

PeopleSoft Integration Broker

June 11, 2009

SOA IS
Putting Customer First

Agenda

- ❖ Integration Broker Introduction
- ❖ Integration Broker Architecture
- ❖ Integration Broker Set Up
- ❖ Integration Scenario
- ❖ Integration Broker Monitoring
 - Troubleshooting & error handling

Integration Overview

- ❖ Make Real-Time enterprises a reality!
- ❖ Multiple disparate systems no longer a challenge - go for best of breed (ERP connectors available for SAP, Oracle and Siebel applications) *
- ❖ PeopleSoft was the first ERP vendor to adopt a Pure Internet Architecture and leader in Web services area, even before the standards existed
- ❖ **Integration Broker** is a proven SOA integration platform that delivers high performance, standards-based integration

*PeopleTools v8.45 release onwards

Integration Broker - Benefits

- ❖ **Enterprise Ready**—Enterprise class performance and scalability
- ❖ **Superior Connectivity**—Reduced cost and complexity with open standard support
- ❖ **Standard Web Services**—Component Interfaces, Appclass PeopleCode and Bulk Load are exposed as standards-based Web Services
- ❖ **Technology Adapters and Adapter Toolkit**—Powerful toolkit with an array of supported technology such as files, web, email, and legacy PeopleSoft applications. You can build it yourself with the Adapter SDK

Integration Broker capabilities

- ❖ The PeopleSoft system provides numerous integrations between both PeopleSoft and non-PeopleSoft applications
- ❖ All delivered integrations are documented in Interactive Services Repository
- ❖ Integration Points
 - An integration point is an interface that a system uses to communicate with another PeopleSoft application or an external application
 - Interactive Services Repository uses integration points to consolidate the many ways in which systems exchange data

Integration Broker capabilities

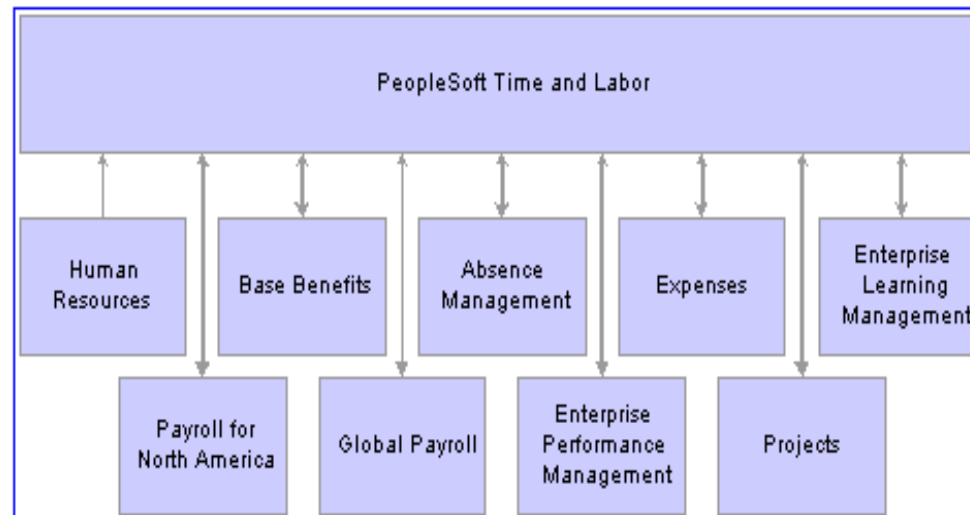
❖ Interactive Services Repository

- Interactive Services Repository is an application hosted on the Oracle Metalink web site.
- Provides a simple, consistent, and comprehensive view of all the integration points delivered by PeopleSoft and its certified business partners.
- View information on the data that is exchanged as part of the interaction, the structure of the data, other semantic constraints on the data (data rules), and information needed to set up the integration point.
- Setup information includes the technology used to implement the integration point, attributes specific to the implementation, and PeopleSoft products that use the integration point for communicating with other products
- Interactive Services Repository provides several search pages that enable you to enter search criteria to retrieve integration information

Integration Broker capabilities

Example : Integrating Time & Labor with Project Costing

- PeopleSoft Enterprise Time and Labor is a single repository that gives organizations to determine key performance indicators that are impacted by time-related data.
- It is designed to support the time reporting needs of a wide range of business functions, including payroll, financial and cost accounting, project management, employee benefits, and organizational administration.



Integration Broker capabilities

Example : Integrating Time & Labor with Project Costing

- Project Costing acts as a central repository for all project data
- It enables an organization to capture project costs, keep projects within budget, issue bills for projects, and assess project profitability
- Integration of T&L and Project Costing facilitates :
 - ✓ In tracking time for the projects, activities, business units, resource types, and resource categories defined in Project Costing
 - ✓ To analyze labor costs in the general ledger and perform project costing
 - ✓ In publishing, or sending, estimated project-related costs to Project Costing. This feature can be helpful when an organization bills projects off-cycle from the payroll process
 - ✓ In associating labor costs with projects and activities for inclusion in project-based cost analysis and reporting

Integration Broker capabilities

❖ Snap Shot of Data Published to Project Costing

Integrations				
Publishing Integration Point	Product Information	Subscribing Integration Point	Product Information	Description
ACTUAL_TIME_ADD.Version 1 (Notification)	HRMS 9	ACTUAL_TIME_ADD.Version 1 (One Way)	FSCM 9	Provide cost information when a change to payable time impacts project costs
ACTUAL_TIME_BATCH_ADD.Version 1 (Notification)	HRMS 9	ACTUAL_TIME_BATCH_ADD.Version 1 (One Way)	FSCM 9	Provide cost information when a change to payable time impacts project costs
BUS_UNIT_PC_FULLSYNC.Version 1 (Notification)	FSCM 9	BUS_UNIT_PC_FULLSYNC.Version 1 (One Way)	HRMS 9	Projects Business Unit Prompt
ESTIMATED_TIME_BATCH_ADD.Version 1 (Notification)	HRMS 9	ESTIMATED_TIME_BATCH_ADD.Version 1 (One Way)	FSCM 9	
PROJECT_STATUS_DEFN_FULLSYNC.Version 1 (Notification)	FSCM 9	PROJECT_STATUS_DEFN_FULLSYNC.Version 1 (One Way)	HRMS 9	Project Status prompt
PROJ_ACTIVITY_STATUS_FULLSYNC.Version 1 (Notification)	FSCM 9	PROJ_ACTIVITY_STATUS_FULLSYNC.Version 1 (One Way)	HRMS 9	Project Activity Status Message
PROJ_ACTIVITY_STATUS_SYNC.Version 1 (Notification)	FSCM 9	PROJ_ACTIVITY_STATUS_SYNC.Version 1 (One Way)	HRMS 9	Project Activity Status Message
TIME_REPORTING_CODE_FULLSYNC.Version 1 (Notification)	HRMS 9	TIME_REPORTING_CODE_FULLSYNC.Version 1 (One Way)	FSCM 9	
TIME_REPORTING_CODE_SYNC.Version 1 (Notification)	HRMS 9	TIME_REPORTING_CODE_SYNC.Version 1 (One Way)	FSCM 9	

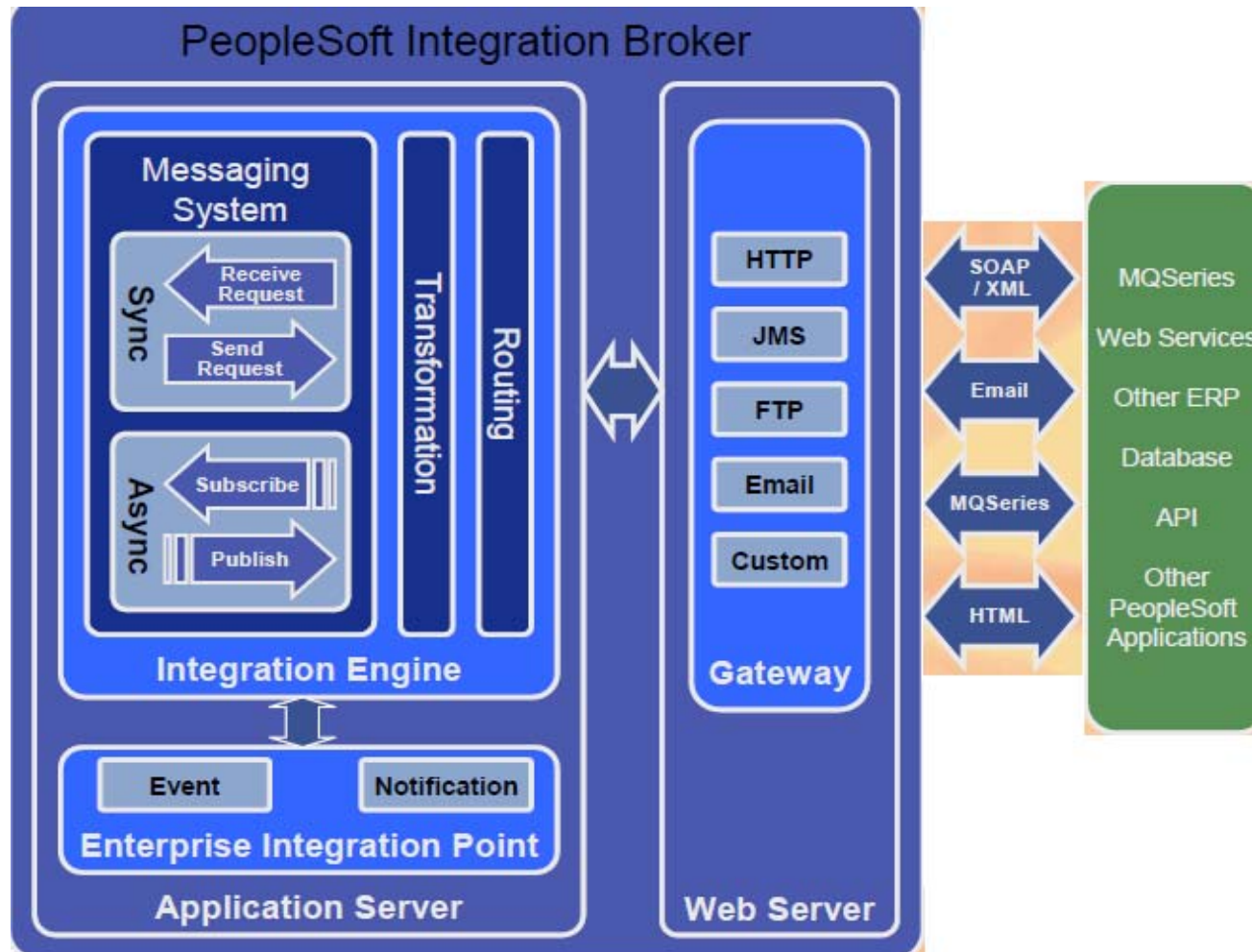
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 - ❖ Integration Broker Architecture
 - ❖ Integration Broker Set Up
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 - Troubleshooting & error handling
-

Integration Broker - Architecture

- ❖ Integration Broker is a Middleware Technology platform to integrate data between PeopleSoft and/or non-PeopleSoft applications
- ❖ Facilitates both Synchronous & Asynchronous communication between systems
- ❖ PeopleSoft Integration Broker consists of two Sub-Systems:
 - ✓ Integration Gateway – resides on PeopleSoft web server
 - ✓ Integration Engine – resides on application server

Integration Broker - Architecture



Integration Broker - Architecture

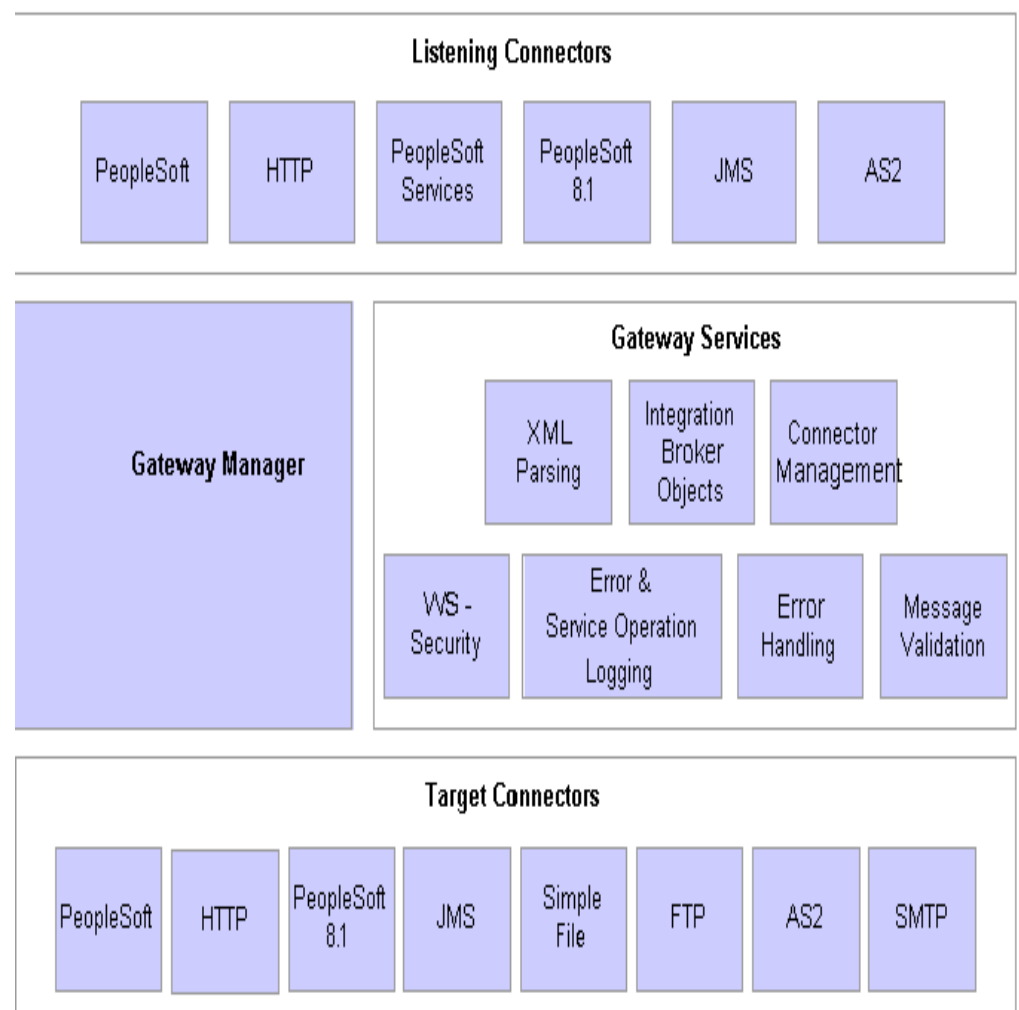
❖ Integration Gateway

- Integration Gateway resides on the Web-Server
- Manages the Receipt & Delivery of Messages
- Supports most of the Communication & Network Protocols via connectors
- Basic Logging Information concerning Message Receipt, Delivery & Errors
- Transport protocol and message format management so that when messages reach the integration engine, they have a PeopleSoft-compatible message format

Integration Broker - Architecture

❖ Components of Integration Gateway

- ✓ Listening Connector
- ✓ Gateway Manager
- ✓ Gateway Services
- ✓ Target Connectors



Integration Broker - Architecture

❖ Integration Engine :

- Integration Engine runs on application server
- Integration Engine is a combination of Application Designer Objects, PeopleCode, PIA Definitions, XSLT Code along with underlying mechanisms that tie all the elements together
- Sends or Receives Messages. The Engine communicates through Integration Gateway
- Handles Messages in formats like; XML, SOAP, PS Rowset & PS Non-Rowset based Data
- Transforms the message, suiting the need of the Application Server.
- Handles security features for the incoming messages
- Supports Message Transaction like :
 - ✓ Outbound Asynchronous
 - ✓ Outbound Synchronous
 - ✓ Inbound Asynchronous
 - ✓ Inbound Synchronous

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Integration Broker - Setup

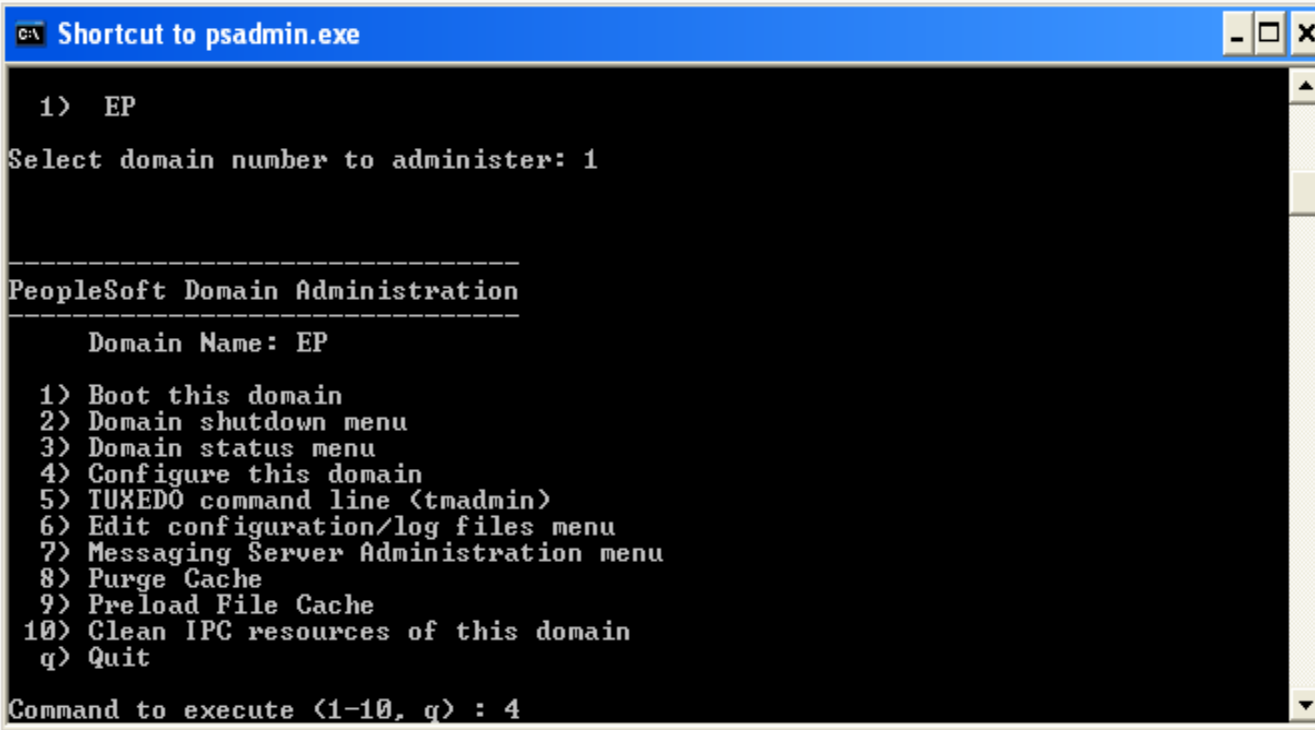
❖ Setting-up PS Integration Broker:

- Step 1 : The Publication/Subscription (Pub/Sub) Servers are set in Running state from the PSADMIN command prompt
- Step 2 : Setting it Up Message Server
- Step 3 : Creating integration Meta-Data
 - ✓ Step 3a : Integration gateway definition
 - ✓ Step 3b : Node definition
 - ✓ Step 3c : Message definition.
 - ✓ Step 3d : Integration PeopleCode.
 - ✓ Step 3e : Transformation programs.
 - ✓ Step 3f : Queue definition.
 - ✓ Step 3g : Service definition.
 - ✓ Step 3h : Service operation definition.
 - ✓ Step 3i : Routing definition.

Integration Broker - Setup

❖ Step 1

- Setting The Pub/Sub Server "ON".



```
C:\> Shortcut to psadmin.exe

1) EP
Select domain number to administer: 1

-----
PeopleSoft Domain Administration
-----
Domain Name: EP

1) Boot this domain
2) Domain shutdown menu
3) Domain status menu
4) Configure this domain
5) TUXEDO command line (tmadmin)
6) Edit configuration/log files menu
7) Messaging Server Administration menu
8) Purge Cache
9) Preload File Cache
10) Clean IPC resources of this domain
q) Quit

Command to execute <1-10, q> : 4
```

Select The Option 4 : Configure this domain

Integration Broker - Setup

❖ Step 1

➤ Setting The Pub/Sub Server "ON"

- ✓ In the Domain Configuration Menu Select the Option 1 : Pub/Sub Servers. On Selection the status of the Pub/Sub Server is Set to "Yes" – indicating its running Status

```

C:\> Shortcut to psadmin.exe

-----
Quick-configure menu -- domain: EP
-----

Features
=====
 1> Pub/Sub Servers      : No    15> DBNAME       : [EP]
 2> Quick Server        : No    16> DBTYPE       : [MICROSFT ]
 3> Query Servers       : No    17> UserId        : [UP1 ]
 4> Jolt                 : Yes   18> UserPswd     : [UP1 ]
 5> Jolt Relay          : No    19> DomainID     : [TESTSERU ]
 6> WSL                  : No    20> AddToPATH    : [C:\Program Files\Microsoft SQL S
erver\90\Tools\Binn]
 7> PC Debugger         : No    21> ConnectID   : [people ]
 8> Event Notification : Yes   22> ConnectPswd: [people ]
 9> MCF Servers         : No    23> ServerName  : [ ]
10> Perf Collator      : No    24> WSL Port    : [7010 ]
11> Analytic Servers   : Yes   25> JSL Port    : [9010 ]
12> Domains Gateway    : No    26> JRAD Port   : [9110 ]

Actions
=====
13> Load config as shown
14> Custom configuration
  h> Help for this menu
  q> Return to previous menu

HINT: Enter 15 to edit DBNAME, then 13 to load
Enter selection <1-26, h, or q>: 1_
  
```

Integration Broker - Setup

❖ Step 1

➤ Setting The Pub/Sub Server "ON"

- ✓ Select the Option 13 : Load Config as shown to boot the appserv with the latest configuration. The Pub/Sub Server also gets booted when the App Server boots

```

G:\ Shortcut to psadmin
-----
Quick-configure menu -- domain: EP
-----
          Features                      Settings
          =====                      =====
1) Pub/Sub Servers      : Yes      15) DBNAME       : [sdb]
2) Quick Server        : No       16) DBTYPE       : [DB2UNIX]
3) Query Servers       : No       17) UserId       : [PS]
4) Jolt                : Yes      18) UserPswd    : [PS]
5) Jolt Relay          : No       19) DomainID    : [sdb]
6) WSL                 : No       20) AddToPATH   : [C:\Program Files\IBM\SQLLIB\BIN]

7) PC Debugger         : No       21) ConnectID   : [people]
8) Event Notification : Yes      22) ConnectPswd: [people]
9) MCF Servers         : No       23) ServerName  : [indra]
10) Perf Collator     : No       24) WSL Port    : [7000]
11) Analytic Servers  : Yes      25) JSL Port    : [9000]
12) Domains Gateway   : Yes      26) JRAD Port   : [9100]

          Actions
          =====
13) Load config as shown
14) Custom configuration
h) Help for this menu
q) Return to previous menu

HINT: Enter 15 to edit DBNAME, then 13 to load
Enter selection <1-26, h, or q>: _
  
```

Integration Broker - Setup

❖ Step 2

➤ Setting Up the Message Server

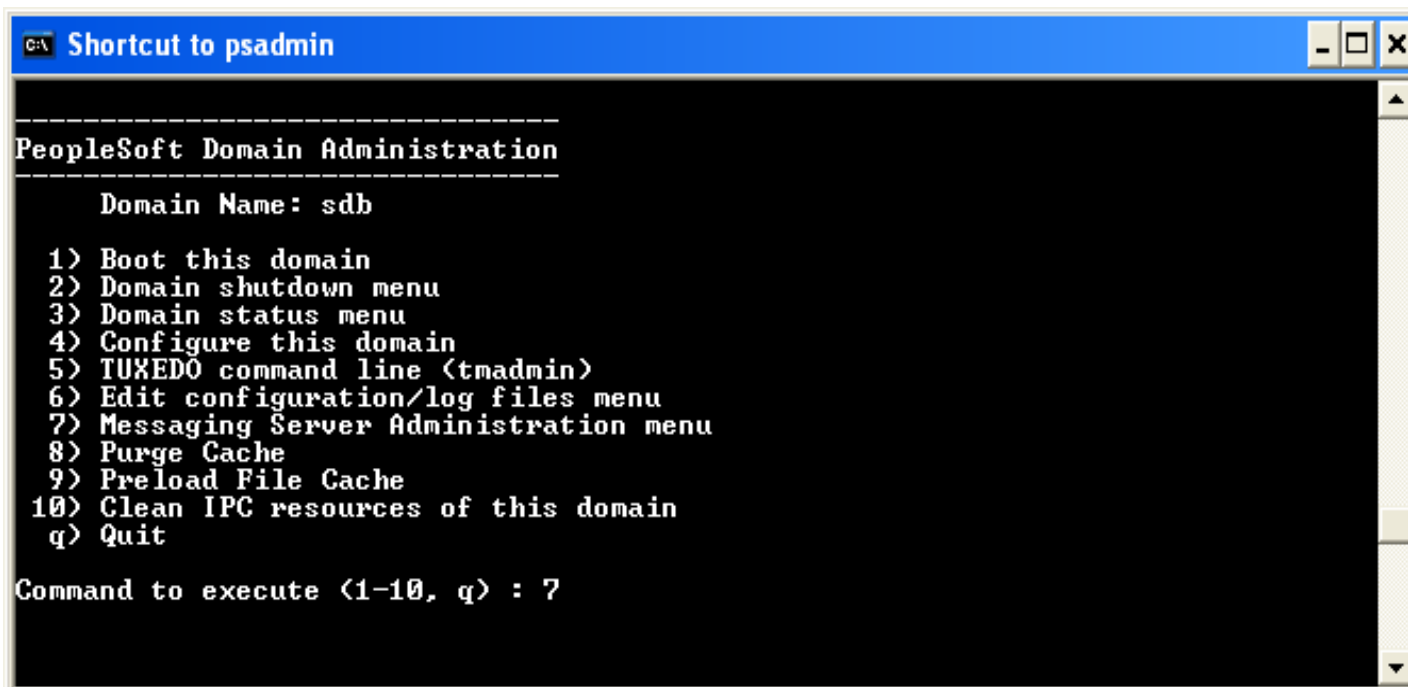
✓ Components of Message Server :

- Publication Broker
 - Broker Dispatcher Process (PSBRKDSP)
 - Broker Handler Process (PSBRKHND)
- Publication Contractor
 - Publication Dispatcher Process (PSPUBDSP)
 - Publication Handler Process (PSPUBHND)
- Subscription Contractor
 - Subscription Dispatcher Process (PSSUBDSP)
 - Subscription Handler Process (PSSUBHND)

Integration Broker - Setup

❖ Step 2

- Select Option 7 : Messaging Server Administration Menu to set up messaging servers for a particular environment



```
C:\ Shortcut to psadmin

-----
PeopleSoft Domain Administration
-----
      Domain Name: sdb

1) Boot this domain
2) Domain shutdown menu
3) Domain status menu
4) Configure this domain
5) TUXEDO command line (tnadmin)
6) Edit configuration/log files menu
7) Messaging Server Administration menu
8) Purge Cache
9) Preload File Cache
10) Clean IPC resources of this domain
q) Quit

Command to execute <1-10, q> : 7
```

Integration Broker - Setup

❖ Step 2

- Select Option 1 : To create a new messaging server.



```
C:\ Shortcut to psadmin
Command to execute <1-10, q> : 7

-----
                    Messaging Server Administration menu
-----

Domain Name : sdb

In addition to the default messaging servers, the following
dedicated messaging servers are in the domain configuration:

    << No dedicated messaging servers are defined >>

Commands:
 1) Create a new messaging server
 2) Edit the queue list for a messaging server
 3) Delete an existing messaging server
 q) Quit

Command to execute <1-3, q> : 1
```

Integration Broker - Setup

❖ Step 2

- Provide a Message Server Name and Queue Name (already defined using PIA), which the message server will handle.
- Multiple Queues can be assigned to a Message Server (as in case of environments where the activity is huge)

```

C:\ Shortcut to psadmin

In addition to the default messaging servers, the following
dedicated messaging servers are in the domain configuration:

    << No dedicated messaging servers are defined >>

Commands:
  1> Create a new messaging server
  2> Edit the queue list for a messaging server
  3> Delete an existing messaging server
  q> Quit

Command to execute <1-3, q> : 1
  1> Publication broker
  2> Publication contractor
  3> Subscription contractor

Enter the number of the type you want to create ('q' to cancel): 1
Enter name of the new server <alphanumeric, 6 char max> :PTMSPB
Enter the messaging queues to be handled by server 'PTMSPB': SOA_IB_TEST_
  
```


Integration Broker - Setup

❖ Step 3

- Integration Meta-Data involves creation of:
 - ✓ Integration gateway definition.
 - ✓ Node definition.
 - ✓ Message definition.
 - ✓ Integration PeopleCode.
 - ✓ Transformation programs.
 - ✓ Queue definition.
 - ✓ Service definition.
 - ✓ Service operation definition.
 - ✓ Routing definition.

- The above sequence is followed to completely SetUp the Integration Broker

Integration Broker - Setup

❖ Step 3 : Creating Integration MetaData

➤ Step 3a : Gateway Definition

The screenshot displays the 'Gateways' configuration page in the SOA Integration Broker. On the left is a navigation tree with 'Integration Broker' expanded to 'Configuration' > 'Gateways'. The main area shows the configuration for a 'LOCAL' gateway, which is a 'Local Gateway'. The URL is set to 'http://10.1.129.193:95/PSIGW/PeopleSoftListeningConnector'. Below this is a table of 'Connectors' with 10 entries, each having a unique ID, a description, and a connector class name. At the bottom of the table are 'Save' and 'Return to Search' buttons.

Gateways

Gateway ID: LOCAL

Local Gateway Load Balancer

URL:

[Gateway Setup Properties](#)

Connectors			
'Connector ID'	Description	'Connector Class Name'	
1 AS2TARGET		AS2TargetConnector	Properties + -
2 FILEOUTPUT		SimpleFileTargetConnector	Properties + -
3 FTPTARGET		FTPTargetConnector	Properties + -
4 GETMAILTARGET		GetMailTargetConnector	Properties + -
5 HTTPTARGET		HttpTargetConnector	Properties + -
6 JMSTARGET		JMSTargetConnector	Properties + -
7 LDAPTARGET		LDAPTargetConnector	Properties + -
8 PSFT81TARGET		ApplicationMessagingTargetConnector	Properties + -
9 PSFTTARGET		PeopleSoftTargetConnector	Properties + -
10 SMTPTARGET		SMTPTargetConnector	Properties + -

PeopleTools > Integration Broker > Configuration > Gateways

The Gateway Definitions are defined from the above navigation. The **URL** is the link to the Listener Connector. The Connector IDs define the Target Connectors and their properties.

Integration Broker - Setup

❖ Step 3 : Creating Integration MetaData

➤ Step 3b : Node Definition

Defines the Locations to or from which messages can be routed. E.g. Nodes can represent Customers, Suppliers, BUs or other systems.

Node Definitions | Connectors | Portal | WS Security | Routings

Node Name: PSFT_EP Copy Node

***Description:** PS FDM - Local Node Rename Node

***Node Type:** PIA Default Local Node Delete Node

Local Node

Active Node

Non-Repudiation

Segment Aware

***Authentication Option:** None

***Default User ID:** PS

Hub Node:

Master Node:

Company ID:

IB Throttle Threshold:

Image Name:

Code Set Group Name:

[Contact/Notes](#) [Properties](#)

Save [Return to Search](#)

[Node Definitions](#) | [Connectors](#) | [Portal](#) | [WS Security](#) | [Routings](#)

PeopleTools > Integration Broker > Integration Setup > Nodes

Integration Broker - Setup

❖ Step 3 : Creating Integration MetaData

➤ Step 3c : Message Definition

- ✓ Messages provide the physical description of the data that is sent across the wire
- ✓ Messages are self-describing entities that are formatted in XML. Each message definition is based on a multilevel structure, similar to a component, which defines the data to be inserted into the message at runtime
- ✓ Messages are Created in PIA
- ✓ PS Supports four types of messages:
 - Rowset Based – PeopleSoft to PeopleSoft Integration.
 - Non-Rowset Based – Integration with Third Party
 - Container based Rowset – Exposing PS to Third Party
 - Container Based Non-Rowset – Exposing PS to Third Party
- ✓ PS Delivers over 300 Messages for integration with different PS systems. Custom messages can also be created through PIA
- ✓ Messages can be Version Controlled

Integration Broker - Setup

❖ Step 3 : Creating Integration MetaData

➤ Step 3c : Define Message

The screenshot displays the 'Message Definition' window in the SOA IS Integration Broker Setup application. The window is titled 'Message Definition' and has a 'Schema' tab selected. The main content area contains the following fields:

- Message:** BUS_UNIT_GL_SYNC
- Version:** VERSION_1
- Description:** Bus Unit GL Sync
- Owner ID:** General Ledger
- Comments:** Transmission of changes made to GL Business Unit Data

On the right side of the window, there are additional options:

- Schema Exists:** No
- Part Message
- Message Type:**
 - Rowset-based
 - Nonrowset-based
 - Container

Below the main fields, there is a 'Service Operation References' section with a link to 'Add Record to Root'. At the bottom of the window, there are buttons for 'Save', 'Save As', 'Return to Search', 'Add', and 'Update/Display'. The left sidebar shows the navigation tree with 'Integration Broker' > 'Configuration' > 'Integration Setup' > 'Messages' selected.

PeopleTools > Integration Broker > Integration SetUp > Messages

Integration Broker - Setup

❖ Step 3 : Creating Integration MetaData

➤ Step 3f : Queue Definition

- ✓ Queues are groups of service operation definitions that help to sequence service operations properly and enhance scalability
- ✓ Provide a simple way to define processing characteristics of similar service operations as a single group

Queue Definitions

Queue Name: ESTIMATED_TIME

Description: Estimated Payable Time Channel

Comments: This channel is used to route Estimated Payable Time

Archive Unordered

Queue Status: Pause

Object Owner ID: TL Intrfcs

Operations Assigned to Queue

Service	Version
ESTIMATED_TIME_BATCH_ADD	VERSION_1
ESTIMATE_FORECAST_TIME_REQUEST	VERSION_1

Define Partitioning Fields

Include	Field	Alias Name
<input type="checkbox"/>	OPRID	
<input type="checkbox"/>	OPERATIONNAME	
<input type="checkbox"/>	PUBLISHER	
<input type="checkbox"/>	PUBPROC	

Buttons: Save, Add Field, Return to Search, Previous in List, Next in List, Notify, Add, Update/Display

PeopleTools > Integration Broker > Integration SetUP > Queues

Integration Broker - Setup

❖ Step 3 : Creating Integration MetaData

➤ Step 3g : Service Definition

- ✓ Services are used to Logically group a set of Service Operations. E.g. service operations like creating role, deleting role, creating user & deleting user may be grouped with a single service
- ✓ Services expose a service operation to external parties

Services

Service: BUS_UNIT_PC_FULLSYNC

'Description: Projects Business Unit Prompt

Comments: Projects Business Unit Prompt

Service Alias:

Object Owner ID: TL Interfaces

'Namespace: http://xmlns.oracle.com/Enterprise/HCM/services

[View WSDL](#)

Service Operations

Service Operation:

Operation Type:

Existing Operations Customize | Find | View All | First 1 of 1 Last

Operation	Message Links	Description	Active	Operation Type
BUS_UNIT_PC_FULLSYNC.VERSION_1		Projects Business Unit Prompt	<input type="checkbox"/>	Asynch

PeopleTools > Integration Broker > Integration SetUP > Services

Integration Broker - Setup

❖ Step 3 : Creating Integration MetaData

➤ Step 3h : Service Operations Definition

- ✓ Service operations provide applications within the PeopleSoft Enterprise product family with the ability to communicate synchronously or asynchronously with other PeopleSoft and third-party applications
- ✓ A service operation consists of general information about an operation, such as its name, description, and so on
- ✓ It also specifies an operation type, which determines how the operation is to be processed, synchronously or asynchronously
- ✓ In addition, it contains routings, which determine the direction, inbound or outbound, of the service operation
- ✓ A service operation has one or more handlers, which contain and run the programming logic for sending or receiving the message, manipulating message content, and so on

Integration Broker - Setup

❖ Service Operations Definition

Enterprise Components

- Worklist
- Application Diagnostics
- Tree Manager
- Reporting Tools
- PeopleTools
 - Mobile Sync Framework
 - Security
 - Utilities
 - Workflow
 - Portal
 - Search Engine
 - Personalization
 - Process Scheduler
 - Cube Manager
 - Application Engine
 - Query Access Services
 - Integration Broker
 - Configuration
 - Integration Setup
 - Codesets
 - Nodes
 - Messages
 - Queues
 - Services
 - Service Operations
 - Routings
 - Service Utilities
 - Web Services
 - Service Operations Monitor
 - File Utilities
 - REN Server Configuration
 - Setup Manager
 - MultiChannel Framework
 - Archive Data
 - Data Archive Manager
 - Translations
 - EDI Manager
 - Mass Changes

General | **Handlers** | **Routings**

Service Operation: BUS_UNIT_PF_FULLSYNC

Service: BUS_UNIT_PF_FULLSYNC

Operation Type: Asynchronous - One Way

***Operation Description:** BUS_UNIT_TBL_PF message User/Password Required

Operation Comments: [Text Area]

Object Owner ID: TL Interfaces

Operation Alias: [Text Field] [Service Operation Security](#)

Default Service Operation Version

***Version:** VERSION_1 **Default** **Active**

Version Description: BUS_UNIT_TBL_PF message

Version Comments: [Text Area]

Non-Repudiation

Runtime Schema Validation

Routing Status

Any-to-Local: Does not exist

Local-to-Local: Does not exist

Routing Actions Upon Save

Generate Any-to-Local

Generate Local-to-Local

[Introspection](#)

Message Information

Type: Request

Message.Version: BUS_UNIT_PF_FULLSYNC.VERSION_1 [View Message](#)

***Queue Name:** PERF_MEASUREMENT_SETUP [View Queue](#) [Add New Queue](#)

Buttons: Save | [Return to Service](#) | [Add Version](#)

PeopleTools > Integration Broker > Integration Setup > Service Operations

Integration Broker - Setup

❖ Step 3 : Creating Integration MetaData

➤ Step 3i : Routing Definition

- ✓ Defines the Routing type for the Asynchronous or Synchronous type message (Outbound or Inbound messages)
- ✓ Routing definitions have node definitions and gateway definitions as the parameters
- ✓ Routing Definitions are used with the service operation definitions
- ✓ Routings must be set to active in the service operations definitions

Integration Broker - Setup

Routing Definitions for the Service Operations

- ▷ Reporting Tools
- ▽ PeopleTools
 - ▷ Mobile Sync Framework
 - ▷ Security
 - ▷ Utilities
 - ▷ Workflow
 - ▷ Portal
 - ▷ Search Engine
 - ▷ Personalization
 - ▷ Process Scheduler
 - ▷ Cube Manager
 - ▷ Application Engine
 - ▷ Query Access Services
 - ▽ Integration Broker
 - ▷ Configuration
 - ▽ Integration Setup
 - ▷ Codesets
 - [Nodes](#)
 - [Messages](#)
 - [Queues](#)
 - [Services](#)
 - [Service Operations](#)
 - [Routings](#)
 - ▷ Service Utilities
 - ▷ Web Services

General
Handlers
Routings

Service Operation: SOA_IB_TEST

Default Version: VERSION_1

Routing Name: ADD

Routing Definitions								Customize Find View All First 1-2 of 2 Last
Selected	Name	Version	Routing Type	Sender Node	Receiver Node	Direction	Status	
<input type="checkbox"/>	SOA_IB_TEST_ROUTE	VERSION_1	Asynch	PSFT_HR	PSFT_EP	Outbound	Active	-
<input type="checkbox"/>	~GENERATED~39602953	VERSION_1	Asynch	~~ANY~~	PSFT_HR	Inbound	Active	-

Inactivate Selected Routings
Activate Selected Routings

Save
[Return to Search](#)

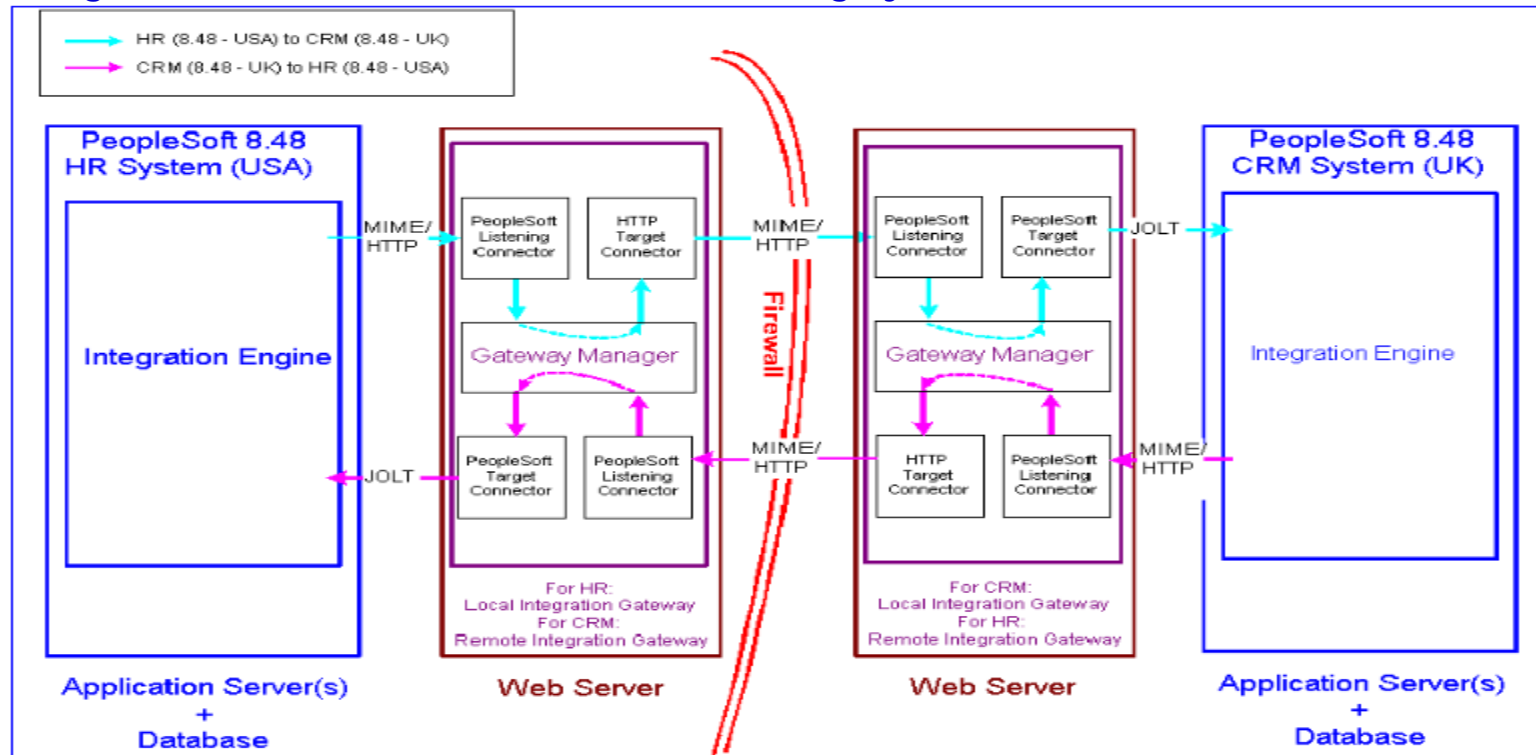
[General](#) | [Handlers](#) | [Routings](#)

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- ❖ Integration Broker Set Up
- ❖ **Integration Scenario**
- ❖ Integration Broker Monitoring
 - Troubleshooting & error handling

Integration Scenario

- ❖ Case : Integrating PS HRMS and CRM using Integration Broker
 - PS HRMS System communicating with PS CRM System
 - The diagram shows the configurations and the interactions of the Integration Broker
 - Both the Systems can be the source and the destination as the integration gateway and engine exists in each of the communicating systems



Integration Scenario

❖ Configuring the PS HRMS

- Define a Local Integration Gateway
- Define a Remote Integration Gateway – the remote gateway for the HRMS is the CRM
- Define the default Local Node
- Define a Remote Node – the remote node represents the CRM System. The gateway used for the remote node will be the remote Gateway.
- For Outbound integration, define a service operation, handler definition & outbound routing definition (The HR System is the sending node and the CRM System is the receiving node)
- For Inbound integration, the same service operation will be used with inbound routing definition (The CRM System is the sending node and the HR System is the receiving node)

Integration Scenario

❖ Configuring the PS CRM

- Define a Local Integration Gateway
- Define a Remote Integration Gateway – the remote gateway for the CRM is the HRMS
- Define the default Local Node
- Define a Remote Node – the remote node represents the HRMS System. The gateway used for the remote node will be the remote Gateway.
- For Outbound integration, define a service operation, handler definition & outbound routing definition (The CRM System is the sending node and the HR System is the receiving node)
- For Inbound integration, the same service operation will be used with inbound routing definition (The HR System is the sending node and the CRM System is the receiving node)

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-

Integration Broker Monitoring

❖ Monitoring

- PS Delivers a separate package for IB monitoring.
- Monitoring Options include monitoring of asynchronous and synchronous service operations information, node status, queue status, manage domains and more.
- PS Integration Broker Monitoring is done by the PS System Administrator.

❖ Features of IB Monitoring

- Status on queues, nodes, and individual service operations.
- Control and administration of domains that have publication and subscription (pub/sub) servers running against the current database.
- Activate or deactivate domains, recover from stalls, and so forth.
- Workflow notification of error messages and archival of service operations.
- Batch processes for error notification and service operation archival.

Integration Broker Monitoring

- ❖ Navigate to *PeopleTools > Integration Broker > Service Operations Monitor > Monitoring* for all the monitoring options available with PS Integration Broker
- ❖ The pages offer filtering options, tracking of the status' for a particular service & Error messages. Different Publish/Subscription Status' include
 - Error
 - New
 - Started
 - Working
 - Done
 - Retry
 - TimeOut
 - Edited
 - Cancelled
 - Hold
- ❖ Error Messages logged at
<PS_HOME>\webserv\peoplesoft\applications\peoplesoft\PSIGW\errorLog.htm

Integration Broker Monitoring

- ❖ Navigate to *PeopleTools > Integration Broker > Service Operations Monitor > Asynchronous Details, Synchronous Details* to check the publish & subscription status of a service or message
- ❖ All Inbound & OutBound Messages appear in the Monitor Overview Tab and Operating Instance Tab

- ▷ Application Diagnostics
- ▷ Tree Manager
- ▷ Reporting Tools
- ▽ PeopleTools
 - ▷ Mobile Sync Framework
 - ▷ Security
 - ▷ Utilities
 - ▷ Workflow
 - ▷ Portal
 - ▷ Search Engine
 - ▷ Personalization
 - ▷ Process Scheduler
 - ▷ Cube Manager
 - ▷ Application Engine
 - ▷ Query Access Services
 - ▽ Integration Broker
 - ▷ Configuration
 - ▷ Integration Setup
 - ▷ Service Utilities
 - ▷ Web Services
 - ▽ Service Operations Monitor
 - ▽ Monitoring
 - Asynchronous Services
 - Asynchronous Details
 - Synchronous Services
 - Synchronous Details
 - Error Notification
 - Archive Monitor Data
 - Statistics
 - ▷ Administration

Monitor Overview
Operation Instances
Publication Contracts
Subscription Contracts

Publish Node Archived

***Queue Level** Oper Inst ***Group By** Queue

Time Period

From Date: 01/01/2009 **To Date:** 02/19/2009

From Time: 12:00:01AM **To Time:** 11:59:59PM Refresh

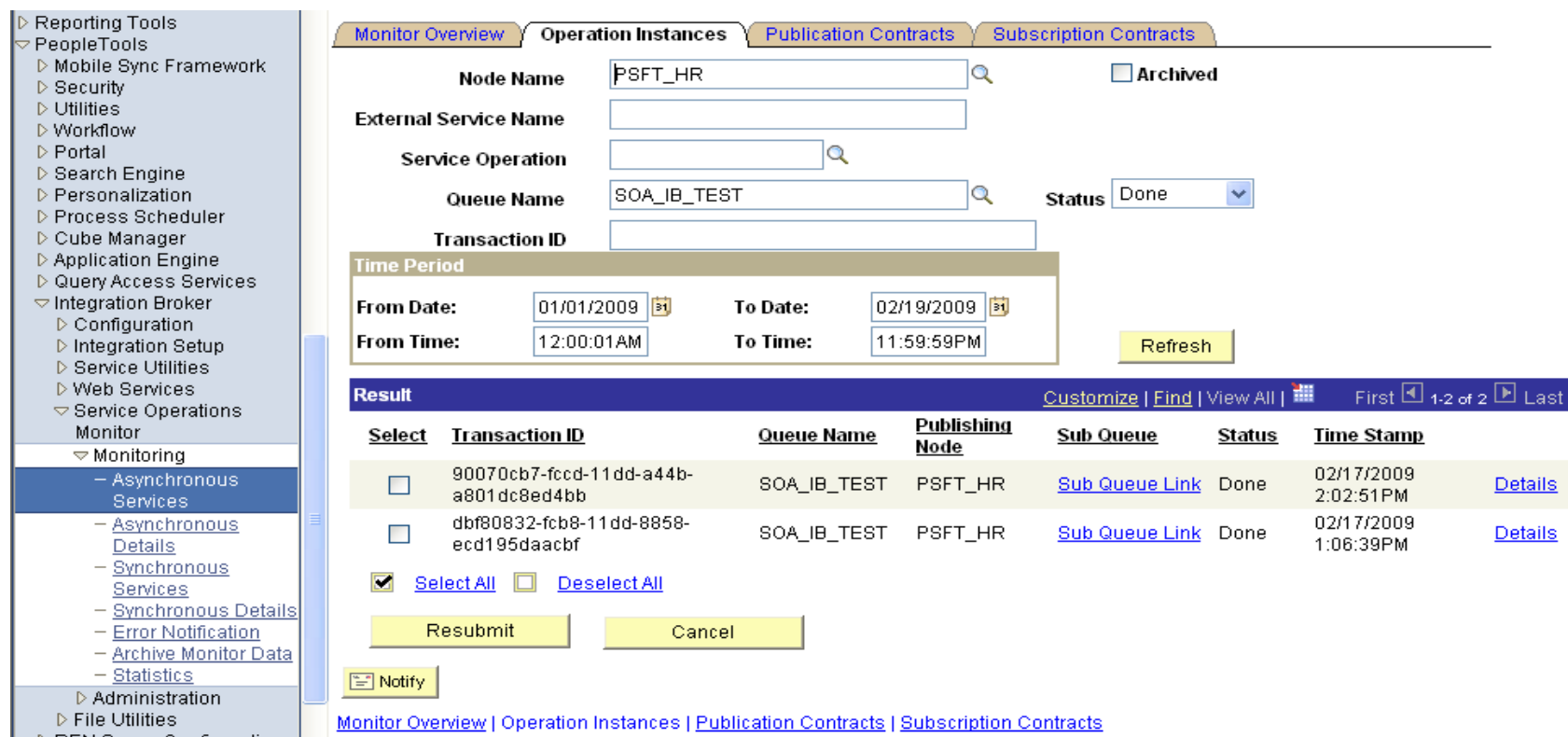
Result										
Queue Name	Error	New	Started	Working	Done	Retry	Timeout	Edited	Canceled	Hold
PSRF_REPORTING_FOLDERS	0	0	0	0	55	0	0	0	0	0
PSXP_MSG_CHNL	0	0	0	0	1	0	0	0	0	0
ROLE_MAINT	0	0	0	0	3	0	0	0	0	0
SOA_IB_TEST	0	0	0	0	2	0	0	0	0	0
TREE_MAINT	0	0	0	0	1	0	0	0	0	0
USER_PROFILE	0	0	0	0	3	0	0	0	0	0

Notify

Monitor Overview | [Operation Instances](#) | [Publication Contracts](#) | [Subscription Contracts](#)

Integration Broker Monitoring

- ❖ Operation Instances Page details the status of a particular publish/Subscribe message.



Monitor Overview | **Operation Instances** | Publication Contracts | Subscription Contracts

Node Name: PSFT_HR Archived

External Service Name:

Service Operation:

Queue Name: SOA_IB_TEST Status: Done

Transaction ID:

Time Period

From Date: 01/01/2009 To Date: 02/19/2009

From Time: 12:00:01AM To Time: 11:59:59PM

Result [Customize](#) | [Find](#) | [View All](#) | First 1-2 of 2 Last

Select	Transaction ID	Queue Name	Publishing Node	Sub Queue	Status	Time Stamp
<input type="checkbox"/>	90070cb7-fccd-11dd-a44b-a801dc8ed4bb	SOA_IB_TEST	PSFT_HR	Sub Queue Link	Done	02/17/2009 2:02:51PM Details
<input type="checkbox"/>	dbf80832-fcb8-11dd-8858-ecd195daacbf	SOA_IB_TEST	PSFT_HR	Sub Queue Link	Done	02/17/2009 1:06:39PM Details

[Select All](#) [Deselect All](#)

[Monitor Overview](#) | [Operation Instances](#) | [Publication Contracts](#) | [Subscription Contracts](#)

Integration Broker Monitoring

- ❖ All OutBound Messages are Published and the status of which is viewed in Publication contracts page
- ❖ All Inbound Messages Subscribed and the status of which is viewed in Subscription Contracts page

The screenshot displays the 'Publication Contracts' page in the SOA IS monitoring tool. The left sidebar shows a navigation tree with 'Integration Broker' expanded to 'Monitoring'.

Page Navigation: Monitor Overview | Operation Instances | **Publication Contracts** | Subscription Contracts

Search Criteria:

- Node Name: PSFT_HR
- Service Operation: [Empty]
- Queue Name: SOA_IB_TEST
- Transaction ID: [Empty]
- Archived:
- Status: Done

Time Period:

- From Date: 01/01/2009
- To Date: 02/19/2009
- From Time: 12:00:01AM
- To Time: 11:59:59PM

[Transaction Retry Queue](#) |

Result Table:

Select	Transaction ID	Queue Name	Publishing Node	Sub Queue	Subscriber Node	Segment Number	Send ID	Service Operation
<input type="checkbox"/>	90d8d997-fccd-11dd-9dd8-9e76ff8e3a8a	SOA_IB_TEST	PSFT_HR	Sub Queue	PSFT_EP	1	2	SOA_IB_TEST
<input type="checkbox"/>	b677c127-fcc5-11dd-9dd7-9e76ff8e3a8a	SOA_IB_TEST	PSFT_HR	Sub Queue	PSFT_EP	1	1	SOA_IB_TEST

[Select All](#) | [Deselect All](#)

|

[Monitor Overview](#) | [Operation Instances](#) | [Publication Contracts](#) | [Subscription Contracts](#)

Integration Broker Monitoring

❖ Integration Broker Troubleshooting

➤ Publication Process Problems

✓ Publication Contract Is Not Created

Possible causes are:

- No publication PeopleCode exists.
- Publication PeopleCode is incorrect.
- No outbound routings exists for the service operation

✓ Publication Contract Is in NEW Status

Possible causes are:

- Sending queue is paused.
- Publication Dispatcher crashed or was brought down.
- Sending node is paused.
- Previous service operation had a status of Retry, Error, or Timeout.
- Sending domain is not active

Integration Broker Monitoring

❖ Integration Broker Troubleshooting

➤ Publication Process Problems

✓ Publication Contract Stays in RETRY Status

Possible causes are:

- The remote node cannot be pinged successfully; the publication contract will be processed when the remote node comes back up
- No publication handler is available, either because it crashed or it was brought down
- Receiving Node URL is incorrect in **integrationGateway.properties** file

✓ Publication Contract Is in ERROR Status

Possible causes are:

- Receiving node user profile not authorized to service operation
- Inbound routing is not set up on the receiving system
- Service operation is not active on the receiving system
- Service operation has not been granted security access on the receiving system
- The source node is not defined in the target database
- Handler PeopleCode is bad
- Remote application server is down
- Receiving Node is not defined in the **integrationGateway.properties** file
- Receiving PeopleSoft node has not been added to single signon
- Service operation version on target is not active

Integration Broker Monitoring

❖ Integration Broker Troubleshooting

➤ Subscription Process Problems

✓ Subscription Contract Is NOT CREATED

Possible causes are:

- No handler exists for the service operation
- Service operation handler is missing method
- Queue routing rules not set up properly

✓ Subscription Contract Is in NEW Status

Possible causes are:

- Application Server down
- Pub/Sub processes not configured on Application Server domain
- The Subscription Dispatcher has crashed or has been brought down
- Receiving queue is paused
- Receiving node is paused
- Previous service operation had errors or timed out

Integration Broker Monitoring

❖ Integration Broker Troubleshooting

➤ Subscription Process Problems

✓ Subscription Contract Is in ERROR Status

Possible causes are:

- Queue property if Ordered enables subscription contracts to go in random order, which causes SYNCHRONOUS service operations to error out when the transaction is subscribed before the header.
- Service operation handler PeopleCode errors exist
- Application data errors exist

➤ Other IB Problems

✓ Unable to Ping a Node

- The web server for the Gateway is down
- The Gateway is not configured properly

Integration Broker Monitoring

❖ Error Notification

- PS also provides the option of batch notification of Errors occurred during a message transaction
- The Batch process can be set with a recurrence to run on a periodic basis and look for errors.
- The Error Notification triggers a Workflow and an email for every Error occurred in the publication/Subscription process to the System Administrators
- The email & workList notification points to the *PeopleTools > Integration Broker > Service Monitoring options > Monitoring > Asynchronous Details* for a detail look up on the error & its further resolutions
- Navigate to *PeopleTools > Integration Broker > Service Monitoring options > Monitoring > Error Notification* to run the Error Notification Utility and set the different Options

Integration Broker Monitoring

Running the Error Notification Process can help in quickly resolving the errors generated during the pub/sub messaging

The screenshot displays the SOA IS web interface for Integration Broker Monitoring. On the left is a navigation tree with the following structure:

- Tree Manager
- Reporting Tools
- PeopleTools
 - Mobile Sync Framework
 - Security
 - Utilities
 - Workflow
 - Portal
 - Search Engine
 - Personalization
 - Process Scheduler
 - Cube Manager
 - Application Engine
 - Query Access Services
 - Integration Broker
 - Configuration
 - Integration Setup
 - Service Utilities
 - Web Services
 - Service Operations Monitor
 - Monitoring
 - Asynchronous Services
 - Asynchronous Details
 - Synchronous Services
 - Synchronous Details
 - Error Notification**
 - Archive Monitor Data
 - Statistics

- Administration

The main content area is titled "Error Notification" and includes the following elements:

- Run Control ID: t
- Navigation links: [Report Manager](#), [Process Monitor](#), and a yellow **Run** button.
- A configuration box with the following fields:
 - Process Frequency:** Radio buttons for "Process Once", "Always Process", and "Don't Run" (which is selected).
 - 'Request ID:** An empty text input field.
 - Description:** An empty text input field.
 - URL:** A text input field containing the value "http://localhost:95/ps/ps/EMPLOYEE/HRMS".

Integration Broker Monitoring

❖ Integration Broker Troubleshooting

- PS Integration Broker takes the Service Oriented Architecture as its design and hence most of the configurations and error fixings can be done online i.e. from PIA
- Any Operator who has the Integration Broker functional knowledge can do the entire SetUp and can also resolve most of the errors relating to gateways, nodes, messages, services, service operations, queues, handlers, routings
- For some of the errors relating to the servers and PeopleCode it would ask for a System Administrator and a Developer

Integration Broker Monitoring

Publication Contract Status	PeopleSoft IB Administrator	PeopleSoft Administrator	PeopleSoft Developer
NOT CREATED	✓		✓
NEW	✓	✓	
RETRY	✓	✓	
WAITING	✓	✓	
ERROR	✓	✓	✓
TIMEOUT	✓	✓	✓

Integration Broker Monitoring

Subscription Contract Status	PeopleSoft IB Administrator	PeopleSoft Administrator	PeopleSoft Developer
NOT CREATED	✓		
NEW	✓	✓	
STARTED	✓		✓
WORKING	✓		✓
ERROR	✓		✓
EDIT	✓		✓

Summary

In this session we covered

- Integration overview
- PeopleSoft Integration Broker Architecture
- PeopleSoft Integration Broker Setup
- An integration scenario
- Integration Monitoring
 - Including troubleshooting & error handling

Q & A

*You can also clarify queries or provide feedback on this presentation at
<http://www.soais.com/askexpert.html>*

About SOAIS

SOAIS is a provider of Enterprise IT and Process outsourcing solutions. Since its inception SOAIS has expanded at a tremendous pace and has garnered customers from both mid-market segment and Fortune 100 companies. We have experience in managing ERP applications as well as in providing high value services around packaged enterprise applications such as PeopleSoft and Oracle. Our experience in the business process outsourcing area fully extends our services footprint to provide end to end enterprise wide solutions. See www.soais.com for information.

APPENDIX

Integration Broker - Architecture

❖ Integration Gateway:

➤ Connectors

- ✓ Listening & Target Connectors transport messages between Integration Participants & Integration Gateways
- ✓ Listening Connectors receive incoming data & perform services based on the content of the Stream
- ✓ Listening Connectors are invoked externally by other systems
- ✓ Target Connector initiates communication with other PS & third party systems

Integration Broker - Architecture

❖ Integration Gateway:

➤ Gateway Manager

- ✓ Maintains Connection with other Gateway Components - Connectors & Services
- ✓ Gateway Manager Validates the message & logs the error message
- ✓ Calls the appropriate target connector
- ✓ Runs Services like Error Handling, Messaging Objects, XML Parsing, Message Validations, Connector Management and Error & Message Logging

Integration Broker - Architecture

❖ Integration Gateway:

➤ Gateway Services

- ✓ Error Handling - This service provides error handling and error logging for most connectors delivered with PeopleSoft Integration Broker
- ✓ Messaging Objects – IBRequest and IBResponse are central to the system as they represent the request and response that go in and out of the Integration Broker
- ✓ XML Parsing - Most IBRequests and IBResponses that are processed in the system usually contain a Content section, which represents the actual business message sent
- ✓ Message Validation – Performs basic message validation, such as making sure the message identifies its requestor and message name, to ensure that the Integration Engine and the target application can process them
- ✓ Connector Managements - Processes each IBRequest to determine the appropriate connector to call in each situation
- ✓ Error and Message Logging - Standard logging interface that most components in the system use, most notably the connectors