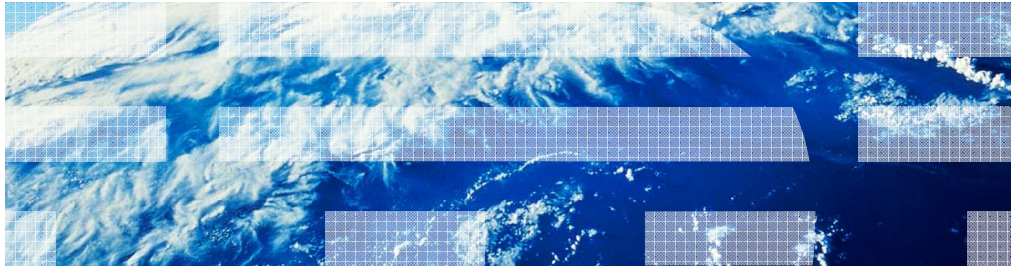


IBM Business Process Manager V7.5

IBM WebSphere adapters V7.5



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This presentation provides a general overview of the IBM WebSphere Adapters V7.5

Goals and Agenda

- Goals
 - Introduction to WebSphere adapters
 - Provide list of available adapters for V7.5
 - Provide new features and enhancements of each adapter in V7.5
- Agenda
 - WebSphere adapters V7.5 portfolio
 - Adapter overview
 - Common enhancements
 - Technology adapters
 - Flat File and FTP
 - ECM
 - JDBC
 - IBM I
 - Domino
 - Application adapters
 - JDE
 - Oracle EBS
 - SAP
 - PeopleSoft and Siebel
 - Summary

This presentation covers a general overview of the IBM WebSphere adapters. It starts with a list of available adapters for V7.5. Then it provides adapter overview along with common enhancements to all adapters and detail enhancements for each adapter.

WebSphere adapters V7.5 portfolio

This section recaps all of the available WebSphere Adapters in V7.5

Overview – Available in V7.5

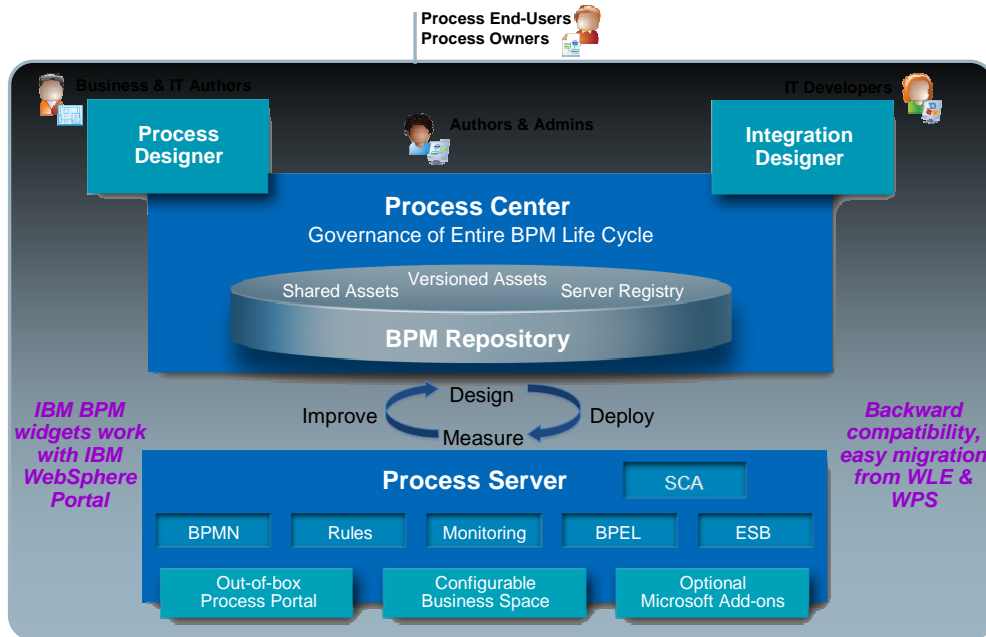
- IBM WebSphere Adapters
 - Technology
 - IBM WebSphere Adapter for Flat Files V7.5
 - IBM WebSphere Adapter for FTP V7.5
 - IBM WebSphere Adapter for JDBC V7.5
 - IBM WebSphere Adapter for Email V7.5
 - IBM WebSphere Adapter for IBM i V7.5
 - IBM WebSphere Adapter for Lotus Domino V7.5
 - IBM WebSphere Adapter for Enterprise Content Management V7.5
 - Application
 - IBM WebSphere Adapter for SAP Applications V7.5
 - IBM WebSphere Adapter for PeopleSoft Enterprise V7.5
 - IBM WebSphere Adapter for Siebel Business Applications V7.5
 - IBM WebSphere Adapter for JD Edwards EnterpriseOne V7.5
 - IBM WebSphere Adapter for Oracle E-Business Suite V7.5
- Implement Java EE Connector Architecture (JCA 1.5)
- Integrated with IBM Business Process Manager V7.5
- Use Adapter Foundation Classes that enhance JCA 1.5 and encapsulate many common adapter functions

Here is the list of the adapters that are available for V7.5. They include the Flat File, FTP, JDBC, Email, IBM I, Lotus Domino, and ECM technology adapters along with the SAP, PeopleSoft, Siebel, JD Edwards, and Oracle E-Business application adapters. To recap, these are all based on a set of foundation classes that enhance the JCA 1.5 specification and are integrated with IBM Business Process Manager V7.5. These foundation classes contain many new features for the 7.5 release

Overview

This section provides the overview of WebSphere Adapters V7.5

IBM Business Process Manager V7.5 – Advanced Edition




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IBM WebSphere adapters V7.5


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The Business Process Manager comes in three different editions, each of which provides functionality appropriate for different stages of business process management adoption. This architecture diagram shown here is the IBM Business Process Manager Advanced Edition. It contains functionality from both the WebSphere Lombardi Edition and WebSphere Process Server heritages. In this case, the Advanced Edition includes IBM Integration Designer which provides easy access to integration adapters.

IBM
IT Developers 


The Integration Designer


Integration Designer



Basic concepts

- *Process Apps and Toolkits*
- *Advanced Integration Service*
- BPEL
- **Adapters**
- Maps
- Mediations



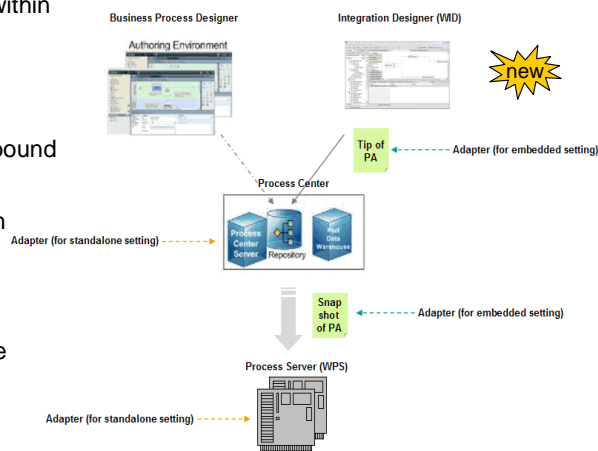


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As mentioned in previous slide, the IBM Integration Designer contains access to external services with adapters. Services and artifacts on external systems can be imported into IBM® Integration Designer. A wizard discovers applications and data on an Enterprise Information Systems (EIS) and lets you generate services from the discovered applications and data. The generated artifacts are interfaces and business objects, which can be used by components in a module.

Adapters in Integration Designer

- Developing services with adapters
 - Resource adapters are used within the context of an import or an export
 - An EIS import known as outbound call
 - An EIS export known as inbound call
- Adapter modules to associate with
 - Process Application
 - Toolkit
- Deployment options
 - With modules for use by single application
 - On server for use by multiple applications



EIS imports and exports are the means of creating services that use resource adapters typically to access EIS. You can develop an import or an export with the external service wizard and, in developing it, include the resource adapter. An EIS import known as outbound call, which lets your application invoke a service on an EIS. Or an EIS export known as inbound call, which lets an application on an EIS invoke a service developed in Integration Designer, are created with a particular resource adapter. In V7.5, the adapters can be developed as SCA services that can be called from process applications or toolkits.

The adapter also support different deployment options. It can be deployed with modules for use by single application, or on server for use by multiple applications.

Common enhancements for all adapters

This section covers new features and enhancements for all WebSphere Adapters.

High Availability Active-Active for Inbound configuration (1 of 3)

- Provide support for High Availability (HA) Active-Active enablement
 - Enable all instances deployed in a clustered environment to be active and each instance is allowed to process the events independently
 - Enable distribution of events to be processed between the available instances without any duplicate events being delivered to the endpoint.
 - Support for standard inbound handling only in JDBC, FTP, and Flat Files adapters
 - Provide fully compatible with earlier versions
 - HA Active-Passive mode
- Adapter runs in HA Active-Active mode
 - If the event table structure cannot support for HA Active-Active, adapter generates exception in startup phase.
 - If any instance down, the events are handled by other instances, thus all the events are processed if any instance is available
- Key points in using HA active-active support
 - Improve the overall event handling performance in cluster environment
 - With active-passive mode, the memory/resources holding the passive instance is underutilized
 - High availability active-active support enables continuous availability with optimized utilization of memory/resources

The WebSphere adapters supports High Availability Active-Active feature, during inbound processing, in a clustered environment has been enabled, where multiple instances of the adapter can actively poll for events and deliver events without any duplication. This allows the adapter to provide both high availability and load balancing support. It enables distribution of events to be processed between the available instances without any duplicate events being delivered to the endpoint. This feature only applies to inbound configuration within JDBC, Flat Files, and FTP adapters in V7.5. It also provides fully backward capability which is HA Active-Passive mode.

When High Availability Active-Active is enabled, the adapter depends on the new table structure to handle events. If the event table structure is incorrect, the adapter creates an exception during start-up. As the adapter supports High Availability Active-Active for inbound processing only, the inbound configured adapter creates an exception during run time. In the event if one of the adapter instances in the cluster fails, the other active instances in the cluster handle the events. In the High Availability Active-Active configuration, adapters ensure that an event is not processed by more than one adapter instance. This results in each adapter instance polling for a unique event, and delivering the event without any duplication to the endpoint.

With HA Active-Active enabled, it can optimize utilization of memory and resources as these memory and resources can be underutilized in Active-Passive mode.

High Availability Active-Active for Inbound configuration (2 of 3)

- To enable HA active-active
 - Set enableHASupport property to **False**
 - Modify the property from administrative console
 - Embedded adapter
 - Application → Enterprise Applications → <App_name> → Manage Modules → adapter RAR → <App_name>.<adapter_name>Custom Properties
 - Standalone adapter
 - Resource adapters → Resource adapters → adapter RAR

Name	Value	Description	Required
You can administer the following resources:			
adapterID	001	adapterID	false
databaseVendor		databaseVendor	false
enableHASupport	true	enableHASupport	false
hideConfidentialTrace	false	hideConfidentialTrace	false
logFileSize	0	logFileSize	false
logFilename		logFilename	false
logNumberOfFiles	1	logNumberOfFiles	false
pingQuery		pingQuery	false
queryTimeOut		queryTimeOut	false
returnDummyBOForSP		returnDummyBOForSP	false
threadContextPropagationRequired	true	threadContextPropagationRequired	false
traceFileSize	0	traceFileSize	false
traceFilename		traceFilename	false
traceNumberOfFiles	1	traceNumberOfFiles	false
Total 14			

To enable HA Active-Active, you need to set enableHASupport property to False. In administrative console, the property can be found at different location depending on the deployment selection.

High Availability Active-Active for Inbound configuration (3 of 3)

- Support only unordered delivery type events
 - If the delivery type specified is ORDERED, a runtime exception error is created
 - If an adapter instance fails, the fetched events is cleaned up within the specified time period and all unprocessed events are processed as new events
- Must configure all the event persistence properties
- (Flat File and FTP adapter) Local event directory must be accessible by all adapter instances in the clustered environment
 - Sorting of event files being polled is not supported
 - May require additional configurations to map drive connection in Windows 7, Windows Vista, and Window Server 2008

Event sequencing is not ensured when High Availability Active-Active is enabled. During adapter configuration, you have to ensure the delivery type is UNORDERED. If an adapter instance fails, the fetched events is cleaned up within the specified time period and all unprocessed events are processed as new events. You must also configure all the event persistence properties, if the adapter uses the HA Active-Active configuration.

In Flat Files and FTP adapters, the local event directory must be present in a mapped drive that can be accessed by all the adapter instances in the clustered environment. In the Windows operating systems, such as, Windows 7, Windows Vista, and Windows Server 2008, there are issues faced in the mapped drive connection. Due to this issue, in a clustered environment, where the nodes are running on different machines, the files in the mapped event directory might not be processed completely or correctly.

Calendar based polling

- Option to set up calendar based polling, to schedule business activities during inbound operations
 - Schedule business activities when new business calendar is created in IID
 - Select a blank calendar or pre-defined calendar template
 - Can define time intervals and exceptions if using pre-defined calendar template
 - View and modify in Integration Logic → Calendars
 - Both adapter and calendar modules have to be in the same server instance

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IBM WebSphere adapters V7.5

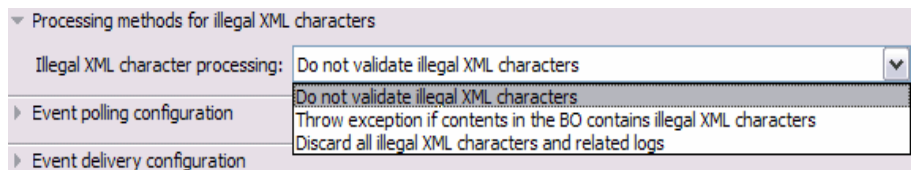
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Another common enhancement is to support for scheduling your business activities during the inbound operation when you create a new calendar in IBM Integration Designer. The option of working with the calendar based scheduling feature is only possible with IBM Integration Designer as the tool environment. You can either select a blank calendar or create a new calendar for a module or library. When you select a blank calendar, you are not able to set pre-defined time intervals. You have to define your time intervals. When you create a calendar using a pre-defined template, you can define time intervals for each template.

You must also deploy the Business Calendar module to the same IBM Business Process Manager or WebSphere Enterprise Service Bus instance, along with the inbound application. If you do not map these two connections to the same server instance, the inbound application using the business calendar will by default, poll as there is no calendar configured.

Validate illegal XML characters

- Detecting illegal XML characters
 - Option to handle illegal XML character processing
 - Throw exception if contents in the BO contains illegal XML characters, if you want to proceed after you get an exception message, and log the illegal XML characters in the trace file, at runtime.
 - Discard all illegal XML characters and related logs, if you want the adapter to discard the illegal XML characters, and log the characters in the trace file, at runtime.



Last but not least, the adapter provides ability to detect, validate, and process illegal XML characters, or continue to work with the default adapter behavior. In this release, a drop down list is provided with options to create exception if there is illegal XML characters in the business object, discard all illegal XML characters, or do not validate illegal XML characters at all.

Technology adapters

This section highlights the details of the features and enhancements for technology adapters

Flat Files and FTP adapter enhancements

- Support to handle large files
- Support prefix and suffix for file name
- Support for archiving the failed events, with SplitBySize option
- (Flat Files only) Total business count no longer included in chunk information during inbound processing
- (Flat Files only) Support for resetting sequence number
- (FTP only) Process event files downloaded using FTP script
- (FTP only) Resume transfer of files after reconnecting to the FTP or FTPS server
- (FTP only) Additional SFTP commands with the ExecuteFTPScript operation during outbound
- (FTP only) Verifying access permission for output/remote directory

This slide summarizes the enhancements made for Flat Files and FTP adapters in V7.5. Some of the common enhancements include support to process large files without size limitations. It eliminates the need to process a large file at one go in the beginning of the process and allows to achieve consistent performance when dealing with large files. The adapter also has ability to add a prefix and suffix to the file name while generating unique file names during outbound processing. Another common enhancement is ability to archive failed events enabled for the SplitBySize property.

For Flat Files adapter specifically, it can send chunk information to the endpoint without including the total business object count, which allows the adapter to process event files without any restriction on the file size. It also has support for resetting sequence numbers to the specified value during creation of files.

For FTP adapter, it can be used to process the files downloaded using the FTP scripts in addition to processing the files downloaded from the event directory during polling. You can specify the scripts to be run before or after polling the event directory. The adapter can now resume transfer of files after reconnecting to the FTP or FTPS server. During outbound with ExecuteFTPScript operation, you have the commands contained in the script file to run on the SFTP server including chmod, chgrp, and chown. Last but not least, the adapter provides option to ignore mandatory for permissions on parent target directory.

ECM adapter enhancements

- Support iterative development
- Support for automatic generation of business faults
- Seamless inbound configuration of the adapter by simplification of the subscription setup

The ECM adapter was introduced in V7.0 Feature Pack 2 release. In this version, it supports iterative development which allows regeneration and reconfiguration of artifacts in existing adapter modules. It also supports automatic generation of business faults. Most importantly, the ECM adapter has simplified the inbound configuration. Previously, the prerequisite for inbound discovery phase included manually creating event actions and subscriptions in ECM system, manually uploading the event handler in the code modules of the system, and manually typing in the subscription ID. Now the adapter has automated this step of creating the subscription for inbound configuration.

JDBC adapter enhancements

- Support XML data type for stored procedure, query, and batch query business objects
- Support enabled to retrieve records page-wise with the new paging feature
- Add additional UpdateAll, DeleteAll, and Upsert operations
- Customized faults as business faults to avoid large system log entries
- Support of batch operations such as BatchCreate, BatchUpdate, and BatchDelete

JDBC adapter V7.5, enhancements include support for XML data type for stored procedure, query, and batch query business objects, and support enabled to retrieve records page-wise with the new paging feature. The adapter also adds new outbound operations such as UpdateAll, DeleteAll, and Upsert. Besides these new operations, the adapter supports batch operations including BatchCreate, BatchUpdate, and BatchDelete. They are for adding/updating/deleting records of top level business objects in a single operation. In addition, the adapter has the ability to customize faults as business faults to avoid large system log entries.

IBM i adapter enhancements

- Option to discover PCMLs file in local file system
- Allow to select RPG and COBOL programs directly during object discovery
- Option to select different passByType value for service programs
 - Pass by Value
 - Pass by Reference
- Support for globalization with the use of CCSID
 - Extend the support all the languages supported by the IBM i system including DBCS (Double Byte Character Set) languages like Chinese and Japanese

Here are some enhancements that IBM i adapter supports in V7.5. First, previously, the discovery for the WebSphere Adapter for IBM i used the PCMLs present in the IBM i system which mandates adapter to have an active connection to the IBM i system even during the discovery phase. In this release, the adapter provides discovery of PCMLs either in IBM i system or in local file system. Second, the adapter can now select the RPG and COBOL programs directly. This allows the required PCMLs to be generated automatically. Third, the adapter provides ability to select the passByType value for a service program. This allows the customization of the service program design. Last but not least, the adaptor supports specifying the use of CCSID in a call PGM operation. This includes Double Byte Character Set languages such as Chinese and Japanese.

Lotus Domino adapter enhancements

- WALD inbound extension manager supports configuring of multiple documents with either same or different Connector IDs in the *EventTriggerConfigurationView* view
- WALD inbound extension manager supports form specific inbound event notification
- WALD inbound extension manager supports logging at the server console and the log.nsf file
 - Edit *SystemConfigurationView* to configure log level and log outputs

The Lotus Domino adapter V7.5 enables its inbound extension manager to support configuring multiple documents with either the same or different connector IDs in the *EventTriggerConfigurationView* view. It also enhances support for event trigger capabilities to configure notifications for one or more specific forms and notifications generated only for events on these forms. Last but not least, it is enabled for logging support at both the server console and log.nsf.

Application adapters

This section highlights the details of the features and enhancements for application adapters

JDE adapter enhancements (1 of 1)

- Support Iterative Development
- JDE adapter version and its vendor lib version are printed in the logs/trace
 - Assist IBM support during problem analysis

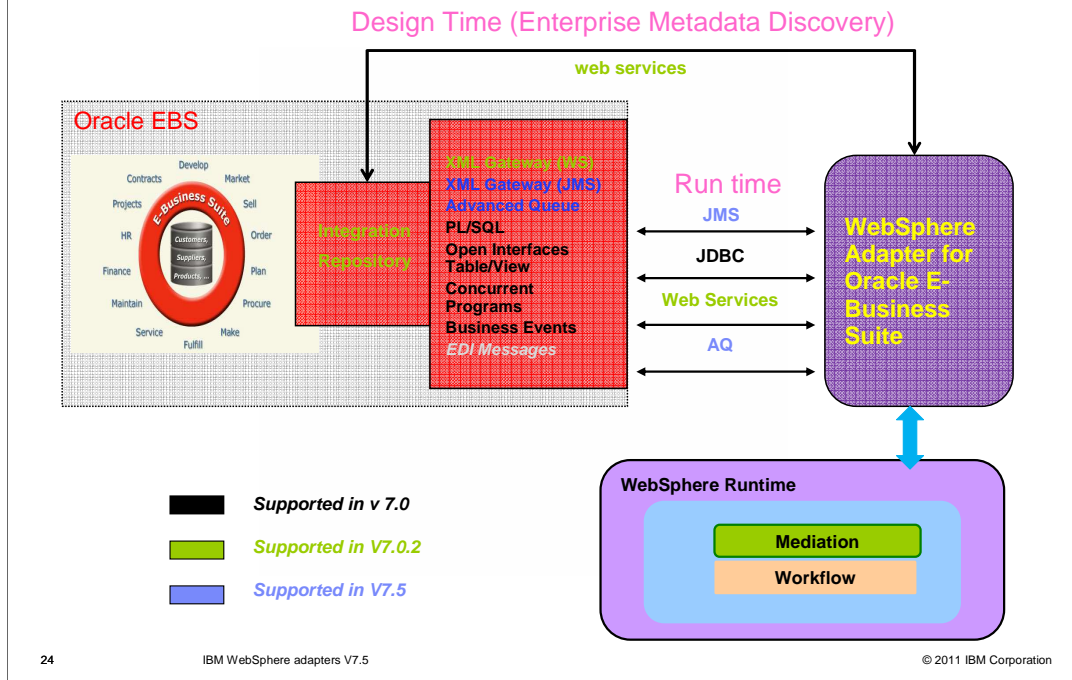
In the WebSphere Adapter for JD Edwards EnterpriseOne V7.5, enhancements include iterative development support which allows the user to modify artifacts on existing adapter modules. This eliminates the need to create a new module at every incremental development. JDE adapter now also includes an adapter version and its vendor lib version in the logs/trace to assist IBM support during problem analysis.

Oracle EBS adapter enhancements (1 of 2)

- XML Gateway and Advanced Queue
 - **Integrating with Oracle XML Gateway**
 - *Through JMS*
 - **Integrating with Oracle Advanced Queue**
 - *Through PL/SQL*
- Business Impacts
 - XML Gateway and Advanced Queue are key features of Oracle EBS
 - They are the most recommended integration point
 - They are Oracle ERP business function oriented, with adapter's enablement, not require much Oracle EBS specific integration experience

Two major enhancements for Oracle EBS adapter V7.5 are, supporting enabled XML gateway integration through JMS and Advanced Queue integration through PL/SQL. They are key features of Oracle EBS and the most recommended integration point. Specifically, they are Oracle ERP business functions oriented with adapter's enablement and do not require much Oracle EBS specific integration experience.

Oracle EBS adapter enhancements (2 of 2)



This diagram explains different integration repositories in previous and current release. PL/SQL, Open Interfaces Tables and View, Concurrent programs, and business events are among integration repositories that the Oracle EBS supported in V7.0. Then in V7.0 Feature Pack 2 release, the XML gateway through web services was introduced and with V7.5, the adapter supports XML gateway through JMS as another type of integration repository. Additionally, the adapter also introduces Advanced Queue in V7.5 as one of many supported integration repository with possibility of supporting EDI messages in the near future.

SAP adapter enhancements

- Iterative Development
- Support for parsing IDocs outside Adapter Inbound/Outbound interaction/protocol
- Generate unique file names for duplicate BAPI business objects
- Support for providing Control Record structure for ALE pass through Generic IDoc Currently IDoc Control Record is part of the Binary data
- Support for JCo API traces to be traced into SAP Adapter traces
- Support for CPIC traces

There are several enhancements that are made to the SAP adapter in V7.5. First, the SAP adapter now supports iterative development which allows to modify adapter artifacts on existing modules. Second, it supports functionality to parse out the stream data provided in pass-through IDoc Business Objects. Third, you now have ability to generate duplicate Business Objects without adding any hash codes to the business object names to maintain consistency in the naming convention. Previously, all duplicate Business object names were appended with hash codes to provide unique names. Fourth, it provides options to choose to create a parsed control record along with a HexBinary stream to hold both the control record and the data record for an inbound operation using pass-through IDocs. Last, for logging and tracing, the SAP Adapter traces are currently traced to the runtime's log file. The RFC and JCo tracing properties feature enables JCo traces / RFC traces, which are generated into the same runtime's trace log. The adapter also allows to trace the Common Programming Interface - Communication (CPIC) which was previously not available.

Siebel and PeopleSoft adapters enhancements

- Handling empty returned record
- Polling filter based on inbound operation
 - Event types to process (EventTypeFilter) events are filtered by business object type and operations.
- (Siebel only) Setting New Code page property
 - Can easily set the Code page for external service wizard or runtime connection to Siebel Server, instead of changing JVM setting manually
- (Siebel only) Configuring more than one output argument for Siebel Business Services Interface

In both Siebel and PeopleSoft adapters, these new features include ability to configure to show errors in an empty container being returned by the RetrieveAll operation. And ability to process filtered events either by business object type and operations during inbound processing.

With Siebel adapter specifically, the adapter provides ability to specify the code page to connect to the Siebel application server so user does not have to manually change JVM setting. Last but not least, you can now configure more than one output argument for the Siebel Business Services interface. The adapter is generating a wrapper business object to contain all possible argument types of the integration object for the business service and converts them during runtime.

Summary

The next section provides the Summary of this adapter presentation.

Summary

- Summary
 - Learned details about available adapters in IBM BPM V7.5
 - Provided list of common enhancements across all adapters
 - Provided list of specific enhancements in each adapter
 - Technology
 - Application
- References
 - IBM Education Assistant
 - <http://publib.boulder.ibm.com/infocenter/ieduasst/v1r1m0/index.jsp>
 - WebSphere Adapters Support
 - http://www.947.ibm.com/support/entry/portal/Overview/Software/WebSphere/WebSphere_Adapters_Family

In summary, this presentation has covered an overview of the new and enhanced IBM WebSphere Adapters for the 7.5 release. You have also learned about new features and enhancements across all adapters in addition to each particular adapter. You can also see the references here to find more details for each adapter.

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