IBM Software Group

WebSphere Adapters V6.2

IBM WebSphere Adapter for FTP V6.2 Inbound support

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This presentation will focus on the WebSphere® Adapter for FTP V6.2 inbound functionality. The next section will provide an overview of operation types supported for inbound and provides details on the attributes that define the behavior of each operation type.

Event management

- Inbound event delivery
  - ▶ Adapter polls event files periodically based on user-configured file mask, poll quantity and poll period
  - ▶ Adapter can deliver same event to multiple endpoints
    - Multiple Activation specs with same attribute values
- Event table (event store)
  - ▶ Used to store event information
    - Need to configure data source on the runtime
  - ▶ Adapter populates the event table with the current status of each event and deletes them when delivery is successful.
  - ▶ Each event delivered to it's corresponding endpoint as part of a unique XA transaction
  - ▶ Provides recovery and guaranteed event delivery.
- Event table not mandatory from V6.1
  - ▶ Adapter uses in memory representation of event table to process events

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The event manager is a framework for delivering inbound events. An event table must exist before inbound processing can occur. The event table is created automatically in a Cloudscape® database by the adapter upon deployment of the application to the WebSphere Process Server runtime. All of the information regarding the events polled is stored in the event table. The adapter polls event files periodically based on user-configured file mask, poll quantity and poll period properties. It then processes and transmits these events to various predefined endpoints. Delivery of events is done through the use of XA transactions between the recording of the event in the event table and the delivery of the event to the endpoint.

Defining an event table is not mandatory from V6.1, so you can leave the event table related properties empty in the activation spec. The adapter uses in memory representation of the event table to process the events. But "Assured-once" delivery is not supported and if the adapter fails or runtime has to restart, all event information is lost.

Supported inbound operations and features

- Operation type
  - ▶ Emit
- Data transformation supported for inbound
- Can define multiple methods/operations for inbound.
- Optional features to split large event files
  - ▶ SplitBySize
  - ▶ SplitByDelimiter
    - Chunking based on the value provided for SplitCriteria.
    - Common delimiters include comma (,), semicolon (;), quote (", '), braces ({}), or slashes (/ \).
  - ▶ Each chunk represents a business object
  - ▶ Reassemble
    - Chunk information included "chunkFileName" of the business object
      - – Includes event id
      - – Event ID is in the form of event file location and timestamp – including current chunk number and total number of chunks
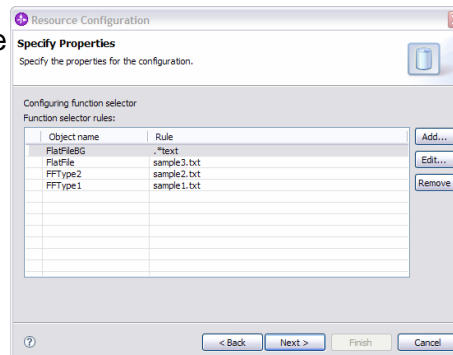
The inbound operation supported is the emit operation. It reads the file from the event directory. Starting with V6.1 you can define more than one operation in your export. Function selectors are used to map the incoming event to an appropriate method in export file. More information about function selectors is provided later in the presentation.

An optional feature for inbound processing includes the capability to split large event files into chunks. Configuration of this functionality is specified in the properties SplittingFunctionClassName and SplitCriteria. If the input file is larger than the SplitCriteria property, then the file is split into chunks based on the value size in bytes specified or based on the specified delimiter. Each chunk represents a business object. To reassemble the chunks, information is included in the chunkFileName attribute of the business object. This includes event ID. The event ID is in the form of event file location and timestamp, including the current chunk number and total number of chunks. Reassembly can be handled by business logic implemented in a Java™ component, for example.

Function selector

- Function selector
  - ▸ Required to map events to the appropriate SCA export function name
  - ▸ FilenameFunctionSelector and EmbeddedNameFunctionSelector.
- FilenameFunctionSelector
  - ▸ Rule-based function selector that can match a regular expression on a file name to an object name
  - ▸ Used when Object name cannot be determined from event file
- EmbeddedNameFunctionSelector
  - ▸ Used for user-defined object types

Resource Configuration

Specify Properties
Specify the properties for the configuration.

Configuring function selector
Function selector rules:

Object name	Rule
FlatFileBG	.*text
FlatFile	sample3.txt
FFType2	sample2.txt
FFType1	sample1.txt

Add...
Edit...
Remove

< Back   Next >   Finish   Cancel

In Inbound, Function Selectors are required in order to map between events generated to the appropriate SCA export function name. There are two function selectors provided by the adapter foundation classes that are supported by the FTP adapter. These are FilenameFunctionSelector and EmbeddedNameFunctionSelector.

The FilenameFunctionSelector is a rule-based function selector that can match a regular expression on a file name to an object name. This is represented in properties as a 2-column table, with N rows. The adapter polls on the event directory for any events. When a file is found in the event directory, the adapter retrieves the file and places the event details in the event table. FilnameFunctionSelector will evaluate the regular expression you specified in the rule field by using the event file name and maps it to an object name. Once the object name is determined, the function selector can determine the native method name and then map the event to the correct operation in the export. FilenameFunctionSelector is used when the object name cannot be determined from the event file.

The EmbeddedNameFunctionSelector is used in case of user-defined business objects, where the object name is embedded in the event file. For example, if the business object is Customer, the event file has the object name (Customer) embedded in the event file. This function selector should be configured with a data handler. The data binding should be the adapter-specific data binding (FTPfileBaseDataBinding). The data binding should be configured to use the same data handler configured during creating the function selector configuration.

Event filtering using rules

- Support for rules to filter events **New V6.2**
  - Rules provided at discovery in external service wizard
  - Rules can be edited in administrative console
  - ▸ All the expressions in a rule are ORed and the multiple rules are ANDed

Property	Valid Ops	Value	Prereqs
FileName	MATCHES_FILE_PATTERN MATCHES_REGEXP		Nil
FileSize	GT, LT, GE, LE, EQ	In KiloBytes(KB)	Nil
Directory	MATCHES_REGEXP		pollSubDirs = true
LastModified	GT, LT, GE, LE, EQ		Nil
END-OF-RULE	END-OF-RULE	DISABLED, hard-coded to END-OF-RULE	Nil

Connection Configuration

File system connection information

Event directory:* [   ] Browse...

Rule Editor:

Property Type	Operator	Value	
FileSize	LE	2000	Add...
END-OF-RULE	END-OF-RULE	END-OF-RULE	Edit...
FileName	MATCHES_FILE_PATT...	*.txt	Remove
LastModified	GT	12:00:00	

Advanced >>

With V6.2 you now have the ability to provide rules to filter incoming events. Only the events that match the criteria specified are picked up by the adapter for processing. Adapter filters the event based on the rules provided in the rule table. For each event that the adapter encounters, it runs the rule-based filtering engine to see if the event can be picked up.
If the event satisfies the rule, that event is added to the event list.

The rules discussed in this slide are used to filter events even before they are picked for processing. The rules you provide at function selector are used to map an already picked up event to a method in your export. So make sure that you use the appropriate rule table based on your requirement.

FTP adapter allows you to configure the rules using FileName, File Size, Directory, Last Modified time. You can define multiple rules. All the expressions in a rule are ORed and multiple rules are ANDed. There is a rich GUI available for defining these rules in the external service wizard. The rules can also be edited using the administrative console after the application is deployed to the server.

Rules can be edited in administrative console. This slide shows a screen capture of the activation specification properties in the administrative console.

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COBOL copy book support for inbound

- Support for COBOL Copy book *New V6.2*
  - ▶ Generate Business object definitions for the required COBOL copy book records
    - Use the "Business Object from External Data" wizard provided by WebSphere Integration Developer.
  - ▶ Running external service wizard and generate the data bindings and required artifacts
  - ▶ Configure the function selector.
  - ▶ Configure the emit operation.

With V6.2 the FTP adapter now supports transformation of COBOL copy book records. The adapter reads the data in the event file and converts them into business objects that represent the structures defined in the COBOL copy book.

The configuration steps involve generating business object definitions for the required COBOL copy book records using "Business Object from External Data" wizard provided by WebSphere Integration Developer. Once the business objects are generated, you use the external service wizard to configure the operations supported for inbound. Make sure that you select "Use COBOL, C or PL/I data format" option from the drop down menu for the "Data format options" field in the "Service Configuration Properties" panel.

You can refer to the FTP adapter outbound presentation for screen capture of the panels used to generate business objects and wrappers.

Secure FTP support *New in V6.2*

- Support Secure FTP for outbound and inbound
  - using username, password authentication and
  - Key based authentication
    - Private key, pass phrase take precedence over password filed

IBM WebSphere Adapter for FTP V6.2: Inbound support   © 2009 IBM Corporation

With V6.2 the WebSphere adapter for ftp supports FTP over SSH (also generally called secure ftp). Public key authentication is one of the most secure methods to authenticate using secure shell. Public key authentication uses a pair of computer generated keys - one public and one private. Public key can be distributed and resides in the Secure FTP server machine. Private key is unique to the user and must not be shared. The authentication is done with the help of signatures. The private key is used to generate signatures. A signature created using the private key cannot be forged by anybody who does not have that key; but anybody who has the corresponding public key can verify that a particular signature is genuine.

The private key never leaves the client machine, and therefore cannot be stolen or guessed like a password can. Typically the private key has a "Pass phrase" associated with it, so even if the private key is compromised, they must still guess the pass phrase in order to gain access.

The key-pair can be generated using any of the standard encryption algorithms. The most commonly used one is RSA. However other algorithms like DSA can be used.

If values for username, password and private key, pass phrase are specified then the adapter will use the key based authentication.

Pass phrase is an optional property when public key authentication is used. The authentication can also be performed with a public key that is not encrypted with the pass phrase. Pass phrase is used to enhance the security of the private key. If pass phrase is provided, then the private key is encrypted using the pass phrase. The authentication of the user to the server will then occur only if the user provides the correct pass phrase during connection.

Section

Problem determination

This section covers problem determination for the FTP adapter.

Problem determination

- Covered in the Adapters Overview presentation – Recap:
  - ▶ WebSphere Process Server log files
    - SystemOut.log and SystemErr.log
  - ▶ Adapter Log and Trace files configured in WebSphere Integration Developer External service wizard
    - Also can set RAR custom properties in the Administrative console of the Process Server
  - ▶ Different logging level levels can be set

- Enabling trace for Adapters in WebSphere Process Server :
  - ▶ Set the tracing level string as "com.ibm.j2ca.ftp.*=finest"

Listed here are the log files for WebSphere Process Server. The adapter logs the entries in the SystemOut.log and SystemErr.log files. You can also enable tracing for more detailed information. Note the trace string used to turn on tracing of the ftp adapter.

Section

Summary

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This section is a summary of the topics covered in this presentation.

Summary

- You learned about
  - ▶ Inbound operations
  - ▶ How to configure supported inbound operations
  - ▶ Support for rules to filter events
  - ▶ Function selector configuration
  - ▶ Support for COBOL copy book

In this presentation you learned about the key concepts of the WebSphere Adapter for FTP inbound support, specifically the new support for COBOL copy books, support of rules to filter incoming events and function selector. Finally, you learned about the various wizards provided by integration developer and how to configure the inbound operations for the adapter.

Summary

- WebSphere Adapter for FTP enables integration with SCA Applications and Enterprise Information System applications that can communication only through files
  - ▸ Inbound and Outbound support
- Provides support for Enterprise Service Discovery for discovering services
- Supports data transformation for both inbound and inbound
- Optional feature splits large event files based on size or a specified delimiter

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In summary, the WebSphere Adapter for FTP enables integration with SCA business integration applications and Enterprise Information System applications that can communicate only through files in a file system. The adapter supports both inbound and outbound interaction. Enterprise service discovery is used for discovery services and creates the service description with specified values for custom adapter properties. The business object supported by the FTP adapter is of a single, pre-defined structure and the adapter is unaware of the content of the file. An optional feature for inbound processing of large event files includes the capability to split files based on size in bytes or a specified delimiter for data transformation framework (DTF) flows.

Reference information

- WebSphere Adapter for FTP User Guide

- Java Connector Architecture
  - http://java.sun.com/j2ee/connector/index.jsp

- Enterprise metadata discovery
  - http://www.ibm.com/developerworks/java/library/j-emd/

- WebSphere Adapter information center
  - http://www.ibm.com/software/integration/wbiadapters/library/infocenter/

- WebSphere Process Integration information center
  - http://publib.boulder.ibm.com/infocenter/dmndhelp/v6rxmx/index.jsp

Additional reference information can be found at these addresses.

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