ORACLE
PeopleSoft

PeopleTools 8.62: Integration Broker Testing Utilities and Tools

December 2025

ORACLE

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at https://docs.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit https://docs.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit https://docs.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

Contents

Preface

Understanding the PeopleSoft Online Help and PeopleBooks

The PeopleSoft Online Help is a website that enables you to view all help content for PeopleSoft applications and PeopleTools. The help provides standard navigation and full-text searching, as well as context-sensitive online help for PeopleSoft users.

Hosted PeopleSoft Online Help

You can access the hosted PeopleSoft Online Help on the Oracle Help Center. The hosted PeopleSoft Online Help is updated on a regular schedule, ensuring that you have access to the most current documentation. This reduces the need to view separate documentation posts for application maintenance on My Oracle Support. The hosted PeopleSoft Online Help is available in English only.

To configure the context-sensitive help for your PeopleSoft applications to use the Oracle Help Center, see Configuring Context-Sensitive Help Using the Hosted Online Help Website.

Locally Installed PeopleSoft Online Help

If you're setting up an on-premises PeopleSoft environment, and your organization has firewall restrictions that prevent you from using the hosted PeopleSoft Online Help, you can install the online help locally. Installable PeopleSoft Online Help is made available with selected PeopleSoft Update Images and with PeopleTools releases for on-premises installations, through the Oracle Software Delivery Cloud.

Your installation documentation includes a chapter with instructions for how to install the online help for your business environment, and the documentation zip file may contain a README.txt file with additional installation instructions. See *PeopleSoft 9.2 Application Installation* for your database platform, "Installing PeopleSoft Online Help."

To configure the context-sensitive help for your PeopleSoft applications to use a locally installed online help website, see Configuring Context-Sensitive Help Using a Locally Installed Online Help Website.

Downloadable PeopleBook PDF Files

You can access downloadable PDF versions of the help content in the traditional PeopleBook format on the Oracle Help Center. The content in the PeopleBook PDFs is the same as the content in the PeopleSoft Online Help, but it has a different structure and it does not include the interactive navigation features that are available in the online help.

Common Help Documentation

Common help documentation contains information that applies to multiple applications. The two main types of common help are:

- Application Fundamentals

- Using PeopleSoft Applications

Most product families provide a set of application fundamentals help topics that discuss essential information about the setup and design of your system. This information applies to many or all applications in the PeopleSoft product family. Whether you are implementing a single application, some combination of applications within the product family, or the entire product family, you should be familiar with the contents of the appropriate application fundamentals help. They provide the starting points for fundamental implementation tasks.

In addition, the *PeopleTools: Applications User's Guide* introduces you to the various elements of the PeopleSoft Pure Internet Architecture. It also explains how to use the navigational hierarchy, components, and pages to perform basic functions as you navigate through the system. While your application or implementation may differ, the topics in this user's guide provide general information about using PeopleSoft applications.

Field and Control Definitions

PeopleSoft documentation includes definitions for most fields and controls that appear on application pages. These definitions describe how to use a field or control, where populated values come from, the effects of selecting certain values, and so on. If a field or control is not defined, then it either requires no additional explanation or is documented in a common elements section earlier in the documentation. For example, the Date field rarely requires additional explanation and may not be defined in the documentation for some pages.

Typographical Conventions

The following table describes the typographical conventions that are used in the online help.

Typographical Convention	***Description***
Key+Key	Indicates a key combination action. For example, a plus sign (+) between keys means that you must hold down the first key while you press the second key. For **Alt+W,** hold down the **Alt** key while you press the **W** key.
. . . (ellipses)	Indicate that the preceding item or series can be repeated any number of times in PeopleCode syntax.
{ } (curly braces)	Indicate a choice between two options in PeopleCode syntax. Options are separated by a pipe (|).
[ ] (square brackets)	Indicate optional items in PeopleCode syntax.
& (ampersand)	When placed before a parameter in PeopleCode syntax, an ampersand indicates that the parameter is an already instantiated object. Ampersands also precede all PeopleCode variables.

Typographical Convention	*Description*
⇒	This continuation character has been inserted at the end of a line of code that has been wrapped at the page margin. The code should be viewed or entered as a single, continuous line of code without the continuation character.

ISO Country and Currency Codes

PeopleSoft Online Help topics use International Organization for Standardization (ISO) country and currency codes to identify country-specific information and monetary amounts.

ISO country codes may appear as country identifiers, and ISO currency codes may appear as currency identifiers in your PeopleSoft documentation. Reference to an ISO country code in your documentation does not imply that your application includes every ISO country code. The following example is a country-specific heading: "(FRA) Hiring an Employee."

The PeopleSoft Currency Code table (CURRENCY_CD_TBL) contains sample currency code data. The Currency Code table is based on ISO Standard 4217, "Codes for the representation of currencies," and also relies on ISO country codes in the Country table (COUNTRY_TBL). The navigation to the pages where you maintain currency code and country information depends on which PeopleSoft applications you are using. To access the pages for maintaining the Currency Code and Country tables, consult the online help for your applications for more information.

Region and Industry Identifiers

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

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

Region Identifiers

Regions are identified by the region name. The following region identifiers may appear in the PeopleSoft Online Help:

- Asia Pacific
- Europe
- Latin America
- North America

Industry Identifiers

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

- USF (U.S. Federal)

- E&G (Education and Government)

Translations and Embedded Help

PeopleSoft 9.2 software applications include translated embedded help. With the 9.2 release, PeopleSoft aligns with the other Oracle applications by focusing our translation efforts on embedded help. We are not planning to translate our traditional online help and PeopleBooks documentation. Instead we offer very direct translated help at crucial spots within our application through our embedded help widgets. Additionally, we have a one-to-one mapping of application and help translations, meaning that the software and embedded help translation footprint is identical—something we were never able to accomplish in the past.

Using and Managing the PeopleSoft Online Help

Select About This Help in the left navigation panel on any page in the PeopleSoft Online Help to see information on the following topics:

- Using the PeopleSoft Online Help.
- Managing hosted Online Help.
- Managing locally installed PeopleSoft Online Help.

PeopleTools Related Links

PeopleTools 8.62 Home Page

PeopleSoft Search and Insights Home Page

“PeopleTools Product/Feature PeopleBook Index” (Getting Started with PeopleTools)

PeopleSoft Online Help

PeopleSoft Information Portal

PeopleSoft Spotlight Series

PeopleSoft Training and Certification | Oracle University

My Oracle Support

Oracle Help Center

Contact Us

Send your suggestions to psoft-infodev_us@oracle.com.

Please include the applications update image or PeopleTools release that you’re using.

Follow Us

Icon	*Link*
	Watch PeopleSoft on YouTube
	Follow @PeopleSoft_Info on X.
	Read PeopleSoft Blogs
	Connect with PeopleSoft on LinkedIn

Chapter 1

Getting Started with PeopleSoft Integration Testing Utilities and Tools

PeopleSoft Integration Testing Utilities and Tools Overview

The product documentation describes the following integration testing utilities and tools:

Term	*Definition*
Send Master utility	The Send Master utility enables you to test PeopleSoft Integration Broker messaging interactions with PeopleSoft and third-party web servers, application servers, and integration gateways. It can test listening connector functionality, target connector functionality, connector introspection and transactions. Send Master enables you to post any data format, including the PeopleSoft Multipurpose Internet Mail Extensions (MIME) message format, to web and application servers over HTTP and HTTPS. You can also use Send Master to simultaneously test groups of different types of messages, as well as to stress test your system. Send Master also enables you to perform Get functions and ping application messaging gateways and third-party servers.
Simple Post utility	The Simple Post utility enables you to use shell scripts or a Java API to post XML messages from third-party systems to the integration gateway. The utility wraps the incoming messages in the PeopleSoft XML wrapper format and posts them to the HTTP listening connector. The Simple Post utility reads ASCII, UTF-8 and UTF-16 file formats for incoming messages and converts them to UTF-8 format to send to the integration gateway.

Term	*Definition*
Integration point test automation tools	PeopleSoft provides a means for automated integration point testing. You can use automated integration point testing to unit test, perform cross-application business process testing, or regression test integration points. Automated integration point testing is suitable for testing integration points between different PeopleSoft systems, between PeopleSoft systems and third-party systems, and between PeopleSoft systems and open interfaces. You can use automated integration point testing with the following PeopleSoft integration technologies: • Service operations, including synchronous and asynchronous. • Component interfaces. • Flat files. • Staging tables.
Handler Tester utility	The Handler Tester enables you to test handlers by populating a service operation and executing the handler.
Transformation Test utility	PeopleSoft Integration Broker provides the Transform Test utility, which you can use to test Application Engine transform programs without sending messages and with minimal development effort.
Schema Tester utility	The Schema Tester utility enables you to validate rowset-based and nonrowset-based messages in a service operation to determine if the messages adhere to defined message schemas.
Generate SOAP Template utility	The Generate SOAP Template allows you to generate a SOAP template for any service for which WSDL has been generated.
Service Operation Tester utility	The Service Operation Tester utility enables you to invoke a service operation.
Provider REST Template utility	The Provider REST Template utility enables you to create a provider REST template for any provider REST service for which a WADL document has been generated. This template consists of example request, response and fault shapes that can be used in the Handler Tester utility, the Transformation Tester utility or the Send Master utility to test REST-based messages. You can also use the utility to invoke a test service operation.

PeopleSoft Integration Testing Utilities and Tools Implementation

The utilities and tools discussed in the product documentation are automatically installed with PeopleTools. Review the information provided in this section for additional requirements, prerequisites and considerations.

Implementing the Send Master Utility

To use the Send Master utility you should have an basic understanding PeopleSoft Integration Broker fundamentals, including:

- Integration gateway functionality.
- Target and listening connectors.
- Integration messaging formats.
    - Extensible Markup Language (XML).
    - Multipurpose Internet Mail Extensions (MIME).

Prior to using the Send Master utility, verify that the following are set up:

- Integration gateway, including security and logging settings.
- Integration metadata, including:
    - Messages.
    - Nodes.
    - Services.
    - Service operations.

Implementing the Simple Post Utility

To use the Simple Post utility, you should understand the same Integration Broker fundamentals that are described in the previous section, Implementing the Send Master Utility. You should also verify that the integration gateway is set up, as well as integration metadata.

Implementing the Handler Tester

To use the handler tester, you will need to have handlers created and defined for the service operation.

Implementing the Transformation Test Utility

PeopleSoft provides a sample project, called PT_IBTRANSFORM_TEST, which you can use to run a sample test using the utility. You can also use the utility to test transformation programs that you have developed.

Implementing the Schema Tester Utility

To use the Schema Tester Utility the following items must exist:

- A message schema against which to test a message.

  The message schema can be built when you create the message or you can use the Message Schema Builder to build message schemas.

- A message in XML format to test against a schema.

In addition, to test a schema you must specify the integration gateway must be configured and the default application server must be configured.

Implementing the Generate SOAP Template Utility

To use the Generate SOAP Template Utility the following items must exist:

- Message schemas for all messages used in the service operation.
- The service operation contains an any-to-local routing.
- The WSDL for the service operation has been written to the WSDL Repository using Provide Web Services.

Implementing the Service Operation Tester Utility

To use the Service Operation Tester utility you must have a service operation created.

Implementing the Provider REST Template Utility

To use the Provider REST Template utility a WADL document must exist for the service

Click the **View WADL** link on the service definition to determine if a WADL document exists for the service. If a WADL document does not exist for the service use the Provide Web Service wizard to generate one.

Other Sources of Information

In addition to implementation considerations presented in this section, take advantage of all PeopleSoft sources of information, including the installation guides, release notes, and product documentation, including:

- The product documentation for Integration Broker
- The product documentation for Integration Broker Service Operations Monitor
- The product documentation for Integration Broker Administration

Chapter 2

Using the Send Master Utility

Understanding Send Master

The Send Master utility enables you to test PeopleSoft Integration Broker service operation interactions with PeopleSoft and third-party web servers, application servers, and integration gateways. It can test listening connector functionality, target connector functionality, connector introspection and transactions.

Send Master enables you to post any data format, including the PeopleSoft Multipurpose Internet Mail Extensions (MIME) message format, to web and application servers over HTTP and HTTPS. You can also use Send Master to simultaneously test groups of different types of service operations, as well as stress test your system.

Send Master also enables you to perform Get functions and to ping application messaging gateways and third-party servers.

Send Master is installed with the PeopleSoft Pure Internet Architecture on Windows and UNIX systems and is delivered as part of the Integration Broker Connector SDK. Send Master is also delivered as a Windows stand-alone batch file. The stand alone version enables you to use the utility without having to install an integration gateway.

Starting Send Master

You can start Send Master from the Integration Broker SDK or as a stand-alone version.

Note: The starting size of Send Master is 50 megabytes (MB) and Send Master starts showing issues with startup if other heavy processes like Oracle, eclipse or JDeveloper are running.

Starting Send Master from the Integration Broker SDK

The location of Send Master in the Integration Broker SDK depends on the web server.

For Oracle WebLogic the location is <PIA_HOME>\webserv<DOMAIN>\piabin

The name of the Send Master startup script on Windows is StartSendMaster.bat; the name of the script on UNIX is StartSendMaster.sh.

Starting the Stand-Alone Version of Send Master

The standalone version of Send Master is located in the <PS_HOME>\Sendmaster folder, and is named StartSendMaster.bat. If you attempt to launch the batch file and Send Master does not open, you most likely need to set PS_HOME in the environment variables on your machine.

To set PS_HOME in the environment variables:

1. Close any DOS windows that might be open.
2. Right-click **My Computer** and click **Properties**.

   The System Properties dialog appears.
3. Click the Advanced tab.
4. In the Environment Variables section, click **Environment Variables**.
5. In the User variables for <user name> section, click **New**.

   A New User Variable dialog box appears.
6. In the **Variable Name** field enter *PS_HOME*.
7. In the **Variable Value** field, enter the path to your <PS_HOME> directory (for example, c:\PT853).
8. Click **OK**.

   The PS_HOME variable name and value appears in the User variables for <user name> section.
9. Click **OK** again and navigate to the standalone version of Send Master and double-click the StartSendMaster.bat file.

Starting Send Master in Pre-PeopleTools 8.48 Mode

PeopleSoft Integration Broker introduced its services-oriented architecture in PeopleTools 8.48.

You can use Send Master to test integrations created with the pre-PeopleTools 8.48 framework (PeopleTools 8.47 and earlier releases). To set Send Master for PeopleTools releases prior to PeopleTools 8.48, launch StartSendMaster.bat from the command line with *847* as the argument.

For example:

```
StartSendMaster.bat 847
```

Navigating in Send Master

Send Master features drop-down menus that you use to create, save and delete projects, and to change your user and display preferences. It also features Project and Batch Processing work spaces where you specify project parameters, view output, and so on.

You can navigate in Send Master using:

- Send Master menus.
- The Project work space.
- The Send Master Batch work space.

Using Send Master Menus

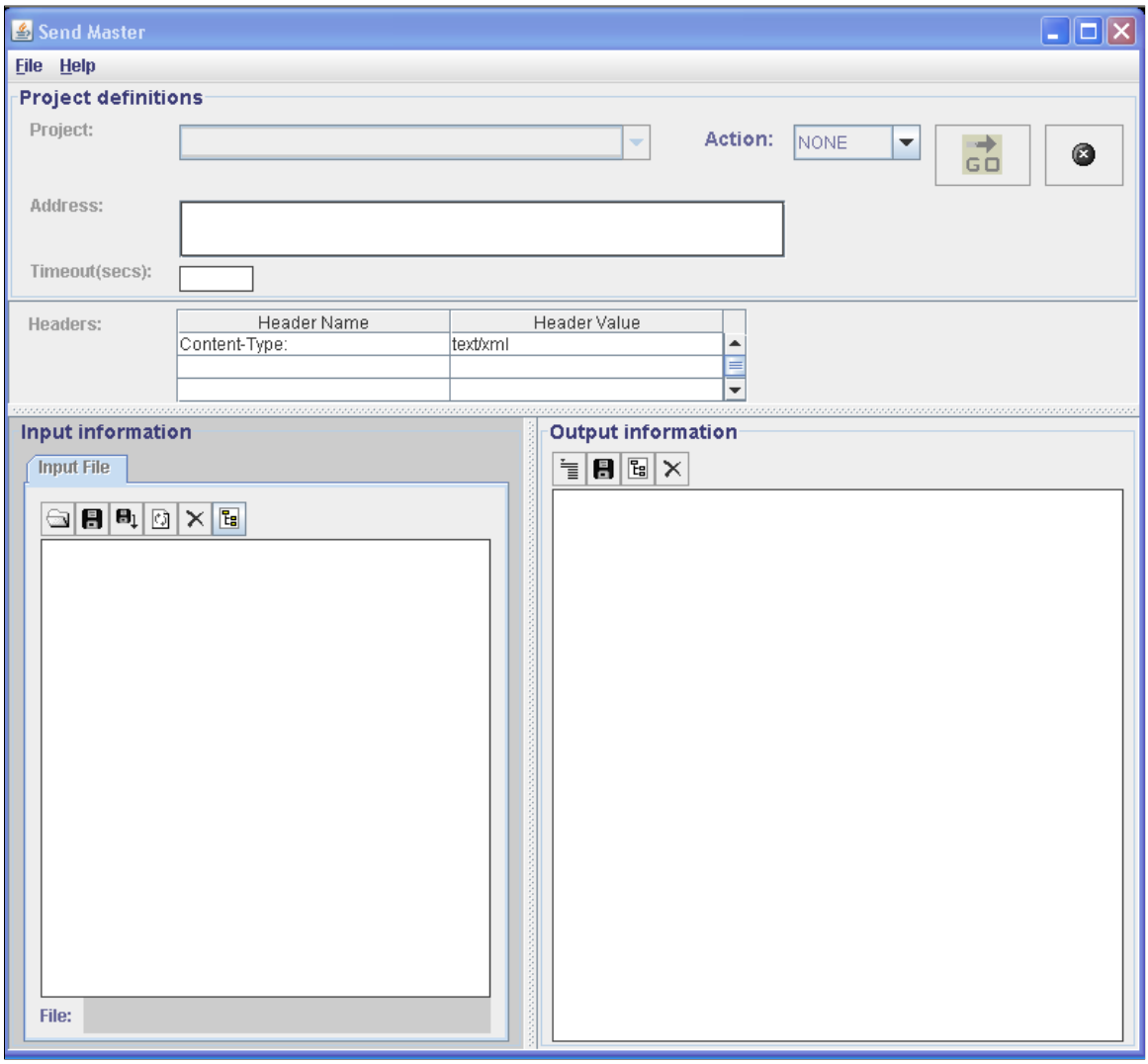
Send Master features two menus. This table describes the menu options, menu option short cuts, and the menu option actions.

Menu	*Menu Option*	*Shortcut*	*Action*
File	New Project	**Alt + N**	Creates a new projects.
File	Save Project	**Alt + S**	Saves the current project.
File	Delete Project	**Alt + D**	Deletes the current project.
File	Batch Processing	**Alt + B**	Opens the Batch Processing work space.
File	Preferences	**Alt + P**	Opens the Preferences dialog box, from which you can: • Change user preferences. • Specify proxy and keystore information. • Specify the output directory and preferences for batch processing output.
File	Export IBRequest	**Alt + E**	Exports a service operation request to a file.
File	Exit	**Ctrl + E**	Closes Send Master.
Help	About Send Master…	None	Displays Send Master version information.

Using the Project Work Space

When you open Send Master, the system displays the Project work space. You use the Project work space to define, modify, and test a Send Master project.

This example illustrates the fields and controls on the Project work space. You can find definitions for the fields and controls later on this page.



The Send Master Project work space features the Project Definitions section, the Input Information section, and the Output Information section. No fields or buttons are enabled until you define or select a project.

Project Definition Section

Use the Project Definition section to add and define a new Send Master project. The information that you specify in this section includes the web server URL used in conjunction with the selected HTTP action (method) to work with service operations.

This section features the following fields and controls:

Field or Control	***Description***
Project	After you create or open a project, the Project field displays the project name and project type.

Field or Control	*Description*
Address	Enter the web server URL to use in conjunction with the test.
Timeout (secs)	Enter the timeout interval in seconds.
Action	From the Action drop-down list, select the HTTP method to employ for the test. The options are: • *NONE.* (Default.) • *POST.* • *GET.* • *PATCH.* • *PUT.* • *DELETE.* • *HEAD.*
	Click the Go button to launch the test.
	Click the Stop button to stop test processing.

Input Information Section

Depending on the type of task that you are performing with Send Master, the Input Information section enables you to create and format MIME messages, as well as specify input files, destination nodes and more.

You need to know the service operation format that the connectors, application servers, and so forth are expecting, and then incorporate the appropriate tags and components into the service operation transaction content. For example, to communicate with PeopleSoft systems, you must specify the service operation name with the version and requesting node.

This section features a toolbar with the following buttons:

Field or Control	*Description*
	Click the **Open File** button to open an existing file and display it in the Input Information area.

Field or Control	*Description*
	Click the **Save File** button to save the contents displayed in the Input Information area, using a filename and location that you specify.
	Click the **Save File As** button to save the currently displayed file, using another name, location, or both, that you specify.
	Click the **Refresh the Current File** button to reload and display the last saved version of the current file.
	Click the **Remove File Reference** button to delete the contents of the Input Information area.
	Click the **If Valid XML, Format** button to format the code displayed in the section to make it more readable. This button is valid only if the file displayed is an XML file.

Output Information Section

The Output Information section displays information that the system returns when you perform a GET or POST on a web server.

When you work with MIME messages, you can use the provided **View** drop-down list and choose whether to view the entire raw message response, message metadata, or individual sections of the response.

When you work with message types other than MIME, you can view the raw message response only.

This section features a toolbar with the following buttons:

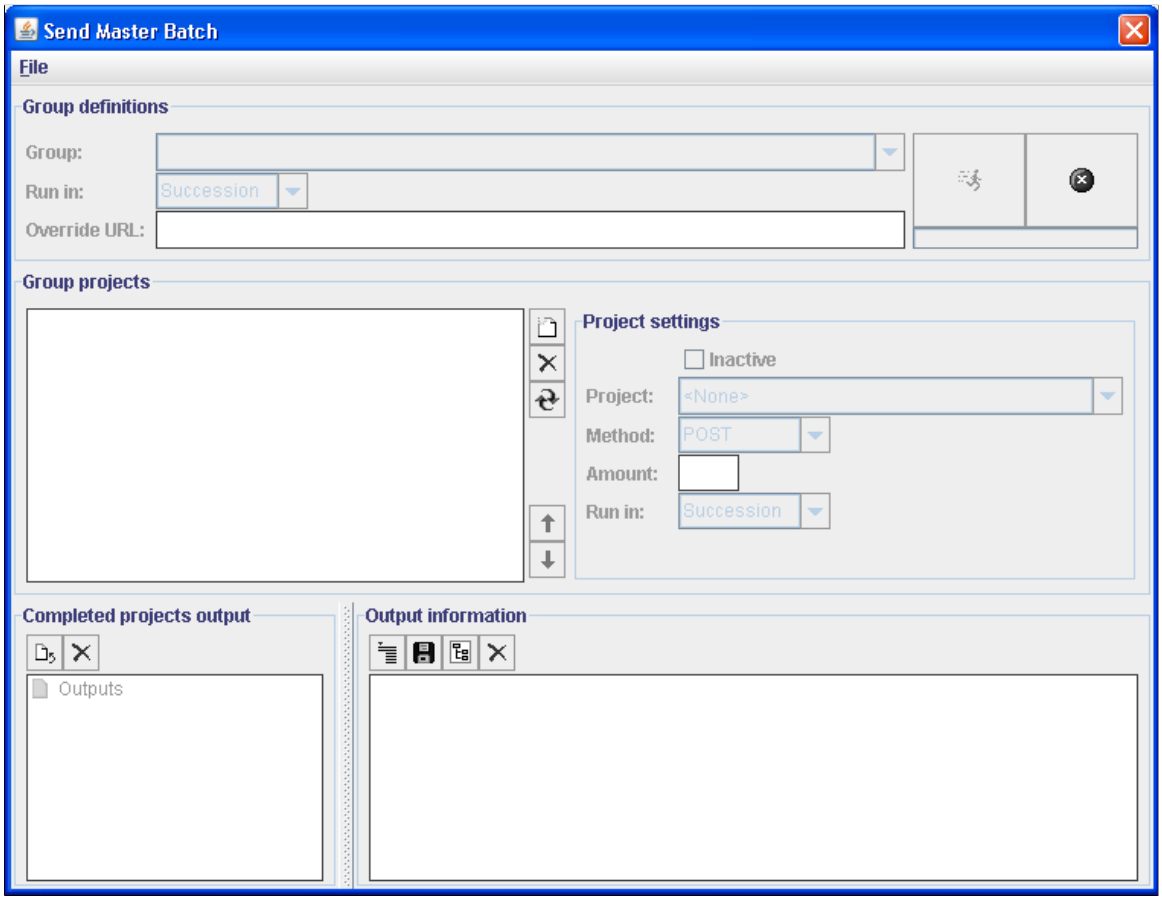
Field or Control	*Description*
	Click the **View Header Information** button to display the HTTP headers returned during a POST or GET.
	Click the **Save Output** button to save the information in the Output Information section using a filename and location that you specify.
	Click the If Valid XML, Format button to format the code displayed in the section to make it more readable. This button is valid only if the file displayed is an XML file.

Field or Control	*Description*
	Click the **Clear Output** button to delete the contents of the Output Information area.

Using the Send Master Batch Work Space

The Send Master Batch work space enables you to test groups of projects, as well as stress test a project or group of projects. You can access the Batch Processing work space by starting Send Master, opening an EIP Testing (Batch EIP) project and selecting **File** > **Batch Processing.**

This example illustrates the fields and controls on the Batch Processing work space. You can find definitions for the fields and controls later on this page.



The Batch Processing work space features these sections:

- Group Definition
- Group Projects
- Completed Projects Output
- Output Information

Group Definitions Section

You use the Group Definitions section to create, select, or delete a group of projects. You can also use this section to specify whether to run the projects in the group all at once, in sequence, or at intervals that you specify.

This section features these two buttons:

Field or Control	*Description*
	Click the **Start Projects** button to start processing the defined group.
	Click the **Stop Projects** button to stop processing the defined groups.

Group Projects Section

You use the Group Projects section to add, remove, and arrange projects in a group. For each project that you add to a group, you can select the method to invoke, such as GET or POST. You can also specify the number of times to run each project, and specify whether to run project instances all at once, in sequence, or at defined intervals.

This section features a toolbar with the following buttons:

Field or Control	*Description*
	Click the **Add a New Project** button to add a project to the group.
	Click the **Delete Selected Project** button to delete the selected project from the group.
	Click the **Update Selected Project** button to update the selected project with changes and modifications that were made to it since it was added to the group.
	Click the **Move Selected Project Up** button to move the selected project up in the order sequence of projects in the group.

Field or Control	*Description*
	Click the **Move Selected Project Down** button to move the selected project down in the order sequence of projects in the group.

Completed Projects Output Section

The Completed Projects Output section provides processing information about each project in a group, including the number of project instances processed, total time to process all project instances, the average amount of time to process a project instance, and more.

This section features a toolbar with the following buttons:

Field or Control	*Description*
	Click the **Export Results to File** button to display a text file that contains processing information about the completed project, such as the number of service operations processed, the total time to process the service operations, the average time to process a service operation, and so forth.
	Click the **Clear Results** button to clear the contents currently displayed.

Output Information Section

The Output Information section displays information that the system returns when you perform a Get or Post on a web server.

When you work with MIME messages, you can use the View drop-down list to view the entire raw message response, message metadata, or individual sections of the response.

When you are working with message types other than MIME, you can view the raw message response only.

This section features a toolbar with the following buttons:

Field or Control	*Description*
	Click the **View Header Information** button to display only the contents within the header tags of the selected message.
	Click the **Save Output** button to save the contents of the Output Information area, using a filename and location that you specify.

Field or Control	*Description*
	Click the **If Valid XML, Format** button to format the code displayed in the section to make the contents more readable. This button is valid only if the file displayed is an XML file.
	Click the **Clear Output** button to delete the contents of the Output Information area.

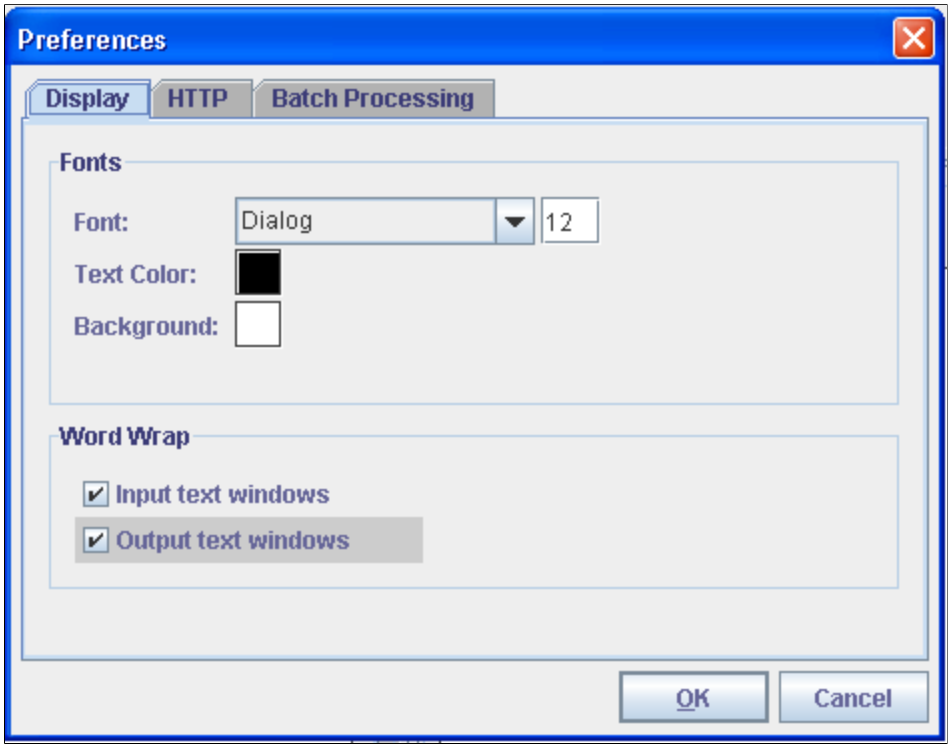
Setting Display Preferences

You can set these display preferences for Send Master:

- Display font, size, and color.
- Background color.
- Word-wrapping options.

To set display preferences, use the Display tab of the Preferences dialog box. To access this box, select **File** > **Preference** and click the Display tab.

This example illustrates the fields and controls on the Preferences – Display tab.



Setting the Display Font, Size and Color

To set the display font, size and color:

1. Access the Preferences dialog box and click the Display tab.
2. Set the display font, size and color.
   - To set the display font, in the Fonts section, from the **Font** drop-down list, select a font style.
   - To set the font size, in the field next to the font style, enter a font size.
   - To set the text color, in the **Text Color** field, click the color block.

     The Choose the Text Color box appears, from which you can select a color for the font.
3. Click **OK** to save the changes.

Setting the Background Color

This section describes how to set the background color of Send Master work spaces and sections.

To set the background color:

1. Access the Preferences dialog box and click the Display tab.
2. In the Font section, in the **Background Color** field, click the color block.

   The Choose the Text Background Color box appears, from which you can select a background color and click **OK**.
3. Click **OK** to save the changes.

Setting Word-Wrapping Options

You can enable or disable word wrapping in Send Master input and output sections.

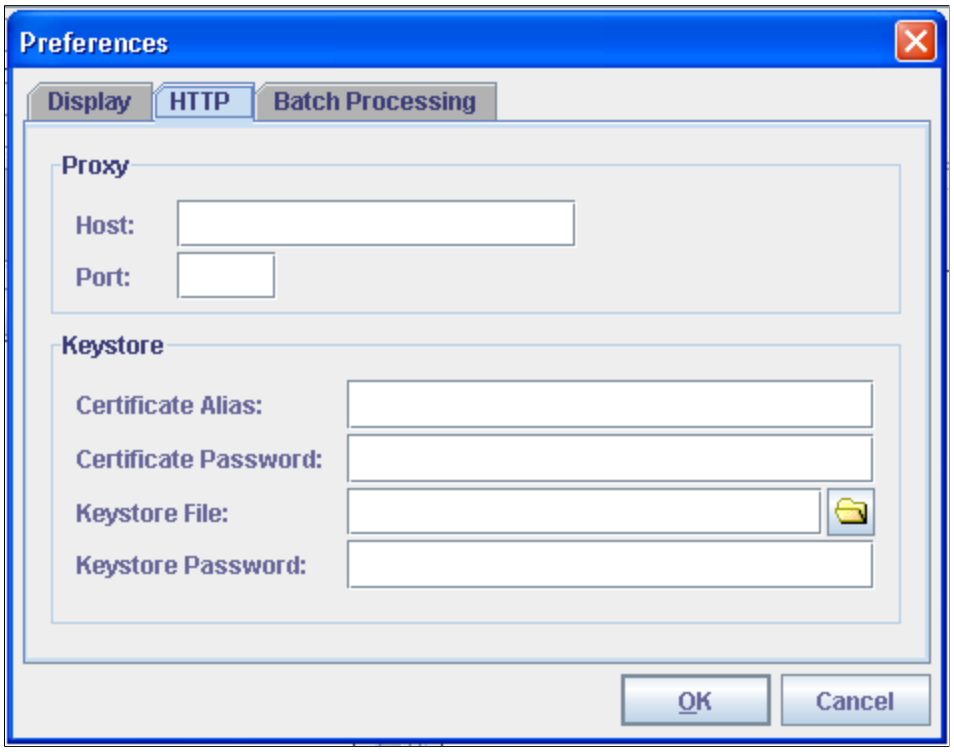
To set word-wrapping options:

1. Access the Preferences dialog box and click the Display tab.
2. In the Word Wrap section, enable or disable word wrapping.
   - To enable word wrapping in input windows, select **Input Text Windows**.
   - To enable word wrapping in output windows, select the **Output Text Windows**.
3. Click **OK** to save the changes.

Setting HTTP Proxy and Keystore Options

You can set up HTTP proxy and keystore options for use with Send Master. You set these options on the HTTP tab of the Preferences dialog box. To access the dialog box, select **File** > **Preferences**.

This example illustrates the fields and controls on the Preferences – HTTP tab.



Specifying HTTP Proxy Settings

To specify HTTP proxy settings for Send Master:

1. Access the Preferences dialog box and click the HTTP tab.
2. In the Proxy section of the dialog box, specify the following information:
   a. In the **Host** field enter the name of the proxy host.
   b. In the **Port** field, enter the appropriate port number.
3. Click the **OK** button.

Specifying Keystore Settings

To specify keystore settings for Send Master:

1. Access the Preferences dialog box and click the HTTP tab.
2. In the Keystore section of the dialog box, specify the following information:

a. In the **Certificate Alias** field, enter the certificate alias.

b. In the **Certificate Password** field, enter the encrypted certificate password.

c. In the **Keystore File** field, click the folder icon to specify a keystore file.

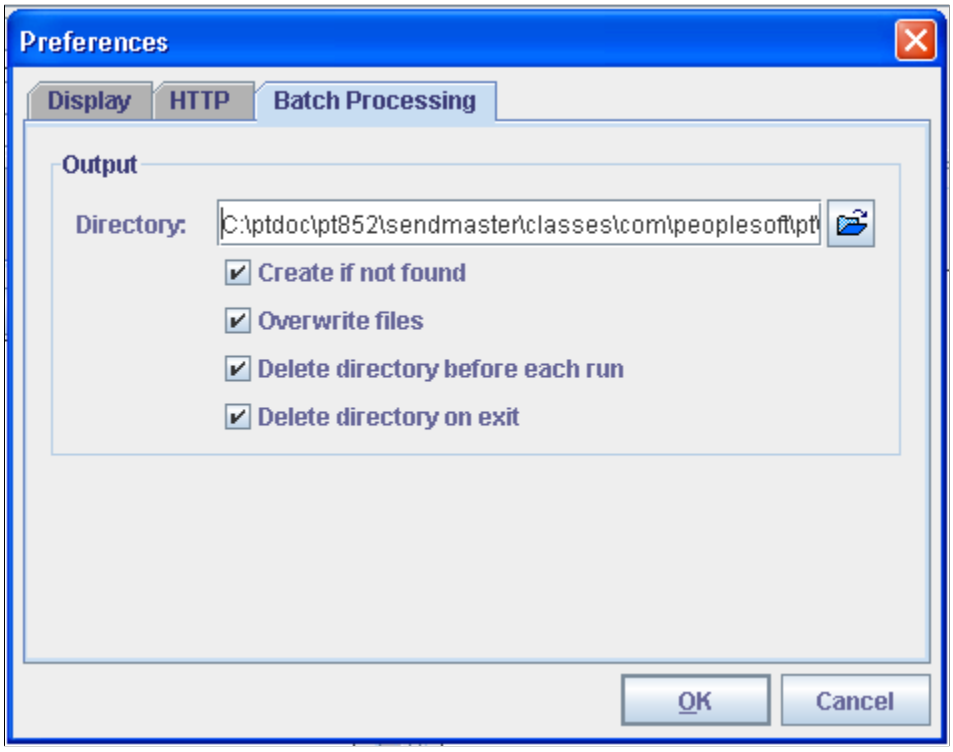
d. In the **Keystore Password** field, enter the encrypted password for the keystore.

3. Click the **OK** button.

Setting Batch Processing Options

You use the Batch Processing tab to set output directory options related to the projects with which you work in the Batch work space.

This example illustrates the fields and controls on the Preferences – Batch Processing tab. You can find definitions for the fields and controls later on this page.



Field or Control	***Description***
Directory	Specify the output directory for Batch project results.
Create if not found	Select this check box to create the directory specified in the Directory field if it does not exist.
Overwrite files	Select this check box to overwrite files of the same name in the output directory.

Field or Control	*Description*
Delete directory before each run	Select this check box to delete the contents of the directory before you run each batch project.
Delete directory on exit	Select this check box to delete the contents of the directory each time that you exit the Batch work space.

Creating Send Master Projects

To test service operation and connector processing using Send Master, you use Send Master projects. A Send Master project is a collection of service operation components, values and parameters that defines what you want to test and how you want to test it.

Understanding Send Master Project Types

This table describes Send Master project types.

Term	*Definition*
Input File	The Input File project type enables you to test servers that are expecting XML data over HTTP(S).
Integration Broker (MIME)	The Integration Broker (MIME) project type enables you to test servers that are expecting MIME data over HTTP or HTTPS. Use this project type to test service operation and connector processing using the PeopleSoft listening connector and for integrations with systems that expect MIME data. This project type is referred to as the Integration Broker (MIME) project type throughout the Send Master product documentation.
Integration Broker (XML)	The Integration Broker (XML) project type enables you to test servers that expect XML data in PeopleSoft format over HTTP or HTTPS. Use this project type to test service operation and connector processing using the HTTP listening connector and for integrations with systems that expect IBRequest XML—formatted data. This project type is referred to as the Integration Broker (XML) project type throughout the Send Master product documentation..

Term	*Definition*
EIP Testing (Batch EIP)	The EIP Testing (Batch EIP) project type enables you to test batches of service operations from a file directory that you specify for automation testing, and enables you to test different transaction values. This project type is referred to as the EIP Testing project type throughout this the Send Master product documentation.
JMS Project	The JMS Project project type enables you to test and post synchronous and asynchronous service operations to JMS queues or topics. This project type is referred to as the JMS project type throughout the Send Master product documentation.

The following table describes the type of project to use based on the type of communication that you want to test.

Project Type	*Usage*
Input File	Use this project type to: • Use the Get method to ensure that URLs are valid. • Send non-PeopleSoft-formatted XML or MIME messages to web servers. • Test SOAP messages with the HTTP listening connector or PeopleSoft Service listening connector. • Test inbound and outbound transformations by posting non-XML data into PeopleSoft software. • Test integration points with PeopleSoft 8.1x systems as well as those systems that do not adhere to the PeopleSoft message format. • Test REST services.

Project Type	*Usage*
Integration Broker (MIME)	Use this project type to: • Test PeopleSoft Integration Broker. After you create service operations, you can quickly add a few required fields and test the integration point. Instead of setting up another PeopleSoft system, you can interact with Send Master to shorten development time. • Test handlers. For example, you can test OnRequest, OnSend and so forth. • Test target connectors on the integration gateway, including specifying connector overrides. For example, you can test an integration that needs to perform normal Integration Broker processing, but also output the file to disk. You can override the target connector and test the file creation process. • Test attachments.
Integration Broker (XML)	Use this project type to: • Mimic an external system to test service operation processing using the HTTP listening connector. • Export data into the PeopleSoft XML IBRequest format to provide samples of data that PeopleSoft Integration Broker expects in request service operations.
EIP Testing	You can use this project type to send a directory of MIME-formatted messages into PeopleSoft Integration Broker. This project type enables you to override requesting and destination nodes without having to alter every service operation.
JMS	Use this project type to POST service operations to a JMS queue. This project type does not use the HTTP protocol, so no URL is provided.

Creating Send Master Projects

To create a Send Master project:

1. Launch Send Master.
2. Select **File** > **New Project**.
3. In the **Project Name** field, enter a name for the project.
4. From the **Project Type** drop-down list, select one of the following options:
    - **Input File**
    - **Integration Broker (MIME)**
    - **Integration Broker (XML)**

- **EIP Testing (Batch EIP)**
- **JMS Project**

5. Click the **OK** button.

   The system populates the Input Information section with various tabs, based on the project type that you selected.

6. In the **Server URL** field, enter the server URL of the server with which to communicate.

   Note: This field is not used for JMS projects.

7. In the **Time Out** field, enter a timeout value.

   The timeout value determines the amount of time Send Master attempts to process a service operation. If the request does not complete in the time specified, processing stops. Usual timeout is about 60 seconds. The default is *0* (zero), meaning there is no timeout.

8. In the **Headers** box, enter pertinent HTTP header information for the service operation.

9. Select **File** > **Save Project**.

The project name appears in the **Project** field and the type of the project appears in parentheses next to the project name. The content of the work space varies, based on the project type selected.

Related Links

Using Integration Broker Projects
Using Input File Projects
Using EIP Testing Projects
Using JMS Projects

Entering Header Information in Send Master Projects

Send Master enables you to specify HTTP, IBInfo, and connector headers. These headers are used in association with the following project types:

- Input File
- Integration Broker (MIME)
- Integration Broker (XML
- JMS Project

Use the information in the following table as a guide for entering header information in Send Master.

Header Type	*Project Type*	*Location*	*Description*
HTTP header	• Input File • Integration Broker (XML) **Note:** An HTTP header field is present when working with EIP Testing projects; however it is usually not used because you are using the PeopleSoft listening connector.	Project Definition section, Headers box.	Provides HTTP protocol header information about the service operation at the server level and relates to how you are sending an entire service operation. You can specify cookies, content-type, encoding, sending program information, and so forth.
Connector header	Integration Broker (MIME)	Input Information section, Connector tab.	Provides required and optional headers that connectors need to pass information and process service operation requests. You can specify information such as service operation compression, encoding, and so forth. You can specify connector header information only while editing connector information in an Integration Broker (MIME) project type.
IBInfo header	• Integration Broker (MIME) • Integration Broker (XML)	Input Information section, Header Information, and Additional Header Cont. tabs.	Contains information that is required to route service operations through PeopleSoft Integration Broker, including service operation name, operation type, requesting node, and so on.

Adding Input Files to Projects

The information in this section applies to all project types except for the EIP Testing project type.

When working with EIP Testing projects, you specify file input and file output directories.

See Specifying File Input and File Output Directories.

To add an input file to a project:

1. In the **Input Information** section, click the Input File tab (if necessary).
2. (Optional.) Select **Base64 encode/compress** to enable base64 encoding and compression.

   This option is not available when working with JMS projects.

3. (Optional.) Select **Non Repudiation** to enable nonrepudiation.

   This option is not available when working with JMS projects.

4. In the text box, compose the transaction content of the service operation in the area provided, or import a file.

   To import a file, click the **Open File** button and select a file. The name of the imported file appears under the Input Information section.

5. Modify the service operation transaction content if necessary.

6. Click the **Save** button on the toolbar within the Input Information section.

7. Select **File** > **Save Project**.

After you create an input file, you can modify and format service operation content. Use the following tips when you work with input files. Note that all buttons referenced appear on the toolbar located within the Input Information section.

- Use the **Refresh** button to revert to the last saved version of the input file.
- If the service operation content is XML, use the **Format** button to indent lines of code.
- Use the **Delete** button to delete the contents of the section.

Using Input File Projects

This section describes using Input File projects and describes how to:

- Create Input File project types.
- Add header information to input file projects.
- Create and add input files to input file projects.
- Post the input file projects to a web server.

Related Links

Understanding Send Master Project Types

Creating Input File Project Types

The first step to using an input file project is creating the Input File project type. Information about how to complete this task is provided earlier in the Send Master product documentation.

See Creating Send Master Projects.

Adding Header Information to Input File Projects

Input header information for input files can be added as a query string in the URL or entered in the Header area.

To insert header information in the Header area:

1. In the Header Name column double-click a cell and enter a header name.
2. In the Header Value column double-click a cell and enter a header value.
3. Repeat these steps to enter additional headers and their associated values.

This table lists the header properties:

Header	***Description***
Authorization:	Optional. When testing REST provider services that require basic authentication use this header to specify an encoded authentication string. See the section after this table for additional information about generating encoded authentication strings for this header type.
Content-type:	Identifies the content type for the service operation.
From:	Required. Identifies the node sending the service operation.
OperationName:	Required. Identifies the external service operation, including version. This must match the external operation in the routing definition.
OperationType:	Required. Identifies the operation type *sync, async,* or *ping*.
OrigTimeStamp:	Optional. Identifies a timestamp for this service operation.
NonRepudiation	Optional. Identifies if nonrepudiation is enabled (*True* or *False*).
SOAPAction:	Optional. Identifies a SOAP action for this service operation.
To:	Optional. Identifies the receiving node. If this header is not entered, it defaults to the default application server specified on the gateway.

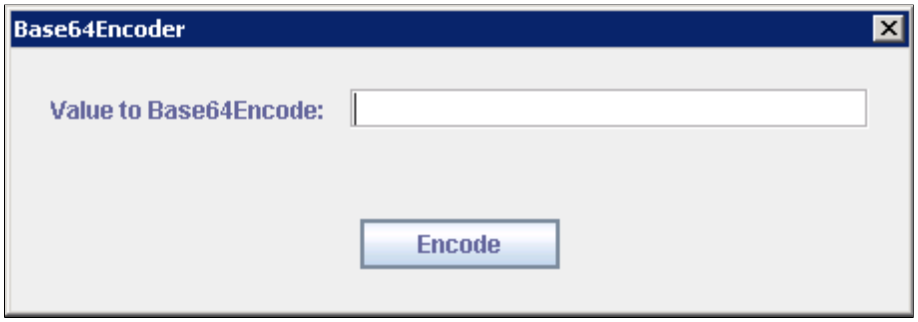
Generating and Setting Encoded Authentication Strings for Authorization Headers

When testing REST provider services that require basic authentication use the Authorization header to specify an encoded authentication string.

Send Master enables you apply Base64 encoding to authentication credentials and then enter those credentials as a header value.

Use the Base64 Encoder dialog box to encode the authentication credentials. To access the dialog box, on the Send Master main menu select **Utilities** > **Base64 Encode.**

This example illustrates the Base64Encoder dialog box.



To generate an encoded authentication string, in the **Value to Base64Encode** field enter the username and password to encode. Separate the two values with a colon punctuation mark. The following example shows the format to use:

```
username:password
```

After you enter the values to encode, click the **Encode** button. The system displays the encoded authentication string in the **Value to Base64Encode** field.

This example shows the Base64Encoder dialog box after the system has generated an encoded authentication string.

Cut the string and paste it into the appropriate header value cell. When you enter the value the term “Basic” must precede the encoded string. For example:

```
Basic dXNlcm5hbWU6cGFzc3dvcmQ=
```

This example illustrates the Headers grid. The second row shows a sample entry for an authorization header and value.

Header Name	Header Value
Content-Type:	text/xml
Authorization	Basic dXNlcm5hbWU6cGFzc3dvcmQ=

To generate and set an encoded authentication string for a header value:

1. From the Utilities menu, select *Base64 Encode.*

The Base64Encode dialog box appears.

2. In the **Value to Base64Encode** field enter the username and password to encode. Separate the values with a colon punctuation mark. For example:

   ```
   username:password
   ```

3. Click the **Encode** button.

   An encoded authentication string appears in the **Base64Encode** field.

4. Copy the encoded authentication string to the clipboard or to a text file and close the Base64Encoder dialog box.

5. In the headers grid, double-click in a cell in the Header Name column and enter the header name *Authorization.*

6. In the Header Value column, double-click the cell to the left of the *Authorization* header you just entered and do the following:

   a. Enter the term *Basic.*

   b. Enter a space.

   c. Paste the encoded authentication string.

Creating and Adding Input Files to Input File Projects

Information about creating and adding an input file to a project is provided earlier in the Send Master product documentation.

See Adding Input Files to Projects.

Posting Input File Projects to Web Servers

After you create the Input File project type, add the input file to the project, and then click the **Post** button to post the file to the server.

Any server response to the service operation that you post appears in the **Output Information** section.

Using Integration Broker Projects

This section provides an overview of Integration Broker project types, and describes how to:

- Create Integration Broker project types (MIME and XML).
- Add header information to the project.
- Add an input file to the project.
- Specify connector information for the project.

- Specify attachments for the project.
- Post the project data to a web server.

Understanding Integration Broker Project Types

You can create two types of Integration Broker projects—an Integration Broker MIME project or an Integration Broker XML project.

When you create Integration Broker MIME projects, you use the Input Information section of the work space to supply Send Master with information to build the IBInfo section of the service operation. In addition, you also use the section to specify connector information, add cookie information, specify destination nodes, and so on. PeopleSoft Integration Broker uses the information to build the MIME structure in service operations that are required to communicate with the PeopleSoft listening connector.

For Integration Broker XML projects, Integration Broker uses the information to build the IBRequest.

Related Links

Understanding Send Master Project Types

Understanding Input Information for Integration Broker Projects

This section discusses the options you can define when working with Integration Broker MIME and Integration Broker XML project types.

Header Information Tab

Use the Header Information tab to create service operation headers. This table describes the controls on the tab:

Field or Control	***Description***
Requesting Node	Identifies the name of the node that is making the request.
Ext Operation Name	Identifies the service operation and version. This matches the External Operation on the routing definition parameters page.
Operation Type	Identifies the operation type. Values are: • *Sync*: Specifies that the service operation you are testing is synchronous. • *Async*: Specifies that the service operation you are testing is asynchronous. • *Ping*: Tests the application server to make sure it is available and accepting requests.

Field or Control	*Description*
App Serv Domain	(Optional.) Identifies the application server and domain that will receive the service operation.
Password	(Optional.) Identifies the password as entered in the node definition, if password authentication is used.
Originating Node	(Optional.) Identifies the name of the node that started the process.
Originating Process	(Optional.) Identifies the name of the process where the publish event originated. For example, a service operation published from the Inventory definitions page would have a process name of *INVENTORY DEFIN*.
Originating User	(Optional.) Identifies the user ID login from where the service operation was initially generated.
Queue	(Optional.) Identifies the name of the queue expecting the service operation.
Sub Queue	(Optional.) Identifies subprocesses for the queue.
Visited Nodes (Integration Broker MIME project type only)	(Optional.) Identifies nodes through which the service operation has passed. Separate the values by semicolons. Visited nodes enable you to mimic visited node information populated when sending PeopleSoft service operations through PeopleSoft Integration Broker.
Destination Node	(Optional.) Identifies destination node for the service operation.
Final Destination Node	(Optional.) Identifies the final destination node. Use this option when working with a hub configuration.
Transaction ID	(Optional.) Identifies a transaction ID for this service operation.
External Message ID	(Optional.) A unique ID to eliminate duplicate service operations from being delivered to PeopleSoft Integration Broker. The maximum length is 70 characters.

Field or Control	*Description*
Conversation ID	(Optional.) Identifies a conversation ID for this service operation.

Headers Cont. Tab

You can work with the following controls on this tab.

Note: This tab appears only when you are working with Integration Broker MIME projects.

Field or Control	*Description*
Cookies	(Optional.) Identifies cookies that the server might require. Use semicolons to separate multiple cookies.
Gather Statistics	Select this check box to gather statistics about system performance when posting service operations using Send Master. See Using Send Master to Export Request Service Operations.

Input File Tab

Use this tab to add input files. You can also use this tab to apply nonrepudiation, and base64 encoding and compression. This section describes the controls featured on this tab. Controls that appear on this tab that are not described in this section are documented earlier in the Send Master product documentation.

See Navigating in Send Master.

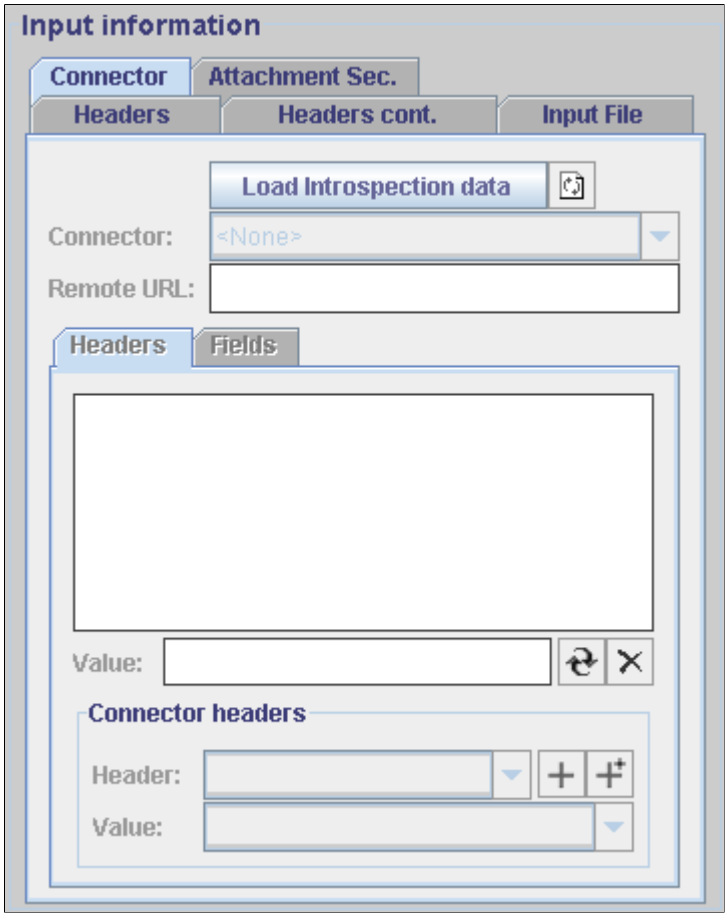
This table describes the controls on the Input File tab:

Field or Control	*Description*
Base 64 Encode/ Compress	(Optional.) Select this check box to apply base64 encoding and compression to the service operation.
Non-repudiation	(Optional.) Select this check box to apply nonrepudiation to the service operation.

Connector Tab

This tab appears only when you are working with the Integration Broker MIME project type.

This example illustrates the fields and controls on the Connector tab. You can find definitions for the fields and controls later on this page.



The Connector tab enables you to perform connector introspection on the integration gateway so you can select from all target connectors loaded on the integration gateway. No fields or controls are active on this tab until you enter connector data and select a target connector.

After you select a target connector, you can select specific target connector properties to use and define those property values. In addition, you can specify and define headers and fields that a selected connector needs to be able to pass information and invoke service operation requests.

Note: Header properties with which you work on this tab correspond to properties with the property ID**Headers** in PeopleSoft Pure Internet Architecture. Field properties with which you work on this tab correspond to any property ID *other* than **Header** in PeopleSoft Pure Internet Architecture.

This table describes the controls on the Connector tab:

Field or Control	***Description***
Load Introspection data	Click the **Load Introspection Data** button to load all target connectors that are currently installed on the integration gateway.

Field or Control	*Description*
	Click the **Refresh** button to apply and make available in Send Master any changes that you make to target connector properties on the integration gateway.
Connector	Select a connector from the drop-down list. The default is <*None*>. You must first click the **Load Introspection Data** button for any connectors to appear in the list.
Remote URL	Enter a URL to redirect service operations to a different URL that is specified in the **Server URL** field in the Project Definitions section.
Headers Box	This area displays the headers, and the current values assigned to them, that you have selected for the target connector.
Fields Box	This area displays the fields, and the current values assigned to them, that you have selected for the target connector.
Value	Enter the value for the selected header or field.
	Click the **Update Selected Header/Field Value in List** button to apply the value in the **Value** field to the selected field or header in the **Headers** box or the **Fields** box.
	Click the **Delete** button to delete the header or field that is selected in the **Headers** box or the **Fields** box.
Value	Default header and field values appear in this field. Enter the desired value for the selected header or field in the **Headers** box or the **Fields** box.
	Click the **Add Selected Header/Field and Value** button to add the header in the **Header** field and its default value to the **Headers** box, or to add the field in the **Field** field and its default value to the **Fields** box.

Field or Control	*Description*
	Click the **Add All Required Headers/Fields and Their Default Values** button to add all of the required headers or fields for the selected target connector and their default values to the **Headers** box or the **Fields** box.
Header	Use the **Header** drop-down list to select a value from all defined headers for the selected target connector. When you select a header from the list, its default value, if one exists, appears in the **Value** field. The **Header** drop-down list appears only when you work with the Headers subtab.
Field	Use the **Field** drop-down list to select a value from all defined fields for the selected target connector. When you select a field from the list, its default value, if one exists, appears in the **Value** field. The **Field** drop-down list appears only when you work with the **Fields** subtab.
Value	The **Value** field displays the default value, if one exists, for any selected header or field. Use the drop-down list to view and select header and field values. After you select a value in the list, click the **Add Header** button or the **Add Field** button to change the value in the value text box, or reenter the value that you want to apply in the box.

Attachment Sec tab

Use this tab to test attachments. This table describes the controls on the Attachment Sec tab:

Field or Control	*Description*
Content ID	Identifies the content ID for the attachment.
Content Url	Identifies the content URL for the attachment.
Content Encoding	Identifies the encoding used in the attachment.

Field or Control	*Description*
Content Base	Identifies the base property for the attachment.
Content Location	Identifies the content location for the attachment.
Content Disposition	Identifies the disposition of the attachment.
Content Language	Identifies the language for the attachment.
Content Disposition	Identifies the disposition of the attachment.

Creating Integration Broker Project Types

The first step to using an Integration Broker project is creating the Integration Broker project type. Information about how to complete this task is provided earlier in the Send Master product documentation.

See Creating Send Master Projects.

Adding PeopleSoft Header Information to Integration Broker Projects

To add PeopleSoft header information to the project:

1. In the Input Information section, select the Header Information tab, if it is not already selected:
2. Complete the following required fields:
    - **Requesting Node**
    - **External Operation Name**
    - **Operation Type**
3. Enter values in any of the remaining optional fields as appropriate for your project.
4. (Optional.) Click the Headers Cont. tab to add cookie information or to gather messaging statistics.

Related Links

Entering Header Information in Send Master Projects

Adding Input Files to Integration Broker Projects

Information about creating and adding an input file to a project is provided earlier in the Send Master product documentation.

See Adding Input Files to Projects.

Specifying Connector Information for Integration Broker Projects

This section discusses how to specify connector information for Integration Broker MIME projects.

To specify connector information for a project, use the Connector tab in the Input Information section of the Project work space. No fields or controls are active on the tab until you introspect target connector data and select a target connector with which to work.

As noted earlier in this section, header properties with which you work on the Connector tab correspond to properties with the property ID**Headers** in the PeopleSoft Pure Internet Architecture. Field properties with which you work on this tab correspond to any property ID other than **Header** in the PeopleSoft Pure Internet Architecture.

Selecting Target Connectors

To select a target connector:

1. From an open Integration Broker MIME project, in the Input Information section, click the Connector tab.
2. Click the **Load Introspection Data** button.
3. From the **Connector** drop-down list, select a connector.
4. (Optional.) In the **Remote URL** field, enter a URL to redirect the service operation to a different URL than that specified in the **Server URL** field in the Project Definitions section.

Adding Connector Header Properties

To add connector headers properties:

1. Click the Headers subtab under the **Remote URL** field.
2. To add all required header properties for the selected connector, click the **Add All Required Headers and Their Default Values** button.

   All required header properties and their default values, if they exist, appear in the **Headers** box.
3. To add more header properties:

   a. In the Connector Header section, from the **Header** drop-down list, select a header property and click the **Add Selected Header and Default Value** button.

      When you select a header property from the list, its default value, if any, appears in the **Value** field. Click the **Value** drop-down list to view all possible values for the property.

   b. Click the **Add Selected Header and Default Value** button to add the property.

      The header property and its default value, if any, appear in the **Headers** box.
4. To change the value of a header property:

   a. In the **Headers** box, select the header property whose value you want to change.

   b. In the **Value** field, enter the new value to assign.

Use the **Value** drop-down list in the Connector Headers section to view possible values and verify the format to enter.

c. Click the **Update Selected Value in List** button to apply the new value.

5. To delete a header property, in the **Headers** box, select the property to delete and click the **Delete** button.
6. Save the project.

Adding Connector Field Properties

To add connector field properties:

1. Click the Fields subtab under the **Remote URL** field.
2. To add all required field properties for the connector, click the **Add All Required Fields and Their Default Values** button.

   All required field properties and their default values, if they exist, appear in the **Fields** box.
3. To add more field properties:

   a. In the Connector Fields section, from the **Field** drop-down list, select a field property, and click the **Add Selected Fields and Default Value** button.

   When you select a property from the drop-down list, its default value, if any, appears in the **Value** field. Click the **Value** drop-down list to view all possible values for the property.

   b. Click the **Add Selected Field and Default Value** button to add the property.

   The field property and its default value, if one exists, appears in the **Fields** box.
4. To change the value of a field property:

   a. In the **Fields** box, select the field property whose value you want to change.

   b. In the **Value** field, enter the new value.

   Use the **Value** drop-down list in the Connector Fields section to view possible values and verify the format to enter.

   c. Click the **Update Selected Value in List** button to apply the new value.
5. To delete a field property, in the **Fields** box, select the property to delete and click the **Delete** button.
6. Save the project.

Posting Integration Broker Projects

To post Integration Broker MIME or Integration Broker XML projects to web servers, click the **Post** button.

Viewing Output from Integration Broker Projects

When you POST a service operation using the Integration Broker project type, the system generates a MIME response message. If you POST data to a PeopleSoft listening connector, the MIME response message appears in the Output Information section of the Project work space.

Using EIP Testing Projects

This section describes how to:

- Create EIP Testing projects.
- Specify file input and output directories.
- Override requesting and destination nodes.
- Start batch processing.
- Use the Batch Project Executor Command Line Tool

Creating EIP Testing Project Types

The first step to using an EIP Testing project is creating the EIP Testing (Batch EIP) project type. To create a project, select **File** > **New Project**. Information about creating projects is provided earlier in the Send Master product documentation.

See Creating Send Master Projects.

Specifying File Input and File Output Directories

To add input files to this project type, you specify the directory location where the files reside.

To specify input files for EIP Testing projects:

1. In the Input Information section, in the **Input Directory** field, select the location of the input files.
2. In the **Output Directory** field, select the location where the output files should be written.
3. (Optional.) Select **Create If Not Found** to create the input and output directories, if they do not exist.
4. (Optional.) Select **Overwrite File** to direct Send Master to overwrite any output files that exist with the same names.
5. Select **File** > **Save Project**.

Related Links

Integration Point Data Repository

Overriding Requesting and Destination Nodes

Send Master reads the request and destination node information from the input files. However, you can override the node information:

To override the requesting and destination node information specified in the input files:

1. Open an EIP Testing project.
2. In the Input Information section, in the Optional Overrides section, enter a new requesting node name in the **Requesting Node** field.
3. To override the destination node , in the Optional Overrides section, enter a new destination node name in the **Destination Node** field.
4. Select **File** > **Save Project**.

Posting EIP Testing Projects

To post the files in an EIP Testing project, open the project and click the **Post** button.

Viewing Output from EIP Testing Projects

To view the output from EIP Testing projects, navigate to the output directory that you specified on the Headers tab in the Input Information section. You can also view output in Send Master in the Output Information section of the Project work space.

Using the Batch Project Executor

The Batch Project Executor enables you to use the functionality of the EIP Testing project type from a command line tool. This section discusses the Batch Project Executor tool, including its:

- Usage.
- Syntax.
- Parameters.

Usage

The standard usage of the Batch Project Executor command line tool is:

```
BatchProjectExecutor [-options]
```

Syntax

The syntax for executing a batch project is:

```
BatchProjectExecutor -in "C:\temp\input" -out
"C:\temp\output" -url "http://localhost/PSIGW
/PeopleSoftListeningConnector" -result "C:\temp
\output\result.txt"
```


Parameters

The following table describes the parameters you can pass to the Batch Project Executor.

Parameter	***Description***
-in	Certification directory that contains the raw request files.
-out	Output directory to store all of the response files.
-url	Server URL to send all of the requests to during processing.
-result	Name of the file that will contain the results during batch execution. The contents of this file will be represented as XML.
-ow	(Optional.) Overwrite files if they already exist.
-cd	(Optional.) Create the output directory if not found.
-rn	(Optional.) Override the requesting node found in the IBInfo section.
-dn	(Optional.) Override the destination node found in the IBInfo section.
-? -help	(Optional.) Show the Help menu.

Sample Output

The following example shows successful output:

```
<?xml version="1.0"?>
<success>
    <request elapse="1.953 (s)" end="02:33:55.177" filename=
       "20030519T130405.request" id="" start="02:33:53.224"
       success="true"/><request elapse="0.201 (s)" end="02:33:55.408"
       filename="20030519T150417.request" id="" start="02:33:55.207"
       success="true"/>
    <request elapse="0.220 (s)" end="02:33:55.638" filename="20030520T150406.
       request" id="" start="02:33:55.418" success="true"/>
    <request elapse="0.190 (s)" end="02:33:55.828" filename=
       "20030519T150406.request" id="" start="02:33:55.638" success="false">
       <![CDATA[Error communicating with server: Connection refused: connect]]>
    </request>
</success>
```

The following example shows a failure:

```
<?xml version="1.0"?>
<failure>
```

```
<![CDATA[Error while initializing: Invalid output directory:
C:\temp\output]]>
```

Using JMS Projects

This section discusses how to:

- Create JMS projects.
- Add header information to JMS projects.
- Add input files to JMS projects.
- Post JMS projects to queues.

Understanding JMS Projects

You can use Send Master to create JMS project types and test posting synchronous and asynchronous service operations to JMS queues.

Before you attempt to post service operations to an JMS queue, verify that the following Java Archive (JAR) files are installed, and that you have added them to the CLASSPATH in the StartSendMaster.bat file or the StartSendMaster.sh file. These files are installed as part of the MQSeries installation.

- com.ibm.mq.iiop.jar
- com.ibm.mq.jar
- com.ibm.mqbind.jar
- com.ibm.mqjms.jar
- fscontext.jar
- jms.jar
- jndi.jar
- providerutil.jar

See the IBM MQSeries documentation.

Corresponding files for other JMS Servers will be installed by respective JMS Server installations.

Understanding Input Information for JMS Projects

This section discusses the options you can define when working with a JMS project type.

Headers Tab

Use the Headers tab to specify header information for JMS service operations. The following table describes elements on this tab:

Field or Control	*Description*
JMS Provider	Indicates the name of the JMS provider. Valid options are: • MQSeries. (Default.) • WebLogic.
JMS Queue	Indicates the queue to which the service operations will post.
JMS Factory	Indicates the factory to which the queue in the **JMS Queue** field belongs.
JMS URL	Indicates the LDAP directory or local file system address.
JMS User	(Optional.) Indicates the name of the JMS user.
JMS Password	(Optional.) Indicates the name of the JMS user's password.
Requesting Node	Indicates the name of the requesting node.
Operation Name	Indicates the name of the service operation.
Operation Type	Indicates the service operation type. Valid service operation types are: • Async. (Asynchronous.) • Sync. (Synchronous.)
Node Password	(Optional.) Indicates the requesting node password if applicable.
Destination Nodes	Indicates the name of the destination node. Use a semicolon to separate multiple destination nodes.
Final Destination Node	Indicates the name of the final destination node.
Queue	Select this radio button to post to a queue.
Topic	Select this radio button to post to a topic.

Creating JMS Project Types

The first step to using a JMS project is creating the JMS project type. To create a project, from the Send Master menu, select **File** > **New Project**. Information about how to complete this task is provided earlier in the Send Master product documentation.

See Creating Send Master Projects.

Adding Header Information to JMS Projects

To add header information to the project:

1. In the Input Information section, select the Header Information tab if it is not already selected:
2. Select or enter values for the following required fields:
   - **JMS Provider**
   - **JMS Queue**
   - **JMS Factory**
   - **JMS URL**
   - **Requesting Node**
   - **Operation Name**
   - **Operation Type**
3. Enter values in any of the remaining optional fields as appropriate for your project.
4. Select **File** > **Save Project**.

Adding Input Files to JMS Projects

Information about creating and adding an input file to a project is provided earlier in the Send Master product documentation.

See Adding Input Files to Projects.

Posting JMS Projects

To post a JMS project to a queue, click the **Post** button.

Viewing Output from JMS Projects

If you are working with a synchronous service operation, the Output Information area displays response information from the target system. If you are working with an asynchronous service operation, no response information is received.

Working With Groups of Projects

This section describes how to:

- Create groups of projects.
- Manage groups of projects.
- Test groups of projects.
- View test output.
- Share projects and groups.

Creating Groups of Projects

To create a group of projects:

1. Launch Send Master and select **File** > **Batch Processing**.
2. Select **File** > **New Group**.
3. Enter a name for the new group.
4. Define the project group:
   a. From the **Run In** drop-down list, select one of the following options to determine how the projects in the group run.

Field or Control	***Description***
Parallel	Run all projects in the group at the same time.
Succession	Run projects in the group in succession.
Time Lapse	Run projects in the group in the interval that you specify in the Delay field.

   b. (Optional.) In the **Override URL** field, enter a URL to override the one specified in the **Server URL** field in the Project work space.

5. Add projects to the group.
   a. In the Group Projects section, from the **Projects** drop-down list, select a project.
   b. Click the **Add a new project** button to add the project to the group.
   c. From the **Method** drop-down list, select an HTTP method.
   d. In the **Amount** field, enter the number of instances of the project to include in the group.

e. From the **Run In** drop-down list, select one of the following options to specify how the projects run among themselves.

Field or Control	*Description*
Parallel	Run all instances of the project at the same time. The limited availability of open ports and other system resources requires you to determine the optimal number of projects to run at a single time. Start with 10 projects and slowly add projects to determine how many concurrent requests the system can process.
Succession	Run instances of the project in succession.
Time Lapse	Run instances of the project in the interval that you specify in the **Delay** field.

f. Repeat steps a through to add additional projects to the group.

6. Select **File** > **Save Group.**

Managing Groups of Projects

You might occasionally need to revise projects that you have added to a group. The following information will help you manage groups of projects:

- To change the order of a project in a group, in the Group Projects section, use the arrow buttons to move the project.
- To temporarily inactivate a project in a group, in the Project Settings section, select **Inactive**.
- To remove a project from a group, in the Group Projects section, select its file and click the **Delete** button.

Testing Groups of Projects

After you have created a group of projects, you can test them.

To test a groups of projects:

1. Open Send Master and select **File** > **Batch Processing**.
2. In the Group Definitions section, from the **Group** drop-down list, select the group to test.

   The projects in the group appear in the Group Projects section.
3. Make any needed adjustments to the group, such as changing the order of projects in the group, specifying inactive or active projects, and so forth.
4. Click the **Start Projects** button to run the test of projects in the group.

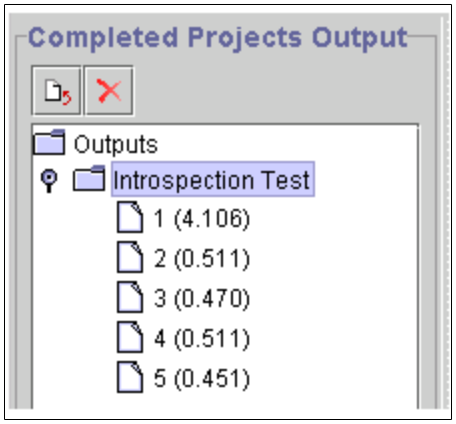
Viewing Test Output

After you run a test on a group of projects, you can view processing information and response information for any project in the group.

Viewing Processing Information

After you run a group of projects, the Completed Projects Output section displays all of the projects in the group and the instances for each project in a hierarchical tree format. To expand and collapse a project folder, click the icon to the left of the folder.

When you expand a project folder, the instances for the project appear as shown in the following graphic.



Each page icon represents a project instance. The number in parentheses represents the time needed to process the project instance.

To view detailed processing information about the entire group of projects, select a project, click the Export the Results to File button, and save the contents as a text file. You can then open the text file and view information, such as the total number of project instances in the group, the total time to process all project instances, processing start and end times, and so on. The following example shows the type of output you can view using the Export feature.

```
Count                   : 5

Round-trip times
     Total              : 0.961 (s)
     Minimum            : 0.180 (s) [2]
     Maximum            : 0.200 (s) [3]
     Average            : 0.192 (s)
     Process per second : 5.203

[1]
     Request            : 0.191 (s) [start = 10:19:20.095, end = 10:19:20.286]
     Response           : 200 - OK
[2]
     Request            : 0.180 (s) [start = 10:19:20.296, end = 10:19:20.476]
     Response           : 200 - OK
[3]
     Request            : 0.200 (s) [start = 10:19:20.486, end = 10:19:20.686]
     Response           : 200 - OK
[4]
     Request            : 0.190 (s) [start = 10:19:20.696, end = 10:19:20.886]
     Response           : 200 - OK
[5]
     Request            : 0.200 (s) [start = 10:19:21.017, end = 10:19:21.217]
     Response           : 200 - OK
```

Viewing Response Information for a Project Instance

Send Master enables you to view response information for any project instance in a group of projects.

To view response information for a project instance:

1. Select a project instance in the Completed Projects Output section.
2. Click a project instance.

   Response information appears in the Output Information section.

Sharing Projects and Groups

When you create projects and groups, the system stores all data in the Send Master properties file. The location of this file depends on the web server.

For Oracle WebLogic the location is:

```
<PIA_HOME>\webserv\<DOMAIN>\applications\peoplesoft\PSIGW.war\WEB-INF\classes\com\p⇒
eoplesoft\pt\sendmaster\sendmasterproperties.xml
```

This file is not created until you use Send Master.

You can share and reuse projects and groups that you or others have created for other versions of Send Master or that have been used on other workstations. You do so by copying the sendmasterproperties.xml file into the Send Master directory. You must rename or delete the existing properties file before you copy the new file into the directory.

After you copy the sendmasterproperties.xml file into the Send Master directory, you can access the project and groups in the normal manner, by accessing them from the Project drop-down list in the Project work space, or from the **Group** drop-down list in the Batch Processing work space.

Using Send Master to Ping Remote Nodes

To ping a remote node from the Send Master, you post an example service operation to the node's application server using an Integration Broker (MIME) or Integration Broker (XML) project that specifies a ping service operation type. You then use the **Post** button to post the service operation to the application server.

The following table describes the type of response returned based on project type.

Project Type	*Response*
Integration Broker (MIME)	The system returns a MIME response message in the Output Information section of the Project work space. If you post data to a PeopleSoft listening connector, the MIME response appears in the Output Information section of the Project work space. A message with the content <StatusCode>0</StatusCode> indicates that the ping was successful.
Integration Broker (XML)	The system returns an HTTP response of 404 with data in the response in the Output Information section of the Project work space.

You can also use the Service Operations Monitor and the Simple Post utility to ping remote nodes.

Related Links

Pinging Remote Nodes
"Pinging Remote Nodes" (Integration Broker Service Operations Monitor)

Viewing Send Master Processing Performance Statistics

When working with Integration Broker MIME projects, you can gather processing performance statistics.

Enabling the Send Master Statistics Feature

To enable the Send Master processing performance feature, select **Gather Statistics** on the Headers Cont. tab.

Accessing Send Master Processing Statistics

When the Gather Statistics feature is enabled, Send Master returns processing statistics in the Output Information section after a Post.

To access statistics information , from the **View** drop-down list, select **Meta Data** and then click the **If Valid XML, Format** button.

The data is contained in the following tag:

```
<IBProfileInformation>
```

Interpreting Send Master Processing Statistics

Send Master returns statistics relating to processing on the application server and gateway, as well as response processing.

Note: All values returned are expressed in milliseconds.

This table describes the statistics that Send Master returns related to processing on the application server.

Statistic	***Description***
TransformInbound	Time to process any inbound transformations.
OnRoutePeopleCode	Time to execute OnRoute PeopleCode.
OnRequestPeopleCode	Time to execute OnRequest PeopleCode.
TransformOutbound	Time to process any outbound transformations.
DataBase	Time for processing on the database.
AppServerSendTime	Time to send the request to the application server. This value is not applicable in Send Master, because Send Master (not the application) is sending the request.
AppServerRecvTime	Processing time on the application server.

This table describes the statistics that Send Master returns related to processing on the integration gateway.

Statistics	***Description***
Connector	Time that processing took place on the connector.
Transform	Time to perform gateway transformations.
GatewayTime	Processing time on the integration gateway.

This table describes the statistics that Send Master returns related to processing the response service operation.

Statistics	***Description***
Transform	Time to perform transformation on the response.
GatewayTime	Total time for processing the response on the integration gateway.

Statistics Example

The following example shows a sample of statistics that Send Master returns.

```
<?xml version="1.0"?>
<IBInfo>
    <TransactionID>
        <![CDATA[QE_UNDERDOG.QE_SALES_ORDER_SYNC_CHNL.af21859e-f5e7-11d7-
        b7f0-88b716eecd9a]]>
    </TransactionID>
    <Status>
        <StatusCode>0</StatusCode>
        <MsgSet>158</MsgSet>
        <MsgID>10000</MsgID>
    </Status>
    <ContentSections>
        <ContentSection>
            <ID>ContentSection0</ID>
            <NonRepudiation>N</NonRepudiation>
            <Headers>
                <version>
                    <![CDATA[VERSION_1]]>
                </version>
            </Headers>
        </ContentSection>
    </ContentSections>
    <IBProfileInformation>
        <keyword><AppServer></keyword>
            <keyword><TransformInbound>0</TransformInbound></keyword>
            <keyword><OnRoutePeopleCode>0</OnRoutePeopleCode></keyword>
            <keyword><OnRequestPeopleCode>0</OnRequestPeopleCode></keyword>
            <keyword><TransformOutbound>0</TransformOutbound></keyword>
            <keyword><DataBase>0</DataBase></keyword>
            <keyword><AppServerSendTime>0</AppServerSendTime></keyword>
            <keyword><AppServerRecvTime>0</AppServerRecvTime></keyword>
        <keyword></AppServer></keyword>
        <keyword><GatewayRequest></keyword>
            <keyword><Connector>24844</Connector></keyword>
            <keyword><Transform>0</Transform></keyword>
            <keyword><GatewayTime>651</GatewayTime></keyword>
        <keyword></GatewayRequest></keyword>
        <keyword><GatewayResponse></keyword>
            <keyword><Transform>0</Transform></keyword>
            <keyword><GatewayTime>211</GatewayTime></keyword>
        <keyword></GatewayResponse></keyword>
    <keyword></IBProfileInformation></keyword>

</IBInfo>
```

Using Send Master to Export Request Service Operations

This section describes how to export request service operations. When working with Integration Broker MIME or Integration Broker XML project types, you can use Send Master to export a request service operation to a text file to examine the raw data that gets sent during a transaction.

Exporting Request Service Operations

To export a request service operation:

1. Open an Integration Broker MIME project or an Integration Broker XML project.
2. Select **File** > **Export IBRequest** .

A Save dialog box appears.

3. Enter the location to save the file.

You can also view the raw data for a service operation in the integration gateway message log.

Allocating Additional Memory to Accommodate Posting Large Files

When posting files that are 5 megabytes (MB) or larger to the integration gateway, you should allocate additional random access memory (RAM) in Send Master to accommodate larger file sizes.

If Send Master does not have enough memory for a task, an “out of memory” error can occur.

To allocate additional RAM in Send Master:

1. Close Send Master.
2. Open StartSendMaster.bat (in Microsoft Windows) or StartSendMaster.sh (in UNIX).
3. Add the –Xmx*ZZ*m parameter, where *ZZ* equals the amount of RAM, in megabytes, to allocate.
4. Save the file.
5. Reopen Send Master.

For example, the value – *Xmx128m* indicates to allocate 128 MB of RAM. The following example shows how to add the parameter in the StartSendMaster.bat file:

```
cd "applications\peoplesoft\PSIGW.war\WEB-INF\classes\com\peoplesoft\pt\
sendmaster\"java -Xmx128m -classpath "c:\ptdvl\
webserv\peoplesoft\applications\peoplesoft\PSIGW.war\WEB-INF\lib\xalan.jar;c:\
ptdvl\webserv\peoplesoft\applications\peoplesoft\PSIGW.war\WEB-INF\lib\
xerces.jar;c:\ptdvl\webserv\peoplesoft\applications\peoplesoft\PSIGW.war\
WEB-INF\classes;c:\ptdvl\webserv\peoplesoft\applications\peoplesoft\PSIGW.war\
WEB-INF\lib\mail.jar;c:\ptdvl\webserv\peoplesoft\applications\peoplesoft\
PSIGW.war\WEB-INF\lib\activation.jar;c:\ptdvl\webserv\peoplesoft\applications\
peoplesoft\PSIGW.war\WEB-INF\lib\jmq.jar;c:\ptdvl\webserv\peoplesoft\applications\
peoplesoft\PSIGW.war\WEB-INF\lib\jms.jar;c:\ptdvl\webserv\peoplesoft\applications\
peoplesoft\PSIGW.war\WEB-INF\lib\jndi.jar" com.peoplesoft.pt.sendmaster.SendMaster
```

You can increase the amount of memory in Send Master to any value you that you want, as long as your machine has the RAM to support the value that you choose.

Chapter 3

Using the Simple Post Utility

Understanding the Simple Post Utility

The Simple Post utility enables you to use shell scripts or a Java API to post XML messages from third-party systems to the integration gateway. The utility wraps the incoming messages in the PeopleSoft XML wrapper format and posts them to the HTTP listening connector.

The Simple Post utility reads ASCII, UTF-8 and UTF-16 file formats for incoming messages and converts them to UTF-8 to send to the integration gateway.

Prerequisites for Using the Simple Post Utility

This topic describes the prerequisites for using the Simple Post utility.

Software Requirements

To use the utility you must have the Java Runtime Environment (JRE) installed.

Setting Environment Variables

To use the Simple Post utility, must perform one of the following actions:

- Modify the CLASSPATH to include the location of the Simple Post utility.
- Pass the location of the PeopleSoft classes when you call the Simple Post class.

  For example:

```
java -cp "<PIA_HOME>\webserv\<DOMAIN>\applications\peoplesoft\PSIGW.war\
WEB-INF\classes" com.peoplesoft.pt.simplepost.SimplePost ...
```

Accessing the Simple Post Class

The Simple Post utility is a Java class with the package name com.peoplesoft.pt.simplepost.SimplePost.

The location of the utility is in the PeopleSoft web server domain under:

```
\applications\peoplesoft\PSIGW.war\WEB-INF\classes\com\peoplesoft\pt\simplepost.
```

Using the Simple Post Class

This section provides an overview of the Simple Post class, including its:

- Usage
- Syntax
- Parameters

Usage

The standard usage of the Simple Post class is:

```
com.peoplesoft.pt.simplepost.SimplePost [-options]
```

Syntax

The syntax for sending an XML message from a third-party system to the integration gateway is:

```
com.peoplesoft.pt.simplepost.SimplePost -reqnode
<requesting node> -opername <service operation.version>
-url <destination server URL. This is always
the HTTP listening connector> -infile <input file
name and path> -outfile <output file name and path>
-opertype <operation type>  -destnode <destination node name(s)>
-v <Display debugging output> -to
<timeout value> -?-help <Display help>
```

Note that you enter the syntax as a single line.

Parameters

The Simple Post utility parameters that you can pass are described in the following table.

Parameter	***Description***
-reqnode	Identifies the requesting node name.
-opername	Identifies the service operation and service operation version that you are sending. For example: *ADD_PO.v1*
-msgname	Identifies the name of the message that you are sending. This parameter is not used in PeopleTools 8.48 and higher releases.
-url	Identifies the destination server URL.

Parameter	***Description***
-infile	Identifies the path and file name to send. The root node must be name of the message. For example, if the name of the message is *SYNC_TEST*, the root node of the XML input file must be <SYNC_TEST>.
-outfile	Identifies the path and filename where the utility generates the response from the server.
-opertype	(Optional.) Identifies the service operation type. Values are: • *sync*: The service operation is synchronous. • *async*: The service operation is asynchronous. • *ping*: Tests the application server to make sure it is available and accepting requests.
-msgtype	(Optional.) Identifies the message type. Values are: • *sync*: The message is synchronous. • *async*: The message is asynchronous. • *ping*: Tests the application server to make sure it is available and accepting requests. This parameter is not used in PeopleTools 8.48 and higher releases.
-msgver	(Optional.) Identifies the version number to apply to the message. For example, *VERSION_1*. This parameter is not used in PeopleTools 8.48 and higher releases.
-destnode	(Optional.) Identifies the destination node name.
-v	(Optional.) Displays any debugging output.
-en	(Optional.) Compresses and base64-encodes the data. When this command line option is located on the Simple Post call, the logic compresses and base64-encodes the data, places it into the Data node, and then adds the required headers into the request.

Parameter	***Description***
-to	(Optional.) Identifies the timeout value. This integer value determines the amount of time, in seconds, that the Simple Post class will wait for a response from the server.
-pwd	(Optional.) Identifies the password for the destination node. This parameter is optional, unless the destination node requires a password.
-ou	(Optional.) Identifies the ID of the originating user.
-on	(Optional.) Identifies the name of the originating node.
-op	(Optional.) Identifies the name of the originating process.
-sq	(Optional.) Identifies the subqueue.
-sc	(Optional.) Identifies the subchannel. This parameter is not used in PeopleTools 8.48 and higher releases.
-fdn	(Optional.) Identifies the name of the final destination node.
-emid	(Optional.) Applies a unique external message ID to a message to ensure no duplicate messages are sent to PeopleSoft Integration Broker. The ID cannot exceed 70 characters.
-nr	(Optional.) Specifies whether to turn on nonrepudiation. The valid values are: • *Y:* Turn on nonrepudiation. • *N:* Turn off nonrepudiation. (Default)

Parameter	*Description*

-h	(Optional.) Specifies an HTTP header.
	
	For example:
	
	`SOAPAction: QE_SYNC_MSG.v1`
	
	There can be one:many –h parameter invocations. For example:
	
	`com.peoplesoft.pt.simplepost.SimplePost ⇒`
	
	`-reqnode QE_UNDERDOG -opername QE_SYNC_MSG.v1 -ur⇒`
	
	`l "http://jfranco040303/PSIGW/HttpListenin⇒`
	
	`gConnector" -infile "C:\User\My Documents\QE_SYNC_MS⇒`
	
	`G\ QE_SYNC_MSG.xml" -outfile "C:\Documents ⇒`
	
	`and Settings\ Desktopout.txt" -h "SOAPAction:QE_SYNC_M⇒`
	
	`SG.v1" -h "test2:Joe_User"`
	
	Note: When Simple Post encounters an HTTP header name of SOAPAction, the content of the input file is not wrapped into IBRequest XML format and no IBInfo data is built. The IBInfo data, such as service operation name, requesting node, requesting node password, destination node, and so on, can be pulled from the SOAPAction field.

-?-help	(Optional.) Displays a list of the Simple Post utility parameters.

Using the Simple Post Utility Using a Java API

You can use the Simple Post utility using a Java API.

This section provides code examples that demonstrate how to:

- Construct a Java file containing Simple Post parameters.
- Compile the Java file.
- Run the test program.

Constructing a Java File Containing Simple Post Parameters

The following example shows a submission via a Java API:

```
// Import the SimplePost API
import com.peoplesoft.pt.simplepost.SimplePost;

/** Test class to use SimplePost functionality */
public class TestSimplePost {

      /** Constructor */
      public TestSimplePost() {}

      public static void main (String argv []) {

        // Create the SimplePost object
        SimplePost mainSPObj = new SimplePost();

        // Turn on printouts
        mainSPObj.setVerbose(true);

        // Use this function to see the output stream,
        // defaulted to System.out
        // mainSPObj.setOutputPrintStream(<PrintStream>);

        // Turn on Encoding for 8.53
        mainSPObj.setEncoding(true);

      // SET THE REQUIRED DATA

        // Requesting Node mainSPObj.setRequestingNode("QE_UNDERDOG");

        // Operation Name mainSPObj.setMessageName("QE_SYNC_MSG.v1");

        // Server URL, must be the HttpListeningConnector or a
        //connector that can accept an IBRequest XML message mainSPObj.setServerURL(⇒

"http://localhost/PSIGW/
        HttpListeningConnector");

        // Input file name, root node name must be the name of the message mainSPObj⇒

.setInputFileName("c:\\temp\\
       QE_SYNC_MSG.xml");

      /*  // Optional data
        mainSPObj.setMessageType(MESSAGE_TYPE_SYNC);
        mainSPObj.setDestinationNode("QE_LOCAL");
        mainSPObj.setTimeOut(2.5);
        mainSPObj.setPassword("");
        mainSPObj.setOriginatingUser("");
        mainSPObj.setOriginatingNode("");
        mainSPObj.setOriginatingProcess("");
        mainSPObj.setSubChannel("");
        mainSPObj.setFinalDestinationNode("");
      */

        // Post the data
        boolean returnValue = mainSPObj.post();

        // Check the return value
        if (!returnValue) {

        // False, printout the error message
        System.out.println(mainSPObj.getMessage());

        } else {

        // Success!
```



```
            // Printout the return code and server message
            System.out.println("\n" + mainSPObj.getResponseCode() + " - " +
            mainSPObj.getResponseMessage());

            // Printout the headers
            System.out.print("\n" + mainSPObj.getResponseHeaders() + "\n");

            // Printout the data
            System.out.print("\n" + mainSPObj.getResponseData());
        }
    }
}
```

Compiling the Java File

The following example shows a command line for compiling the Java file. In this example, the Java file name is *TestSimplePost.java*:

```
javac -classpath "C:\PT8.53\webserv\ps\applications\peoplesoft\PSIGW.war\
WEB-INF\classes;." TestSimplePost.java
```

Running the Test Program

The following example shows how to invoke the test program.

```
java -classpath "C:\PT8.53\webserv\ps\applications\peoplesoft\PSIGW.war\
WEB-INF\classes;." TestSimplePost
```

Posting Third-Party XML Messages to the Integration Gateway

This section discusses how to use the Simple Post utility to post XML messages from third-party systems to the integration gateway.

Posting XML Messages to the Integration Gateway

To post a third-party XML message to the integration gateway:

1. Access the Simple Post utility.

   In the Windows environment, open a Windows command prompt, and then navigate to the utility as described earlier in this section.

   In the UNIX environment, open a terminal window or shell window, and then navigate to the utility location, as described earlier in this section.

2. Enter the following command, followed by parameter name and value pairs.

   ```
   java com.peoplesoft.pt.simplepost.SimplePost
   ```

   You must enter parameter name and value pairs for:

   - -reqnode
   - -opername

- -url
- -infile
- -outfile

3. Press **ENTER**.

Simple Post Submission Examples

The following is a Windows-based submission example:

```
java com.peoplesoft.pt.simplepost.SimplePost -reqnode
KACNODE -opername QE_F18_ASYNC.v1 -url
 http://intgateway01/PSIGW/HttpListeningConnector -infile
 C:\temp\QE_F18_ASYNC.xml -outfile
C:\temp\out.xml -opertype async  -destnode
UNDERDOG -v
```

The following is a UNIX-based submission example:

```
java com.peoplesoft.pt.simplepost.SimplePost -reqnode
KACNODE -opername QE_F18_ASYNC -url
http://intgateway01/PSIGW/HttpListeningConnector -infile
/temp/QE_F18_ASYNC.xml -outfile /temp/out.xml
-opertype async  -destnode
UNDERDOG -v
```

Pinging Remote Nodes

You can use the Simple Post utility to ping remote nodes. The following is an example of a Simple Post command line ping. Notice that -msgtype parameter is set to *ping*:

```
java com.peoplesoft.pt.simplepost.SimplePost -reqnode JRHOME
-opername JR_COUNTRY_MSG -infile c:\temp\pingin.xml -outfile
c:\temp\pingout.txt -opertype ping -url http://jrunstad040102/
PSIGW/HttpListeningConnector
```

This example is the result of a successful ping, pingout.txt:

```
<?xml version="1.0"?>
<IBResponse type = "success">
   <DefaultTitle>Integration Broker Response</DefaultTitle>
   <StatusCode>0</StatusCode>
   <TransactionID>null</TransactionID>
</IBResponse>
```

Increasing the Java Heap Size to Accommodate Posting Large Files

This section provides an overview of increasing the Java heap size and describes how to increase the Java heap size on Oracle WebLogic web servers.

Understanding Increasing the Java Heap Size

When posting files that are five megabytes (MB) or larger to the integration gateway, you should increase the Java heap size in the Simple Post Utility to handle larger file sizes. If the Simple Post Utility does not have enough memory for a task, the system might generate an “Out of Memory” error.

You can increase the heap size to any value that you want, as long as your machine has the random access memory (RAM) to support the value that you choose.

The steps to increase the JVM heap size depend on the web server.

Increasing the Java Heap Size on Oracle WebLogic Web Servers

When using an Oracle WebLogic web server, you increase the JVM heap size in the setenv.cmd file.

To increase the Java heap size on an Oracle WebLogic web server:

1. Use a text editor to open the setenv.cmd file.

   The file is located via the following path: .

   ```
   <PIA_HOME>\webserv\peoplesoft\bin
   ```

2. Locate the SET JAVA_OPTIONS parameter.

3. Change or add the –Xmx*ZZ*m parameter, where *ZZ* equals the amount of RAM, in MB, to allocate.

   The following example shows the parameter set to a maximum of 128 MB.

   ```
   SET JAVA_OPTIONS=-hotspot -ms1m -mx128m
   ```

4. Save the changes.

When you run the Simple Post utility, you must specify the maximum Java heap size that you specified here. For example, if you set the JAVA_OPTIONS parameter in the setenv.cmd file to 128 MB, when invoking the Simple Post utility you must add the following argument to the command line:

```
-Xmx128m
```


Chapter 4

Using Automated Integration Point Testing

Understanding Automated Integration Point Testing

PeopleSoft provides a means for automated integration point testing. You can perform automated integration point testing as a means to unit test, perform cross-application business process testing, or regression test integration points.

Automated integration point testing is suitable for testing integration points between PeopleSoft systems, PeopleSoft systems and third-party systems, and PeopleSoft systems and open interfaces.

You can use automated integration point testing with the following PeopleSoft integration technologies:

- Service operations.
- Component interfaces.
- Flat files.
- Staging tables.

Process Overview

The automated integration point testing process entails:

1. Recording service operation transactions.
2. Exporting service operation transactions.
3. Playing back service operation transactions.
4. Managing testing results.

Recording Service Operations

When you use integration point test automation, PeopleSoft Integration Broker records service operation details as they traverse between PeopleSoft applications, as well as between PeopleSoft and third-party applications. This enables you to test integration when these systems are not available, and then play back the service operations at a later time to mimic integrating with the systems.

For synchronous transactions, PeopleSoft Integration Broker saves request and response service operation transactions as flat files, one file per service operation transaction, in an integration point repository. For asynchronous transactions, PeopleSoft Integration Broker only saves requests.

Exporting Service Operations

PeopleSoft Integration Broker provides an export process that persists recorded request and response data as files to disk. After you export files, you can add them to your integration point certification repository.

To carry out the export process, you use the Message Export command line tool.

Playing Back Service Operations

Service operation transaction playback consists of outbound and inbound playback.

Outbound playback refers to testing from the source system when the target is not available. Inbound playback refers to testing the target system when the source is not available. In either case, you can use Send Master or the Batch Project Executor to act at the source system.

Managing Testing Results

The integration point test tool writes service operation transactions as files in directories to an integration point test data repository. After testing is complete, these directories of service operation transaction data need to be managed in a repository for subsequent use.

Uses for Automated Integration Point Testing

You can use automated integration point testing for the following levels of testing:

- Unit testing during integration point development.
- Cross-application business process testing.
- Regression testing.

Unit Testing Integration Points

Unit testing occurs during integration point development, prior to cross-application business process testing. The components of an integration point that you can test include sending service operations, handlers, transformations, and content-based routing logic. You can also test business logic in a component that will behave differently when accessed from a component interface than when accessed through a PeopleSoft Pure Internet Architecture page.

The process for unit testing integration points is:

1. Build integration points prior to cross-business business-process testing.
2. Generate test data for the integration point test process.
3. Use the integration point test automation tools to test the integration point.
4. Validate results by reviewing the Service Operations Monitor for both inbound and outbound service operation transactions. You can further verify inbound playback results by viewing the tables involved in the integration.
5. Validate dependent processes by running a process that depends on the data being integrated.
6. Submit ‘bad’ service operation transactions to test error handling.

7. Submit service operation transactions in bulk to volume test the integration point.

Cross-Application Business Process Testing

Business process testing involves testing integration points in one application against a target application and version for which it was designed. As an example, you could test integration points between two PeopleSoft applications.

The steps for cross-application business-process testing are:

1. Set up multiple product lines in one test environment.
2. Manually enter data on PeopleSoft Pure Internet Architecture pages, or use an automated tool for doing so.

   PeopleSoft Integration Broker records the integration point service operation transactions.
3. Run dependent processes on each side to validate the data.

   Note: For full synchronous service operations testing, running dependent processes might not be practical, due to the large number of transactions involved. You can open the table records to verify that the data that you expect is present, or use an automated database table compare tool.
4. Consolidate service operation transaction data into a test repository for later use.

Regression Testing

Regression occurs after cross-application business process testing. You can minimize the need for regression testing by requiring users to test their code changes with the data captured during testing. This enables you to test published interfaces in other applications against changes to integration points in the application.

The process for regression testing is:

- Play back service operation transactions recorded during testing to test integration points.
- Run dependent processes to validate results.

Understanding Tools Used in Automated Integration Point Testing

This section describes tools that are used in automated integration point testing.

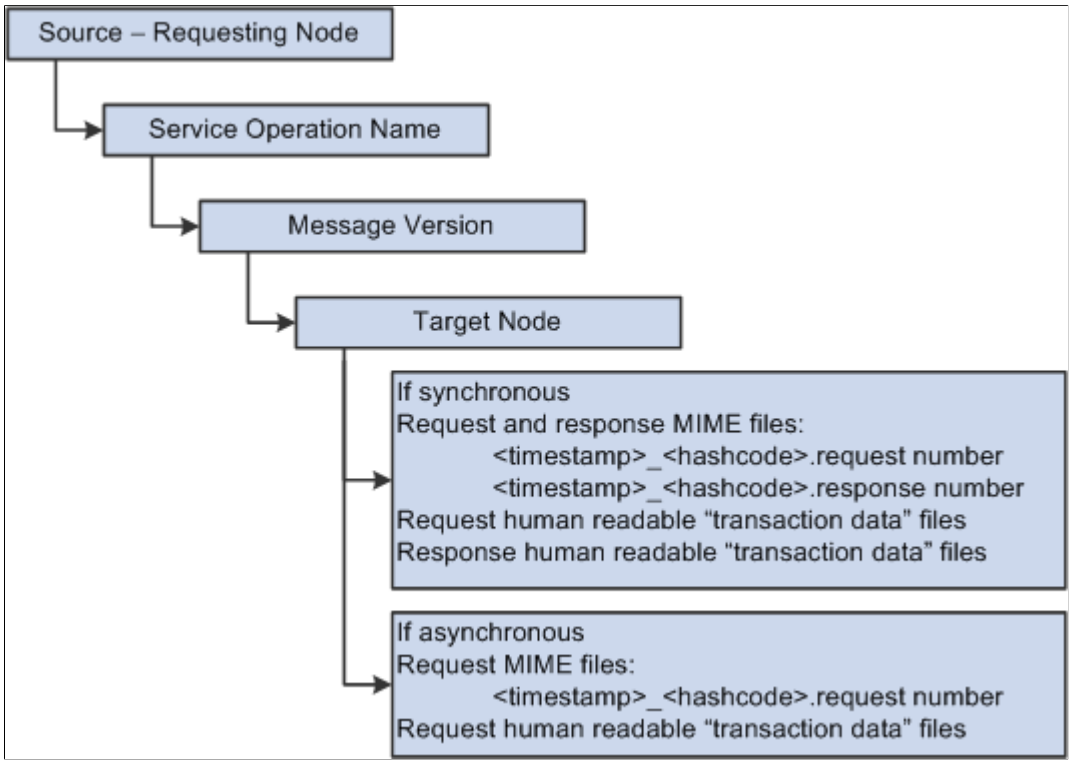
Integration Point Data Repository

PeopleSoft Integration Broker builds the following integration point test data repository structure during the export process.

You specify the top-level directory for the repository in the integration gateway properties file using the ig.EIPInputDirectory property.

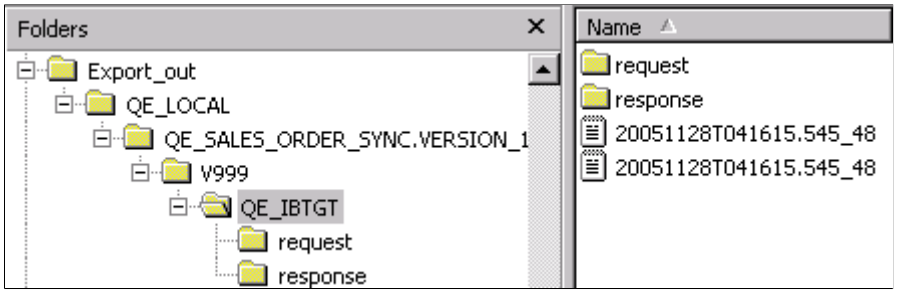
Warning! Do not alter this directory structure. This structure is required for outbound playback. If you alter this structure, PeopleSoft Integration Broker cannot locate response files.

This example shows the integration point test data repository structure that the system builds during the export process.



In a Microsoft Windows environment, each of the box in the previous diagram would correspond to folders in Microsoft Windows Explorer.

The following graphic shows what the structure might look like in Microsoft Windows Explorer using actual data.



EIP Gateway Manager

When a synchronous request is received during testing, the gateway manager performs a lookup in the cached data gathered from the integration point test service operation transaction property file. If the system finds a match is found, the request XPaths are traversed to build the appropriate hash that can then be used to locate the corresponding response located within the integration point certification repository. The system loads the response file and passes it back to the requestor.

For asynchronous requests, the gateway manager generates an acknowledgement as the response and passes it back to the requestor.

In addition to returning the appropriate response files during outbound playback, the gateway manager logs request and response files. When the appropriate flag is set in the integration gateway properties file, the gateway manager logs the files into the defined output directory. Response and request file have the following naming convention.

```
<time stamp>.<request or response>
```

For example:

```
220030519T150406.832.request
```

Integration Gateway Properties File

The integration gateway properties file contains an EIPTestTool Properties section, in which you set the following information for integration point test automation:

Property	***Description***
ig.gatewayManagerClass=com.peoplesoft.pt. integrationgateway.eiptesttool.EIPTestTool GatewayManager	Indicates the class name of the gateway manager to use during processing.
ig.EIPLoopBack	Determines if the integration gateway should be in record or playback mode. Set this property equal to *True* for outbound playback, and set it equal to *False* for recording. The default value is *True*. The only acceptable values for this property are *True* and *False.* Any other values specified for this property will be ignored by the system.
ig.EIPOutputDirectory	Indicates the directory to store request and response files during recording. The default value is *c:\temp\output*. You must set this property for recording service operation transactions. Setting this property is optional for playback.
ig.EIPMsgProp.count	Indicates the number of integration point test service operation transaction properties files that are in use for test automation. The default value is *0* (zero).
ig.EIPInputDirectory	Indicates the location of the integration point test data repository that stores request and response data. The default value is *c:\temp\input*.

Property	*Description*
ig.EIPMsgProp.*N*.propFile	Indicates the name and location of an integration point service operation transaction properties file. *N* denotes the index number for this property. The index starts at *1* and incrementally advances to the number specified by the ig.EIPMsgProp.count property.
ig.EIPMsgProp.*N*.inputDirectory	Indicates the input directory path for request or response data in situations for which an integration point service operation transaction property file uses a directory structure other than the default certification directory. Use this property to override the ig.EIPInputDirectory property.
ig.EIPNodeMap	Indicates the location and name of the node map file to use during outbound playback (“loop back”) testing.

Note: All file paths in the integration gateway property file for EIP test tools must use back slashes in the file path.

Related Links

“Using the integrationGateway.properties File” (Integration Broker Administration)

Integration Point Test Service Operation Transaction Properties File

Integration point test service operation transaction property files are XML files that contain synchronous integration point definitions broken down by product or sub-product. These files are used during message export and outbound playback.

Note: Integration point test service operation transaction properties files are required for synchronous service operation transactions only.

One integration point test service operation transaction properties file must exist for each product line or sub-product.

Integration point testing metadata is not contained in a single file, because it does not scale well and because this information needs to be cached and accessed quickly.

Each integration point entry is keyed by requesting node, destination node, and service operation version.

You specify the location of the file in the integration gateway properties file using the ig.EIPMsgProp.N.propFile property.

The integration point test service operation transaction properties file contains the following properties for synchronous integration points:

- Requesting node.

- Destination node.
- Service operation name.
- XPaths to fields in the request to be used as the unique key.

  Leave this blank to use the entire contents as the hash key.
- Description.

The following example shows the contents of a sample integration point test service operation transaction properties file.

```
<?xml version="1.0"?>
<eips>
   <eip messagename="QE_SALES_ORDER_SYNC.VERSION_1" destinationnode="QE_LOCAL">
      <descr>
         <![CDATA[Outbound Synchronous QE_SALES_ORDER_SYNC from
         QE_LOCALto QE_IBTGT]]>
      </descr>
      <xpath>
         MsgData/Transaction/QE_SALES_ORDER/QE_ACCT_ID
      </xpath>
   </eip>
</eips>
```

Send Master

The Send Master utility features an EIP Testing (Batch EIP) project type that enables you to test batches of MIME messages from a directory, and also allows you to test different transaction values.

In addition to using the Send Master graphical user interface, you can also initiate automated testing through a Batch Project Executor command line tool.

Related Links

Using EIP Testing Projects

Message Export Command Line Tool

The Message Export command line tool is a batch file that extracts transaction data from request and response data, and creates a hierarchical structure of source, service operation, and destination directories in the integration point test data repository.

The Message Export command line tool is located in the PeopleSoft web server domain: MessageExport.bat.

Usage

The standard usage of the Message Export tool is:

```
MessageExport [-options]
```

Classpath

The classpath for the Message Export is created in the MessageExport.bat file during installation.

Syntax

The syntax for using the Message Export tool is:

```
MessageExport -in "C:/temp/input" -out "C:/temp/output" -eip
"c:\temp\eip\eip_prop\eip_crossnode_sync.xml" -result
"C:/temp/output/result.txt"
```

Note: Use forward slashes in the directory path structure.

Parameters

The Message Export parameters that you can pass are described in the following table.

Parameter	*Description*
-in	Indicates the input directory, used during recording, that contains all of the request and response files generated from the EIP gateway manager.
-out	Indicates the location of the directory for the integration point test data repository.
-eip	Indicates the list of integration point service operation transaction property files, separated by semicolons. This parameter is not required for asynchronous integration points.
-result	Indicates the name of the file that contains the results of the export process. The contents of this file is represented as XML.
-ow	(Optional.) Overwrites files if they already exist.
-cd	(Optional.) Creates the output directory if PeopleSoft Integration Broker does not find it.
-rn	(Optional.) Specifies the requesting node. You can specify one value only. All other requesting node values in the input directory will be ignored.

Parameter	*Description*
-dn	(Optional.) Specifies the destination node. You can specify one value only. All other destination node values in the input directory will be ignored.
-mn	(Optional.) Specifies the service operation name, including version. You can specify one value only. The system ignores all other service operation names in the input directory. For releases prior to PeopleTools 8.48 this is the message name.
-mv	(Optional.) This parameter is only used with PeopleTools releases prior to PeopleTools 8.48. Specifies the message version for the message name that you specified. You can specify one value only. The system ignores all other message versions for the selected message name in the input directory.
-? -help	(Optional.) Displays the Help menu.

Output

If an export is successful, the contents of the output file resembles the following contents.

```
<?xml version="1.0"?>
<success>
    <file path="C:\TEMP\eip\export_in\20051128T041615.545.request"
      rawfilepath="C:\TEMP\eip\export_out\QE_LOCAL\QE_SALES_ORDER_SYNC.
      VERSION_1\V999\QE_IBTGT\20051128T041615.545_48.request"
      success="true" transdatafilepath="C:\TEMP\eip\export_out\QE_LOCAL\
      QE_SALES_ORDER_SYNC.VERSION_1\V999\QE_IBTGT\request\1.xml"/>
    <file path="C:\TEMP\eip\export_in\20051128T041615.545.response"
      rawfilepath="C:\TEMP\eip\export_out\QE_LOCAL\QE_SALES_ORDER_SYNC.
      VERSION_1\V999\QE_IBTGT\20051128T041615.545_48.response"
      success="true" transdatafilepath="C:\TEMP\eip\export_out\QE_LOCAL\
      QE_SALES_ORDER_SYNC.VERSION_1\V999\QE_IBTGT\response\1.xml"/>
</success>
```

If an export is not successful, the contents of the output file resembles the following contents:

```
<?xml version="1.0"?>
<failure>
    <![CDATA[Invalid output directory: C:\Documents and Settings\Jfranco\
     Desktop\export]]>
</failure>
```


Hash Key Generator Command Line Tool

When you use the Message Export tool, PeopleSoft Integration Broker generates unique request and response pairs, and creates a unique hash key ID for the generated pair. The hash key is used by the integration gateway during playback to ensure that proper correlation occurs between the request and response files.

If you bypass the export process and manually add files for testing, or if you carry out testing when the target or source systems are not available to properly record information, you must generate a hash key. The Hash Key Generator is a command line tool that enables you to generate a hash key.

The Message Export command line tool is located in the PeopleSoft web server domain: HashKeyGenerator.bat.

Usage

The standard usage for the Hash Key Generator is:

```
HashKeyGenerator [-options]
```

Syntax

The syntax for using the Hash Key Generator is:

```
HashKeyGenerator -in "C:\temp\input.txt

HashKeyGenerator  -v 214 "John Doe" PeopleSoft

HaskKeyGenerator -v Sally 1234 -t
```

Parameters

The Hash Key Generator parameters you can pass are described in the following table.

Parameter	***Description***
-in	Indicates the file name to be used as the hash value. When working with non-XML files, the entire value must be hashed.
-t	Prepends a timestamp value to the returned hash value. will prepend a timestamp value.
-v	Indicates values to use as the hash key. When the system encounters this parameter, PeopleSoft Integration Broker uses all values specified in the hash key until it encounters the next “-” option.
-? -help	(Optional.) Displays the Help menu.

Node Map Properties File

A Node Map properties file is an XML file that enables you to associate renamed or custom node names with actual shipped application node names. This enables you to use unique node names during testing.

The system uses this file during outbound playback.

You create this file and specify the shipped application node names and all custom node names in use for a specific node. You must specify the file name and location in the integration gateway properties file, using the ig.EIPNodeMap property.

The following example shows a node map properties file.

```
<?xml version="1.0"?>
<nodemap>
    <map name="PSFT_HR"><node name="HRTST01"/><node name="HRTST02"/><node name="HRT⇨

ST03"/>
    </map>
    <map name="PSFT_CRM">
        <node name="CRMTST01"/>
        <node name="CRMTST02"/>
        <node name="CRMTST03"/>
    </map>
</nodemap>
```

In the highlighted portion of the example, the map name *PSFT_HR* corresponds to a delivered application node. The node names *HRTST01, HRTST02* and *HRTST03* correspond to custom nodes names that are in use.

Recording Service Operation Transactions

To record service operation transactions and to allow PeopleSoft Integration Broker to capture the exact structure of each integration point as they pass between the systems, you must ensure that all PeopleSoft systems involved in the integration are configured and running.

1. Set the following properties in the EIPTestTool Properties section in the integration gateway properties file:

    a. Set the gateway manager class to *EIP Gateway Manager*. To do so, remove the comment from the following line:

    ```
    ig.gatewayManagerClass=com.peoplesoft.pt.integrationgateway.eiptesttool.
    EIPTestToolGatewayManager
    ```

    b. Set loop back to *False*. To do so, remove the comment from the following line:

    ```
    ig.EIPLoopBack=True
    ```

    Change the parameter value to *False*.

    c. Set the log output directory. To do so, remove the comment from the following line:

    ```
    ig.EIPOutputDirectory=c:\temp\output
    ```

    You can change the directory location as appropriate.

d. For synchronous service operation transactions, define the number of integration point test service operation transaction properties in use for the test, and specify the necessary number of entries for the integration point test service operation transaction properties file. To do so, remove the comment from the following line:

```
ig.EIPMsgProp.count
```

Set this property equal to the number of integration point test service operation transaction properties files in use for the test. For example:

```
ig.EIPMsgProp.count=3
```

You must also specify the location of the integration point test service operation transaction properties files for each file directory in use for testing. The number of files that you specify should equal the value that you specified for the ig.EIPMsgProp.count property.

To specify the integration point test service operation transaction files for the test, remove the comment from the following line:

```
ig.EIPMsgPropN.propFile
```

Enter the name and location of each integration point test service operation transaction properties file in use for the test.

For example:

```
ig.EIPMsgProp1.propFile=c:\temp\File_1.xml
```

2. Launch the necessary processes on the source system to invoke integration points with the target system.

To verify that recording took place, navigate to the log output directory that you specified in the previous step. The persisted request and response files use the following naming conventions.

```
<time stamp>.<request>
```

```
<time stamp>.<response>
```

Playing Back Service Operation Transactions

Playing back service operation transactions enables you to continue service operation transaction testing as if the external system is operational.

Inbound service operation transaction playback enables you to simulate inbound asynchronous and synchronous service operation transaction processing. Outbound playback enables you to simulate outbound asynchronous and synchronous service operation transaction processing.

This section describes how to perform:

- Inbound playback.
- Outbound playback.

Inbound Playback

To perform inbound playback:

1. In the EIPTestTool properties section of the integration gateway properties file, set the gateway manager class to *EIP Gateway Manager*. To do so, remove the comment from the following line:

   ```
   ig.gatewayManagerClass=com.peoplesoft.pt.integrationgateway.eiptesttool.
   EIPTestToolGatewayManager
   ```

2. Purge all service operation transaction data in the system or the data that is specific to the integration point test.

3. Create and run a Send Master project of type EIP Testing (EIP Batch) for each service operation transaction type that you want to test.

4. Run the message export process on the response directory populated during testing.

5. Compare the transaction data returned by the export process to the data that is stored in the integration point test data repository.

Related Links

Using EIP Testing Projects
Message Export Command Line Tool

Outbound Playback

To perform outbound playback:

1. Set the following properties in the EIPTestTool Properties section in the integration gateway properties file:

   a. Set the gateway manager class to *EIP Gateway Manager*: to do so, remove the comment from the following line:

      ```
      ig.gatewayManagerClass=com.peoplesoft.pt.integrationgateway.eiptesttool.
      EIPTestToolGatewayManager
      ```

   b. Set loop back to *True*; to do so, remove the comment from the following line:

      ```
      ig.EIPLoopBack=True
      ```

      Change the parameter value to *True*, if necessary.

   c. Set the location of the input file directory; to do so, remove the comment from the following line and set the value equal to the location of the directory.

      ```
      ig.EIPInputDirectory=
      ```

   d. (Optional.) Set the log output directory; to do so, remove the comment from the following line:

      ```
      ig.EIPOutputDirectory=c:/temp/output
      ```

      You can change the directory location as appropriate.

e. For synchronous service operation transactions, define the number of integration point test service operation transaction properties in use for the test, and specify the necessary number of entries for the integration point test service operation transaction properties file; to do so, remove the comment from the following line:

```
ig.EIPMsgProp.count
```

Set this property equal to the number of integration point test service operation transaction properties files in use for the test. For example:

```
ig.EIPMsgProp.count=1
```

You must also specify the location of the integration point test service operation transaction properties files for each file directory in use for testing. The number of files that you specify should equal the value that you specified for the ig.EIPMsgProp.count property.

To specify the integration point test service operation transaction files for the test, remove the comment from the following line:

```
ig.EIPMsgPropN.propFile
```

Enter the name and location of each integration point test service operation transaction properties file in use for the test.

For example:

```
ig.EIPMsgProp1.propFile=c:\temp\File_1.xml
```

2. Launch the necessary processes on the source system to invoke integration points with the target system.
3. Run the message export process on the log output directory used during testing to pull back the transaction data for use in data comparison.
4. View the integration gateway logs or Service Operations Monitor to verify that the inbound requests are valid and that PeopleSoft Integration Broker sends the proper responses from the repository.
5. Compare the transaction data returned by the export process to the data that is stored in the integration point test data repository to view expected versus actual results.

   You can accomplish this by manually reviewing the database tables or by using an automated database table compare tool.

Related Links

Message Export Command Line Tool

Chapter 5

Using the Transformation Test Utility

Understanding the Transformation Test Utility

PeopleSoft Integration Broker provides the Transformation Test utility, which you can use to test Application Engine transform programs without sending messages, and with minimal development effort. You use the Transformation Test component (IB_TRANSFORM_TEST) to access the utility.

The runtime Integration Broker messaging environment requires several development and administration activities to invoke an Application Engine transform program. At a minimum, you must define a queue, a service operation, sending PeopleCode, service operation handler, and routing including parameters for the transform program. However, because of its minimal requirements, the Transformation Test utility simplifies the process of testing and debugging your transform programs.

Prerequisites for Using the Transform Test Utility

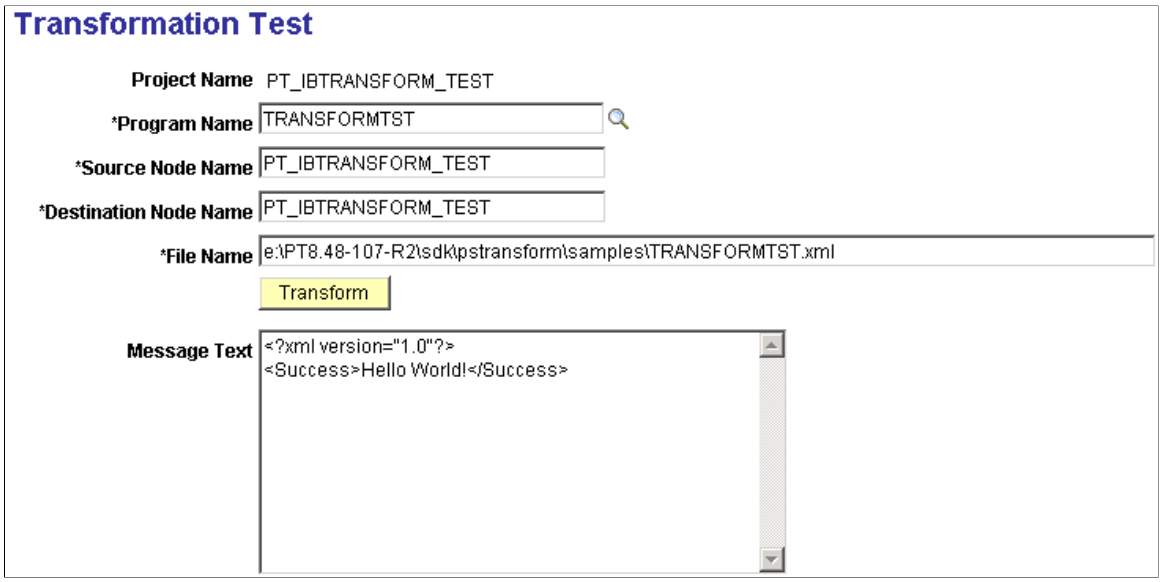
If your transform program does not use codesets for data translation, you need only to develop the program and provide an XML DOM-compliant file that contains sample message data to be transformed.

If your transform program uses codesets, you must also define two nodes, their codeset groups, codesets, and codeset values that are invoked by the program.

Running the Transformation Test Utility

Select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Test XSLT Transformations** to access the Transformation Test page (IB_TRANSFORM_PAGE).

This example illustrates the fields and controls on the Transformation Test page. You can find definitions for the fields and controls later on this page.



Note: The project name you specify identifies the test you're applying, and is for your reference only. It has no significance outside of this utility.

Field or Control	***Description***
Program Name	Select the name of the Application Engine transform program that you want to test.
Source Node	Enter the name of the node whose codeset group defines the structure of the input data. This field is used for codeset-based data translation.
Dest Node	Enter the name of the node whose codeset group defines the structure of the output data. This field is used for codeset-based data translation.
File Name	Enter the full path and name of the sample input message file. This is the path on the application server machine or a path that can be accessed from the application server. The file name may consist of up to 254 characters.
Transform	Click to apply the transform program to the sample input message.
Message Text	This field displays the output of the transform program.

Note: For the current release, even if you do not use codesets, you still must enter values for the **Source Node** and **Dest Node** fields. You don't need to define any nodes; just enter a string that qualifies as a valid node name (for example "ANYNODE").

Running the Sample Transformation Test Project

PeopleSoft provides a sample project called PT_IBTRANSFORM_TEST that you can use to run a sample test with the Transformation Test utility.

To run the sample test:

1. Select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Test XSLT Transformations**.
2. Select the PT_IBTRANSFORM_TEST project.
3. In the **File Name** field, modify the value with your PS_HOME directory where indicated.

   Enter Your PS_HOME Path Here\sdk\pstransform\samples\TRANSFORMTST.xml
4. Click the **Transform** button.

The test is successful when the following code appears in the **Message Text** box.

```
<?xml version="1.0"?>
<Success>Hello World!</Success>
```


Chapter 6

Using the Handler Tester Utility

Understanding the Handler Tester Utility

The Handler Tester allows you to test handlers defined for rowset-based and nonrowset-based service operations from within the PeopleSoft Pure Internet Architecture. You can test handlers without setting up a routing, without having pub/sub booted on your application server, and without impacting other developer activity on the system.

To use the Handler Tester utility you should have a solid knowledge of Integration Broker messaging, as well as a knowledge of programming integration events and interpreting event results.

Warning! When you use the Handler Tester any PeopleCode associated with the handler is executed and production data is affected accordingly.

Consider the following points when using the Handler Tester utility:

- The Handler Tester does not function with messages formatted with multiple level 0 records.
- The Handler Tester does not re-initiate global variables between tests.

Integration Events to Test Using the Handler Tester

You can test the following integration events using the Handler Tester:

- OnSend.
- OnRequest.
- OnRouteReceive.
- OnRouteSend.
- OnAckReceive.
- OnNotify.

Testing Application Engine Handlers

You can test application engine handlers only when the data used for the test is transaction data from the application database. (This is the DB Operation Transaction option when populating data.)

Otherwise the application handler will fail due to no transaction ID being available to the application engine program.

Testing Bulk Load Handlers

You cannot use the Handler Tester Utility to test bulk load handlers.

Process Overview

To test integration events using the Handler Tester:

1. Select the service operation and version to use in the test.
2. Select the handler type and handler name to test.
3. Populate the message with data.
4. If you are testing handler for a REST-based service operation, populate the document template with values.
5. Run the test.

In addition to providing procedures for each step in the process, the documentation also describes how to save message data, clone and delete record structures, override connector properties, and view test results.

Common Elements Used in the Handler Tester Utility

Field or Control	***Description***
Service Operation	The service operation to use for the test.
Default Version	The Handler Tester tests the default version of a service operation. If you are testing a non default version, the transform version page will be displayed.
Handler Type	Click the drop-down list to select a handler type to test. The list displays only those handler types currently defined for the selected service operation. The options can include: • OnSend. • OnRequest. • OnRouteReceive. • OnRouteSend. • OnAckReceive. • OnNotify.

Field or Control	*Description*
Handler Name	Click the drop-down list to select an handler name to test. The list displays only those handler names currently defined for the selected service operation and handler type.
Message Name	This read-only field displays the name of the request message associated with the selected service operation. The field is blank if you are testing a handler for a REST service operation and there is no request message defined for the service operation.
Message Version	This read-only field displays the version of the request message associated with the selected service operation. The field is blank if you are testing a handler for a REST service operation and there is no request message defined for the service operation.
Return to Search	Click the link to return to the search page.
Populate Document Template	This link appears only when you are testing a handler for a REST service operation. Click the link to populate the document template.
Use DB Operation Transaction	Use this button to populate the input message with an existing database transaction. The button is not enabled if you are testing a handler for a REST service operation and there is no request message defined for the service operation.
Provide XML	Click the button to input XML or upload XML data from a file. The button is not enabled if you are testing a handler for a REST service operation and there is no request message defined for the service operation.
New Tree Structure	Click the button to clear the record and field values in the tree structure. The button is not enabled if you are testing a handler for a REST service operation and there is no request message defined for the service operation.

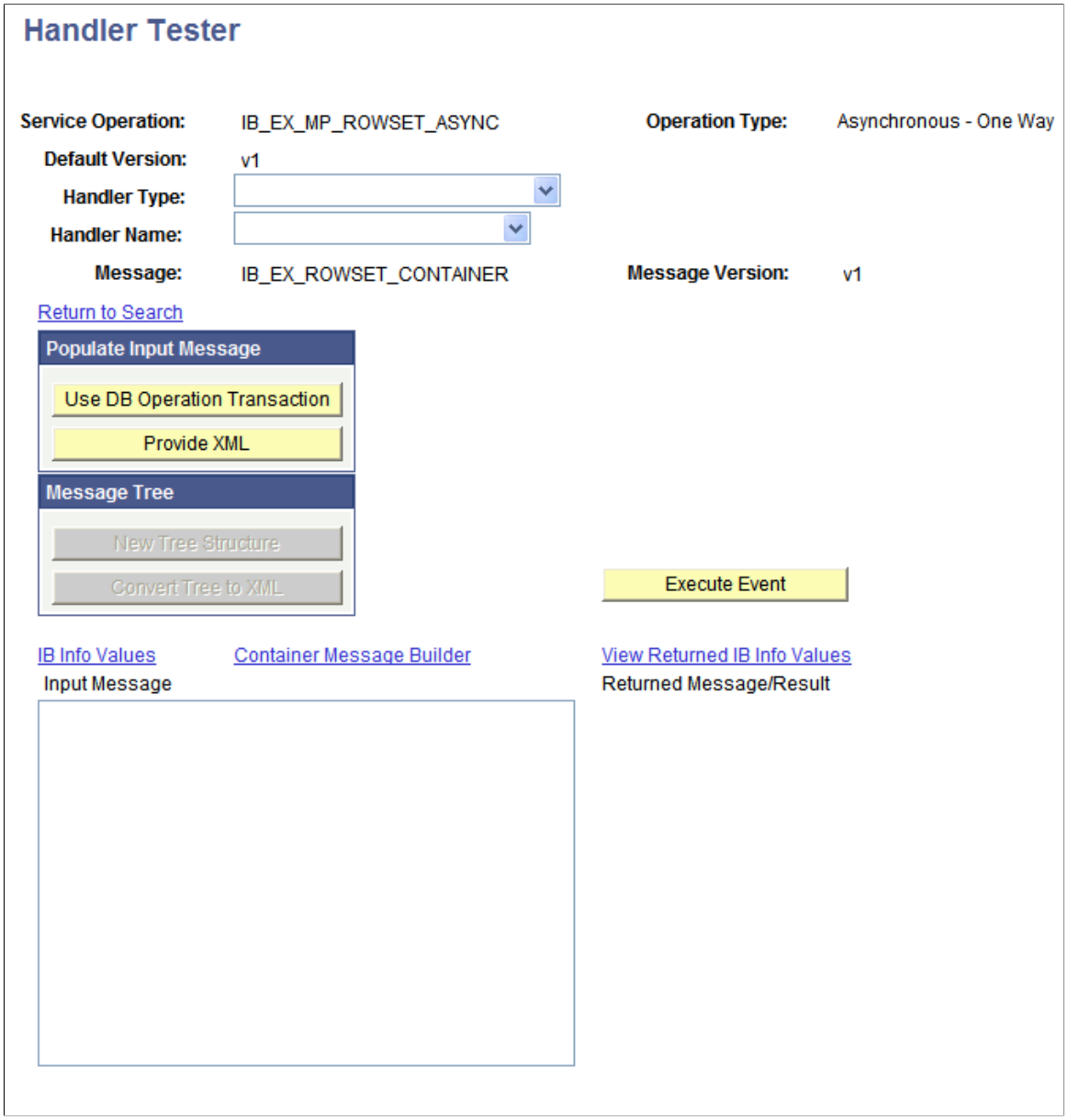
Field or Control	*Description*
Convert Tree to XML	Click the button to convert data stored in the tree structure into XML format. The button is not enabled if you are testing a handler for a REST service operation and there is no request message defined for the service operation.
IB Info Values	Click the link to override target connector properties.
Execute Event	Click the button to execute the selected event.
View Returned IB Info Values	Displays the IBInfo values that were returned from the test.
Returned Message/Result	The returned message or results from the test. Displays when you click the **Execute Event** button.

Accessing the Handler Tester Utility

The Handler Tester utility is located in the Handler Tester component (IB_EVENTTESTER).

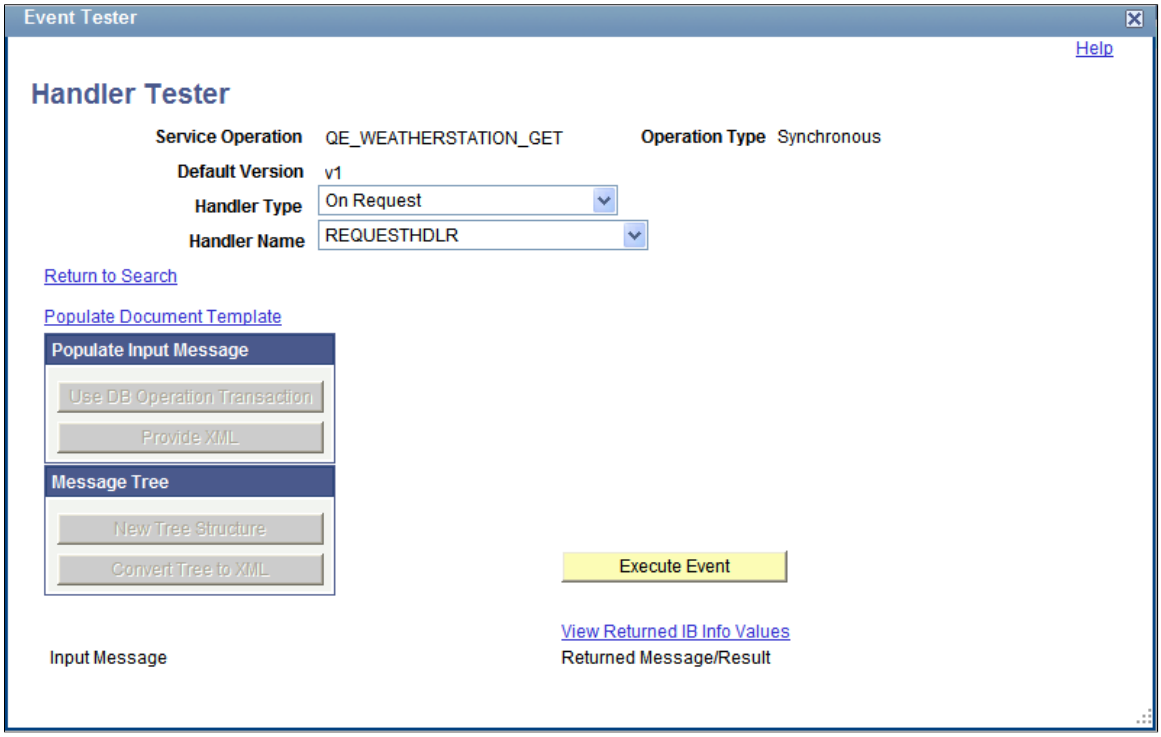
Use the Handler Tester page (IB_EVENTTESTER) to perform handler tests. To access the Handler Tester page, select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operation Handler**.

This example illustrates the fields and controls on the Handler Tester page.



If you are testing a handler for a REST-based service and there is no request message associated with the handler, for example when performing a GET or a DELETE, the Handler Tester utility appears as follows:

This example illustrates the fields and controls on the Handler Tester page for a REST service.



When you are testing a handler for a REST service some controls on the page are disabled as they are not applicable.

Selecting Service Operations and Service Operation Versions

This section discusses how to select a service operation and version to use for a handler test using the Handler Tester Search page (IB_EVENTSEARCH).

Selecting Service Operations

To select a service operation for the test:

1. Access the Handler Tester Search page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operation Handler**).
2. In the search dialog box enter a search criteria in the **Service Name** field, click the **Lookup** button, and select a service definition.
3. Click the **Search** button and select the service operation.

Note: Service Operation security does not control what appears in the grid. All Service Operations are shown that match the search criteria.

Select the service operation and version to test.

If a non-default version is selected, the handler tester page will display a transform button.

When you select a rowset-based message, the structure of the message appears in tree-format at the bottom of the page. The records and fields contain no values until you populate the message with data.

When you select a nonrowset-based message, an **Input Message** text box displays. Use this box to populate the message definition with data by typing it in or by uploading from a file.

Selecting Handlers to Test

To select an event to test:

1. On the Handler Tester page, from the **Handler Type**drop-down list box, select a handler type.

   Only handler types defined on the service operation display in the drop-down list.

   The **Message** and **Message Version** fields are populated with the message definitions on the service operation.

2. From the **Handler Name** drop-down list box, select the handler to test.

   Only handler names defined on the service operation display in the drop-down list.

Populating Message Data

This section discusses the methods to populate message data in the Handler Tester utility.

Note: The Handler Tester does not function with messages formatted with multiple level 0 records.

Note: If you select a multi-segmented message from the database, only the first segment is retrieved.

This section discusses how to:

- Use operation transaction data from the application database.
- Manually enter field values.
- Manually enter XML data.
- Upload XML data from files.
- Populate rowset-based message parts in container messages.

Understanding Populating Message Data

You can load message data into a message definition from the following four sources.

1. Operation transaction data from the application database.
2. Field values that you enter manually, including PSCAMA record values and audit actions.
3. XML that you directly input into the utility.

4. XML that you upload from a file.

Using Operation Transaction Data from the Application Database

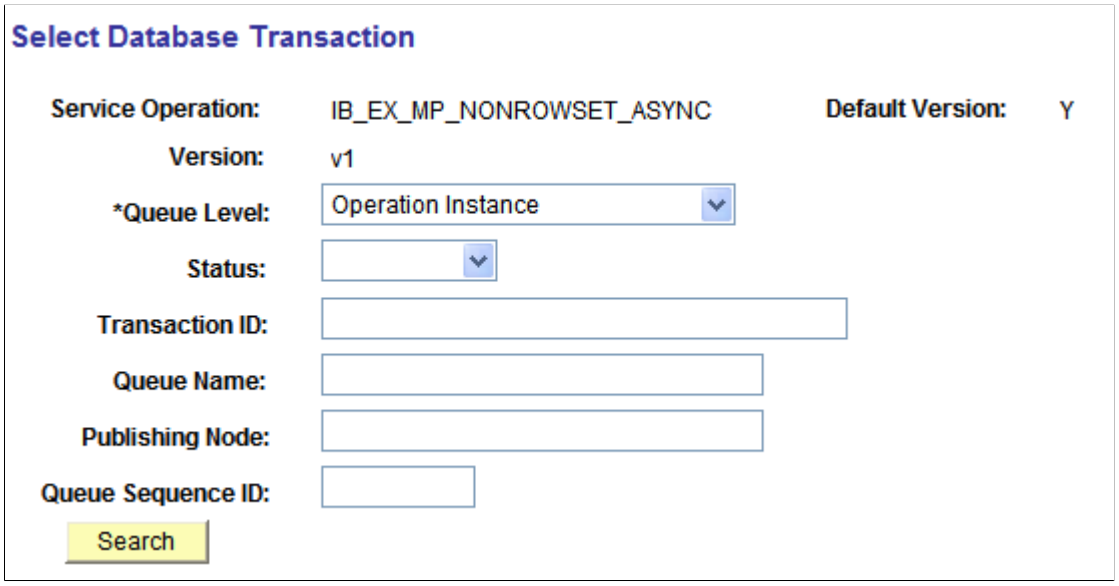
This section discusses how to use operation transaction data from transactions stored in the application database.

You can use this method to populate rowset-based and nonrowset-based message definitions.

Note: Only those transactions for which the user has been granted security for the service operation are allowed.

To populate message data using transaction data from the application database, you use the Select Database Transaction page (IB_EVENTSEARCH_SEC).

This example illustrates the fields and controls on the Select Database Transaction page.



To use operation transaction data from a transaction:

1. From the Handler Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operation Handler.**

   The Select Database Transaction page appears.

2. From the **Handler Type** drop-down list, select a handler type.

3. From the **Handler Name** drop-down list, select a handler.

4. In the Populate Input Message section, click the **Use DB Transaction** button.

   The Select Database Transaction page appears.

5. From the **Queue Level** drop-down list select where the XML to use in the test is located. The options are:

   - *Operation Instance*

- *Publication Contract*
- *Subscription Contract*

6. From the **Status**drop-down list select the status. The options are:
   - *Cancelled*
   - *Edited*
   - *Error*
   - *New*
   - *Retry*
   - *Timeout*
7. (Optional.) In the **Queue Name** field, enter the name of the queue.
8. (Optional.) In the **Publishing Node** field, enter the name of the publishing node.
9. (Optional.) In the **Queue Sequence ID** field, enter the sequence ID.
10. Click the **Search** button to view the available transactions.
11. Click the **Actions**link for the transaction to use.

    If this is a rowset-based message, the message tree will be populated from the transaction you selected. If this is a non rowset-based message, the XML will be populated.

Manually Entering Field Values

This section discusses how to:

- Manually enter message definition field values.
- Assign PSCAMA record values and audit actions to Level 0 records.
- Assign PSCAMA audit actions to Level 1 and greater records.

Understanding Manually Entering Field Values

After you specify a service operation and version for a rowset-based message, the Handler Tester displays the message definition record and field structure in a tree format.

You can populate the message definition by manually entering values for fields.

In addition you can specify PSCAMA record values and audit actions for Level 0 records, as well as PSCAMA audit actions for Level 1 and greater records.

Manually Entering Message Definition Field Values

To manually enter field values:

1. Access the Handler Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operation Handler**).
2. In the tree structure for the message definition, single-click on field name to populate.

   A dialog box for the field opens that displays field length and field type information as a guide for entering values.
3. Enter a value for the field.
4. Click the **OK** button.

Values you enter display after the field name in the tree view. The tree shows the first 30 characters of an entered value; however, the entire field value is stored.

Assigning PSCAMA Values and Audit Actions to Level 0 Records

To assign PSCAMA values and audit actions to Level 0 records:

1. Access the Handler Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operation Handler**).
2. Populate the service operation with a rowset-based message.

   See Populating Message Data.
3. In the tree view, click the Level 0 record.

   The Select an Action page appears.
4. Click the **Assign PSCAMA** arrow to expand the section.
5. Enter PSCAMA values as appropriate.

   Descriptions of the PSCAMA field values and audit actions are described elsewhere in the product documentation.

   See “PSCAMA” (Integration Broker).
6. Click the **OK** button.

Assigning PSCAMA Audit Actions to Level 1 and Greater Records

To assign PSCAMA audit actions to Level 1 and greater records:

1. Access the Handler Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operation Handler**).
2. Populate the service operation with a rowset-based message.

   See Populating Message Data.
3. In the tree view, click a Level 1 or greater record.

The Select an Action page appears.

4. Click the **Assign PSCAMA** arrow to expand the section.
5. From the **Action** field drop-down list, section the appropriate audit action.

   Descriptions of PSCAMA audit actions are described elsewhere in the product documentation.

   See “PSCAMA” (Integration Broker).
6. Click the **OK** button.

Related Links

Saving Test Data

Manually Entering XML Data

This section describes how to:

- Manually enter XML data into rowset-based message definitions.
- Manually enter XML data into nonrowset-based message definitions.

Manually Entering XML Data into Rowset-Based Message Definitions

When you manually enter XML data into a rowset-based message, the tree view is not available. To work with message data in the tree view, you must populate the data using operation transaction data from the application database or manually populate field values.

To manually populate a rowset-based message definition:

1. Access the Handler Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operation Handler**).
2. Click the **Provide XML** button.

   The Enter XML page displays.
3. In the **XML** text box enter XML to populate the message definition.
4. Click the **OK** button.

   The Handler Tester page appears and the XML you entered displays in the Input Message box.

Manually Entering XML Data into Nonrowset-Based Message Definitions

To manually populate a nonrowset-based message definition, on the Handler Tester page, enter XML directly into the **Input Message** box.

Note that you can also click the **Provided XML** button and enter XML in the **XML** text box for a nonrowset-based message definition.

Uploading XML Data from Files

This section describes how to upload XML data from files to populate rowset-based and nonrowset-based message definitions.

Prerequisites for Uploading XML Data from Files

To successfully upload files into the Handler Tester you must set the PS_FILEDIR and PS_SERVDIR environment variables.

See “Setting PS_FILEDIR and PS_TREEBASEDIR in Microsoft Windows Environments” (Integration Broker), “Setting PS_FILEDIR and PS_TREEBASEDIR in UNIX Environments” (Integration Broker)

Uploading XML Files

To upload XML data from a file to populate message definition data:

1. Access the Enter XML page.
    a. Select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operation Handler**.

       The Handler Tester page appears.

    b. Click the **Provide XML** button.

       The Enter XML page displays.

2. From the **File Encoding** drop-down list, select the file encoding of the file you are uploading. The options are:
    - *Non-encoded.*
    - *UTF-8.*
    - *UTF-16.*

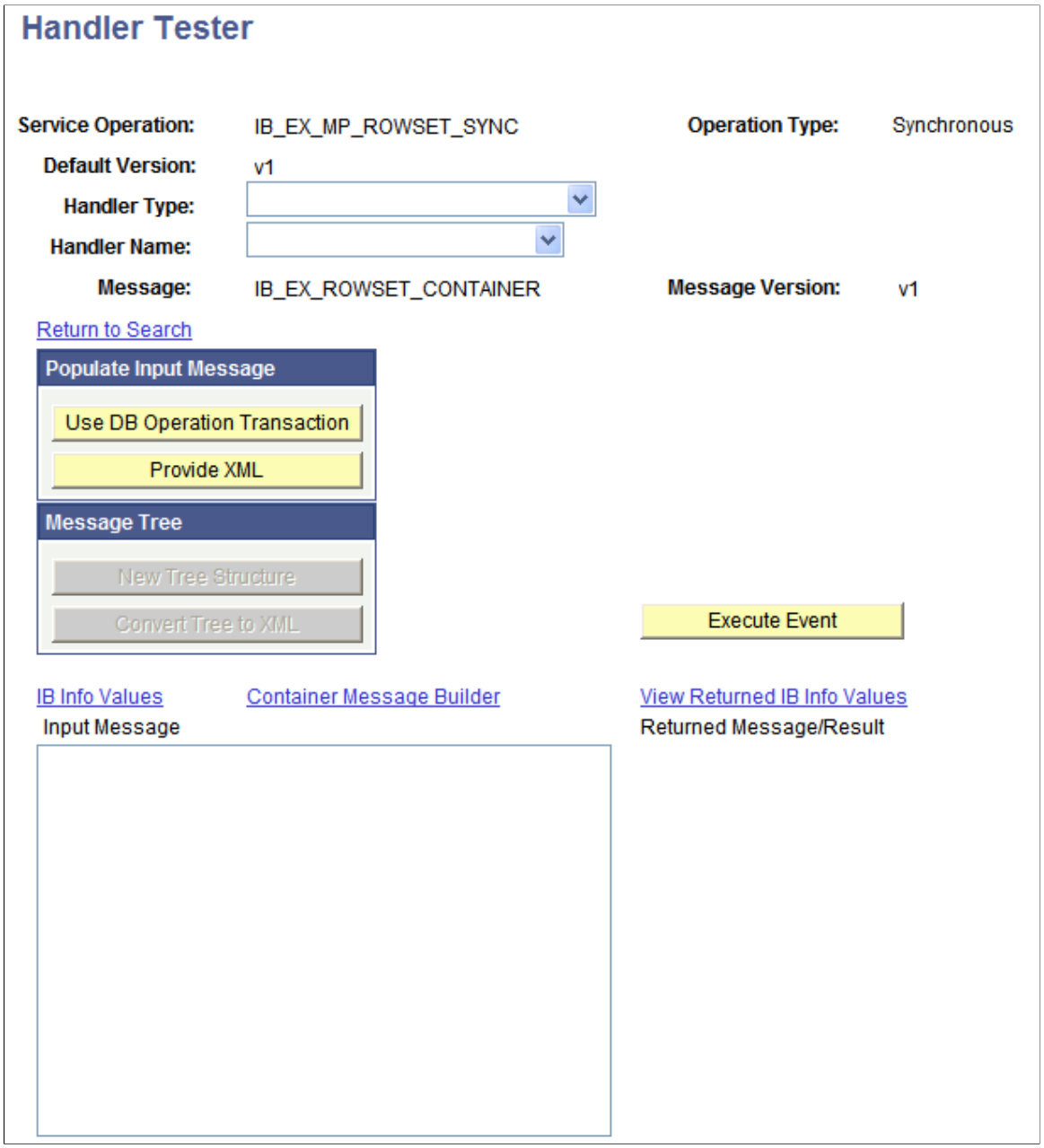
3. Click the **Upload XML from File** button.
4. Click the **Browse** button to locate the XML file to upload.
5. Click the **Upload** button.
6. Click the **OK** button to return to the Handler Tester page to run the event.

Populating Rowset-Based Message Parts in Container Messages

The Handler Tester utility enables you to populate rowset-based message parts in container messages.

When you select a container message with which to work in the Handler Tester utility, a **Container Message Builder** link appears on the Handler Tester page.

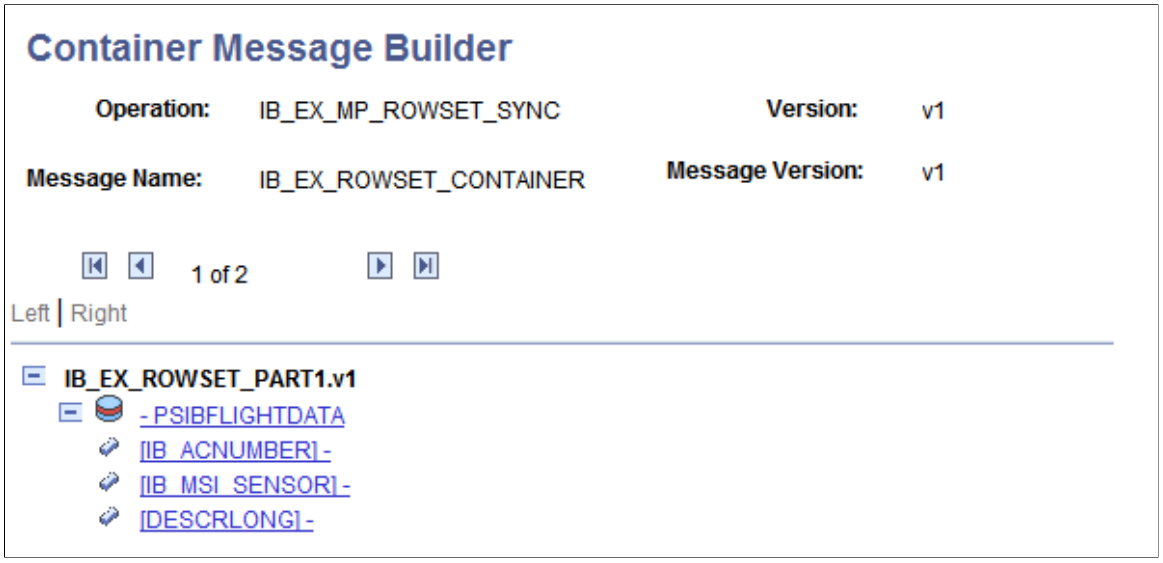
This example shows the Handler Tester page with a service operation selected that contains a container message that contains rowset-based message parts.



The example shows that the service operation *IB_EX_MP_ROWSET_SYNC* is selected to test. The service operation contains the message *IB_EX_ROWSET_CONTAINER*, which is a container message comprised of rowset-based message parts.

When you select the **Container Message Builder** link, the Container Message Page (IB_MSGCONTAINER) appears.

This example illustrates the fields and controls on the Container Message Builder page.



The example shows the first message part contained in the message container, *IB_EX_ROWSET_PART1.V1*. At the bottom of the page is the familiar tree structure for building out rowset-based messages. You use the same pages as you would to build out any rowset-based message.

Use the backward and forward arrows to navigate to the different message parts in the message.

In between the navigation arrows, the system displays the part on which you are working and the total number of parts in the container message. This example shows that the Container Message Builder page is displaying message part one and that a total of two parts comprise the container message.

The procedures for creating and modifying rowset-based messages is described in detail elsewhere in the PeopleTools product documentation.

Related Links

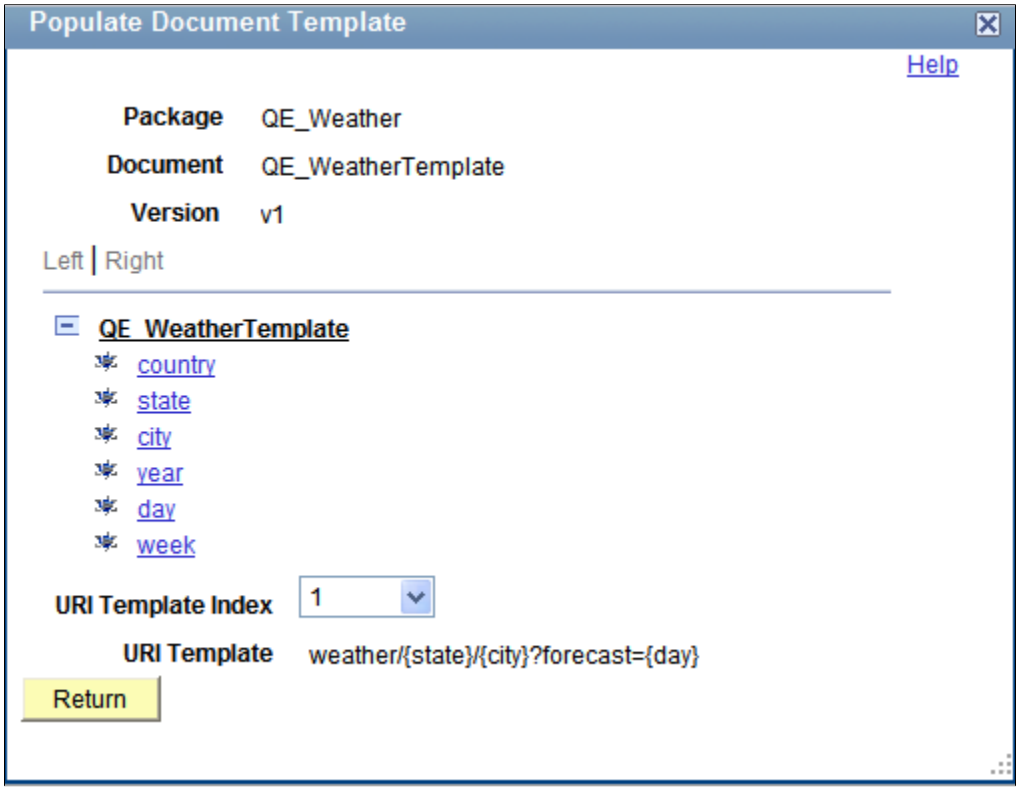
“Managing Rowset-Based Messages” (Integration Broker)

Populating Document Template Values

To test a handler for a REST-based service operation you must populate the document template values in the Handler Tester utility.

The Handler Tester page features a **Populate Document Template** link that provides access to the Populate Document Template page (IB_DOCTPLT_SEC). Use the Document Template page to select a URI index and provide values for the URI template to which the index is assigned.

This example illustrates the fields and controls on the Populate Document Template page.



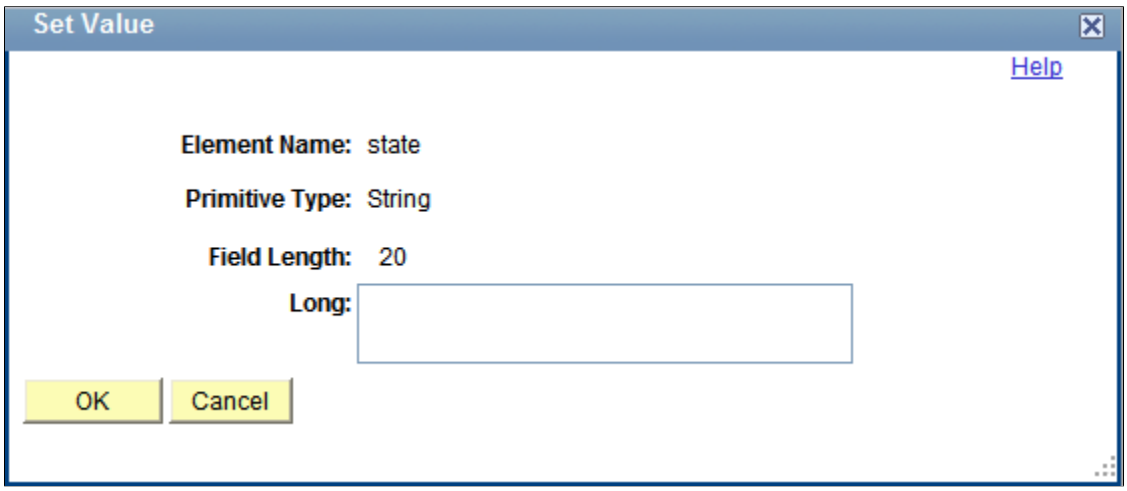
Use the Populate Document Template page to enter test values for each URI template.

The previous example shows the QE_WeatherTemplate document template. The URI Template Index drop-down list shows that the select URI index is *1*. The URI Template field shows the URI template defined in the document template for that index, *weather/{state}/{city}?forecast={day}*.

You must set values for the elements in the URI template that have variable values. Elements with variable values are contained within braces ({ }) in the URI template. In the previous example the elements with variable values in the URI template are *state, city,* and *day.*

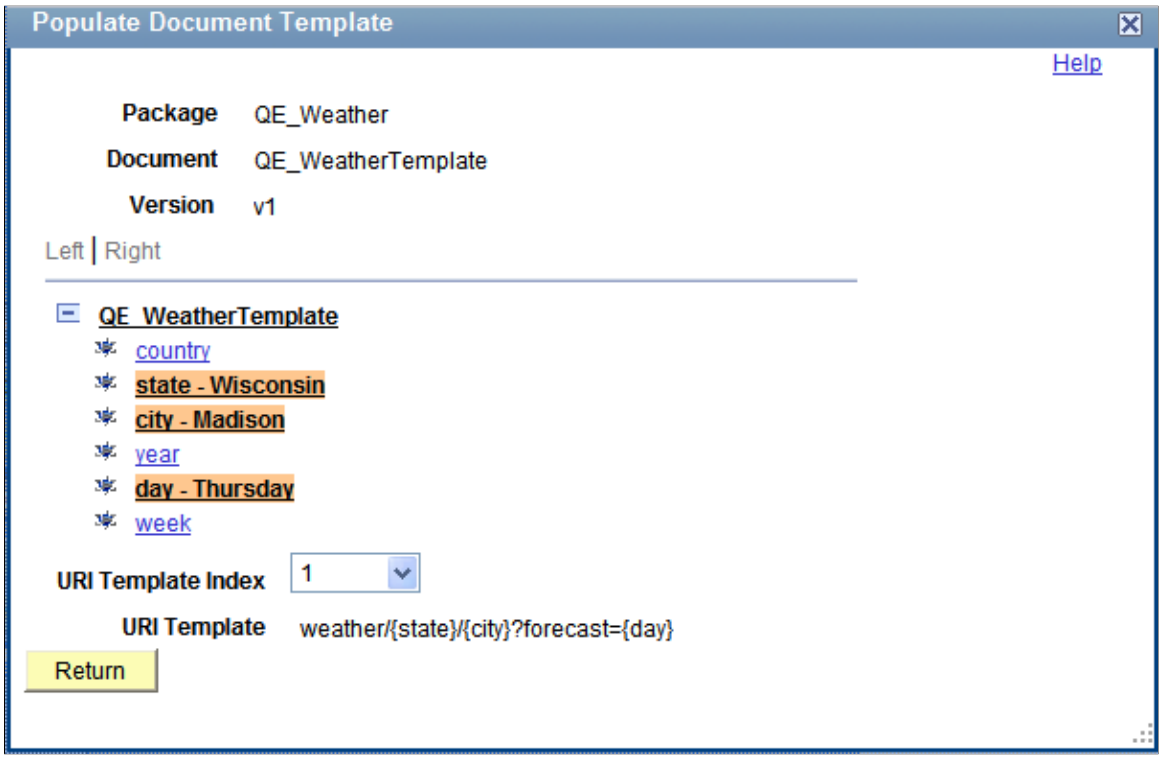
To set a value for a variable, click the hyperlinked variable name. The Set Value page (IB_LSTESTER_SEC) appears.

This example illustrates the fields and controls on the Set Value page.



In this example the *state* link is clicked on the Populate Document Template page. In the example, you populate the Long field. The value(s) to populate on the page vary, depending on the data type of the element.

The following example shows the Set Value page populated with all values for elements with variables for the URI template with the index of *1*.



To populate document template values:

1. Access the Populate Document Template page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operation Handler** and click the Populate Document Template link).

2. Set values for URI template elements that have variable values:

a. From the URI Template Index drop-down list, select the URI index that corresponds to the URI template to populate.

   The string of the URI template for the index appears under the drop-down list box.

b. Click the element name for which to set value(s).

   The Set Value page appears.

c. Enter the test value(s) for the data type of the element.

3. Repeat step 2 for each URI template index in the document template.
4. Click the **Return** button.

   The Handler Tester page appears and you can run the test.

   See Running Handler Tests and Viewing Test Results.

Saving Test Data

This section discusses how to:

- Save data located in the tree view.
- Save manually-entered XML data.

Saving Data Located in Tree Views

To save test data loaded or entered into a tree view:

1. From the Handler Tester page, click the **Convert Tree to XML** button.

   The Handler Tester converts the data to XML format and displays it in the Input Message window.

2. Cut and paste the XML into an editor or your choice and save the file.

You can later import the data back into the Handler Tester by uploading the XML file back into the utility.

Note: You can also use this method to create and save a test message to use with other integration testing utilities such as Send Master.

Saving Manually-Entered XML Data

To save XML test data that you have manually entered into the utility:

1. From the Handler Tester page, cut or copy the XML data in the **Input Message** box and copy it into an editor or your choice.
2. Save the file.

You can later import the data back into the Handler Tester by uploading the XML file back into the utility.

Cloning and Deleting Record Structures

This section discusses how to:

- Clone record structures.
- Delete record structures.

Cloning Record Structures

In some cases, you will want to add additional nodes to a record/field tree structure.

For example, if you are testing a purchase order, the records in the tree might be ORDER_HEADER and ORDER_LINE. If you want to test with two or more lines, you can click the first occurrence of the record name ORDER_LINE to duplicate that portion of the tree and all child records and nodes.

To clone a record structure:

1. On the Handler Tester page in the tree view, single-click the record to clone.

   The Select An Action dialog box appears.

2. Select **Clone Record Structure**.
3. Click the **OK** button.

The original record is duplicated, along with child nodes and all entered field values. If you clone a record in error, single-click the record again and delete the record structure.

Deleting Record Structures

To delete a record structure:

1. On the Handler Tester page in the tree view, single-click the record to delete.
2. Select **Delete Record Structure**.
3. Click the **OK** button.

Specifying Target Connectors and Target Connector Properties

This section discusses how to:

- Specify target connectors.
- Specify target connector properties.

Specifying Target Connectors

You can specify a target connector and target connector properties you have defined at the connector, node and routing definition level when you run event tests.

For example, suppose that there are different query string arguments that would normally come into the system in the URL of an HTTP Get. The PeopleCode that handles the incoming service operation would have to obtain the query string arguments from the message's IB Info object. In the Handler Tester, the user would supply these values on this page.

To select a target connector:

1. Click the **IB Info Values** link.
2. In the Connector Property Defaults section, select the target connector. The options are:
    - *Connector*. Click the **Lookup** button and select the connector ID.
    - *Node*. Click the **Lookup** button and select the node.
    - *Routing*. Click the **Lookup** button and select the routing from which to load connector properties.
3. Click the **Load Connector Properties** button.

Properties you have defined display in the bottom portion of the page.

Specifying Connector Properties

After you load the defined connector properties you can modify and add new values for testing purposes.

Connector properties you add or modify here do not override the properties you may have defined at the gateway, or node levels. However, when you run a handler test, the PeopleCode runs based on the values you define here and the Handler Tester writes the results to the database—and all PeopleCode database changes are permanent.

You can modify and add values for the following items:

Field or Control	***Description***
Connector Name	Specify the proper name of the target connector to invoke to send the message.
Connector Class Name	Specify the class name of the target connector to invoke.
Remote Framework URL	Specify the URL (as a string) to which to send a message. This value overrides the server URL.
Path Info	Specific to incoming HTTP requests. This is the path information extracted from the request.

Field or Control	*Description*
Cookies	Specific to incoming HTTP requests. This is cookie string found when the request was received by the HTTP listening connector.
App Server Domain	Enter the name of the application server domain to use.
Synch Server Timeout	Specify the timeout period (in seconds) for a transaction at runtime. The default synchronous timeout period is 300 (five minutes).
Property Name/Value/Property Type	Add or modify connector property names, values and types.
Name/Value	Add or modify parameter names and values to send to the target system in the URL, if the external system can use query string parameters as input.

Running Handler Tests and Viewing Test Results

This section discusses how to:

- Execute event tests.
- View test results.

Executing Handler Tests

After you have set up the integration metadata and selected the handler to test, you can run the handler test.

To run a handler test, on the Handler Tester page, click the **Execute Event** button.

Viewing Test Results

The Handler Tester returns test results on the Returned Message/Result section of the Handler Tester page and in the Returned IB Info page.

Viewing Results in the Return Message/Results Section

The following table lists the results the Handler Tester returns in the Return Message/Results section on the Handler Tester page:

Event	***Returns***	***Return Value***
OnNotify	String.	The return values are: • *Done.* • *Exit(1)*.
OnSend	Message structure.	Tree or XML.
OnRequest	Message structure or string.	If OnRequest code runs to completion, the message structure or tree is returned. If there is a user thrown exception, an exception string is returned.
OnRouteReceive	Boolean.	The return values are: • Inbound message is accepted. • Inbound message is rejected.
OnRouteSend	String.	The return values are: • *Outbound message target node list is accepted.* • *Outbound message target node list is rejected.* • *Outbound message sent to the following node(s) — <node_name>, <node_name>, <node_name>*
OnAckReceive	String.	The return values are: • *Error.* • *Done.* • *Retry.*
Component Interface type on a synchronous service operation.	Message structure.	Tree or XML.
Component Interface type on an asynchronous service operation.	String.	String returned by the handler.

Event	*Returns*	*Return Value*
Deprecated PeopleCode handler On Request.	Message structure.	Tree or XML.
Deprecated PeopleCode handler OnNotify.	String.	The return values are: • *Done.* • *Exit(1).*

A reply message displays for the OnRequest and OnSend events. If the reply message is rowset-based, it displays in a tree format to the right of the Input Message section. If the returned message is nonrowset-based, a display-only edit box will display with its contents.

Viewing Results in the Returned IB Info Page

If you specified target connector properties, you can view returned IBInfo information. To do so, on the Handler Tester page, click the **View Returned IB Info Values** link.

Depending on the input values for an event test and the PeopleCode content, some or all of the fields contain test data.

The fields on that display on this page are described earlier in the Handler Tester documentation.

See Specifying Target Connectors and Target Connector Properties.

Clearing Test Data

This section describes how to:

- Clear rowset-based message data.
- Clear nonrowset-based message data.

Clearing Rowset-Based Message Data

To clear rowset-based message data:

1. Access the Handler Tester page.
2. Click the **New Tree Structure** button.

All values for the input message are cleared from the message definition, and you can repopulate it as desired.

Clearing Nonrowset-Based Message Data

To clear nonrowset-based message data:

1. Access the Handler Tester page.
2. In the Input Message box, delete the XML.

You can repopulate the message definition as desired.

Chapter 7

Using the Schema Tester Utility

Understanding the Schema Tester Utility

The Service Schema Validation Utility enables you to validate rowset-based and nonrowset-based messages against message schemas during development to determine if messages adhere to defined message schemas.

Prerequisites for Using the Schema Tester Utility

To use the Schema Tester utility the following items must exist:

- A message schema against which to test a message.

  The message schema can be built when you create the message or you can use the Message Schema Builder to build message schemas.

- A message in XML format to test against a schema.

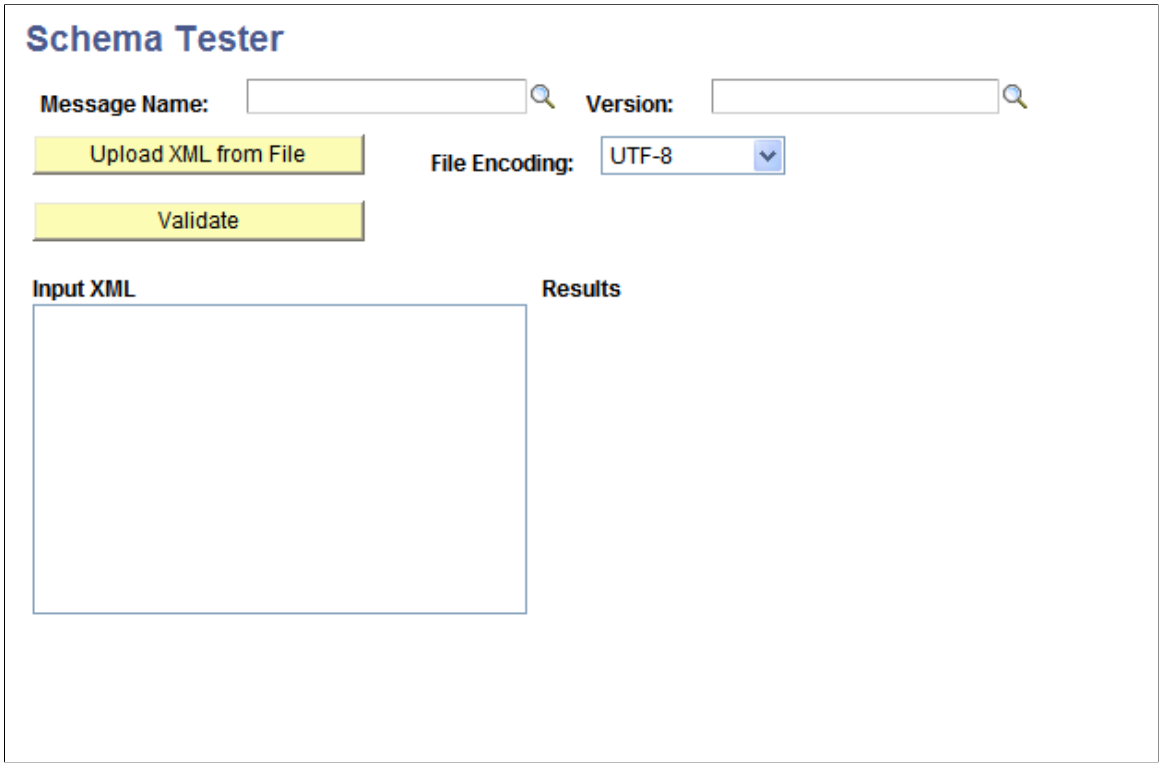
In addition, to test a schema you must specify the integration gateway must be configured and the default application server must be configured.

Accessing the Schema Tester Utility

The Schema Tester utility is located in the Schema Tester component (IB_SCHEMATESTER).

To access the Schema Tester utility page (IB_SCHEMATESTER), select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Message Schemas**.

This example illustrates the fields and controls on the Schema Tester page.



Validating Messages Against Message Schemas During Development

To validate a message against a message schema:

1. Select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Message Schemas**.
2. To select a message, in the **Message** field, click the **Lookup** button and select a message.
3. To select a message version , in the **Version** field, click the **Lookup** button and select a message version.
4. From the **File Encoding** drop-down list, select the file encoding of the file you are uploading. The options are:
   - *Non-encoded.*
   - *UTF-8.*
   - *UTF-16.*
5. Load an XML message to test into the Schema Tester.
   - To load a message from a file, click the **Upload XML from File** button and select the message. The message displays in the **Input XML** text box.

- In the **Input XML** text box, manually enter the message data.

6. Click the **Validate** button to validate the message against the message schema defined for the message definition.

The results of the validation display in the results area of the page.

Chapter 8

Using the Generate SOAP Template Utility

Understanding the Generate SOAP Template Utility

The Generate SOAP Template utility enables you to create a SOAP template for any service for which WSDL has been generated. This template consists of example request, response and fault shapes, that can be used in the Handler Tester utility, the Transformation Tester utility or the Send Master utility to test SOAP messages.

You can also use the utility to invoke a test service operation.

Prerequisites for Using the Generate SOAP Template Utility

To use the Generate SOAP Template Utility the following items must exist:

- Message schemas for all messages used in the service operation.
- The service operation contains an any-to-local routing.
- The WSDL for the service operation has been written to the WSDL Repository using Provide Web Services.

Related Links

“Providing Non-REST Web Services” (Integration Broker)
“Providing REST Web Services” (Integration Broker)
“Providing OpenAPI REST Web Services” (Integration Broker)

Accessing the Generate SOAP Template Utility

The Generate SOAP Template utility is located in the Generate SOAP Template component (IB_TESTSOAP).

Use one of the following methods to access the Generate SOAP Template utility page (IB_TESTSERVICE):

- From the PeopleSoft Pure Internet Architecture, select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Generate SOAP Templates**.
- From the last page of the Provide Web Service wizard, Confirm Results page, click the Generate SOAP Template button.

This example illustrates the fields and controls on the Generate SOAP Template page.

Generating SOAP Templates

To generate a SOAP template:

1. Access the Generate SOAP Template page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Generate SOAP Templates**.)

   The Generate SOAP Template page appears.

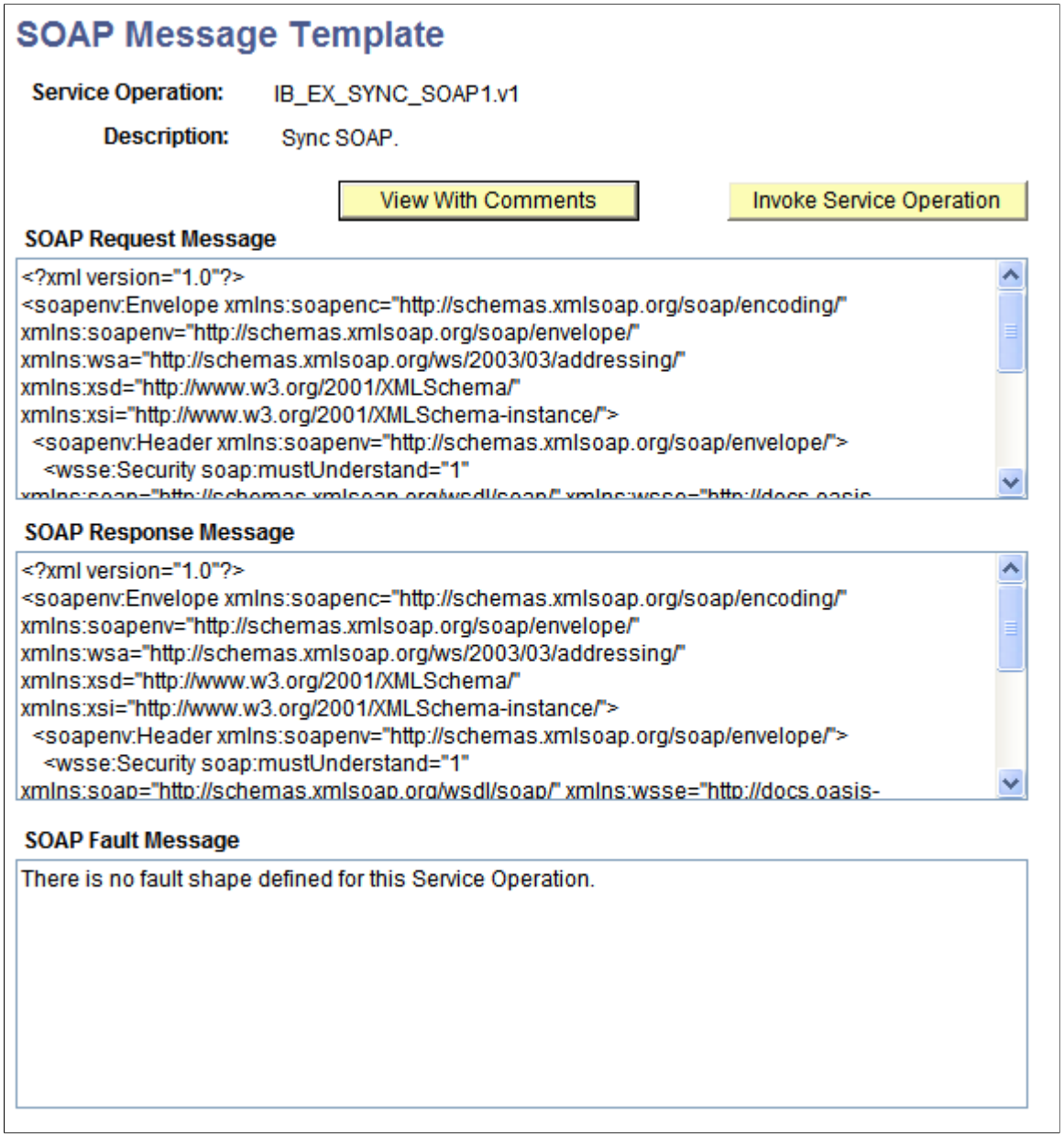
2. Click the name of the service operation for which to generate a SOAP template.

The system generates the SOAP template and displays it in the SOAP Message Template page.

Viewing the Generated Soap Template

The generated SOAP template appears on the SOAP Message Template page (IB_TESTSOAP).

This example illustrates the fields and controls on the SOAP Message Template page.



The system generates request, response and fault templates.

Note: The generated SOAP messages can be copied and saved in a file for testing.

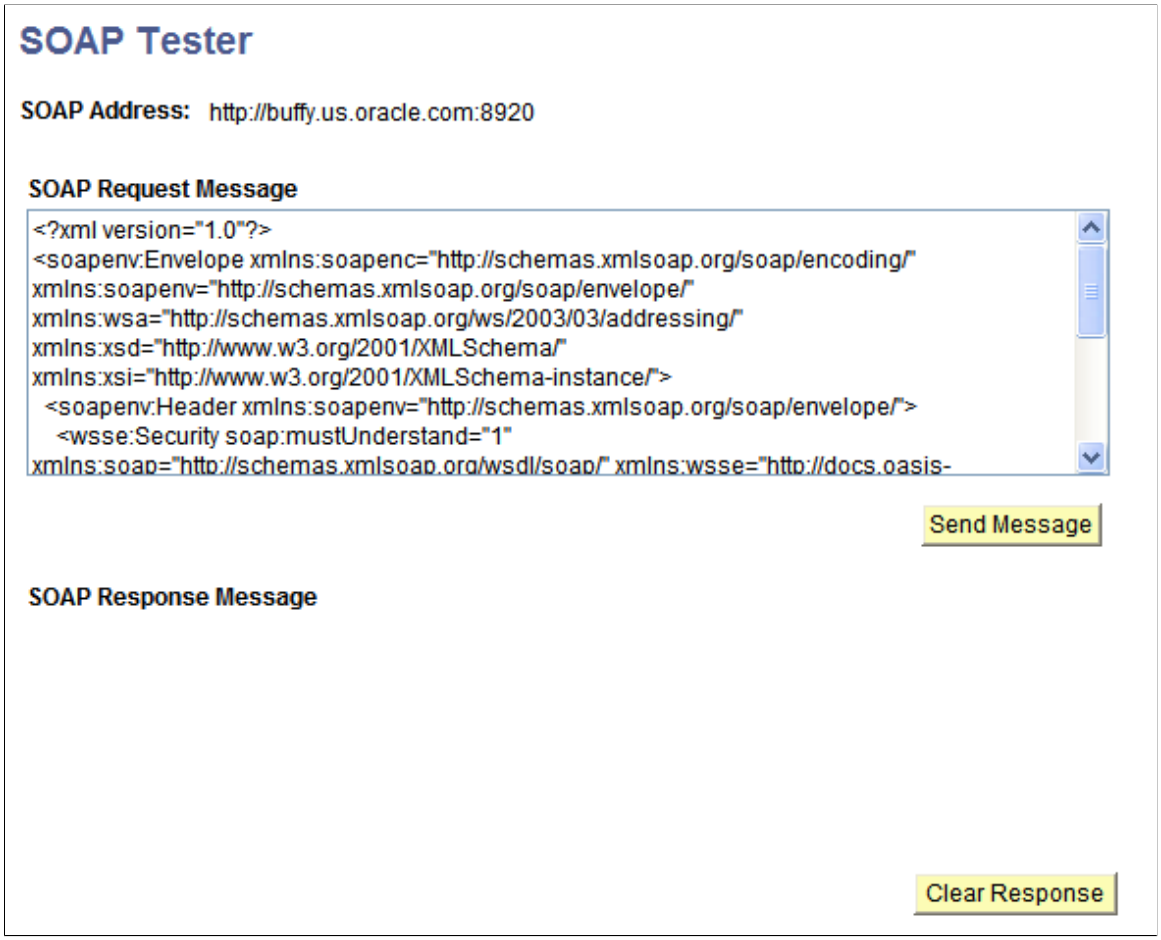
Hidden comments in the template provide detailed metadata information including rules, restrictions and extensions. Use the **View With Comments** push button to display comments for the generated template, and the **View Without Comments** push button to hide the comments.

Invoking Service Operations from the Generate SOAP Template Utility

After you have generated the SOAP templates for the request message and response message (if any), you can invoke the service operation.

When you click the *Invoke Operation* button on the SOAP Message Template page, the SOAP Tester page appears.

This example illustrates the fields and controls on the SOAP Tester page.



When the SOAP Tester page first appears two fields are populated, the **SOAP Address** and the **SOAP Request Message** fields. The system populates the SOAP address from the service information contained in the WSDL. The SOAP request message is the same as what the system generated on the SOAP Message Template page.

After the page is displayed, you can change any values as needed in the SOAP request message.

Note that the auto-generated SOAP request message contains data that is valid with respect to type (a number for a 'number' field) but may not be valid for that particular request. For example, a key field may be populated with a valid string, but that string value might not actually correspond to a valid entry in the database. It is your responsibility to check the request to ensure that the data makes sense and make any necessary modification.

After you submit the request, the system displays the response in the SOAP Response Message section of the page. The response may either be a valid response or a SOAP fault.

To invoke a service operation from the Generate SOAP Template utility:

1. Using the Generate SOAP Template utility, generate a SOAP message

   See Generating SOAP Templates.

2. On the SOAP Message Template page, click the **Invoke Service Operation** button.

   The SOAP Tester page appears.

3. Review the information in the **SOAP Address** and **SOAP Request Message** fields.

   Make any necessary modifications.

4. Click the **Send Message** button.

   The system invokes the service operation.

The system invokes the service operation and populates the response in the SOAP Message Response section of the page.

Chapter 9

Using the Service Operation Tester Utility

Understanding the Service Operation Tester Utility

The Service Operation Tester utility enables you test service operations and invoke the following service operation types using the utility:

- Asynchronous One-Way.
- Asynchronous Request/Response.
- Asynchronous-to-Synchronous.
- Synchronous.

You can use the utility to populate messages contained within a service operation,

Prerequisites for Using the Service Operation Tester Utility

Before you can use the Service Operation Tester Utility you must create a service operation and save it in the database.

Common Elements Used in the Service Operation Tester Utility

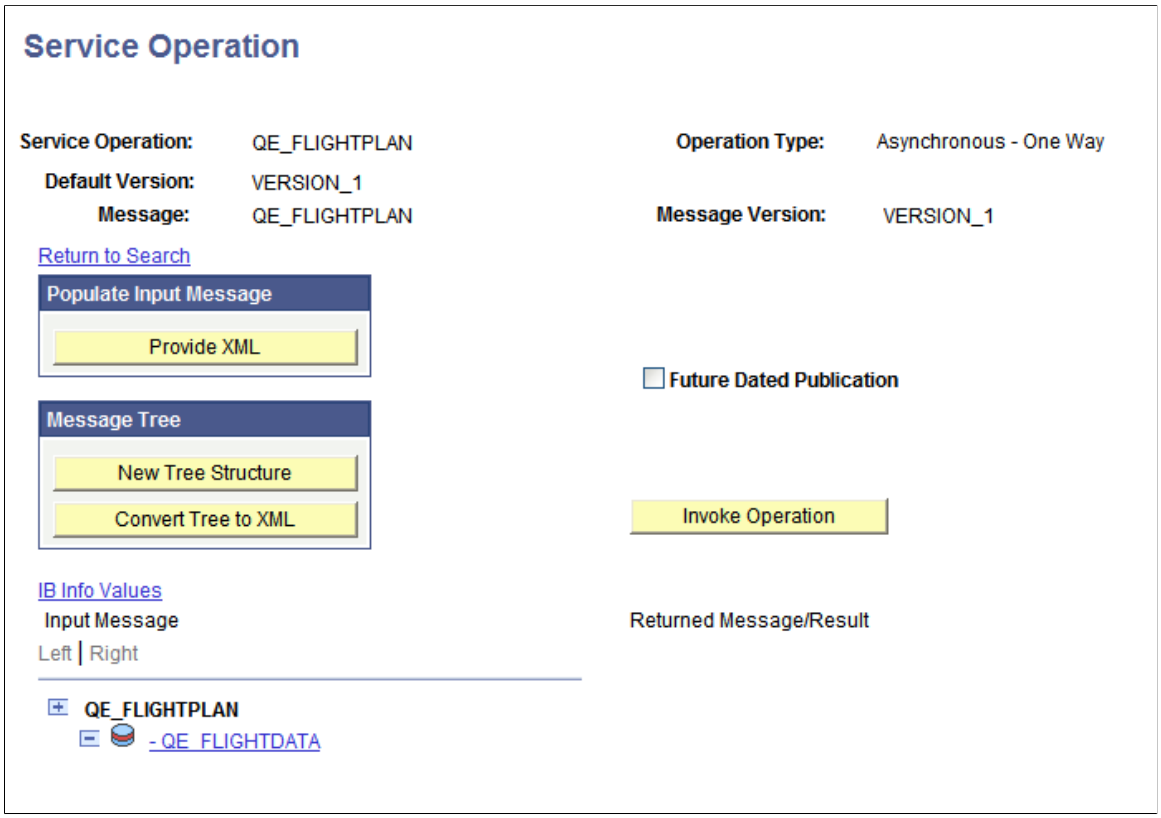
Field or Control	***Description***
Convert Tree to XML	Click the button to convert data stored in the tree structure into XML format.
Default Version	The Service Operation Tester tests the default version of a service operation. If you are testing a non-default version, the transform version page will be displayed.
Future-Dated Publication	Check the box to test future-dated asynchronous service operations.

Field or Control	*Description*
HTTP Trace	This option appears only when testing REST consumer service operations. This option enables you to see the data received at the other end of a request chain and use that data for testing or diagnostic information. When you select this option and send a request, the data returned is the data received by the service provider.
IB Info Values	Click the link to override target connector properties.
Invoke Operation	Click the button to invoke the service operation.
Message Version	The version of the request message.
New Tree Structure	Click the button to clear the record and field values in the tree structure.
Operation Type	Displays the operation type of the selected service operation. See “Services Operation Types” (Integration Broker).
Provide XML	Click the button to input XML or upload XML data from a file.
Returned Message/Result	The returned message or results from the test. Displays when you click the **Execute Event** button.
Return to Search	Click the link to return to the Operation Tester Search page and search for an operation to test.
Service	The service that contains the service operation to use for the test.
Service Operation	The service operation to use for the test.
Use DB Operation Transaction	Use this button to populate the input message with an existing database transaction.
View Returned IB Info Values	Displays the IBInfo values that were returned from the test.

Accessing the Service Operation Tester Utility

To access the Service Operation Tester utility, select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operations**.

This example illustrates the fields and controls on the Service Operation page.



Selecting Service Operations to Test

To select a service operation to test:

1. Access the Service Operation Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operations.**).
2. Select a service operation by performing one of the following:
   - Click the Search button to display a list of all service operations defined in the database. Click the name of the service operation to test. The Service Operation Tester page appears.
   - In the Service field, enter all or part of the name of the service that contains the service operation to test. Click the **Lookup** button. A list of all services in the database that match the search criteria you entered display.

     If you enter nothing in the Service field and click the Lookup button, a list of all services in the database appears.

Click the name of a service that contains the service operation to test. Click the **Search** button to display all service operations that belong to the service.

Click the name of the service operation to test. The Service Operation Tester page appears.

- In the Service Operation field, enter all or part of the name of the service operation to test. Click the **Lookup**. A list of all service operations in the database that match the search criteria you entered display.

  If you enter nothing in the **Service Operation** field and click the **Lookup** button, a list of all service operations in the database appears.

  Click the name of the service operation to test. Click the **Search** button to display all service operations that contain the search string you entered.

  Click the name of the service operation to test. The Service Operation Tester page appears.

Specifying Future-Dated Asynchronous Service Operations

The Service Operation Tester utility enables you to test future-dated asynchronous service operations.

If you select an asynchronous service operation, a **Future Dated Publication** box appears on the Service Operation page.

Check the **Future Dated Publication** box if the service operation you want to test is future-dated.

Populating Message Data

This section describes how to populate message data in the Service Operation Tester utility. This section discusses how to:

- Manually enter XML to populate message data.
- Upload XML from files to populate message data.
- Manually enter field values to populate message data, including PSCAMA record values and audit actions.
- Populate rowset-based message parts in container messages.

Understanding Populating Message Data

You can load message data into a message definition from the following sources.

1. XML that manually enter.
2. XML that you upload from a file.

3. Field values that you manually enter, including PSCAMA record values and audit actions.

Manually Entering XML to Populate Message Data

This section describes how to:

- Manually enter XML data into rowset-based message definitions.
- Manually enter XML data into nonrowset-based message definitions.

Manually Entering XML Data into Rowset-Based Message Definitions

When you manually enter XML data into a rowset-based message, the tree view is not available. To work with message data in the tree view, you must manually populate field values.

To manually populate a rowset-based message definition:

1. Access the Enter XML page.
   a. Select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operations.**

      The Service Operation Tester page appears.

   b. Click the **Provide XML** button.

      The Enter XML page appears.

2. In the **XML** text box enter XML to populate the message definition.
3. Click the **OK** button.

   The Service Operation page appears and the XML you entered displays in the Input Message box.

Manually Entering XML Data into Nonrowset-Based Message Definitions

To manually populate a nonrowset-based message definition, on the Service Operation page, enter XML directly into the **Input Message** box.

To access the Input Message box, select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operations.**

Note that you can also click the **Provided XML** button and enter XML in the **XML** text box for a nonrowset-based message definition.

Uploading XML Data from Files to Populate Message Data

This section describes how to upload XML data from files to populate rowset-based and nonrowset-based message definitions.

Prerequisites for Uploading XML Data from Files

To successfully upload files into the Handler Tester you must set the PS_FILEDIR and PS_SERVIDR environment variables.

See “Understanding Setting PS_FILEDIR, PS_SERVDIR, and PS_TREEBASEDIR Environment Variables” (Integration Broker).

Uploading XML Data from Files

To upload XML data from a file to populate message definition data:

1. Access the Enter XML page. (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operations.** Click the **Provide XML** button.).
2. From the **File Encoding** drop-down list, select the file encoding of the file you are uploading. The options are:
   - *Non-encoded.*
   - *UTF-8.*
   - *UTF-16.*
3. Click the **Upload XML from File** button.
4. Click the **Browse** button to locate the XML file to upload.
5. Click the **Upload** button.
6. Click the **OK** button to return to the Service Operation page.

Manually Entering Field Values to Populate Message Data

This section discusses how to:

- Manually enter message definition field values.
- Assign PSCAMA record values and audit actions to Level 0 records.
- Assign PSCAMA audit actions to Level 1 and greater records.

Understanding Manually Entering Field Values

After you specify a service operation and version for a rowset-based message, the Handler Tester displays the message definition record and field structure in a tree format.

You can populate the message definition by manually entering values for fields.

In addition you can specify PSCAMA record values and audit actions for Level 0 records, as well as PSCAMA audit actions for Level 1 and greater records.

Understanding Assigning PSCAMA Record Values and Audit Actions

For service operations that contain rowset-based messages, the Service Operation Tester enables you to populate PSCAMA record values at Level 0 and PSCAMA audit action options at every other level of the rowset, based on the message definition.

Manually Entering Message Definition Field Values

To manually enter field value data:

1. Access the Service Operation Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operations.**).
2. In the tree structure for the message definition, single-click on field name to populate.

   A dialog box for the field opens that displays field length and field type information as a guide for entering values.
3. Enter a value for the field.
4. Click the **OK** button.

Values you enter display after the field name in the tree view. The tree shows the first 30 characters of an entered value; however, the entire field value is stored.

See Saving Message Data.

Assigning PSCAMA Values and Audit Actions to Level 0 Records

To assign PSCAMA values and audit actions to Level 0 records:

1. Access the Service Operation Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operations.**).
2. Populate the service operation with a rowset-based message.

   See Populating Message Data.
3. In the tree view, click the Level 0 record.

   The Select an Action page appears.
4. Click the **Assign PSCAMA** arrow to expand the section.
5. Enter PSCAMA values as appropriate.

   Descriptions of the PSCAMA field values and audit actions are described elsewhere in the PeopleTools product documentation.

   See “PSCAMA” (Integration Broker).
6. Click the **OK** button.

Assigning PSCAMA Audit Actions to Level 1 and Greater Records

To assign PSCAMA audit actions to Level 1 and greater records:

1. Access the Service Operation Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operations.**).
2. Populate the service operation with a rowset-based message.

   See Populating Message Data.

3. In the tree view, click a Level 1 or greater record.

   The Select an Action page appears.

4. Click the **Assign PSCAMA** arrow to expand the section.

5. From the Action field, section the appropriate audit action.

   Descriptions of PSCAMA audit actions are described elsewhere in the PeopleTools product documentation.

   See “PSCAMA” (Integration Broker).

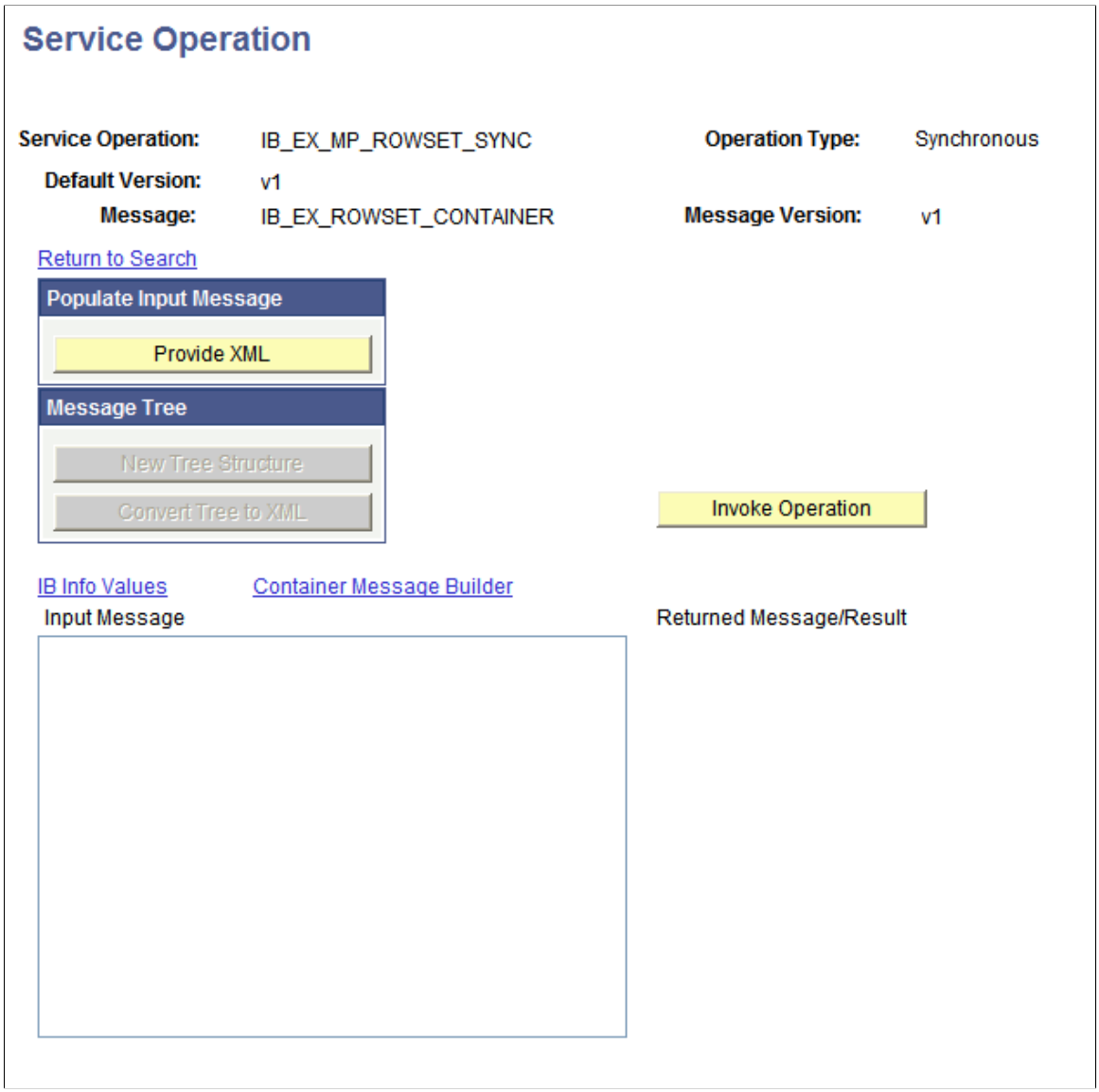
6. Click the **OK** button.

Populating Rowset-Based Message Parts in Container Messages

The Service Operation Tester utility enables you to populate rowset-based message parts in container messages.

When you select a container message with which to work in the utility, a **Container Message Builder** link appears on the Service Operation Tester page.

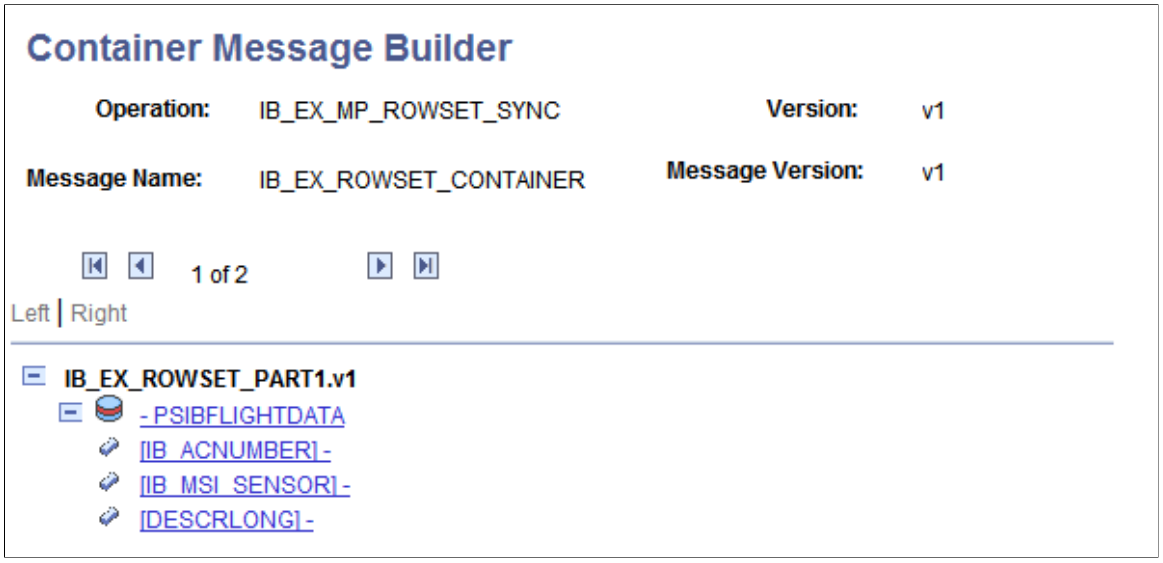
This example shows the Service Operation Tester page with a service operation selected that contains a container message that contains rowset-based message parts.



The example shows that the service operation *IB_EX_MP_ROWSET_SYNC* is selected to test. The service operation contains the message *IB_EX_ROWSET_CONTAINER,* which is a container message comprised of rowset-based message parts.

When you select the Container Message Builder link, the Container Message Page (IB_MSGCONTAINER) appears.

This example illustrates the fields and controls on the Container Message Builder page.



The example shows the first message part contained in the message container, *IB_EX_ROWSET_PART1.V1*. At the bottom of the page is the familiar tree structure for building out rowset-based messages. You use the same pages as you would to build out any rowset-based message.

Use the backward and forward arrows to navigate to the different message parts in the message.

In between the navigation arrows, the system displays the part on which you are working, and the total number of parts in the container message. This example shows that the Container Message Builder page is displaying message part one and that a total of two parts comprise the container message.

The procedures for creating and modifying rowset-based messages are described in detail elsewhere in the PeopleTools product documentation.

See “Managing Rowset-Based Messages” (Integration Broker).

Saving Message Data

This section discusses how to:

- Save data located in the tree view.
- Save manually-entered XML data.

Saving Data Located in Tree Views

To save test data loaded or entered into a tree view:

1. Access the Service Operation Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operations**.)

   Click the **Convert Tree to XML** button.

The Service Operation Tester converts the data to XML format and displays it in the Input Message window.

2. Cut and paste the XML into an editor or your choice and save the file.

You can later import the data back into the Service Operation Tester by uploading the XML file back into the utility.

Note: You can also use this method to create and save a test message to use with other integration testing utilities such as Send Master.

Related Links

Populating Message Data
Understanding Send Master

Saving Manually-Entered XML Data

To save XML test data that you have manually entered into the utility:

1. Access the Service Operation Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operations**).
2. Cut or copy the XML data in the **Input Message** box and copy it into an editor or your choice.
3. Save the file.

You can later import the data back into the Service Operation Tester by uploading the XML file back into the utility.

Cloning and Deleting Record Structures

This section discusses how to:

- Clone record structures.
- Delete record structures.

Cloning Record Structures

In some cases, you will want to add additional nodes to a record/field tree structure.

For example, if you are testing a purchase order, the records in the tree might be *ORDER_HEADER* and *ORDER_LINE*. If you want to test with two or more lines, you can click the first occurrence of the record name *ORDER_LINE* to duplicate that portion of the tree and all child records and nodes.

To clone a record structure:

1. Access the Service Operation Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operations**).

2. In the tree view, single-click the record to clone.

   The Select An Action dialog box appears.

3. Select **Clone Record Structure**.

4. Click the **OK** button.

The original record is duplicated, along with child nodes and all entered field values. If you clone a record in error, single-click the record again and delete the record structure.

Deleting Record Structures

To delete a record structure:

1. Access the Service Operation Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operations**).

2. In the tree view, single-click the record to delete.

3. Select **Delete Record Structure**.

4. Click the **OK** button.

Overriding Target Connector Properties

This section discusses how to:

- Specify target connectors.
- Specify target connector properties.

Specifying Target Connectors

You can specify a target connector and target connector properties you have defined at the connector, node and routing definition level when you test service operations.

For example, suppose that there are different query string arguments that would normally come into the system in the URL of an HTTP Get. The PeopleCode that handles the incoming service operation would have to obtain the query string arguments from the message's IB Info object. In the Service Operation Tester, you can supply these values on the IB Info page.

To select a target connector:

1. Access the Service Operation Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operations**).

2. Click the **IB Info Values** link.

3. In the Connector Property Defaults section, select the target connector. The options are:

   - *Connector*. Click the **Lookup** button and select the connector ID.

- *Node*. Click the **Lookup** button and select the node.
- *Routing*. Click the **Lookup** button and select the routing from which to load connector properties.

4. Click the **Load Connector Properties** button.

Specifying Connector Properties

After you load the defined connector properties you can modify and add new values for testing purposes.

Connector properties you add or modify here do not override the properties you may have defined at the gateway, or node levels. However, when you run a service operation test, the PeopleCode runs based on the values you define here and the Service Operation Tester writes the results to the database—and all PeopleCode database changes are permanent.

You can modify and add values for the following items:

Field or Control	***Description***
Connector Name	Specify the proper name of the target connector to invoke to send the message.
Connector Class Name	Specify the class name of the target connector to invoke.
Remote Framework URL	Specify the URL (as a string) to which to send a message. This value overrides the server URL.
Path Info	Specific to incoming HTTP requests. This is the path information extracted from the request.
Cookies	Specific to incoming HTTP requests. This is cookie string found when the request was received by the HTTP listening connector.
App Server Domain	Enter the name of the application server domain to use.
Synch Server Timeout	Specify the timeout period (in seconds) for a transaction at runtime. The default synchronous timeout period is *300* (five minutes).
Property Name/Value/Property Type	Add or modify connector property names, values and types.
Name/Value	Add or modify parameter names and values to send to the target system in the URL, if the external system can use query string parameters as input.

Invoking Test Service Operations

After you have selected the service operation to test and have set up the integration metadata, you can invoke the test service operation.

When you invoke an asynchronous service operation type, for example, asynchronous one-way, asynchronous request-response, or asynchronous-to-synchronous, the system invokes the service operation using the Publish method.

When you invoke a synchronous service operation type, the system invokes the service operation using the SyncRequest method.

To invoke a service operation in the Service Operation Tester:

1. Access the Service Operation Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operations**).
2. Click the **Invoke Operation** button.

Viewing Test Service Operation Results

The Service Operation Tester returns test results in the Returned Message/Result section of the Service Operation page and in the Returned IB Info page.

Viewing Results in the Return Message/Results Section

When you click the **Invoke Operation** button, the Service Operation Tester invokes the service operation.

If the test is success the system displays a message that the service operation was published and also provides a transaction ID. The following example show a typical message the system displays when a service operation is successfully invoked:

```
Published.  Transaction ID - fb779f7c-51bc-11dc-9567-c6308e318606.
```

If an error occurs during the invocation, an error message will display in the Return Message/Results section.

Viewing Results in the Returned IB Info Page

If you specified target connector properties, you can view returned IBInfo information. To do so, on the Service Operation page, click the **View Returned IB Info Values** link.

Depending on the input values for an event test and the PeopleCode content, some or all of the fields contain test data.

The fields on that display on this page are described earlier in the Service Operation Tester documentation.

Related Links

Overriding Target Connector Properties

Clearing Service Operation Test Data

This section describes how to:

- Clear rowset-based message data.
- Clear nonrowset-based message data.

Clearing Rowset-Based Message Data

To clear rowset-based message data:

1. Access the Service Operation Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operations**).
2. Click the **New Tree Structure** button.

All values for the input message are cleared from the message definition, and you can repopulate it as desired.

Clearing Nonrowset-Based Message Data

To clear nonrowset-based message data:

1. Access the Service Operation Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Test Service Operations**).
2. In the Input Message box, delete the XML.

You can repopulate the message definition as desired.

Chapter 10

Using the Provider REST Template Utility

Understanding the Provider REST Template Utility

The Provider REST Template utility enables you to create a provider REST template for any provider REST service for which a WADL document has been generated. This template consists of example request, response and fault shapes that can be used in the Handler Tester utility, the Transformation Tester utility or the Send Master utility to test REST-based messages.

You can also use the utility to invoke a test service operation.

Prerequisites for Using the Provider REST Template Utility

To use the Provider REST Template utility a WADL document must exist for the service

Click the **View WADL** link on the service definition to determine if a WADL document exists for the service. If a WADL document does not exist for the service use the Provide Web Service wizard to generate one.

Related Links

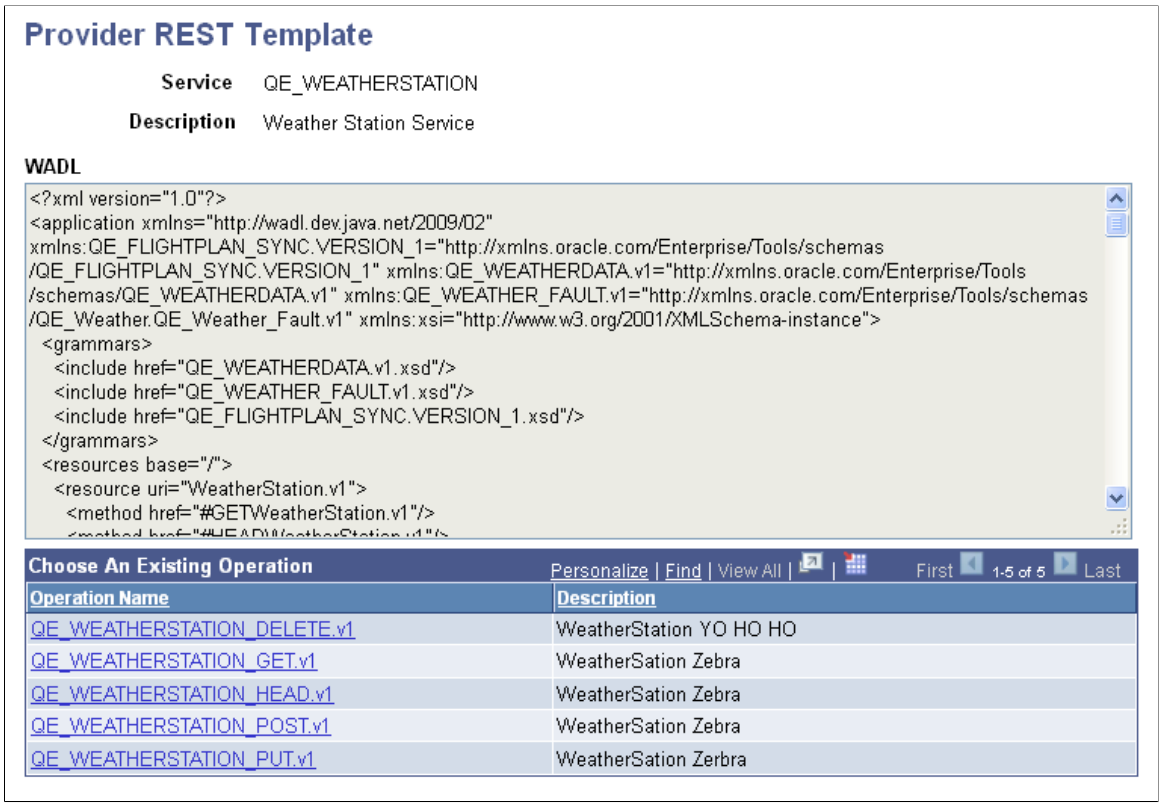
"Accessing REST Service Operations" (Integration Broker)
"Viewing REST Service Operation Definitions" (Integration Broker)
"Providing Non-REST Web Services" (Integration Broker)
"Providing REST Web Services" (Integration Broker)
"Providing OpenAPI REST Web Services" (Integration Broker)

Using the Provider REST Template Page

Use the Provider REST Template page (IB_TSTSERVICE_REST) located in the Provider REST Template component (IB_TSTSERVICE_REST) to select a provider REST service to test.

To access the Provider REST Template page select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Provider REST Templates.**

This example illustrates the fields and controls on the Provider REST Template page. You can find definitions for the fields and controls later on this page.



The example shows a WADL document for the *QE_WEATHERSTATION* service. The service operations included in the WADL document and that you can subsequent test are listed in the grid at the bottom of the page. Click the name of one of the service operations in the list to configure it for testing purposes.

The following fields and controls appear on the page:

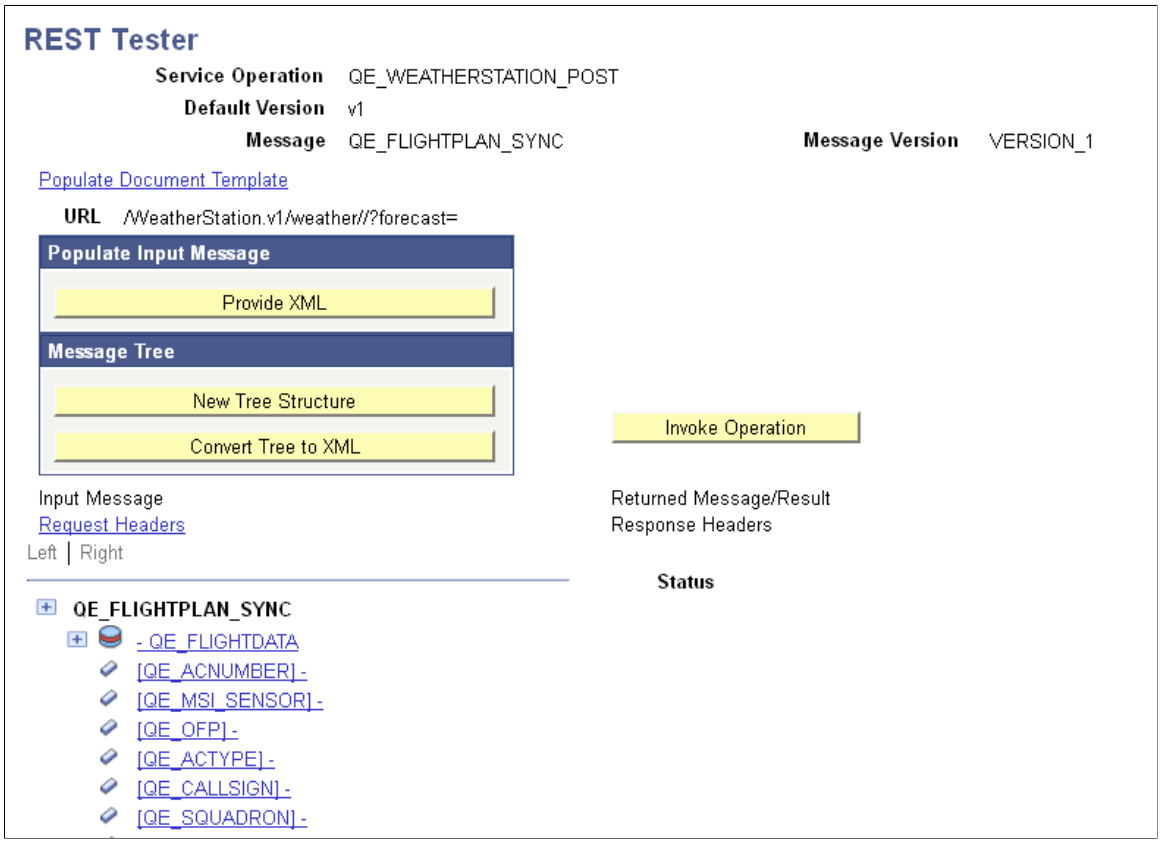
Field or Control	***Description***
Service	Name of the service on which the WADL document is based.
Description	Description of the service.
WADL	Area where the WADL document for the service appears. Use the scroll bar on the right side of the page view the document in its entirety.
Choose An Existing Operation (grid)	This grid lists the name and description of each service operation included in the generated WADL document. Click one of the service operations in the grid to configure it for testing.

Using the REST Tester Page

Use the REST Tester page (IB_EVENTTESTER) to view the request message shape, populate the document message with test data, and invoke the operation. The page also provides access to the URI Template Builder page, where you build the URI template.

To access the REST Tester page select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Provider REST Templates.**The Provider REST template page appears. Click the name of a service operation.

This example illustrates the fields and controls on the REST Tester page. You can find definitions for the fields and controls later on this page.



The following fields and controls appear on the page:

Field or Control	***Description***
Service Operation	Name of the service operation.
Default Version	Default version of the service operation.
Message	Name of the message associated with the service operation.

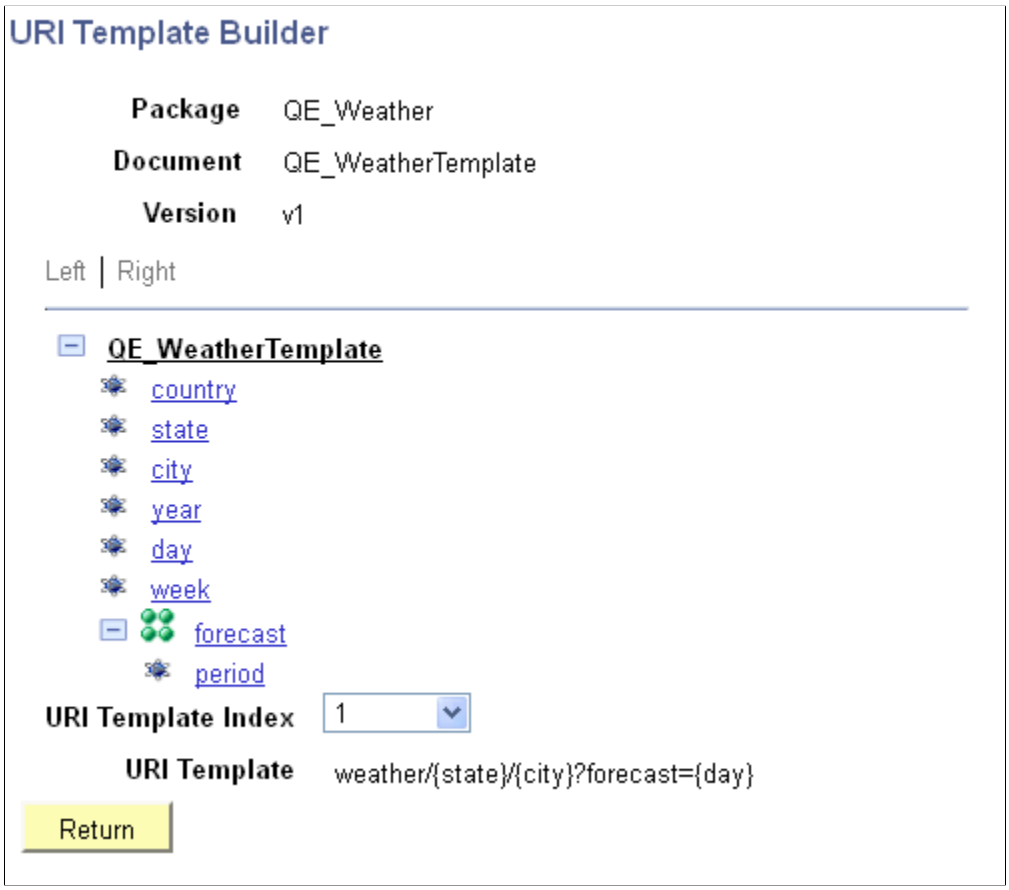
Field or Control	*Description*
Message Version	The version of the message associated with the service operation.
Populate Document Template	Click the link to access the URI Template Builder page to build the URI template.
URL	After you populate the document template, this field displays the fully-qualified URL that the REST consumer uses to invoke the service.
Provide XML	Click the button to manually enter XML message data or upload XML from a file. This option is generally used only when working with nonrowset-based messages.
New Tree Structure	If you use the **Convert Tree to XML** button to view the message data in XML format, click the button to return to a tree view of the data.
Convert Tree to XML	Click the button to view tree data in XML format. Click the **New Tree Structure** button to return to the tree view.
Input Message	This box displays XML uploaded from file, XML manually entered, and XML that you convert from the tree view.
Request Headers	Click the link to access the REST Request Headers page to build headers for the REST request.
Invoke Operation	After the document is populated with test data, the URI template is built and headers are complete, click the button to invoke the service operation. The results of the test appear in the Returned Message/Result section of the page.
Returned Message/Result	The utility returns test results in the Returned Message/Result section of the page.
Response Headers	Click the link access the REST Response Headers page to build headers for the REST response.
Status	After the document is populated with test data, the URI template is built and headers are complete, click the button to invoke the service operation. The results of the test appear Status section of the page.

Using the URI Template Builder Page

Use the URI Template Builder page (IB_DOCTPLT_SEC) to populate a document template and build a URI for testing the provider REST service operation.

To access the URI Template Builder page, select a service operation on the REST Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Provider REST Templates**) and click the **Populate Document Template** link.

This example illustrates the fields and controls on the URI Template Builder page. You can find definitions for the fields and controls later on this page.



The URI Template Builder displays the elements in a document in a tree view. Click on the elements to enter test values. The URI Template field displays the URI template and the elements that you must populate in the document tree.

Select different index values to view the URI templates defined for the service operation and the test data to enter for each.

The previous example shows that index *1* is selected and the URI template for that index is:

```
weather/{state}/{city}?forecast={day}
```

Based on this URI template, you would supply values for the state, city, forecast and day elements in the document tree to populate this template.

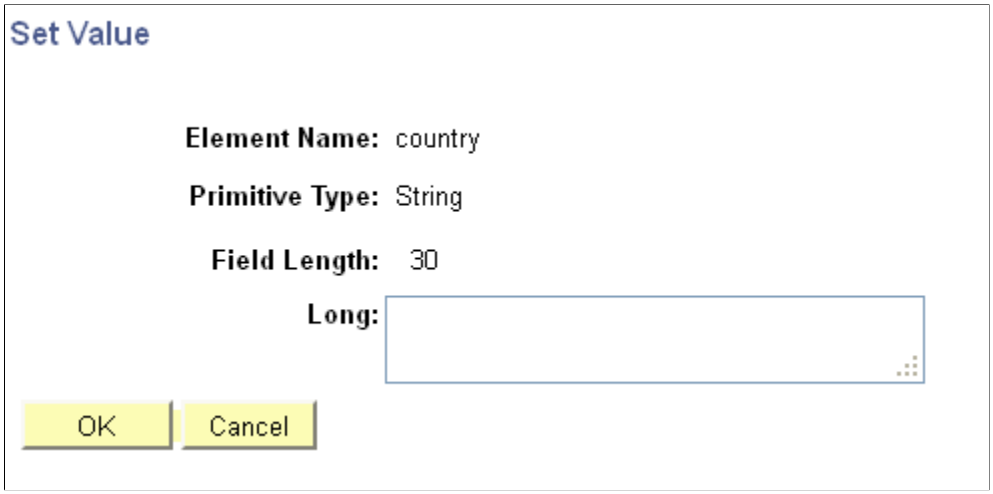
The following fields and controls appear on the URI Template Builder page:

Field or Control	*Description*
Package	Package name in which the document is defined.
Document	Document name.
Version	Document version.
URI Template Index	The system assigns a URI index to each URI template defined for a service operation. Select an index value from the list and view the associated URI template strings in the **URI Template** field directly under the index.
URI Template	This field displays the URI template string for the URI index selected in the **URI Template Index** field directly above this field.
Return	Click the button to return to the REST Tester page.

Using the Set Value Page

Use the Set Value page (IB_LSTESTER_SEC) to populate element values for testing document templates.

This example illustrates the fields and controls on the Set Value page. You can find definitions for the fields and controls later on this page.



The **Element Name** field displays the element name with which you're working.

In the example, the **Primitive Type** field and **Field Length** field display the data type and length as defined for the element in the document.

The name of the field where you enter a test value depends on the data type. In the previous example, the data type is a string, and therefore the system prompts you to enter a **Long** value.

The following table lists the possible labels for the field where you enter a test value:

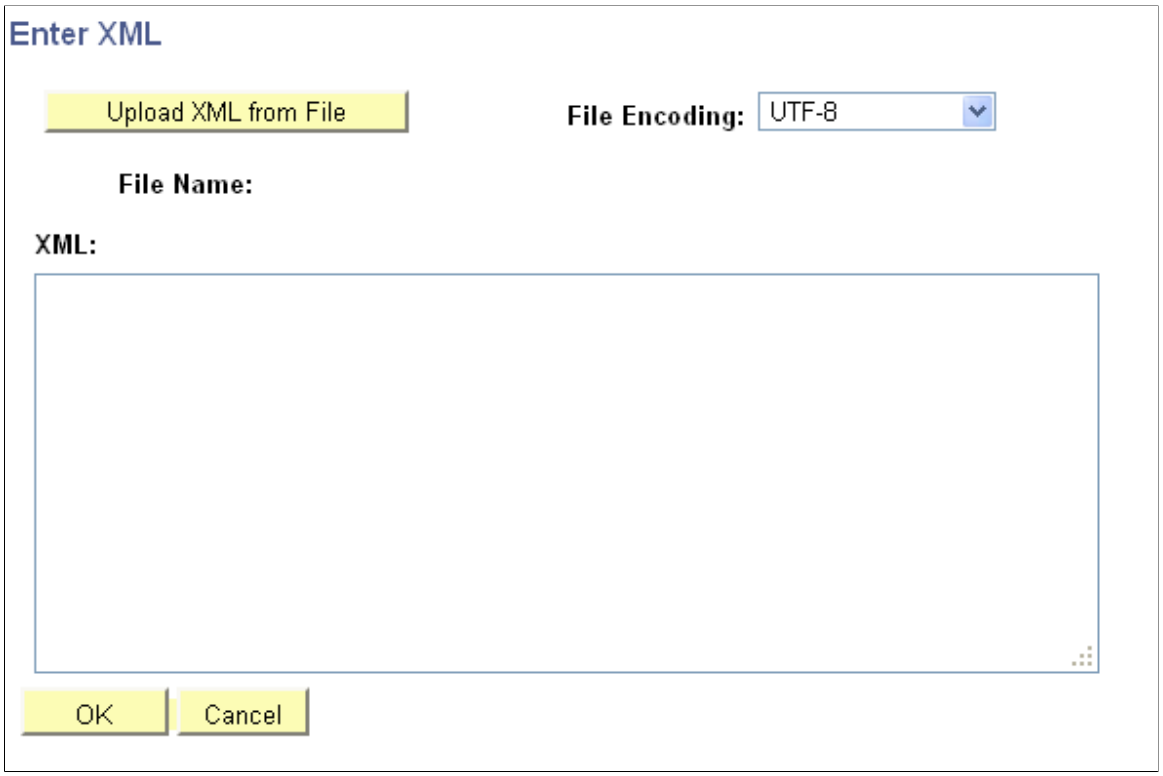
Data Type	*Primitive Type Field Label*	*Test Value Field Label*
Binary	Bin	Long
Boolean	Bool	Page displays a check box.
Character	Character	Char
Date	Date	Date
DateTime	DT	Datetime
Decimal	Dec	Numeric
Integer	Int	Numeric
String	String	Long
Text	Text	Long
Time	Time	Time

Using the Enter XML Page

Use the Enter XML page (IB_EVENTTST7_SEC) to manually enter XML to populate test messages and to upload XML from files to populate test messages.

To access the Enter XML page, select a service operation on the REST Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Provider REST Templates**) and click the **Provide XML** button.

This example illustrates the fields and controls on the Enter XML page. You can find definitions for the fields and controls later on this page.



The following fields and controls appear on the page:

Field or Control	***Description***
Upload XML from File	Click the link to browse to and upload an XML from a file. When uploaded, the name of the file appears in the **File Name** field and the XML appears in the XML section of the page.
File Name	Displays the name of the XML file uploaded.
File Encoding	From the drop-down list, select the character encoding of the file you are uploading. The valid options are: • *Non-Unicode.* • *UTF-16.* • *UTF-8.* (Default.)
XML	Use this area to: • View XML uploaded from a file • Manually enter XML.

Field or Control	*Description*
OK	Click the button to save the changes on the page and return to the REST Tester page.
Cancel	Click the button exit the Enter XML page without saving changes and return to the REST Tester page.

Using the REST Request Headers Page

The REST Request Headers page (IB_EVENTREQ_SEC) enables you to simulate setting REST headers identified in the service operation.

The number of headers available to build depends on the number, if any, defined on the routing definition for the service operation and thus included in the provided WADL document. If no headers were added to the routing definition for the service operation then no headers are available to populate.

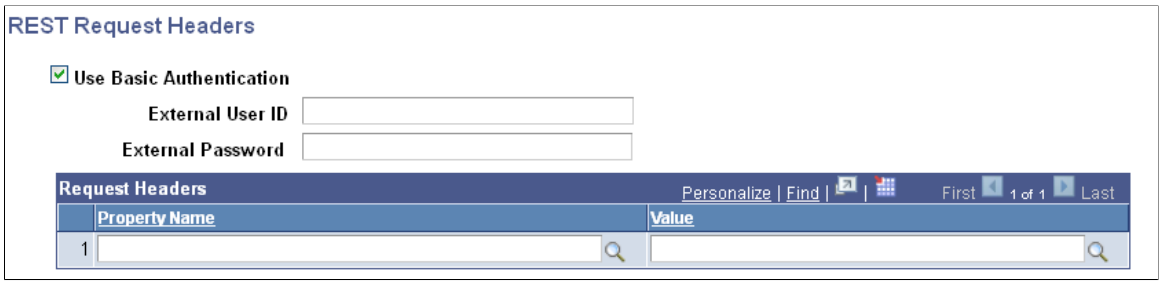
To access the REST Request Headers page, on the REST Tester page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Provider REST Templates**) click the **Request Headers** link.

This example illustrates the fields and controls on the REST Request Headers page. You can find definitions for the fields and controls later on this page.

The previous example shows the default view of the REST Request Headers page.

The page enables you to set basic authentication credentials if used in the service operation being tested. To enter basic authentication credentials, select the Use Basic Authentication box. User ID and password fields appear on the page for you to enter the credentials.

This example illustrates the REST Request Headers page when the Use Basic Authentication option is selected. Enter the external user ID and external password in the fields provided.



The following fields and controls appear on the page:

Field or Control	*Description*
Use Basic Authentication	Check the box if basic authentication is used in the service operation being tested.
External User ID	This field appears only when the **Use Basic Authentication** option is selected. Enter the external user ID.
External Password	This field appears only when the **Use Basic Authentication** option is selected. Enter the password for the external user ID.
Property Name	Enter a header property or choose one from the list.
Value	For each header property defined, enter or select a value from the list.
OK	Click the button to save the entries on the page and return to the REST Tester page.
Cancel	Click the button to exit the page without saving any changes and return to the REST Tester page.

Using the Select an Action Page

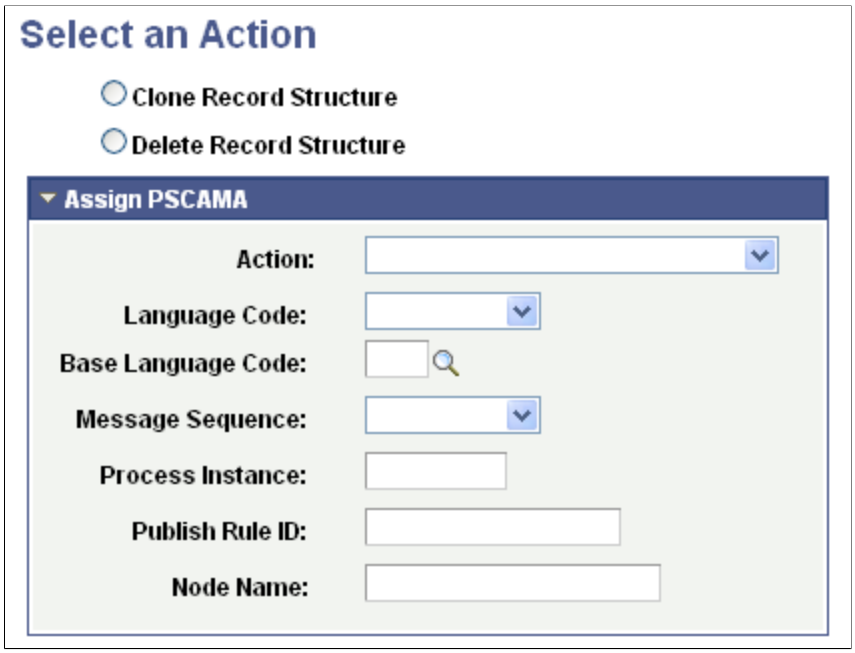
Use the Select an Action page (IB_EVENTTST2_SEC) to perform the following actions:

- Clone record structures.
- Delete record structures.
- Define PSCAMA values for Level 0 and Level 1 (and higher) records.

To access the Select an Action page:

1. Select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Provider REST Templates.** The Provider REST template page appears.
2. Select a Post or Put REST service operation.
3. The REST Tester page appears.
4. In the tree structure view, click the name of a record.

This example illustrates the fields and controls on the Select an Action page. You can find definitions for the fields and controls later on this page.



The following fields and controls appear on the page:

Field or Control	***Description***
Clone Record Structure	Select the option to clone the selected record.
Delete Record Structure	Select the option to delete the selected record.
Assign PSCAMA	Use the fields and controls in this box to specify PSCAMA values for the record. Click the arrow next to the control label to expand and collapse the area.
Action	Select a PSCAMA action from the list. The valid values are: • *Add.* • *Change – New Values.* • *Change – Old Values.* • *Change – Original Values.* • *Change Old (PPR only).* • *Delete.* See the product documentation for Integration Broker "Understanding Supported Message Structures," PSCAMA for more information about PSCAMA values.

Field or Control	*Description*
Language Code	Indicates the language in which the message is generated. Select a language code from the list.
Base Language	(Optional.) Enter the base language or click the Lookup button to search for the value.
Process Instance	(Optional.) Specify the process instance of the batch job that created the message. Along with the sending node and publication ID, the receiving node can use this to identify a group of messages from the sending node.
Publish Rule ID	(Optional.) Specify the publish rule that is invoked to create the message.
Node Name	(Optional.) Specify the name of the node to which the message should be sent.

Selecting Service Operations to Test

To select service operations to test in the Provider REST Template utility:

1. Access the Provider REST Template page (**PeopleTools** > **Integration Broker** > **Service Utilities** > **Provider REST Templates**).
2. In the **Choose an Existing Operation** grid, click the name of the service operation to test.

The REST Tester page appears.

Populating Messages with Test Data

This topic describes how to populate test message data in the Provider REST Template utility. This section discusses how to:

- Manually enter XML to populate test data.
- Upload XML from files to populate test message data.
- Manually enter field values to populate test message data.

Manually Entering XML to Populate Test Data

To manually enter XML to populate test data:

1. Access the Enter XML page.
    a. Select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Provider REST Templates.** The Provider REST Template page appears.
    b. Select a service operation to test in the Choose Existing Operation grid.

        The REST Tester page appears.
    c. Click the **Provide XML** button.

        The Enter XML page appears.
2. In the **XML** box enter XML to populate the message
3. Click the **OK** button.

The REST Tester page appears and the XML file you uploaded appears in the **Input Message** box.

Uploading XML from Files to Populate Test Data

To upload XML from a file to populate test data:

1. Access the Enter XML page.
    a. Select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Provider REST Templates.** The Provider REST Template page appears.
    b. Select a service operation to test in the Choose Existing Operation grid.

        The REST Tester page appears.
    c. Click the **Provide XML** button.

        The Enter XML page appears.
2. From the **File Encoding** drop-down list, select the encoding of the file you are uploading.
3. Click the **Upload XML from File** button.
4. Browse to and upload the XML file.

    The XML appears in the XML box on the page.
5. Click the **OK** button.

The REST Tester page appears and the XML file you uploaded appears in the **Input Message** box.

Manually Entering Field Values to Populate Test Data

This section describes how to:

- Manually enter field values.

- Assign PSCAMA values and audit actions to Level 0 records.
- Assign PSCAMA values and audit actions to Level 1 records.

Understanding Manually Entering Field Values

You can populate the message definition by manually entering values for fields.

In addition you can specify PSCAMA record values and audit actions for Level 0 records, as well as

PSCAMA audit actions for Level 1 and greater records.

Manually Entering Field Values

To manually enter field values to populate test data:

1. Access the REST Tester page.
    a. Select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Provider REST Templates.** The Provider REST Template page appears
    b. Select a service operation to test.

       The REST Tester page appears.
2. In the tree structure for the message definition, single-click on a field name to populate.

   A dialog box for the field opens that displays field length and field type information as a guide for entering values.
3. Enter a value for the field.
4. Click the **OK** button.
5. Repeat Step 2 through Step 4 for each field for which you want to define a test value.

Values you enter display after the field name in the tree view. The tree shows the first 30 characters of an entered value; however, the entire field value is stored.

Assigning PSCAMA Values and Audit Actions to Level 0 Records

To assign PSCAMA values and audit actions to Level 0 records:

1. Access the REST Tester page.
    a. Select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Provider REST Templates.** The Provider REST Template page appears
    b. Select a service operation to test.

       The REST Tester page appears.
2. Populate the REST service operation with a rowset-based message.
3. In the tree structure, click the Level 1 record.

The Select an Action page appears.

4. Click the **Assign PSCAMA** arrow to expand the section
5. Enter PSCAMA values as appropriate.

   Descriptions of the PSCAMA field values and audit actions are described elsewhere in the product documentation.

   See “Supported Message Structures” (Integration Broker)

6. Click the **OK** button.

Assigning PSCAMA Audit Actions to Level 1 and Greater Records

To assign PSCAMA values and audit actions to Level 0 records:

1. Access the REST Tester page.
   a. Select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Provider REST Templates.** The Provider REST Template page appears
   b. Select a service operation to test.

      The REST Tester page appears.

2. Populate the REST service operation with a rowset-based message.
3. In the tree structure, click the Level 0 record.

   The Select an Action page appears.

4. Click the **Assign PSCAMA** arrow to expand the section
5. Enter PSCAMA values as appropriate.

   Descriptions of the PSCAMA field values and audit actions are described elsewhere in the product documentation.

   See “Supported Message Structures” (Integration Broker)

6. Click the **OK** button.

Populating Document Templates

Use the URI Template Builder page to populate a document template for testing

To populate a document template:

1. Access the URI Template Builder page.
   a. Select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Provider REST Templates.** The Provider REST Template page appears

b. Select a service operation to test.

The REST Tester page appears.

c. Click the **Populate Document Template** link.

The URI Template Builder page appears.

2. From the **URI Template Index** drop-down list, select the URI template to populate.

When you select an index from the list, the template to populate appears in the **URI Template** field under the index list. The elements shown in the URI template are those to populate in the document tree.

3. In the tree structure for the document definition, single-click on an element name to populate.

A **Set Value** page appears that displays the element name, type, field length and other information as a guide for entering a value.

4. Enter a value for the element.

5. Click the **OK** button.

Values you enter display after the element name in the tree view. The tree shows the first 30 characters of an entered value; however, the entire value is stored.

6. Repeat Step 2 through Step 4 for each field for which you want to define a test value.

7. Click the **Return** button to return to the REST Tester page.

The **URL** field on the REST Tester page is populated with a fully-qualified URL that the REST consumer can use to invoke the service

Building REST Request Headers

Use the REST Request Headers page (IB_EVENTREQ_SEC) to simulate setting REST headers identified in the service operation when using the Provider REST Template utility.

The number of headers available to build depends on the number, if any, defined on the routing definition for the service operation and thus included in the provided WADL document. If no headers were added to the routing definition for the service operation then no headers are available to populate.

To build REST request headers:

1. Access the REST Request Headers page.

a. Select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Provider REST Templates.** The Provider REST Template page appears

b. Select a service operation to test.

The REST Tester page appears.

c. Click the **Request Headers** link.

The REST Request Headers page appears.

2. In the **Property Name** field, enter or select a header property to set.
3. In the **Property Value** field, enter or select a header value for each property you set
4. Click the **OK** button to return to the REST Tester page.

Defining Basic Authentication Credentials

If the REST provider service operation has basic authentication defined, define the external user ID and external password in the service operation headers using the REST Request Headers page

To define basic authentication credentials:

1. Access the REST Request Headers page.
   a. Select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Provider REST Templates.** The Provider REST Template page appears
   b. Select a service operation to test.

      The REST Tester page appears.
   c. Click the **Request Headers** link.

      The REST Request Headers page appears.
2. Select the **Use Basic Authentication** box.

   External User ID and **External Password** fields appear on the page
3. In the **External User ID** field enter the external user ID.
4. In the **External Password** field enter the external password.
5. Click the **OK** button to return to the REST Tester page.

Invoking Test Service Operations

To invoke a test service operation:

1. Access the REST Tester page.
   a. Select **PeopleTools** > **Integration Broker** > **Service Utilities** > **Provider REST Templates.** The Provider REST Template page appears.
   b. Select a service operation to test.

The REST Tester page appears.

2. Click the **Invoke Operation** button.

   The results of the invocation appear in the Returned Message/Results section of the REST Tester page.

Viewing Provider REST Template Service Invocation Test Results

After you invoke a provider REST service operation using the Provide REST Template utility, the results appear in the Returned Message / Results section of the REST Tester page.

Information that can appear in this section includes:

- Response data.
- Response headers.
- Error text.
- HTTP response codes.

If response headers are included in the test results, a **Response Header** link appears on the REST Tester page. Click the link to view the headers.

This example illustrates sample response headers that could be included in test results using the Provider REST Template utility.

Saving Provider REST Template Test Data

This topic discusses how to:

- Save test data populated in the REST Tester page tree view
- Save manually-entered XML test data.

Understanding Saving Test Data

You can save test data for use in subsequent tests in the Provider REST Template utility. You can also use the saved data with other integration testing utilities such as Send Master.

At a later time you can import the data back into the utility for additional testing by uploading the saved file back into the utility.

See *Uploading XML from Files to Populate Message Data* in the Populating Messages with Test Data topic.

Saving Test Data Populated in the REST Tester Page Tree View

To save test data loaded or entered into the REST Tester page tree view:

1. On the REST Tester page, click the **Convert Tree to XML** button.

   The utility converts the data to XML format and displays it in the **Input Message** box.

2. Cut and paste the XML into an editor or your choice and save the file.

3. To return to the tree view, click the **New Tree Structure** button.

Saving Manually-Entered XML Test Data

To save manually-entered XML test data, on the REST Tester page, cut and paste the XML located in the **Input Message** box into an editor of your choice and save the file.

Cloning and Deleting Record Structures

This topic discusses how to:

- Clone record structures.
- Delete record structures.

Cloning Record Structures

In some cases, you will want to add additional nodes to a record/field tree structure.

To clone a record structure:

1. In the tree view on the REST Tester page, click a record to clone.

   The Select an Action dialog box appears.

2. Select the **Clone Record Structure** button.

3. Click the **OK** button.

The original record is duplicated, along with child nodes and all entered field values, and appears at the button of the tree structure. If you clone a record in error, single-click the record and delete the record structure.

Deleting Record Structures

To delete a record structure:

1. In the tree view on the REST Tester page, click a record to delete.

   The Select an Action dialog box appears.

2. Select the **Delete Record Structure** button.

3. Click the **OK** button.

Chapter 11

Using Application Service Tester

Understanding the Application Service Tester Utility

The Application Service Tester utility enables you to create a URI template with variables to test your Application Service.

The Application Service Tester provides the ability to test both standard and ChatBot Application Services.

- Standard

  You can populate the URI template with variables, as well as add request headers. For all methods other than GET method, you can add the appropriate input data.

- ChatBot

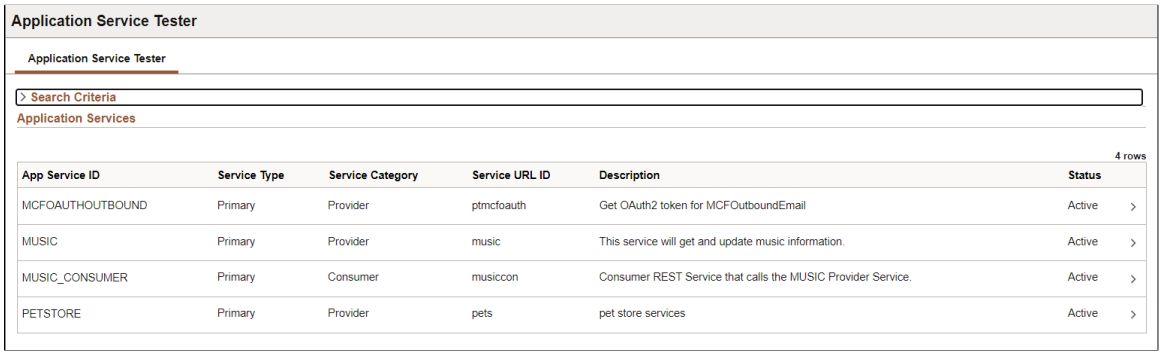
  You must provide the data for the test.

Note: The Application Service tester uses the permissions associated with the PIA logged on user unless a PSFT Token is passed in as part of the request. Permission validation will not be checked in order to test the selected Application Service. However, if a PSFT Token is passed in then it must have proper permissions set on the Application Service. The PSFT Token is only applicable where the Chatbot test option is selected.

Accessing the Application Service Tester

To access the Application Service Tester, select **PeopleTools** > **Integration Broker** > **Application Services** > **Test Application Services**.

This example illustrates the fields and controls on the Application Services Tester page. You can find definitions for the fields and controls later on this page.



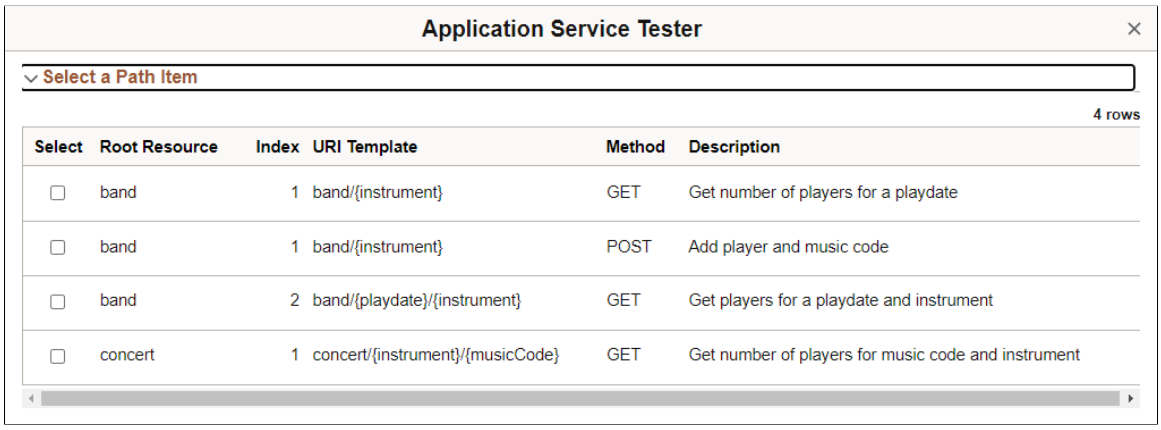
Search for the Application Service based on Application Service ID, Service URL ID and Service Group.

Select the Application Service to test.

Note: Only primary Application Services are available unless the primary Application Service is inactive and the Alias is active.

When you select a Service Application, the Select a Path page is displayed.

This example illustrates the fields and controls on the Select a Path Item page.



Note: Only active roots are available for selection. If an Alias is defined, then any active roots for the Alias are available.

When the path is selected, the main Application Tester page is displayed.

This example illustrates the fields and controls on the Application Server Tester with path selected. You can find definitions for the fields and controls later on this page.

The selected path is displayed.

Field or Control	***Description***
Select a Path Item	Expand this section to select a different path to test.

Field or Control	*Description*
Test Option	Test options are: • Standard (default) Standard is the Open API defined shape for any Input and Output data displayed. • ChatBot Any input data must be in the proper format required for Chatbot. The output data would also be of the required Chatbot format.
Execute Request	The Execute Request button is enabled once the URI template is populated with the variables defined for the event.
Populate URI Template	Select this link to populate the variables. When the URI Template page is closed, a URL will appear below the Populate URI template link indicating the URL that will be invoked.
Request Headers	If a request header is defined on the Application Service, it is shown by default. The Headers can then be populated.
Clear Response	Select to clear the result data along with the status code and response headers.

Testing an Open API

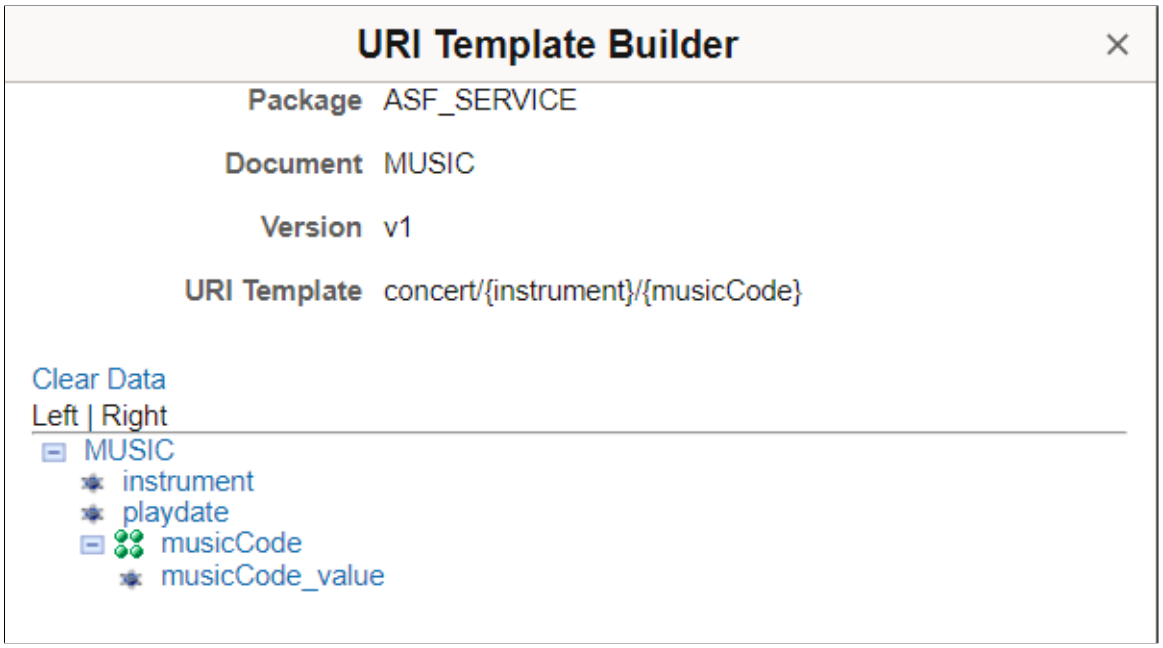
To test an Open API:

1. Select PeopleTools, Integration Broker, Application Services, Test Application Services.
2. Search for and select the Application Service to test.
3. Select the path item to test.
4. Select the Standard option (default).
5. Select the Populate URI Template link and enter variables for the URL.
6. Click the Execute Request button.

Populating URI Template

Select the Populate URI Template link to populate the variables for the event. When the page is closed a URL will appear below the Populate URI template link indicating the URL that will be invoked.

This example illustrates the fields and controls on the URI Template Builder page. You can find definitions for the fields and controls later on this page.



The URI Template displays which variables need to be populated in order to test the URL. In this example the variables instrument and musicCode should be populated from the tree.

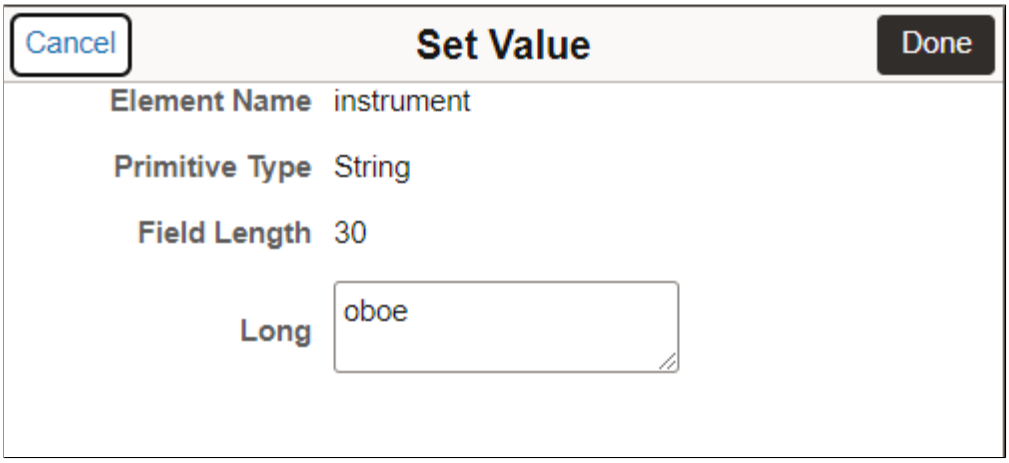
The Clear Data link will reinitialize the tree, removing the currently populated values.

Entering Primitive Values

To enter primitive values:

1. Click the name of a primitive element for which to enter a test value.
2. Enter the test value on the Set Value page and click Done.

   This is an example of the Set Value page for String.



3. The values are displayed in the tree.

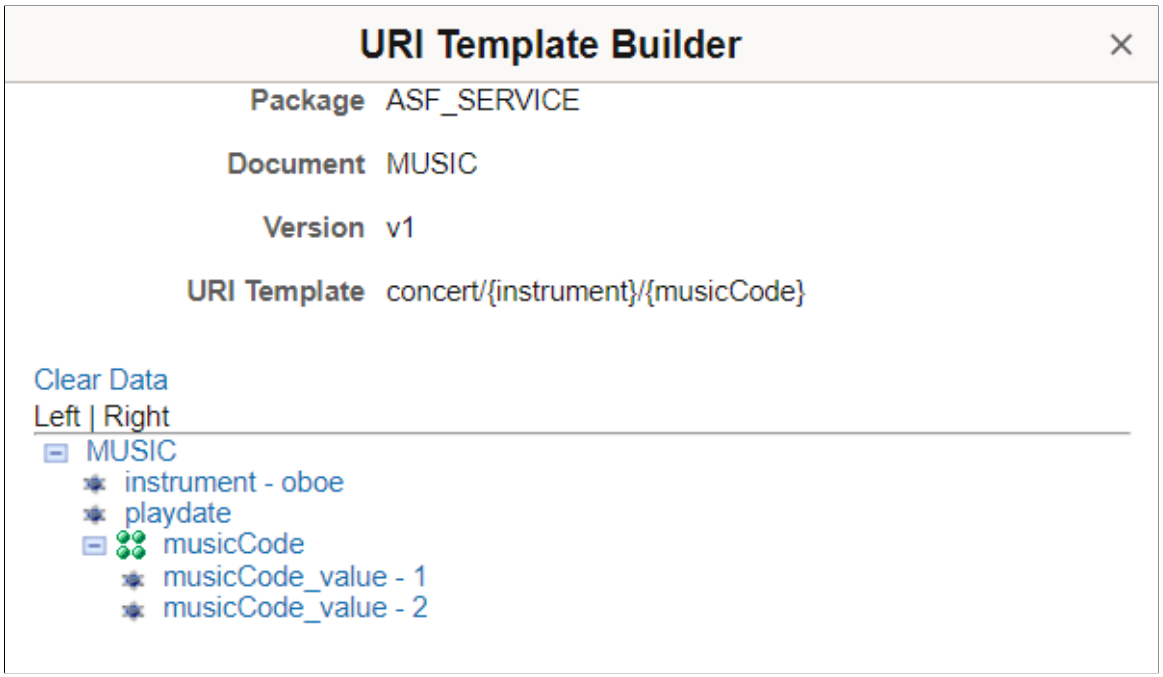
Appending and Deleting Collection Element Items

You can append a collection item with a copy of the last row in the collection or delete the last row in a collection.

This example illustrates the fields and controls on the Collection Actions page. You can find definitions for the fields and controls later on this page.

Field or Control	*Description*
Append Collection Item	Select to add an element to the collection. When you click Done, the element is appended with a copy of the last row in the collection.
Delete Last Collection Item	Select to delete an element from the collection. When you click Done, the last row is removed.

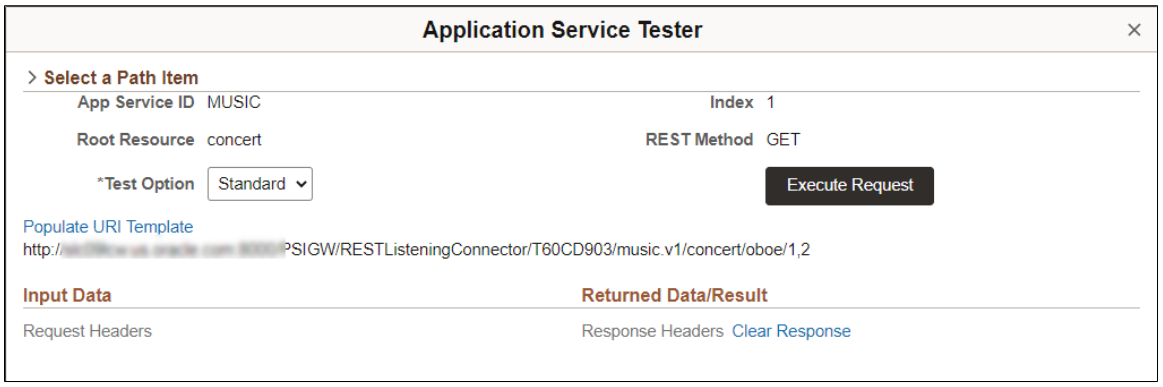
This example illustrates URI Template Builder with values entered for the variables in the template.



To test the Service Operation, you will need to add values for all the variables in the URI Template.

When The URI Template Builder page is closed, a URL will appear below the Populate URI template link indicating the URL that will be invoked.

This example illustrates a populated URL that will be invoked.



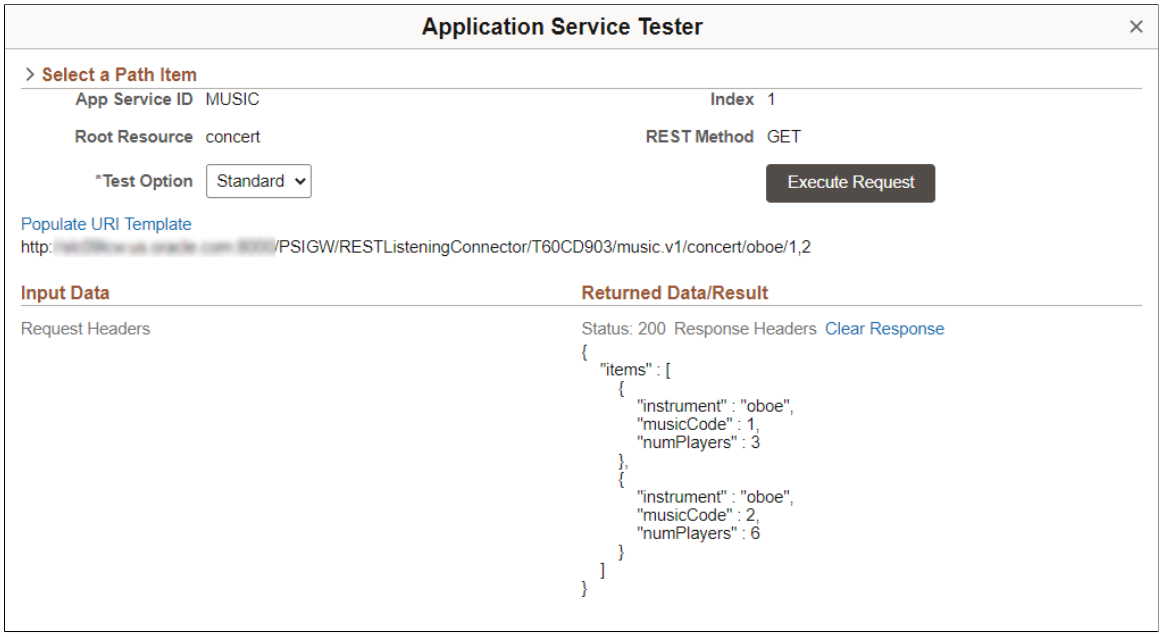
Executing Request

When you close the URI Template Builder page, the main tester page showing the fully qualified URL for this specific test is displayed.

Note: The URL is properly encoded using the values defined in the tree.

Click the Execute Request button to run the test.

This example illustrates the Application Service Tester results.



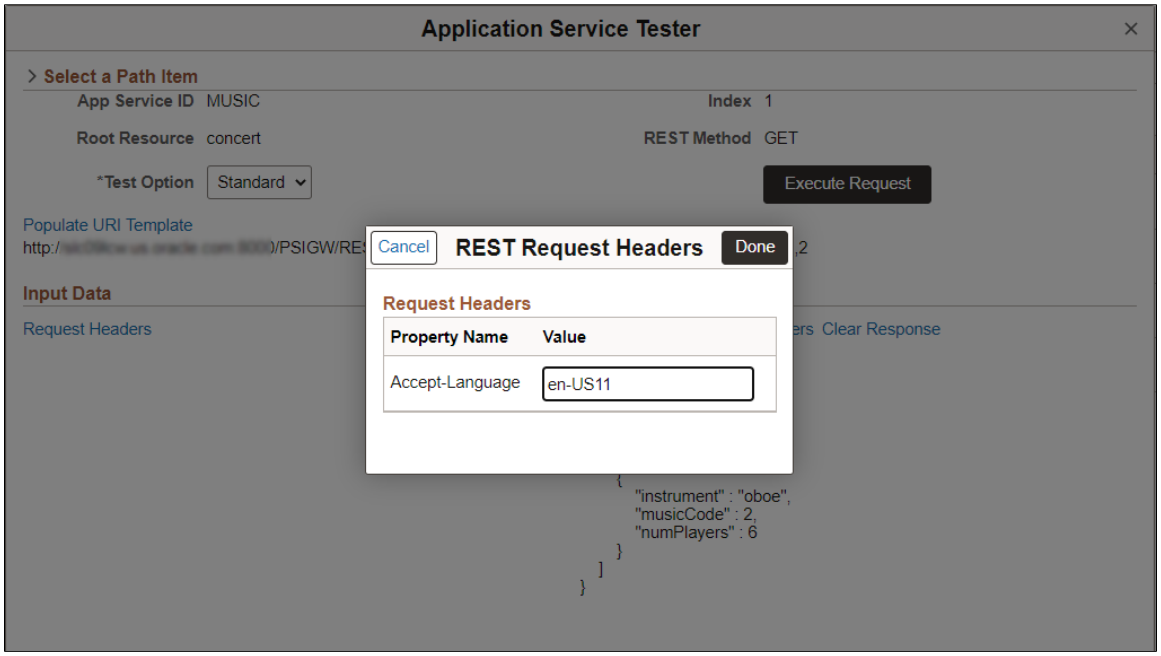
The output data in standard JSON format is displayed on the right hand side of the page. The Response status code is displayed. The Response Header link is enabled and if selected will show all the response headers populated for this particular request. The result data along with the status code and response headers can be cleared by selecting the Clear Response link.

Testing Request Headers

If any headers are defined for the Application Service they are shown by default.

See “Defining Headers” (Integration Broker).

This example illustrates Request Headers defined for a Application Service to be tested.



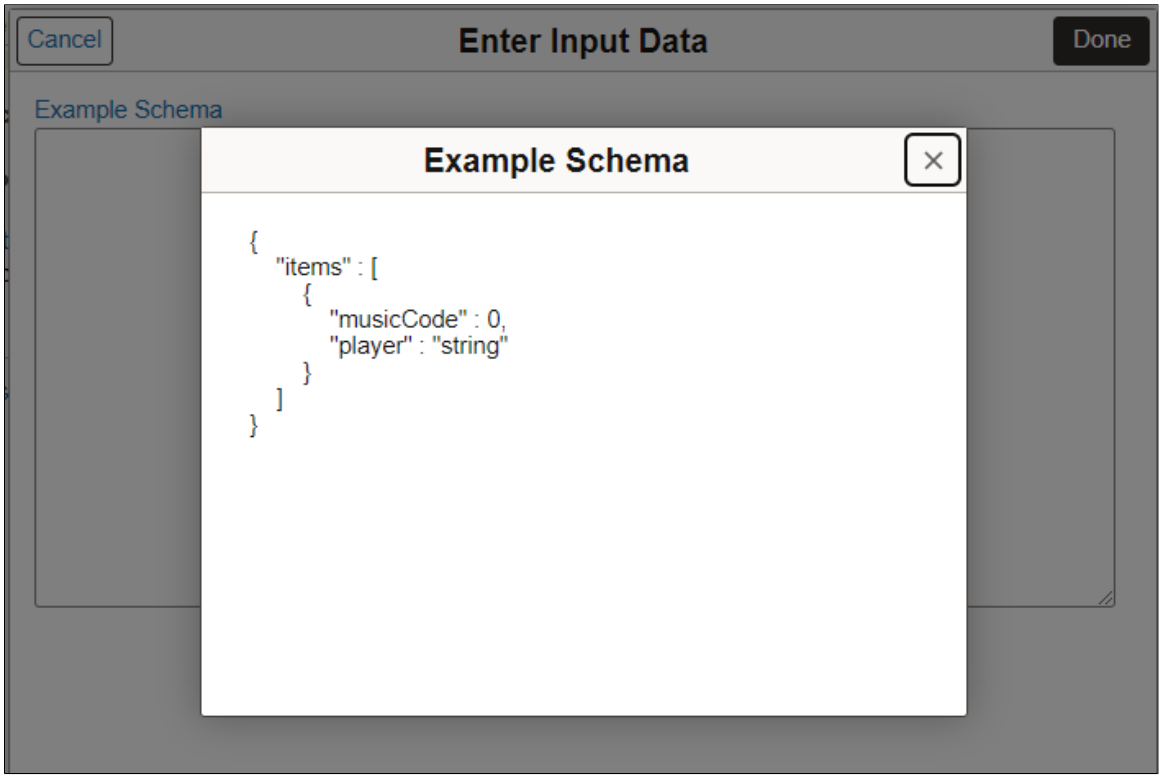
Testing a POST Open API

To test a POST Open API:

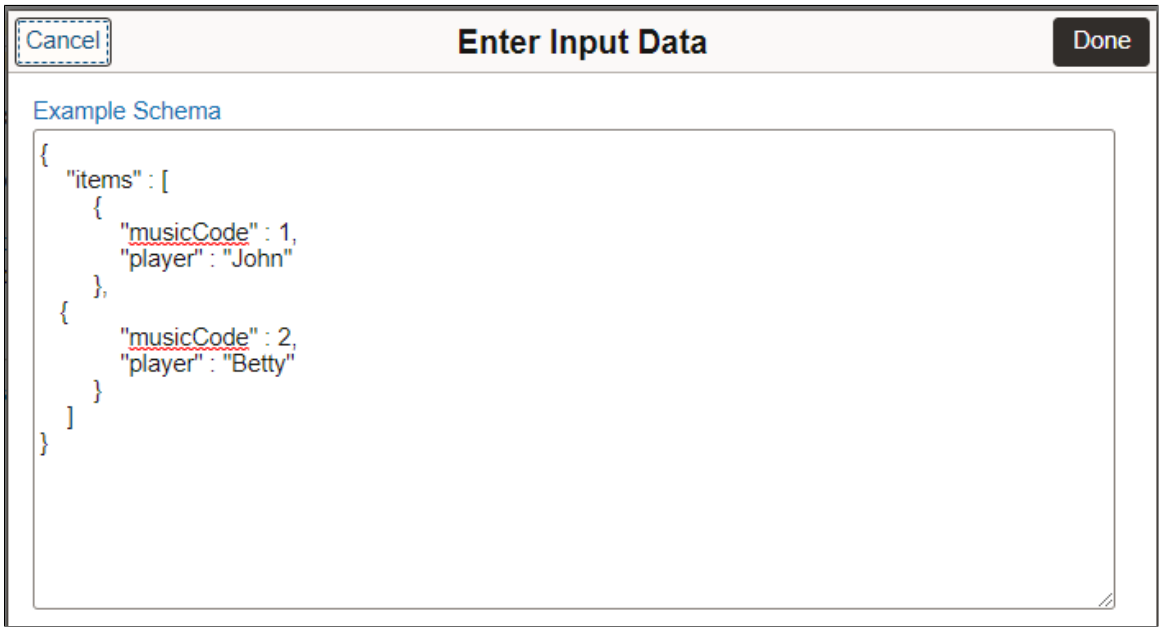
1. Select PeopleTools, Integration Broker, Application Services, Test Application Services.
2. Search for and select the Application Service to test.
3. Select the POST path item to test.
4. Select the Standard option (default).
5. Select the Populate URI Template link and enter variables for the URL.
6. Select the Provide Data Link.
7. Select the Example Schema link.

   Copy the schema and paste input data, update the data as appropriate.
8. Update Request Headers if applicable.
9. Click the Execute Request button.

This example illustrates the Example Schema page.

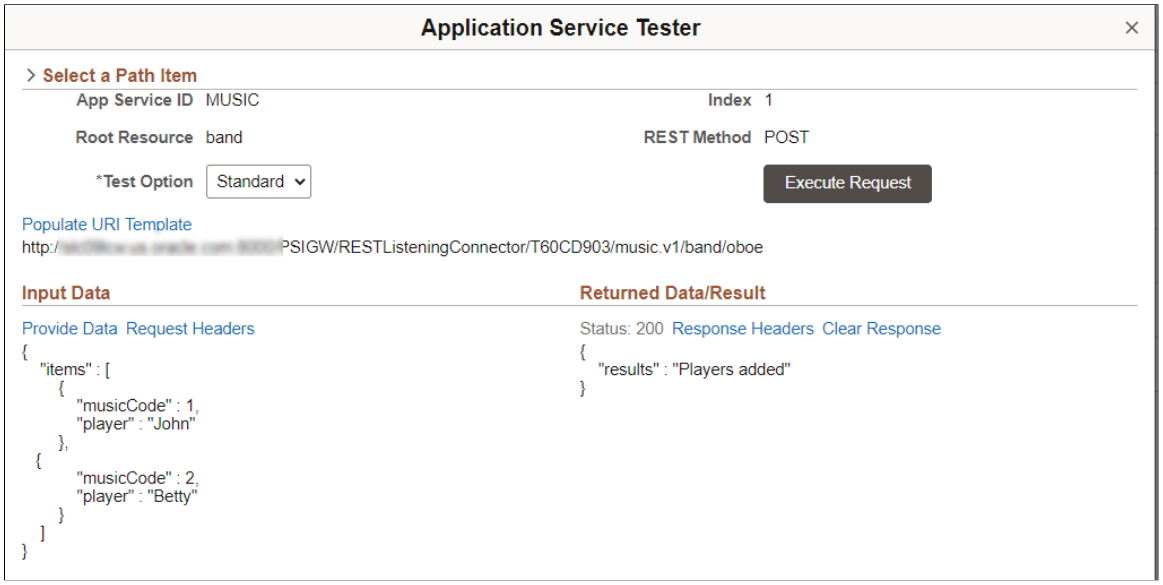


This example illustrates the input data with multi row input.



Note: The JSON schema is validated when you click Done on the Enter Input Data page.

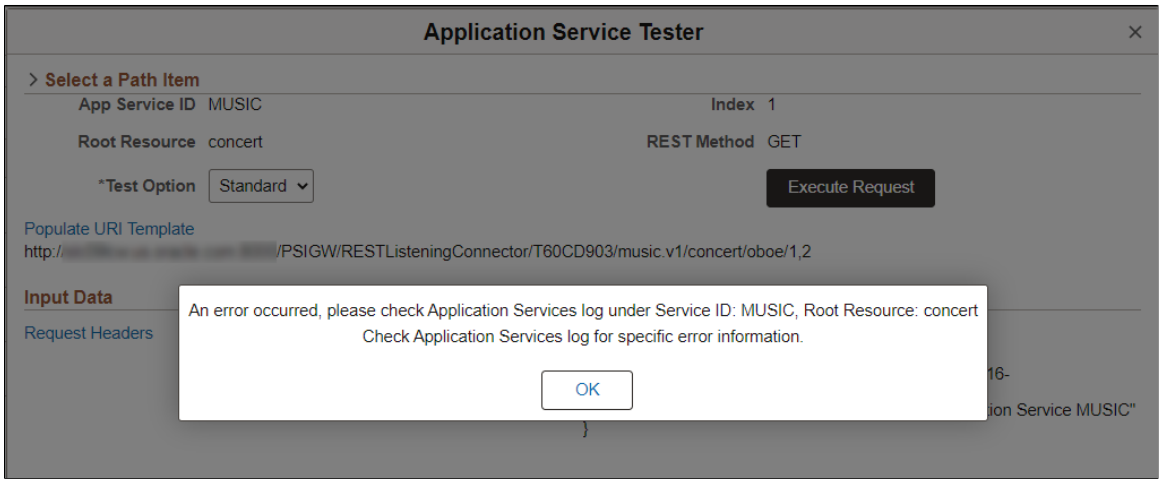
This example illustrates a POST Application Service Test.



Correcting Errors

If there are errors when executing a request, a popup message is displayed indicating there is an error and to check the Application Services log for more information.

This example illustrates an Application Service error message.



Selecting the OK button will display the error message in the proper format based on the Test Option selected.

Testing Chatbot Application Service

To test a Chatbot Application Service:

1. Select PeopleTools, Integration Broker, Application Services, Test Application Services.

2. Search for and select the Application Service to test.
3. Select the path item to test.
4. Select the ChatBot option.
5. Select the Provide Data link and enter the input data must be in the proper format required for Chatbot.
6. Click The Execute request button.

Note: When ChatBot option is selected, the Populate URI Template link is grayed out as the URL defined is created based off the path item selected. The Request Headers link is also disabled as Chatbot Integrations do not use headers.

This example illustrates the fields and controls on the Application Service Tester — ChatBot option. You can find definitions for the fields and controls later on this page.