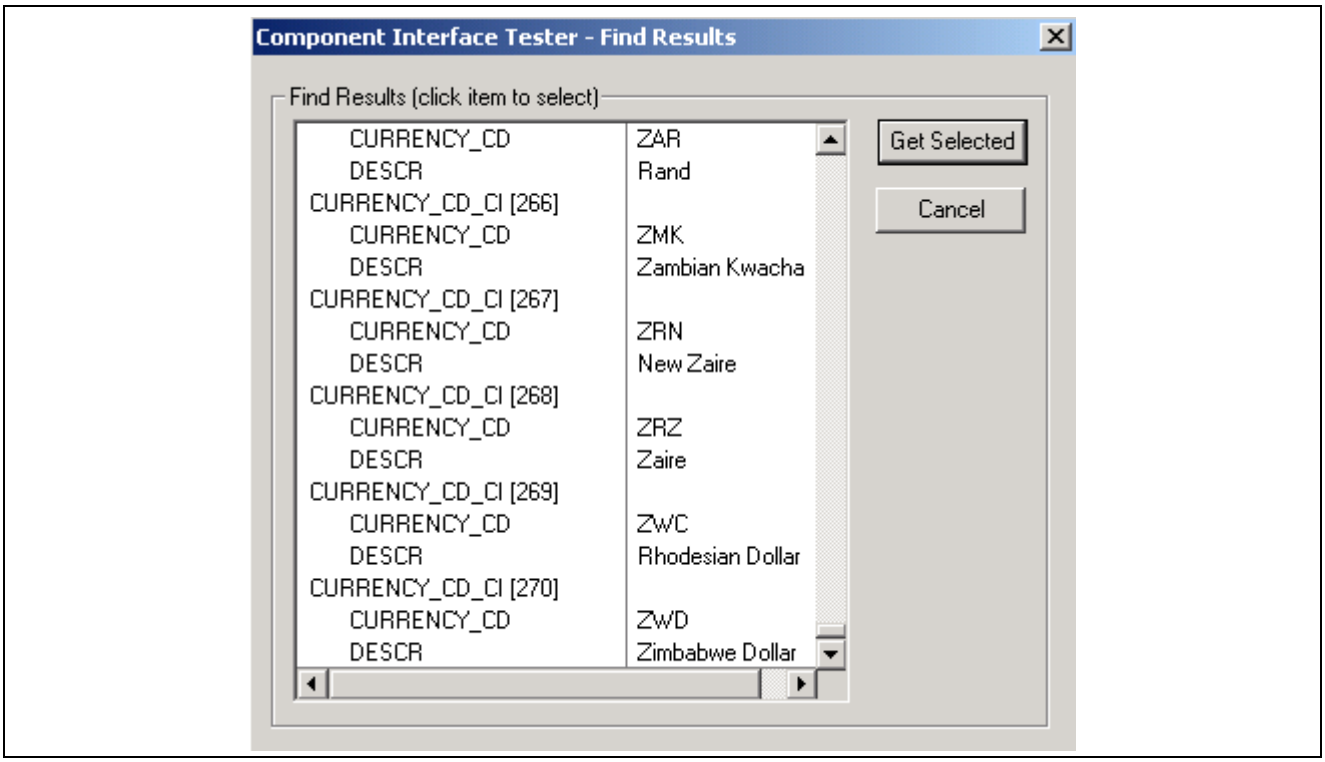
Clicking Get Existing is equivalent to opening a record in Update/Display or Correction mode online. It retrieves one instance from the database. After you click the Get Existing button, the Component Interface Tester dialog box appears.

Create New

Clicking Create New is equivalent to creating a new row in Add mode online. If your component does not support the Create method, this button is disabled. After you click the Create New button, the Component Interface Tester dialog box appears.

Getting Existing Records by Using Partial Keys

If you want to retrieve a partial key, click the Find button. The Find Results dialog box appears:

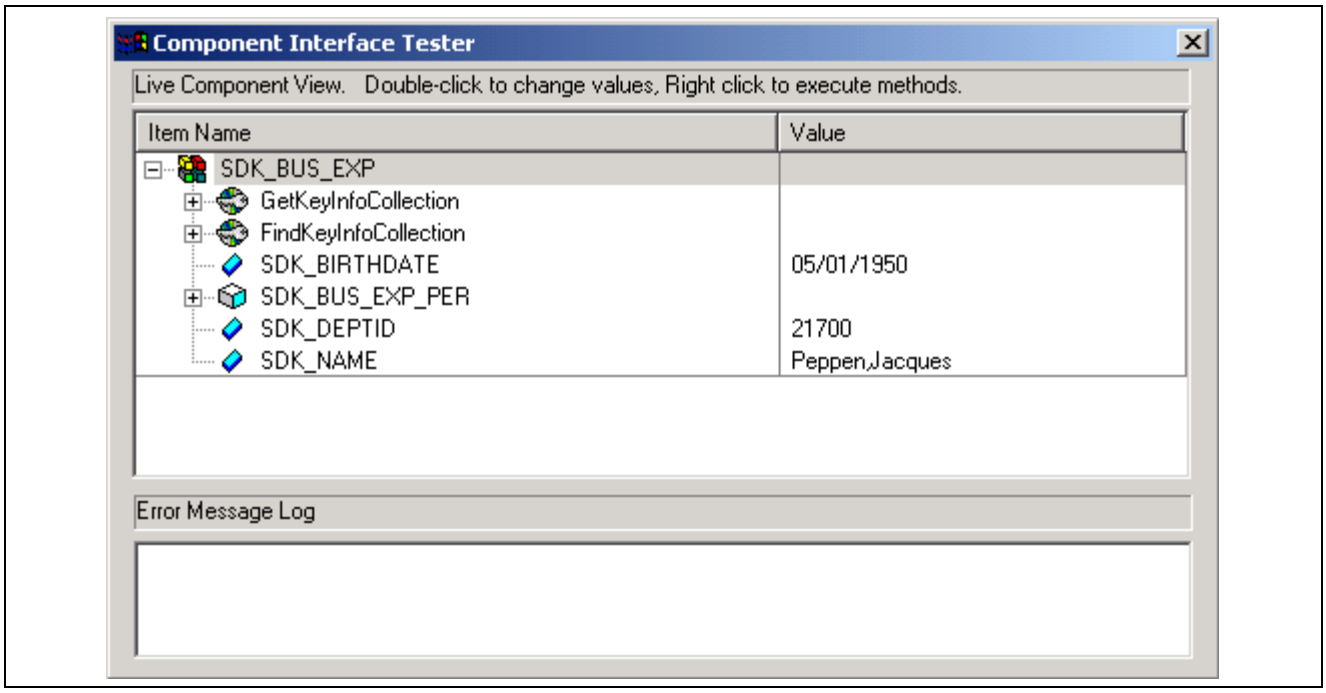


Component Interface Tester — Find Results dialog box

You then can choose the specific instance by selecting and clicking the Get Selected button. If you do not enter a partial key before clicking Find, all key values in the database are returned (subject to the maximum count of 300, just as when online). This is the same as calling the Find method through the component interface API, followed by selecting a value from the Find results, setting the Get key, and calling the Get method. After you click the Get Selected button, the Component Interface Tester dialog box appears.

Testing the Component Interface

After you have searched for and retrieved the component interface, the Component Interface Tester dialog box appears.



Component Interface Tester dialog box

Testing the Component Interface Properties

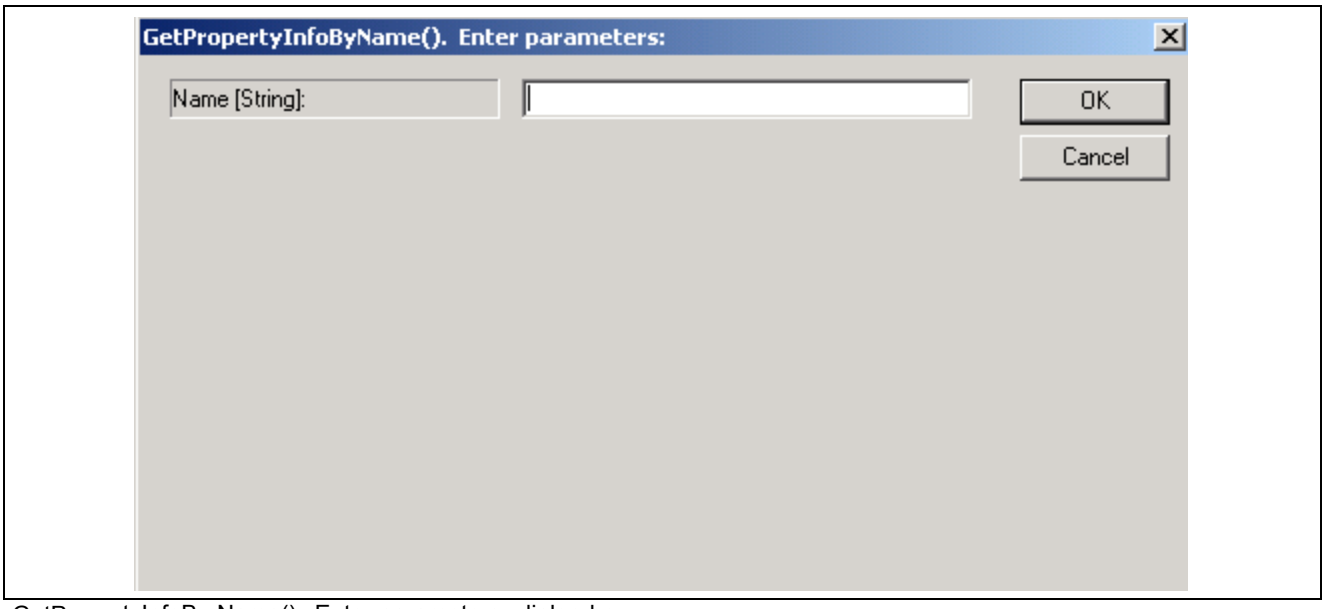
From the Component Interface Tester dialog box, change the value of a property, double-click a value, and enter a new value. Some basic validation is done when you leave the field, which is equivalent to exiting a field using the TAB key in the online case. This validation includes system edit, FieldChange PeopleCode events, and FieldEdit PeopleCode events. Further validation may be done when the Save method is called (SaveEdit, SavePreChange, Workflow, and SavePostChange). If errors or warnings are encountered, they are displayed in the Error Message Log area at the bottom of the window. The error message log displays the same text that would appear in the PSMessages collection of the Session object if you accessed the component through the Component Interface API.

Testing Component Interface Methods

Test component interface methods by right-clicking the component interface name.

A pop-up menu appears showing the Save and Cancel standard methods and any user-defined methods that exist for the component interface. The Find, Create, and Get standard methods are not valid for an instantiated component, and therefore are not shown.

If a component interface method requires one or more parameters, a dialog box in which you can enter the parameters appears. After the method gets executed, the same dialog box appears again, displaying changes to the parameters that were caused by the method. The return value of the function appears in the title of the dialog box. If a component interface requires no parameters, you do not see the initial dialog box, but you do see the return value dialog box following the function call.



GetPropertyInfoBy Name(). Enter parameters: dialog box

Note. Because running a component interface method can result in a change to the component interface structure, PeopleSoft Application Designer always redraws the component interface tree in its collapsed form following a method call.

Testing Collection Methods

Test collection methods by right-clicking the collection name.

A pop-up menu appears, showing the standard collection methods. Select the collection method that you want to test for this component interface. After you select a collection method to test, the Enter parameters dialog box prompts you to enter an item number for the collection method that you are testing. The value that you enter for index [Number] is used to retrieve, insert, or delete an item, according to the following rules.

After you enter an index number, the result appears in the dialog box. If there is a return value, it is displayed in the title bar. Otherwise the message No value is displayed. Click OK or Cancel to dismiss the dialog box.

Collection Method Rules

This table contains the collection method rules:

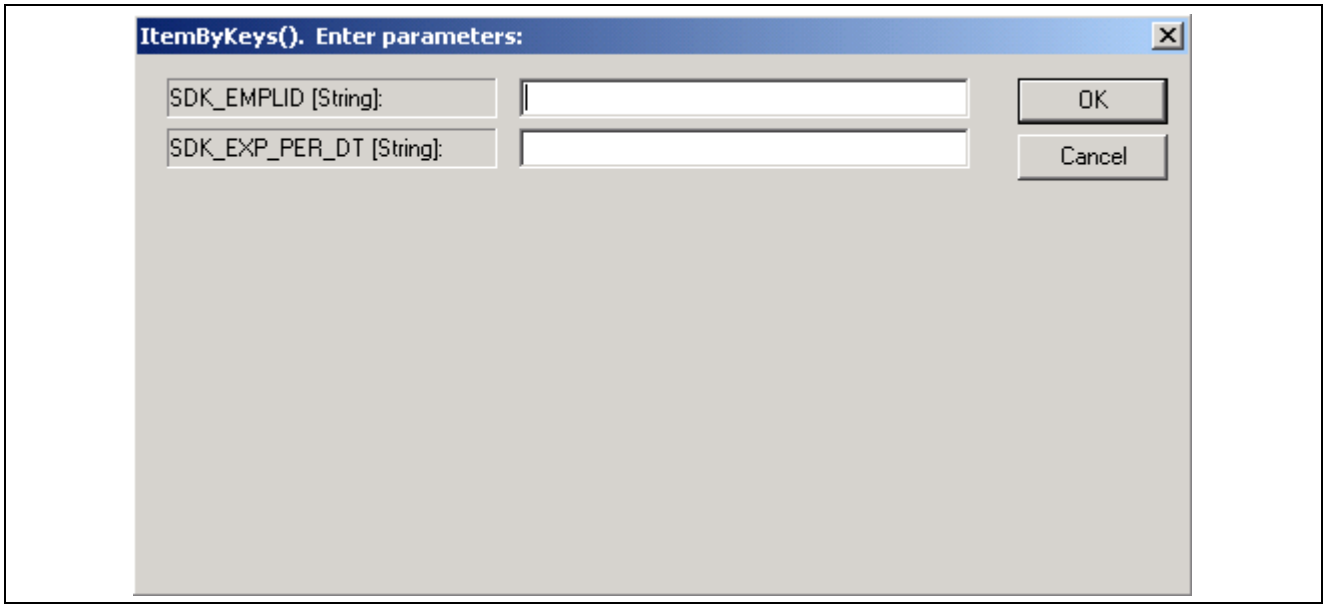
Collection Method	Purpose
Item(index)	Returns the row at the specified index. Only the success or failure of this routine is of interest from inside the test component.
InsertItem(index)	Inserts a new row either before the index that you specify if the collection is effective-dated or following the index if it isn't effective-dated.
DeleteItem(index)	Deletes the row that is designated by the index number that you specified in the Enter parameters dialog box.

Collection Method	Purpose
ItemByKeys(key1, key2, …)	Returns the row corresponding to the specified keys. Only the success or failure of this routine is of interest from inside the test component.
CurrentItem	This method returns the effective row in an effective-dated record. Only the success or failure of this routine is of interest from inside the test component.
GetEffectiveItem(DateString, SeqNum)	Returns the DataRow that would be effective for the specified date and sequence number. This is a more general case of the GetCurrentItem function, which returns the definition that is effective at this moment. This method works with effective-dated records only.
GetEffectiveItemNum(DateString, SeqNum)	Returns the item number inside the collection of the DataRow that would be effective for the specified date and sequence number. This is a more general case of the GetCurrentItemNum function, which returns the number of the definition that is effective at this moment. This method works with effective-dated records only.

Note. Component Interface Classes contains information about collection methods.

Determining ItemByKeys Parameters

You can get the signature for the ItemByKeys method (or any other method) when testing a component interface. This is helpful for the ItemByKeys method, because its signature is different for each component interface.



Viewing the signature of the ItemByKeys method

To determine ItemByKeys parameters:

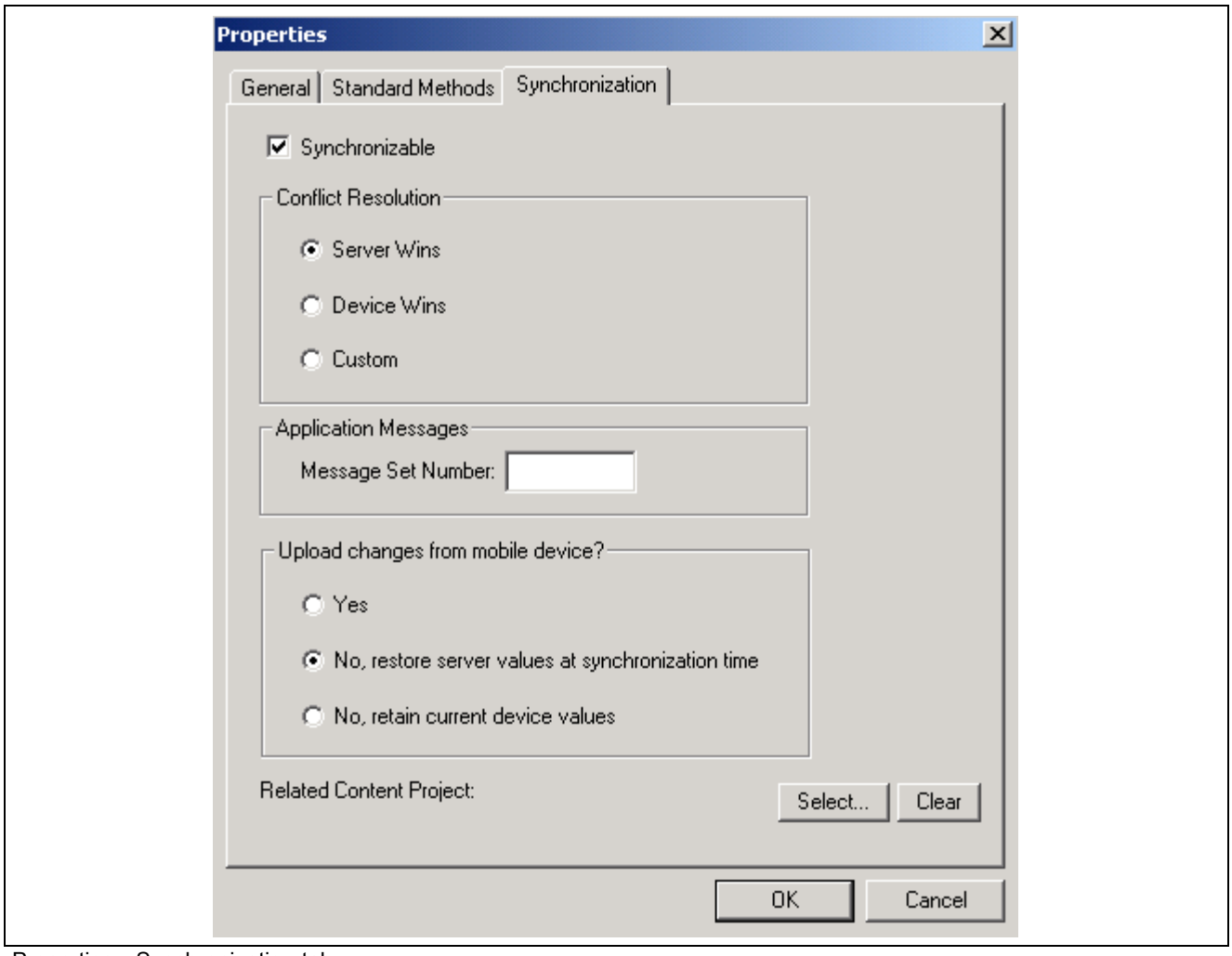
1. Open the definition.
2. Select Tools, Test Component.
3. Find or get an appropriate populated component.
4. Navigate to the appropriate collection.
5. Right-click, and select ItemByKeys from the pop-up menu.

   A dialog box appears, showing the specific parameters and types and the order in which you should call ItemByKeys.

   In the preceding example, the keys for the SDK_BUS_EXP_PER ItemByKeys method are SDK_EMPID (String) and SDK_EXP_PER_DT (String).

Understanding Synchronization

The Component Interface Properties Synchronization tab is used with PeopleSoft Mobile Agent. PeopleSoft Mobile Agent extends the functionality of PeopleSoft Pure Internet Architecture to disconnected mobile devices, allowing users to continue working with their PeopleSoft applications on a laptop computer or personal digital assistant (PDA) while disconnected from the internet or local network.



Properties—Synchronization tab

See *Enterprise PeopleTools 8.46 PeopleBook: PeopleSoft Mobile Agent*, "Using Synchronizable Component Interfaces".

Writing a Component Interface Program

The following chapters in this PeopleBook describe how to write component interface programs in several programming languages.

Also, the PeopleTools PeopleCode Reference contains a chapter that describes the component interface classes, including detailed instructions on the life cycle of a component interface and how to implement a component interface program in PeopleCode. You can use this information to help design your component interface program in other programming languages.

See *Enterprise PeopleTools 8.46 PeopleBook: PeopleCode API Reference*, "Component Interface Classes".

Runtime Considerations

In many ways, accessing a component interface is functionally equivalent to working with an online component. However, there are some important differences between component interfaces and components. This section describes how those differences affect interactive operation, functionality designed for graphical interfaces, client versus server operation, and several miscellaneous situations. These considerations, unless otherwise noted, apply to all the programming languages listed in this manual.

General Considerations

This section discusses general considerations for component interface programs.

WinMessage Unavailable

You can't use WinMessage in a component that will be used to build a component interface. Use MsgGet() instead.

Email from a Component Interface

To use a component interface to send email, use TriggerBusinessEvent PeopleCode event, not SendMail.

Related Display

Related display fields are not available for use in a component interface as they are not held in the buffer context that the component interface uses.

Row Inserts

If RowInserts have been disabled for a page, you must take care when calling inserts against the corresponding component interface. Any PeopleCode associated with push buttons used on the page to add rows will not be invoked by the component interface when an insert is done.

Note. If a component has logic that inserts rows on a RowInsert, the component interface cannot identify the change and locate the rows that were inserted by the application code. Generic interfaces such as Excel to Component Interfaces utility and the WSDLToCI will not function correctly when using this type of dynamic insert.

Scope Conflicts

This section discusses scope conflicts for component interface programs.

Infinite Processing Loops

A component interface should not call itself in any of the PeopleCode included within its component definition, because this may result in an infinite loop of the component interface. A component interface also should not call itself from a user-defined method.

Multiple Instances of a Component Interface

Because of potential memory conflicts, COM or C++ applications shouldn't create multiple, simultaneous instances of the same component interface, either within a single procedure, or in both a "parent" and a "child" procedure.

Interactive Mode

This section discusses interactive mode considerations for component interface programs.

UNIX Server Performance

If you're using a component interface as part of a batch process in which thousands of rows are being inserted, running in interactive mode may reduce performance enough on some UNIX servers to produce a connection failure. Prevent this by setting the InteractiveMode property to False.

Hidden Edit Validation Errors

If the InteractiveMode property is set to True, and if a transaction sets a property to a value that isn't allowed in a prompt edit field, the edit field value is reset back to its original value. The error is logged in the PSMessages collection; however, the Save method runs without errors. Check the value of both the Save method and the collection ErrorPending property to discover all of the errors.

CHAPTER 4

Programming Component Interfaces in Java

This chapter discusses how to:

- Build the component interface APIs.
- Set up the Java environment.
- Generate a Java runtime code template.
- Use and understand the generated Java code.

Building APIs in Java

If you plan to access your component interface from a Java external application, you must create a component interface API. The APIs are in the form of *.java source code files, which should be compiled into Java classes.

To build the component interface bindings:

1. Open any component interface definition in PeopleSoft Application Designer.

   Use any component interface definition, because you can build APIs for all of them, regardless of which one is open.

2. Select Build, PeopleSoft APIs.

   The Build PeopleSoft API Bindings dialog box appears.

3. Select the Build check box in the Java Classes group box.

   For the target directory, enter the directory in which you want the Java class source files to be created. This directory is typically <PS_HOME>\class.

4. Click OK to build the bindings that you selected.

   The files that constitute the bindings are built in the location that you specified. If the operation was successful, a Done message appears in the PeopleSoft Application Designer Build window.

5. Compile the APIs that you've just generated.

   You could use these commands:

```
cd %PS_HOME%\class\PeopleSoft\Generated\CompIntfc
javac -classpath %PS_HOME%\class\psjoa.jar *.java
cd c:\pt8\class\PeopleSoft\Generated\PeopleSoft
javac -classpath %PS_HOME%\class\psjoa.jar *.java
```

Setting Up the Java Environment

When deploying component interfaces on a local client machine or web server with Java bindings, you must have:

- The third party Java application.
- The PeopleSoft application server and database.
- The Java Virtual Machine (JVM) supplied with Sun Microsystems' Java Development Kit (JDK) found in the %PS_HOME%\JRE directory.

To set up your client machine to access the component interface API using Java:

1. Install Sun Microsystems' JDK to enable the JVM, if it is not already installed.

   Sun Microsystems' Java Development Kit (JDK) can be found in the %PS_HOME%\JRE directory

2. Set the environment variable PATH to include the directory containing jvm.dll.

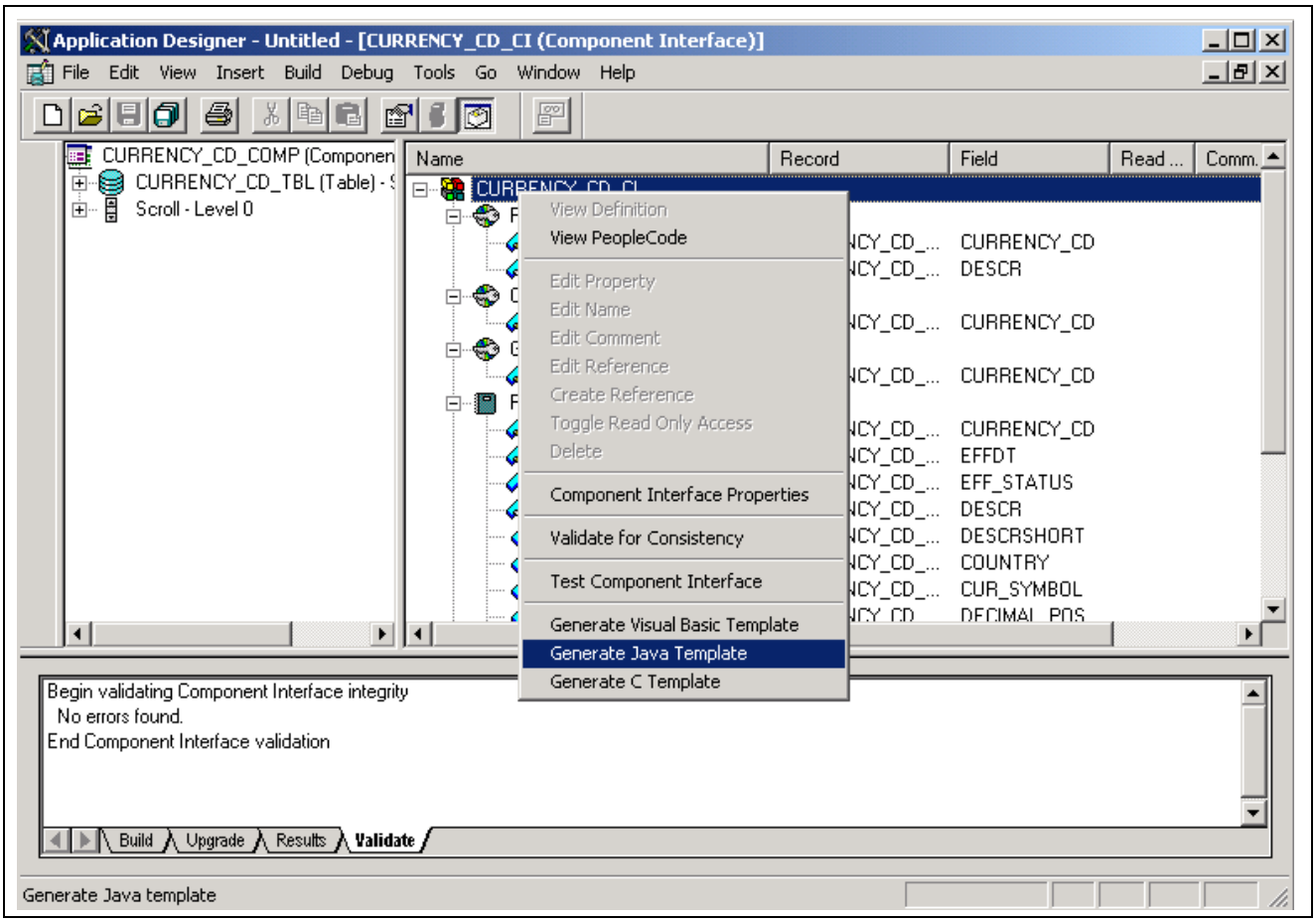
   For example, c:\bea\jdk131\jre\bin\classic; or, if the PeopleTools install is done locally the path is <PS_HOME>\jre\bin\hotspot.

3. Set the environment variable CLASSPATH to include:
   a. The file psjoa.jar (typically *<PS_HOME>\class\psjoa.jar*).
   b. The target directory selected during the Build API process (<PS_HOME>\class).

Note. In previous releases, sites using UNIX servers received the following error when invoking a component interface through the PeopleSoft Java Object Adapter (PSJOA): *PSProperties not loaded from file*. To resolve this issue, copy the pstools.properties file to the Component Interface execution directory.

Generating a Java Runtime Code Template

To access a component interface through PeopleSoft APIs using Java, PeopleSoft Application Designer generates a template in the form of boilerplate Java code that you can adapt to your purposes. This section describes how to generate the template code.



Generating Java template

To generate a Java template for a component interface:

1. Open a component interface definition in Application Designer.
2. Right-click anywhere in the definition view to display the pop-up menu.
3. Select Generate Java Template.

   When the template is successfully generated, a message appears stating the name and location of the template file.

   Note. The template file is generated in the directory specified by the TEMP or TMP system environment variable on your client machine.

   ---

4. Edit the generated file and modify the source code to suit your needs.
5. Compile the source code to generate a *class* file.

   In the case of the example used in this manual, you could use this command:

```
javac -classpath c:\temp;c:\pt8\class;c:\PT8\class\psjoa.jar SDK_BUS_EXP.java
```

Understanding the Java Template

You can use the Java template as a starting point for your Java program. This section contains a skeleton of the generated Java template for a component interface named SDK_BUS_EXP, which is part of the component interface SDK. The template has been edited for length.

Import all the required classes.

```
import java.io.*;
import psft.pt8.joa.*;
import PeopleSoft.Generated.CompIntfc.*;
public class SDK_BUS_EXP {
   public static ISession oSession;
   .....
   public static void main (String args[]) {
   try {
      //***** Set Connect Parameters *****
      String strServerName, strServerPort, strAppServerPath;
      String strUserID, strPassword;
      .....
      //Build Application Server Path
      strAppServerPath = strServerName + ":" + strServerPort;
```

Note. To enable Jolt failover and load balancing in the PeopleSoft Internet Architecture, you can supply multiple application server domains for the strAppServerPath variable. Separate the domain names with a comma, and make sure there are no spaces. For example: strAppServerPath = //APPSRVR1:8000,//APPSRVR2:9000

Create the PeopleSoft Session object to enable access to the PeopleSoft system.

The Session object controls the environment and allows you to do error handling for all APIs from a central location.

```
//***** Create PeopleSoft Session Object *****
 oSession = API.createSession();
```

Connect to the PeopleSoft application server by using the connect method of the Session object.

```
//***** Connect to the App Server *****
 if (!oSession.connect(1, strAppServerPath, strUserID,
    strPassword, null)) {
    System.out.println("\nUnable to Connect to Application Server.");
    ErrorHandler();
    return;
 }
```

Get a reference to the component interface providing its name. (A runtime error occurs if the component interface does not exist.)

```
ISdkBusExp oSdkBusExp;
 String ciName;
 ciName = "SDK_BUS_EXP";
 oSdkBusExp = (ISdkBusExp) oSession.getCompIntfc(ciName);
 if (oSdkBusExp == null) {
```

```
            System.out.println("\nUnable to Get Component Interface " +
               ciName);
            ErrorHandler();
            return;
         }

         //***** Set the Component Interface Mode *****
         oSdkBusExp.setInteractiveMode(false);
         oSdkBusExp.setGetHistoryItems(true);
         oSdkBusExp.setEditHistoryItems(false);
```

Set the keys for the component interface. In this example SDK_EMPLID is the Get key.

```
        //***** Set Component Interface Get/Create Keys *****
         String strSdkEmplid;
         System.out.print("\nEnter SdkEmplid: ");
         strSdkEmplid = inData.readLine();
         oSdkBusExp.setSdkEmplid(strSdkEmplid);
```

The get() method retrieves data from the database, associated with the key values.

```
        //***** Execute Get *****
         if (!oSdkBusExp.get()) {
            System.out.println("\nNo rows exist for the specified keys.\nFailed to⇒
    get the Component Interface.");
            ErrorHandler();
            return;
         }
         .....
```

Get and print properties at level 0.

```
        System.out.println("oSdkBusExp.SdkName: " +
            oSdkBusExp.getSdkName());
         .....
```

Similar code is generated for the properties SDK_BIRTHDATE and SDK_DEPTID.

Get collection at level 1 (SDK_BUS_EXP_PER).

```
        ISdkBusExpSdkBusExpPerCollection oSdkBusExpPerCollection;
         ISdkBusExpSdkBusExpPer oSdkBusExpPer;
         oSdkBusExpPerCollection = oSdkBusExp.getSdkBusExpPer();
```

Get and print properties at level 1.

```
        for (int i17 = 0;
            i17 < oSdkBusExpPerCollection.getCount(); i17++) {
            oSdkBusExpPer = oSdkBusExpPerCollection.item(i17);

            System.out.println("oSdkBusExpPer.SdkExpPerDt: " +
            oSdkBusExpPer.getSdkExpPerDt());
            .....
```

Similar code is generated for the properties SDK_EMPLID and SDK_BUS_EXP_SUM in the SDK_BUS_EXP_PER collection.

Get collection at level 2 (SDK_BUS_EXP_DTL).

```
            ISdkBusExpSdkBusExpPerSdkBusExpDtlCollection
                oSdkBusExpDtlCollection;
             ISdkBusExpSdkBusExpPerSdkBusExpDtl oSdkBusExpDtl;
             oSdkBusExpDtlCollection = oSdkBusExpPer.getSdkBusExpDtl();
```

Get and print properties at level 2.

```
            for (int i211 = 0;
                i211 < oSdkBusExpDtlCollection.getCount(); i211++) {
                oSdkBusExpDtl = oSdkBusExpDtlCollection.item(i211);

                System.out.println("oSdkBusExpDtl.SdkChargeDt: " +
                   oSdkBusExpDtl.getSdkChargeDt());
                .....
```

Similar code is generated for the properties SDK_EMPID, SDK_EXP_PER_DT, SDK_EXPENSE_CD, SDK_EXPENSE_AMT, SDK_CURRENCY_CD, SDK_BUS_PURPOSE, and SDK_DEPTID.

```
            }
         }
```

Disconnect from the PeopleSoft application server by using the disconnect method of the Session object. This method clears the buffers and releases the memory.

```
      //***** Disconnect from the App Server *****
         oSession.disconnect();
         return;
      }
      catch (Exception e) {
         e.printStackTrace();
         System.out.println("An error occurred: ");
         ErrorHandler();
      }
      }
   }
```

CHAPTER 5

Programming Component Interfaces in C++

This chapter discusses how to:

- Build the component interface APIs.
- Set up the C++ environment.
- Generate a C++ runtime code template.
- Use and understand the generated C++ code.

Building APIs for C++

If you plan to access your component interface from a Java external application, you must create a component interface API. The APIs are in the form of C header files (*.h), which need to be included in the calling program.

To build the component interface bindings:

1. Open any component interface definition in PeopleSoft Application Designer.

   Use any component interface definition, because you can build APIs for all of them, regardless of which one is open.

2. Select Build, PeopleSoft APIs.

   The Build PeopleSoft API Bindings dialog box appears.

3. Select the Build check box in the C Header Files group box.

   For the target directory, enter the directory in which you want the C++ header file to be created, typically <PS_HOME>\bin\client\winX86

4. Click OK to build the bindings that you selected.

   The peoplesoft_peoplesoft._i.h file that constitutes the bindings is built in the location that you specified. If the operation was successful, a Done message appears in the PeopleSoft Application Designer Build window.

Setting Up the C++ Environment

When deploying component interfaces on a local client machine with C++ bindings, you must have:

- The third-party C++ application.
- The PeopleSoft application server and database.

- The Java Virtual Machine (JVM) supplied with Sun Microsystems' Java Development Kit (JDK) found in the %PS_HOME%\JRE directory
- Your compiler, configured for the C++ project.

Third-Party Applications

For applications written in C or C++, note the following:

- The function names generated by the Build APIs process can be quite long. You may want to consider creating classes within your C++ code to mask this length throughout your program.
- When you create your installation for your C or C++ program, make sure you include the setup of the path to the psapiadapter.dll.

Setting Up a Client Machine to Access a C++ API

To set up your client machine to access the component interface API using C++:

1. Install the PeopleSoft File Server.

   See *PeopleSoft Installation Guide, "Using the PeopleSoft Installer."*
2. Install the Java Virtual Machine (JVM) supplied with Sun Microsystems' Java Development Kit (JDK), found in the %PS_HOME%\JRE directory.
3. Set the environment variable PATH to include the directory containing jvm.dll.

   For example, it's c:\bea\jdk131\jre\bin\classic; or, if the PeopleTools install is done locally the path is <PS_HOME>\jre\bin\hotspot.
4. Set the environment variable CLASSPATH to include the psjoa.jar file (typically <PS_HOME>\class\psjoa.jar).
5. Set the environment variable PS_HOME to point to the installed PeopleSoft PeopleTools directory (for example, c:\pt840).

Configuring a Compiler for the C++ Project

The following are general instructions tell how to configure a compiler for the C++ project.

To configure a compiler for the C++ project:

Note. These instructions assume you're using Microsoft Visual C++. If you use a different compiler, apply the equivalent settings for that product.

---

1. Create a new project in Microsoft Visual C++.
2. Select Tools, Options.
3. Select the Directories tab.
4. Click the New button in the Options dialog box.
5. Enter the path to the SDK include files.

   For example:

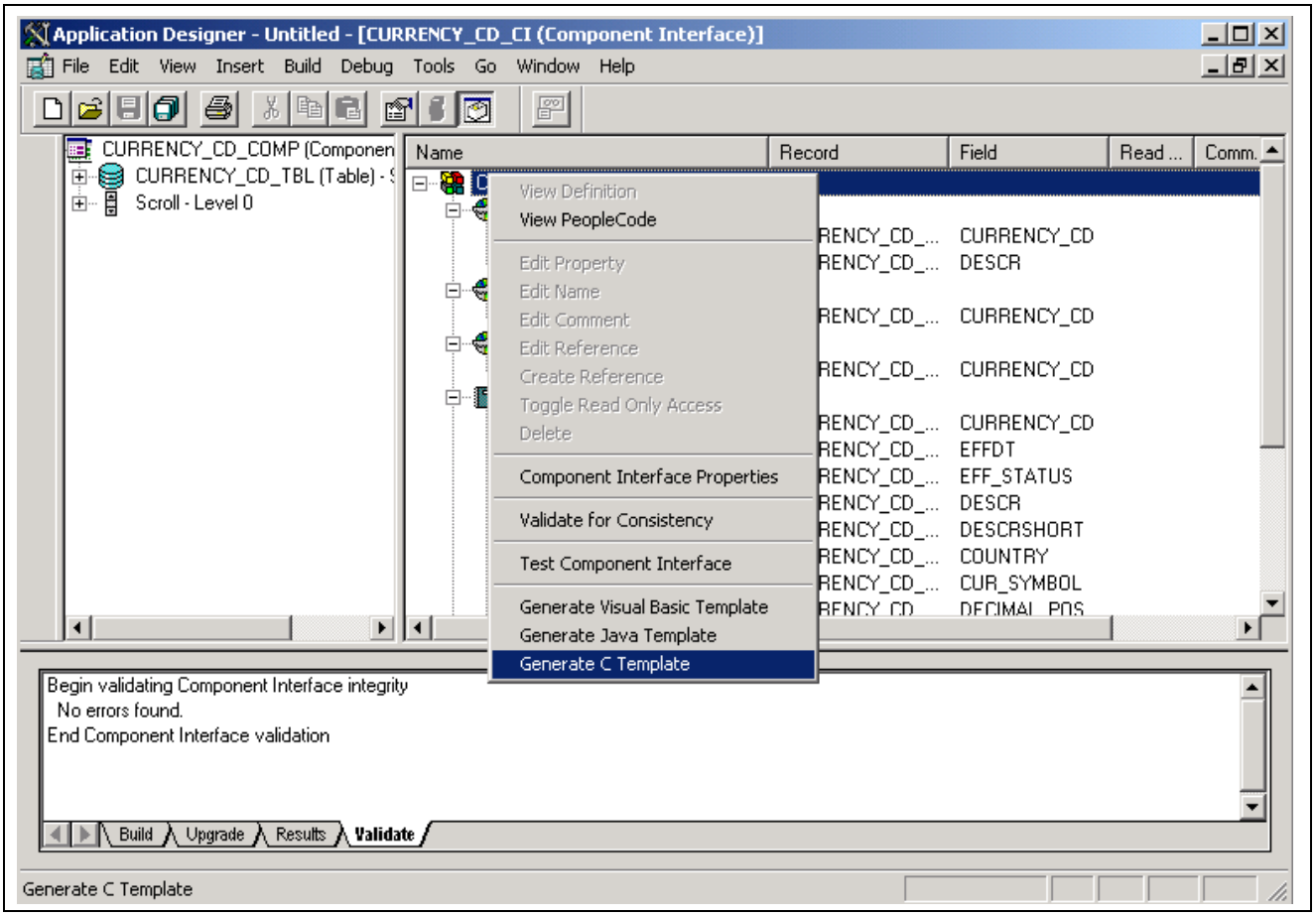
   ```
   C:\PT840\SDK\PSCOMPINTFC\SRC\C++\SAMPLES\INC
   ```
6. Click OK to save the options.

7. Open the Project Settings dialog box.
8. Select the C/C++ tab.
9. Select the General category.
10. Add PS_WIN32 to the preprocessor definitions.
11. Select the Link tab.
12. Select the Input category.
13. Specify the full path to psapiadapter.lib for the Object/library modules.

    This is typically <PS_HOME>\src\lib\psapiadapter.lib. Make sure that this is the only entry for psapiadapter.lib.
14. Click OK to save the settings.

Generating a C++ Runtime Code Template

To access a component interface through PeopleSoft APIs using C++, PeopleSoft Application Designer generates a template in the form of boilerplate C++ code that you can adapt to your purposes. This section describes how to generate the template code.



Generating C++ template

To generate a C++ template for a component interface:

1. Open a component interface definition in PeopleSoft Application Designer.
2. Right-click anywhere in the definition view to display the pop-up menu.
3. Select *Generate C Template*.

   When the template is successfully generated, a message appears stating the name and location of the template file.

   Note. The template file is generated in the directory specified by the TEMP or TMP system environment variable on your client machine.

4. Add the generated template file to the project.

   In Microsoft Visual C++:

   a. Open the project created earlier.
   b. Select Project, Add To Project, Files.
   c. Select the generated file.
   d. Click *OK*.
5. Edit the generated file and modify the source code to suit your needs.
6. Build the project to generate an executable (.exe) file.

Understanding the C++ Template

The C++ template can be used as a starting point for your C++ program. This section contains a skeleton of the generated C++ template for a component interface named SDK_BUS_EXP, which is part of the component interface SDK. The template has been edited for length.

Include all the required header files.

```
#ifdef PS_WIN32
#include "stdafx.h"
#endif

#include "cidef.h"
#include "apiadapterdef.h"
#include "PSApiAdapterInter.h"
#include "PSApiExternalLib.h"
#include "peoplesoft_peoplesoft_i.h"
#include <stdio.h>
#include <iostream.h>
#include <wchar.h>

HPSAPI_SESSION hSession;
TCHAR tmpValue[1024];

.....
```

```
void main(int argc, char* argv[])
{
   //***** Set Connect Parameters *****
   TCHAR strServerName[40], strServerPort[10], strAppServerPath[80];
   TCHAR strUserID[80], strPassword[80];
   .....

   //Build Application Server Path
   _stprintf(strAppServerPath, _T("%s:%s"), strServerName, strServerPort);
```

Note. To enable Jolt failover and load balancing in the PeopleSoft Internet Architecture, you can supply multiple application server domains for the strAppServerPath variable. Separate the domain names with a comma, and make sure there are no spaces. For example: strAppServerPath = //APPSRVR1:8000,//APPSRVR2:9000

Create the PeopleSoft Session object to enable access to the PeopleSoft system.

The Session object controls the environment and allows you to perform error handling for all APIs from a central location.

```
//***** Create PeopleSoft Session *****
 PSAPIVARBLOB ExternalAuth;
 memset(&ExternalAuth, 0, sizeof(PSAPIVARBLOB));
 hSession = PSApiCreateSession();
 if (!hSession)
 {
    wprintf(L"\nUnable to Create Session\n");
    return;
 }
```

Connect to the PeopleSoft application server by using the Session_Connect() function.

```
//***** Connect to the App Server *****
 if (!Session_Connect(hSession, 1, strAppServerPath, strUserID, strPassword,⇒
ExternalAuth))
 {
    wprintf(L"\nUnable to Connect to Application Server\n");
    ErrorHandler();
    return;
 }
```

Get a reference to the component interface providing its name. (A runtime error occurs if the component interface does not exist.)

```
//***** Get Component Interface *****
 HPSAPI_SDK_BUS_EXP hSdkBusExp;
 TCHAR ciName[30];
 _tcscpy(ciName, _T("SDK_BUS_EXP"));
 hSdkBusExp = (HPSAPI_SDK_BUS_EXP) Session_GetCompIntfc(hSession,
    ciName);
 if (!hSdkBusExp)
 {
    wprintf(L"\nUnable to Get Component Interface %s\n", ciName);
```

```
   ErrorHandler();
   return;
}

//***** Set the Component Interface Mode *****
SdkBusExp_SetInteractiveMode(hSdkBusExp, false);
SdkBusExp_SetGetHistoryItems(hSdkBusExp, true);
SdkBusExp_SetEditHistoryItems(hSdkBusExp, false);
```

Set the keys for the component interface. In this example SDK_EMPLID is the Get key.

```
//***** Set Component Interface Get/Create Keys *****
TCHAR strSdkEmplid[80];
wprintf(L"\nEnter SdkEmplid: ");
_getts(strSdkEmplid);
SdkBusExp_SetSdkEmplid(hSdkBusExp, strSdkEmplid);
```

The <CI_NAME>_Get() function retrieves data from the database associated with the key values.

```
//***** Execute Get *****
if (!SdkBusExp_Get(hSdkBusExp))
{
   wprintf(L"\nUnable to Get Component for the Search keys provided.\n");
   ErrorHandler();
   return;
}
```

Get and print properties at level 0.

```
wprintf(L"SdkBusExp.SdkName: %s\n",
   printProperty(SdkBusExp_GetSdkName(hSdkBusExp), tmpValue));
```

Similar code is generated for the properties SDK_BIRTHDATE and SDK_DEPTID.

Get collection at level 1 (SDK_BUS_EXP_PER).

```
HPSAPI_SDK_BUS_EXP_SDK_BUS_EXP_PERCOLLECTION
   hSdkBusExpSdkBusExpPerCollection;
HPSAPI_SDK_BUS_EXP_SDK_BUS_EXP_PER hSdkBusExpSdkBusExpPer;
hSdkBusExpSdkBusExpPerCollection =
    SdkBusExp_GetSdkBusExpPer(hSdkBusExp);
```

Get and print properties at level 1.

```
for (int i17 = 0; i17 < SdkBusExpSdkBusExpPerCollection_GetCount
                       (hSdkBusExpSdkBusExpPerCollection); i17++)
{
   hSdkBusExpSdkBusExpPer = SdkBusExpSdkBusExpPerCollection_Item
                        (hSdkBusExpSdkBusExpPerCollection, i17);
   wprintf(L"oSdkBusExpSdkBusExpPer.SdkExpPerDt: %s\n",
      printProperty
   (SdkBusExpSdkBusExpPer_GetSdkExpPerDt(hSdkBusExpSdkBusExpPer),
      tmpValue));
```

Similar code is generated for the properties SDK_EMPLID and SDK_BUS_EXP_SUM in the SDK_BUS_EXP_PER collection.

Get collection at level 2 (SDK_BUS_EXP_DTL).

```
HPSAPI_SDK_BUS_EXP_SDK_BUS_EXP_PER_SDK_BUS_EXP_DTLCOLLECTION
    hSdkBusExpSdkBusExpPerSdkBusExpDtlCollection;
 HPSAPI_SDK_BUS_EXP_SDK_BUS_EXP_PER_SDK_BUS_EXP_DTL
    hSdkBusExpSdkBusExpPerSdkBusExpDtl;
 hSdkBusExpSdkBusExpPerSdkBusExpDtlCollection =
 SdkBusExpSdkBusExpPer_GetSdkBusExpDtl(hSdkBusExpSdkBusExpPer);
```

Get and print properties at level 2.

```
for (int i211 = 0; i211 <
     SdkBusExpSdkBusExpPerSdkBusExpDtlCollection_GetCount
    (hSdkBusExpSdkBusExpPerSdkBusExpDtlCollection); i211++)
 {
    hSdkBusExpSdkBusExpPerSdkBusExpDtl =
       SdkBusExpSdkBusExpPerSdkBusExpDtlCollection_Item
       (hSdkBusExpSdkBusExpPerSdkBusExpDtlCollection, i211);

    wprintf(L"oSdkBusExpSdkBusExpPerSdkBusExpDtl.SdkChargeDt:
       %s\n", printProperty
       (SdkBusExpSdkBusExpPerSdkBusExpDtl_GetSdkChargeDt
      (hSdkBusExpSdkBusExpPerSdkBusExpDtl), tmpValue));
```

Similar code is generated for the properties SDK_EMPID, SDK_EXP_PER_DT, SDK_EXPENSE_CD, SDK_EXPENSE_AMT, SDK_CURRENCY_CD, SDK_BUS_PURPOSE, and SDK_DEPTID.

```
    }
}
```

Disconnect from the PeopleSoft application server by using the disconnect method of the Session object. This method clears the buffers and releases the memory.

```
//***** Disconnect from the App Server *****
Session_Disconnect(hSession);

return;
}
```

CHAPTER 6

Programming Component Interfaces in COM

This chapter discusses how to:

- Build the component interface APIs.
- Set up the COM environment.
- Generate a Visual Basic runtime code template.
- Use and understand the generated Visual Basic code.

Building APIs for COM

If you plan to access your component interface from a COM external application, you must create a component interface API. The generated APIs are in the form of registry entries and type library files.

To build the component interface bindings:

1. Open any component interface definition in PeopleSoft Application Designer.

   Use any component interface definition, because you can build APIs for all of them, regardless of which one is open.

2. Select Build, PeopleSoft APIs.

   The Build PeopleSoft API Bindings dialog box appears.

3. Select the Build check box in the COM Type Library group box.

   a. For the target directory, enter the directory in which you want the COM type library to be created, typically <PS_HOME>\bin\client\winX86.

   b. Enter the COM server DLL location to specify where the PeopleSoft API Adapter (psapiadapter.dll) is typically located: <PS_HOME>\bin\client\winX86.

4. (Optional) Select the AutoRegister check box to execute the registry file immediately upon building the API.

   This causes your client machine registry to be immediately updated without having to register the registry entry manually.

5. (Optional) Select the Clean-up Registry check box to clean up the registry if you've previously generated the Peoplesoft_Peoplesoft.reg file.

   This is needed so that the older registry settings don't remain and conflict with settings made by the latest version.

6. Click OK to build the bindings that you selected.

The files that constitute the bindings are built in the location that you specified. If the operation was successful, a Done message appears in the PeopleSoft Application Designer Build window and the client machine should contain a Peoplesoft_Peoplesoft.reg and PeopleSoft_PeopleSoft.tlb file.

Setting Up the COM Environment

When deploying component interfaces on a local client machine or web server with COM bindings, you need to have the following:

- The third-party COM application.
- The PeopleSoft application server and database.
- The Java Virtual Machine (JVM) supplied with Sun Microsystems' Java Development Kit (JDK), found in the %PS_HOME%\JRE directory.
- A copy of the type library called PeopleSoft_PeopleSoft.tlb that you generated during the Build PeopleSoft API Bindings process.

  This type library is not specific to a single database instance—it is specific to those database objects.
- A copy of the registry file called PeopleSoft_PeopleSoft.reg that you generated during the Build PeopleSoft API Bindings process.

  This registry file is not specific to a single database instance.

To set up your client machine to access the component interface API, using COM:

1. Install the PeopleSoft File Server.

   See *PeopleSoft 8.4x Installation Guide, "Using the PeopleSoft Installer."*
2. Set the environment variable PATH to include the directory containing jvm.dll.

   For example, c:\bea\jdk131\jre\bin\classic; or, if the PeopleTools installation is done locally, the path is <PS_HOME>\jre\bin\hotspot.
3. Set the environment variable CLASSPATH to include the file psjoa.jar (typically <PS_HOME>\class\psjoa.jar).

   Note. The following steps assume you're using Microsoft Visual Basic. If you use a different compiler, apply the equivalent settings for that product.
4. Open the Visual Project File pscitester.vbp or sdk_bus_exp.vbp in Microsoft Visual Basic.
5. Select Project, References, and add the Peoplesoft_PeopleSoft.tlb type library.

Third-Party Application

Copy the type library and registry files to the directory containing the external API on each client machine from which you want to use the COM API.

Apply the API registry settings by double-clicking Peoplesoft_Peoplesoft.reg.

Warning! The registry file includes references to the External API and type library files and their locations on the original client machine where they were built, so those files must be in the same locations on the current client. If the directory structure is different, you must edit Peoplesoft_Peoplesoft.reg to reflect the current machine before you apply the registry settings.

- If your program is early-binding, the code contains a direct reference to the path of the type library.

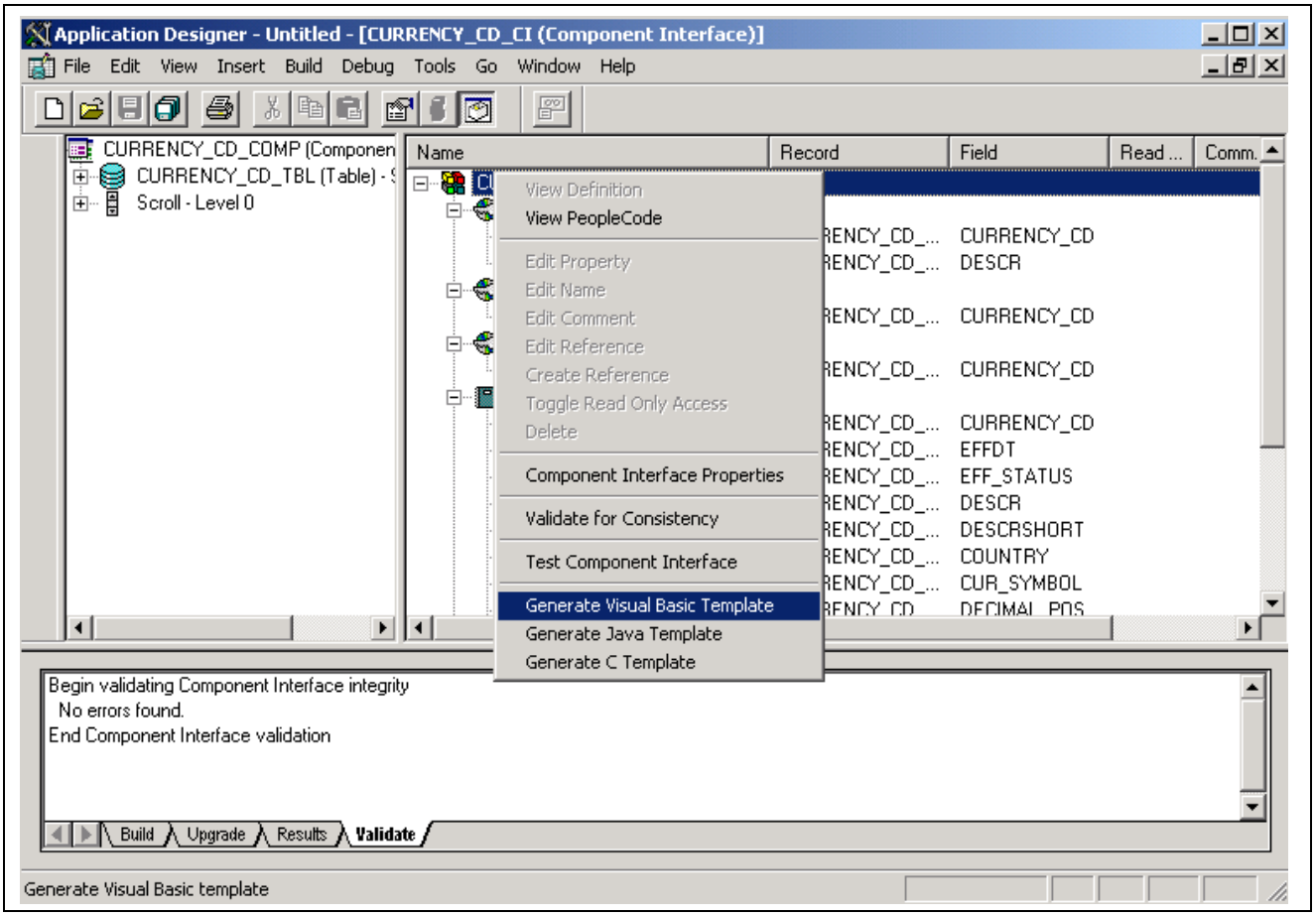
  Therefore, as you deploy, you must have the type library in the same directory on each machine.

- If your program is late-binding, the code does not contain a reference to the path of the type library.

  The code looks in the registry for the path to the type library. Therefore, as you deploy, you can have the type library in different directories on each machine. You must update the registry settings as part of the deployment. This is a more flexible approach.

Generating a Visual Basic Runtime Code Template

When you want to access a component interface through PeopleSoft APIs by using Microsoft Visual Basic, PeopleSoft Application Designer generates a template in the form of boilerplate Visual Basic code that you can adapt to your purposes. This section describes how to generate the template code.



Generating Visual Basic template

To generate a Visual Basic template for your component interface:

1. Open the desired component interface definition in PeopleSoft Application Designer.
2. Right-click anywhere in the definition view to display the pop-up menu.
3. Select Generate Visual Basic Template.

   When the template is successfully generated, a message appears stating the name and location of the template file.

   Note. The template file is generated in the directory specified by the TEMP or TMP system environment variable on your client machine.

4. Open the generated file and modify the source code as needed.

Understanding the Visual Basic Template

You can use the Visual Basic template as a starting point for your Visual Basic program. This section contains a skeleton of the generated Visual Basic template for a component interface named SDK_BUS_EXP, which is part of the component interface SDK. The template has been edited for length.

Declare the Session object.

```
Dim oSession As PeopleSoft_PeopleSoft.Session
.....

Private Sub main()
   On Error GoTo ErrorHandler
   '***** Set Connect Parameters *****
   Dim strServerName As String, strServerPort As String,
      strAppServerPath As String
   Dim strUserID As String, strPassword As String
   .....

   'Build Application Server Path
   strAppServerPath = strServerName & ":" & strServerPort
```

Note. To enable Jolt failover and load balancing in the PeopleSoft Internet Architecture, you can supply multiple application server domains for the strAppServerPath variable. Separate the domain names with a comma, and make sure there are no spaces. For example:

```
strAppServerPath = //APPSRVR1:8000,//APPSRVR2:9000
```

Create the PeopleSoft Session object to enable access to the PeopleSoft system. The Session object controls the environment and allows you to do error handling for all APIs from a central location.

```
'***** Create PeopleSoft Session Object *****
 Set oSession = CreateObject("PeopleSoft.Session")
```

Connect to the PeopleSoft application server by using the Connect method.

```
'***** Connect to the App Server *****
 If Not oSession.Connect(1, strAppServerPath, strUserID, strPassword, 0) Then
```

```
        Err.Raise 1001, "", "Unable to connect to Application Server"
        Call ErrorHandler()
        Exit Sub
     End If
```

Get a reference to the component interface providing its name. A runtime error occurs if the component interface does not exist.

```
    Dim oSdkBusExp As SDK_BUS_EXP
     Dim ciName As String
     ciName = "SDK_BUS_EXP"
     Set oSdkBusExp = oSession.GetCompIntfc(ciName)
     If oSdkBusExp Is Nothing Then
        Err.Raise 1001, "", "Unable to Get Component Interface " & ciName
        Call ErrorHandler()
        Exit Sub
     End If

     '***** Set the Component Interface Mode *****
     oSdkBusExp.InteractiveMode = False
     oSdkBusExp.GetHistoryItems = True
     oSdkBusExp.EditHistoryItems = False
```

Set the keys for the component interface. In this example, SDK_EMPLID is the Get key.

```
    '***** Set Component Interface Get/Create Keys *****
     Dim strSDK_EMPLID As String
     strSDK_EMPLID = InputBox("Enter SDK_EMPLID: ")
     oSdkBusExp.SDK_EMPLID = strSDK_EMPLID
```

The Get method retrieves data from the database associated with the key values.

```
    '***** Execute Get *****
     If Not oSdkBusExp.Get() Then
        Err.Raise 1001, "", "No rows exist for the specified keys. Failed to get the⇒
  Component Interface"
  Call ErrorHandler()
        Exit Sub
     End If
```

Get and print properties at level 0.

```
    Debug.Print "oSdkBusExp.SDK_NAME: " & oSdkBusExp.SDK_NAME
     oSdkBusExp.SDK_NAME = <*>
```

Similar code is generated for the properties SDK_BIRTHDATE and SDK_DEPTID.

Get the collection at level 1 (SDK_BUS_EXP_PER).

```
    Dim oSdkBusExpPerCollection As
        SDK_BUS_EXP_SDK_BUS_EXP_PERCollection
     Dim oSdkBusExpPer As SDK_BUS_EXP_SDK_BUS_EXP_PER
 Set oSdkBusExpPerCollection = oSdkBusExp.SDK_BUS_EXP_PER
```

Get and print properties at level 1.

```
    Dim i17 As Integer
     For i17 = 1 To oSdkBusExpPerCollection.Count
        Set oSdkBusExpPer = oSdkBusExpPerCollection.Item(i17)
```

```
        Debug.Print "oSdkBusExpPer.SDK_EXP_PER_DT: " &
           oSdkBusExpPer.SDK_EXP_PER_DT
```

Similar code is generated for the properties SDK_EMPLID and SDK_BUS_EXP_SUM in the SDK_BUS_EXP_PER collection.

Get collection at level 2 (SDK_BUS_EXP_DTL).

```
Dim oSdkBusExpDtlCollection As
   SDK_BUS_EXP_SDK_BUS_EXP_PER_SDK_BUS_EXP_DTLCollection
Dim oSdkBusExpDtl As
   SDK_BUS_EXP_SDK_BUS_EXP_PER_SDK_BUS_EXP_DTL
Set oSdkBusExpDtlCollection = oSdkBusExpPer.SDK_BUS_EXP_DTL
```

Get and print properties at level 2.

```
Dim i211 As Integer
For i211 = 1 to oSdkBusExpDtlCollection.Count
Set oSdkBusExpDtl = oSdkBusExpDtlCollection.Item(i211)
Debug.Print "oSdkBusExpDtl.SDK_CHARGE_DT: " &
   oSdkBusExpDtl.SDK_CHARGE_DT
```

Similar code is generated for the properties SDK_EMPID, SDK_EXP_PER_DT, SDK_EXPENSE_CD, SDK_EXPENSE_AMT, SDK_CURRENCY_CD, SDK_BUS_PURPOSE, and SDK_DEPTID.

```
      Next
   Next
```

Disconnect from the PeopleSoft application server by using the disconnect method of the Session object. This method clears the buffers and releases the memory.

```
   '***** Disconnect from the App Server *****
   If Not oSession Is Nothing Then
      oSession.Disconnect
      Set oSession = Nothing
   End If
   Exit Sub
.....
End Sub
```

CHAPTER 7

Using the Component Interface Software Development Kit

This chapter discusses how to:

- Set SDK prerequisites.
- Use the SDK_BUS_EXPENSES test page.
- Test the SDK_BUS_EXP component interface.
- Use the component interface SDK Java sample.

Understanding the Component Interface SDK

The PeopleSoft Integration SDK (Software Development Kit) is installed with the PeopleTools installation. It provides resources to assist you in developing and testing component interface-based integration between PeopleSoft and third-party applications. The SDK contains sample definitions with data and source code. For easy identification, all of the definition names start with *SDK_*. The SDK is installed in the PeopleSoft home directory (PS_HOME) under *sdk*.

Note. The SDK definitions and associated data are for development purposes only and should not be used in a production environment.

Component Interface SDK Samples

Programming samples for the component interface SDK_BUS_EXP are part of the SDK. The samples are available in four languages—Java, C++, VBA, and ASP.

The component interface source code is located in the <PS_HOME>\SDK\PSCOMPINTFC directory.

Note. The source files mentioned in this section are located relative to the installed PeopleSoft home directory (PS_HOME).

Setting SDK Prerequisites

To call a PeopleSoft component interface, you must have:

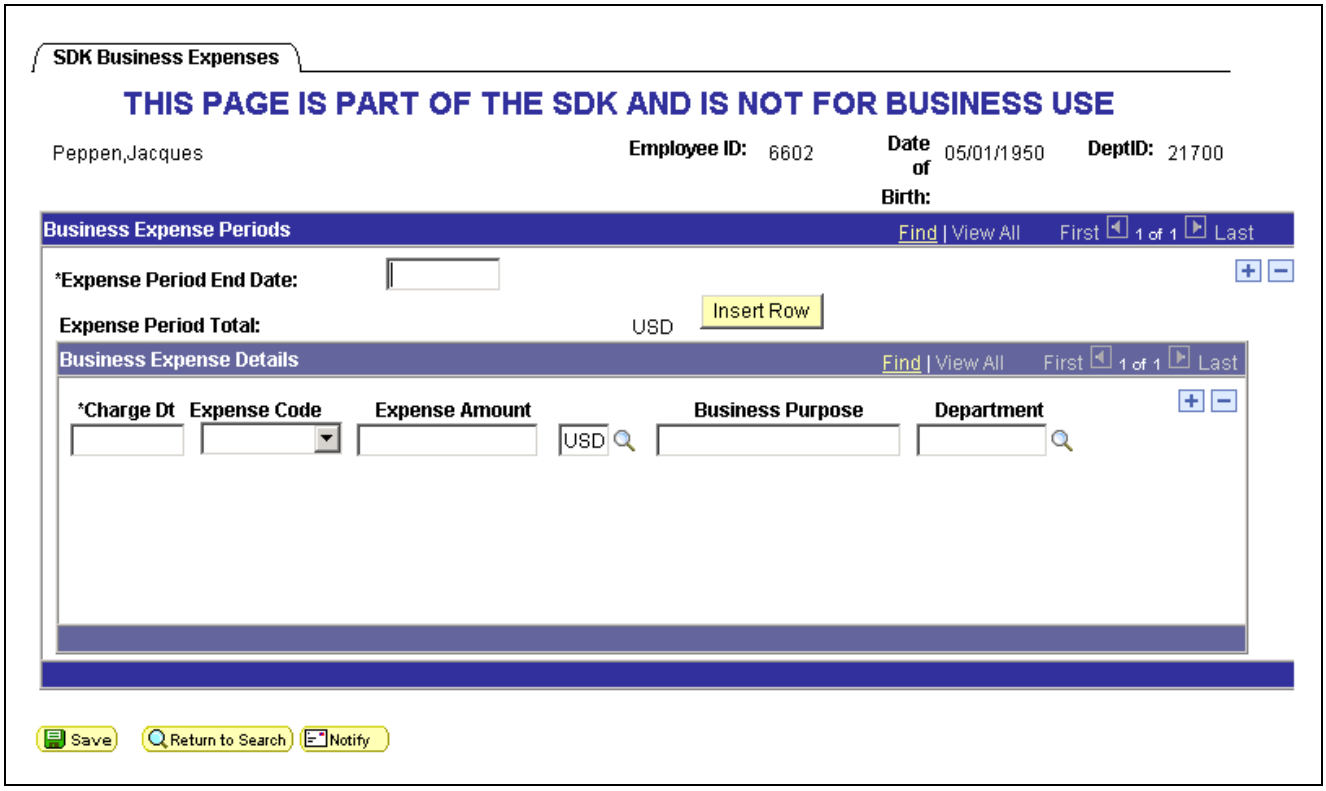
- A working understanding of PeopleTools components.
- A working understanding of Java, C++, or COM.
- The PeopleSoft application server and database installed.

- The Java Virtual Machine (JVM) installed that is supplied with Sun Microsystems' Java Development Kit (JDK), found in the %PS_HOME%\JRE directory.

Using the SDK_BUS_EXPENSES Test Page

The SDK includes a component interface, called SDK_BUS_EXP, which is part of the sample development project and is delivered with the SDK. It is built on the component SDK_CI_SAMPLES, which contains the page SDK_BUS_EXPENSES. The page exposes information about employee business expenses for external access.

Note. The component SDK_CI_SAMPLES is a sample and is not for business use.



SDK_BUS_EXPENSES page

To test the SDK_BUS_EXPENSES test page:

1. Provide access to the SDK_CI_SAMPLES component, using PeopleTools security.
2. Select PeopleTools SDK, PeopleTools SDK, Use, SDK CI Samples.
3. Search for and select an employee ID.

Testing the SDK_BUS_EXP

To test the SDK_BUS_EXP component interface:

1. View the component interface definition through the PeopleSoft Application Designer.
2. Test the component interface definition, using the component interface tester.

Using the SDK Java Sample

The component interface sample program for Java is provided as part of the component interface SDK, located in *<PS_HOME>\sdk\pscompintfc\src\java\samples\sdk_bus_exp*.

The Java source code for the sample is in the following file:

```
sdk_bus_exp.java
```

Before you run the sample, you must build the APIs and set up the Java environment.

Running the Java Sample

To run the compiled Java component interface sample:

1. In a DOS window, change directories to the location of the Java sdk_bus_exp directory cd %PS_HOME%\sdk\pscompintfc\src\java\samples
2. Launch the executable with javasdk_bus_exp.sdk_bus_exp.

   You are prompted for parameters one at a time.
3. At each prompt, enter the appropriate value and press Enter.

   Select option 1 to sign in. You are then prompted to provide the connect information.

   If the connect succeeds, a menu appears where you can perform Get or Find functions.
4. Get details for an employee.

   Select option 1 to get details for an employee. You are then prompted with the different modes and the employee ID for which you want to display information. Enter the employee ID 8001 and press Enter. This presents you with the level 0 data and the options that you can perform.
5. Select a business expense period.

   Select option 8 to select a business expense period. Selecting this option displays a list of available business expense periods for the selected employee.

   Select the expense period that you want to work with.
6. Select a business expense detail.

   Select option 18 to select a business expense detail within the selected business expense period. Selecting this option displays a list of available business expense details within the selected business expense periods.

Understanding the Java Sample Code

The following listings of code are taken from the Java sample program, sdk_bus_exp.java. (The code has been edited for length.)

Import all the required classes:

```
package sdk_bus_exp;
```

```
import java.io.*;
import java.util.*;
import psft.pt8.joa.*;
import PeopleSoft.Generated.CompIntfc.*;
public class sdk_bus_exp {
.....
```

Declare all the required objects. Only one active period and one active detail record are possible at any time. Users are prompted to select the needed values if they are not active. oSdkBusExpCollection is the collection object for the root, SDK_BUS_EXP, and oSdkBusExp is an item object for that collection:

oSdkBusExpPerCollection is the collection object for level 1, SDK_BUS_EXP_PER, and oSdkBusExpPer is an item object for that collection:

oSdkBusExpDtlCollection is the collection object for level 2, SDK_BUS_EXP_PER_DTL. oSdkBusExpDtl is an item object for that collection.

The CompIntfPropInfoCollection object is used to access the structure of a component interface. It is not specific to a component interface.

Declare the PeopleSoft session object.

The function executeMethod is used to launch the appropriate method depending upon the user input (nMethodIn). Options 1 to 5 are executed on the component interface itself. Options 6 to 15 are executed on the SDK_BUS_EXP_PER collection, and options 16 to 24 are executed on the SDK_BUS_EXP_DTL collection.

Option 1. Save any changes made to the component interface so far in this program.

Option 2. Cancel any changes made to the component interface so far in this program.

Option 3. The GetPropertyByName method is used to get the value of a property at the specified level. The getSdkBusExpPropertyName() function gets a list of all properties of the component interface. It lists only those properties that are relevant at this level and prompts the user to select a property. The selected property name is passed to the GetPropertyByName method to get the value of the property:

Option 4. The GetPropertyInfoByName method returns information about the selected property. The getSdkBusExpPropertyName() function is used to prompt the user for appropriate properties at this level. The selected property is returned into the variable tempName.

Option 5. InsertBusExpDtlDefaults is the user-defined method of the SDK_BUS_EXP component interface.

Option 6. Activate a business expense period by selecting option 8 before using this option. The GetPropertyByName method is used to get the value of a property at the specified level. The getSdkBusExpPropertyName() function gets a list of all properties of the component interface. It lists only those properties that are relevant at this level and prompts the user to select a property. The selected property name is passed to the GetPropertyByName method to get the value of the property.

Option 7. Activate a business expense period by selecting option 8. Then the GetPropertyByName method is used to get the value of a property at the specified level. The getSdkBusExpPropertyName() function gets a list of all properties of the component interface. It lists only those properties that are relevant at this level and prompts the user to select a property. The selected property name is passed to the GetPropertyInfoByName method, which returns an CompoIntfcPropertyInfo object. The function printoutPropertyInfor() is passed in this object to display the information, such as Format, Type, Length, and so on, for the property.

Option 8. Item for collection SDK_BUS_EXP_PER sets the pointer to the item number selected by the user. It also prompts the user for alternate values and then saves the new values. The updateSdkBusExpPer() function is used to set and save these new values.

Option 9. The function insertSdkBusExpPer is used to enable the user to add a new item in the SDK_BUS_EXP_PER collection. This function is discussed later in this section.

Option 10. The DeleteItem method is used to delete items from a collection. The user is prompted with a list of business expense periods by the function selectSdkBusExpPer(). The selected value is passed to the method DeleteItem:

Option 12. The CurrentItem method is used to get the current item for the specified collection.

Option 13. The CurrentItemNum method is used to number the current item for the specified collection.

Options 6 to 15 are for the SDK_BUS_EXP_PER collection, and options 16 to 25 are for the SDK_BUS_EXP_DTL collection. The logic used in the corresponding options of these collections is identical.

The getSdkBusExpPer() function lists business expense periods for the selected employee.

The updateSdkBusExpPer() function lists business expense periods for the selected employee.

The insertSdkBusExpPer() function lists business expense periods for the selected employee.

The functions getSdkBusExpPer, updateSdkBusExpPer, and insertSdkBusExpPer on the SDK_BUS_EXP_PER collection are identical to the functions getSdkBusExpDtl, updateSdkBusExpDtl, and insertSdkBusExpDtl.

This is the main method. It performs such functions as starting the session, getting the component interface, and disconnecting:

```
public static final void main(String[] args)System.out.println("  ");
System.out.println("\t 1) Sign In  ");
System.out.println("\t q) Quit ");
System.out.println("  ");
System.out.print("Command to execute (1, q) [1]: ");
charTemp = readCharacter();
switch (charTemp) {case 'q':case 'Q':.....
disconnectFromAppServer();
return;
default:
getConnectParameters();
if (connectToAppServer()) {
oSdkBusExp = (ISdkBusExp) oSession.getCompIntfc(m_strCIName);
while (getKeyType()) {
methodInt = selectMethod();
while (methodInt != 0) {
executeMethod(methodInt);
if (methodInt == 2) {
methodInt = 0;
} else {
methodInt = selectMethod();
.....
```

Using the SDK C++ Sample

The component interface sample program for C/C++ is provided as part of the component interface SDK, located in <PS_HOME>\sdk\pscompintfc\src\cpp\samples\sdk_bus_exp.

The C++ source code for the sample is in the following file:

sdk_bus_exp\sdk_bus_exp.cpp

Before you run the sample, you must build the APIs and set up the C++ environment.

Building the C++ Sample

To build the C++ component interface sample:

1. Open the sdk_bus_exp workspace in the Microsoft Visual C++ editor.
2. Build the project by selecting Build, Rebuild All.

Running the SDK C++ Sample

To run the compiled C++ component interface sample:

1. In a DOS window, change directories to the location of the C++ sdk_bus_exp directory, cd%PS_HOME%\sdk\pscompintfc\src\C++\samples\sdk_bus_exp\Debug
2. Launch the executable with sdk_bus_exp

   You'll be prompted for parameters one at a time.
3. At each prompt, enter the appropriate value and press Enter:

   Select Option 1 to sign in. You are then prompted to provide the connect information.

   If the connect succeeds, a menu appears where you can perform Get or Find functions.
4. Get details for an employee.

   Select option 1 to get details for an employee. You are then prompted with the different modes and the employee ID for which you want to display information.

   Enter the employee ID 8001 and press Enter. This presents you with the level 0 data and the options that you can perform.
5. Select a business expense period.

   Select option 8 to select a business expense period. Selecting this option displays a list of available business expense periods for the selected employee.

   Select the expense period that you want to work with.
6. Select a business expense detail.

   Select option 18 to select a business expense detail within the selected business expense period. Selecting this option displays a list of available business expense details within the selected business expense periods.

Understanding the C++ Sample Code

The following listings of code are taken from the C++ sample program, sdk_bus_exp.cpp. (The code has been edited for length.)

Include all the headers

```
#ifdef PS_WIN32
#include "stdafx.h"
#endif #include "cidef.h"
#include "apiadapterdef.h"
```

```
#include "PSApiExternalLib.h"
#include "PSApiAdapterInter.h"
#include "PeopleSoft_PeopleSoft_i.h"
#include <stdio.h>
#include <stdlib.h>
#include <iostream.h>
#include <wchar.h>
```

Declare the PeopleSoft session handle.

```
HPSAPI_SESSION hSession;
```

Declare all the required objects. Only one active period and one active detail record are possible at any time. The user is prompted to select the needed values if they are not active. hSdkBusExpCollection is the collection handle for the root, and SDK_BUS_EXP. hSdkBusExp is an item handle for that collection.

hSdkBusExpPerCollection is the collection handle for level 1, SDK_BUS_EXP_PER. hSdkBusExpPer is an item handle for that collection.

hSdkBusExpDtlCollection is the collection handle for level 2, SDK_BUS_EXP_PER_DTL. hSdkBusExpDtl is an item handle for that collection.

The function executeMethod is used to launch the appropriate method depending upon the user input (nMethodIn), and options 16 to 24 are executed on the SDK_BUS_EXP_DTL collection.

Option 1. Save any changes made to the component interface so far in this program.

Option 2. Cancel any changes made to the component interface so far in this program.

Option 3. The GetPropertyByName function is used to get the value of a property at the specified level. The user selects a property from the list. The selected property name is passed to the GetPropertyByName method, which returns a handle. This handle is passed to the function PSApiGetStringValue() to get the value of the property:

Option 4. GetPropertyInfoByName returns information about the selected property. The user selects a property from the list. The selected property name is passed to GetPropertyInfoByName method to get a handle to hCompIntfcPropertyInfo. This handle is then passed to the function getPropertyInfo() to display the property information.

Option 5. InsertBusExpDtlDefaults is the user-defined method of the SDK_BUS_EXP component interface.

Option 6. Activate a business expense period by selecting option 8 before using this option. The user selects a property from the list provided. The selected property name is passed to the GetPropertyByName method. The method returns a handle that is passed to the function PSApiGetFloatValue for numeric properties, or to PSApiGetStringValue for string properties, to return the actual value.

Option 7. Activate a business expense period by selecting option 8 before using this option. The user selects a property from the list provided. The selected property name is passed to the GetPropertyInfoByName method, which returns a HPSAPI_COMPINTFCPROPERTYINFO handle. This handle is passed to the function getPropertyInfo to display the information, such as Format, Type, Length, and so on, for the property.

Option 8. Item for collection SDK_BUS_EXP_PER sets the pointer to the item number selected by the user. It also prompts the user for alternate values and then saves the new values. The updateBusinessExpensePeriod () function is used to set and save these new values.

Option 9. The function insertBusinessExpensePeriod is used to enable the user to add a new item in the SDK_BUS_EXP_PER collection. This function is discussed later in this section.

Option 10. The DeleteItem method is used to delete items from a collection. The user is prompted with a list of business expense periods by the function selectBusinessExpensePeriod (). The selected value is passed to the method DeleteItem.

Option 12. The CurrentItem method is used to get the current item for the specified collection.

Option 13. The CurrentItemNum method is used to number of the current item for the specified collection.

Options 6 to 15 are for the SDK_BUS_EXP_PER collection, and options 16 to 25 are for the SDK_BUS_EXP_DTL collection. The logic used in the corresponding options of these collections is identical.

Using the SDK COM Excel Sample

The component interface sample program for Microsoft Excel is provided as part of the component interface SDK, located in <PS_HOME>\sdk\pscompintfc\src\com\samples\vba.

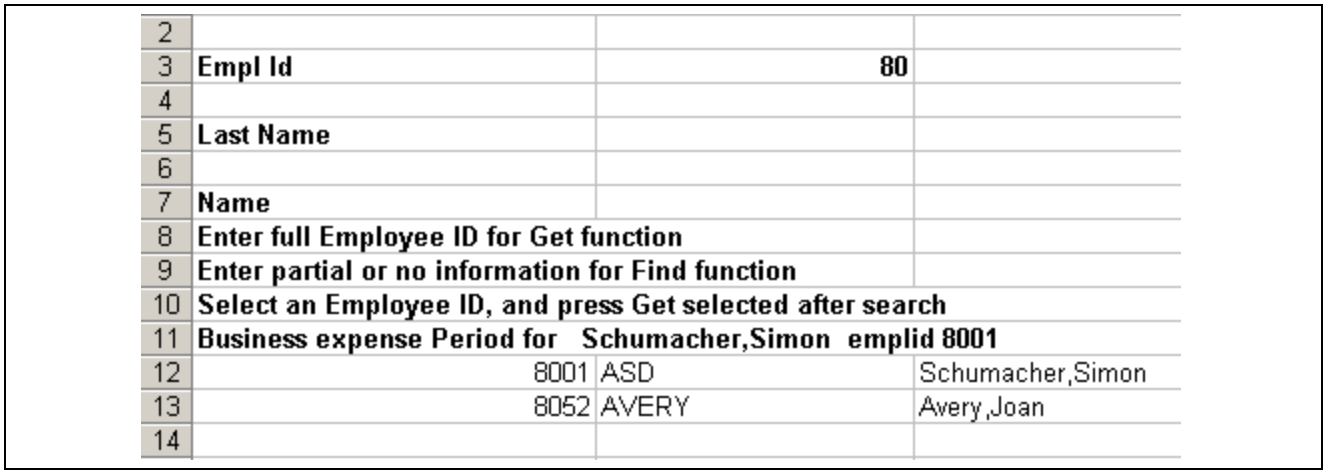
The Visual Basic source code for the sample is in the following file:

sdk_bus_exp.xls

Before you run the sample, you must build the APIs and set up the COM environment.

Running the COM Excel Sample

When running the Microsoft Excel sample, you use the Get and Find sheet to find an employee.



2			
3	**Empl Id**	**80**	
4			
5	**Last Name**		
6			
7	**Name**		
8	**Enter full Employee ID for Get function**		
9	**Enter partial or no information for Find function**		
10	**Select an Employee ID, and press Get selected after search**		
11	**Business expense Period for Schumacher,Simon emplid 8001**		
12	8001	ASD	Schumacher,Simon
13	8052	AVERY	Avery,Joan
14			

Sheet 2: Find and Get an Employee

To run the Microsoft Excel component interface sample:

1. Launch Microsoft Excel.
2. Open the Microsoft Excel sample spreadsheet.

   The Microsoft Excel spreadsheet is located in <PS_HOME>\sdk\pscompintfc\src\com\samples\vba\sdk_bus_exp. When prompted about macros, select Enable Macros.
3. Attach PeopleSoft References to the spreadsheet.

   This example uses early bindings and hence requires attaching references to the spreadsheet. Select Tools, Macro, Visual Basic editor from the Microsoft Excel menu. This opens the VBA editor.

Select Tools, References from the menu. A dialog box appears, listing all the available references. Select the reference PeopleSoft_PeopleSoft.

4. Sign in to the sdk_bus_exp sample.

   Sheet 1 of the sdk_bus_exp spreadsheet is the sign-in page. Provide the connect information and press Tab to navigate out of the fields. Click Connect to establish the connection.

5. Find an employee by using the Find keys.

   The Find and Get keys are located on Sheet 2.

6. Select an employee from the list.

   Select an employee ID from the list by making the cell active and then pressing the GET selected button.

7. Get an Employee by providing the Get key.

   Enter the complete employee ID in cell B3. Press Tab to navigate out of the cell, and click Get (EMPLID). A list of all the available periods is displayed.

8. View details.

   To view the details for the listed business expense periods, click the Toggle Details button.

9. Add a new business expense period.

   Click the Insert period button. This redirects you to Sheet 3. Enter the business expense period date. Press Tab and click the Save New Period button.

10. Add a new business expense detail.

    Click the Insert Detail button. This redirects you to Sheet 3. Enter the charge date, expense code, amount, department ID, and business purpose. Press Tab, and save the new detail by pressing the Save New Detail button.

You can list the expense periods for the employee.

11	**Business expense Period for Schumacher,Simon emplid 8001**		
12	**Period Number**	**Period Dated**	**Period Total**
13	**Period # 1**	5/16/2001	1660.910034
14			
15	**Period # 2**	11/9/2000	690.7800293
16			

Expense periods

Understanding the COM Excel Sample Code

The following listings of code are taken from the Microsoft Excel sample program, sdk_bus_exp.xls. (The code has been edited for length.)

View the code by selecting Tools, Macro, Visual Basic Editor from the menu.

Declare the PeopleSoft session object.

List Business Expense Periods, using the Item method to get a specific item of the type SDK_BUS_EXP_PER.

List Business Expense Details, using the Item method to get a specific item of the type SDK_BUS_EXP_DTL.

To save a new business expense period, use the InsertItem method. This method inserts a new row and returns an item of the type SDK_BUS_EXP_PER. The item contains the properties. Set the properties and execute the Save method.

To save a new business expense detail, use the InsertItem method. This method inserts a new row and returns an item of the type SDK_BUS_EXP_DTL. The item contains the properties. Set the properties and execute the Save method.

Using the SDK COM ASP Sample

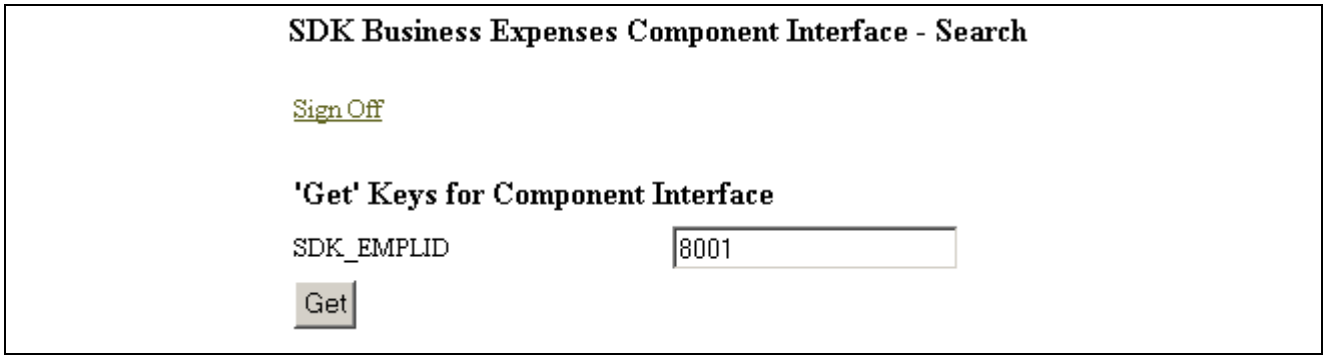
The component interface sample program for ASP is provided as part of the component interface SDK, located in *<PS_HOME>\sdk\pscompintfc\src\com\samples\asp\sdk_bus_exp*.

The ASP source code for the samples is in these files.

Before you run the sample, you must build the APIs and set up the COM environment.

Running the COM ASP Sample

When running the ASP sample, you use the Get key to find an employee.



ASP Get key

To run the ASP component interface sample:

1. Install and configure the IIS web server.
2. Create a virtual directory to point to <PS_HOME>\sdk\pscompintfc\src\com\samples\asp\sdk_bus_exp.
3. Start the web server.
4. Run the SDK example through the browser.

   The web address http://machinename/sdkSDK_BUS_EXP_Signon.asp launches the SDK application.
5. Provide the connect information and click Submit.
6. Get details for an employee.

   Enter the Get key (SDK_EMPLID) and click the Get button. This lists all the business periods for the selected employee ID.
7. Update a business expense period.

   Click the Update button to update the business expense period. Update the expense period end date and click the Save button.
8. Insert a business expense period.

   Click the Insert button to update the business expense period. Add the new expense period end date and click the Save button.

9. Delete a business expense period.

   Click the Delete button to delete the business expense period. You are prompted to decide to delete the row. Click OK to confirm the delete, and click Cancel to cancel the operation.

10. Update a business expense detail.

    Select a business expense period by clicking the Update button from the business expense period row.

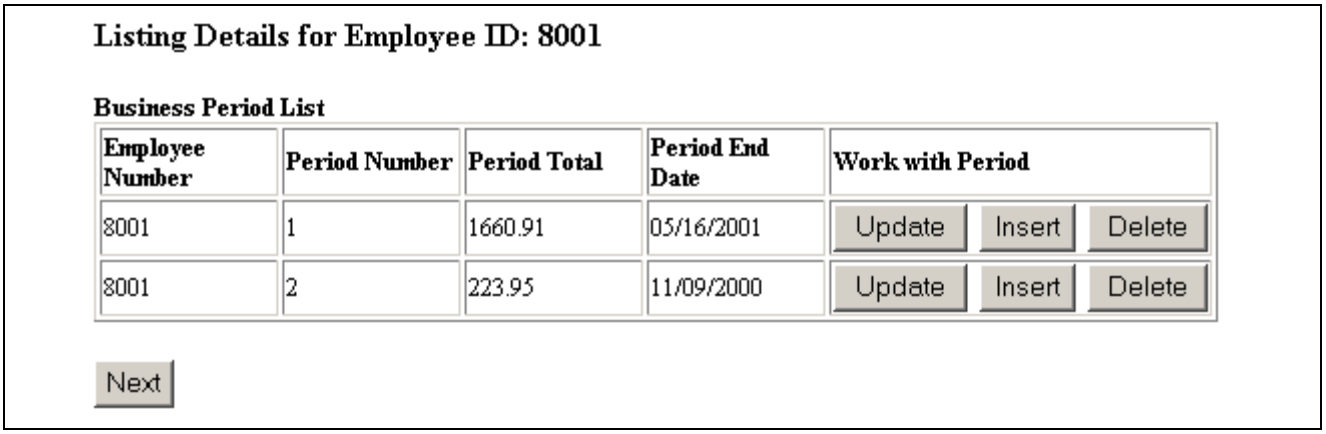
11. Insert a business expense detail.

    Click the Insert button to insert a new business expense period. Enter the values for charge date, expense code, expense amount, currency code, business purpose, and department ID. Click the Save button to save changes.

12. Delete a business expense detail.

    Click the Delete button to delete the business expense detail. You are prompted to decide to delete the row. Click OK to confirm the delete, and click Cancel to cancel the operation.

You can list the expense periods for the employee:



Expense periods

Understanding the COM ASP Sample Code

The following listings of code are taken from the ASP sample programs. (The code has been edited for length.)

SDK_BUS_EXP_Signon.asp

This is a sign-on page to the SDK Business Expense sample.

Include SDK_BUS_EXP_FUNCLIB.asp. This file contains all the common functions.

Provide the form action. On the submit from this page SDK_BUS_EXP_GetSearchParameters.asp is called.

Click the Submit button to run a JavaScript function checkRequiredFields(), which checks that all the connect information is provided.

The connection information is forwarded to the next page, using hidden fields.

SDK_BUS_EXP_GetSearchParameters.asp

This page prompts for the Find and Get Keys. You can also set the component interface modes: Interactive Mode, Get History Items, and Edit History Items.

Include SDK_BUS_EXP_FUNCLIB.asp. This file contains all the common functions.

Get the connection information forwarded from the previous page.

Sub getSearchParameters prompts the user for the Get or Find key and the component interface modes (interactive, get history items, and edit history items).

Sub getSearchParameters calls the appropriate page for Get and Find, using the JavaScript function invokeMethod().

SDK_BUS_EXP_GetSearchResults.asp

This page is called if the Find option was selected.

Include SDK_BUS_EXP_FUNCLIB.asp. This file contains all the common functions.

Get the connection information forwarded from the previous page.

Get the Find keys.

Get the search result.

The function getSearchResults lists all the employees for the provided Find keys by setting the Find keys and executing the Find method.

Loop through the collection to list all the employee IDs.

SDK_BUS_EXP_GetBusinessExpenses.asp

This page lists all the business expense periods for the selected employee.

Include SDK_BUS_EXP_FUNCLIB.asp. This file contains all the common functions.

Get the connection information forwarded from the previous page.

Get the Key Field.

Set the Component Interface Get Key.

Get the business expense periods by executing the function getBusinessExpensePeriods.

The function getBusinessExpensePeriods gets the business expense period, and then loops through the collection, using the Item method to get a specific business expense period. Each property in that item is then displayed.

The Update button is of the type submit. Since the form action is set to SDK_BUS_EXP_ UpdateBusinessExpensePeriod.asp, this page is launched. The Insert and Delete buttons use the JavaScript functions insertBusinessExpensePeriod() and deleteBusinessExpensePeriod().

The JavaScript function insertBusinessExpensePeriod sets the form.action to SDK_BUS_EXP_ InsertBusinessExpensePeriod.asp and submits the page.

The JavaScript function deleteBusinessExpensePeriod sets the form.action to SDK_BUS_EXP_ DeleteBusinessExpenseDetail.asp and submits the page.

SDK_BUS_EXP_UpdateBusinessExpensePeriod.asp

This page enables the user to update the expense period data as well as insert and delete business expense details.

Include SDK_BUS_EXP_FUNCLIB.asp. This file contains all the common functions.

Get the connection information forwarded from the previous page.

Get the key fields.

Update business expense details for the selected employee ID and business expense period

Submitting the updateBusinessExpensePeriod gets the business expense period collection. It passes PERIODNUM to the Item method to get the business expense period to be modified.

This page also lists the business expense details, using the getBusinessExpenseDetails function.

The Save button uses the JavaScript function saveBusinessExpensePeriod to save changes made to the business expense period. The function saveBusinessExpensePeriod sets the form action to SDK_BUS_EXP_SaveBusinessExpensePeriod.asp and submits the form.

SDK_BUS_EXP_SaveBusinessExpensePeriod.asp

This page enables the user to update the expense period data as well as insert and delete business expense details.

Include SDK_BUS_EXP_FUNCLIB.asp. This file contains all the common functions.

Get the connection information forwarded from the previous page.

Get the key fields.

Save business expense period for the selected employee ID and business expense period. Get the specific business expense period by using the Item method. Set the SDK_EXP_PER_DT property with the new value and execute the Save method.

SDK_BUS_EXP_InsertBusinessExpensePeriod.asp

This page enables the user to insert a new business expense period.

Include SDK_BUS_EXP_FUNCLIB.asp. This file contains all the common functions.

Get the connection information forwarded from the previous page.

Get the key fields.

Call the insertBusinessExpensePeriod function to insert a new business expense period.

Get the business expense period.

The InsertItem method is used to insert a new item in the SDK_BUS_EXP_PER collection.

A field to enter the SDK_BUS_PER_DT is created.

The Save button calls the JavaScript function newBusinessExpensePeriod. This function sets the action of the form to SDK_BUS_EXP_NewBusinessExpensePeriod.asp and submits the form.

SDK_BUS_EXP_NewBusinessExpensePeriod.asp

This page enables the user to update the expense period data as well as insert and delete business expense details.

Include SDK_BUS_EXP_FUNCLIB.asp. This file contains all the common functions.

Get the connection information forwarded from the previous page.

Get the key fields.

Get the SDK_BUS_EXP_PER_COLLECTION. Execute the InsertItem method. Set the SDK_EXP_PER_DT property and execute the Save method.

SDK_BUS_EXP_DeleteBusinessExpensePeriod.asp

This page enables the user to update the expense period data as well as insert and delete business expense details.

Include SDK_BUS_EXP_FUNCLIB.asp. This file contains all the common functions.

Get the connection information forwarded from the previous page.

Get the key fields.

The Submit deleteBusinessExpensePeriod deletes a business expense period.

This Submit gets the SDK_BUS_EXP_PER collection. The DeleteItem method deletes the specified row. The Save method is executed. To view the updated SDK_BUS_EXP_PER collection, execute the Cancel method. Set the keys and execute the Get method. The function getBusinessExpensePeriods displays the business expense periods.

Execute the Save method.

Execute the Cancel method

Set the component interface Get Key.

Execute the Get method.

SDK_BUS_EXP_InsertBusinessExpenseDetail.asp

This page enables the user to update the expense period data as well as insert and delete business expense details.

Include SDK_BUS_EXP_FUNCLIB.asp. This file contains all the common functions.

Get the connection information forwarded from the previous page.

Get the key fields.

Sub insertBusinessExpenseDetail inserts a business expense detail for the selected business expense period.

Get the SDK_BUS_EXP_PER collection in Sub insertBusinessExpenseDetail.

Get the SDK_BUS_EXP_PER collection, using the Item method.

Get the SDK_BUS_EXP_DTL collection.

Get the SDK_BUS_EXP_DTL using the Item method.

Create a form to get the properties for SDK_BUS_EXP_DTL.

The Save button calls the JavaScript function saveBusinessExpenseDetail sets action of the form to SDK_BUS_EXP_SaveBusinessExpenseDetail.asp and submits the form.

SDK_BUS_EXP_SaveBusinessExpenseDetail.asp

This page enables the user to update the expense period data as well as insert and delete business expense details.

Include SDK_BUS_EXP_FUNCLIB.asp. This file contains all the common functions.

Get the connection information forwarded from the previous page.

Get the key fields.

Submit saveBusinessExpenseDetail saves the business expense detail.

Submit saveBusinessExpenseDetail gets the SDK_BUS_EXP_PER collection.

Get the SDK_BUS_EXP_PER, using the Item method.

Get the SDK_BUS_EXP_DTL collection.

Get the SDK_BUS_EXP_DTL, using the InsertItem method. Set the properties.

Execute the Save method.

SDK_BUS_EXP_DeleteBusinessExpenseDetail.asp

This page enables the user to update the expense period data as well as insert and delete business expense details.

Include SDK_BUS_EXP_FUNCLIB.asp. This file contains all the common functions.

Get the connection information forwarded from the previous page.

Get the key fields.

Sub deleteBusinessExpenseDetail deletes a business expense detail from the selected business expense period.

Get the SDK_BUS_EXP_PER collection in Sub insertBusinessExpenseDetail.

Get the SDK_BUS_EXP_PER collection, using the Item method.

Get the SDK_BUS_EXP_DTL collection.

Execute the DeleteItem method.

Execute the Save method.

CHAPTER 8

Programming Component Interfaces in PeopleCode

This chapter discusses:

- PeopleCode behavior and limitations.
- PeopleCode runtime code template.
- PeopleSoft runtime code template.

Understanding PeopleCode Behavior and Limitations

Note the behavior and limitations discussed in this section when you write PeopleCode for a component interface.

PeopleCode Event and Function Behavior

PeopleCode events and functions that relate exclusively to GUI and online processing cannot be used by component interfaces. These include:

- Search dialog processing.

  When you run a component interface, the SearchInit, SearchSave, and RowSelect events don't fire. This means that any PeopleCode associated with these events will not run. The first event to run is RowInit.

- Menu PeopleCode and pop-up menus.

  The ItemSelected and PrePopup PeopleCode events are not supported. In addition, the CheckMenuItem, DisableMenuItem, EnableMenuItem, HideMenuItem, and UncheckMenuItem functions aren't available.

- Transfers between components, including modal transfers.

  The TransferPage, DoModalPageGroup, and IsModalPageGroup functions cannot be used.

- Dynamic tree controls.

  Functions related to this control, such as GetSelectedTreeNode, GetTreeNodeParent, GetTreeRecordName, RefreshTree, and TreeDetailInNode cannot be used.

- ActiveX controls.

  The PSControlInit and PSLostFocus events are not supported, and the GetControl function cannot be used.

- DoSave() and DoSaveNow().

  The DoSave() and DoSaveNow() pcode functions are not supported. You should use the component interface Save() method and wrap the DoSave() and DoSaveNow() functions so they don't execute when called from a component interface.

- Functions that are ignored in a component interface call.

  Some PeopleCode functions are ignored if they are called through a component interface. These functions are:

  - WinMessage
  - CheckMenuItem
  - DisableMenuItem
  - EnableMenuItem
  - HideMenuItem
  - UncheckMenuItem
  - SetCursorPos
  - TransferPanel
  - TransferPage
  - DoModalComponent
  - IsModalComponent
  - DoModalPanelGroup
  - IsModalPanelGroup
  - GetSelectedTreeNode
  - GetTreeNodeParent
  - RefreshTree
  - TreeDetailInNode
  - GetControl
  - DoSave
  - DoSaveNow
  - Gray
  - Ungray

CopyRowset Language Considerations

In previous PeopleSoft releases, CopyRowset* functions for component interfaces were not sensitive to the language code on PSCAMA. Because of this, related language processing did not take place when language code on PSCAMA was different than the base language code. PeopleSoft now detects the language code in PSCAMA.

Limitations of Client-Only PeopleCode

Component interfaces can run on either the client or the server. By default, a component interface runs on the server. It runs on the client only if the code calling the component interface is running on a client machine.

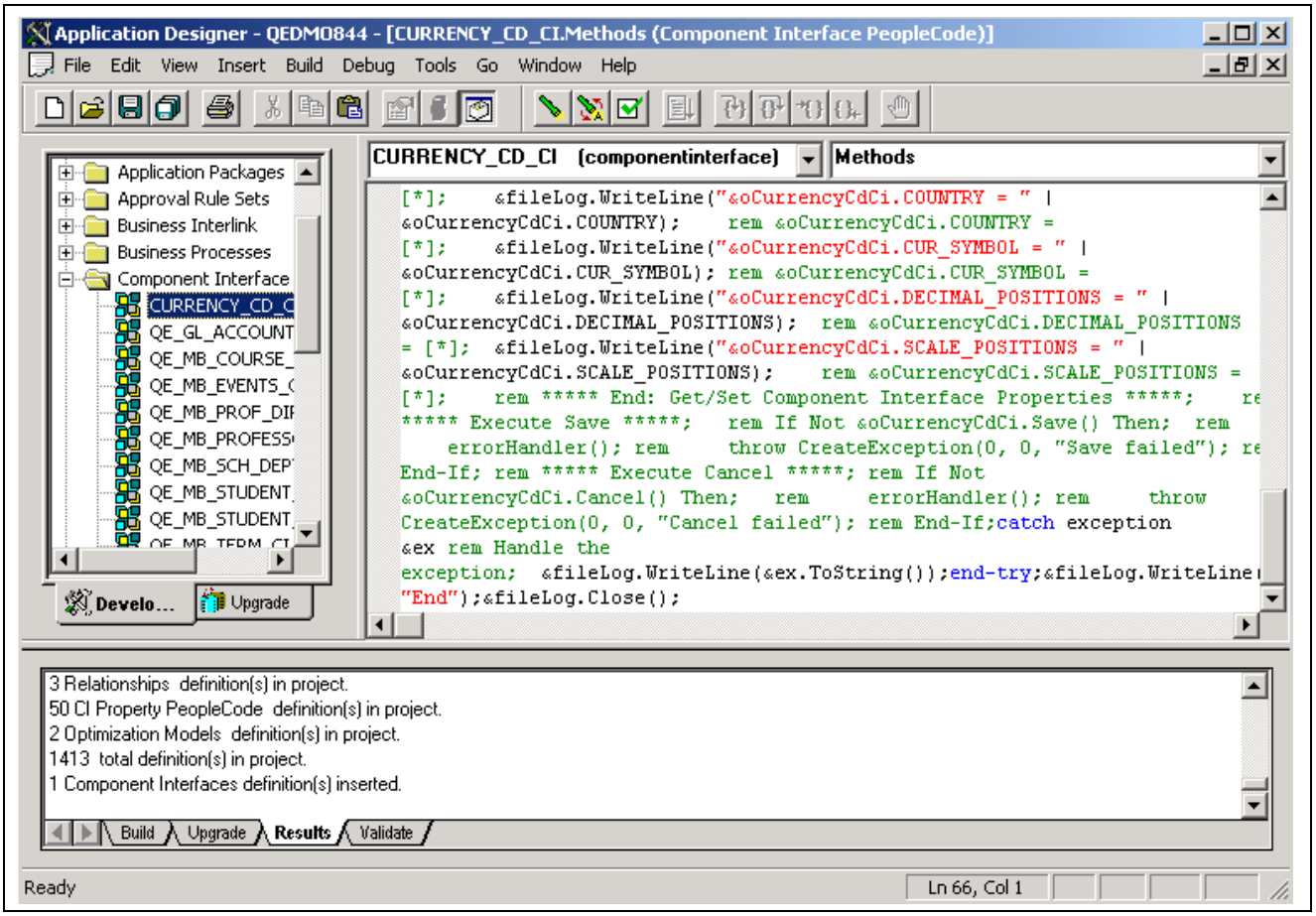
Component interfaces must run either entirely on the server or entirely on the client. To ensure this runtime restriction, component interface references declared in PeopleCode must be declared as local, not global, variables.

Some built-in functions are always client-only; others are client-only under specific conditions.

Some built-in functions behave differently when used in three-tier mode, as opposed to two-tier mode.

Generating a PeopleCode Template

To access a component interface using PeopleCode, PeopleSoft Application Designer generates a template in the form of boilerplate PeopleCode that you can adapt to your purposes. This section describes how to generate the template code.



PeopleCode generated by dragging and dropping a component interface

To generate a PeopleCode template for a component interface:

1. Open the desired component interface definition in PeopleSoft Application Designer.
2. Insert the component interface into a project.
    a. Select Insert, Current Object into Project.
    b. Save the project.
3. Open the PeopleCode editor.

    You can associate component interface PeopleCode with a record, a component, an application message, or an Application Engine program.

4. Select the component interface from the project workspace.

   Drag and drop the object from the project into the PeopleCode editor.

5. Make any necessary changes to the PeopleCode in the PeopleCode editor window.

Understanding the PeopleCode Template

The code shown in this section is a dynamically generated PeopleCode template that you can use as a starting point. Replace all default values or <*> notations with specific values or references to valid PeopleCode variables (replace this entire three-character string: <*>).

Note. The requirement to populate a non-create key is no longer a requirement to do the initial save.

PeopleCode runs only if you are connected. This means that you do not have to explicitly connect. Instead, connect to the existing session, using the %Session system variable.

See *Enterprise PeopleTools 8.46 PeopleBook: PeopleCode API Reference*, "Quick Reference for PeopleCode Classes," Session Classes Methods and Properties.

You cannot connect to a different database through PeopleCode.

Set the PeopleSoft session error message mode. This property is used to determine how messages are output. This property takes either a numeric value or a constant. The default value is 1 (%PSMessages_CollectionOnly).

This property sets the value for the session. You can change modes during a session, for example, if you're starting a component interface. However, after you run the component interface, you should set the value back. Here is the list of modes that you can use:

Mode Value	Purpose
0	Return no messages
1	Default. Log messages into the PSMessage collection.
2	Pop up a message dialog box.
3	Log messages into the PSMessage collection and pop up a message dialog box.

See *Enterprise PeopleTools 8.46 PeopleBook: PeopleCode API Reference*, "Session Class," PSMessagesMode.

PeopleCode Template Notes

Get a reference to the component interface providing its name. (A runtime error occurs if the component interface does not exist.)

Set the keys for the component interface. In this example SDK_EMPLID is the Get key.

The get() method retrieves data from the database, associated with the key values.

Get and print properties at level 0.

Similar code is generated for the properties SDK_BIRTHDATE and SDK_DEPTID.

Get collection at level 1 (SDK_BUS_EXP_PER).

Get and print properties at level 1.

Similar code is generated for the properties SDK_EMPLID and SDK_BUS_EXP_SUM in the SDK_BUS_EXP_PER collection.

Get collection at level 2 (SDK_BUS_EXP_DTL).

```
&oSdkBusExpDtlCollection = &oSdkBusExpPer.SDK_BUS_EXP_DTL;
```

Get and print properties at level 2.

Similar code is generated for the properties SDK_EMPID, SDK_EXP_PER_DT, SDK_EXPENSE_CD, SDK_EXPENSE_AMT, SDK_CURRENCY_CD, SDK_BUS_PURPOSE, and SDK_DEPTID.

CHAPTER 9

Using the Excel to Component Interface Utility

This chapter discusses how to:

- Set up connection information.
- Create a template.
- Manage templates.
- Stage and submit data.
- Resubmit corrected data.
- Construct the SOAP/XML request.
- Send the SOAP/XML request and receive the SOAP/XML response.

Understanding the Excel to Component Interface Utility

Use the Excel to Component Interface utility to upload data from Microsoft Excel into your PeopleSoft database, using component interfaces. Each source workbook contains both worksheets and Excel Visual Basic code modules that execute business logic for each transaction.

Use the Microsoft Excel workbooks as a template to create worksheets that are specific to the business logic that you need to use when you are uploading data to your PeopleSoft system. You can copy the Data Input sheet to other workbooks for distribution without copying the code modules.

The code formats spreadsheet data into a PeopleSoft readable Document Object Model (DOM) structure, and submits it to the PeopleSoft database. Next a PeopleCode program parses the DOM structure and uses the component interface to create entries in the PeopleSoft database, validating the data submitted against the business logic built into the PeopleSoft component. Because the component interface is a wrapper around the component, all logic applied during data entry is applied when loading data through this tool.

The component interface executes all the necessary PeopleCode events and the field-level edits. Based upon results from saving the component interface, another DOM is created in the PeopleCode that returns success, warnings, and/or errors to the Microsoft Excel document. Records in error can be corrected and resubmitted.

Microsoft Excel Column and Row Restrictions

A Microsoft Excel spreadsheet has a physical limitation of 252 columns and 65,000 rows. When you are creating a template and submitting data, you will need to keep these restrictions in mind.

When a template has more than 252 properties, you can work around this limitation by deselecting an appropriate number of columns to meet the restriction before submitting to the database. You can determine in advance which fields should be selected as input cells, which cells should be included for submission, and which cells need not be included at all.

To work around Microsoft Excel's row limitations, you may need to stage your data in batches so that the number of rows on the Staging and Submission sheet will not exceed 65,000.

Note. You will find the optimal performance when using this utility with small to medium-complexity component interfaces. For large component interfaces, other methods of uploading may be more appropriate, including File Layout and Application Engine.

In addition, because of Microsoft Excel's high memory requirements, performance with more complex component interfaces will be inhibited. The number of cells containing values on any one sheet should be less than 1,000,000. Failure to ensure this can potentially result in serious performance issues with Microsoft Excel, including crashes.

Software Requirements

This utility is available only for Microsoft Office 2000 and specifically needs the Microsoft XML parser, msxml4.dll. Some applications have been known to overwrite previous versions of this file with another version, occasionally causing the utility not to function properly. You should use MSXML version 4, Service Pack 2, because it can coexist with older versions of the parser. You can download and reinstall MSXML from the Microsoft website.

The Excel to Component Interface utility requires the Visual Basic 6.0 SP5: Run-Time Redistribution Pack and MSXML (Microsoft XML Parser) 4.0 Service Pack 4.

See the Microsoft downloads website for more information on these service packs.

Building a Component Interface for the Excel to Component Interface Utility

To use the Excel to Component Interface utility effectively, you must have a complete understanding of the component you are using and the component interface that is built around it. When you build a component interface, you need to understand what data needs to be entered and which fields on the component need to be exposed as component interface properties. Fields that are not relevant for data input should not be exposed on the component interface. This reduces processing time when loading data, as well as saving time when building the template because there will be no need to delete unnecessary properties on the template.

Some component interface structures will need to be modified before they can be used to load data through the utility. Components that have logic to insert multiple rows in child collections, and then require more values to be set on those collections, will need modification to the component to work with the Excel to Component Interface utility. Change the component so that the logic to insert and partially populate these rows does not happen by default through the component interface.

%CompIntfc and %CompIntfcName can be used so that this logic does not fire either from any component interface or from the component interface that you created for use with the Excel to Component Interface utility.

Additionally, components that have no keys at level 0, but rely on logic at level 0 to load the level 1 collection, cannot be loaded by using the Excel to Component Interface utility.

Component interfaces that rely on CommitWork to save the data cannot be used in the Excel to Component Interface utility.

Prompt and translate table values are validated when data is saved and submitted to the database through the Excel to Component Interface utility. This is different from the behavior on the page when prompts and translates are validated interactively. Some components may use prompts that are dynamically populated. For those situations, you must know what the valid values for the prompt will be.

Note. Remember that any changes made to the structure of a component interface will need to be reflected in the template as well. Always ensure that the component interface and the template in the Excel to Component Interface utility are in sync. Structural changes made in only the component interface will cause an error in the Excel to Component Interface utility when data is submitted to the database.

Testing the Component Interface

Before using the Excel to Component Interface utility, you should run the component interface through the component interface tester in three-tier mode. Testing the component interface using the tester enables you to troubleshoot any problems before running the component interface through the utility. If the component interface does not work in the tester, it will not work in the Excel to Component Interface utility, either. The component interface tester is located on the Tools menu in PeopleSoft Application Designer.

See Chapter 3, "Developing the Component Interface," Testing the Component Interface, page 44.

Performance Expectations

The performance of a component interface depends entirely upon the underlying component. If the component has a complex user interface with many pages and scrolls, the component interface generally will have a slower processing time. The best performance times are found with small and medium-complexity component interfaces.

PeopleCode Behavior and Limitations

Certain PeopleCode functions and events that are specific to the user interface do not execute through the component interface. You will need to modify PeopleCode for the component, pages, and records when you build the component interface for the component.

PeopleCode events and functions that relate exclusively to the page interface and online processing cannot be used by component interfaces. These include:

- Search dialog processing.
- Menu PeopleCode and pop-up menus.
- Transfers between components, including modal transfers.
- Dynamic tree controls.
- ActiveX controls.
- DoSave and DoSaveNow.
- Functions that are ignored in a component interface call.

See Chapter 8, "Programming Component Interfaces in PeopleCode," Understanding PeopleCode Behavior and Limitations, page 91 and *Enterprise PeopleTools 8.46 PeopleBook: PeopleCode API Reference*, "Component Interface Classes," Understanding Component Interface Class.

Automatic Defaulting of Properties

When you create a new component interface in PeopleSoft Application Designer, the system can create default properties for all the fields exposed on the component interface that meet certain criteria.

When creating a new component interface, the following requirements must be met to qualify as a default property.

The fields should be of the following types:

- Character
- Long character
- Number
- Signed number
- Date
- Time
- Datetime

The field should be one of the following page control types and must be exposed on the page:

- Edit box
- Drop-down list box
- Check box
- Radio button

See Chapter 3, “Developing the Component Interface,” Creating a New Component Interface, page 9.

Getting Started with the Excel to Component Interface Utility

To launch the Excel to Component Interface utility, you will need to locate the ExcelToCI.xls executable file in the PS_HOME\excel folder.

In addition, you will need to perform the following tasks:

- Grant access to the iScript WEBLIB_SOAPTOCI.
- Enable macros in Microsoft Excel.

Granting Access to WEBLIB_SOAPTOCI

To use the Excel to Component Interface utility, you must grant access to the iScript WEBLIB_SOAPTOCI in the permission list of the user who is building the template.

See *Enterprise PeopleTools 8.46 PeopleBook: Security Administration*, “Setting Up Permission Lists”.

Enabling Macros in Excel

The Excel to Component Interface utility relies on macros; therefore, you must enable macros in Microsoft Excel for the utility to work. When a Microsoft Excel spreadsheet is opened, the system displays a dialog box asking you to select whether or not macros should be enabled on the spreadsheet. Always select Enable Macros so that the macros delivered with the Excel to Component Interface utility can function.

To ensure that the macros are available to run, you will need to set the security level in Microsoft Excel to allow macros to open.

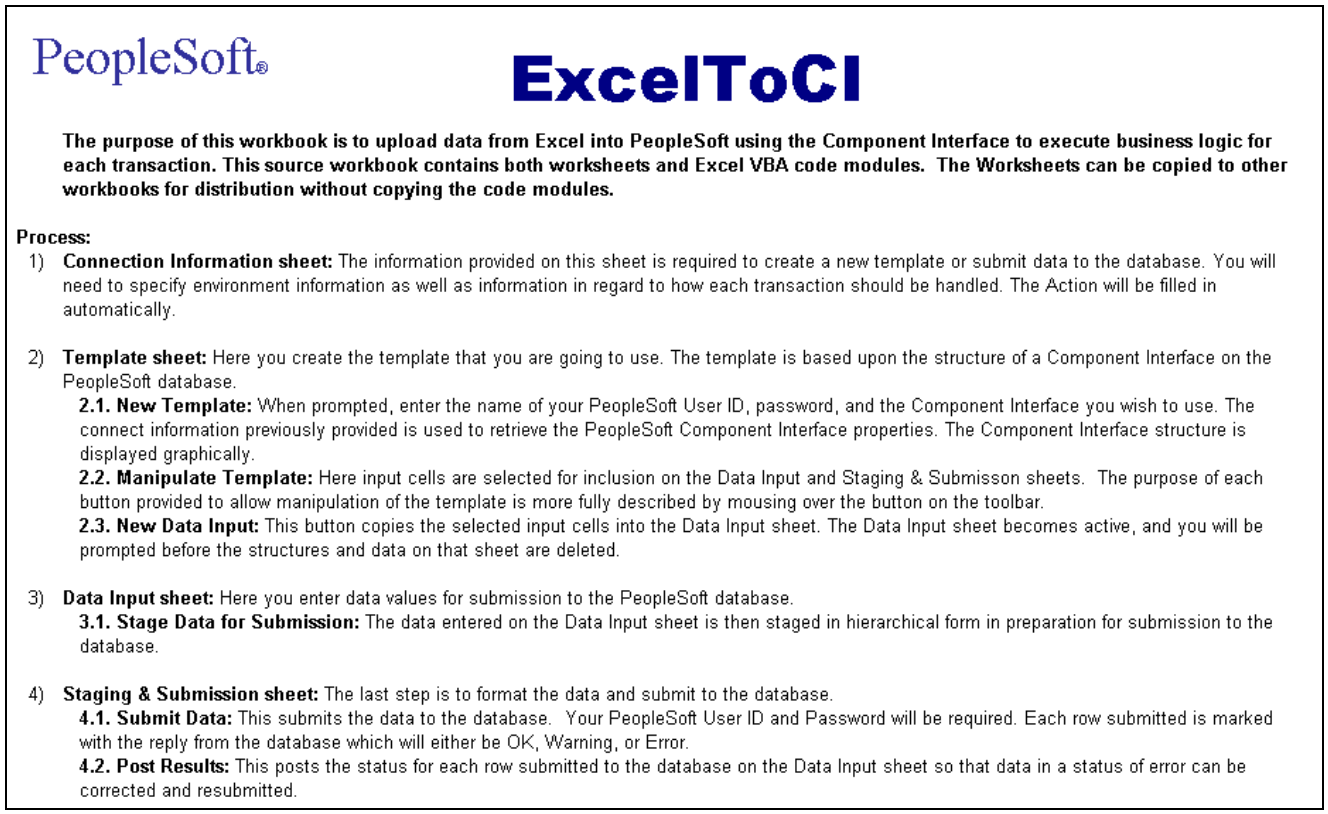
To enable macros in Excel:

1. Open the Excel to Component Interface utility.
2. From the Excel menu, select Tools, Macros, Security.
3. Select either Medium or Low to enable the macros.
4. Select OK.

Viewing the Coversheet

The coversheet of the Excel to Component Interface utility workbook gives a brief overview of the process flow and functionality of the tool.

Access the Coversheet tab in ExcelToCI.xls:



PeopleSoft®

ExcelToCI

The purpose of this workbook is to upload data from Excel into PeopleSoft using the Component Interface to execute business logic for each transaction. This source workbook contains both worksheets and Excel VBA code modules. The Worksheets can be copied to other workbooks for distribution without copying the code modules.

Process:

1) **Connection Information sheet:** The information provided on this sheet is required to create a new template or submit data to the database. You will need to specify environment information as well as information in regard to how each transaction should be handled. The Action will be filled in automatically.

2) **Template sheet:** Here you create the template that you are going to use. The template is based upon the structure of a Component Interface on the PeopleSoft database.
   2.1. New Template: When prompted, enter the name of your PeopleSoft User ID, password, and the Component Interface you wish to use. The connect information previously provided is used to retrieve the PeopleSoft Component Interface properties. The Component Interface structure is displayed graphically.
   2.2. Manipulate Template: Here input cells are selected for inclusion on the Data Input and Staging & Submisson sheets. The purpose of each button provided to allow manipulation of the template is more fully described by mousing over the button on the toolbar.
   2.3. New Data Input: This button copies the selected input cells into the Data Input sheet. The Data Input sheet becomes active, and you will be prompted before the structures and data on that sheet are deleted.

3) **Data Input sheet:** Here you enter data values for submission to the PeopleSoft database.
   3.1. Stage Data for Submission: The data entered on the Data Input sheet is then staged in hierarchical form in preparation for submission to the database.

4) **Staging & Submission sheet:** The last step is to format the data and submit to the database.
   4.1. Submit Data: This submits the data to the database. Your PeopleSoft User ID and Password will be required. Each row submitted is marked with the reply from the database which will either be OK, Warning, or Error.
   4.2. Post Results: This posts the status for each row submitted to the database on the Data Input sheet so that data in a status of error can be corrected and resubmitted.

Coversheet tab

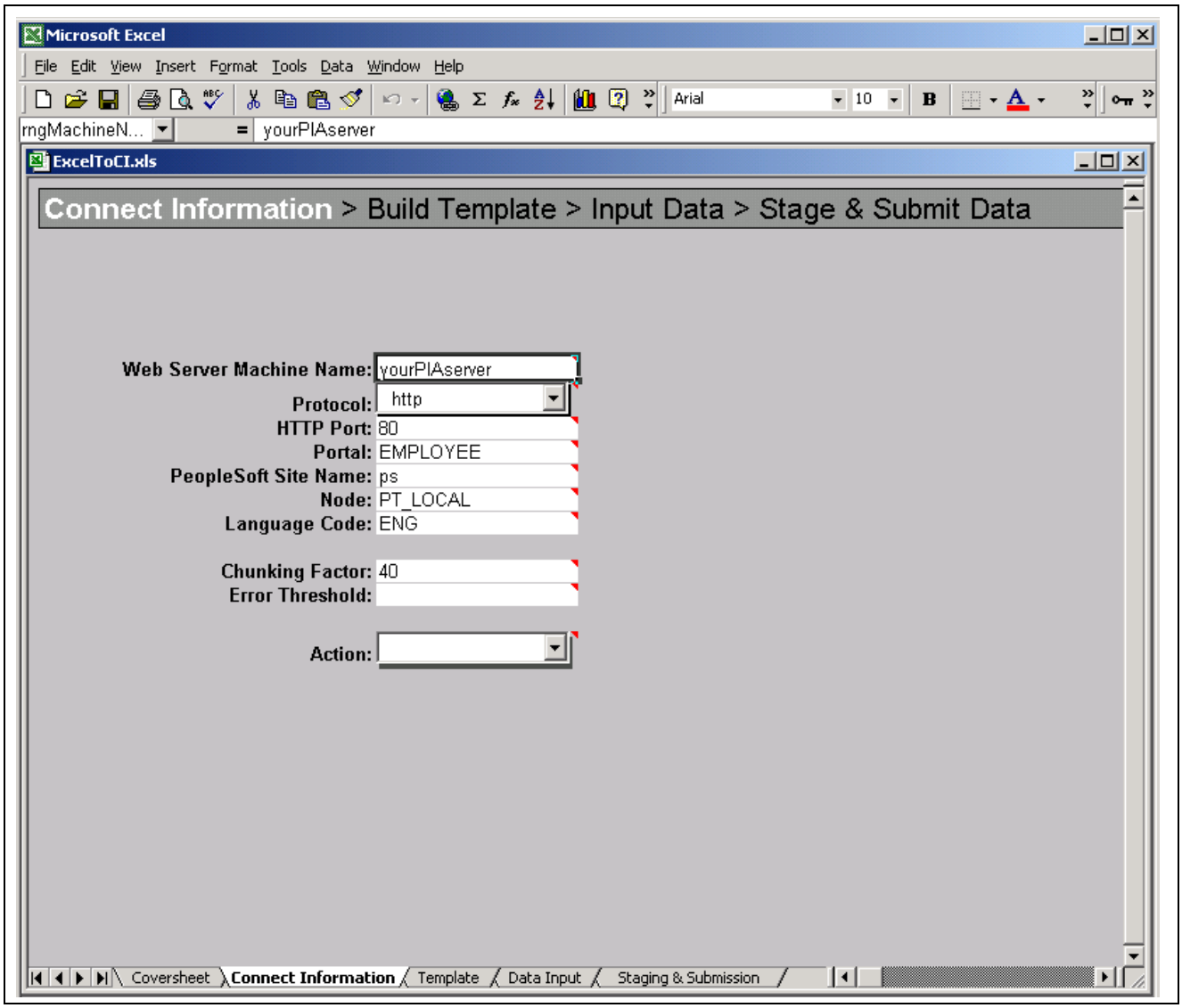
Setting Up Connection Information

This section covers:

- Entering connection information.
- Connecting to the database.

Entering Connection Information

Access the Connect Information tab in ExcelToCI.xls:



Connection Information tab

The information on this page is required to create a new template or to submit data to the database. You will need to specify environment information as well as information about how data should be transmitted. The Action field will be filled in automatically based on your setup and the component interface that the template is associated with.

The initial connection settings will be the PeopleSoft default values. You will need to modify these values for your specific implementation of PeopleSoft. If you are unsure what to enter for these values, check with your system administrator.

The connection options are:

Web Server Machine Name The name of the PeopleSoft web server that you are connecting to.

Protocol The protocol used to access the web server. The default is http. The preferred protocol is https.

HTTP Port The HTTP port number that the web server uses. The default is 80.

Portal The name of the portal you are using. *EMPLOYEE* is a default portal shipped with PeopleSoft.

PeopleSoft Site Name The PeopleSoft site name that you entered when you installed the PeopleSoft Internet Architecture. The default is *ps*.

Node The PeopleSoft default local node name. The default is *PT_LOCAL*.

Language Code The code for the language that the data is submitted to the database in and the template is created in. If no language code is specified, the base language is used.

Chunking Factor The number of rows of data to be transmitted to the database at one time. The default is 40.

Error Threshold The total number of errors that are permitted before submission to the database ceases. When the error threshold is exceeded, an error message appears and submission to the database stops.

Action The value for the Action field is populated by the system when the component interface is retrieved from the database. However, you can change the populated value by selecting it from the Action drop-down list.

The types of actions available are based on the structure of the component interface. The different actions are:

- *Create* if the component interface has create keys. Use this mode when new keys are being added at level 0.
- *Update* if the component interface does not have create keys. Use this mode if you are adding new children to an existing parent.
- *UpdateData* requires you to select this option from the drop-down list. This mode is used to update specific non-key values that already exist but need to be updated. The system uses the keys to locate the row, and when a match is found, the row is updated with new data. If a key match is not found by the system, it displays an error message indicating which collection was missing a key match.

See *Enterprise PeopleTools 8.46 PeopleBook: Internet Technology*, "Understanding PeopleSoft Pure Internet Architecture" and *Enterprise PeopleTools 8.46 PeopleBook: Security Administration*, "Understanding PeopleSoft Security".

Multilingual Support

You can use the Excel to Component Interface utility to upload data from any installed language. For each delivered language, PeopleSoft delivers a translated version of the Excel to Component Interface worksheet. When you change the language code on the Connect Information, the field labels on the template and any error messages on the Staging and Submission sheet appear in the language that you specified. When data is submitted, the standard PeopleSoft related language architecture processing occurs. You will find the translated worksheets in the appropriate language directory found in the PS_HOME/EXCEL directory.

If you want to submit data in several different languages, then a separate submission must be done for each language.

Error Thresholds and Chunking

A running error count is kept for each chunk of data that is being submitted to the database. When the total error count exceeds the error threshold that you specified on the Connection Information tab, submission to the database stops and the system displays an error message. Rows that errored out will have a status of *Error* on the Data Input page and should be corrected. The data submitted to the database before the error threshold was reached will remain in the target database. Rows not yet submitted will be submitted when the data is restaged and submitted.

Connecting to the Database to Create a Template and Submit Data

Your PeopleSoft login information is needed for both creating the template and submitting data to the database.

Access the Login dialog box by selecting the Template tab and then selecting the New Template button, or by selecting the Submit Data button on the Staging and Submission tab:

Login dialog box

The system uses your user ID and password to ensure that you have the correct permissions to access the component interface that you are creating the template on. You must be granted permission to access the component interface that you are using.

User ID/Password Enter your PeopleSoft user ID and password.

Component Interface Name Enter the name of the component interface name for which you want the template created.

Generate Log Select the Generate Log check box to create one log file for ExcelToCI.xls and one for the SOAPTOCI Web Library.

Note. Unless you are troubleshooting errors, you should run the Excel to Component Interface utility without creating log files. Logs should be generated for debugging purposes only.

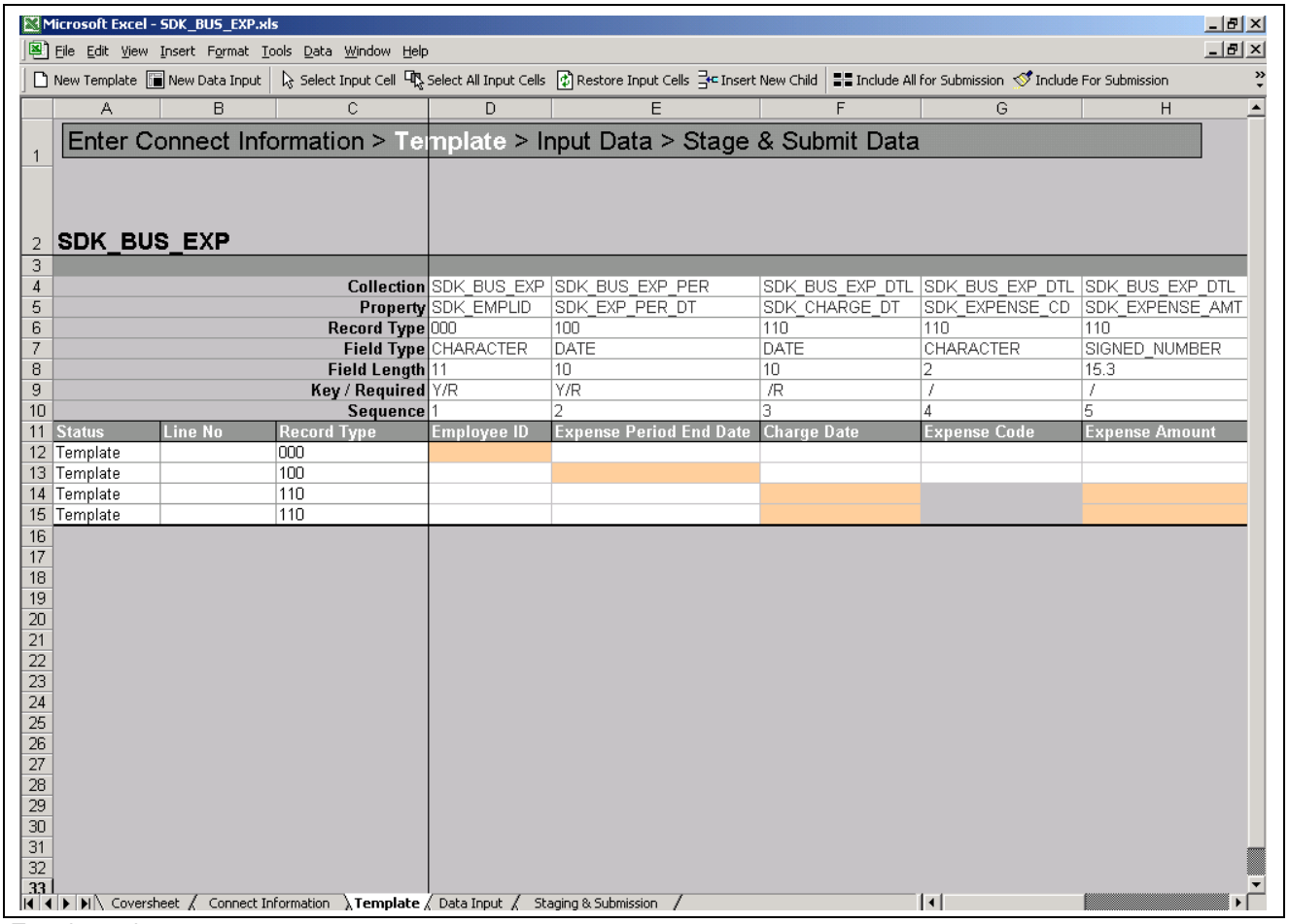
See Chapter 9, "Using the Excel to Component Interface Utility," Viewing Log Files, page 117.

Creating a Template

The Template page is a graphical representation of the component interface structure that you will be using to load data. The structure of the component interface is retrieved from the database when a new template is built. All of the fields that are exposed through the component interface appear on the template page. Fields that are read-only on the component interface will not appear on the template.

The New Template macro builds the parent-child relationship within Microsoft Excel based upon the component interface scroll level definition. The system adds a new row for each scroll level and assigns a unique identifier to it.

Access the Template tab in ExcelToCI.xls to create your template:



Template tab

Collection The name of the component interface collection. A collection is a property that points to a scroll, rather than a field, in the underlying component for a component interface.

Property The component interface property name. Typically, this is also the name of the field on the page.

Record Type This number represents the parent/child relationship of the records. The level 0 scroll record is always represented by 000. Level 1 scroll records appear with numbers that start with 100 and always have 00 as the last two numbers.

Level 2 scrolls are identified by numbers that start with the identifier of their level 1 parent and end with a 0.

Level 3 scrolls are identified by the first number from the level 1 parent, the second number from its level 2 parent, and then the third number from its own position in the list.

The numbers for each scroll level are incremented based on the number of records that exist at that level. For example, level 0 would be 000, level 1 would be 100, and level 2 would be 110, and so on.

Note. Component interfaces that have more than 10 collections at a given level will be incremented with alphabetic identifiers. For example, 800, 900, A00, and so on.

Field Type The standard PeopleSoft type for the field. For example, *Date, Character,* and so on.

Field Length The length of the field as defined by PeopleSoft. For numeric fields and signed number fields, the length is broken down into integer and decimal positions. For example, a length of 15.3 indicates 15 integer positions and three decimal positions.

Key/Required If the field is a key field, the system will display a *Y* to the left of the forward slash. When the field is not a key, it will be blank. If the field is a required field, the system will display an *R* to the right of the forward slash. When the field is not required, it will be blank. This information comes from the record definition itself.

Note. Fields that are either keys or required *must* be set in order to submit data successfully.

Sequence The sequence number represents the property order in the template.

Status This field displays the load status on the Staging and Submission page.

Line No (number) This corresponds to the line number on the Input Data and the Staging and Submission pages.

Understanding the Template Actions Toolbar

The Template Actions toolbar is made up of buttons that you use to create and modify a template, as well as create a Data Input sheet. You can resize the toolbar and move it to any location on the page or even drag it onto the existing standard Microsoft Excel toolbar. Once you have moved the toolbar to a location, it will remain there until you move it again. You do not need to move the toolbar each time you open the workbook.

Each button on the toolbar has help text that describes the purpose and use of each of the buttons when you place the cursor over the button. .

New Template Builds a new template based upon a component interface. The New Template macro builds the parent-child relationship within Microsoft Excel based upon the component interface structure.

When you build a new template, the system prompts you for your login information.

New Data Input Builds a new Data Input sheet based upon the selected input cells. When you build a new Data Input sheet, the system prompts you as to whether you want to overwrite the existing sheet. If you select *Yes* a new Data Input sheet is created, overwriting the former one.

Select Input Cell Selects an individual cell to be included in the Data Input Sheet. Cells that have been selected as input cells are highlighted in pink.

Select All Input Cells Selects all properties to be included in the Data Input as input cells. When a cell is selected as an input cell, it is highlighted in pink.

Restore Input Cells Restores the template to its original state and clears default values. The fields in the template will be highlighted in gray, indicating that nothing is included for submission.

Insert New Child Copies the selected row to be inserted as a new child. This creates multiple occurrences of the same record type.

For example, if the selected row has a template identifier of 100, a new row is inserted that also has an identifier of 100 and is an exact duplicate of the selected row.

Note. Use Insert New Child when multiple children must be submitted under the same parent record. Multiple children should not be created at identifier 000.

Include All for Submission Includes all properties on the spreadsheet to be included for submission to the database. Cells that are included for submission appear only on the Staging and Submission sheet and do not appear on the Data Input sheet. Properties that are included for submission are highlighted in blue.

Include for Submission Includes a single property to be included on the Staging and Submission sheet. Properties that use default values from the template must be included for submission. Cells that are included for submission generally are properties that contain default values or properties that you would like to see in the structure of the Staging and Submission sheet. Properties that are included for submission are highlighted in blue.

Deselect Input Cell Changes a cell that was previously selected as an input cell to a cell that is included for submission. The cell is no longer included on the Data Input sheet but appears as part of the structure on the Staging and Submission sheet.

Clear Template Clears all the data and structures on this sheet.

Do Not Include for Submission Does not include the selected property for submission to the database. If a property is not included for submission, it will not appear in the structure that is submitted to the database on the Staging and Submission sheet. Properties that are not included for submission will only appear on the template worksheet and are not submitted to the database. Properties that are not included for submission are highlighted in gray.

Note. When you create a new template or a new Data Input sheet, the system clears the existing worksheet of all existing information. If you have a template or Data Input sheet that you need to save from previous uploads, save a copy of the worksheet before you create a new template or Data Input sheet.

Entering Data into the Template

When determining which properties to include as input cells and which properties to include for submission, remember that the component interface uses the same business logic and executes the same PeopleCode as if the record were entered online using the page in your PeopleSoft application. To provide the minimal data necessary, these fields must either be provided with default (hard-coded) values or values that you provide using the Data Input sheet.

Note. You should unit test the template that you created with a few sample entries, and then verify your results before using the interface for mass input. For example, if you forgot to select a property, you will need to build a new Data Input sheet. If the results of the submission are satisfactory, continue entering data.

Adding a New Child Record

By default, each collection is represented once on the template. To insert copies of a given collection, select that collection and click the Insert New Child button to create a copy of the selected row. The collection that you selected is copied so that you can have two rows under the same parent.

	A	B	C	D	E	F	G	H	I
1	Enter Connect Information > Template > Input Data > Stage & Submit Data								
2	SDK_BUS_EXP								
3									
4			Collection	SDK_BUS_EXP	SDK_BUS_EXP_PER	SDK_BUS_EXP_DTL	SDK_BUS_EXP_DTL	SDK_BUS_EXP_DTL	SDK_BUS_EXP_
5			Property	SDK_EMPLID	SDK_EXP_PER_DT	SDK_CHARGE_DT	SDK_EXPENSE_CD	SDK_EXPENSE_AMT	SDK_CURRENC
6			Record Type	000	100	110	110	110	110
7			Field Type	CHARACTER	DATE	DATE	CHARACTER	SIGNED_NUMBER	CHARACTER
8			Field Length	11	10	10	2	15.3	3
9			Key / Required	Y/R	Y/R	/R	/	/	/R
10			Sequence	1	2	3	4	5	6
11	Status	Line No	Record Type	Employee ID	Expense Period End Date	Charge Date	Expense Code	Expense Amount	Currency Code
12	Template		000						
13	Template		100						
14	Template		110						
15	Template		110						

Template tab – child row added

Note. On the Data Input sheet (when the hierarchy is flattened) you will see duplicate columns where multiple children exist.

Adding Default Values

Some fields have default values associated with them, either in the record definition or at runtime when the record is created on the database. Additionally, many components trigger PeopleCode, which populates default values, as well. To accept the database default, include the property for submission and the system default will be used.

There may be some fields for which you want to create your own default. For example, if you want to set the value of a field named *Status as of Effective Date* to *A* for every row that you submit, enter that value for the field in the template. Then, include the cell for submission on the template. The field will not appear on the Data Input page, but the value will appear in the field on the Submit to Database page. This is useful for effective dates, status fields, set IDs for simple imports, and so on.

When providing values for translate fields or prompt tables, provide the field value rather than the short or long description for the translate value. If you are unsure of the field values, check in the record or field definition in PeopleSoft Application Designer.

Template Wrapping

If you are creating a template that has more than 252 properties, the Excel to Component Interface utility will wrap the additional columns and display them at the bottom of the spreadsheet so that they are still visible and can still be selected and deselected for submission.

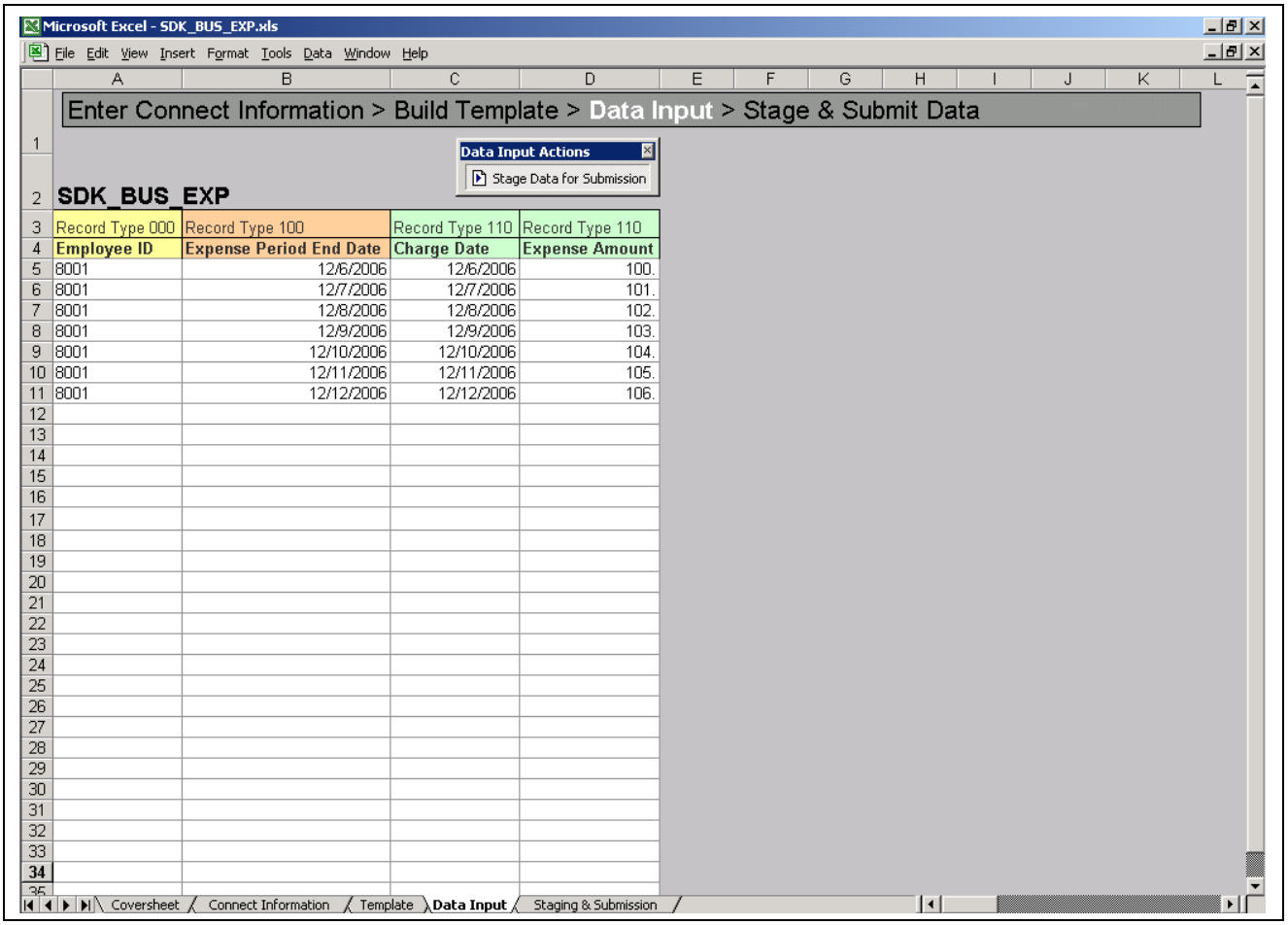
Note. Because of Microsoft Excel column limitations, no more than 252 columns may be submitted to the database at one time. When a template has more than 252 properties, you can work around this limitation in Microsoft Excel by deselecting an appropriate number of columns to meet the restriction before submitting to the database. You can determine in advance which fields should be selected as input cells, which cells should be included for submission, and which cells need not be included at all.

Entering Data on the Data Input Sheet

The Data Input sheet enables you to enter data into the Excel to Component Interface utility so that it can be loaded to the database by using the component interface that you've selected. You can enter data manually or you can cut and paste it from another spreadsheet or third-party application.

Using the Data Input Sheet

Access the Data Input tab to enter data:



Data Input tab

The field labels that appear on the Data Input sheet are those properties that you selected as input cells on the template. Each scroll level is identified by color. The record type from the template is also displayed for each property.

The system creates default date, datetime, and number formats when it creates the template. You can modify this format by using Microsoft Excel's default cell formatting when entering data, with the exception of the d/m/yy format for dates and datetimes. Instead, always use a d/m/yyyy format for dates and datetimes. To access the formatting feature select Format, Cells from the Excel menu.

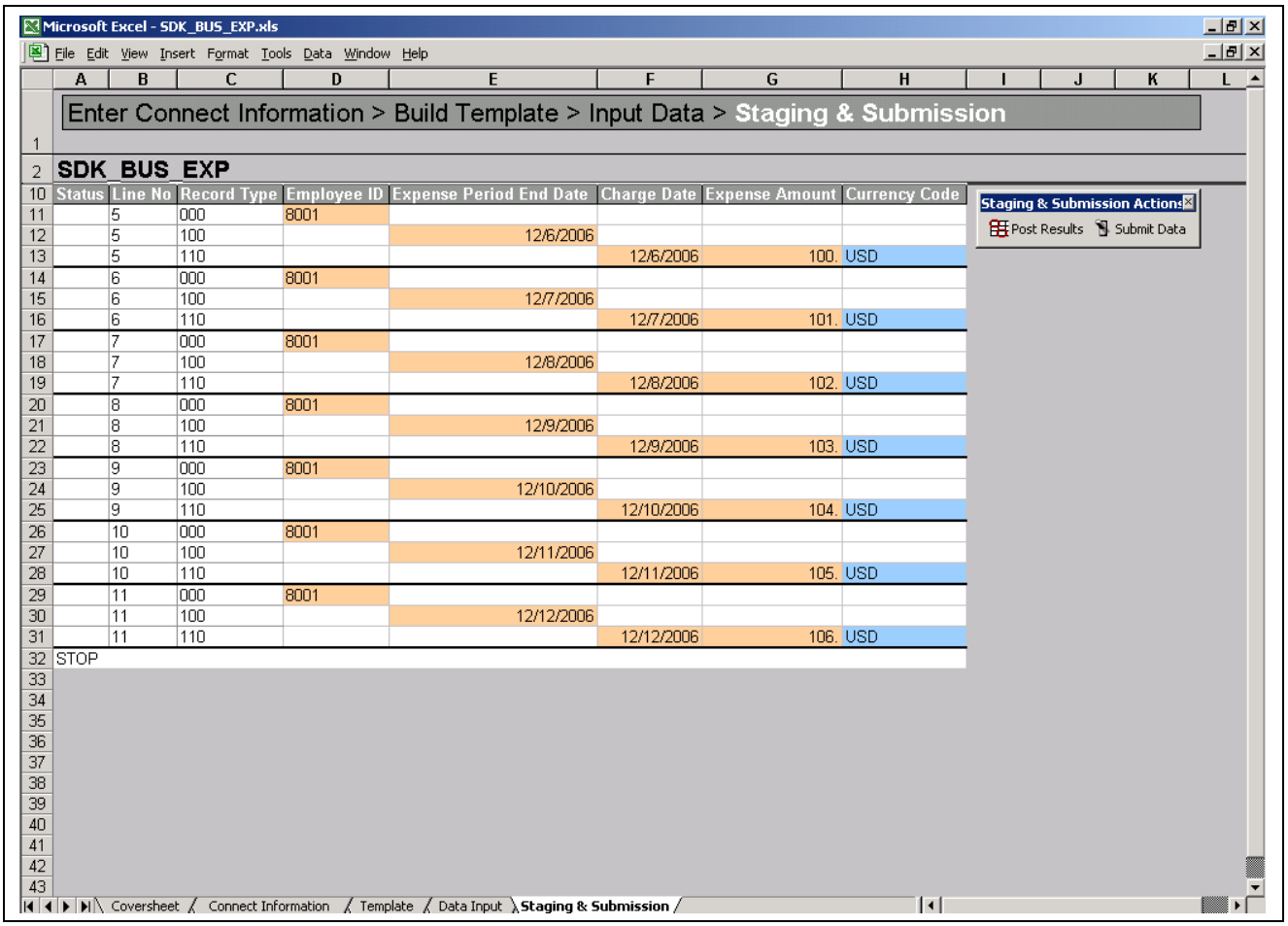
The Data Input sheet is also used to correct data that failed to submit to the database. Errors that are flagged on the Submit to Database page are posted to the Data Input page, and when you have corrected them, the items marked in error can be staged again to the Staging and Submission sheet.

Data Input Actions

The Data Input Actions toolbar contains the Stage Data for Submission button, which takes the data that you entered on the Data Input sheet and stages it for submission to the database. Once the data is staged, it appears on the Staging and Submission sheet in the hierarchical template structure. At this point, you should check that all fields are populated as expected. When the data is staged, it displays both the data on the Data Input sheet and the data that you specified as default values.

Viewing the Staged Data

Access the Staging and Submission tab:



Status	Line No	Record Type	Employee ID	Expense Period End Date	Charge Date	Expense Amount	Currency Code
	5	000	8001				
	5	100		12/6/2006			
	5	110			12/6/2006	100.	USD
	6	000	8001				
	6	100		12/7/2006			
	6	110			12/7/2006	101.	USD
	7	000	8001				
	7	100		12/8/2006			
	7	110			12/8/2006	102.	USD
	8	000	8001				
	8	100		12/9/2006			
	8	110			12/9/2006	103.	USD
	9	000	8001				
	9	100		12/10/2006			
	9	110			12/10/2006	104.	USD
	10	000	8001				
	10	100		12/11/2006			
	10	110			12/11/2006	105.	USD
	11	000	8001				
	11	100		12/12/2006			
	11	110			12/12/2006	106.	USD
STOP							

Staging and Submission tab

Note. Microsoft Excel has a physical limitation of 252 columns and 65k rows. Depending on the complexity of the record structure and the number of scroll-level records that are included in the template, you can use multiple rows on the Staging and Submission sheet to reflect one row of data from the Data Input sheet. To work around Microsoft Excel's limitations, you may need to stage your data in batches so that the number of rows on the Staging and Submission sheet will not exceed 65k.

Staging and Submission Actions Toolbar

Post Results The results of the submission are copied to the Data Input sheet, where you can view the status of each row that is submitted and make any necessary corrections to rows that have the status of *Error*.

Submit Data The Login dialog box appears and you must specify your user ID and password.

The system submits the data to the database in the chunks that you specified on the Connection Information sheet.

After correcting any errors on the Data Input sheet, you can submit the data again. The items that had been marked as *Error* will be resubmitted, whereas those marked *OK* and *Warning* will be ignored.

Error When Submitting Existing Keys

If you receive the error *Row already exists with the specified keys* and you are in CREATE mode, this indicates that the key already exists at level 0 or is part of the search record.

To verify that the key exists:

1. Open the component interface in PeopleSoft Application Designer.
2. Launch the component interface tester by selecting Tools, Test Component Interface.

   The Component Interface Tester search dialog box appears. This dialog box displays the keys (in the left-hand columns) for getting, creating, or finding an instance of the component interface.
3. Enter the value for the key you are testing.
4. Click Get Existing for the key that you are about to add, using the Excel to Component Interface utility.

   If the Get Keys command returns the key, the key already exists and you must add data by using UPDATE mode.

   If you receive a message that no row exists for the key, then the key does not exist at level 0 and the data should be added by using CREATE mode.

See Chapter 3, "Developing the Component Interface," Testing the Component Interface, page 44.

Correcting and Resubmitting Data

After you submit the data to the database, results of the process appear on the Staging and Submission sheet. If a submission had an error, the errored status appears on the Staging and Submission sheet. Use the Data Input page to correct the data and then resubmit it to the database. Continue this process of correcting errors and resubmitting until there are no errored records on the Data Input page.

Note. Data that was not submitted because the error threshold was reached will have no status. When the data that created the error is corrected on the Data Input sheet, the data that was not submitted will be staged to the database.

Submission Statuses

Errors received for that record appear in a comment field by moving the cursor over the error flag. The records marked *OK* in green cannot be restaged for submission and can be kept as a record of work completed.

There are three statuses that can appear when you have submitted you data to the database.

Ok	The submission to the database completed successfully. The field will be highlighted in green.
Warning	The data was submitted to the database successfully, but a warning was generated in the process. The field will be highlighted in yellow.
Error	The data was not saved to the database due to an error. This field will be highlighted in red. To see the error message that the component interface generated, place your cursor over the Status field. This message indicates how the data needs to be corrected.

Creating a SOAP/XML Request

You can construct a SOAP/XML (Simple Object Access Protocol/Extensible Markup Language) request to create, update, or get component interface rows. The request and response contain component interface data in a SOAP/XML format.

Request Format

The following example shows the request format:

```
<?xml version="1.0"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"  ⇒
 xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Body>
    <Action__CompIntfc__CIName>
      Tags and Data
    </Action__CompIntfc__CIName>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

Valid actions are Create, Get, Update, and Updatedata.

CIname is the name of the component interface.

Tags and Data contains the tags and data for the component interface row or rows.

Sample Create Request

The followings is a sample Create request:

```
<?xml version="1.0"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
 <SOAP-ENV:Body>
  <CREATE__CompIntfc__SUPPORT_DOC_TBL>
    <SUPPORT_DOC_ID>POLICE</SUPPORT_DOC_ID>
    <SUPPORT_DOC>
      <DESCR>Police Report</DESCR>
      <DESCRSHORT>Police</DESCRSHORT>
    </SUPPORT_DOC>
  </CREATE__CompIntfc__SUPPORT_DOC_TBL>
 </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

Sample Get Request

The following is a sample Get request:

```
<?xml version="1.0"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
```

```
  xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
 <SOAP-ENV:Body>
  <Get__CompIntfc__SDK_BUS_EXP>
    <SDK_EMPLID>8052</SDK_EMPLID>
  </Get__CompIntfc__SDK_BUS_EXP>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

Sample Update Request

The following is a sample Update request:

```
<?xml version="1.0"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
 <SOAP-ENV:Body>
  <UPDATE__CompIntfc__SDK_BUS_EXP>
    <SDK_EMPLID>8001</SDK_EMPLID>
    <SDK_BUS_EXP_PER>
      <SDK_EXP_PER_DT>08/14/2002</SDK_EXP_PER_DT>
        <SDK_BUS_EXP_DTL>
          <SDK_CHARGE_DT>08/14/2002</SDK_CHARGE_DT>
          <SDK_EXPENSE_CD>01</SDK_EXPENSE_CD>
          <SDK_EXPENSE_AMT>1234.56</SDK_EXPENSE_AMT>
          <SDK_CURRENCY_CD>USD</SDK_CURRENCY_CD>
          <SDK_BUS_PURPOSE>Client Visit</SDK_BUS_PURPOSE>
          <SDK_DEPTID>10100</SDK_DEPTID>
        </SDK_BUS_EXP_DTL>
    </SDK_BUS_EXP_PER>
  </UPDATE__CompIntfc__SDK_BUS_EXP>
 </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

Sample Updatedata Request

The following is a sample Updatedata request:

```
<?xml version="1.0"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
    <SOAP-ENV:Body>
        <UPDATEDATA__CompIntfc__USER_PROFILE>
            <UserID>VP1</UserID>
            <UserDescription>updated description</UserDescription>
            <EmailAddresses>
                <EmailType>BUS</EmailType>
                <EmailAddress>Updated@updated.com</EmailAddress>
            </EmailAddresses>
        </UPDATEDATA__CompIntfc__USER_PROFILE>
```

```
    </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

Sending the Request

To send the request, post the XML code to the URL of the PeopleSoft Pure Internet Architecture server with the appropriate path to the iScript on the server.

Note. The PeopleSoft user ID and password must be sent in the SOAP request header with the identifiers of *userid* and *pwd*. You should send the request on a secure site.

Use this format:

```
Protocol(http or https)>://<WebServerMachineName>:<HTTPPort>/psc/ps/<Portal>⇒
/<Node>/s/
WEBLIB_SOAPTOCI.SOAPTOCI.FieldFormula.IScript_SOAPToCI?&disconnect=y&postDataBin=y
```

WebServerMachineName	Machine name of the server.
HTTPPort	Port of the server.
Portal	Portal defined on the PIA server.
Node	Node defined on the PIA server.

For example,

http://MyWebServer:80/psc/ps/EMPLOYEE/PT_LOCAL/s/WEBLIB_
SOAPTOCI.SOAPTOCI.FieldFormula.IScript_SOAPToCI?disconnect=y&postDataBin=y

Receiving a Response

This section provides examples of response types.

Viewing a Response if a Row Already Exists

This is one example of the error response. The messages vary depending on the type of error.

```
<?xml version="1.0" encoding="UTF-8" ?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Body>
    <USER_PROFILE>
      <Error-Warning>
        <Message>
          <Type>Error</Type>
          <MessageSetNumber>91</MessageSetNumber>
          <MessageNumber>49</MessageNumber>
          <MessageText>Row already exists with the specified keys.
```

```
            {USER_PROFILE} (91,49)</MessageText>
          <ExplainText>A rows already exists in the database with the specified⇒
 keys.
            </ExplainText>
        </Message>
      </Error-Warning>
      <Key_information>
        <UserID>PTDMO10</UserID>
      </Key_information>
    </USER_PROFILE>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

Viewing a Sample Get Request and Response

The following XML code gets an SDK_BUS_EXP component interface row for an employee with an employee ID of 8052:

```
<?xml version="1.0"?>
<SDK_BUS_EXP action="GET">
         <SDK_EMPLID key="Y">8052</SDK_EMPLID>
      </SDK_BUS_EXP>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

The XML response for this employee is:

```
<?xml version="1.0" encoding="UTF-8" ?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
   <SOAP-ENV:Body>
    <SDK_BUS_EXP>
      <SDK_BUS_EXP_PER>
        <SDK_EMPLID>8052</SDK_EMPLID>
        <SDK_EXP_PER_DT>2000-11-09</SDK_EXP_PER_DT>
        <SDK_BUS_EXP_DTL>
          <SDK_EMPLID>8052</SDK_EMPLID>
          <SDK_EXP_PER_DT>2000-11-09</SDK_EXP_PER_DT>
          <SDK_CHARGE_DT />
          <SDK_EXPENSE_CD />
          <SDK_EXPENSE_AMT>0</SDK_EXPENSE_AMT>
          <SDK_CURRENCY_CD>USD</SDK_CURRENCY_CD>
          <SDK_BUS_PURPOSE />
          <SDK_DEPTID />
        </SDK_BUS_EXP_DTL>
      </SDK_BUS_EXP_PER>
    </SDK_BUS_EXP>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

Diagnosing and Resolving Errors

This section discusses how to:

- View the log files.
- Resolve error messages.

Viewing Log Files

If you select the check box to create log files when building a template or submitting to the database, two log files are created—one that logs the activity of ExcelToCI.xls and the other that logs the SOAPTOCI Web Library.

The log for ExcelToCI.xls is created in the temp directory on the workstation running the Excel spreadsheet.

The log for the Web Library is created on the application server in the <PS_HOME>\appserv\<DOMAIN>\files directory. This file contains both the SOAP request and the SOAP response.

Log files are written for each chunk of data that is sent to the database.

Resolving Error Messages for Client Environments

Error Message	Possible Resolution
Component not correctly registered	Reinstall Visual Basic 6.0 SP5: Run-Time Redistribution Pack found on the Microsoft download site.
ActiveX component not correctly registered (Error 336)	Reinstall Visual Basic 6.0 SP5: Run-Time Redistribution Pack found at the Microsoft downloads website.
Error Number: -2147024770 Description: Automation error. The specified module could not be found.	• Open Windows Explorer. • Navigate to c:\winnt\system32 directory and locate msxml4.dll. • Right-click the DLL and select Register COM Server. The message "DLLRegisterServer in c:\winnt\system32\msxml4.dll succeeded." will pop up. • Click OK.
Error Number: 429 Description: ActiveX component can't create object.	• Open Windows Explorer. • Navigate to c:\winnt\system32 directory and locate msxml4.dll. • Right-click the DLL and select Register COM Server. The message "DLLRegisterServer in c:\winnt\system32\msxml4.dll succeeded." will pop up. • Click OK.

Error Message	Possible Resolution
Error Number -214722099 Description: Automation error in the dll	• Open ExcelToCI.xls. • Press Alt + F11 to open the Microsoft Visual Basic Editor. • Select Tools, Add references. • Deselect anything that begins with Microsoft XML. • Browse for c:\winnt\system32msxml4.dll and click OK. • Select that version of msxml and click OK. • Click Save.
Not Authorized (90,6)	The user trying to access this CI from ExcelToCI does not have access to the CI. Please provide access using PeopleTools > Security.

CHAPTER 10

Using WSDL Binding for Component Interfaces

This chapter provides an overview of the PeopleSoft implementation of the WSDL (Web Services Description Language) specification for the set of SOAP (Simple Object Access Protocol) transactions exposed for component interfaces, and covers:

- Setting up Integration Broker.
- Creating the third-party message node.
- Adding security to PeopleSoft objects.

Note. This chapter assumes that you are familiar with web architecture concepts, XML, web services, WSDL, and SOAP.

See Also

http://www.w3.org/TR/wsdl12-bindings

Understanding WSDL and Component Interfaces

SOAP is a simple protocol used for exchanging structured information in a distributed network. WSDL defines the XML grammar for describing network services as collections of communication endpoints capable of exchanging messages.

WSDL service definitions provide documentation for distributed systems and serve as a model for automating the processes involved in applications communication.

You can use both of these technologies with component interfaces.

Note. If a component interface has no authorized methods, WSDL will not be generated for it.

Setting Up Integration Broker

To set up Integration Broker for use with WSDL and component interfaces, you'll need to do the following:

- Ensure that the SOAPTOCI message is active.
- Verify the Message Channel.
- Modify gateway properties.
- Configure the local gateway.

Ensuring That the SOAPTOCI Message Is Active

To check that the message is active:

1. Open PeopleSoft Application Designer.
2. Select File, Open.
3. In the Definition field, select *Message* and enter *SOAPTOCI* for the Name.
4. Click Open.
5. Select File, Definition Properties, select the Use tab, and make sure that the Status Active check box is selected.

Verifying the Message Channel

To verify that IB_CHNL is running:

1. Open the PeopleSoft Application Designer.
2. Select File, Open.
3. Select *Message Channel* from the Definition field.
4. Enter *IB_CHNL* for the name and click OK.
5. Select File, Definition Properties.
6. Check that Message Channel Status is set to Run on the Use tab.

Modifying the Local Gateway

You must configure the properties used by the gateway to connect to the application server. To do this, you must have a valid PeopleSoft user ID and password.

Each PeopleSoft environment that uses WSDL binding for the component interface must have its own Integration Broker running. Enter the following local default server information in this file.

See *Enterprise PeopleTools 8.46 PeopleBook: Integration Broker*, “Managing Integration Gateways”.

Configuring the Local Gateway

To modify the local gateway properties:

1. Open the PeopleSoft Internet Architecture.
2. Select PeopleTools, Integration Broker, Configuration, Gateways.
3. Open the Gateway ID named LOCAL.
4. Enter the gateway URL: *http://machinename:port/PSIGW/PeopleSoftListeningConnector*.

   In this case, *machinename:port* is the machine name and port, host name, or IP address of the web server hosting the gateway. You need to enter a port number for a machine only if the machine is listening on a port other than 9000.

   Note. The URL is case-sensitive.

5. Click Save.
6. Click Load to load the connector information.

7. Click OK.

Editing the Gateway Properties File

To access the Gateway Properties page, click the Gateway Setup Properties link on the Gateways page and enter or change the password to sign on to the

See *Enterprise PeopleTools 8.46 PeopleBook: Integration Broker*, "Managing Integration Gateways," Accessing the integrationGateway.properties File.

1. On the PeopleSoft Node Configuration page, click the link to access the Advanced Properties page.
2. Edit the lines for ig.isc.*

ig.isc.serverURL	Set server URL.
ig.isc.userid	Set user ID.
ig.isc.password	Set user ID password. Make sure to use the encrypted value of the password.
ig.isc.toolsRel	Set Tools release.

For example,

```
ig.isc.serverURL=//MYSERVER:9000
ig.isc.userid=PTDMO
ig.isc.password= SQmYC3cuW0=
ig.isc.toolsRel=8.46
```

3. Click OK.

See *Enterprise PeopleTools 8.46 PeopleBook: Integration Broker*, "Managing Integration Gateways," Using the integrationGateway.properties File.

Creating the Third-Party Message Node

The third-party message node represents the system that will be making the SOAP requests to PeopleSoft.

To create a third-party message node:

1. Open the PeopleSoft Internet Architecture.
2. Select PeopleTools, Integration Broker, Node Definitions.
3. Select Add New Value.
4. Enter a Node Name
5. Click Add
6. Enter node information on the Node Info page.

   See *Enterprise PeopleTools 8.46 PeopleBook: Integration Broker*, "Configuring Nodes and Transactions," Configuring Nodes.
7. Click Save.
8. Select the Transactions tab.

9. Click Add Transactions.

   Enter the following information:

   Transaction Type Select Inbound Synchronous.

   Request Message Select SOAPTOCI.

   Request Message Version Select VERSION_1.

10. Click Add.
11. Select the Messages tab.

    Enter the following in the Response Message group box:

    Name Set to SOAPTOCI.

    Version Set to VERSION_1.

12. Click Save.

Adding Security to PeopleSoft Objects

This section covers:

- Adding security to a component interface.
- Adding security for SOAPTOCI web library.
- Adding security access for WSDL discovery.

Adding Security to a Component Interface

Make sure to check the following items:

- Verify that the component interface you are using is listed; if not, add it.
- Verify that the method access is set appropriately.

  Method access should be set according to user requirements of a particular permission list.

Note. PeopleTools does not support custom methods for WSDL generation.

See *Enterprise PeopleTools 8.46 PeopleBook: Security Administration*, “Setting Up Permission Lists”.

Adding Security for SOAPTOCI Web Library

To verify permissions for SOAPTOCI web library:

1. Select PeopleTools, Security, Permission Lists, and select the appropriate permission list.
2. Select Web Libraries, and verify that WEBLIB_SOAPTOCI web library is listed; if not, add it.
3. Enter WEBLIB_SOAPTOCI in the Web Library Name field.
4. Verify that the Access Permissions are set to *Full Access* for the web library functions.

See *Enterprise PeopleTools 8.46 PeopleBook: Security Administration*, “Setting Up Permission Lists”.

Adding Security Access for WSDL Discovery

To enable WSDL discovery, the user profile must have access to WEBLIB_soaptoci.WEBLIB_soaptoci.WSDLSUMMARY.FieldFormula.IScript_WSDLDiscovery.

In addition, that user profile also needs to have security access for any of the component interfaces that are going to be discovered.

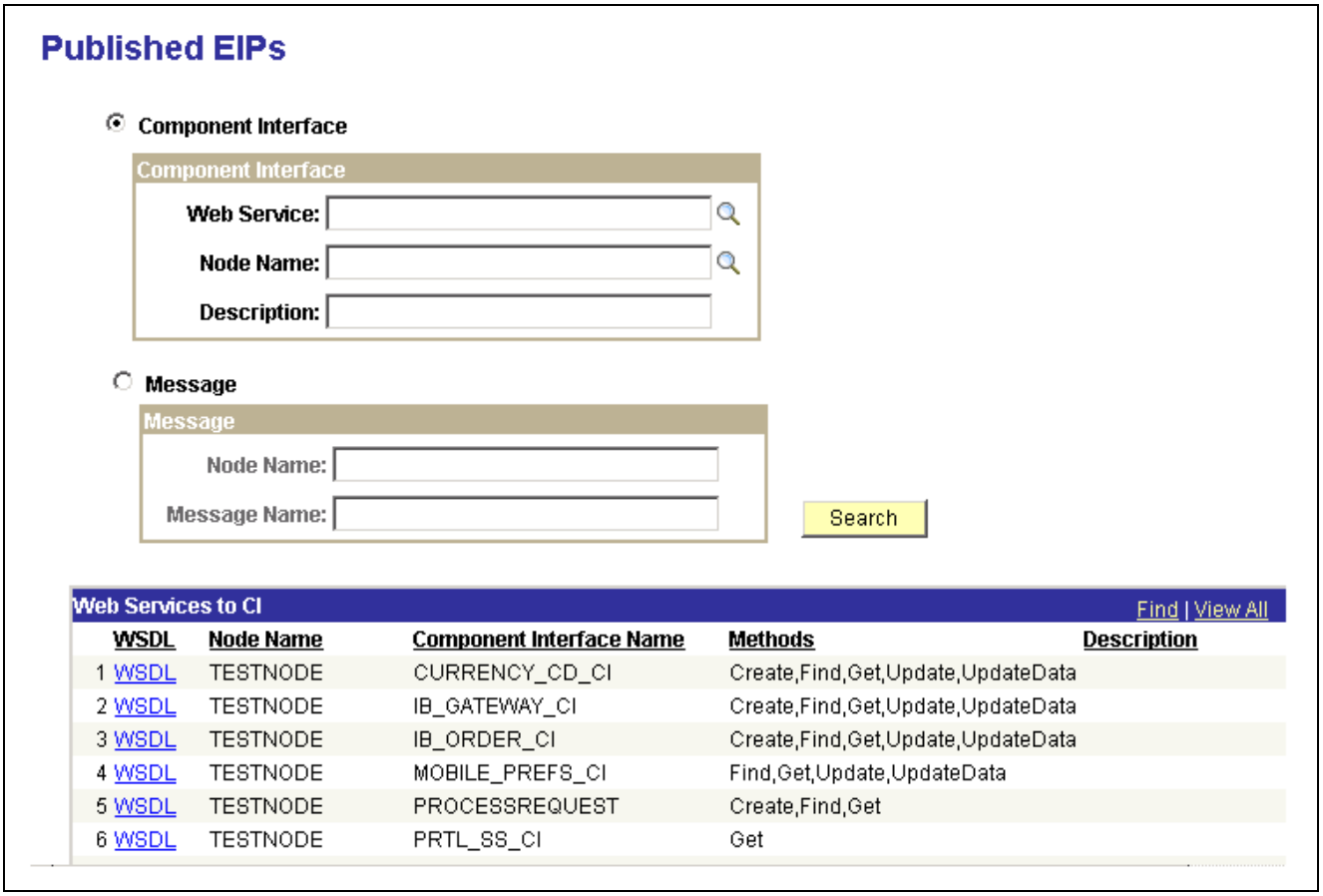
Generating WSDL for a Component Interface

The two approaches for generating the WSDL for a component interface are:

- Using the search capabilities within PeopleSoft on the Web Services for a component interface.
- Using direct access to the iScript through a URL.

Generating WSDL Using PeopleSoft Search Capabilities

Access the Published EIPs page:



Published EIPs page

To generate WSDL, using the PeopleSoft search capability:

1. Select PeopleTools, Integration Broker, Web Services, Published EIPs.
2. Select Component Interface.

3. Click Search to display a list of component interfaces in the system that the given user is authorized to use.

   You can also enter the component interface name in the Web Service field and click Search to display an individual component interface.

   Note. Starting with the 8.46 release, the message node is now available for component interfaces. If you have defined SOAPTOCI against multiple nodes, a row for each node appears for each component interface.

4. Click the WSDL link to open a new window displaying the text of the WSDL.
5. If you have access to the methods of the component interface, they appear under the Methods column.

Note. If your web service supports uploading .wsdl files, you can copy and paste the WSDL into a .wsdl file. You can also save the file using the File, Save functionality in your browser.

Generating WSDL by Directly Accessing the iScript

To access the WSDL directly through a URL string, the user ID and password must be sent in the soap header with the tags *userid* and *pwd*. In addition, the nodename is now required.

Use the following URL format:

```
http://servername:port/psc/ps/PORTAL_NAME/LOCAL_NODE/s/WEBLIB_SO
APTOCI.WSDLSUMMARY.FieldFormula.IScript_WSDLDiscovery?&disconnect=y&postDataBin=⇒
y&APIName=
CI_NAME
Nodename
```

For example:

```
http://MyServer:80/psc/ps/EMPLOYEE/PT_LOCAL/s/WEBLIB_SOAPTOCI.WSDLSUMMAR
Y.FieldFormula.IScript_WSDLDiscovery?&APIName=IB_GATEWAY_CI&nodeName=QE_IBTGT
```

Sending a SOAP Message to a PeopleSoft Application

The following code is an example of the Find request for SOAPTOCI.

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="
http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-ENC="
http://schemas.xmlsoap.org/soap/encoding/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" SOAP-ENV:
encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
  <SOAP-ENV:Header>
<Security xmlns="http://schemas.xmlsoap.org/ws/2002/xx/secext">
    <UsernameToken>
     <Username>string</Username>
     <Password>string</Password>
    </UsernameToken>
   </Security>
     </SOAP-ENV:Header>
  <SOAP-ENV:Body>
```

```
    <Find__CompIntfc__CIName >
     <Key1>String</Key1>
     <Key2>String</Key2>
    </Find__CompIntfc__CIName>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

Note. Passwords will be stripped off unless the log level in integrationgateway.properties file is set to 5.

Note. PeopleSoft does not support namespace prefixes in the body of the SOAP document.

Understanding SOAP Considerations

This section covers SOAP considerations.

Username and Password Considerations

The username and password for the security request portion of the SOAP document cannot refer to the same user that is specified for the integration gateway user. This user must have proper security access to the component interface that you plan to execute, and access to all the SOAPTOCI web library functions.

SOAPAction Header and URL

The WSDL specifies the URL and SOAPAction for sending the SOAP document to a PeopleSoft application. For reference they are shown here:

SOAPAction Header The SOAPAction HTTP header uses this form:

```
http://peoplesoft.com/SOAPTOCI/TESTNODE
```

In this example, TESTNODE is the name of the requesting node.

See Chapter 10, "Using WSDL Binding for Component Interfaces," Creating the Third-Party Message Node, page 121.

URL The SOAP Document should be sent to the following URL:

```
http://servername:port/PSIGW/HTTPListeningConnector
```

Testing SOAP to Component Interface by Using Send Master

To test the SOAP document:

1. Verify the URL by entering it into your browser.

   The URL form is:

   ```
   http://server_name:port/PSIGW/HttpListeningConnector
   ```

2. Locate Send Master in PS_HOME\webserver\<domain_name> .
3. Run the batch file StartSendMaster.bat to start SendMaster test program.

4. Start a new project, enter a project name (SOAPTOCI), then click OK.
5. Enter the HttpListeningConnector URL in the ServerURL field.

   The URL form is:

   ```
   http://server_name:port/PSIGW/HttpListeningConnector
   ```

6. Enter the following headers in the Headers field:

   ```
   Content-Type:text/xml
   http://peoplesoft.com/SOAPTOCI/THIRDPARTYNODE
   ```

   where THIRDPARTYNODE represents the name of the external third-party node that you defined earlier.
7. Enter your SOAP request message in the Input Information field.

   You can use a program such as XML Spy to generate the SOAP request based on the generated WSDL.
8. Click Post to post the SOAP to PeopleSoft.
9. View the response in the Output Information box.

See Also

Enterprise PeopleTools 8.46 PeopleBook: PeopleSoft Integration Testing Utilities and Tools, "Using the Send Master Utility"

Viewing an Example of a Find SOAP Request

The following is an example of a Find SOAP request for component interface SDK_BUS_EXP:

```
<?xml version="1.0"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"⇒
 xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsd="http:⇒
//www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <SOAP-ENV:Header>
        <Security>
            <UsernameToken>
                <Username>QEDMO</Username>
                <Password>QEDMO</Password>
            </UsernameToken>
        </Security>
    </SOAP-ENV:Header>
    <SOAP-ENV:Body>
        <Find__CompIntfc__SDK_BUS_EXP>
            <SDK_EMPLID>80</SDK_EMPLID>
        </Find__CompIntfc__SDK_BUS_EXP>
    </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

The response from PeopleSoft is:

```
<?xml version="1.0"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"⇒
 xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsd="http:⇒
//www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <SOAP-ENV:Header/>
    <SOAP-ENV:Body>
        <Find__CompIntfc__SDK_BUS_EXPResponse>
            <SDK_BUS_EXP>
                <SDK_EMPLID>8001</SDK_EMPLID>
                <SDK_NAME>Schumacher,Simon</SDK_NAME>
                <SDK_LAST_NAME_SRCH>ASD</SDK_LAST_NAME_SRCH>
            </SDK_BUS_EXP>
            <SDK_BUS_EXP>
                <SDK_EMPLID>8052</SDK_EMPLID>
                <SDK_NAME>Avery,Joan</SDK_NAME>
                <SDK_LAST_NAME_SRCH>AVERY</SDK_LAST_NAME_SRCH>
            </SDK_BUS_EXP>
        </Find__CompIntfc__SDK_BUS_EXPResponse>
    </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

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.

academic career In PeopleSoft Enterprise Campus Solutions, all course work that a student undertakes at an academic institution and that is grouped in a single student record. For example, a university that has an undergraduate school, a graduate school, and various professional schools might define several academic careers—an undergraduate career, a graduate career, and separate careers for each professional school (law school, medical school, dental school, and so on).

academic institution In PeopleSoft Enterprise Campus Solutions, an entity (such as a university or college) that is independent of other similar entities and that has its own set of rules and business processes.

academic organization In PeopleSoft Enterprise Campus Solutions, an entity that is part of the administrative structure within an academic institution. At the lowest level, an academic organization might be an academic department. At the highest level, an academic organization can represent a division.

academic plan In PeopleSoft Enterprise Campus Solutions, an area of study—such as a major, minor, or specialization—that exists within an academic program or academic career.

academic program In PeopleSoft Enterprise Campus Solutions, the entity to which a student applies and is admitted and from which the student graduates.

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 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 another—and a reason for that action. Action reasons are used by PeopleSoft Human Resources, PeopleSoft Benefits Administration,

PeopleSoft Stock Administration, and the COBRA Administration feature of the Base Benefits business process.

action template In PeopleSoft Receivables, outlines a set of escalating actions that the system or user performs based on the period of time that a customer or item has been in an action plan for a specific condition.

activity In PeopleSoft Enterprise Learning Management, an instance of a catalog item (sometimes called a class) that is available for enrollment. The activity defines such things as the costs that are associated with the offering, enrollment limits and deadlines, and waitlisting capacities.

In PeopleSoft Enterprise Performance Management, the work of an organization and the aggregation of actions that are used for activity-based costing.

In PeopleSoft Project Costing, the unit of work that provides a further breakdown of projects—usually into specific tasks.

In PeopleSoft Workflow, a specific transaction that you might need to perform in a business process. Because it consists of the steps that are used to perform a transaction, it is also known as a step map.

address usage In PeopleSoft Enterprise Campus Solutions, a grouping of address types defining the order in which the address types are used. For example, you might define an address usage code to process addresses in the following order: billing address, dormitory address, home address, and then work address.

adjustment calendar In PeopleSoft Enterprise Campus Solutions, the adjustment calendar controls how a particular charge is adjusted on a student's account when the student drops classes or withdraws from a term. The charge adjustment is based on how much time has elapsed from a predetermined date, and it is determined as a percentage of the original charge amount.

administrative function In PeopleSoft Enterprise Campus Solutions, a particular functional area that processes checklists, communication, and comments. The administrative function identifies which variable data is added to a person's checklist or communication record when a specific checklist code, communication category, or comment is assigned to the student. This key data enables you to trace that checklist, communication, or comment back to a specific processing event in a functional area.

admit type In PeopleSoft Enterprise Campus Solutions, a designation used to distinguish first-year applications from transfer applications.

agreement In PeopleSoft eSettlements, provides a way to group and specify processing options, such as payment terms, pay from a bank, and notifications by a buyer and supplier location combination.

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.

analysis database In PeopleSoft Enterprise Campus Solutions, database tables that store large amounts of student information that may not appear in standard report formats. The analysis database tables contain keys for all objects in a report that an application program can use to reference other student-record objects that are not contained in the printed report. For instance, the analysis database contains data on courses that are considered for satisfying a requirement but that are rejected. It also contains information on

	courses captured by global limits. An analysis database is used in PeopleSoft Enterprise Academic Advisement.
Application Messaging	PeopleSoft Application Messaging enables applications within the PeopleSoft Enterprise product family to communicate synchronously or asynchronously with other PeopleSoft and third-party applications. An application message defines the records and fields to be published or subscribed to.
AR specialist	Abbreviation for *receivables specialist.* In PeopleSoft Receivables, an individual in who tracks and resolves deductions and disputed items.
arbitration plan	In PeopleSoft Enterprise Pricer, defines how price rules are to be applied to the base price when the transaction is priced.
assessment rule	In PeopleSoft Receivables, a user-defined rule that the system uses to evaluate the condition of a customer's account or of individual items to determine whether to generate a follow-up action.
asset class	An asset group used for reporting purposes. It can be used in conjunction with the asset category to refine asset classification.
attribute/value pair	In PeopleSoft Directory Interface, relates the data that makes up an entry in the directory information tree.
audience	In PeopleSoft Enterprise Campus Solutions, a segment of the database that relates to an initiative, or a membership organization that is based on constituent attributes rather than a dues-paying structure. Examples of audiences include the Class of '65 and Undergraduate Arts & Sciences.
authentication server	A server that is set up to verify users of the system.
base time period	In PeopleSoft Business Planning, the lowest level time period in a calendar.
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.
billing career	In PeopleSoft Enterprise Campus Solutions, the one career under which other careers are grouped for billing purposes if a student is active simultaneously in multiple careers.
bio bit or bio brief	In PeopleSoft Enterprise Campus Solutions, a report that summarizes information stored in the system about a particular constituent. You can generate standard or specialized reports.
book	In PeopleSoft Asset Management, used for storing financial and tax information, such as costs, depreciation attributes, and retirement information on assets.
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 activity The name of a subset of a detailed business process. This might be a specific transaction, task, or action that you perform in a business process.

business event In PeopleSoft Receivables, defines the processing characteristics for the Receivable Update process for a draft activity.

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).

business process A standard set of 17 business processes are defined and maintained by the PeopleSoft product families and are supported by Business Process Engineering group at PeopleSoft. An example of a business process is Order Fulfillment, which is a business process that manages sales orders and contracts, inventory, billing, and so forth.

See also *detailed business process.*

business task The name of the specific function depicted in one of the business processes.

business unit A corporation or a subset of a corporation that is independent with regard to one or more operational or accounting functions.

buyer In PeopleSoft eSettlements, an organization (or business unit, as opposed to an individual) that transacts with suppliers (vendors) within the system. A buyer creates payments for purchases that are made in the system.

campus In PeopleSoft Enterprise Campus Solutions, an entity that is usually associated with a distinct physical administrative unit, that belongs to a single academic institution, that uses a unique course catalog, and that produces a common transcript for students within the same academic career.

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. A catalog item can have one or more learning activities.

catalog map In PeopleSoft Catalog Management, translates values from the catalog source data to the format of the company’s catalog.

catalog partner In PeopleSoft Catalog Management, shares responsibility with the enterprise catalog manager for maintaining catalog content.

categorization Associates partner offerings with catalog offerings and groups them into enterprise catalog categories.

category In PeopleSoft Enterprise Campus Solutions, a broad grouping to which specific comments or communications (contexts) are assigned. Category codes are also linked to 3C access groups so that you can assign data-entry or view-only privileges across functions.

channel In PeopleSoft MultiChannel Framework, email, chat, voice (computer telephone integration [CTI]), or a generic event.

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.

checkbook In PeopleSoft Promotions Management, enables you to view financial data (such as planned, incurred, and actual amounts) that is related to funds and trade promotions.

checklist code In PeopleSoft Enterprise Campus Solutions, a code that represents a list of planned or completed action items that can be assigned to a staff member, volunteer, or unit. Checklists enable you to view all action assignments on one page.

class In PeopleSoft Enterprise Campus Solutions, a specific offering of a course component within an academic term.

See also *course.*

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.*

clearance In PeopleSoft Enterprise Campus Solutions, the period of time during which a constituent in PeopleSoft Contributor Relations is approved for involvement in an initiative or an action. Clearances are used to prevent development officers from making multiple requests to a constituent during the same time period.

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.

cohort In PeopleSoft Enterprise Campus Solutions, the highest level of the three-level classification structure that you define for enrollment management. You can define a cohort level, link it to other levels, and set enrollment target numbers for it.

See also *population* and *division*.

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.

collection rule In PeopleSoft Receivables, a user-defined rule that defines actions to take for a customer based on both the amount and the number of days past due for outstanding balances.

comm key See *communication key.*

communication key In PeopleSoft Enterprise Campus Solutions, a single code for entering a combination of communication category, communication context, communication method, communication direction, and standard letter code. Communication keys (also called *comm keys* or *speed keys*) can be created for background processes as well as for specific users.

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.

component interface A component interface is a set of application programming interfaces (APIs) that you can use to access and modify PeopleSoft database information using a program instead of the PeopleSoft client.

condition In PeopleSoft Receivables, occurs when there is a change of status for a customer's account, such as reaching a credit limit or exceeding a user-defined balance due.

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.

constituents In PeopleSoft Enterprise Campus Solutions, friends, alumni, organizations, foundations, or other entities affiliated with the institution, and about which the institution maintains information. The constituent types delivered with PeopleSoft Enterprise Contributor Relations Solutions are based on those defined by the Council for the Advancement and Support of Education (CASE).

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 PeopleCode, determines which buffer fields can be contextually referenced and which is the current row of data on each scroll level when a PeopleCode program is running.

In PeopleSoft Enterprise Campus Solutions, a specific instance of a comment or communication. One or more contexts are assigned to a category, which you link to 3C access groups so that you can assign data-entry or view-only privileges across functions.

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.

control table Stores information that controls the processing of an application. This type of processing might be consistent throughout an organization, or it might be used only by portions of the organization for more limited sharing of data.

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.

course In PeopleSoft Enterprise Campus Solutions, a course that is offered by a school and that is typically described in a course catalog. A course has a standard syllabus and credit level; however, these may be modified at the class level. Courses can contain multiple components such as lecture, discussion, and lab.

See also *class*.

course share set In PeopleSoft Enterprise Campus Solutions, a tag that defines a set of requirement groups that can share courses. Course share sets are used in PeopleSoft Enterprise Academic Advisement.

current learning In PeopleSoft Enterprise Learning Management, a self-service repository for all of a learner's in-progress learning activities and programs.

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 cube In PeopleSoft Analytic Calculation Engine, a data cube is a container for one kind of data (such as Sales data) and works with in tandem with one or more dimensions. Dimensions and data cubes in PeopleSoft Analytic Calculation Engine are unrelated to dimensions and online analytical processing (OLAP) cubes in PeopleSoft Cube Manager.

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.

dataset A data grouping that enables role-based filtering and distribution of data. You can limit the range and quantity of data that is displayed for a user by associating dataset rules with user roles. The result of dataset rules is a set of data that is appropriate for the user's roles.

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

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

delivery method type In PeopleSoft Enterprise Learning Management, identifies how learning activities can be delivered—for example, through online learning, classroom instruction, seminars, books, and so forth—in an organization. The type determines whether the delivery method includes scheduled components.

detailed business process A subset of the business process. For example, the detailed business process named Determine Cash Position is a subset of the business process called Cash Management.

dimension In PeopleSoft Analytic Calculation Engine, a dimension contains a list of one kind of data that can span various contexts, and it is a basic component of an analytic model. Within the analytic model, a dimension is attached to one or more data cubes. In PeopleSoft Cube Manager, a dimension is the most basic component of an OLAP cube and specifies the PeopleSoft metadata to be used to create the dimension's rollup structure. Dimensions and data cubes in PeopleSoft Analytic Calculation Engine are unrelated to dimensions and OLAP cubes in PeopleSoft Cube Manager.

directory information tree In PeopleSoft Directory Interface, the representation of a directory's hierarchical structure.

division In PeopleSoft Enterprise Campus Solutions, the lowest level of the three-level classification structure that you define in PeopleSoft Enterprise Recruiting and Admissions for enrollment management. You can define a division level, link it to other levels, and set enrollment target numbers for it.

See also *population* and *cohort*.

document sequencing A flexible method that sequentially numbers the financial transactions (for example, bills, purchase orders, invoices, and payments) in the system for statutory reporting and for tracking commercial transaction activity.

dynamic detail tree A tree that takes its detail values—dynamic details—directly from a table in the database, rather than from a range of values that are entered by the user.

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 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.

elimination set In PeopleSoft General Ledger, a related group of intercompany accounts that is processed during consolidations.

entry event In PeopleSoft General Ledger, Receivables, Payables, Purchasing, and Billing, a business process that generates multiple debits and credits resulting from single transactions to produce standard, supplemental accounting entries.

equitization In PeopleSoft General Ledger, a business process that enables parent companies to calculate the net income of subsidiaries on a monthly basis and adjust that amount to increase the investment amount and equity income amount before performing consolidations.

equity item limit In PeopleSoft Enterprise Campus Solutions, the amounts of funds set by the institution to be awarded with discretionary or gift funds. The limit could be reduced by amounts equal to such things as expected family contribution (EFC) or parent contribution. Students are packaged by Equity Item Type Groups and Related Equity Item Types. This limit can be used to assure that similar student populations are packaged equally.

event A predefined point either in the Component Processor flow or in the program flow. As each point is encountered, the event activates each component, triggering any PeopleCode program that is associated with that component and that event. Examples of events are FieldChange, SavePreChange, and RowDelete.

In PeopleSoft Human Resources, also refers to an incident that affects 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.

exception In PeopleSoft Receivables, an item that either is a deduction or is in dispute.

exclusive pricing In PeopleSoft Order Management, a type of arbitration plan that is associated with a price rule. Exclusive pricing is used to price sales order transactions.

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.

financial aid term In PeopleSoft Enterprise Campus Solutions, a combination of a period of time that the school determines as an instructional accounting period and an academic career. It is created and defined during the setup process. Only terms eligible for financial aid are set up for each financial aid career.

forecast item A logical entity with a unique set of descriptive demand and forecast data that is used as the basis to forecast demand. You create forecast items for a wide range of uses, but they ultimately represent things that you buy, sell, or use in your organization and for which you require a predictable usage.

fund In PeopleSoft Promotions Management, a budget that can be used to fund promotional activity. There are four funding methods: top down, fixed accrual, rolling accrual, and zero-based accrual.

gap In PeopleSoft Enterprise Campus Solutions, an artificial figure that sets aside an amount of unmet financial aid need that is not funded with Title IV funds. A gap can be used to prevent fully funding any student to conserve funds, or it can be used to preserve unmet financial aid need so that institutional funds can be awarded.

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.

gift table In PeopleSoft Enterprise Campus Solutions, a table or so-called *donor pyramid* describing the number and size of gifts that you expect will be needed to successfully complete the campaign in PeopleSoft Contributor Relations. The gift table enables you to estimate the number of donors and prospects that you need at each gift level to reach the campaign goal.

GL business unit Abbreviation for *general ledger business unit.* A unit in an organization that is an independent entity for accounting purposes. It maintains its own set of accounting books.

See also *business unit*.

GL entry template Abbreviation for *general ledger entry template.* In PeopleSoft Enterprise Campus Solutions, a template that defines how a particular item is sent to the general ledger. An item-type maps to the general ledger, and the GL entry template can involve multiple general ledger accounts. The entry to the general ledger is further controlled by high-level flags that control the summarization and the type of accounting—that is, accrual or cash.

GL Interface process Abbreviation for *General Ledger Interface process.* In PeopleSoft Enterprise Campus Solutions, a process that is used to send transactions from PeopleSoft Enterprise Student Financials to the general ledger. Item types are mapped to specific general ledger accounts, enabling transactions to move to the general ledger when the GL Interface process is run.

group In PeopleSoft Billing and Receivables, a posting entity that comprises one or more transactions (items, deposits, payments, transfers, matches, or write-offs).

In PeopleSoft Human Resources Management and Supply Chain Management, any set of records that are associated under a single name or variable to run calculations in PeopleSoft business processes. In PeopleSoft Time and Labor, for example, employees are placed in groups for time reporting purposes.

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.

incur In PeopleSoft Promotions Management, to become liable for a promotional payment. In other words, you owe that amount to a customer for promotional activities.

initiative In PeopleSoft Enterprise Campus Solutions, the basis from which all advancement plans are executed. It is an organized effort targeting a specific constituency, and it can occur over a specified period of time with specific purposes and goals. An initiative can be a campaign, an event, an organized volunteer effort, a membership drive, or any other type of effort defined by the institution. Initiatives can be multipart, and they can be related to other initiatives. This enables you to track individual parts of an initiative, as well as entire initiatives.

inquiry access In PeopleSoft Enterprise Campus Solutions, a type of security access that permits the user only to view data.

See also *update access.*

institution In PeopleSoft Enterprise Campus Solutions, an entity (such as a university or college) that is independent of other similar entities and that has its own set of rules and business processes.

integration A relationship between two compatible integration points that enables communication to take place between systems. Integrations enable PeopleSoft applications to work seamlessly with other PeopleSoft applications or with third-party systems or software.

integration point An interface that a system uses to communicate with another PeopleSoft application or an external application.

integration set A logical grouping of integrations that applications use for the same business purpose. For example, the integration set ADVANCED_SHIPPING_ORDER contains all of the integrations that notify a customer that an order has shipped.

item In PeopleSoft Inventory, a tangible commodity that is stored in a business unit (shipped from a warehouse).

In PeopleSoft Demand Planning, Inventory Policy Planning, and Supply Planning, a noninventory item that is designated as being used for planning purposes only. It can represent a family or group of inventory items. It can have a planning bill of material (BOM) or planning routing, and it can exist as a component on a planning BOM. A planning item cannot be specified on a production or engineering BOM or routing, and it cannot be used as a component in a production. The quantity on hand will never be maintained.

In PeopleSoft Receivables, an individual receivable. An item can be an invoice, a credit memo, a debit memo, a write-off, or an adjustment.

item shuffle In PeopleSoft Enterprise Campus Solutions, a process that enables you to change a payment allocation without having to reverse the payment.

joint communication In PeopleSoft Enterprise Campus Solutions, one letter that is addressed jointly to two people. For example, a letter might be addressed to both Mr. Sudhir Awat and Ms. Samantha Mortelli. A relationship must be established between the two individuals in the database, and at least one of the individuals must have an ID in the database.

keyword In PeopleSoft Enterprise Campus Solutions, a term that you link to particular elements within PeopleSoft Student Financials, Financial Aid, and Contributor Relations. You can use keywords as search criteria that enable you to locate specific records in a search dialog box.

KPI An abbreviation for *key performance indicator.* A high-level measurement of how well an organization is doing in achieving critical success factors. This defines the data value or calculation upon which an assessment is determined.

LDIF file Abbreviation for *Lightweight Directory Access Protocol (LDAP) Data Interchange Format file.* Contains discrepancies between PeopleSoft data and directory data.

learner group In PeopleSoft Enterprise Learning Management, a group of learners who are linked to the same learning environment. Members of the learner group can share the same attributes, such as the same department or job code. Learner groups are used to control access to and enrollment in learning activities and programs. They are also used to perform group enrollments and mass enrollments in the back office.

learning components In PeopleSoft Enterprise Learning Management, the foundational building blocks of learning activities. PeopleSoft Enterprise Learning Management supports six basic types of learning components: web-based, session, webcast, test, survey, and assignment. One or more of these learning component types compose a single learning activity.

learning environment In PeopleSoft Enterprise Learning Management, identifies a set of categories and catalog items that can be made available to learner groups. Also defines the default values that are assigned to the learning activities and programs that are created within a particular learning environment. Learning environments provide a way to partition the catalog so that learners see only those items that are relevant to them.

learning history In PeopleSoft Enterprise Learning Management, a self-service repository for all of a learner's completed learning activities and programs.

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.

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.

LMS Abbreviation for *learning management system.* In PeopleSoft Enterprise Campus Solutions, LMS is a PeopleSoft Student Records feature that provides a common set of interoperability standards that enable the sharing of instructional content and data between learning and administrative environments.

load In PeopleSoft Inventory, identifies a group of goods that are shipped together. Load management is a feature of PeopleSoft Inventory that is used to track the weight, the volume, and the destination of a shipment.

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 addresses—for a company, for example, one address to receive bills, another for shipping, a third for postal deliveries, and a separate street address. Each address has a different location number. The primary location—indicated by a *1*—is the address you use most often and may be different from the main address.

logistical task In PeopleSoft Services Procurement, an administrative task that is related to hiring a service provider. Logistical tasks are linked to the service type on the work order so that different types of services can have different logistical tasks. Logistical tasks include both preapproval tasks (such as assigning a new badge or ordering a new laptop) and postapproval tasks (such as scheduling orientation or setting up the service provider email). The logistical tasks can be mandatory or optional. Mandatory preapproval tasks must be completed before the work order is approved. Mandatory postapproval tasks, on the other hand, must be completed before a work order is released to a service provider.

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.

mass change In PeopleSoft Enterprise Campus Solutions, mass change is a SQL generator that can be used to create specialized functionality. Using mass change, you can set up a series of Insert, Update, or Delete SQL statements to perform business functions that are specific to the institution.

See also *3C engine*.

match group In PeopleSoft Receivables, a group of receivables items and matching offset items. The system creates match groups by using user-defined matching criteria for selected field values.

MCF server Abbreviation for *PeopleSoft MultiChannel Framework server.* Comprises the universal queue server and the MCF log server. Both processes are started when *MCF Servers* is selected in an application server domain configuration.

merchandising activity In PeopleSoft Promotions Management, a specific discount type that is associated with a trade promotion (such as off-invoice, billback or rebate, or lump-sum payment) that defines the performance that is required to receive the discount. In the industry, you may know this as an offer, a discount, a merchandising event, an event, or a tactic.

meta-SQL Meta-SQL constructs expand into platform-specific Structured Query Language (SQL) substrings. They are used in functions that pass SQL strings, such as in SQL objects, the 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 In PeopleSoft General Ledger, multiple ledgers having multiple-base currencies that are defined for a business unit, with the option to post a single transaction to all base currencies (all ledgers) or to only one of those base currencies (ledgers).

multicurrency The ability to process transactions in a currency other than the business unit's base currency.

national allowance In PeopleSoft Promotions Management, a promotion at the corporate level that is funded by nondiscretionary dollars. In the industry, you may know this as a national promotion, a corporate promotion, or a corporate discount.

need In PeopleSoft Enterprise Campus Solutions, the difference between the cost of attendance (COA) and the expected family contribution (EFC). It is the gap between the cost of attending the school and the student's resources. The financial aid package

	is based on the amount of financial need. The process of determining a student's need is called *need analysis.*
node-oriented tree	A tree that is based on a detail structure, but the detail values are not used.
pagelet	Each block of content on the home page is called a pagelet. These pagelets display summary information within a small rectangular area on the page. The pagelet provide users with a snapshot of their most relevant PeopleSoft and non-PeopleSoft content.
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 *compensation object.*
partner	A company that supplies products or services that are resold or purchased by the enterprise.
pay cycle	In PeopleSoft Payables, a set of rules that define the criteria by which it should select scheduled payments for payment creation.
payment shuffle	In PeopleSoft Enterprise Campus Solutions, a process allowing payments that have been previously posted to a student's account to be automatically reapplied when a higher priority payment is posted or the payment allocation definition is changed.
pending item	In PeopleSoft Receivables, an individual receivable (such as an invoice, a credit memo, or a write-off) that has been entered in or created by the system, but hasn't been posted.
PeopleCode	PeopleCode is a proprietary language, executed by the PeopleSoft component processor. PeopleCode generates results based on existing data or user actions. By using various tools provided with PeopleTools, external services are available to all PeopleSoft applications wherever PeopleCode can be executed.
PeopleCode event	See *event.*
PeopleSoft Pure Internet Architecture	The fundamental architecture on which PeopleSoft 8 applications are constructed, consisting of a relational database management system (RDBMS), an application server, a web server, and a browser.
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.
person of interest	A person about whom the organization maintains information but who is not part of the workforce.
personal portfolio	In PeopleSoft Enterprise Campus Solutions, the user-accessible menu item that contains an individual's name, address, telephone number, and other personal information.
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 context—if three participants are on a compensation structure, each has a different plan context. Configuration plans are identified by plan contexts and are associated with the participants that refer to them.

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.

planned learning In PeopleSoft Enterprise Learning Management, a self-service repository for all of a learner's planned learning activities and programs.

planning instance In PeopleSoft Supply Planning, a set of data (business units, items, supplies, and demands) constituting the inputs and outputs of a supply plan.

population In PeopleSoft Enterprise Campus Solutions, the middle level of the three-level classification structure that you define in PeopleSoft Enterprise Recruiting and Admissions for enrollment management. You can define a population level, link it to other levels, and set enrollment target numbers for it.

See also *division* and *cohort*.

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.

price list In PeopleSoft Enterprise Pricer, enables you to select products and conditions for which the price list applies to a transaction. During a transaction, the system either determines the product price based on the predefined search hierarchy for the transaction or uses the product's lowest price on any associated, active price lists. This price is used as the basis for any further discounts and surcharges.

price rule In PeopleSoft Enterprise Pricer, defines the conditions that must be met for adjustments to be applied to the base price. Multiple rules can apply when conditions of each rule are met.

price rule condition In PeopleSoft Enterprise Pricer, selects the price-by fields, the values for the price-by fields, and the operator that determines how the price-by fields are related to the transaction.

price rule key In PeopleSoft Enterprise Pricer, defines the fields that are available to define price rule conditions (which are used to match a transaction) on the price rule.

primacy number In PeopleSoft Enterprise Campus Solutions, a number that the system uses to prioritize financial aid applications when students are enrolled in multiple academic careers and academic programs at the same time. The Consolidate Academic Statistics process uses the primacy number indicated for both the career and program at the institutional level to determine a student's primary career and program. The system also uses the number to determine the primary student attribute value that is used when you extract data to report on cohorts. The lowest number takes precedence.

primary name type In PeopleSoft Enterprise Campus Solutions, the name type that is used to link the name stored at the highest level within the system to the lower-level set of names that an individual provides.

process category In PeopleSoft Process Scheduler, processes that are grouped for server load balancing and prioritization.

process group In PeopleSoft Financials, a group of application processes (performed in a defined order) that users can initiate in real time, directly from a transaction entry page.

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 a Structured Query Report (SQR), a COBOL or Application Engine 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 A PeopleSoft or third-party product. PeopleSoft organizes its software products into product families and product lines. Interactive Services Repository contains information about every release of every product that PeopleSoft sells, as well as products from certified third-party companies. These products are displayed with the product name and release number.

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.

product family A group of products that are related by common functionality. The family names that can be searched using Interactive Service Repository are PeopleSoft Enterprise, PeopleSoft EnterpriseOne, PeopleSoft World, and third-party, certified PeopleSoft partners.

product line The name of a PeopleSoft product line or the company name of a third-party certified partner. Integration Services Repository enables you to search for integration points by product line.

programs In PeopleSoft Enterprise Learning Management, a high-level grouping that guides the learner along a specific learning path through sections of catalog items. PeopleSoft Enterprise Learning Systems provides two types of programs—curricula and certifications.

progress log In PeopleSoft Services Procurement, tracks deliverable-based projects. This is similar to the time sheet in function and process. The service provider contact uses the progress log to record and submit progress on deliverables. The progress can be logged by the activity that is performed, by the percentage of work that is completed, or by the completion of milestone activities that are defined for the project.

project transaction In PeopleSoft Project Costing, an individual transaction line that represents a cost, time, budget, or other transaction row.

promotion In PeopleSoft Promotions Management, a trade promotion, which is typically funded from trade dollars and used by consumer products manufacturers to increase sales volume.

prospects

In PeopleSoft Enterprise Campus Solutions, students who are interested in applying to the institution.

In PeopleSoft Enterprise Contributor Relations, individuals and organizations that are most likely to make substantial financial commitments or other types of commitments to the institution.

publishing

In PeopleSoft Enterprise Incentive Management, a stage in processing that makes incentive-related results available to participants.

rating components

In PeopleSoft Enterprise Campus Solutions, variables used with the Equation Editor to retrieve specified populations.

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.*

recname

The name of a record that is used to determine the associated field to match a value or set of values.

recognition

In PeopleSoft Enterprise Campus Solutions, the recognition type indicates whether the PeopleSoft Enterprise Contributor Relations donor is the primary donor of a commitment or shares the credit for a donation. Primary donors receive hard credit that must total 100 percent. Donors that share the credit are given soft credit. Institutions can also define other share recognition-type values such as memo credit or vehicle credit.

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.

regional sourcing

In PeopleSoft Purchasing, provides the infrastructure to maintain, display, and select an appropriate vendor and vendor pricing structure that is based on a regional sourcing model where the multiple ship to locations are grouped. Sourcing may occur at a level higher than the ship to location.

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.

remote data source data Data that is extracted from a separate database and migrated into the local database.

REN server Abbreviation for *real-time event notification server* in PeopleSoft MultiChannel Framework.

requester In PeopleSoft eSettlements, an individual who requests goods or services and whose ID appears on the various procurement pages that reference purchase orders.

reversal indicator In PeopleSoft Enterprise Campus Solutions, an indicator that denotes when a particular payment has been reversed, usually because of insufficient funds.

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.

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.

roll up In a tree, to roll up is to total sums based on the information hierarchy.

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.

SCP SCBM XML message Abbreviation for *Supply Chain Planning Supply Chain Business Modeler Extensible Markup Language message.* PeopleSoft EnterpriseOne Supply Chain Business Modeler uses XML as the format for all data that it imports and exports.

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.

search/match In PeopleSoft Enterprise Campus Solutions and PeopleSoft Enterprise Human Resources Management Solutions, a feature that enables you to search for and identify duplicate records in the database.

seasonal address In PeopleSoft Enterprise Campus Solutions, an address that recurs for the same length of time at the same time of year each year until adjusted or deleted.

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.

serial genealogy In PeopleSoft Manufacturing, the ability to track the composition of a specific, serial-controlled item.

serial in production In PeopleSoft Manufacturing, enables the tracing of serial information for manufactured items. This is maintained in the Item Master record.

service impact In PeopleSoft Enterprise Campus Solutions, the resulting action triggered by a service indicator. For example, a service indicator that reflects nonpayment of account balances by a student might result in a service impact that prohibits registration for classes.

service indicator In PeopleSoft Enterprise Campus Solutions, indicates services that may be either withheld or provided to an individual. Negative service indicators indicate holds that prevent the individual from receiving specified services, such as check-cashing privileges or registration for classes. Positive service indicators designate special services that are provided to the individual, such as front-of-line service or special services for disabled students.

session In PeopleSoft Enterprise Campus Solutions, time elements that subdivide a term into multiple time periods during which classes are offered. In PeopleSoft Contributor Relations, a session is the means of validating gift, pledge, membership, or adjustment data entry . It controls access to the data entered by a specific user ID. Sessions are balanced, queued, and then posted to the institution's financial system. Sessions must be posted to enter a matching gift or pledge payment, to make an adjustment, or to process giving clubs or acknowledgements.

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 activity—characteristics such as days of the week, start and end times, facility and room assignments, instructors, and equipment. A session pattern template can be attached to an activity that is being scheduled. Attaching a template to an activity causes all of the default template information to populate the activity session pattern.

setup relationship In PeopleSoft Enterprise Incentive Management, a relationship object type that associates a configuration plan with any structure node.

share driver expression In PeopleSoft Business Planning, a named planning method similar to a driver expression, but which you can set up globally for shared use within a single planning application or to be shared between multiple planning applications through PeopleSoft Enterprise Warehouse.

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 key process In PeopleSoft Enterprise Campus Solutions, a process that relates a particular transaction to the source of the charge or financial aid. On selected pages, you can drill down into particular charges.

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.

speed key See *communication key.*

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.

staging A method of consolidating selected partner offerings with the offerings from the enterprise's other partners.

standard letter code In PeopleSoft Enterprise Campus Solutions, a standard letter code used to identify each letter template available for use in mail merge functions. Every letter generated in the system must have a standard letter code identification.

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.

storage level In PeopleSoft Inventory, identifies the level of a material storage location. Material storage locations are made up of a business unit, a storage area, and a storage level. You can set up to four storage levels.

subcustomer qualifier A value that groups customers into a division for which you can generate detailed history, aging, events, and profiles.

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 time period In PeopleSoft Business Planning, any time period (other than a base time period) that is an aggregate of other time periods, including other summary time periods and base time periods, such as quarter and year total.

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.

syndicate To distribute a production version of the enterprise catalog to partners.

system function In PeopleSoft Receivables, an activity that defines how the system generates accounting entries for the general ledger.

TableSet A means of sharing similar sets of values in control tables, where the actual data values are different but the structure of the tables is the same.

TableSet sharing Shared data that is stored in many tables that are based on the same TableSets. Tables that use TableSet sharing contain the SETID field as an additional key or unique identifier.

target currency The value of the entry currency or currencies converted to a single currency for budget viewing and inquiry purposes.

tax authority In PeopleSoft Enterprise Campus Solutions, a user-defined element that combines a description and percentage of a tax with an account type, an item type, and a service impact.

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.

third party A company or vendor that has extensive PeopleSoft product knowledge and whose products and integrations have been certified and are compatible with PeopleSoft applications.

3C engine Abbreviation for *Communications, Checklists, and Comments engine.* In PeopleSoft Enterprise Campus Solutions, the 3C engine enables you to automate business processes that involve additions, deletions, and updates to communications, checklists, and comments. You define events and triggers to engage the engine, which runs the mass change and processes the 3C records (for individuals or organizations) immediately and automatically from within business processes.

3C group Abbreviation for *Communications, Checklists, and Comments group.* In PeopleSoft Enterprise Campus Solutions, a method of assigning or restricting access privileges. A 3C group enables you to group specific communication categories, checklist codes, and comment categories. You can then assign the group inquiry-only access or update access, as appropriate.

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.

trace usage In PeopleSoft Manufacturing, enables the control of which components will be traced during the manufacturing process. Serial- and lot-controlled components can be traced. This is maintained in the Item Master record.

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 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.

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.

tuition lock In PeopleSoft Enterprise Campus Solutions, a feature in the Tuition Calculation process that enables you to specify a point in a term after which students are charged a minimum (or *locked*) fee amount. Students are charged the locked fee amount even if they later drop classes and take less than the normal load level for that tuition charge.

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.

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.

update access In PeopleSoft Enterprise Campus Solutions, a type of security access that permits the user to edit and update data.

See also *inquiry access.*

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.

VAT exception Abbreviation for *value-added tax exception.* A temporary or permanent exemption from paying VAT that is granted to an organization. This terms refers to both VAT exoneration and VAT suspension.

VAT exempt Abbreviation for *value-added tax exempt.* Describes goods and services that are not subject to VAT. Organizations that supply exempt goods or services are unable to recover the related input VAT. This is also referred to as exempt without recovery.

VAT exoneration Abbreviation for *value-added tax exoneration.* An organization that has been granted a permanent exemption from paying VAT due to the nature of that organization.

VAT suspension Abbreviation for *value-added tax suspension.* An organization that has been granted a temporary exemption from paying VAT.

warehouse A PeopleSoft data warehouse that consists of predefined ETL maps, data warehouse tools, and DataMart definitions.

work order In PeopleSoft Services Procurement, enables an enterprise to create resource-based and deliverable-based transactions that specify the basic terms and conditions for hiring a specific service provider. When a service provider is hired, the service provider logs time or progress against the work order.

worker A person who is part of the workforce; an employee or a contingent worker.

workset A group of people and organizations that are linked together as a set. You can use worksets to simultaneously retrieve the data for a group of people and organizations and work with the information on a single page.

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.

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.

XML link The XML Linking language enables you to insert elements into XML documents to create a links between resources.

XML schema An XML definition that standardizes the representation of application messages, component interfaces, or business interlinks.

XPI Abbreviation for *eXtended Process Integrator.* PeopleSoft XPI is the integration infrastructure that enables both real-time and batch communication with EnterpriseOne applications.

yield by operation In PeopleSoft Manufacturing, the ability to plan the loss of a manufactured item on an operation-by-operation basis.

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. Organizations that supply zero-rated goods and services can still recover the related input VAT. This is also referred to as exempt with recovery.

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