WebSphere Adapters

Version 6 Release 1

WebSphere Adapter for PeopleSoft Enterprise User Guide
Version 6 Release 1

WebSphere® Adapters

IBM

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Note
Before using this information and the product it supports, read the information in "Notices" on page 111.

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This edition applies to version 6, release 1, modification 0 of IBM WebSphere Adapter for PeopleSoft Enterprise and to all subsequent releases and modifications until otherwise indicated in new editions.

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Chapter 1. Overview of WebSphere Adapter for PeopleSoft Enterprise

With adapter for PeopleSoft Enterprise you can create integrated processes that exchange information with PeopleSoft Enterprise through a standard interface. This interface shields the client application from having to understand the lower level details regarding implementation or the application or data structures it uses.

With the adapter, a client application can send a request, for example to a PeopleSoft Enterprise database to query a record in an HR table, or it can receive events from the server, such as notification that an employee record has been updated.

WebSphere Adapter for PeopleSoft Enterprise complies with the Java™ Connector Architecture (JCA). JCA standardizes the way application components, application servers, and enterprise information systems, such as an PeopleSoft Enterprise server, interact with each other. WebSphere Adapter for PeopleSoft Enterprise makes it possible for JCA-compliant application servers to connect to and interact with the PeopleSoft Enterprise server. Clients running on the JCA-compliant server can then communicate with the PeopleSoft Enterprise server in a standard way.

The adapter can run in such JCA-compliant environments as WebSphere Process Server, WebSphere Application Server, and WebSphere Message Broker. The way you set up and use the adapter depends upon the environment in which the adapter runs.

The following example assumes you are setting up an adapter using WebSphere Integration Developer tooling on WebSphere Process Server.

Suppose a company uses PeopleSoft Enterprise to coordinate most of its business operations. PeopleSoft Enterprise includes a business function that returns a list of employees in response to a range of skill codes. A client application might be able to use this function as part of an overall business process. For example, the technical support department within the company dispatches employees to customer sites to troubleshoot and repair equipment, and, as part of that process, needs to first obtain a list of employees with certain skills within a defined geographic region.

The client application used by the technical support department would need to understand the low-level implementation details and data structures of the PeopleSoft function in order to use it. Information technology resources and time would be needed to create the linkage between the client application and the PeopleSoft function.

With the WebSphere Adapter for PeopleSoft Enterprise, you can automatically generate an interface to the PeopleSoft function to hide the lower-level details of the function. Depending on how you want to use the adapter, you can either embed it with the deployed application, or install it as a stand-alone component, to be used by more than one application. The embedded adapter is part of an application that is deployed to WebSphere Process Server. The application component interacts with the adapter instead of with the PeopleSoft function.

The component, which you generate with the external service wizard of WebSphere Integration Developer, uses a standard interface and standard business objects. The component takes the business object sent by the client application and calls the PeopleSoft function. It then returns a business object to the client application. The client application does not have to deal directly with the PeopleSoft function; it is the component that calls the function and returns the results.

For example, the client application that needed the list of employees would send a business object with the range of skill codes to the PeopleSoft adapter component. The client application would receive, in return, the results (the list of employees) in the form of a standard business object. The client application would have no need to know how the function worked or how the data was structured. The adapter component would perform all the interactions with the actual PeopleSoft function.

Similarly, the client application might want to know about a change to the data on the PeopleSoft Enterprise server (for example, a change to the skills set of a particular employee). You can generate an adapter component that listens for such events on the PeopleSoft Enterprise server and notifies client applications with the update. In this case, the interaction begins at the PeopleSoft Enterprise server.

New in this release

WebSphere Adapter for PeopleSoft Enterprise, Version 6.1.0 provides enhancements to the adapter. This release also includes some deprecated features.

The following new or enhanced features are provided:

- Business graphs and verbs are now optional

  The business graph that contains each business object in version 6.0.2 is now optional. You need a business graph only for modules whose business objects were created in version 6.0.2.
- Changes to the enterprise service discovery wizard

  The wizard has been renamed the external service wizard, and includes functional and usability improvements to make it easier for you to discover, create, and configure business objects and services for use with the adapter. The wizard now guides you through several tasks that were previously performed manually in the file system or in WebSphere Integration Developer, such as creating a project, importing dependency files into the project, and creating the module.

  The wizard now provides default values for many properties, makes it easier to enter certain information, indicates which properties are required, and lets you configure the module without worrying about advanced properties.
- Simplified support for bidirectional script processing
- Support for node-level, or stand-alone, deployment of the adapter
- Support for business faults

  The adapter now generates business faults for business exceptions. This lets you easily assign a corrective action for those error conditions.
- The adapter RAR file is available in WebSphere Integration Developer; you do not need to install it separately. The wizard automatically copies the adapter files into the project for you.
- The adapter documentation is located on the WebSphere Integration Developer Information Center, in the Configuring and using adapters section.

- Support for a first-failure data capture (FFDC) construct that can be contained in a WebSphere Application Server symptom database to provide information and suggested actions to assist a diagnostic module in customizing the data that is logged.
- Event delivery to multiple exports is added. Events can be filtered for delivery by business object type and time stamp.
- A new event store has been implemented, and provides support for assured delivery of events. The event store replaces the event distribution table.
- Support for preserving the relationship between a parent business object and a missing child object during update operations is added.
- High availability support for inbound processing is provided.

A deprecated feature is one that is supported but no longer recommended and that might become obsolete. For a list of features from earlier versions of Adapter for PeopleSoft Enterprise that have been deprecated in Version 6.1.0, see "Migration considerations" on page 17.

Updates to this information are made available at the WebSphere Adapters product support Web site. To read updated or additional information, see: http://www.ibm.com/software/integration/wbiadapters/support/.

Hardware and software requirements

The hardware and software requirements for WebSphere Adapters are documented on the IBM® Web site at the location below.

Hardware and software requirements for WebSphere Adapters: http://www.ibm.com/support/docview.wss?uid=swg27006249

Additional information

The following links provide additional information you might need to configure and deploy your adapter:

- The compatibility matrix for WebSphere Business Integration Adapters and WebSphere Adapters identifies the supported versions of required software for your adapter. To view this document, go to the WebSphere Adapters support page and click the link for the compatibility matrix under **Planning upgrades**: http://www.ibm.com/software/integration/wbiadapters/support/.
- Technotes for WebSphere Adapters document workarounds and additional information not included in the product documentation. To view the technotes for your adapter, go to the following Web page, select the name of your adapter from the **Product category** list, and click the search icon: http://www.ibm.com/support/search.wss?tc=SSMKUK&rs=695&rank=8&dc=DB520+D800+D900+DA900+DA800+DB560&dtm.

Technical overview

The adapter supports the exchange of business data between the PeopleSoft Enterprise server and WebSphere Process Server. It does so by connecting to two layers of PeopleTools application programming interface classes that reveal the underlying business data for integration.

The adapter establishes bidirectional connectivity with the PeopleSoft Enterprise server by connecting to two PeopleTools application programming interfaces as follows:

1. The adapter accesses the primary API layer to create a session instance and to connect to the application server through the Jolt port.
2. The adapter then accesses the PeopleSoft Component Interface API, which reveals underlying business objects, logic, and functionality.

In PeopleSoft, a component is a set of pages grouped together for a business purpose (such as an employee profile), and a component interface is an API that provides access to a component from an external application. Once the adapter connects to the component interface, the following entities are exposed to the adapter and available for integration:

- All business objects in the component interface definition
- PeopleCode methods associated with the underlying components
- Records, except searches and menu-specific processing options

Outbound processing

The Adapter for PeopleSoft Enterprise supports outbound request processing. This means that when the client application sends a request in the form of a business object to the adapter, the adapter processes the request and returns a business object representing the result of the operation to the client application.

When the adapter receives a WebSphere business object hierarchy, the adapter processes it as follows:

1. The adapter extracts metadata from the WebSphere business object hierarchy that identifies the appropriate PeopleSoft component interface to access.
2. The adapter extracts the outbound operation to perform from the WebSphere business object hierarchy.
3. Once it accesses the component interface, the adapter sets the keys from values specified in the business objects. If key values are not generated, for example with a create operation, the PeopleSoft application generates key fields.
4. After it retrieves the PeopleSoft objects, the adapter instantiates an existing component interface to delete, retrieve, update, or create a component interface.
5. If there are updates (Create, Update), the adapter populates the component interface with data from the WebSphere business object hierarchy. If there are Deletes, the adapter populates the component interface only with StatusColumnName and value information.

Note: The adapter processes attributes in the order defined in the business object. For example, if there is a complex attribute between two simple attributes, the adapter processes the simple attribute at the first position, then the complex attribute followed by the simple attribute. After the changes are made, the component interface is saved to commit the data to the PeopleSoft database. This pattern of processing is used for Create and Update operations only.

Supported outbound operations

WebSphere Adapter for PeopleSoft Enterprise supports the following outbound operations: Apply Changes, Create, Delete, Exists, Retrieve, Retrieve All, and Update.

The following table lists and describes each of these operations.

Table 1. Supported outbound operations

Operation	Description
ApplyChanges	Updates, creates, or deletes the business object based on the delta information contained in the change summary.
Create	Creates the business object.
Delete	Deletes the business object and its children. Because the adapter supports only logical deletes, objects are marked as deleted but not removed.
Exists	Checks for the existence of incoming business objects.
Retrieve	Retrieves the PeopleSoft component, and maps component data onto the business object hierarchy.
RetrieveAll	Retrieves multiple instances of the PeopleSoft component, and maps component data onto the business object hierarchy.
Update	Updates the corresponding PeopleSoft component with the incoming business object.

Inbound processing

The Adapter for PeopleSoft Enterprise supports inbound event processing. Inbound event processing means that the adapter polls the PeopleSoft Enterprise server at specified intervals for events. When the adapter detects an event, it converts the event data into a business object and sends it to the client application.

In order to use inbound event processing, you must create a custom event project in PeopleSoft.

Event store

The event store is a table that holds events that represent data changes until the polling adapter can process them. The adapter uses the event store to keep track of event entities.

To use inbound processing, you must use PeopleTools Application Designer to create a custom project for event notification. The custom project uses two PeopleCode functions that determine the way future events are processed, and the custom project creates the event store the adapter needs for inbound processing. Each time a business object is created, updated, or deleted, the PeopleCode function used in the project and then added to the component interface inserts a new record in the event store, with the appropriate object name, keys, and status value.

With inbound processing, the adapter polls the event entities from the event store at configured poll intervals. In each poll call, a configured number of events are processed by the adapter. The order of event processing is based on the ascending order of priority and the ascending order of the event time stamp. The events with the status, Ready for poll (0), are picked up for polling in each poll cycle. The adapter uses the object name and object key to retrieve the corresponding business object.

If you set the activation specification property AssuredOnceDelivery to `true`, an XID (transaction ID) value is set for each event in the event store, and it is used to ensure that an event is delivered only once to the target application. After an event is obtained for processing, the XID value for that event is updated in the event

store. The event is then delivered to its corresponding export, and its status is updated to show that event delivery has been completed. If the application is stopped before the event can be delivered to the export or if delivery has failed, the event might not be processed completely. In this case, the XID value represents in-progress status, and the XID column ensures that the event is reprocessed and sent to the export. Once the database connection is re-established or the adapter starts again, the adapter checks for events in the event table that have a value in the XID column of Ready for Poll (0). The adapter processes these events first, and then polls the other events during the poll cycles.

The adapter uses special handing for events that have status code (99) that indicates they will occur in the future. During a poll cycle, when the adapter retrieves events with a future status, the adapter compares the system time with the time stamp on each event. If the event time is earlier than or equal to the system time, the adapter processes the event and changes the event status to Ready for Poll (0).

Note: If you want to the adapter to process future status events in the present time, use the function `IBM_PUBLISH_EVENT` instead of `IBM_FUTURE_PUBLISH_EVENT`. Doing so means that the event is identified as Ready to Poll (0) instead of Future (99).

As events are retrieved and processed from the event store, the status of the event changes to reflect the cycle, as shown in the table below.

Table 2. Event status values

Status short name	Description	Event table value
Error processing event	An error occurred during event processing.	-1
Ready for poll	The event has not yet been picked up by the adapter. The event is ready to be picked up.	0
Success	The event has been delivered to the event manager.	1
Deleted	The event has been processed successfully and should be removed from the event store.	4
Future Events	These events should be processed at a future date.	99

Business objects

To send data or obtain data from PeopleSoft Enterprise, the adapter uses business objects. A business object is a structure that consists of data, the action to be performed on the data, and additional instructions, if any, for processing the data. The data can represent either a business entity, such as an invoice or an employee record, or unstructured text.

How business objects are created

You create business objects by using the external service wizard, launched from WebSphere Integration Developer. The wizard connects to the application, discovers data structures in the application, and generates business objects to

represent them. It also generates other artifacts needed by the adapter.

Business object structure

The adapter supports business objects that are hierarchically structured. The top-level business object must have a one-to-one correspondence with the PeopleSoft component interface, and collections that occur within the top-level object are children of it. Information that the adapter uses to process the business object is stored in the application-specific information for the object and each of its attributes.

The following table describes the attributes that comprise a business object.

Attribute property	Description
Name	Indicates the name of the Business Object attribute.
Type	Indicates the type of the Business Object attribute. The adapter uses character mapping between PeopleSoft component property types and the generated business object attribute types. PeopleSoft component property types map to generated attribute types in the following manner: CHAR maps to attribute type String NUMBER maps to attribute type Integer SIGNED NUMBER maps to attribute type Integer DATE maps to attribute type String TIME maps to attribute type String DTTM maps to attribute type String
Key	Child business objects have their own keys that have the primary key application-specific information. They also inherit keys from their parent business object.
Cardinality	Single cardinality for simple attributes; multiple cardinality for container attributes.

Business graphs

You can optionally choose, during adapter configuration, to generate a business graph. In version 6.0.2, each top-level business object is contained in a business graph, which includes a verb that an application can use in version 6.0.2 to specify additional information about the operation to be performed. In version 6.1.0, business graphs are required only in these situations:

- If you need to use the outbound ApplyChanges operation
- When adding business objects to a module created with a version of WebSphere Integration Developer earlier than version 6.1.0

If business graphs exist, they are processed, but the verb is ignored for all operations except ApplyChanges.

External service wizard

The external service wizard is a tool you use to configure your adapter before deploying it to WebSphere Process Server or WebSphere Enterprise Service Bus. The external service wizard establishes a connection to the PeopleSoft Enterprise server, discovers business objects and services (based on search criteria you provide), and generates business objects based on the services discovered.

Using WebSphere Integration Developer, you establish a connection to the PeopleSoft Enterprise server to browse the metadata repository on the PeopleSoft Enterprise server. You also specify connection information, such as the user name and password needed to access the server.

The result of running the external service wizard is a module that contains the business objects and services along with the adapter. You deploy this module on WebSphere Process Server or WebSphere Enterprise Service Bus.

Standards compliance

This product is compliant with several government and industry standards, including accessibility standards and Internet protocol standards.

Accessibility

IBM strives to provide products with usable access for everyone, regardless of age or ability. WebSphere Adapters are fully accessible and section 508-compliant. Accessibility features enable users with physical disabilities, such as restricted mobility or limited vision, to operate software products successfully. These features are built into the installation and administration features of WebSphere Adapters.

Administration

The run time administrative console is the primary interface for deployment and administration of enterprise applications. The console is displayed within a standard Web browser. By using an accessible Web browser, such as Microsoft® Internet Explorer or Netscape Browser, you are able to:

- Use screen-reader software and a digital speech synthesizer to hear what is displayed on the screen
- Use voice recognition software, such as IBM ViaVoice®, to enter data and to navigate the user interface
- Operate features by using the keyboard instead of the mouse

You can configure and use product features by utilizing standard text editors and scripted or command-line interfaces instead of the graphical interfaces that are provided.

When appropriate, the documentation for specific product features contains additional information about the accessibility of the features.

External service wizard

The external service wizard is the primary component used to create modules. This wizard, which is implemented as an Eclipse plug-in that is available through WebSphere Integration Developer, is fully accessible.

Keyboard navigation

This product uses standard Microsoft Windows® navigation keys.

IBM and accessibility

See the *IBM Accessibility Center* web site http://www.ibm.com/able/ for more information about the commitment that IBM has to accessibility.

Internet Protocol Version 6 (IPv6)

WebSphere Process Server and WebSphere Enterprise Service Bus rely on WebSphere Application Server for Internet Protocol Version 6 (IPv6) compatibility.

IBM WebSphere Application Server, version 6.1.0 and later support dual-stack Internet Protocol Version 6.0 (IPv6).

For more information about this compatibility in WebSphere Application Server, see IPv6 support in the http://www.ibm.com/software/webservers/appserv/was/library/.

For more information about IPv6, see http://www.ipv6.org.

Chapter 2. Planning for adapter implementation

To implement the IBM WebSphere Adapter for PeopleSoft Enterprise, you must plan for inbound and outbound processing and consider security and performance requirements.

Before you begin

Before you begin to set up and use the adapter, you should possess a thorough understanding of business integration concepts, the capabilities and requirements of the integration development tools and runtime environment you will use, and the PeopleSoft Enterprise environment where you will build and use the solution.

To configure and deploy WebSphere Adapter for PeopleSoft Enterprise, you should understand and have experience with the following concepts, tools, and tasks:

- The business requirements of the solution you are building.
- Business integration concepts and models, including the Service Component Architecture (SCA) programming model.
- The capabilities provided by the integration development tools you will use to build the solution. You should know how to use these tools to create modules, test components, and complete other integration tasks.
- The capabilities and requirements of the runtime environment you will use for the integration solution. You should know how to configure and administer the host server and how to use the administrative console to set and modify property definitions, configure connections, and manage events.
- PeopleSoft integration architecture, including the relationship between component interfaces and underlying components.
- The PeopleTools version that supports your applications. You should be able to use PeopleSoft Application Designer to access the object definitions that comprise a business application, and to create projects and add projects to components.
- The programming environment required by PeopleSoft (PeopleCode). You should understand the role of PeopleCode within components, and you should know how to add PeopleCode to projects you create in Application Designer.

Security

The adapter uses the J2C authentication data entry, or authentication alias, feature of Java 2 security to provide secure user name and password authentication. For more information about security features, see the documentation for WebSphere Process Server or WebSphere Enterprise Service Bus.

User authentication

The adapter supports several methods for supplying the user name and password that are needed to connect to the PeopleSoft Enterprise server. Understand the features and limitations of each method to pick a method that provides the appropriate level of security and convenience for your application.

To integrate an adapter into your application, a user name and password are needed at the following times:

- When the external service wizard connects to the PeopleSoft Enterprise server to extract, or *discover*, information about the objects and services that you can access with the adapter.
- At run time on WebSphere Process Server or WebSphere Enterprise Service Bus, when the adapter connects to the PeopleSoft Enterprise server to process outbound requests and inbound events.

Authentication in the wizard

The external service wizard asks for connection information for both uses. You can use a different user name and password while running the wizard than you use when the application is deployed to the server. You can even connect to a different PeopleSoft Enterprise server, although the schema name must be the same in both databases. For example, while developing and integrating an application that uses Adapter for PeopleSoft Enterprise, you might not use the production database; using a test database with the same data format but fewer, simulated records lets you develop and integrate the application without impacting the performance of a production database and without encountering restrictions caused by the privacy requirements for customer data.

The wizard uses the user name and password that you specify for the discovery process only during the discovery process; they are not accessible after the wizard completes.

Authentication at run time

At run time, the adapter needs to provide the user name and password to connect to the PeopleSoft Enterprise server. To connect without user intervention, the adapter must access a saved copy of the user information. In a server environment, there are several methods for saving user information. The external service wizard lets you configure the adapter to get the user information using any of the following methods:

- Adapter properties
- Data source
- J2C authentication alias

Saving the user name and password in adapter properties is a direct way to provide this information at run time. You provide this user name and password when you use the external service wizard to configure your module. Although directly specifying the user name and password seems the most straightforward method, it has important limitations. Adapter properties are not encrypted; the password is stored as clear text in fields that are accessible to others on the server. Also, when the password changes, you must update the password in all instances of the adapter that access that PeopleSoft Enterprise server. This includes the adapters embedded in application EAR files as well as adapters that are separately installed on the server.

Using a data source lets you use a connection already established for another application. For example, if multiple applications access the same database with the same user name and password, the applications can be deployed using the same data source. The user name and password can be known only to the first person who deploys an application to that data source or who defines a data source separately.

Using a J2C authentication alias created with the Java Authentication and Authorization Service (JAAS) is a robust, secure way to deploy applications. An administrator creates the authentication alias that is used by one or more applications that need to access a system. The user name and password can be known only to that administrator, who can change the password in a single place when a change is required.

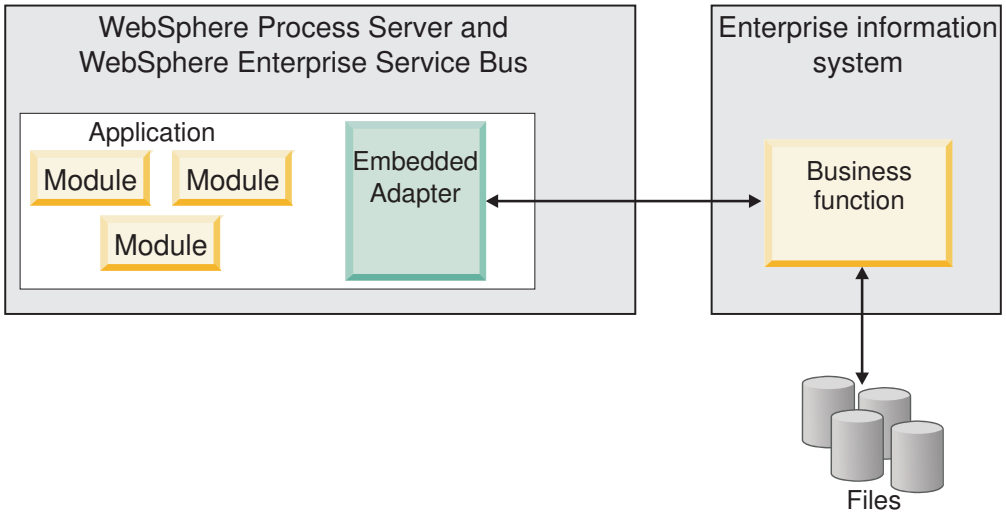
Deployment options

You can choose to embed the adapter to be part of the deployed application or you can choose to deploy the RAR file stand-alone.

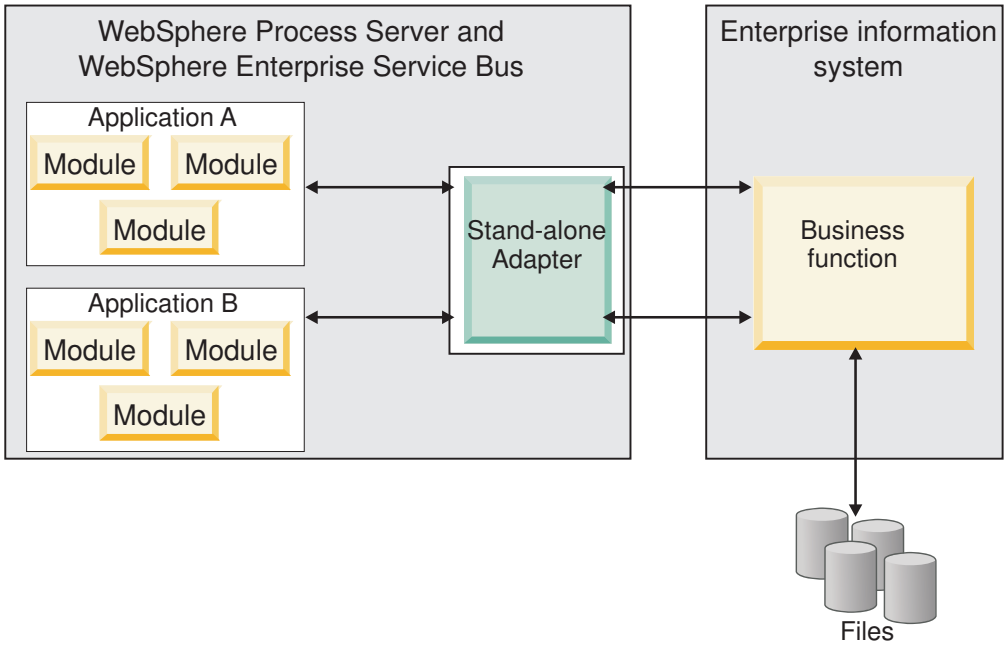
The deployment options are described below:

- **With module for use by single application**. With the adapter files embedded in the module, you can deploy the module to any application server. Use an embedded adapter when you have a single module using the adapter or if multiple modules need to run different versions of the adapter. Using an embedded adapter enables you to upgrade the adapter in a single module without the risk of destabilizing other modules by changing their adapter version.
- **On server for use by multiple applications**. If you do not include the adapter files in a module, you must install them as a stand-alone adapter on each application server where you want to run the module. Use a stand-alone adapter when multiple modules can use the same version of the adapter and you want to administer the adapter in a central location. A stand-alone adapter can also reduce the resources required by running a single adapter instance for multiple modules.

An embedded adapter is bundled within an enterprise archive (EAR) file and is available only to the application with which it is packaged and deployed.



A stand-alone adapter is represented by a stand-alone resource adapter archive (RAR) file, and when deployed, it is available to all deployed applications in the server instance.



While creating the project for your application using WebSphere Integration Developer, you can choose how to package the adapter [either bundled with the (EAR) file or as a stand-alone (RAR) file]. Your choice will affect how the adapter is used in the runtime environment, as well as how the properties for the adapter are displayed on the administrative console.

Choosing either to embed an adapter with your application or to deploy the adapter as a stand-alone module depends on how you want to administer the adapter. If you want a single copy of the adapter and do not care about disruption to multiple applications when you upgrade the adapter, then you would be more likely to deploy the adapter as a stand-alone module.

If you plan on running multiple versions, and if you care more about potential disruption when you upgrade the adapter, you would be more likely to embed the adapter with the application. Embedding the adapter with the application allows you to associate an adapter version with an application version and administer it as a single module.

Considerations for embedding an adapter in the application

Take into consideration the following items if you plan on embedding the adapter with your application:

- An embedded adapter has class loader isolation.

  A class loader affects the packaging of applications and the behavior of packaged applications deployed on runtime environments. *Class loader isolation* means the adapter cannot load classes from another application or module. Class loader isolation prevents two similarly named classes in different applications from interfering with each other.
- Each application in which the adapter is embedded must be administered separately.

Considerations for using a stand-alone adapter

Take into consideration the following items if you plan on using a stand-alone adapter:

- Stand-alone adapters have no class loader isolation.

  Because stand-alone adapters have no class loader isolation, only one version of any given Java artifact is run and the version and sequence of that artifact is undetermined. For example, when you use a stand-alone adapter there is only *one* resource adapter version, *one* adapter foundation class (AFC) version, or *one* third-party JAR version. All adapters deployed as stand-alone adapters share a single AFC version, and all instances of a given adapter share the same code version. All adapter instances using a given third-party library must share that library.
- If you update any of these shared artifacts, all applications using the artifacts are affected.

  For instance, if you have an adapter that is working with server version X, and you update the version of the client application to version Y, your original application might stop working.
- AFC is compatible with previous versions, but the latest AFC version must be in every RAR file that is deployed in a stand-alone manner.

  If more than one copy of any JAR file is in the classpath in a stand-alone adapter, the one that is used is random; therefore, they all must be the latest version.

WebSphere Adapters in clustered environments

You can improve adapter performance and availability by deploying the module to a clustered server environment. The module is replicated across all servers in a cluster, regardless of whether you deploy the module using a stand-alone or embedded adapter.

WebSphere Process Server, WebSphere Application Server Network Deployment, and WebSphere Extended Deployment support clustered environments. Clusters are groups of servers that are managed together to balance workloads and to provide high availability and scalability. When you set up a server cluster, you create a Deployment Manager profile. The HAManager, a subcomponent of the Deployment Manager, notifies the JCA (Java EE Connector Architecture) container to activate the adapter instance. The JCA container provides a runtime environment for adapter instances. For information about creating clustered environments, see the following link: http://publib.boulder.ibm.com/infocenter/wasinfo/v6r1/index.jsp?topic=/com.ibm.websphere.nd.doc/info/ae/ae/trun_wlm_cluster_v61.html.

Using WebSphere Extended Deployment, you can optionally enhance the performance of adapter instances in your clustered environment. WebSphere Extended Deployment extends the WebSphere Application Server Network Deployment capabilities by using a dynamic workload manager instead of a static workload manager, which is used by WebSphere Application Server Network Deployment. The dynamic workload manager can optimize the performance of adapter instances in the cluster by dynamically balancing the load of the requests. This means that application server instances can be automatically stopped and started based on the load variations, allowing machines with different capacities and configurations to evenly handle load variations. For information on the

benefits of WebSphere Extended Deployment, see the following link: http://publib.boulder.ibm.com/infocenter/wxdinfo/v6r1/index.jsp.

In clustered environments, adapter instances can handle both inbound and outbound processes.

High availability for inbound processes

Inbound processes are based on events triggered as a result of updates to data in the PeopleSoft Enterprise server. WebSphere Adapter for PeopleSoft Enterprise is configured to detect updates by polling an event table. The adapter then publishes the event to its endpoint.

When you deploy a module to a cluster, the JCA (Java EE Connector Architecture) container checks the enableHASupport resource adapter property. If the value for the enableHASupport property is true, which is the default setting, all of the adapter instances are registered with the HAManager with a policy 1 of N. This policy means that only one of the adapter instances starts polling for events. Although other adapter instances in the cluster are started, they remain dormant with respect to the active event until the active adapter instance finishes processing the event. If the server on which the polling thread was started shuts down for some reason, an adapter instance that is running on one of the backup servers is activated.

Important: Do not change the setting of the enableHASupport property.

High availability for outbound processes

In clustered environments, multiple adapter instances are available to perform outbound process requests. Accordingly, if your environment has multiple applications that interact with WebSphere Adapter for PeopleSoft Enterprise for outbound requests, then you might improve performance by deploying the module to a clustered environment. In a clustered environment, multiple outbound requests can be processed simultaneously, as long as they are not attempting to process the same record.

If multiple outbound requests are attempting to process the same record, such as a Customer address, the workload management capability in WebSphere Application Server Network Deployment distributes the requests among the available adapter instances in the sequence they were received. As a result, these types of outbound requests in a clustered environment are processed in the same manner as those in a single server environment: one adapter instance processes only one outbound request at a time. For more information on workload management, see the following link: http://publib.boulder.ibm.com/infocenter/wasinfo/v6r1/index.jsp?topic=/com.ibm.websphere.nd.doc/info/ae/ae/trun_wlm.html.

Migrating to version 6.1.0

By migrating to version 6.1 of WebSphere Adapter for PeopleSoft Enterprise, you automatically upgrade from the previous version of the adapter. Additionally, you can migrate your applications that embed an earlier version of the adapter, so that the applications can utilize features and capabilities present in version 6.1.

Migration considerations

WebSphere Adapter for PeopleSoft Enterprise version 6.1.0 includes updates that might affect your existing adapter applications. If you currently have an earlier version of the adapter installed, review the deprecated features in the ″Deprecated features″ section that follows and note if there are any compatibility conflicts between the versions before upgrading the adapter.

Compatibility with earlier versions

WebSphere Adapter for PeopleSoft Enterprise version 6.1.0 is fully compatible with version 6.0.2 of the adapter and can work with custom business objects (XSD files), and data bindings.

Because version 6.1 of the adapter is fully compatible with version 6.0.2, any of your applications that utilized version 6.0.2 of the adapter will run unchanged when you upgrade to version 6.1. However, if you want your applications to utilize features and functionality present in version 6.1 of the adapter, run the migration wizard.

The migration wizard replaces (upgrades) version 6.0.2 of the adapter with version 6.1 *and enables version 6.1 features and functionality for use with your applications*.

Note: The migration wizard does not create new or modify existing mitigating code, such as mappers and mediators to work with version 6.1 of the adapters. If any of your applications embed a 6.0.2.x or earlier version of an adapter and you are upgrading to version 6.1.0, and you want your applications to take advantage of the features and functions in 6.1, you might need to make changes to those applications.

If artifacts are inconsistent with regard to *versioning* within a single module, this module in its entirety will be marked as such, and will not be selectable for migration. Version inconsistencies are recorded in the workspace log, as this may be a symptom of project corruption.

The following scenarios are not supported:

- Running the external service wizard in WebSphere Integration Developer version 6.1.0 with WebSphere Adapter for PeopleSoft Enterprise version 6.0.2.
- Running the external service wizard in WebSphere Integration Developer version 6.0.2 with WebSphere Adapter for PeopleSoft Enterprise version 6.1.0.

Deciding whether to upgrade or to upgrade and migrate

The default processing of the migration wizard is to perform an upgrade of the adapter and to migrate the application artifacts so that the applications can utilize features and functions in version 6.1 of the adapter. When you choose to upgrade the connector by selecting a connector project, the wizard automatically selects the associated artifacts for migration.

If you decide that you want to upgrade the adapter from version 6.0.2 to version 6.1, but you do not want to migrate the adapter artifacts, you can do so by deselecting the adapter artifacts from the appropriate page of the migration wizard.

Running the migration wizard without any adapter artifacts selected will install and upgrade your adapter, but your artifacts are not migrated and your

applications will not be able to take advantage of the features and capabilities that exist in version 6.1 of the adapter.

Run the migration wizard in a test environment first

Because adapter migration may require you to make changes to those applications that will utilize version 6.1 of WebSphere Adapter for PeopleSoft Enterprise, you should always perform the migration in a development environment first and test your applications before deploying the application to a production environment.

The migration wizard is fully integrated with the development environment.

Deprecated features

A deprecated feature is one that is supported but no longer recommended and that might become obsolete. Features from earlier versions of WebSphere Adapter for PeopleSoft Enterprise that have been deprecated in version 6.1.0 include:

- The EnableCrossReferencing parameter is deprecated.
- Application-specific information maintained at the business object attribute level for delete operations is deprecated. It is now maintained at the business object level.

Performing the migration

You can migrate a project or EAR file using the version 6.1.0, use the adapter migration wizard. When the tool is finished, the migration is complete and you can work in the project or deploy the module.

Before you begin

Review the information in *Migration considerations*.

About this task

To perform the migration in WebSphere Integration Developer, complete the following steps.

Note: After migration is complete, the module will no longer be compatible with previous versions of WebSphere Process Server, WebSphere Enterprise Service Bus, or WebSphere Integration Developer.

Note: The following steps describe how to run the adapter migration wizard from the connector project context menu while in the J2EE perspective in WebSphere Integration Developer.

Note: You can also migrate in one of the following ways:

- Right-click the project in the J2EE perspective and select **Migrate → Migrate project**.
- From the Problems view, right-click a migration-specific message and select **Quick Fix** to correct the problem.

Procedure

1. Import the PI (project interchange) file for an existing project or the EAR (enterprise archive) file for an deployed application into the workspace.

2. Change to the J2EE perspective.
3. Right-click the module and select **Migrate → Update Connector Project**.
4. Review the tasks and warnings presented on the welcome page, and then select **Next**.
5. On the Select Projects window, select **Next**.

   By default, the wizard migrates the connector project and any dependent projects. If your project has dependent projects and you do not want to migrate one or more of them at this time, clear their check boxes in the **Dependent adapter project** list. You can rerun the wizard to migrate the dependent project at a later time. Previously migrated projects, projects with a current version, and projects that contain errors are unavailable for migration and are not selected.
6. On the Adapter Migration window, optionally review the migration changes, but do not change any selections. Click **Finish**.
7. Check the Problems view for messages from the migration wizard, which start with the string CWPAD.
8. If you are migrating an EAR file, optionally create a new EAR file with the migrated adapter and artifacts, and deploy it to WebSphere Process Server or WebSphere Enterprise Service Bus. For more information about exporting and deploying an EAR file, see the topics devoted to it in this documentation.

Results

The project or EAR file is migrated to version 6.1.0. You do not need to run the external service wizard after exiting the adapter migration wizard.

Updating but not migrating a version 6.0.2 project

Before you can use a version 6.0.2 project, without migrating the complete project, with WebSphere Adapter for PeopleSoft Enterprise, version 6.1.0 in WebSphere Integration Developer, version 6.1.0, use the migration wizard to update the project, and then correct a problem.

About this task

Because the internal name of the adapter changed in version 6.1.0, artifacts in a version 6.0.2 project must be updated to use the new name before you can use the adapter wizard in WebSphere Integration Developer, version 6.1.0. Use the migration wizard to update a version 6.0.2 project. Then use the Quick Fix feature of WebSphere Integration Developer to change the adapter name in project artifacts.

Procedure

1. Import the project interchange (PI) file into the workspace.
2. In the J2EE perspective, right-click the project name and click **Migrate → Update Connector Project**. The adapter migration wizard opens.
3. On the welcome page, click **Next**.
4. On the Select Projects window, select none of the dependent artifact projects, and then click **Finish**.
5. In the Quick Fix window, make sure the fix **Rename the referenced adapter** is selected, and then click **OK**.
6. If the error remains visible, click **Project → Clean**, select the project you just updated, and then click **OK**.

Results

The project can now be used with WebSphere Adapter for PeopleSoft Enterprise, version 6.1.0.

Chapter 3. Samples and tutorials

The WebSphere Integration Developer online samples/tutorials gallery includes samples and tutorials to help you use WebSphere Adapters.

You can access the online samples/tutorials gallery as follows:

- From the welcome page that opens when you start WebSphere Integration Developer. To see samples and tutorials for WebSphere Adapter for PeopleSoft Enterprise, click **Retrieve**. Then browse the displayed categories to make your selections.
- At this location on the Web: http://publib.boulder.ibm.com/bpcsamp/index.html.

Chapter 4. Configuring the module for deployment

To configure the adapter so that it can be deployed on WebSphere Process Server or WebSphere Enterprise Service Bus, use WebSphere Integration Developer to create a module, which is exported as an EAR file when you deploy the adapter. You then specify the business objects you want to discover and the system on which you want to discover them. After completing these steps, you will have successfully created an external service.

Roadmap for configuring the module

Before you can use WebSphere Adapter for PeopleSoft Enterprise in a runtime environment, you must configure the module. Understanding this task at a high level helps you perform the steps that are needed to accomplish the task.

You configure the module for the adapter to use by using WebSphere Integration Developer. The following figure illustrates the flow of the configuration task, and the steps that follow the figure describe this task at a high level only. See the topics following this roadmap for the details on how to perform each of these steps.

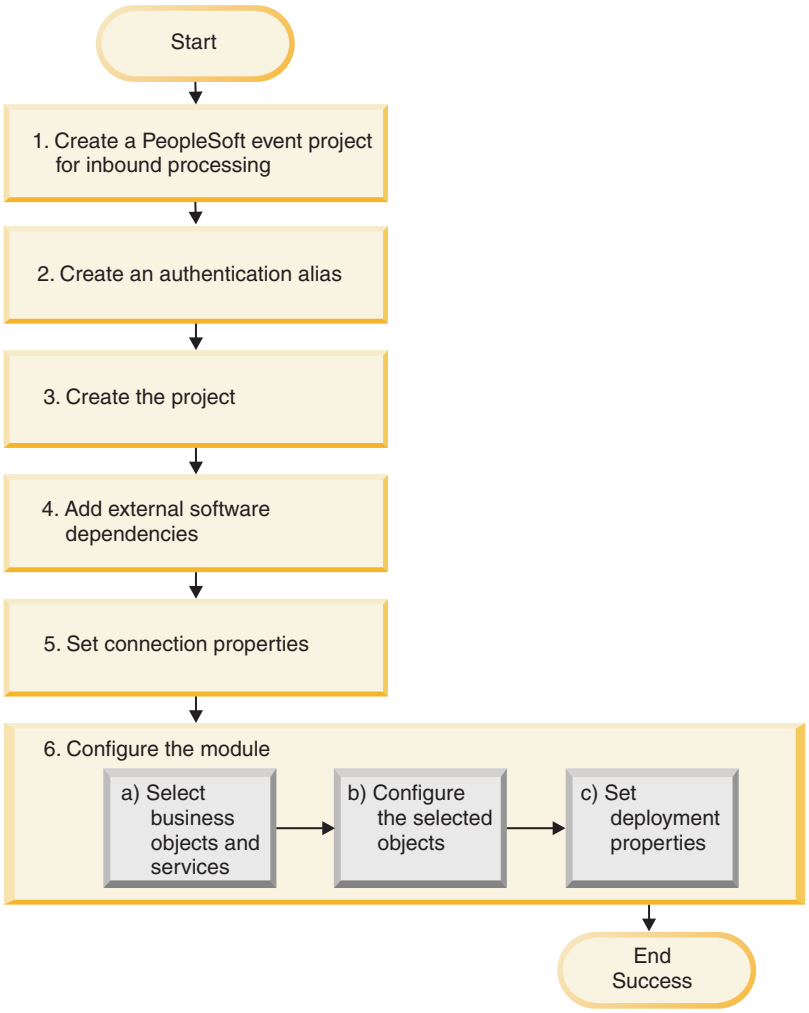


Figure 1. Roadmap for configuring the module

Configuring the module for deployment

This task consists of the following high-level steps:

1. Create a PeopleSoft event project for inbound processing.
2. Create an authentication alias to access the PeopleSoft Enterprise server with an encrypted password. This step is optional, depending on your policy for handling passwords and IDs. You perform this step using the administrative console on the server.
3. Create the project. First, start the external service wizard in WebSphere Integration Developer to begin the process of creating and deploying a module. The wizard creates a project that is used to organize the files associated with the module.
4. Add the external software dependencies required by WebSphere Adapter for PeopleSoft Enterprise to the project. These dependencies are also required when you export the module as an EAR file, and deploy the EAR file to the server.
5. Set connection properties that the external service wizard needs to connect to the PeopleSoft Enterprise server for discovery of objects and services.

6. Configure the module for inbound or outbound processing by using the external service wizard to find and select business objects and services from the PeopleSoft Enterprise server, and to generate business object definitions and related artifacts.
   a. Select business objects and services for inbound or outbound processing from the business integration components discovered by the external service wizard.
   b. Configure the selected objects by specifying operations and other properties that apply to all of the business objects.
   c. Set deployment properties that the adapter uses to connect to the PeopleSoft Enterprise server at run time. Then, generate the service by using the external service wizard to save the new module, which contains the business object or objects you configured, the import or export file, and the service interface.

Creating a custom event project in PeopleTools

The adapter requires an event project in PeopleSoft in order to perform asynchronous inbound event processing. Use PeopleTools to create the custom event project.

About this task

If your environment requires inbound event support, you must use a custom event project in PeopleSoft. A sample event project, IBM_EVENT_V600, is provided with the adapter. You can modify and use and the sample project, or you can create your own project using PeopleTools. If you create your own project, make sure that you complete the steps below.

Procedure

1. Use PeopleTools Application Designer to create and name a new project.
2. Create the fields for the new project as described in the following table:

Field name	Field description
IBM_EVENT_ID	Numeric value that will be retrieved from IBM_FETCH_ID record. This will be a unique ID for the event.
IBM_OBJECT_NAME	Name of the corresponding business graph.
IBM_OBJECT_KEYS	The get key property names in the Component Interface followed by the key values in name-value pairs. This will be used for the component's retrieval from the EIS.
IBM_EVENT_STATUS	Will be set to 0. If the event is ready to be polled, status will be set to 0 and the IBMPublishEvent function will be called.
IBM_OBJECT_VERB	Verb that will be set on the business object graph containing the retrieved business object.
IBM_EVENT_DTTM	Date on which the event is created. For a future dated event, this is the effective date.

Field name	Field description
IBM_NEXT_EVENT_ID	Field that will have the latest event ID under the record IBM_FETCH_ ID. It will be incremented for each event added to the IBM_EVENT_TBL, and it will populate the IBM_EVENT_ID field within that table.
IBM_XID	The transaction ID needed to provide assured event delivery.

3. Create a record named IBM_EVENT_TBL and add to it all fields you have just created except IBM_NEXT_EVENT_ID.
4. Create a record named IBM_FETCH_ID and add to it only the IBM_NEXT_EVENT_ID field.
5. Open the IBM_FETCH_ID record, select the IBM_NEXT_EVENT_ID field, view the PeopleCode, and select **fieldformula.**
6. Copy the PeopleCode for custom event project, found under the Reference section of this documentation, to the project you are creating.
7. Create a page under your project that contains the fields of the IBM_EVENT_TBL record at level 0. The page can have any name.
8. Create a component under your project that contains the page you just created. The component can have any name.
9. Create a Component Interface against this component and give it any name. Confirm that you want to default the properties based on the underlying component definition.
10. Build the entire project, selecting all create options.
11. Test and confirm that the Component Interface works, using the Component Interface tester.
12. Generate the Java APIs for the Component Interface, and then add the generated classes to the adapter classpath. For complete information about building a PeopleTools project and testing the PeopleSoft Component Interface, refer to PeopleSoft documentation.

Creating the authentication alias

An authentication alias is a feature provided by WebSphere Process Server that encrypts the password used by the adapter to access the application or file system. The authentication alias is not mandatory.

Before you begin

To create an authentication alias, you must have access to the administrative console. The following procedure shows you how to gain access to the administrative console through WebSphere Integration Developer.

About this task

To create an authentication alias, use the following procedure.

Procedure

1. Start the administrative console.

   To start the administrative console through WebSphere Integration Developer, perform the following steps:

a. Start WebSphere Integration Developer by clicking **Start** → **Programs** → **IBM WebSphere** → **Integration Developer V6.1.0** → **WebSphere Integration Developer V6.1.0**.
b. If you are prompted to specify a workspace, accept the default value. (The workspace is a directory where WebSphere Integration Developer stores your project.)
c. When the WebSphere Integration Developer window is displayed, click **Go to the Business Integration perspective**.
d. Click the **Servers** tab.
e. If the server does not show a status of **Started**, right-click the name of the server (for example, **WebSphere Process Server**) and click **Start**.
f. Right-click the name of the server and click **Run administrative console**.
g. Log on to the administrative console. If your administrative console requires a user ID and password, type the ID and password and click **Log in**. If the user ID and password are not required, click **Log in**.

2. In the administrative console, click **Security** → **Secure administration, applications, and infrastructure**.
3. Under **Authentication**, click **Java Authentication and Authorization Service** → **J2C authentication data**.

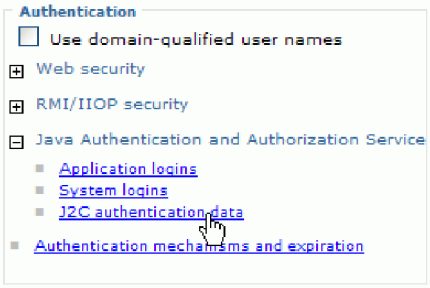


Figure 2. The Authentication section of the Secure administration, applications, and infrastructure window

4. Create an authentication alias
   a. In the list of J2C authentication aliases that is displayed, click **New**.
   b. In the **Configuration** tab, type the name of the authentication alias in the **Alias** field.
   c. Type the user ID and password that are required to establish a connection to the PeopleSoft Enterprise server.
   d. Optionally type a description of the alias.
   e. Click **OK**.

      The newly created alias is displayed.

      Note the full name of the alias.

      This full name is the one you use in subsequent configuration windows.
   f. Click **Save**, and then click **Save** again.

Results

You have created an authentication alias, which you will use when you configure the adapter properties.

Creating the project

To begin the process of creating and deploying a module, you start the external service wizard in WebSphere Integration Developer. You then create a project, which is used to organize the files associated with the adapter.

Before you begin

Make sure you have gathered the information you need to establish a connection to the PeopleSoft Enterprise server. For example, you need the name (or IP address) of the PeopleSoft Enterprise server and the user ID and password needed to access the PeopleSoft Enterprise server.

About this task

Start the external service wizard and create a project for the adapter in WebSphere Integration Developer. If you have an existing project, you can select it instead of creating one.

To start the external service wizard and create a project, use the following procedure.

Procedure

1. If WebSphere Integration Developer is not currently running, start it now.
   a. Click **Start → Programs → IBM Software Development Platform → IBM WebSphere Integration Developer 6.1 → IBM WebSphere Integration Developer 6.1**.
   b. If you are prompted to specify a workspace, either accept the default value or select another workspace.

      The workspace is a directory where WebSphere Integration Developer stores your project.
   c. When the WebSphere Integration Developer window is displayed, click **Go to the Business Integration perspective**.
2. To start the external service wizard, click **File → New → External Service**.
3. In the New external service window, make sure **Adapters** is selected, and click **Next**.
4. From the Select an Adapter window, create a project or select an existing project.
   - To create a project, perform the following steps:
     a. Select **IBM WebSphere Adapter for PeopleSoft Enterprise**, and click **Next**.
     b. In the Adapter Import window, provide another name for the project (if you want to use a name other than **CWYES_PeopleSoft**), select the server (for example, **WebSphere Process Server v6.1**), and click **Next**.
   - To select an existing project, perform the following steps:
     a. Expand **IBM WebSphere Adapter for PeopleSoft Enterprise**.
     b. Select a project.

        For example, if you have an existing project named CWYES_PeopleSoftAdapter, you can expand it and select**IBM WebSphere Adapter for PeopleSoft Enterprise** .

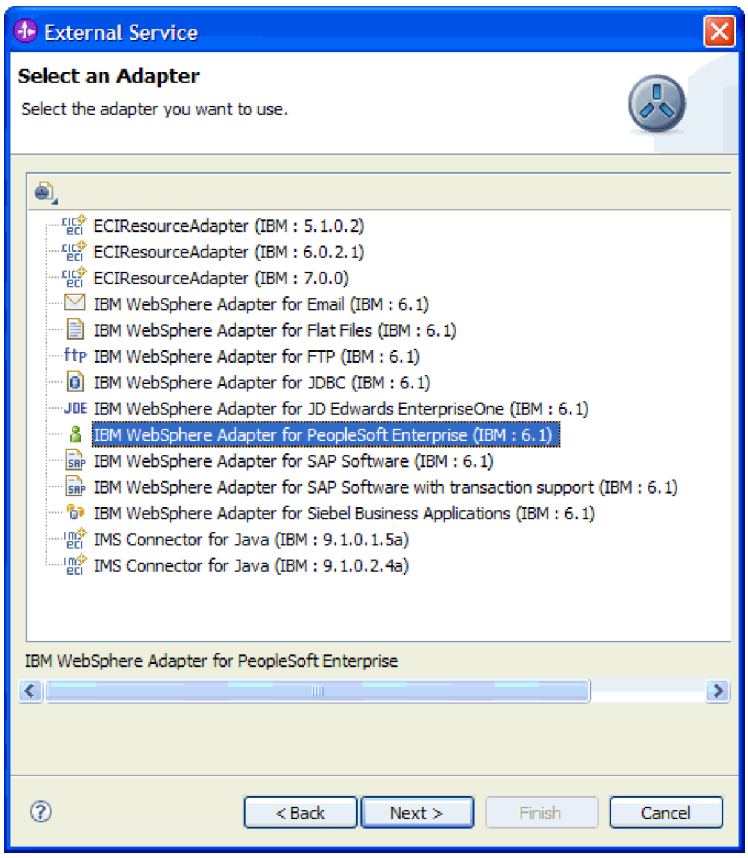


Figure 3. The Select an Adapter window

c. Click **Finish**.

Results

A new project is created and is listed in the Business Integration window.

What to do next

Provide the location of the psjoa.jar file and other required files.

Adding external software dependencies

To add the required JAR files to your project, install the files and then use the WebSphere Integration Developer to specify the location of the files.

Before you begin

Make sure you have created the project.

About this task

To add the two required PeopleSoft dependency files, the PeopleSoft psjoa.jar and the component interface jar file, use the Connector Project Settings window of the external service wizard to specify the location of the files.

Procedure

1. From the Connector Project Settings window, specify the location of the files.
2. For each file, click **Browse**, and select the location of the file (for example, C:\workspace\peoplesoft\psjoa.jar).

   The following figure shows sample values for the files.

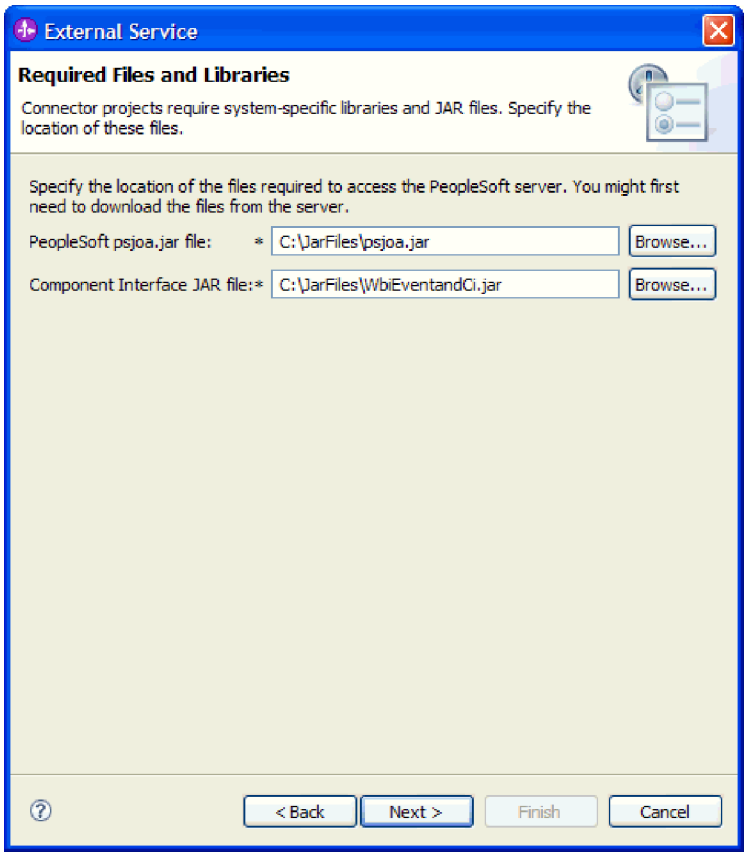


Figure 4. The Required Files and Libraries window, showing the required files selected

3. Click **Next**.

Results

The psjoa.jar and the component interface jar files are now part of your project.

Configure the adapter. The first step in the process of configuring the adapter is to specify information about the PeopleSoft Enterprise server so that the external service wizard can establish a connection to the server.

Setting connection properties for the external service wizard

To set connection properties for the external service wizard so that it can access the PeopleSoft Enterprise server, specify such information as the user name and password you use to access the server as well as the name or IP address of the server.

Before you begin

Make sure you have successfully added the external dependency files (the psjoa.jar and associated files).

About this task

Specify the connection properties that the external service wizard needs to establish a connection to the PeopleSoft Enterprise server and discover functions or data.

To specify the connection properties, use the following procedure.

Procedure

1. From the Processing Direction window, select **Inbound** (if you are going to send data from thePeopleSoft Enterprise server) or **Outbound** (if you are going to send data to the PeopleSoft Enterprise server).
2. From the Discovery Configuration window, specify the configuration properties:
   a. In the **Host name** field, type the name (or IP address) of your PeopleSoft Enterprise server.
   b. In the **Port number** field, type the port number the adapter uses to access the PeopleSoft Enterprise server
   c. Type the name and password you use to access the PeopleSoft Enterprise server.

      The password is case-sensitive.

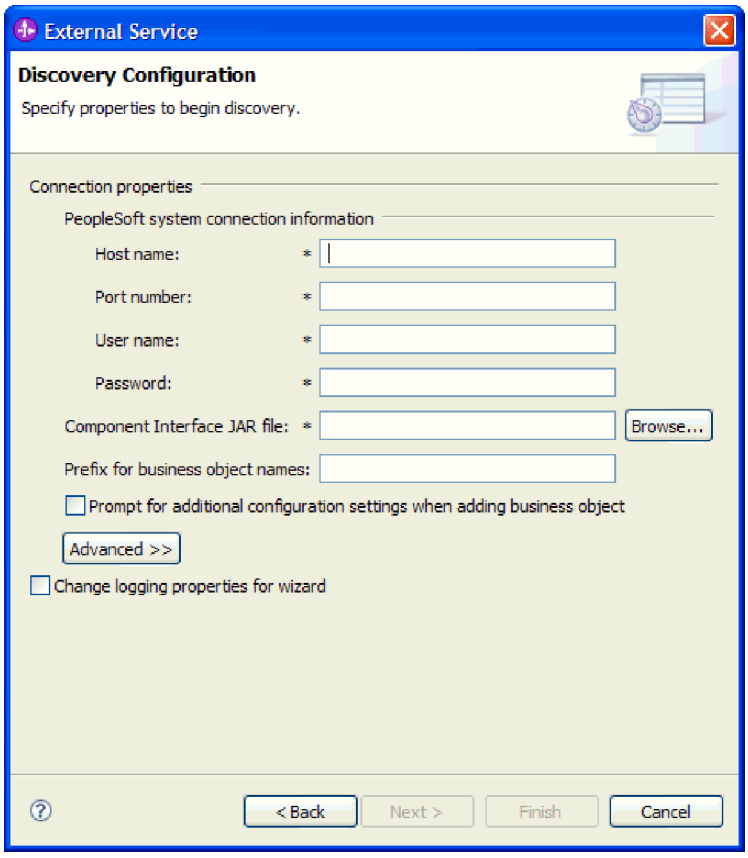


Figure 5. The Discovery Configuration window

   d. Click **Browse** and select the **Component Interface JAR file** that you added to the project as a dependency file.

e. Optionally, type a prefix to prepend to all objects associated with this module.

   A prefix allows you to differentiate between objects generated against the same PeopleSoft component interface.

f. Optionally, select the **Prompt for additional configuration settings** check box if you want to configure additional meta data when you generate objects. Use this option if you plan to use Delete and RetrieveAll operations and have the effective-dated fields and generated keys used in the operation.

3. To set additional advanced properties (bidirectional properties), click **Advanced**.

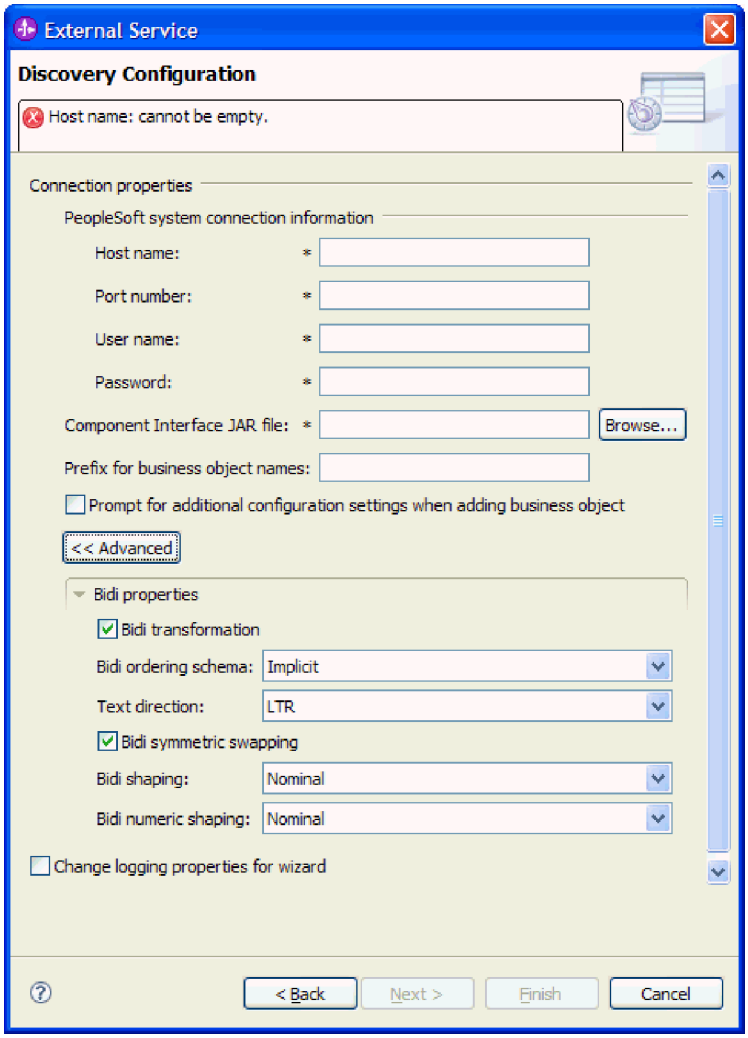


Figure 6. The Discovery Configuration window, showing the additional advanced property sections after clicking the **Advanced** *button*

4. If you need to set bidirectional properties, perform the following steps:
   a. Expand **Bidi Properties** and select **Bidi transformation**.
   b. Set properties for your environment.
5. To set logging properties for the external service wizard, perform the following steps:
   a. Select the **Change logging properties for wizard** check box.

b. Change the location of the log file output location by clicking **Browse** and selecting a different location.
c. Set the **Logging Level**.

   In a test environment, select **FINEST**, which provides the highest level of logging. In a production environment, select a level lower than FINEST to optimize the logging process.

   Note: This log pertains to the external service wizard only, not to the operation of the adapter.

6. Click **Next**.

Results

The external service wizard contacts the PeopleSoft Enterprise server, using the information you provided (such as user name and password) to log in. You see the Object Discovery and Selection window.

Specify search criteria that the external service wizard uses to discover functions or data on the PeopleSoft Enterprise server.

Configuring the module for outbound processing

To configure a module to use the adapter for outbound processing, use the external service wizard in WebSphere Integration Developer to find and select business objects and services from the PeopleSoft Enterprise server, and to generate business object definitions and related artifacts.

Selecting business objects and services

To specify the objects you want to import, you provide information in the external service wizard.

Before you begin

Make sure you have set the connection properties for the external service wizard.

About this task

Specify the object that you want to work with. The external service wizard displays a tree from which you can select objects.

To find and select an object, use the following procedure.

Procedure

1. In the Object Discovery and Selection window, click the object you want to work with, and then click the arrow to move it to the selected set.

   To see children of an object, click the plus sign.
2. In the Configuration Parameters window, specify configuration properties for the object. (This window is only available if you checked the **Prompt for additional configuration settings when adding business objects** box on the Discovery Configuration window.)
3. Click OK to add the object to the list of objects to be imported.
4. When you have selected all objects, click Next.

Results

You have selected an object to work with.

What to do next

From the Configure Objects window, add or remove associated operations.

Configuring the selected objects

To configure the business object, you specify information about the object (such as the operation associated with the object).

Before you begin

Make sure you have selected and imported the object.

About this task

To configure the business object, use the following procedure.

Procedure

1. In the Configure Objects window, enter the following information.
   a. Add or remove operations for the object that will be added to the service interface.
   b. In the **Maximum number of records for RetrieveAll operations** , specify the maximum number of records to retrieve when processing. The default value is 100.
   c. If you do not want to specify a namespace value, leave the default value for the **Business object namespace field.**
   d. If you want the business object contained within a business graph, leave the check box selected.
2. Click Next.

Results

The Publishing Object Configuration Properties window is displayed.

What to do next

Generate a module that includes the adapter and the business objects.

Setting deployment properties and generating the service

To generate the module, which is the artifact that is deployed on WebSphere Process Server or WebSphere Enterprise Service Bus, you create the module and include the adapter in the module.

Before you begin

Make sure you have configured the business object.

About this task

Generate the module, which includes the adapter and configured business object. The module is the artifact you deploy on the server.

Procedure

1. Optional: To change the default operation name, use the following procedure.
   a. Click **Edit Operations**
   b. In the Edit Operations Name window, select the operation you want to edit, and then click **Edit**.
   c. In the Add/Edit properties window, type a new operation name and description, and then click **Finish**.
2. To use the module in an embedded deployment, click **Deploy connector with module.** To use the module in a stand-alone deployment, clear the option.
   - Embedded deployment: With the adapter files embedded in the module, you can deploy the module to any application server. Use embedded deployment when you want more than one module to use the same adapter, but need to prevent different versions of shared libraries packaged with the adapters from interfering with one another. Embedded deployment also enables you to upgrade a single adapter instance at a time without concern for destabilizing instances used by other modules.
   - Stand-alone deployment: Without the adapter files in the module, you must install them on each application server where you want to run the module. Use stand-alone deployment when the adapter is used by only one module or when multiple modules can use the same version of the adapter. Using a stand-alone deployment reduces the resources required by running a single adapter instance for multiple modules.
3. In the **J2C Authentication Data Entry** field, enter the authentication alias name you specified in the Security section of the administrative console. If you did not create an authentication alias, leave this field blank.
4. Select **Use discovered connection properties** to set properties at this time. If you select **Use connection properties specified on server**, you can configure properties later, using the administrative console.
5. In the Connection properties section, set or change any connection properties that apply to your configuration.
6. Enter the name of the **Component interface for testing failed connection**.
7. Click **Next**.
8. In the Service Location Properties window, create a new module.
   a. Click **New** in the **Module** field.
   b. In the Integration Project window, select **Create a module project** or **Create a mediation module project**, then click Next.
   c. In the New Module window, type a name for the module.
   d. Specify whether you want to open the module in the assembly diagram (for module projects) or whether you want to create a mediation flow component (for mediation module projects). By default, these choices are selected
   e. Click **Finish**. The new module is created. When the creation process is finished, the New Module window closes, and the new module appears in the Module list in the Service Location Properties window.

Results

The new module is added to the Business Integration perspective.

What to do next

Export the module as an EAR file for deployment.

Configuring the module for inbound processing

To configure a module to use the adapter for inbound processing, use the external service wizard in WebSphere Integration Developer to find and select business objects and services from the PeopleSoft Enterprise server, and to generate business object definitions and related artifacts.

Selecting business objects and services

To specify which objects you want to process, you provide information in the external service wizard.

Before you begin

Make sure you have set the connection properties for the external service wizard

About this task

Specify search criteria that the external service wizard uses to discover objects on the PeopleSoft Enterprise server. The external service wizard returns a list of objects that meet the search criteria.

To specify the search criteria and select one or more objects, use the following procedure.

Procedure

1. In the Object Discovery and Selection window, click or expand the object you want to work with.
2. In the Configuration Parameters window, perform the following tasks.
   a. Select the field name to use for performing logical deletes.
   b. In the **Value used to indicate a deleted object** field, type the status value used to indicate an object is no longer active.
   c. Optional: If you want to use alternate keys during RetrieveAll operations, click **Add** and select the key fields you want to use.
3. Optional: Click **Advanced** to set additional parameters.
   a. At the **Preserve objects in parent update operation** box, click **Add** and select the child objects to which this applies.
   b. At the **Fields that represents generated keys in PeopleSoft** box, click **Add** and select the fields to which this applies.
   c. Click the **Effective date configuration** section, and select effective date options.
4. Click **OK**.
5. Click **Next**.

Results

The external service wizard has returned a list objects that match the configuration criteria.

What to do next

From the Configure Objects window, add or remove associated operations. Optionally specify a namespace and directory to which the generated business object will be stored and indicate whether you want a business graph generated.

Configuring the selected objects

To configure the business object, you specify information about the object (such as the operation associated with the object).

Before you begin

Make sure you have selected and imported the object.

About this task

To configure the business object, use the following procedure.

Procedure

1. In the Configure Objects window, enter the following information.
   a. Add or remove operations for the object that will be added to the service interface.
   b. If you do not want to specify a namespace value, leave the default value for the **Business object namespace field.**
   c. Type a directory location to store the generated business objects.
   d. If you want the business object contained within a business graph, leave the check box selected.
2. Click Next.

Results

The Publishing Object Configuration Properties window is displayed.

What to do next

Generate a module that includes the adapter and the business objects.

Setting deployment properties and generating the service

To generate the module, which is the artifact that is deployed on WebSphere Process Server or WebSphere Enterprise Service Bus, you create the module and include the adapter in the module.

Before you begin

Make sure you have configured the business object.

About this task

Generate the module, which includes the adapter and configured business object. The module is the artifact you deploy on the server.

Procedure

1. Optional: To change the default operation name, use the following procedure.
   a. Click **Edit Operations**

b. In the Edit Operations Name window, select the operation you want to edit, and then click **Edit**.
c. In the Add/Edit properties window, type a new operation name and description, and then click **Finish**.

2. To use the module in an embedded deployment, click **Deploy connector with module.** To use the module in a stand-alone deployment, clear the option.
   - Embedded deployment: With the adapter files embedded in the module, you can deploy the module to any application server. Use embedded deployment when you want more than one module to use the same adapter, but need to prevent different versions of shared libraries packaged with the adapters from interfering with one another. Embedded deployment also enables you to upgrade a single adapter instance at a time without concern for destabilizing instances used by other modules.
   - Stand-alone deployment: Without the adapter files in the module, you must install them on each application server where you want to run the module. Use stand-alone deployment when the adapter is used by only one module or when multiple modules can use the same version of the adapter. Using a stand-alone deployment reduces the resources required by running a single adapter instance for multiple modules.
3. In the **J2C Authentication Data Entry** field, enter the authentication alias name you specified in the Security section of the administrative console. If you did not create an authentication alias, leave this field blank.
4. Select **Use discovered connection properties** to set properties at this time. If you select **Use connection properties specified on server**, you can configure properties later, using the administrative console.
5. In the Connection properties section, set or change any connection properties that apply to your configuration.
6. Enter the name of the **Component interface for testing failed connection**.
7. Click **Next**.
8. In the Service Location Properties window, create a new module.
   a. Click **New** in the **Module** field.
   b. In the Integration Project window, select **Create a module project** or **Create a mediation module project**, then click Next.
   c. In the New Module window, type a name for the module.
   d. Specify whether you want to open the module in the assembly diagram (for module projects) or whether you want to create a mediation flow component (for mediation module projects). By default, these choices are selected
   e. Click **Finish**. The new module is created. When the creation process is finished, the New Module window closes, and the new module appears in the Module list in the Service Location Properties window.

Results

The new module is added to the Business Integration perspective.

What to do next

Export the module as an EAR file for deployment.

Chapter 5. Changing interaction specification properties using the assembly editor

To change interaction specification properties for your adapter module after generating the service, use the assembly editor in WebSphere Integration Developer.

Before you begin

You must have used the external service wizard to generate a service for the adapter.

About this task

You might want to change interaction specification properties after you have generated a service for the adapter. Interaction specification properties, which are optional, are set at the method level, for a specific operation on a specific business object. The values you specify will appear as defaults in all parent business objects generated by the external service wizard. You can change these properties before you export the EAR file. You cannot change these properties after you deploy the application.

To change the interaction specification properties, use the following procedure.

Procedure

1. From the Business Integration perspective of WebSphere Integration Developer, expand the module name.
2. Expand **Assembly Diagram** and double-click the interface.
3. Click the interface in the assembly editor. (It shows the module properties if you don't do the extra click.)
4. Click the **Properties** tab. (You can also right-click the interface in the diagram and click **Show in Properties**.)
5. Under **Binding**, click **Method bindings**. The methods for the interface are displayed, one for each combination of business object and operation.
6. Select the method whose interaction specification property you want to change.
7. Change the property in the **Generic** tab. Repeat this step for each method whose interaction specification property you want to change.

Results

The interaction specification properties associated with your adapter module are changed.

What to do next

Deploy the module.

Chapter 6. Deploying the module

Deploy a module to place the files that make up your module and adapter into an operational environment for production or testing. In WebSphere Integration Developer, the integrated test environment features runtime support for WebSphere Process Server, or WebSphere Enterprise Service Bus, or both, depending on the test environment profiles that you selected during installation.

Deployment environments

There are test and production environments into which you can deploy modules and adapters.

In WebSphere Integration Developer, you can deploy your modules to one or more servers in the test environment. This is typically the most common practice for running and testing business integration modules. However, you can also export modules for server deployment on WebSphere Process Server or WebSphere Enterprise Service Bus as EAR files using the administrative console or command-line tools.

Deploying the module for testing

In WebSphere Integration Developer, you can deploy a module that includes an embedded adapter to the test environment and work with server tools that enable you to perform such tasks as editing server configurations, starting and stopping servers and testing the module code for errors. The testing is generally performed on the interface operations of your components, which enables you to determine whether the components are correctly implemented and the references are correctly wired.

Generating and wiring a target component for testing inbound processing

Before deploying to the test environment a module that includes an adapter for inbound processing, you must first generate and wire a target component. This target component serves as the *destination* to which the adapter sends events.

Before you begin

You must have generated an export module, using the external service wizard.

About this task

Generating and wiring a target component for inbound processing is required in a testing environment only. It is not necessary when deploying the adapter in a production environment.

The target component receives events. You *wire* the export to the target component (connecting the two components) using the assembly editor in WebSphere Integration Developer. The adapter uses the wire to pass event data (from the export to the target component).

Procedure

1. Create the target component
   a. From the Business Integration perspective of WebSphere Integration Developer, expand **Assembly Diagram** and double-click the export component. If you did not change the default value, the name of the export component is the name of your adapter + **InboundInterface**.

      An interface specifies the operations that can be called and the data that is passed, such as input arguments, returned values, and exceptions. The **InboundInterface** contains the operations required by the adapter to support inbound processing and is created when you run the external service wizard.
   b. Create a new component by expanding **Components**, selecting **Untyped Component**, and dragging the component to the Assembly Diagram.

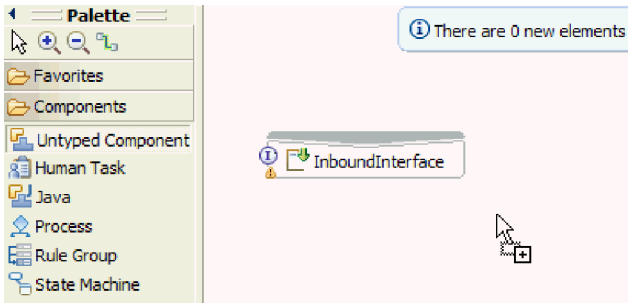


Figure 7. Adding a component to the Assembly Diagram

      The cursor changes to the placement icon.
   c. Click the component to have it displayed in the Assembly Diagram.
2. Wire the components.
   a. Click and drag the export component to the new component. This draws a wire from the export component to the new component, as shown in the following figure:

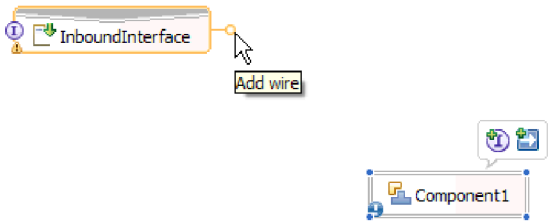


Figure 8. Selecting the wire icon

   b. Save the assembly diagram. Click **File** → **Save**
3. Generate an implementation for the new component.
   a. Right-click on the new component and select **Generate implementation** → **Java**.

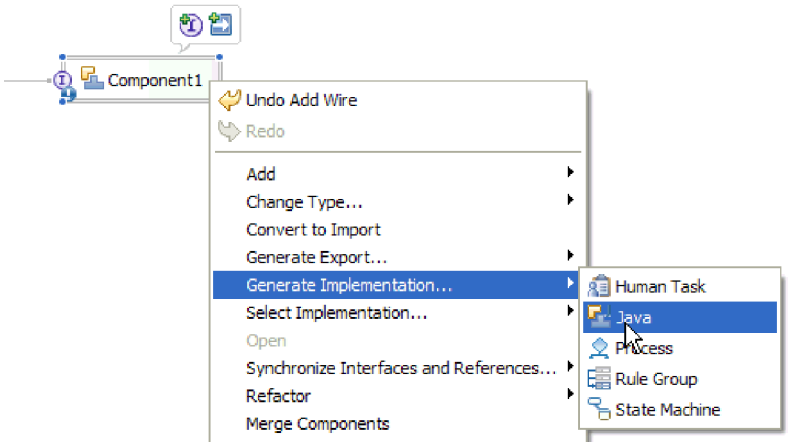


Figure 9. Generating a Java implementation

b. Select **(default package)** and click **OK**. This creates an endpoint for the inbound module.

   The Java implementation is displayed in a separate tab.

c. **Optional:** Add print statements to print the data object received at the endpoint for each of the endpoint methods.

d. Click **File** → **Save** to save the changes.

What to do next

Continue deploying the module for testing.

Adding the module to the server

In WebSphere Integration Developer, you can add modules to one or more servers in the test environment.

Before you begin

If the module you are testing uses an adapter to perform inbound processing, you need to generate and wire a *target component* to which the adapter will send events.

About this task

In order to test your module and its use of the adapter, you need to add the module to the server.

Procedure

1. *Conditional:* If there are no servers in the **Servers view**, add and define a new server by performing the following steps:
   a. Place your cursor in the **Servers view**, right click and select **New** → **server**
   b. From the Define a New Server window, select the server type.
   c. Configure server's settings.
   d. Click **Finish** to publish the server.
2. Add the module to the server
   a. Switch to the servers view. In WebSphere Integration Developer, select **Windows** → **Show View** → **Servers**

a. Start the server. In the Servers tab in the lower-right pane of the WebSphere Integration Developer screen, right-click on the server, and then select **Start**.

3. When the server status is *Started*, right-click on the server, and select **Add and remove projects**.
4. In the Add and Remove Projects screen, select your project and click **Add**. The project moves from the **Available projects** list to the **Configured projects** list.
5. Click **Finish**. This deploys the module on the server.

   The Console tab in the lower-right pane displays a log while the module is being added to the server.

What to do next

Test the functionality of your module and the adapter.

Testing the module for outbound processing using the test client

Test the assembled module and adapter for outbound processing using the WebSphere Integration Developer integration test client.

Before you begin

You need to add the module to the server first.

About this task

Testing a module is generally performed on the interface operations of your components, which enables you to determine whether the components are correctly implemented and the references are correctly wired.

Procedure

1. Select the module you want to test, right-click on it, and select **Test → Test Module**.
2. For information on testing a module using the test client, see the *Testing modules and components* topic in the WebSphere Integration Developer information center.

What to do next

If you are satisfied with the results of testing your module and adapter, you can deploy the module and adapter to the production environment.

Deploying the module for production

Deploying a module created with the external service wizard to WebSphere Process Server or WebSphere Enterprise Service Bus in a production environment is a two-step process. First, you export the module in WebSphere Integration Developer as an enterprise archive (EAR) file. Second, you deploy the EAR file using the WebSphere Process Server administrative console.

Installing the RAR file (for modules using stand-alone adapters only)

If you chose not to embed the adapter with your module, but instead choose to make the adapter available to all deployed applications in the server instance, you

will need to install the adapter in the form of a RAR file to the application server. A RAR file is a Java archive (JAR) file that is used to package a resource adapter for the Java 2 Connector (J2C) architecture.

Before you begin

You must have set **Deploy connector project** to **On server for use by multiple adapters** in the Service Generation and Deployment Configuration window of the external service wizard.

About this task

Installing the adapter in the form of a RAR file results in the adapter being available to all J2EE application components running in the server runtime.

Procedure

1. Start the administrative console.
2. Click **Resources** → **Resource Adapters** → **Resource adapters**.
3. From the Resource adapters page, click **Install RAR**.

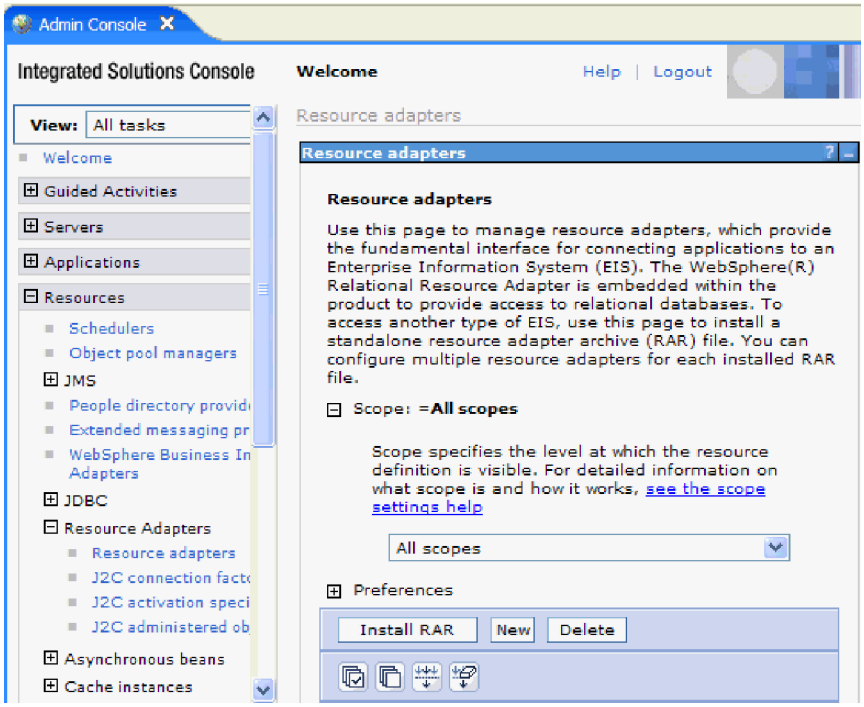


Figure 10. The Install RAR button on the Resource adapters page

4. From the Install RAR file page, click **Browse** and navigate to the RAR file for your adapter.

   The RAR files are typically installed in the following path:
   WID_installation_directory/ResourceAdapters/*adapter_name*/deploy/*adapter*.rar
5. Click **Next**.
6. From the Resource adapters page, optionally change the name of the adapter and add a description.
7. Click **OK**.
8. Click **Save** in the **Messages** box at the top of the page.

What to do next

The next step is to export the module as an EAR file that you can deploy on the server.

Exporting the module as an EAR file

Using WebSphere Integration Developer, export your module as an EAR file. By creating an EAR file, you capture all of the contents of your module in a format that can be easily deployed to WebSphere Process Server or WebSphere Enterprise Service Bus.

Before you begin

Before you can export a module as an EAR file, you must have created a module to communicate with your service. The module should be displayed in the WebSphere Integration Developer Business Integration perspective.

About this task

To export the module as an EAR file, perform the following procedure.

Procedure

1. Right-click the module and select **Export**.
2. In the Select window, expand **J2EE**.
3. Select **EAR file** and click **Next**.

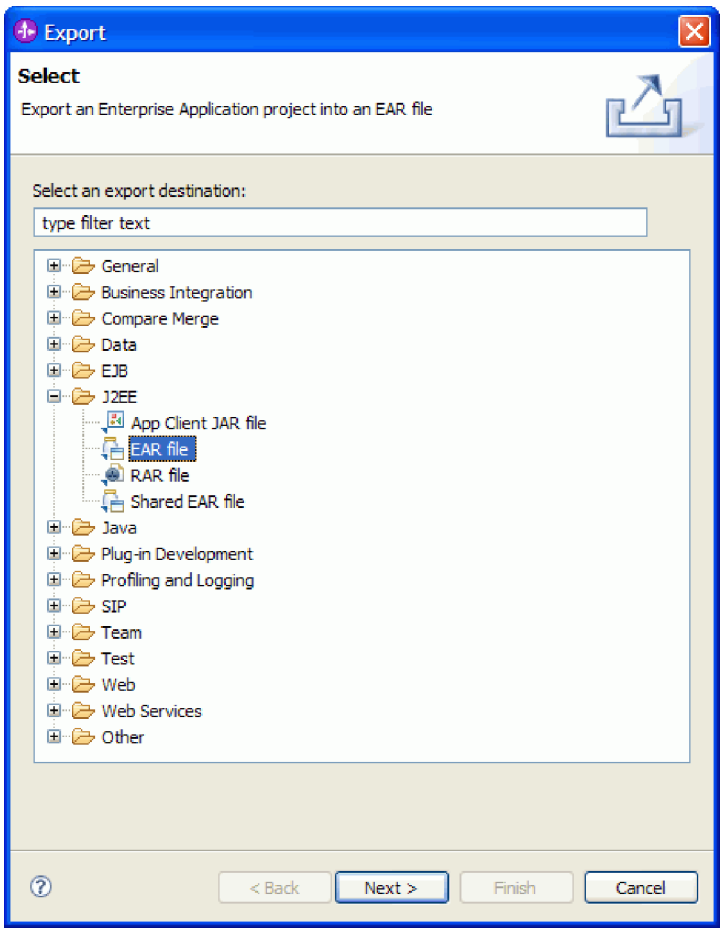


Figure 11. Selecting **EAR file** *from the Select window*

4. Optional: Select the correct EAR application. The EAR application is named after your module, but with "App" added to the end of the name.
5. **Browse** for the folder on the local file system where the EAR file will be placed.
6. Optionally, if you want to export the source files, select **Export source files**. This option is provided in case you want to export the source files in addition to the EAR file. Source files include files associated with Java components, data maps, and so on.
7. To overwrite an existing file, click **Overwrite an existing file**.
8. Click **Finish**.

Results

The contents of the module are exported as an EAR file.

What to do next

Install the module in the administrative console. This deploys the module to WebSphere Process Server.

Installing the EAR file

Installing the EAR file is the last step of the deployment process. When you install the EAR file on the server and run it, the adapter, which is embedded as part of the EAR file, runs as part of the installed application.

Before you begin

You must have exported your module as an EAR file before you can install it on WebSphere Process Server.

About this task

To install the EAR file, perform the following procedure. For more information on clustering adapter module applications, see the http://www.ibm.com/software/webservers/appserv/was/library/.

Procedure

1. Open the WebSphere Process Server administrative console by right-clicking your server instance and selecting **Run administrative console**.
2. In the administrative console window, click **Applications → Install New Applications**.

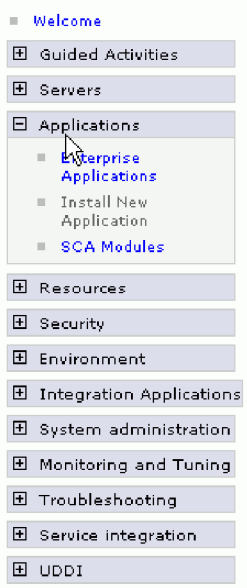


Figure 12. Preparing for the application installation window

3. Click **Browse** to locate your EAR file and click **Next**. The EAR file name is the name of the module followed by "App."
4. Optional: If you are deploying to a clustered environment, complete the following steps.
   a. On the **Step 2: Mapping modules to servers** window, select the module.
   b. Select the name of the server cluster.
   c. Click **Apply**.
5. Click **Next** to open the Summary. Verify that all settings are correct and click **Finish**.
6. Optional: If you are using an authentication alias, complete the following steps:

a. Expand **Security** and select **Business Integration Authentication Aliases**.
b. Select the authentication alias that you want to configure. You must have administrator or operator authority to make changes to authentication alias configurations.
c. Optional: If it is not already filled in, type the **User name**.
d. If it is not already filled in, type the **Password**.
e. If it is not already filled in, type the password again in the **Confirm Password** field.
f. Click **OK**.

Results

The project is now deployed and the Enterprise Applications window is displayed.

What to do next

If you want to set or reset any properties or you would like to cluster adapter project applications, make those changes using the administrative console before configuring troubleshooting tools.

Chapter 7. Administering the adapter module

When you are running the adapter in a stand-alone deployment, use the administrative console of the server to start, stop, monitor, and troubleshoot the adapter module. In an application that uses an embedded adapter, the adapter module starts or stops when the application is started or stopped.

Changing configuration properties for embedded adapters

To change configuration properties after you deploy the adapter as part of a module, you use the administrative console of the runtime environment. You can update resource adapter properties (used for general adapter operation), managed connection factory properties (used for outbound processing), and activation specification properties (used for inbound processing).

Setting resource adapter properties for embedded adapters

To set resource adapter properties for your adapter after it has been deployed as part of a module, use the administrative console. You select the name of the property you want to configure and then change or set the value.

Before you begin

Your adapter module must be deployed on WebSphere Process Server or WebSphere Enterprise Service Bus.

About this task

Custom properties are default configuration properties shared by all WebSphere adapters.

To configure properties using the administrative console, use the following procedure.

Procedure

1. Start the administrative console.
2. Under **Applications**, select **Enterprise Applications**.
3. From the **Enterprise Applications** list, click the name of the adapter module whose properties you want to change.
4. Under **Modules**, click **Manage Modules**.

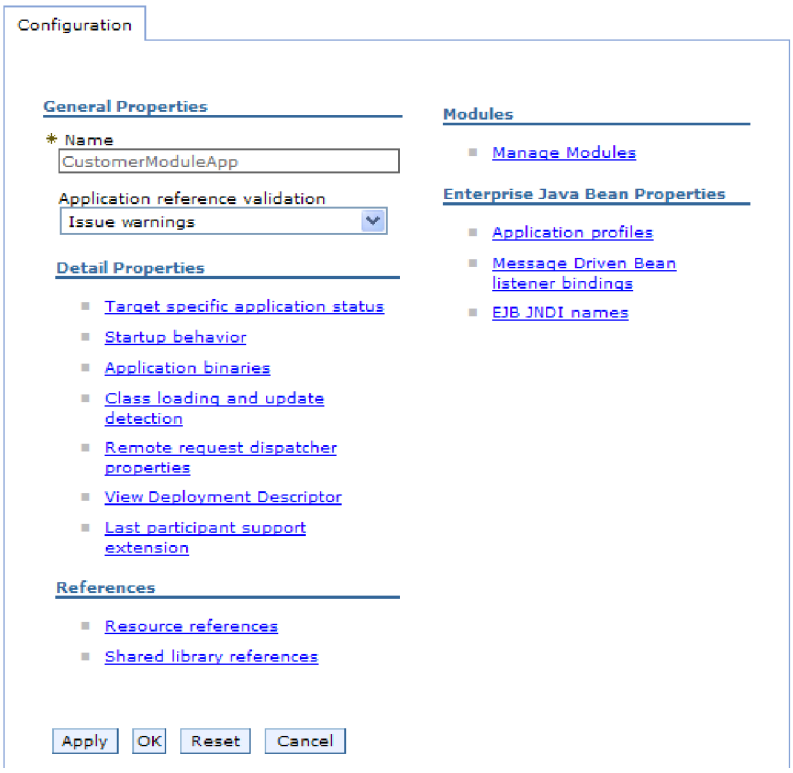


Figure 13. The Manage Modules selection in the Configuration tab

5. Click **IBM WebSphere Adapter for PeopleSoft Enterprise**.
6. From the **Additional Properties** list, click **Resource Adapter**.
7. On the next page, from the **Additional Properties** list, click **Custom properties**.
8. For each property you want to change, perform the following steps.

   Note: See "Resource adapter properties" on page 87 for more information about these properties.

   a. Click the name of the property.
   b. Change the contents of the **Value** field or type a value, if the field is empty. For example, if you click **logNumberOfFiles**, you see the following page:

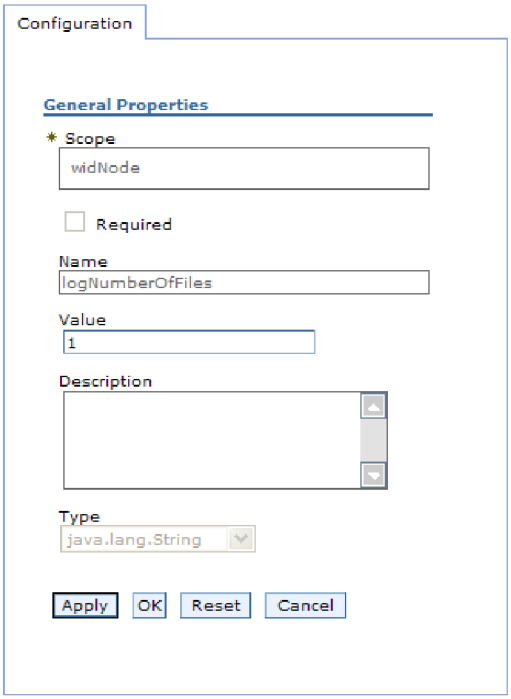


Figure 14. The Configuration tab for the logNumberOfFiles property

You can change the number in the **Value** field and add a description of the property.

c. Click **OK**.

9. Click the **Save** link in the **Messages** box at the top of the window.

Results

The resource adapter properties associated with your adapter module are changed.

Setting managed (J2C) connection factory properties for embedded adapters

To set managed connection factory properties for your adapter after it has been deployed as part of a module, use the administrative console. You select the name of the property you want to configure and then change or set the value.

Before you begin

Your adapter module must be deployed on WebSphere Process Server or WebSphere Enterprise Service Bus.

About this task

You use managed connection factory properties to configure the target PeopleSoft Enterprise server instance.

Note: In the administrative console, the properties are referred to as ″J2C connection factory properties.″

To configure properties using the administrative console, use the following procedure.

Procedure

1. Start the administrative console.
2. Under **Applications**, select **Enterprise Applications**.
3. From the **Enterprise Applications** list, click the name of the adapter module whose properties you want to change.
4. Under **Modules**, click **Manage Modules**.

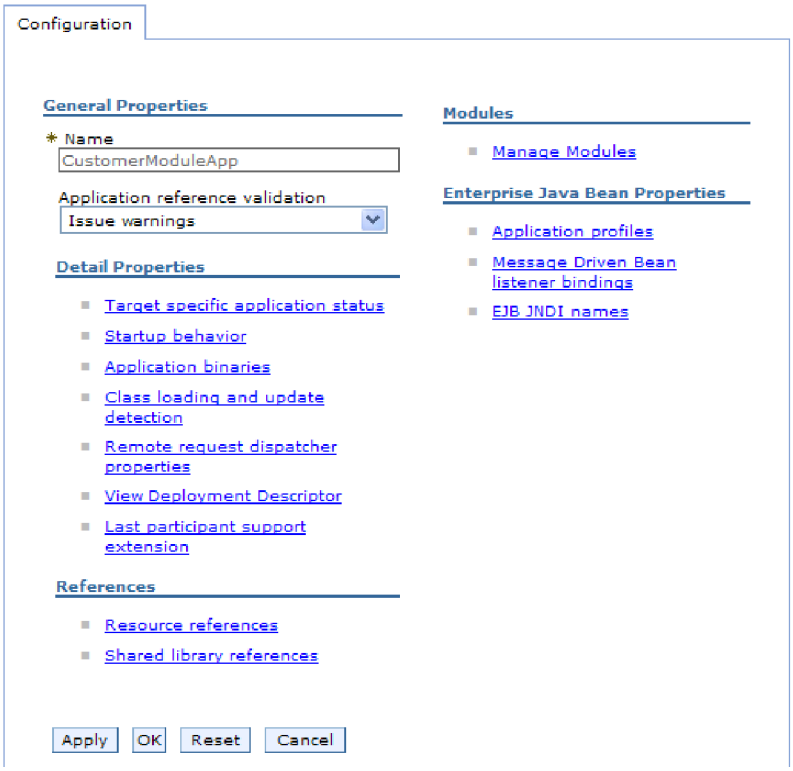


Figure 15. The Manage Modules selection in the Configuration tab

5. Click **IBM WebSphere Adapter for PeopleSoft Enterprise**.
6. From the **Additional Properties** list, click **Resource Adapter**.
7. On the next page, from the **Additional Properties** list, click **J2C connection factories**.
8. Click the name of the connection factory associated with your adapter module.
9. From the **Additional Properties** list, click **Custom properties**.

   Custom properties are those J2C connection factory properties that are unique to Adapter for PeopleSoft Enterprise. Connection pool and advanced connection factory properties are properties you configure if you are developing your own adapter.
10. For each property you want to change, perform the following steps.

    Note: See "Managed connection factory properties" on page 90 for more information about these properties.

    a. Click the name of the property.

b. Change the contents of the **Value** field or type a value, if the field is empty.
c. Click **OK**.

11. Click the **Save** link in the **Messages** box at the top of the window.

Results

The managed connection factory properties associated with your adapter module are changed.

Setting activation specification properties for embedded adapters

To set activation specification properties for your adapter after it has been deployed as part of a module, use the administrative console. You select the name of the message endpoint property you want to configure, and then change or set the value.

Before you begin

Your adapter module must be deployed on WebSphere Process Server or WebSphere Enterprise Service Bus.

About this task

You use activation specification properties to configure the endpoint for inbound processing.

To configure properties using the administrative console, use the following procedure.

Procedure

1. Start the administrative console.
2. Under **Applications**, select **Enterprise Applications**.
3. From the **Enterprise Applications** list, click the name of the adapter module whose properties you want to change.
4. Under **Modules**, click **Manage Modules**.

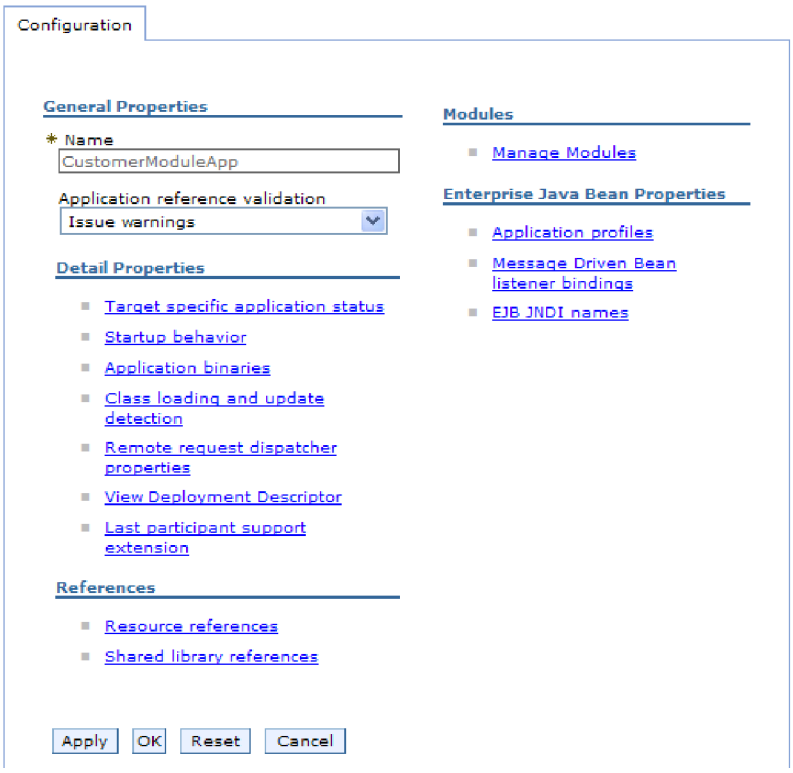


Figure 16. The Manage Modules selection in the Configuration tab

5. Click **IBM WebSphere Adapter for PeopleSoft Enterprise**.
6. From the **Additional Properties** list, click **Resource Adapter**.
7. On the next page, from the **Additional Properties** list, click **J2C activation specifications**.
8. Click the name of the activation specification associated with the adapter module.
9. From the **Additional Properties** list, click **J2C activation specification custom properties**.
10. For each property you want to change, perform the following steps.

    Note: See "Activation specification properties" on page 100 for more information about these properties.

    a. Click the name of the property.
    b. Change the contents of the **Value** field or type a value, if the field is empty.
    c. Click **OK**.
11. Click the **Save** link in the **Messages** box at the top of the window.

Results

The activation specification properties associated with your adapter module are changed.

Changing configuration properties for stand-alone adapters

To set configuration properties after you install a stand-alone adapter, you use the administrative console of the runtime environment. You provide general information about the adapter and then set resource adapter properties (which are used for general adapter operation). If the adapter will be used for outbound operations, you create a connection factory and then set properties for it. If the adapter will be used for inbound operations, you create an activation specification and then set properties for it.

Setting resource adapter properties for stand-alone adapters

To set resource adapter properties for your stand-alone adapter after it has been installed on WebSphere Process Server or WebSphere Enterprise Service Bus, use the administrative console. You select the name of the property you want to configure and then change or set the value.

Before you begin

Your adapter must be installed on WebSphere Process Server or WebSphere Enterprise Service Bus.

About this task

Custom properties are default configuration properties shared by all WebSphere adapters.

To configure properties using the administrative console, use the following procedure.

Procedure

1. Start the administrative console.
2. Click **Resources** → **Resource Adapters** → **Resource adapters**.
3. From the Resource adapters page, click **IBM WebSphere Adapter for PeopleSoft Enterprise**.
4. From the **Additional Properties** list, click **Custom properties**.
5. For each property you want to change, perform the following steps.

   Note: See "Resource adapter properties" on page 87 for more information about these properties.

   a. Click the name of the property.
   b. Change the contents of the **Value** field or type a value, if the field is empty.

      For example, if you click **logNumberOfFiles**, you see the following page:

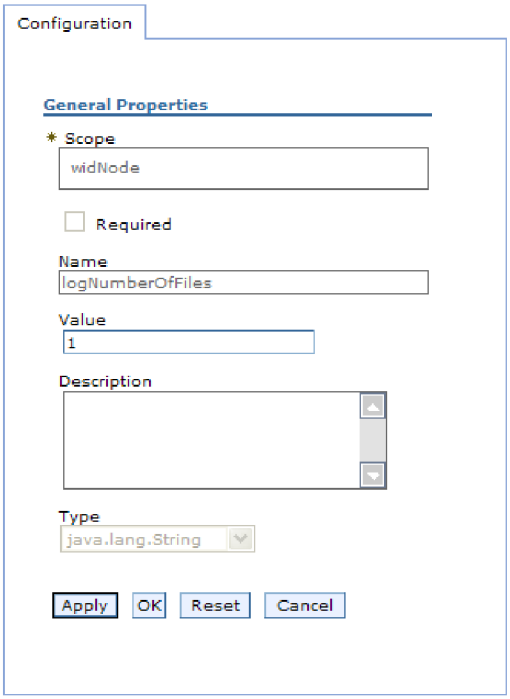


Figure 17. The Configuration tab for the logNumberOfFiles property

You can change the number in the **Value** field and add a description of the property.

c. Click **OK**.

6. Click **Save** in the **Messages** box at the top of the page.

Results

The resource adapter properties associated with your adapter are changed.

Setting managed (J2C) connection factory properties for stand-alone adapters

To set managed connection factory properties for your stand-alone adapter after it has been installed on WebSphere Process Server or WebSphere Enterprise Service Bus, use the administrative console. You select the name of the property you want to configure and then change or set the value.

Before you begin

Your adapter must be installed on WebSphere Process Server or WebSphere Enterprise Service Bus.

About this task

You use managed connection factory properties to configure the target PeopleSoft Enterprise server instance.

Note: In the administrative console, the properties are referred to as ″J2C connection factory properties.″

To configure properties using the administrative console, use the following procedure.

Procedure

1. Start the administrative console.
2. Click **Resources** → **Resource Adapters** → **Resource adapters**.
3. From the Resource adapters page, click **IBM WebSphere Adapter for PeopleSoft Enterprise**.
4. From the **Additional Properties** list, click **J2C connection factories**.
5. If you are going to use an existing connection factory, skip ahead to step 6.

   Note: If you selected **Use predefined connection properties** when you used the external service wizard to configure the adapter module, you do not need to create a connection factory.

   If you are creating a connection factory, perform the following steps:

   a. Click **New**.
   b. In the **General Properties** section of the **Configuration** tab, type a name for the connection factory. For example, you could type `AdapterCF`.
   c. Type a value for **JNDI name**. For example, you could type `com/eis/AdapterCF`.
   d. Select an authentication alias from the **Component-managed authentication alias** list.
   e. Click **OK**.
   f. Click **Save** in the **Messages** box at the top of the page.

      The newly created connection factory is displayed.

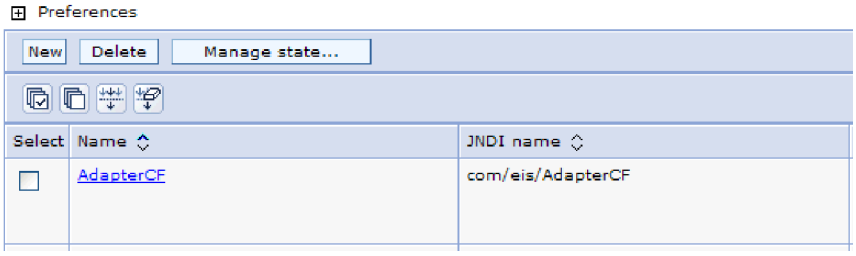


Figure 18. The list of connection factories

6. From the list of connection factories, click the one you want to use.
7. From the **Additional Properties** list, click **Custom properties**.

   Custom properties are those J2C connection factory properties that are unique to Adapter for PeopleSoft Enterprise. Connection pool and advanced connection factory properties are properties you configure if you are developing your own adapter.
8. For each property you want to change, perform the following steps.

   Note: See “Managed connection factory properties” on page 90 for more information about these properties.

   a. Click the name of the property.
   b. Change the contents of the **Value** field or type a value, if the field is empty.
   c. Click **OK**.

9. After you have finished setting properties, click **Apply**.
10. Click **Save** in the **Messages** box at the top of the window.

Results

The managed connection factory properties associated with your adapter are set.

Setting activation specification properties for stand-alone adapters

To set activation specification properties for your stand-alone adapter after it has been installed on WebSphere Process Server or WebSphere Enterprise Service Bus, use the administrative console. You select the name of the message endpoint property you want to configure, and then change or set the value.

Before you begin

Your adapter must be installed on WebSphere Process Server or WebSphere Enterprise Service Bus.

About this task

You use activation specification properties to configure the endpoint for inbound processing.

To configure properties using the administrative console, use the following procedure.

Procedure

1. Start the administrative console.
2. Click **Resources** → **Resource Adapters** → **Resource adapters**.
3. From the Resource adapters page, click **IBM WebSphere Adapter for PeopleSoft Enterprise**.
4. From the **Additional Properties** list, click **J2C activation specifications.**.
5. If you are going to use an existing activation specification, skip ahead to step 6.

   Note: If you selected **Use predefined connection properties** when you used the external service wizard to configure the adapter module, you do not need to create an activation specification.

   If you are creating an activation specification, perform the following steps:
   a. Click **New**.
   b. In the **General Properties** section of the **Configuration** tab, type a name for the activation specification. For example, you could type `AdapterAS`.
   c. Type a value for **JNDI name**. For example, you could type `com/eis/AdapterAS`.
   d. Select an authentication alias from the **Authentication alias** list.
   e. Select a message listener type.
   f. Click **OK**.
   g. Click **Save** in the **Messages** box at the top of the page.
      The newly created activation specification is displayed.
6. From the list of activation specifications, click the one you want to use.

7. From the Additional Properties list, click **J2C activation specification custom properties**.
8. For each property you want to set, perform the following steps.

   Note: See "Activation specification properties" on page 100 for more information about these properties.

   a. Click the name of the property.
   b. Change the contents of the **Value** field or type a value, if the field is empty.
   c. Click **OK**.
9. After you have finished setting properties, click **Apply**.
10. Click **Save** in the **Messages** box at the top of the page.

Results

The activation specification properties associated with your adapter are set.

Starting the application that uses the adapter

Use the administrative console of the server to start an application that uses the adapter. By default, the application starts automatically when the server starts.

About this task

Use this procedure to start the application, whether it is using an embedded or a stand-alone adapter. For an application that uses an embedded adapter, the adapter starts when the application starts. For an application that uses a stand-alone adapter, the adapter starts when the application server starts.

Procedure

1. On the administrative console, click **Applications → Enterprise Applications**.

   Note: The administrative console is labeled "Integrated Solutions Console".
2. Select the check box of the application that you want to start. The application name is the name of the EAR file you installed, without the .EAR file extension.
3. Click **Start**.

Results

The status of the application changes to Started, and a message stating that the application has started displays at the top of the administrative console.

Stopping the application that uses the adapter

Use the administrative console of the server to stop an application that uses the adapter. By default, the application stops automatically when the server stops.

About this task

Use this procedure to stop the application, whether it is using an embedded or a stand-alone adapter. For an application with an embedded adapter, the adapter stops when the application stops. For an application that uses a stand-alone adapter, the adapter stops when the application server stops.

Procedure

1. On the administrative console, click **Applications → Enterprise Applications**.

   Note: The administrative console is labeled "Integrated Solutions Console".
2. Select the check box of the application that you want to stop. The application name is the name of the EAR file you installed, without the .EAR file extension.
3. Click **Stop**.

Results

The status of the application changes to Stopped, and a message stating that the application has stopped displays at the top of the administrative console.

Monitoring performance using Performance Monitoring Infrastructure

Performance Monitoring Infrastructure (PMI) is a feature of the administrative console that allows you to dynamically monitor the performance of components in the production environment, including the adapter for PeopleSoft Enterprise. PMI collects adapter performance data, such as average response time and total number of requests, from various components in the server and organizes the data into a tree structure. You can view the data through the Tivoli® Performance Viewer, a graphical monitoring tool that is integrated with the administrative console in WebSphere Process Server.

About this task

You can monitor the performance of your adapter by having PMI collect data at the following points:

- At outbound processing to monitor outbound requests
- At inbound event retrieval to monitor the retrieval of an event from the event table
- At inbound event delivery to monitor the delivery of an event to the endpoint or endpoints

Before you can enable and configure PMI for your adapter, you must first set the level of tracing detail and run some events from which to gather performance data.

To learn more about how PMI can help you monitor and improve the overall performance of your adapter environment, search for PMI on the WebSphere Application Server web site: http://www.ibm.com/software/webservers/appserv/was/library/.

Configuring Performance Monitoring Infrastructure

You can configure Performance Monitoring Infrastructure (PMI) to gather adapter performance data, such as average response time and total number of requests. After you configure PMI for your adapter, you can monitor the adapter performance using Tivoli Performance viewer.

Before you begin

Before you can configure PMI for your adapter, you must first set the level of tracing detail and run some events from which to gather performance data.

1. To enable tracing and to receive event data, the trace level must be set to either fine, finer, finest, or all. After *=info, add a colon and a string, for example:

```
*=info: WBILocationMonitor.CEI.ResourceAdapter.
*=finest: WBILocationMonitor.LOG.ResourceAdapter.*=finest:
```

For instructions on setting the trace level, refer to "Enabling tracing with the Common Event Infrastructure (CEI)" on page 65.

2. Generate at least one outbound request or inbound event to produce performance data that you can configure.

Procedure

1. Enable PMI for your adapter.
   a. In the administrative console, expand **Monitoring and Tuning**, and then select **Performance Monitoring Infrastructure (PMI)**.
   b. From the list of servers, click the name of your server.
   c. Select the Configuration tab, then select the **Enable Performance Monitoring (PMI)** check box.
   d. Select **Custom** to selectively enable or disable statistics.

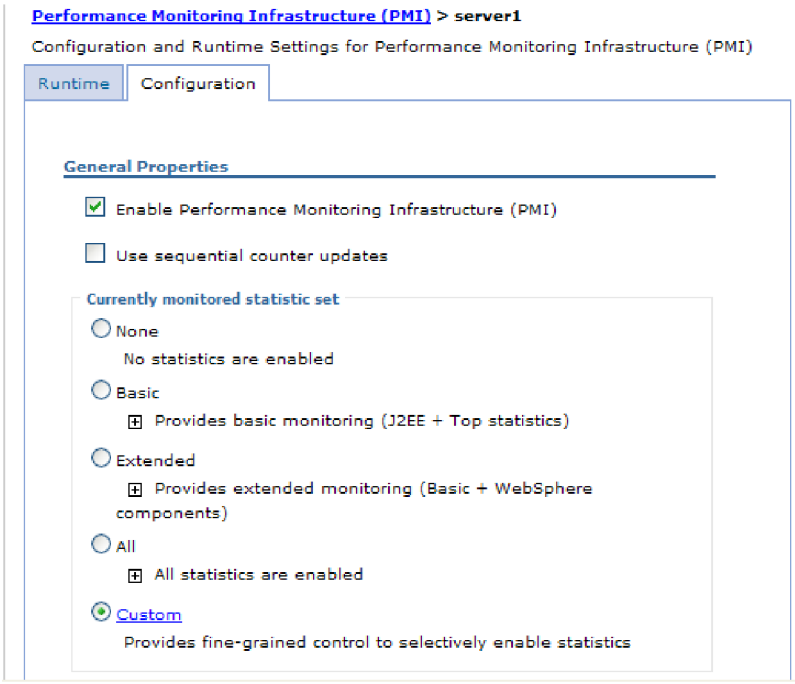


Figure 19. Enabling Performance Monitoring Infrastructure

   e. Click **Apply** or **OK**.
   f. Click **Save**. PMI is now enabled.
2. Configure PMI for your adapter.
   a. In the administrative console, expand **Monitoring and Tuning**, and then select **Performance Monitoring Infrastructure (PMI)**.
   b. From the list of servers, click the name of your server.
   c. Select **Custom**.
   d. Select the **Runtime** tab. The following figure shows the Runtime tab.

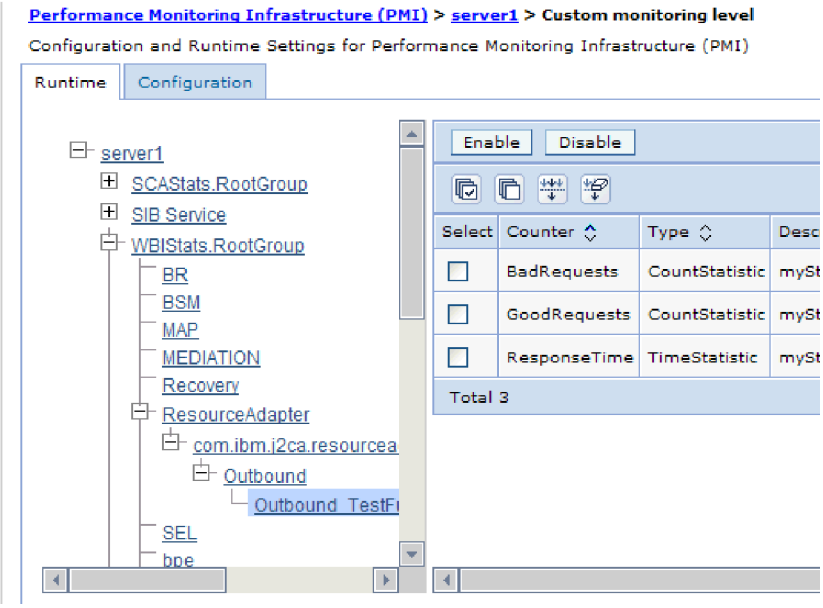


Figure 20. Runtime tab used for configuring PMI

e. Click **WBIStats.RootGroup**. This is a PMI submodule for data collected in the root group. This example uses the name WBIStats for the root group.
f. Click **ResourceAdapter**. This is a submodule for the data collected for the JCA adapters.
g. Click the name of your adapter, and select the processes you want to monitor.
h. In the right pane, select the check boxes for the statistics you want to gather, and then click **Enable**.

Results

PMI is configured for your adapter.

What to do next

Now you can view the performance statistics for your adapter.

Viewing performance statistics

You can view adapter performance data through the graphical monitoring tool, Tivoli Performance Viewer. Tivoli Performance Viewer is integrated with the administrative console in WebSphere Process Server.

Before you begin

Configure Performance Monitoring Infrastructure for your adapter.

Procedure

1. In the administrative console, expand **Monitoring and Tuning**, expand **Performance Viewer**, then select **Current Activity**.
2. In the list of servers, click the name of your server.
3. Under your server name, expand **Performance Modules**.

4. Click **WBIStatsRootGroup**.
5. Click **ResourceAdapter** and the name of your adapter module.
6. If there is more than one process, select the check boxes for the processes whose statistics you want to view.

Results

The statistics are displayed in the right panel. You can click **View Graph** to view a graph of the data, or **View Table** to see the statistics in a table format. The following figure shows adapter performance statistics as a graph.

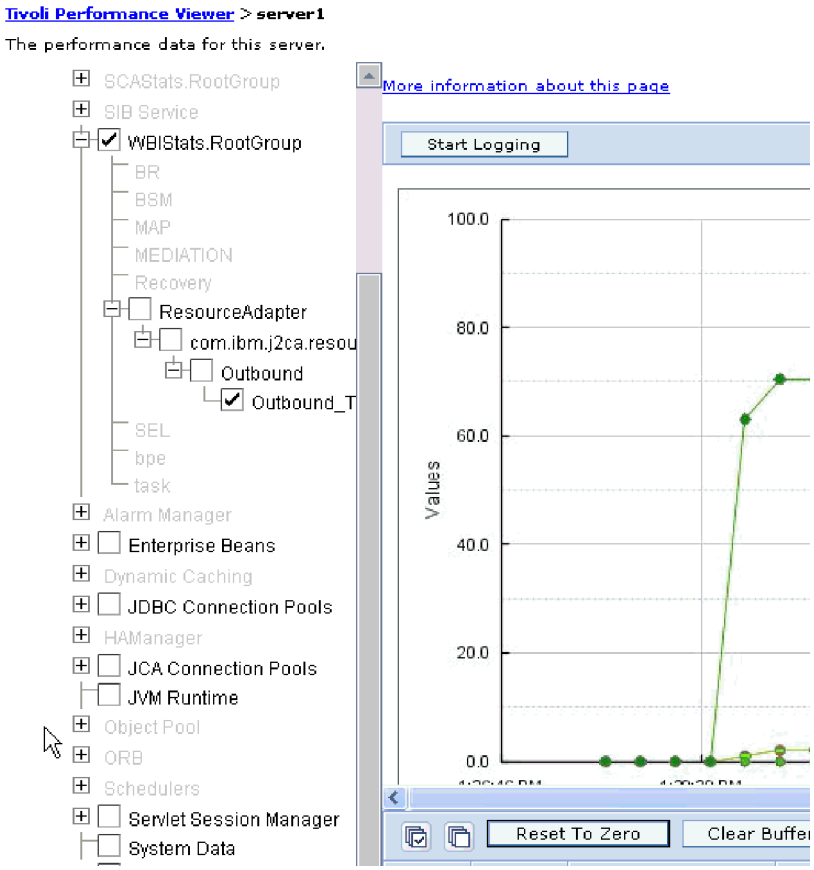


Figure 21. Adapter performance statistics, using graph view

Enabling tracing with the Common Event Infrastructure (CEI)

The adapter can use the Common Event Infrastructure, a component embedded in the server, to report data about critical business events such as the starting or stopping of a poll cycle. Event data can be written to a database or a trace log file depending on configuration settings.

Procedure

1. In the administrative console, click **Troubleshooting**.
2. Click **Logs and Trace**.
3. In the list of servers, click the name of your server.

4. In the **Change Log Detail Levels** box, click the name of the CEI database (for example, WBIEventMonitor.CEI.ResourceAdapter.*) or the trace log file (for example, WBIEventMonitor.LOG.ResourceAdapter.*) to which you want the adapter to write event data.
5. Select the level of detail about business events that you want the adapter to write to the database or trace log file, and (optionally) adjust the granularity of detail associated with messages and traces.
   - **No Logging**. Turns off event logging.
   - **Messages Only**. The adapter reports an event.
   - **All Messages and Traces**. The adapter reports details about an event.
   - **Message and Trace Levels**. Settings for controlling the degree of detail the adapter reports about the business object payload associated with an event. If you want to adjust the detail level, choose one of the following:

     Fine. The adapter reports the event but none of the business object payload.

     Finer. The adapter reports the event and the business object payload description.

     Finest. The adapter reports the event and all of the business object payload.
6. Click **OK**.

Results

Event logging is enabled. You can view CEI entries in the trace log file or by using the Common Base Event Browser within the administrative console.

Troubleshooting and support

Common troubleshooting techniques and self-help information help you identify and solve problems quickly.

Configuring logging and tracing

Configure logging and tracing to suit your requirements. Enable logging for the adapter to control the status of event processing. Change the adapter log and trace file names to separate them from other log and trace files.

Configuring logging properties

Use the administrative console to enable logging and to set the output properties for a log, including the location, level of detail, and output format of the log.

About this task

Before the adapters can log monitored events, you must specify the service component event points that you want to monitor, what level of detail you require for each event, and format of the output used to publish the events to the logs. Use the administrative console to perform the following tasks:

- Enable or disable a particular event log
- Specify the level of detail in a log
- Specify where log files are stored and how many log files are kept
- Specify the format for log output

  If you set the output for log analyzer format, you can open trace output using the Log Analyzer tool, which is an application included with your process

server. This is useful if you are trying to correlate traces from two different server processes, because it allows you to use the merge capability of the Log Analyzer.

For more information about monitoring on a process server, including service components and event points, see the documentation for your process server.

You can change the log configuration statically or dynamically. Static configuration take effect when you start or restart the application server. Dynamic, or runtime, configuration changes apply immediately.

When a log is created, the detail level for that log is set from the configuration data. If no configuration data is available for a particular log name, the level for that log is obtained from the parent of the log. If no configuration data exists for the parent log, the parent of that log is checked, and so on up the tree, until a log with a non-null level value is found. When you change the level of a log, the change is propagated to the children of the log, which recursively propagate the change to their children, as necessary.

To enable logging and set the output properties for a log, use the following procedure.

Procedure

1. In the navigation pane of the administrative console, click **Servers** → **Application Servers**.
2. Click the name of the server that you want to work with.
3. Under **Troubleshooting**, click **Logs and trace**.
4. Click **Change Log Detail Levels**.
5. Specify when you want the change to take effect:
   - For a static change to the configuration, click the **Configuration** tab.
   - For a dynamic change to the configuration, click the **Runtime** tab.
6. Click the names of the packages whose logging level you want to modify. The package names for WebSphere Adapters start with **com.ibm.j2ca**:
   - For the adapter base component, select **com.ibm.j2ca.base**.
   - For the adapter base component and all deployed adapters, select **com.ibm.j2ca.base.***.
   - For the Adapter for PeopleSoft Enterprise only, select the **com.ibm.j2ca.peoplesoft** package.
7. Select the logging level.

Logging Level	Description
Fatal	The task cannot continue or the component cannot function.
Severe	The task cannot continue, but the component can still function. This logging level also includes conditions that indicate an impending fatal error, that is, situations that strongly suggest that resources are on the verge of being depleted.
Warning	A potential error has occurred or a severe error is impending. This logging level also includes conditions that indicate a progressive failure, for example, the potential leaking of resources.
Audit	A significant event has occurred that affects the server state or resources.

Logging Level	Description
Info	The task is running. This logging level includes general information outlining the overall progress of a task.
Config	The status of a configuration is reported or a configuration change has occurred.
Detail	The subtask is running. This logging level includes general information detailing the progress of a subtask.

8. Click **Apply**.
9. Click **OK**.
10. To have static configuration changes take effect, stop and then restart the process server.

Results

Log entries from this point forward contain the specified level of information for the selected adapter components.

Changing the log and trace file names

To keep the adapter log and trace information separate from other processes, use the administrative console to change the file names. By default, log and trace information for all processes and applications on a process server is written to the SystemOut.log and trace.log files, respectively.

Before you begin

You can change the log and trace file names at any time after the adapter module has been deployed to an application server.

About this task

You can change the log and trace file names statically or dynamically. Static changes take effect when you start or restart the application server. Dynamic or run time changes apply immediately.

Log and trace files are in the *install_root*/profiles/*profile_name*/logs/*server_name* folder.

To set or change the log and trace file names, use the following procedure.

Procedure

1. In the navigation pane of the administrative console, select **Applications > Enterprise Applications**.
2. In the Enterprise Applications list, click the name of the adapter application. This is the name of the EAR file for the adapter, but without the .ear file extension. For example, if the EAR file is named Accounting_OutboundApp.ear, then click **Accounting_OutboundApp**.
3. In the Configuration tab, in the Modules list, click **Manage Modules**.
4. In the list of modules, click IBM WebSphere Adapter for PeopleSoft Enterprise.
5. In the Configuration tab, under Additional Properties, click **Resource Adapter**.
6. In the Configuration tab, under Additional Properties, click **Custom properties**.
7. In the Custom Properties table, change the file names.

a. Click either **logFilename** to change the name of the log file or **traceFilename** to change the name of the trace file.
b. In the Configuration tab, type the new name in the **Value** field. By default, the log file is called SystemOut.log and the trace file is called trace.log.
c. Click **Apply** or **OK**. Your changes are saved on your local machine.
d. To save your changes to the master configuration on the server, use one of the following procedures:
   - **Static change**: Stop and restart the server. This method allows you to make changes, but those changes do not take effect until you stop and start the server.
   - **Dynamic change**: Click the **Save** link in the Messages box above the Custom properties table. Click **Save** again when prompted. This method allows you to make changes that take effect right away.

First-failure data capture (FFDC) support

The adapter supports first-failure data capture (FFDC), which provides persistent records of failures and significant software incidents that occur during run time in WebSphere Process Server or WebSphere Enterprise Service Bus.

The FFDC feature runs in the background and collects events and errors that occur at run time. The feature provides a means for associating failures to one another, allowing software to link the effects of a failure to their causes, and thereby facilitate the quick location of the root cause of a failure. The data that is captured can be used to identify exception processing that occurred during the adapter run time.

When a problem occurs, the adapter writes exception messages and context data to a log file, which is located in the *install_root*/profiles/*profile*/logs/ffdc directory.

For more information about first-failure data capture (FFDC), see the WebSphere Process Server or WebSphere Enterprise Service Bus documentation.

Business faults

The adapter supports business faults, which are exceptions that are anticipated and declared in the outbound service description, or import. Business faults occur at predictable points in a business process as a result of a business rule violation or a constraint violation.

Although WebSphere Process Server and WebSphere Enterprise Service Bus support other types of faults, the adapter generates only business faults, which are called simply *faults* in this documentation. Not all exceptions become faults. Faults are generated for errors that are actionable, that is, errors that can have a recovery action that does not require the termination of the application. For example, the adapter generates a fault when it receives a business object for outbound processing that does not contain the required data or when the adapter encounters certain errors during outbound processing.

Fault business objects

The external service wizard creates a business object for each fault that the adapter can generate. In addition, the wizard creates a WBIFault superset business object, which has information common to all faults, such as the message, errorCode, and primarySetKey attributes as shown in Figure 22 on page 70.

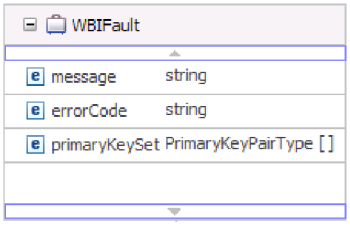


Figure 22. The structure of the WBIFault business object

Some faults contain the matchCount attribute, to provide additional information about the error. For others, WBIFault contains all the information needed to handle the fault.

The wizard creates the following fault business objects:

- DuplicateRecordFault

  The adapter throws this fault if a duplicate record is found.
- MatchesExceededLimitFault

  When processing the processing of an RetrieveAll operation, the adapter throws this fault if the number of records returned from the database query exceed the maximum number of records property in the interaction specification.

  To increase the number of records that can be returned, increase the value of the MaxRecords property in the interaction specification properties for the RetrieveAll operation.

  The business object for this fault has one property, matchCount, which is a string that contains the number of matches.
- MissingDataFault

  If the business object that is passed to the outbound operation does not have all the required attributes, then the adapter throws this fault.
- MultipleMatchingRecordsFault

  When processing a Retrieve operation, the adapter throws this fault if the query returns more than one record for the keys specified. The business object for this fault has one property, matchCount, which is a string that contains the number of matches.
- RecordNotFoundFault

  When processing a data retrieval operation, the adapter throws this fault if the record is not found in the database for the keys specified. This fault can occur for the Delete, Update, Retrieve, and RetrieveAll operations.

Configuring the module for fault processing

Before you can configure your module to support business faults, you must have used the external service wizard to configure your module.

To enable fault processing, you must modify the .import and WSDL files for your module. You can configure faults at either the binding level or the method level. If the changes are made at binding level, they apply to all methods in the import. If the changes are made at the method binding level, you can configure a different fault for each method.

Table 3 on page 71 lists the fault name and fault binding for each fault. Use the fault name and fault binding class when you configure the module.

Table 3. The fault name and fault binding class for each fault

Fault name	Associated fault binding class
DUPLICATE_RECORD	com.ibm.j2ca.extension.emd.runtime.WBIFaultDataBindingImpl
MATCHES_EXCEEDED_LIMIT	com.ibm.j2ca.extension.emd.runtime.MatchingFaultDataBinding
MISSING_DATA	com.ibm.j2ca.extension.emd.runtime.WBIFaultDataBindingImpl
MULTIPLE_MATCHING_RECORDS	com.ibm.j2ca.extension.emd.runtime.MatchingFaultDataBinding
RECORD_NOT_FOUND	com.ibm.j2ca.extension.emd.runtime.WBIFaultDataBindingImpl

1. Edit the .import file to configure the fault at either the binding or the method level.
   - To configure the faults at the binding level:
     a. In the binding section, add the faultSelector attribute and the name of the fault selector. The name of the fault selector is com.ibm.j2ca.extension.emd.runtime.WBIFaultSelectorImpl.
     b. For each fault that you want to enable, add a <faultBinding> element. In the element, specify the fault name and the fault data binding class name from Table 3.

        The following .import file shows the MULTIPLE_MATCHING_RECORDS and RECORD_NOT_FOUND faults configured for all methods. **Bold face type** indicates changes made to enable fault handling.

```
<esbBinding xsi:type="eis:EISImportBinding"
  dataBindingType="com.ibm.j2ca.peoplesoft.emd.runtime.PeopleSoftDataBindingGenerator"
  faultSelector="com.ibm.j2ca.extension.emd.runtime.WBIFaultSelectorImpl">
  <resourceAdapter name="PSFTOutApp.IBM WebSphere Adapter for PeopleSoft Enterprise"
  type="com.ibm.j2ca.peoplesoft.PeopleSoftResourceAdapter">
    <properties/>
  </resourceAdapter>
  <faultBinding fault="MULTIPLE_MATCHING_RECORDS"
   faultBindingType="com.ibm.j2ca.extension.emd.runtime.MatchingFaultDataBinding"/>
  <faultBinding fault="RECORD_NOT_FOUND"
   faultBindingType="com.ibm.j2ca.extension.emd.runtime.WBIFaultDataBindingImpl"/>
```

   - To configure the faults at the method level:
     a. In method binding section for the method you want to associate with the fault, add the name of the fault selector. The value for fault selector is com.ibm.j2ca.extension.emd.runtime.WBIFaultSelectorImpl.
     b. Add the fault binding elements in the method binding section. Use the fault name and the corresponding fault data binding class name from Table 3.

        The following .import file shows the MULTIPLE_MATCHING_RECORDS and RECORD_NOT_FOUND faults configured for the retrieveCUSTOMER method. **Bold face type** indicates changes made to enable fault handling.

```
<methodBinding
  inDataBindingType="com.ibm.xmlns.prod.wbi.j2ca.peoplesoft.customerbg.CustomerBGDataBin
ding"
  method="retrieveCUSTOMER"
  outDataBindingType="com.ibm.xmlns.prod.wbi.j2ca.peoplesoft.customerbg.CustomerBGDataBi
nding"
  faultSelector="com.ibm.j2ca.extension.emd.runtime.WBIFaultSelectorImpl">
    <interaction>
      <properties>
        <functionName>Retrieve</functionName>
      </properties>
    </interaction>
    <faultBinding fault="MULTIPLE_MATCHING_RECORDS"
       faultBindingType="com.ibm.j2ca.extension.emd.runtime.MatchingFaultDataBinding"/>
    <faultBinding fault="RECORD_NOT_FOUND"
       faultBindingType="com.ibm.j2ca.extension.emd.runtime.WBIFaultDataBindingImpl"/>
</methodBinding>
```

2. Determine the target namespaces for your faults. For each fault that you want to enable, determine the namespace as follows:
   a. Open the fault schema (XSD file) in a text editor.
   b. Locate the target namespace. The target namespace is shown in **bold face type** in the following portion of a fault schema:

```
<?xml version="1.0" encoding="UTF-8" ?>
<schema xmlns="http://www.w3.org/2001/XMLSchema"
   targetNamespace="http://com/ibm/j2ca/fault/afcfault"
   xmlns:basefault="http://com/ibm/j2ca/fault">
<import namespace="http://com/ibm/j2ca/fault" schemaLocation="WBIFault.xsd"/>

. . .
```

      The faults can all have the same target namespace or they can have different target namespaces.
3. Edit the WSDL file to declare the faults for the service. A sample WSDL file with these changes made is shown at the end of the list.
   a. In the <definitions> element, add a namespace for each fault namespace, using the information you obtained from the fault schema files. If all your fault schemas have the same targetNamespace, add only one alias. If they have different targetNamespaces, add an alias for each unique namespace.
   b. Create an <xsd:import> element to import the schema for each fault you want to enable.
   c. Declare import statements for each fault type. Make sure that you are using the correct alias defined in step 3a to resolve the complex type in `type=`*`alias`*`:`*`faultBOName`*`.xsd`.
   d. Declare the message tags for each of the fault types.
   e. Add the fault declaration to each method where faults should be handled.

   The following WSDL file defines the MULTIPLE_MATCHING_RECORDS and RECORD_NOT_FOUND faults. **Bold face type** indicates changes made to enable fault handling.

```
<definitions
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:CustomerBG="http://www.ibm.com/xmlns/prod/wbi/j2ca/peoplesoft/customerbg"
  xmlns:intf="http://PSFTOut/PeopleSoftOutboundInterface"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
```

Step 3a

```
  xmlns:fault="http://com/ibm/j2ca/fault/afcfault"
    name="PeopleSoftOutboundInterface.wsdl"
  targetNamespace="http://PSFTOut/PeopleSoftOutboundInterface">
  <types>
    <xsd:schema
      xmlns:tns="http://PSFTOut/PeopleSoftOutboundInterface"
      xmlns:xsd1="http://www.ibm.com/xmlns/prod/wbi/j2ca/peoplesoft/customerbg"
      elementFormDefault="qualified"
      targetNamespace="http://PSFTOut/PeopleSoftOutboundInterface"
      xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <xsd:import
      namespace="http://www.ibm.com/xmlns/prod/wbi/j2ca/peoplesoft/customerbg"
      schemaLocation="CustomerBG.xsd"/>
```

Step 3b

```
  <xsd:import namespace="http://com/ibm/j2ca/fault/afcfault"
     schemaLocation=" MultipleMatchingRecordsFault.xsd"/>
  <xsd:import namespace="http://com/ibm/j2ca/fault/afcfault"
     schemaLocation="RecordNotFoundFault.xsd"/>

. . .
```

Step 3c on page 72

```
        <xsd:element name="multipleMatchingRecordsFaultX">
        <xsd:complexType>
         <xsd:sequence>
         <xsd:element name="multipleMatchingRecordsFaultElement"
               type="fault:MultipleMatchingRecordsFault"/>
          </xsd:sequence>
        </xsd:complexType>
      </xsd:element>

      <xsd:element name="recordNotFoundFaultX">
        <xsd:complexType>
         <xsd:sequence>
         <xsd:element name="recordNotFoundFaultElement"
               type="fault:RecordNotFoundFault"/>
          </xsd:sequence>
        </xsd:complexType>
      </xsd:element>
    </xsd:schema>
  </types>

  . . .
```

Step 3d on page 72

```
<message name="multipleMatchingRecordsFault">
  <part element="intf:multipleMatchingRecordsFaultX"
        name="multipleMatchingRecordsFaultPart"/>
</message>
<message name="recordNotFoundFault">
  <part element="intf:recordNotFoundFaultX"
        name="recordNotFoundFaultPart"/>
</message>
<portType name="PeopleSoftOutboundInterface">
. . .

<operation name="retrieveCUSTOMER">
<input message="intf:retrieveCUSTOMERRequest"
       name="retrieveCUSTOMERRequest"/>
<output message="intf:retrieveCUSTOMERResponse"
        name="retrieveCUSTOMERResponse"/>
```

Step 3e on page 72

```
<fault message="intf:multipleMatchingRecordsFault"
       name="multipleMatchingRecordsFaultFault" />
<fault message="intf:recordNotFoundFault"
       name="recordNotFoundFaultFault" />
</operation>
</portType>
</definitions>
```

Resolving memory limit exception during outbound processing

A memory limit exception encountered during outbound processing can be resolved by increasing the JVM maximum heap memory size.

About this task

When concurrently processing fifty outbound requests, the adapter may produce an out of memory error. To avoid or resolve this error, increase the JVM maximum heap default value.

Procedure

1. From the administrative console, click on the name of your server.
2. In the configuration tab, under Server Infrastructure, click **Java and Process Definition>Process Definition**.

3. Click **Java Virtual Machine**.
4. In the **Maximum Heap Size** field, type `1024`.
5. Click **OK**.
6. Click **Save**.
7. Log out, and then restart the server.

Results

The maximum heap size default value is increased.

Self-help resources

Use the resources of IBM software support to get the most current support information, obtain technical documentation, download support tools and fixes, and avoid problems with WebSphere Adapters. The self-help resources also help you diagnose problems with the adapter and provide information about how to contact IBM software support.

Support Web site

The WebSphere Adapters software support Web site at http://www.ibm.com/software/integration/wbiadapters/support/ provides links to many resources to help you learn about, use, and troubleshoot WebSphere Adapters, including the following types of

- Flashes (alerts about the product)
- Technical information including the product information center, manuals, IBM Redbooks®, and whitepapers
- Educational offerings
- Technotes

Recommended fixes

A list of recommended fixes you should apply is available at the following location: http://www.ibm.com/support/docview.wss?fdoc=aimadp&rs=695&uid=swg27010397

Technotes

Technotes provide the most current documentation about the Adapter for PeopleSoft Enterprise, including the following topics:

- Problems and their currently available solutions
- Answers to frequently asked questions
- How-to information about installing, configuring, using, and troubleshooting the adapter
- *IBM Software Support Handbook*

For a list of technotes for WebSphere Adapters, visit this address:

http://www.ibm.com/support/search.wss?tc=SSMKUK&rs=695&rank=8&dc=DB520+D800+D900+DA900+DA800+DB560&dtm

Plug-in for IBM Support Assistant

Adapter for PeopleSoft Enterprise provides a plug-in for IBM Support Assistant, which is a free, local software serviceability workbench. For information about installing or using IBM Support Assistant, visit this address:

http://www.ibm.com/software/support/isa/

Chapter 8. Reference information

To support you in your tasks, reference information includes details about business objects that are generated by the external service wizard and information about adapter properties, including those that support bidirectional transformation. It also includes pointers to adapter messages and related product information.

Business object information

A business object is a structure that contains application-specific information about how the adapter should process the business object as well as the operation to be performed on the business object. The name of the business object is generated by the external service wizard in accordance with the naming convention for the adapter.

Application-specific information

Application-specific information (ASI) is metadata that specifies adapter-dependent information about how to process business objects for the adapter for PeopleSoft Enterprise.

When the external service wizard generates a business object, it automatically generates a business object definition, which is saved as an XSD (XML Schema Definition) file. The business object definition contains the application-specific information for that business object. If you want to change the generated ASI, you can modify the metadata values either from the Properties tab in the Business Integration perspective of WebSphere Integration Developer or by using the business object editor.

The adapter for PeopleSoft Enterprise uses application-specific information (ASI) to create queries for Create, Retrieve, Update, and Delete operations.

Business-object-level metadata

Business-object-level metadata is metadata that defines the top-level wrapper of the business object. The following table describes the business-object metadata elements.

Table 4. Metadata for business objects

Metadata element	Description
ObjectName	The corresponding object in the PeopleSoft application; in other words, the component interface name as defined in PeopleTools. Set this only for the top-level business object.
InsAtOldestEffDtPos	When this is set to `true` and an incorrect index (negative number) is returned by the PeopleTools API, getEffectiveItemNum(), the adapter inserts the row at the highest index, which has the oldest effective date. If you set this parameter, do not set InsAtCurrentEffDtPos.
InstAtCurrentEffDtPos	When this is set to `true` and an incorrect index (negative number) is returned by the PeopleTools API, getEffectiveItemNum(), the adapter inserts the row at the highest index (zero), which has the current effective date. If you set this parameter, do not set InsAtOldestEffDtPos.
GetCurrentItem	When this is set to `true` only effective-dated items are retrieved during an operation.
StatusColumnName	Property used to perform deletes. Set this only for the top-level business object.

Table 4. Metadata for business objects (continued)

Metadata element	Description
StatusValue	Identifies a business object that is inactive or that has been deleted. Set this only for the top-level business object.

Property-level metadata

Property-level metadata is metadata associated with the property of a business object. The property can be a simple string type, or it can be a complex property type that represents child objects or an array of child objects. The following table describes the metadata elements of a complex property (a child) or a structure or table property (an array of child objects).

Table 5. Property-level metadata

Metadata element	Description
PrimaryKey	GetKey/CreateKey attribute in the component interface or a key in the child collection.
FindKey	FindKey attribute in the component interface.
EffectiveDate	EffectiveDate attribute in the component interface.
EffectiveSequence	EffectiveSequence attribute in the component interface.
KeepRelations	This is set to affect the processing of child objects when the adapter performs an update operation. If this parameter is enabled and the adapter finds a missing child object of a parent during the operation, the child object will not be deleted and the relationship between the objects is preserved.
UID	This is used to determine whether the adapter will set values for key attributes within the business object or not. When this is set as true, the adapter does not set values for these keys but allows PeopleCode to automatically generate values for the keys.
Getter	This is the name of the get method used to read values for the property.
Setter	This is the name of the set method used to set values for the property.

Supported operations

An operation is the action that an adapter can perform on the PeopleSoft Enterprise server during outbound processing. The name of the operation typically indicates the type of action that the adapter takes, such as *create* or *update*.

The following table defines the operations that the adapter supports.

Table 6. Supported operations of business objects

Operation	Definition
Create	The adapter accesses the PeopleSoft component and retrieves values from the attributes that have the primary key application-specific information set. It then instantiates the corresponding component interface (using the value provided for the ObjectName application-specific information). It sets the attribute values on the corresponding Create Keys in the component interface. An empty Component Interface is created, and the adapter maps all the business object data to the created component interface. When mapping the data, the adapter sends all data for simple attributes in the hierarchy, and it creates items that match each of the child objects in the hierarchy as well, including effective-dated and effective-sequenced child records.

Table 6. Supported operations of business objects (continued)

Operation	Definition
Retrieve	The adapter accesses the PeopleSoft component and retrieves values from the attributes that have the primary key application-specific information set. It then instantiates the corresponding component interface using the value provided for the ObjectName application-specific information. It sets the attribute values on the corresponding Get Keys in the component interface. The adapter then maps the component data onto the business object hierarchy. Child objects are included in the data mapping.
RetrieveAll	This functions as the Retrieve operation, except that it allows retieval of multiple instances of the same PeopleSoft component.
Update	The adapter retrieves an object from PeopleSoft and compares it to the target business object. It processes the objects as follows: When the comparison reveals extra child objects in PeopleSoft, the children are deleted. When the comparison reveals missing children in PeopleSoft, the children are created. When the comparison reveals child objects that have been updated in PeopleSoft, they are updated.
Exists	The adapter processes an exist operation in the same way that it processes a retrieve operation, except that it does not populate the business object with retrieved data. It simply checks for the existence of an object in PeopleSoft.
Delete	Based on the values set for the application-specific metadata elements StatusColumnName and StatusValue, the adapter updates a business object to inactive. A delete operation can only be performed on a top level object. PeopleSoft does not allow an object to be physically deleted, so the inactive object remains in the PeopleSoft database.
Apply Changes	Apply changes Updates the PeopleSoft component based on the operation that was performed on it. The supported operations are create, update, and delete.

PeopleCode for a custom event project

Two PeopleCode functions are required to support inbound processing. If you create a custom event project in PeopleTools for inbound support, add the PeopleCode functions to the project.

The following PeopleCode contains the IBMPublishEvent and IBMPublishFutureDatedEvent functions that are used to publish events to the event table. Calls to these functions are made from the SavePostChange PeopleCode function in the PeopleSoft component of interest.

```
/* IBM event notification */
Component string &KEYSTRING;
Component string &KEYNAME;
Component array of string &KEYARRAY;
Component string &KEYDELIM;
Component string &IBMVERB;
Local Record &IBMREC;

Function IBMPublishFutureDatedEvent(&BO, &KEYS, &EFFDATE)
; /* == create a new record object for cw_event_tbl == */
   &IBMREC = CreateRecord(Record.IBM_EVENT_TBL);
 /* ============== KEYS ================ */
/* composing keys and values in name value format */
   &KEYSTRING = "";
   &KEYDELIM = ":";
   &KEYARRAY = Split(&KEYS, &KEYDELIM);
   &LEN = &KEYARRAY.Len;
   For &I = 1 To &LEN;
/* get keys and values */
/* get rid of record name */
      &POS1 = Find(".", &KEYARRAY [&I]);
      &L1 = Len(&KEYARRAY [&I]);
      &POS2 = &L1 - &POS1;
      &KEYNAME = Right(&KEYARRAY [&I], &POS2);
/****The code below will remove special characters and****/
/****adjust the characters' case to ensure it is same as the****/
/****attribute name in the business object definition***/
/****Start****/
      &lLen = Len(&KEYNAME);
```

```
      &sOrigString = &KEYNAME;
      &sNewString = "";
      &lCtr2 = 1;
      &isSpecialChar = "true";
      For &lCtr = 1 To &lLen;
         &sChar = Substring(&sOrigString, &lCtr, 1);
         If (&sChar = "A" Or
               &sChar = "a" Or
               &sChar = "B" Or
               &sChar = "b" Or
               &sChar = "C" Or
               &sChar = "c" Or
               &sChar = "D" Or
               &sChar = "d" Or
               &sChar = "E" Or
               &sChar = "e" Or
               &sChar = "F" Or
               &sChar = "f" Or
               &sChar = "G" Or
               &sChar = "g" Or
               &sChar = "H" Or
               &sChar = "h" Or
               &sChar = "I" Or
               &sChar = "i" Or
               &sChar = "J" Or
               &sChar = "j" Or
               &sChar = "K" Or
               &sChar = "k" Or
               &sChar = "L" Or
               &sChar = "l" Or
               &sChar = "M" Or
               &sChar = "m" Or
               &sChar = "N" Or
               &sChar = "n" Or
               &sChar = "O" Or
               &sChar = "o" Or
               &sChar = "P" Or
               &sChar = "p" Or
               &sChar = "Q" Or
               &sChar = "q" Or
               &sChar = "R" Or
               &sChar = "r" Or
               &sChar = "S" Or
               &sChar = "s" Or
               &sChar = "T" Or
               &sChar = "t" Or
               &sChar = "U" Or
               &sChar = "u" Or
               &sChar = "V" Or
               &sChar = "v" Or
               &sChar = "W" Or
               &sChar = "w" Or
               &sChar = "X" Or
               &sChar = "x" Or
               &sChar = "Y" Or
               &sChar = "y" Or
               &sChar = "Z" Or
               &sChar = "z" Or
               &sChar = "1" Or
               &sChar = "2" Or
               &sChar = "3" Or
               &sChar = "4" Or
               &sChar = "5" Or
               &sChar = "6" Or
               &sChar = "7" Or
               &sChar = "8" Or
               &sChar = "9" Or
               &sChar = "0") Then
            If (&isSpecialChar = "true") Then
               &sNewString = &sNewString | Upper(&sChar);
               &isSpecialChar = "false";
            Else
               &sNewString = &sNewString | Lower(&sChar);
            End-If;
         Else
            &isSpecialChar = "true";
         End-If;
      End-For;
      &KEYNAME = &sNewString;
/*********End*********/
      &KEYSTRING = &KEYSTRING | &KEYNAME | "=" | @&KEYARRAY [&I] | &KEYDELIM
   End-For;
   &KEYSTRING = RTrim(&KEYSTRING, ":");
   &IBMREC.IBM_OBJECT_KEYS.Value = &KEYSTRING;
/*============== VERB ========================*/
/*  verb determination uses variable &IBMVERB */
   Evaluate %Mode
   When = "A"
      &IBMVERB = "Create";
      Break;
   When = "U"
```

```
      &IBMVERB = "Update";
      Break;
   When = "L"
      &IBMVERB = "Update";
      Break;
   When = "C"
      &IBMVERB = "Update";
      Break;
   When-Other
      &IBMVERB = "Retrieve";
   End-Evaluate;
   &IBMREC.IBM_OBJECT_VERB.Value = &IBMVERB;
/*  =====================  EVENT_ID GEN   ================================== */
/*  create event_id */
   &NEWNUM = GetNextNumber(IBM_FETCH_ID.IBM_NEXT_EVENT_ID, 99999);
/*  only use newnum if no error generating next number  */
   If &NEWNUM > 0 Then
      &IBMREC.IBM_EVENT_ID.Value = &NEWNUM;
   Else
      &IBMREC.IBM_EVENT_ID.Value = %Datetime;
   End-If; /*Support for Future Effective Date - The adapter will poll such events when the date arrives*/
   If &EFFDATE > %Datetime Then
      &IBMREC.IBM_EVENT_DTTM.Value = &EFFDATE;
      &IBMREC.IBM_EVENT_STATUS.Value = "99";
   Else
      &IBMREC.IBM_EVENT_DTTM.Value = %Datetime;
      &IBMREC.IBM_EVENT_STATUS.Value = "0";
   End-If; /*================  INSERT EVENT INTO IBM_EVENT_TBL ============*/
/*  insert row into table using record object*/
   &IBMREC.IBM_OBJECT_NAME.Value = &BO;
   &IBMREC.Insert();
End-Function;
```

```
Function IBMPublishEvent(&BO, &KEYS);
   /* == create a new record object for cw_event_tbl == */
   &IBMREC = CreateRecord(Record.IBM_EVENT_TBL);


   /* ================ KEYS ================ */
   /* composing keys and values in name value format */
   &KEYSTRING = "";
   &KEYDELIM = ":";
   &KEYARRAY = Split(&KEYS, &KEYDELIM);
   &LEN = &KEYARRAY.Len;

   For &I = 1 To &LEN;
      /* get keys and values */
      /* get rid of record name */
      &POS1 = Find(".", &KEYARRAY [&I]);
      &L1 = Len(&KEYARRAY [&I]);
      &POS2 = &L1 - &POS1;
      &KEYNAME = Right(&KEYARRAY [&I], &POS2);

      /****The code below will remove special characters and
      /****adjust the characters' case to ensure it is same as the
      /****attribute name in the business object definition***/
      /****Start****/
      &lLen = Len(&KEYNAME);
      &sOrigString = &KEYNAME;
      &sNewString = "";
      &lCtr2 = 1;
      &isSpecialChar = "true";
      For &lCtr = 1 To &lLen;
         &sChar = Substring(&sOrigString, &lCtr, 1);
         If (&sChar = "A" Or
               &sChar = "a" Or
               &sChar = "B" Or
               &sChar = "b" Or
               &sChar = "C" Or
               &sChar = "c" Or
               &sChar = "D" Or
               &sChar = "d" Or
               &sChar = "E" Or
               &sChar = "e" Or
```

```
            &sChar = "F" Or
            &sChar = "f" Or
            &sChar = "G" Or
            &sChar = "g" Or
            &sChar = "H" Or
            &sChar = "h" Or
            &sChar = "I" Or
            &sChar = "i" Or
            &sChar = "J" Or
            &sChar = "j" Or
            &sChar = "K" Or
            &sChar = "k" Or
            &sChar = "L" Or
            &sChar = "l" Or
            &sChar = "M" Or
            &sChar = "m" Or
            &sChar = "N" Or
            &sChar = "n" Or
            &sChar = "O" Or
            &sChar = "o" Or
            &sChar = "P" Or
            &sChar = "p" Or
            &sChar = "Q" Or
            &sChar = "q" Or
            &sChar = "R" Or
            &sChar = "r" Or
            &sChar = "S" Or
            &sChar = "s" Or
            &sChar = "T" Or
            &sChar = "t" Or
            &sChar = "U" Or
            &sChar = "u" Or
            &sChar = "V" Or
            &sChar = "v" Or
            &sChar = "W" Or
            &sChar = "w" Or
            &sChar = "X" Or
            &sChar = "x" Or
            &sChar = "Y" Or
            &sChar = "y" Or
            &sChar = "Z" Or
            &sChar = "z" Or
            &sChar = "1" Or
            &sChar = "2" Or
            &sChar = "3" Or
            &sChar = "4" Or
            &sChar = "5" Or
            &sChar = "6" Or
            &sChar = "7" Or
            &sChar = "8" Or
            &sChar = "9" Or
            &sChar = "0") Then
         If (&isSpecialChar = "true") Then
            &sNewString = &sNewString | Upper(&sChar);
            &isSpecialChar = "false";
         Else
            &sNewString = &sNewString | Lower(&sChar);
         End-If;
      Else
         &isSpecialChar = "true";
      End-If;
   End-For;
   &KEYNAME = &sNewString;
```

```
      /*********End*********/
      &KEYSTRING = &KEYSTRING | &KEYNAME | "=" | @&KEYARRAY [&I] | &KEYDELIM
   End-For;
   &KEYSTRING = RTrim(&KEYSTRING, ":");

   &IBMREC.IBM_OBJECT_KEYS.Value = &KEYSTRING;

   /*============== VERB ========================*/
   /*  verb determination uses variable &IBMVERB */
   Evaluate %Mode
   When = "A"
      &IBMVERB = "Create";
      Break;
   When = "U"
      &IBMVERB = "Update";
      Break;
   When = "L"
      &IBMVERB = "Update";
      Break;
   When = "C"
      &IBMVERB = "Update";
      Break;
   When-Other
      &IBMVERB = "Retrieve";
   End-Evaluate;

   &IBMREC.IBM_OBJECT_VERB.Value = &IBMVERB;

   /*  =====================  EVENT_ID GEN   ============================= */
   /*  create event_id */

   &NEWNUM = GetNextNumber(IBM_FETCH_ID.IBM_NEXT_EVENT_ID, 99999);

   /*  only use newnum if no error generating next number  */

   If &NEWNUM > 0 Then
      &IBMREC.IBM_EVENT_ID.Value = &NEWNUM;
   Else
      &IBMREC.IBM_EVENT_ID.Value = %Datetime;
   End-If;

   &IBMREC.IBM_EVENT_DTTM.Value = %Datetime;

   /* ==============  EVENT_STATUS  =================*/
   /* Validate and set event status &IBMSTATUS - list values if date is ok*/
   &IBMREC.IBM_EVENT_STATUS.Value = "0";

   /*================  INSERT EVENT INTO IBM_EVENT_TBL ============*/
   /*  insert row into table using record object*/


   &IBMREC.IBM_OBJECT_NAME.Value = &BO;

   &IBMREC.Insert();

End-Function;
```

Outbound configuration properties

WebSphere Adapter for PeopleSoft Enterprise has several categories of outbound connection configuration properties, which you set with the external service wizard while generating or creating objects and services. You can change the resource adapter and managed connection factory properties after you deploy the module

to WebSphere Process Server using WebSphere Integration Developer or the WebSphere Process Server administrative console, but connection properties for the external service wizard cannot be changed after deployment.

Guide to information about properties

The properties used to configure WebSphere Adapter for PeopleSoft Enterprise are described in detail in tables included in each of the configuration properties topics, such as Resource adapter properties, Managed connection factory properties, and so on. To help you use these tables, information about each row you might see is explained here.

The following table explains the meaning of each row that might be displayed in the table for a configuration property.

Row	Explanation
Required	A required field (property) must have a value in order for the adapter to work. Sometimes the external service wizard provides a default value for required properties. Removing a default value from a required field on the external service wizard *will not change that default value*. When a required field contains no value at all, the external service wizard will process the field using its assigned default value, and that default value will also be displayed on the administrative console. Possible values are **Yes** and **No**. Sometimes a property is required only when another property has a specific value. When this is the case, the table will note this dependency. For example, • Yes, when the EventQueryType property is set to Dynamic • Yes, for Oracle databases
Possible values	Lists and describes the possible values that you can select for the property.
Default	The predefined value that is set by the external service wizard. When the property is required, you must either accept the default value or specify one yourself. If a property has no default value, the table will state No default value. The word `None` is an acceptable default value, and does not mean that there is no default value.
Unit of measure	Specifies how the property is measured, for example in kilobytes or seconds.
Property type	Describes the property type. Valid property types include the following: • Boolean • String • Integer
Usage	Describes usage conditions or restrictions that might apply to the property. For instance, here is how a restriction would be documented: For WebSphere Application Server version 6.40 or earlier, the password: • Must be uppercase • Must be 8 characters in length For versions of WebSphere Application Server later than 6.40, the password: • Is not case sensitive • Can be up to 40 characters in length. This section lists other properties that affect this property or that are affected by this property and describes the nature of the conditional relationship.

Row	Explanation
Example	Provides sample property values, for example: "If Language is set to JA (Japanese), Codepage number is set to 8000".
Globalized	If a property is globalized, it has national language support, meaning that you can set the value in your national language. Valid values are **Yes** and **No**.
Bidi supported	Indicates whether the property is supported in bidirectional (bidi) processing. Bidirectional processing pertains to the task of processing data that contains both left-to-right (Hebrew or Arabic, for example) and right-to-left (a URL or file path, for example) semantic content within the same file. Valid values are **Yes** and **No**.

Connection properties for the external service wizard

Connection properties for the external service wizard are used to establish a connection between the external service wizard and the application from which the wizard will obtain metadata. These properties specify such things as connection configuration, bidirectional (bidi) properties, and logging options.

Note: If you set any of these connection properties using bidirectional script, you must set values that identify the format of the bidirectional script entered for that property.

The external service connection properties and their purpose are described in the following table. A complete description of each property is provided in the sections that follow the table.

Table 7. External service connection properties

Property name	Description
"Component interface JAR file"	Specifies the PeopleSoft Enterprise component interface used by the adapter to establish a connection to the PeopleSoft components that are targets of integration transactions.
"Host name " on page 86	Specifies the name or address of the server that hosts PeopleSoft Enterprise.
"Password " on page 86	Specifies the password of the user account of the adapter on the PeopleSoft Enterprise server.
"Port number" on page 86	The port number at which PeopleSoft Enterprise is configured to listen for client requests.
"Prefix for business object names" on page 87	Specifies a prefix to be added to generated business objects.
"User name" on page 87	The name of the user account the adapter uses on the PeopleSoft Enterprise server.

Component interface JAR file

This property specifies the PeopleSoft Enterprise component interface that the adapter uses to establish a connection to the PeopleSoft components that are targets of integration transactions.

Table 8. Component interface JAR file details

Required	Yes
Default	No default
Property type	String
Usage	The name of the JAR file that the adapter uses to connect to the PeopleSoft Enterprise components of interest.
Example	`CWYES_PeopleSoft\connectorModule\WbiEvent.jar`
Globalized	No
Bidi supported	No

Host name

This property specifies the name or address of the server that hosts PeopleSoft Enterprise.

Table 9. Host name details

Required	Yes
Default	No default value
Property type	String
Usage	Identifies the server, either by name or IP address, that hosts PeopleSoft Enterprise.
Example	`9.26.248.202`
Globalized	No
Bidi supported	No

Password

This property specifies the password of the user account of the adapter on the PeopleSoft Enterprise server.

Table 10. Password details

Required	Yes
Default	No default value
Property type	String
Usage	The restrictions (case, length, and character) are determined by the PeopleSoft Enterprise version.
Globalized	Yes
Bidi supported	Yes

Port number

The port number at which PeopleSoft Enterprise is configured to listen for client requests.

Table 11. Port number details

Required	Yes
Default	The port number entered when you run the external service wizard.
Property type	Integer

Table 11. Port number details (continued)

Example	9000
Globalized	No
Bidi supported	No

Prefix for business object names

This property specifies a prefix to be added to generated business objects.

Table 12. Prefix details

Required	No
Default	No default
Property type	String
Usage	This property allows you to distinguish between different business objects generated against the same PeopleSoft component interface.
Example	If you used IB as a prefix, all business objects generated by this service are named using this prefix.
Globalized	Yes
Bidi supported	No

User name

This property specifies the name of the user account the adapter uses on the PeopleSoft Enterprise server.

Table 13. User name details

Required	Yes
Default	No default value
Property type	String
Usage	The restrictions (case, length, and character) are determined by the PeopleSoft Enterprise version.
Example	DV1
Globalized	Yes
Bidi supported	Yes

Resource adapter properties

The resource adapter properties control the general operation of the adapter. You set the resource adapter properties using the external service wizard when you configure the adapter. After deploying the adapter, use the administrative console to change these properties.

The following properties for logging and tracing are no longer required in version 6.1.0, but are supported for compatibility with previous versions:

- LogFileMaxSize
- LogFileName
- LogNumberOfFiles
- TraceFileMaxSize

- TraceFileName
- TraceNumberOfFiles

The following table lists the resource adapter properties and their purpose. A complete description of each property is provided in the sections that follow the table.

Table 14. Resource adapter properties for the Adapter for PeopleSoft Enterprise

Name		
In the wizard	**In the administrative console**	**Description**
Adapter ID to use for logging and tracing	AdapterID	Identifies the adapter instance for CEI and PMI events with respect to logging and tracing.
(Not available)	enableHASupport	Do not change this property.
(Not available)	LogFileMaxSize	Supported for compatibility with earlier versions
(Not available)	LogFilename	Supported for compatibility with earlier versions
(Not available)	LogNumberOfFiles	Supported for compatibility with earlier versions
(Not available)	TraceFileMaxSize	Supported for compatibility with earlier versions
(Not available)	TraceFileName	Supported for compatibility with earlier versions
(Not available)	TraceNumberOfFiles	Supported for compatibility with earlier versions

Adapter ID to use for logging and tracing (AdapterID)

Use this property to identify a specific deployment, or instance, of the adapter.

Table 15. Adapter ID to use for logging and tracing details

Required	Yes
Default	CWYES_PeopleSoft
Property type	String
Usage	This property is used to identify the adapter instance for PMI events. If you are deploying multiple instances of an adapter, set this property to a unique value for each adapter instance. For inbound processing this property is retrieved from the resource adapter properties. For outbound processing, it is retrieved form the managed connection factory properties.
Globalized	Yes
Bidi supported	No

Enable high availability support (enableHASupport)

Do not change this property. It must be set to `true`.

Log file maximum size (LogFileMaxSize)

This property specifies the size of the log files in kilobytes.

Table 16. Log file maximum size details

Required	No
Default	`0`
Property type	Integer

Table 16. Log file maximum size details (continued)

Usage	When the log file reaches it maximum size, the adapter start using a new log file. If the file size is specified as `0` or no maximum size is specified, the file does not have a maximum size.
Globalized	Yes
Bidi supported	No

Log file name (LogFilename)

This property specifies the full path name of the log file.

Table 17. Log file name details

Required	No
Default	No default value
Property type	String
Usage	This property is deprecated.
Globalized	Yes
Bidi supported	Yes

Log number of files (LogNumberOfFiles)

This property specifies the number of log files.

Table 18. Log number of files details

Required	No
Default	`1`
Property type	Integer
Usage	When a log file reaches its maximum size, the adapter starts using another log file. If no value is specified, the adapter creates a single log file.
Globalized	Yes
Bidi supported	No

Trace file maximum size (TraceFileMaxSize)

This property specifies the size of the trace files in kilobytes.

Table 19. Trace file maximum size details

Required	No
Default	`0`
Property type	Integer
Usage	If no value is specified, then the trace file has no maximum size.
Globalized	Yes
Bidi supported	No

Trace file name (TraceFilename)

This property specifies the full path of the trace file.

Table 20. Trace file name details

Required	No
Default	No default value
Unit of measure	Kilobytes
Property type	String
Usage	This property is deprecated.
Globalized	Yes
Bidi supported	Yes

Trace number of files (TraceNumberOfFiles)

This property specifies the number of trace files to use. When a trace file reaches its maximum size, the adapter starts using another trace file.

Table 21. Trace number of files details

Required	No
Default	1
Property type	Integer
Usage	If no value is specified, the adapter uses a single trace file.
Globalized	Yes
Bidi supported	No

Managed connection factory properties

Managed connection factory properties are used by the adapter at run time to create an outbound connection with the PeopleSoft Enterprise server.

The following table lists and describes the managed connection factory properties for outbound communication. You set the managed connection factory properties using either the external service wizard or the administrative console (after deployment).

A more detailed description of each property is provided in the sections that follow the table. For information about how to read the property details tables in the sections that follow, see Guide to understanding property details.

Note: The external service wizard refers to these properties as managed connection factory properties and the WebSphere Process Server administrative console refers to them as (J2C) connection factory properties.

Table 22. Managed connection factory properties

In the wizard	In the administrative console	Description
Component interface for testing failed connection	PingCompInterface	Specifies the component interface the adapter uses to validate a connection to the PeopleSoft Enterprise server.
Host name	HostName	Specifies the name or address of the server that hosts PeopleSoft Enterprise.
“Language (Language)” on page 91	Language	Specifies the language code the adapter uses to log on to the PeopleSoft Enterprise server.

Table 22. Managed connection factory properties (continued)

"Password (Password)" on page 92	Password	Specifies the password of the user account of the adapter on the PeopleSoft Enterprise server.
"Port number (Port)" on page 92	Port	The port number the adapter uses to access the PeopleSoft Enterprise server.
"User name (UserName)" on page 92	UserName	The name of the user account the adapter uses on the PeopleSoft Enterprise server.

Component interface for testing failed connection (PingCompInterface)

This property specifies the name of the PeopleSoft Enterprise component interface that the adapter uses to validate a connection to the PeopleSoft Enterprise server.

Table 23. Component interface for testing failed connection details

Required	Yes
Default	The name of the first component interface in the list.
Property type	String
Usage	Specify a component interface name that already exists within your PeopleSoft Enterprise applications.
Example	`WBI_CUSTOMER_CI`
Globalized	No
Bidi supported	No

Host name (HostName)

This property specifies the name or address of the server that hosts PeopleSoft Enterprise.

Table 24. Host name details

Required	Yes
Default	No default value
Property type	String
Usage	Identifies, either by name or IP address, the server that hosts PeopleSoft Enterprise.
Example	`9.26.248.202`
Globalized	No
Bidi supported	No

Language (Language)

This property specifies the language code the adapter uses to log on to the PeopleSoft Enterprise server.

Table 25. Language details

Required	Yes
Default	The default value for the Language property is based on the system locale.
Property type	String

Table 25. Language details (continued)

Usage	Each of the supported languages is preceded by a three character language code. The language itself is presented in parentheses.
Example	If the system locale is English, the value for this property is `ENG (English)`.
Globalized	No
Bidi supported	No

Password (Password)

This property specifies the password of the user account of the adapter on the PeopleSoft Enterprise server.

Table 26. Password details

Required	Yes
Default	No default value
Property type	String
Usage	The restrictions (case, length, and character) are determined by the version of PeopleSoft Enterprise.
Globalized	No
Bidi supported	No

Port number (Port)

This property specifies the port number the adapter uses to access the PeopleSoft Enterprise server.

Table 27. Port number details

Required	Yes
Default	The port number entered when you use the external service wizard to discover objects and services.
Property type	Integer
Example	`9000`
Globalized	No
Bidi supported	No

User name (UserName)

This property specifies the name of the user account the adapter uses on the PeopleSoft Enterprise server.

Table 28. User name details

Required	Yes
Default	No default value
Property type	String
Usage	The restrictions (case, length, and character) are determined by the PeopleSoft Enterprise version.
Example	`DV1`

Table 28. User name details (continued)

Globalized	No
Bidi supported	No

Interaction specification properties

Interaction specification properties control the interaction for an operation. The external service wizard sets the interaction specification properties when you configure the adapter. Typically, you do not need to change these properties. However, some properties for outbound operations can be changed by the user. For example, you might increase the value of the interaction specification property that specifies the maximum number of records to be returned by a RetrieveAll operation, if your RetrieveAll operations do not return complete information. To change these properties after the application is deployed, use the assembly editor in WebSphere Integration Developer. The properties reside in the method binding of the import.

Table 29 lists and describes the interaction specification property that you set. For information about how to read the property detail tables in the sections that follow, see "Guide to information about properties" on page 84.

Table 29. Interaction specification property for the Adapter for PeopleSoft Enterprise

Property name		
In the wizard	**In the assembly editor**	**Description**
Maximum number of records for RetrieveAll operation	MaxRecords	Maximum number of records to return during a RetrieveAll operation.

Maximum number of records for RetrieveAll operation (MaxRecords)

This property specifies the maximum number of records to return during a RetrieveAll operation.

Table 30. Maximum number of records for RetrieveAll operation details

Required	Yes
Default	100
Usage	If the number of hits in PeopleSoft Enterprise exceeds the value of the Maximum number of records for RetrieveAll operation property, the adapter returns an error. The adapter uses this property to help avoid out-of-memory issues.
Property type	Integer
Globalized	No
Bidi supported	No

Inbound configuration properties

WebSphere Adapter for PeopleSoft Enterprise has several categories of inbound connection configuration properties, which you set with the external service wizard while generating or creating objects and services. You can change the resource adapter and activation specification properties after you deploy the module using

WebSphere Integration Developer or the WebSphere Process Server administrative console, but connection properties for the external service wizard cannot be changed after deployment.

Guide to information about properties

The properties used to configure WebSphere Adapter for PeopleSoft Enterprise are described in detail in tables included in each of the configuration properties topics, such as Resource adapter properties, Managed connection factory properties, and so on. To help you use these tables, information about each row you might see is explained here.

The following table explains the meaning of each row that might be displayed in the table for a configuration property.

Row	Explanation
Required	A required field (property) must have a value in order for the adapter to work. Sometimes the external service wizard provides a default value for required properties. Removing a default value from a required field on the external service wizard *will not change that default value*. When a required field contains no value at all, the external service wizard will process the field using its assigned default value, and that default value will also be displayed on the administrative console. Possible values are **Yes** and **No**. Sometimes a property is required only when another property has a specific value. When this is the case, the table will note this dependency. For example, • Yes, when the EventQueryType property is set to Dynamic • Yes, for Oracle databases
Possible values	Lists and describes the possible values that you can select for the property.
Default	The predefined value that is set by the external service wizard. When the property is required, you must either accept the default value or specify one yourself. If a property has no default value, the table will state No default value. The word `None` is an acceptable default value, and does not mean that there is no default value.
Unit of measure	Specifies how the property is measured, for example in kilobytes or seconds.
Property type	Describes the property type. Valid property types include the following: • Boolean • String • Integer
Usage	Describes usage conditions or restrictions that might apply to the property. For instance, here is how a restriction would be documented: For WebSphere Application Server version 6.40 or earlier, the password: • Must be uppercase • Must be 8 characters in length For versions of WebSphere Application Server later than 6.40, the password: • Is not case sensitive • Can be up to 40 characters in length. This section lists other properties that affect this property or that are affected by this property and describes the nature of the conditional relationship.

Row	Explanation
Example	Provides sample property values, for example: "If Language is set to JA (Japanese), Codepage number is set to 8000".
Globalized	If a property is globalized, it has national language support, meaning that you can set the value in your national language. Valid values are **Yes** and **No**.
Bidi supported	Indicates whether the property is supported in bidirectional (bidi) processing. Bidirectional processing pertains to the task of processing data that contains both left-to-right (Hebrew or Arabic, for example) and right-to-left (a URL or file path, for example) semantic content within the same file. Valid values are **Yes** and **No**.

Connection properties for the external service wizard

Connection properties for the external service wizard are used to establish a connection between the external service wizard and the application from which the wizard will obtain metadata. These properties specify such things as connection configuration, bidirectional (bidi) properties, and logging options.

Note: If you set any of these connection properties using bidirectional script, you must set values that identify the format of the bidirectional script entered for that property.

The external service connection properties and their purpose are described in the following table. A complete description of each property is provided in the sections that follow the table.

Table 31. External service connection properties

Property name	Description
"Component interface JAR file"	Specifies the PeopleSoft Enterprise component interface used by the adapter to establish a connection to the PeopleSoft components that are targets of integration transactions.
"Host name " on page 96	Specifies the name or address of the server that hosts PeopleSoft Enterprise.
"Password " on page 96	Specifies the password of the user account of the adapter on the PeopleSoft Enterprise server.
"Port number" on page 96	The port number at which PeopleSoft Enterprise is configured to listen for client requests.
"Prefix for business object names" on page 97	Specifies a prefix to be added to generated business objects.
"User name" on page 97	The name of the user account the adapter uses on the PeopleSoft Enterprise server.

Component interface JAR file

This property specifies the PeopleSoft Enterprise component interface that the adapter uses to establish a connection to the PeopleSoft components that are targets of integration transactions.

Table 32. Component interface JAR file details

Required	Yes
Default	No default
Property type	String
Usage	The name of the JAR file that the adapter uses to connect to the PeopleSoft Enterprise components of interest.
Example	`CWYES_PeopleSoft\connectorModule\WbiEvent.jar`
Globalized	No
Bidi supported	No

Host name

This property specifies the name or address of the server that hosts PeopleSoft Enterprise.

Table 33. Host name details

Required	Yes
Default	No default value
Property type	String
Usage	Identifies the server, either by name or IP address, that hosts PeopleSoft Enterprise.
Example	`9.26.248.202`
Globalized	No
Bidi supported	No

Password

This property specifies the password of the user account of the adapter on the PeopleSoft Enterprise server.

Table 34. Password details

Required	Yes
Default	No default value
Property type	String
Usage	The restrictions (case, length, and character) are determined by the PeopleSoft Enterprise version.
Globalized	Yes
Bidi supported	Yes

Port number

The port number at which PeopleSoft Enterprise is configured to listen for client requests.

Table 35. Port number details

Required	Yes
Default	The port number entered when you run the external service wizard.
Property type	Integer

Table 35. Port number details (continued)

Example	9000
Globalized	No
Bidi supported	No

Prefix for business object names

This property specifies a prefix to be added to generated business objects.

Table 36. Prefix details

Required	No
Default	No default
Property type	String
Usage	This property allows you to distinguish between different business objects generated against the same PeopleSoft component interface.
Example	If you used IB as a prefix, all business objects generated by this service are named using this prefix.
Globalized	Yes
Bidi supported	No

User name

This property specifies the name of the user account the adapter uses on the PeopleSoft Enterprise server.

Table 37. User name details

Required	Yes
Default	No default value
Property type	String
Usage	The restrictions (case, length, and character) are determined by the PeopleSoft Enterprise version.
Example	DV1
Globalized	Yes
Bidi supported	Yes

Resource adapter properties

The resource adapter properties control the general operation of the adapter. You set the resource adapter properties using the external service wizard when you configure the adapter. After deploying the adapter, use the administrative console to change these properties.

The following properties for logging and tracing are no longer required in version 6.1.0, but are supported for compatibility with previous versions:

- LogFileMaxSize
- LogFileName
- LogNumberOfFiles
- TraceFileMaxSize

- TraceFileName
- TraceNumberOfFiles

The following table lists the resource adapter properties and their purpose. A complete description of each property is provided in the sections that follow the table.

Table 38. Resource adapter properties for the Adapter for PeopleSoft Enterprise

Name		
In the wizard	**In the administrative console**	**Description**
Adapter ID to use for logging and tracing	AdapterID	Identifies the adapter instance for CEI and PMI events with respect to logging and tracing.
(Not available)	enableHASupport	Do not change this property.
(Not available)	LogFileMaxSize	Supported for compatibility with earlier versions
(Not available)	LogFilename	Supported for compatibility with earlier versions
(Not available)	LogNumberOfFiles	Supported for compatibility with earlier versions
(Not available)	TraceFileMaxSize	Supported for compatibility with earlier versions
(Not available)	TraceFileName	Supported for compatibility with earlier versions
(Not available)	TraceNumberOfFiles	Supported for compatibility with earlier versions

Adapter ID to use for logging and tracing (AdapterID)

Use this property to identify a specific deployment, or instance, of the adapter.

Table 39. Adapter ID to use for logging and tracing details

Required	Yes
Default	CWYES_PeopleSoft
Property type	String
Usage	This property is used to identify the adapter instance for PMI events. If you are deploying multiple instances of an adapter, set this property to a unique value for each adapter instance. For inbound processing this property is retrieved from the resource adapter properties. For outbound processing, it is retrieved form the managed connection factory properties.
Globalized	Yes
Bidi supported	No

Enable high availability support (enableHASupport)

Do not change this property. It must be set to `true`.

Log file maximum size (LogFileMaxSize)

This property specifies the size of the log files in kilobytes.

Table 40. Log file maximum size details

Required	No
Default	`0`
Property type	Integer

Table 40. Log file maximum size details (continued)

Usage	When the log file reaches it maximum size, the adapter start using a new log file. If the file size is specified as `0` or no maximum size is specified, the file does not have a maximum size.
Globalized	Yes
Bidi supported	No

Log file name (LogFilename)

This property specifies the full path name of the log file.

Table 41. Log file name details

Required	No
Default	No default value
Property type	String
Usage	This property is deprecated.
Globalized	Yes
Bidi supported	Yes

Log number of files (LogNumberOfFiles)

This property specifies the number of log files.

Table 42. Log number of files details

Required	No
Default	`1`
Property type	Integer
Usage	When a log file reaches its maximum size, the adapter starts using another log file. If no value is specified, the adapter creates a single log file.
Globalized	Yes
Bidi supported	No

Trace file maximum size (TraceFileMaxSize)

This property specifies the size of the trace files in kilobytes.

Table 43. Trace file maximum size details

Required	No
Default	`0`
Property type	Integer
Usage	If no value is specified, then the trace file has no maximum size.
Globalized	Yes
Bidi supported	No

Trace file name (TraceFilename)

This property specifies the full path of the trace file.

Table 44. Trace file name details

Required	No
Default	No default value
Unit of measure	Kilobytes
Property type	String
Usage	This property is deprecated.
Globalized	Yes
Bidi supported	Yes

Trace number of files (TraceNumberOfFiles)

This property specifies the number of trace files to use. When a trace file reaches its maximum size, the adapter starts using another trace file.

Table 45. Trace number of files details

Required	No
Default	1
Property type	Integer
Usage	If no value is specified, the adapter uses a single trace file.
Globalized	Yes
Bidi supported	No

Activation specification properties

Activation specification properties hold the inbound event processing configuration information for an export. You set activation specification properties either through the external service wizard or the administrative console.

The following table lists the activation specification properties for inbound communication. A more detailed description of each property is provided in the sections that follow the table. For information about how to read the property detail tables in the sections that follow, see Guide to understanding property details.

Table 46. Activation specification properties

Descriptive name	Property name	Purpose
Ensure once-only event delivery	AssuredOnceDelivery	Specifies whether the adapter provides assured once delivery of events
Component interface for testing failed connection	PingCompIntfc	Specifies the component interface the adapter uses to validate a connection to the PeopleSoft Enterprise server
Component interface name for event notification	EventCIName	Specifies the component interface the adapter uses for event notification
Delivery type	DeliveryType	Determines the order in which events are delivered by the adapter to the export
Delimiter for keys in the event store	EventKeyDelimiter	Specifies the name and value for an object key in the event table
Event types to process	EventTypeFilter	A delimited list of event types that indicates to the adapter which events it should deliver

Table 46. Activation specification properties (continued)

Java date format for event timestamp	DateFormat	Specifies the format used to create the event timestamp
Maximum connections	MaximumConnections	The maximum number of connections that the adapter can use for inbound event delivery
Minimum connections	MinimumConnections	The minimum number of connections that the adapter can use for inbound event delivery
Interval between polling periods	PollPeriod	The length of time that the adapter waits between polling periods
Poll quantity	PollQuantity	The number of events that the adapter delivers to the export during each poll period
Retry interval if connection fails	RetryInterval	The length of time that the adapter waits between attempts to establish a new connection after an error during inbound operations
Number of times to retry the system connection	RetryLimit	The number of times the adapter tries to reestablish an inbound connection after an error
Stop the adapter when an error is encountered while polling	StopPollingOnError	Specifies whether the adapter stops polling for events when it encounters an error during polling

Ensure once-only event delivery (AssuredOnceDelivery)

This property specifies whether to provide ensure once-only event delivery for inbound events.

Table 47. Ensure once-only event delivery details

Required	Yes
Possible values	`True` `False`
Default	`True`
Property type	Boolean
Usage	When this property is set to `True`, the adapter provides assured once event delivery. This means that each event will be delivered once and only once. A value of `False` does not provide assured once event delivery, but provides better performance. When this property is set to `True`, the adapter attempts to store transaction (XID) information in the event store. If it is set to `False`, the adapter does not attempt to store the information. This property is used only if the export component is transactional. If it is not, no transaction can be used, regardless of the value of this property.
Globalized	No
Bidi supported	No

Component interface for testing failed connection (PingCompInterface)

This property specifies the name of the PeopleSoft Enterprise component interface that the adapter uses to validate a connection to the PeopleSoft Enterprise server.

Table 48. Component interface for testing failed connection details

Row	Explanation
Required	Yes
Default	The name of the first component interface in the list
Property type	String
Usage	The name of the component interface that the adapter uses to test connectivity to the PeopleSoft Enterprise server. Specify a component interface name that already exists within your PeopleSoft Enterprise applications.
Globalized	No
Bidi supported	No

Component interface name for event notification (EventCIName)

This property specifies the name of the PeopleSoft Enterprise component interface that the adapter uses for inbound processing.

Table 49. Component interface name for event notification details

Row	Explanation
Required	Yes
Default	`IBM_EVENT_CI`
Property type	String
Usage	The name of the component interface that the adapter uses for inbound processing. To use inbound processing, you must create a component interface specifically for event notification within PeopleSoft Enterprise.
Globalized	No
Bidi supported	No

Delivery type (DeliveryType)

This property specifies the order in which events are delivered by the adapter to the export.

Table 50. Delivery type details

Required	No
Possible values	`ORDERED` `UNORDERED`
Default	`ORDERED`
Property type	String
Usage	The following values are supported: • `ORDERED`: The adapter delivers events to the export one at a time. • `UNORDERED`: The adapter delivers all events to the export at once.
Globalized	No
Bidi supported	No

Delimiter for keys in the event store (EventKeyDelimiter)

This property specifies the delimiter for the object key name-value pair in the event table.

Table 51. Delimiter for keys in the event store details

Row	Explanation
Required	No
Default	`=:`
Property type	String
Usage	This property allows you to specify an object name and value to be used as an object key in the event store.
Example	`CustomerID=2001`
Globalized	No
Bidi supported	No

Event types to process (EventTypeFilter)

This property contains a delimited list of event types that indicates to the adapter which events it should deliver.

Table 52. Event types to process details

Required	No
Possible values	A comma-delimited (,) list of business object types
Default	`null`
Property type	String
Usage	Events are filtered by business object type. If the property is set, the adapter delivers only those events that are in the list. A value of `null` indicates that no filter will be applied and that all events will be delivered to the export.
Example	To receive only events relating to the Customer and Order business objects, specify this value: `Customer,Order`
Globalized	No
Bidi supported	No

Java date format for event timestamp (DateFormat)

This property specifies the format that is used for the event timestamp.

Table 53. Java date format for event timestamp details

Row	Explanation
Required	Yes
Default	`MM/dd/yy`
Property type	String
Usage	This property is used to format the date values obtained from the PeopleSoft Enterprise server.
Globalized	No
Bidi supported	No

Maximum connections (MaximumConnections)

This property specifies the maximum number of connections that the adapter can use for inbound event delivery.

Table 54. Maximum connections details

Required	No
Default	1
Property type	Integer
Usage	Only positive values are valid. The adapter considers any positive entry less than 1 to be equal to 1. Typing a negative value or 1 for this property may result in run time errors.
Globalized	No
Bidi supported	No

Minimum connections (MinimumConnections)

This property specifies the minimum number of connections that the adapter can use for inbound event delivery.

Table 55. Minimum connections details

Required	No
Default	1
Property type	Integer
Usage	Only positive values are valid. Any value less than 1 is treated as 1 by the adapter. Typing a negative value or 1 for this property may result in run time errors.
Globalized	No
Bidi supported	No

Interval between polling periods (PollPeriod)

This property specifies the length of time that the adapter waits between polling periods.

Table 56. Interval between polling periods details

Required	Yes
Possible values	Integers greater than or equal to `0`.
Default	`2000`
Unit of measure	Milliseconds
Property type	Integer
Usage	The poll period is established at a fixed rate, which means that if running the poll cycle is delayed for any reason (for example, if a prior poll cycle takes longer than expected to complete) the next poll cycle will occur immediately to make up for the lost time caused by the delay.
Globalized	No
Bidi supported	No

Maximum events in polling period (PollQuantity)

This property specifies the number of events that the adapter delivers to the export during each poll period.

Table 57. Maximum events in polling period details

Required	Yes
Default	10
Property type	Integer
Usage	The value must be greater than 0. If this value is increased, more events are processed per polling period and the adapter may perform less efficiently. If this value is decreased, less events are processed per polling period and the adapter's performance may improve slightly.
Globalized	No
Bidi supported	No

Retry interval if connection fails (RetryInterval)

When the adapter encounters an error related to the inbound connection, this property specifies the length of time the adapter waits before trying to establish a new connection.

Table 58. Retry interval details

Required	Yes
Default	2000
Unit of measure	Milliseconds
Property type	Integer
Usage	Only positive values are valid. When the adapter encounters an error related to the inbound connection, this property specifies the length of time the adapter waits before trying to establish a new connection.
Globalized	Yes
Bidi supported	No

Number of times to retry the system connection (RetryLimit)

This property specifies the number of times the adapter tries to reestablish an inbound connection.

Table 59. Number of times to retry the system connection details

Required	No
Possible values	Positive integers
Default	0
Property type	Integer
Usage	Only positive values are valid. When the adapter encounters an error related to the inbound connection, this property specifies the number of times the adapter tries to restart the connection. A value of 0 indicates an infinite number of retries.
Globalized	Yes
Bidi supported	No

Stop the adapter when an error is encountered while polling (StopPollingOnError)

This property specifies whether the adapter will stop polling for events when it encounters an error during polling.

Table 60. Stop the adapter when an error is encountered while polling details

Required	No
Possible values	`True` `False`
Default	`False`
Property type	Boolean
Usage	If this property is set to `True`, the adapter stops polling when it encounters an error. If this property is set to `False`, the adapter logs an exception when it encounters an error during polling and continues polling.
Globalized	No
Bidi supported	No

Globalization

WebSphere Adapter for PeopleSoft Enterprise is a globalized application that can be used in multiple linguistic and cultural environments. Based on character set support and the locale of the host server, the adapter delivers message text in the appropriate language. The adapter supports bidirectional script data transformation between integration components.

Globalization and bidirectional data transformation

The adapter is globalized to support single- and multi-byte character sets and deliver message text in the specified language. The adapter also performs bidirectional script data transformation, which refers to the task of processing data that contains both right-to-left (Hebrew or Arabic, for example) and left-to-right (a URL or file path, for example) semantic content within the same file.

Globalization

Globalized software applications are designed and developed for use within multiple linguistic and cultural environments rather than a single environment. WebSphere Adapters, WebSphere Integration Developer, WebSphere Process Server, and WebSphere Enterprise Service Busare written in Java. The Java runtime environment within the Java virtual machine (JVM) represents data in the Unicode character code set. Unicode contains encodings for characters in most known character code sets (both single- and multi-byte). Therefore, when data is transferred between these integration system components, there is no need for character conversion.

To log error and informational messages in the appropriate language and for the appropriate country or region, the adapter uses the locale of the system on which it is running.

Bidirectional script data transformation

Languages such as Arabic and Hebrew are written from right to left, yet they contain embedded segments of text that are written left to right, resulting in bidirectional script. When software applications handle bidirectional script data, standards are used to display and process it. Bidirectional script data transformation applies only to string type data. WebSphere Process Server andWebSphere Enterprise Service Bus use the Windows standard format, but applications or file systems that exchange data with the server might use a different format. The adapter transforms bidirectional script data passed between the two systems so that it is accurately processed and displayed on both sides of a transaction. It transforms the script data by using a set of properties that defines the format of script data, as well as properties that identify content or metadata to which transformation applies.

Bidirectional script data formats

WebSphere Process Server andWebSphere Enterprise Service Bus use the bidirectional format of ILYNN (implicit, left-to-right, on, off, nominal). These five attributes characterize the format used by Windows. If an application or file system that sends or receives data from the server uses a different format, the adapter converts the format prior to introducing the data to the server. For the conversion to occur, you use the external service wizard to set attribute values that represent the bidirectional format used by the sending application or file system. This is done when you deploy the adapter for the first time.

Bidirectional data format attributes and values are listed in the following table.

Table 61. Bidirectional data format attributes and values

Letter position	Purpose	Values	Description	Default setting
1	Order schema	I or V	Implicit (Logical) or Visual	I
2	Direction	L R C D	Left-to-Right, Right-to-Left Contextual Left-to-Right Contextual Right-to-Left	L
3	Symmetric Swapping	Y or N	Symmetric Swapping is on or off	Y
4	Shaping	S N I M F B	Shaped text Unshaped text Initial shaping Middle shaping Final shaping Isolated shaping	N
5	Numeric Shaping	H C N	Hindi Contextual Nominal	N

Bidirectional properties that identify data for transformation

To identify business data subject to transformation, set the BiDiContextEIS property. Do this by specifying values for each of the five bidirectional format attributes (listed in Table 1) for the property. The BiDiContextEIS property can be set for the managed connection factory and the activation specification.

Adapter messages

View the messages issued by WebSphere Adapter for PeopleSoft Enterprise at the following location.

Link to messages: http://publib.boulder.ibm.com/infocenter/dmndhelp/v6r1mx/topic/com.ibm.wbit.610.help.messages.doc/messages.html

The displayed Web page shows a list of message prefixes. Click a message prefix to see all the messages with that prefix:

- Messages with the prefix CWYES are issued by WebSphere Adapter for PeopleSoft Enterprise
- Messages with the prefix CWYBS are issued by the adapter foundation classes, which are used by all the adapters.

Related information

The following information centers, IBM Redbooks, and Web pages contain related information for the WebSphere Adapter for PeopleSoft Enterprise.

Samples and tutorials

The WebSphere Integration Developer online samples/tutorials gallery includes samples and tutorials to help you use WebSphere Adapters. You can access the online samples/tutorials gallery as follows:

- From the welcome page that opens when you start WebSphere Integration Developer. To see samples and tutorials for WebSphere Adapter for PeopleSoft Enterprise, click **Retrieve**. Then browse the displayed categories to make your selections.
- At this location on the Web: http://publib.boulder.ibm.com/bpcsamp/index.html.

Information resources

- The WebSphere Business Process Management information resources Web page includes links to articles, Redbooks, documentation, and educational offerings to help you learn about WebSphere Adapters: http://www14.software.ibm.com/webapp/wsbroker/redirect?version=pix&product=wps-dist&topic=bpmroadmaps
- The WebSphere Adapters library page includes links to all versions of the documentation: http://www.ibm.com/software/integration/wbiadapters/library/infocenter/

Information about related products

- WebSphere Business Process Management, version 6.1.0, information center, which includes WebSphere Process Server, WebSphere Enterprise Service Bus, and WebSphere Integration Developer information: http://publib.boulder.ibm.com/infocenter/dmndhelp/v6r1mx/index.jsp
- WebSphere Adapters, version 6.0.2, information center: http://publib.boulder.ibm.com/infocenter/dmndhelp/v6rxmx/topic/com.ibm.wsadapters602.doc/welcome_top_wsa602.html
- WebSphere Adapters, version 6.0, information center: http://publib.boulder.ibm.com/infocenter/wbihelp/v6rxmx/topic/com.ibm.wsadapters.doc/welcome_wsa.html

- WebSphere Business Integration Adapters information center: http://publib.boulder.ibm.com/infocenter/wbihelp/v6rxmx/index.jsp?topic=/com.ibm.wbi_adapters.doc/welcome_adapters.htm

developerWorks® resources

- WebSphere Adapter Toolkit
- WebSphere business integration zone

Support and assistance

- WebSphere Adapters technical support: http://www.ibm.com/software/integration/wbiadapters/support/
- WebSphere Adapters technotes: http://www.ibm.com/support/search.wss?tc=SSMKUK&rs=695&rank=8&dc=DB520+D800+D900+DA900+DA800+DB560&dtm. In the **Product category** list, select the name of the adapter and click **Go**.

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