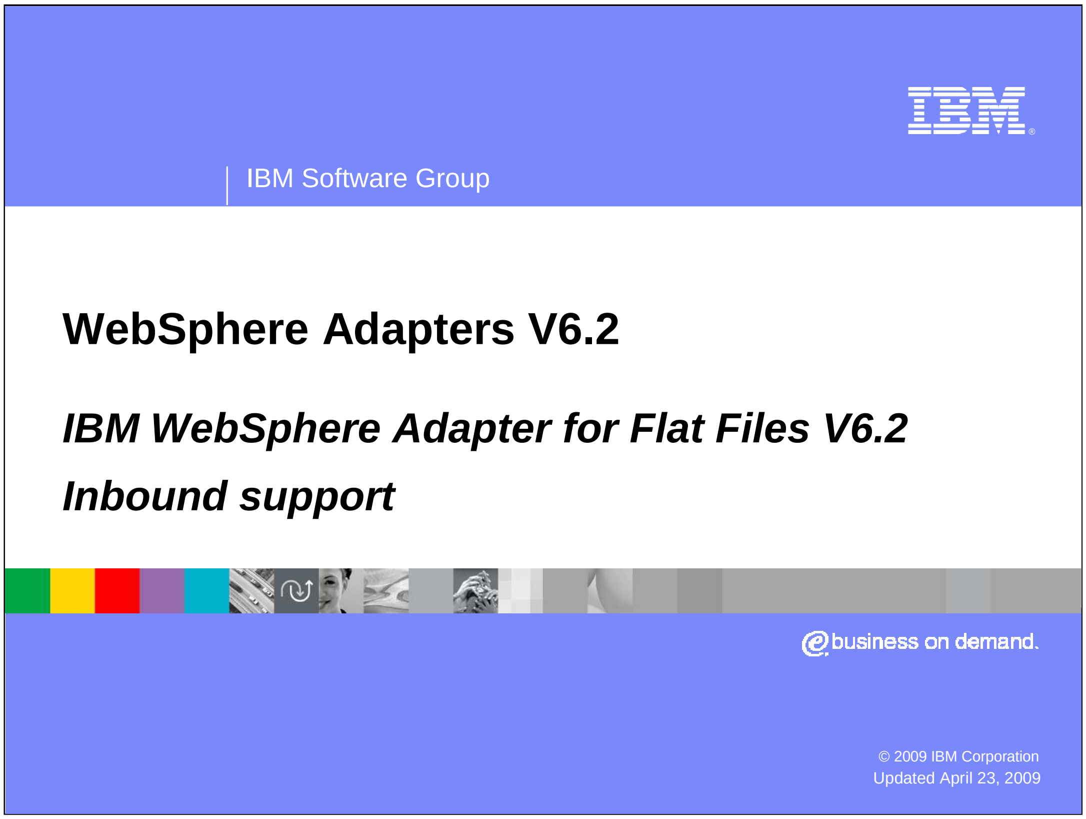

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WebSphere Adapters V6.2

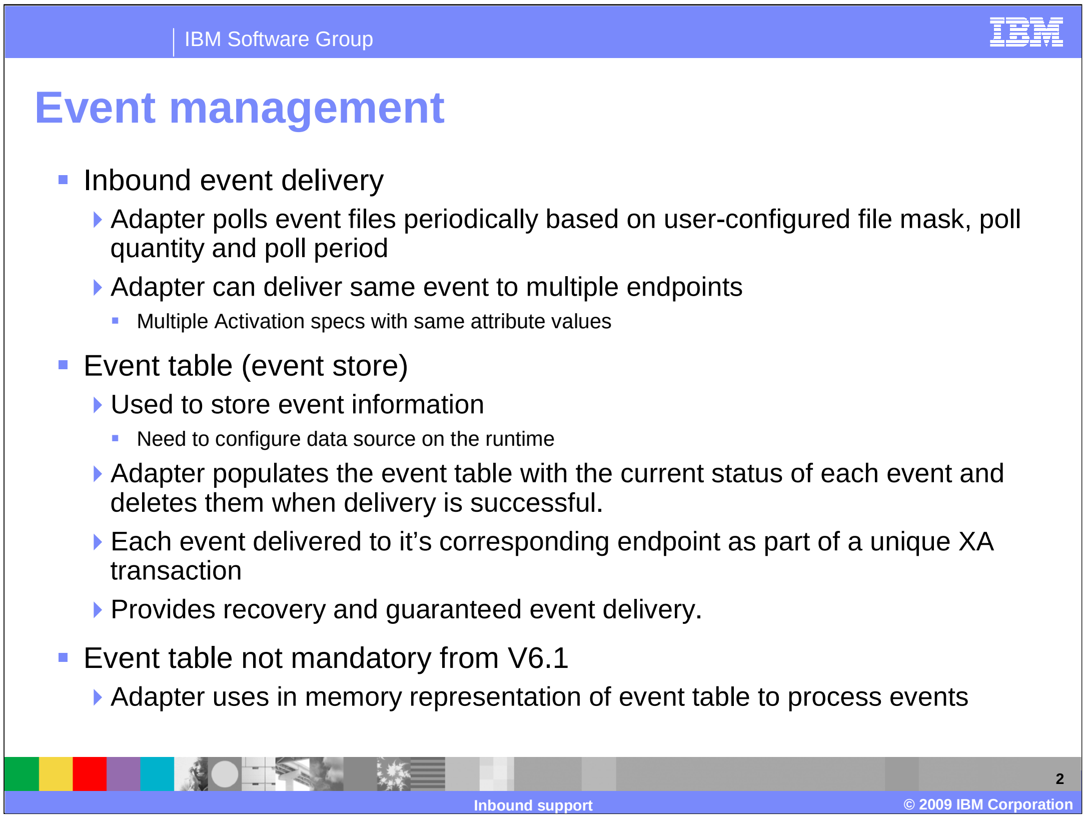
IBM WebSphere Adapter for Flat Files V6.2

Inbound support

business on demand.

Updated April 23, 2009

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



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Event management

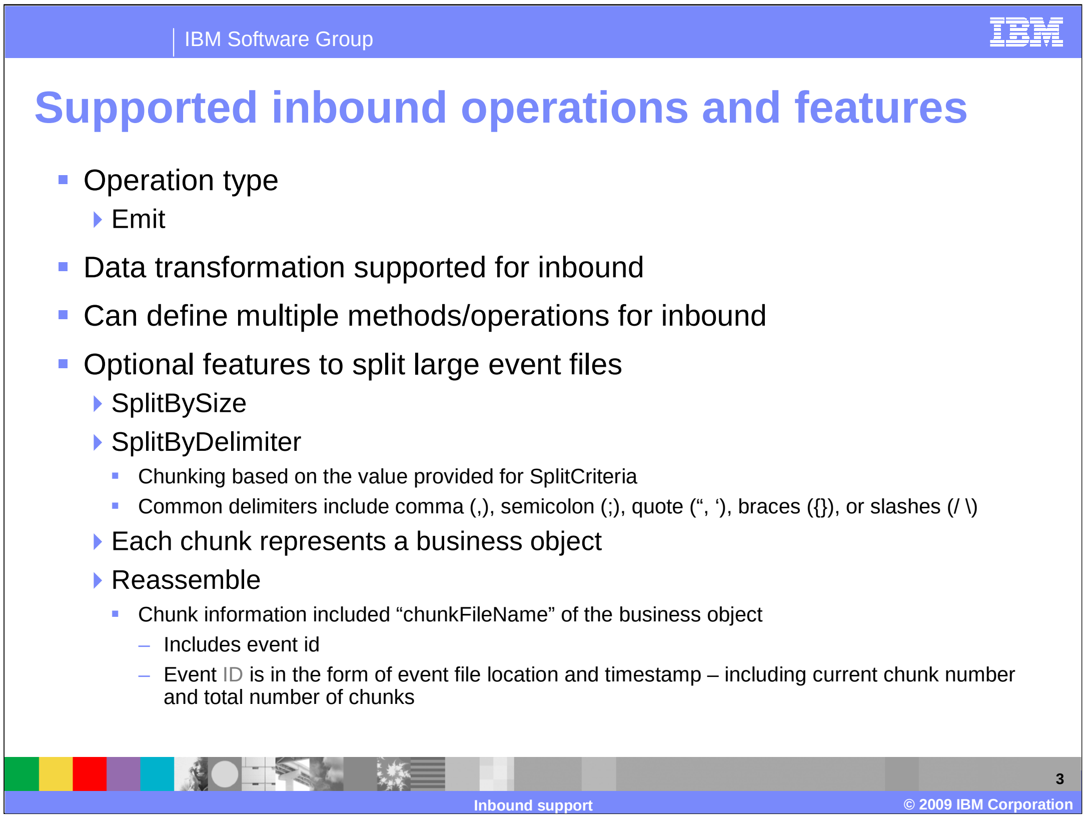
- Inbound event delivery
  - Adapter polls event files periodically based on user-configured file mask, poll quantity and poll period
  - Adapter can deliver same event to multiple endpoints
    - Multiple Activation specs with same attribute values
- Event table (event store)
  - Used to store event 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

2

Inbound support

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 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. Assured-once-delivery is not supported and if the adapter fails or runtime has to restart, all event information is lost.

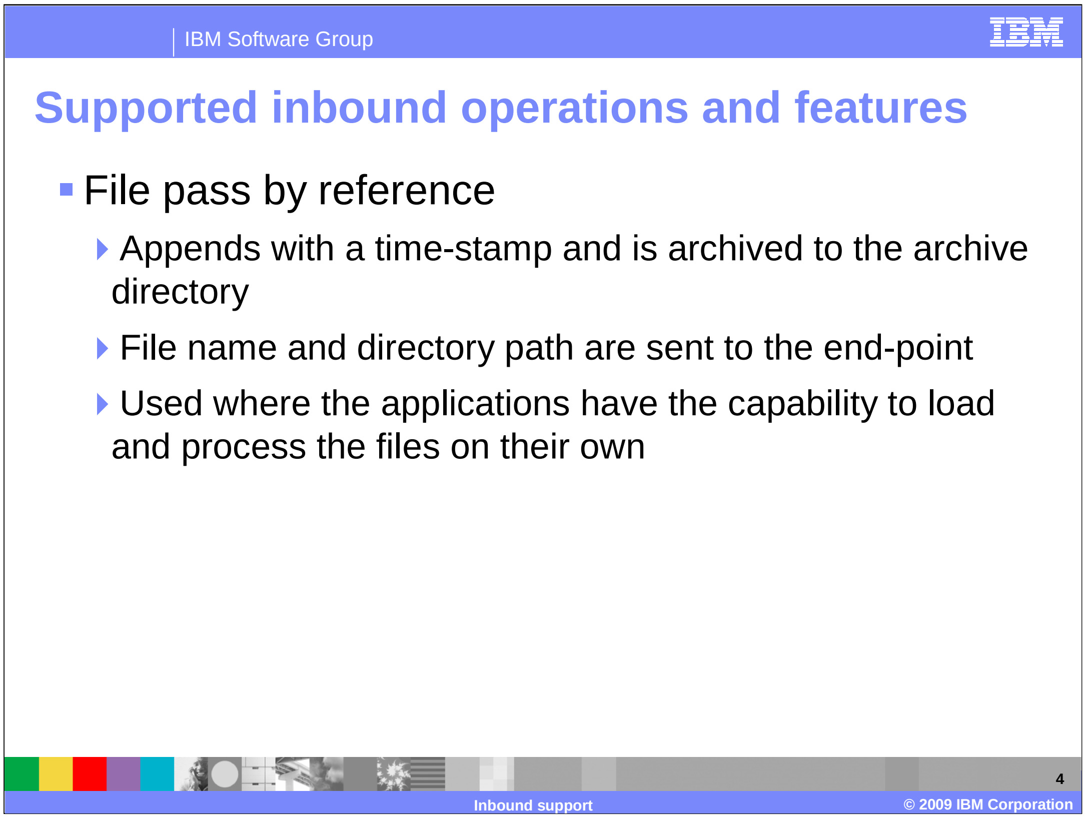


Supported inbound operations and features

- 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. From 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.



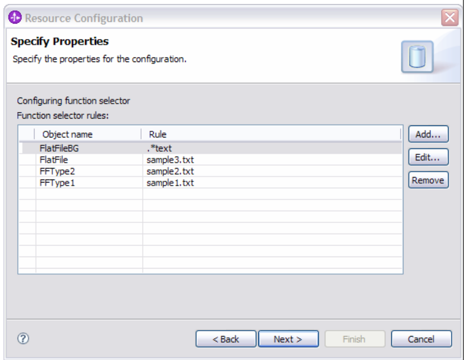
Supported inbound operations and features

- File pass by reference
  - Appends with a time-stamp and is archived to the archive directory
  - File name and directory path are sent to the end-point
  - Used where the applications have the capability to load and process the files on their own

For certain applications that have inbuilt capability to load the file content by themselves, there is an option with the Flat File Resource Adapter to pass the files by reference. This will especially be useful in cases with large business objects where the content transfer takes up a lot of memory.

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



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

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 flat file adapter. These are FilenameFunctionSelector and EmbeddedNameFunctionSelector.

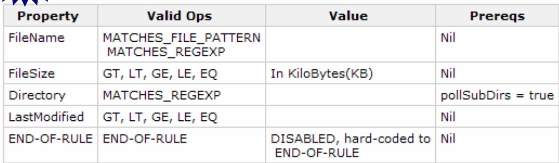
The FilenameFunctionSelector is a rule-based function selector that can match a regular expression on a file name to an object name.This is represented in properties as a 2-column table, with N rows. The adapter polls on the event directory for any events. When a file is found in the event directory, 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 DataBinding (FlatfileBaseDataBinding). The data binding should be configured to use the same data handler configured during creating the function selector configuration.

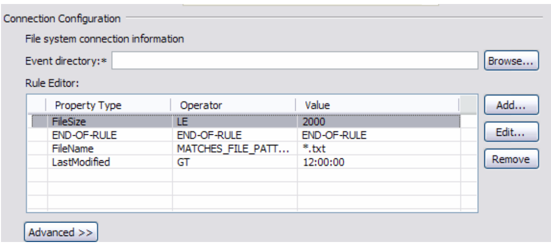
Event filtering using rules

New V6.2

- Support for rules to filter events
  - 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:*

Rule Editor:

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

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.

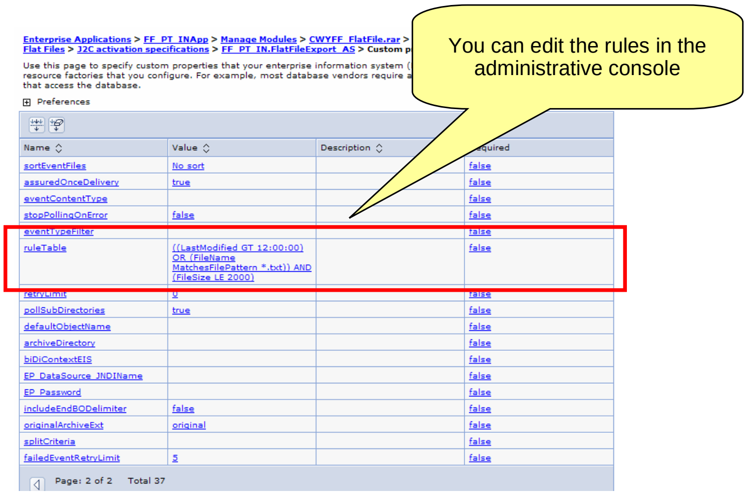
The rules discussed in this slide are used to filter events even before they are picked for processing. The rules you provide at function selector are used to map an already picked up event to a method in your export. So make sure that you use the appropriate rule table based on your requirement.

Flat file adapter allows you to configure the rules using Filename, File Size, Directory and 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.

Each rule consists of three parameters - Property Type, Operator and Value. The Property Type corresponds to the metadata information about the file like Filename, FileSize, Directory, Last Modified and END-OF_RULE. Property types do not have any default values. Each Property Type metadata has its own operators.

Flat File Adapter

- Rules can be edited in administrative console



Enterprise Applications > FF_PT_INApp > Manage Modules > CWYFF_FlatFile.rar >
Flat Files > J2C activation specifications > FF_PT_IN.FlatFileExport_AS > Custom p

Use this page to specify custom properties that your enterprise information system (
resource factories that you configure. For example, most database vendors require a
that access the database.

⊞ Preferences

Name	Value	Description	equired
sortEventFiles	No sort		false
assuredOnceDelivery	true		false
eventContentType			false
stopPollingOnError	false		false
eventTypeFilter			false
ruleTable	((LastModified GT 12:00:00) OR (FileName MatchesFilePattern *.txt)) AND (FileSize LE 2000)		false
retryLimit	0		false
pollSubDirectories	true		false
defaultObjectName			false
archiveDirectory			false
biDiContextEIS			false
EP_DataSource_JNDIName			false
EP_Password			false
includeEndBODelimiter	false		false
originalArchiveExt	original		false
splitCriteria			false
failedEventRetryLimit	5		false

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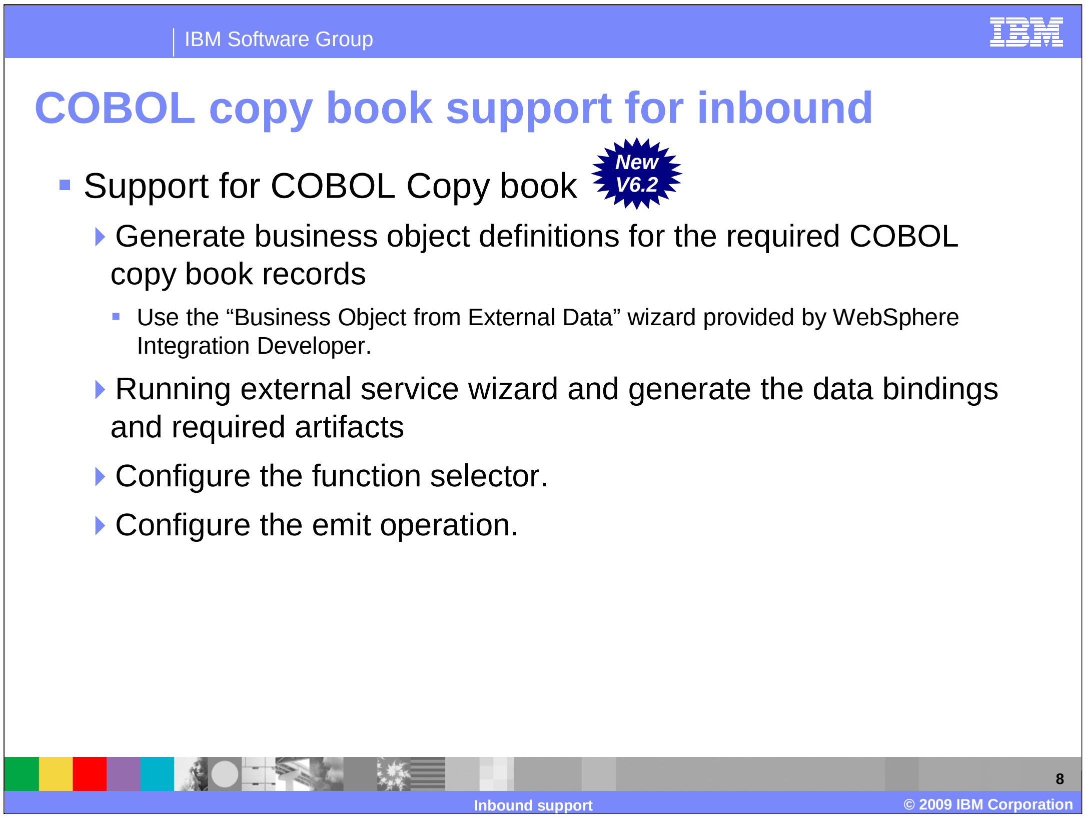
You can edit the rules in the administrative console

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



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 flat file 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.

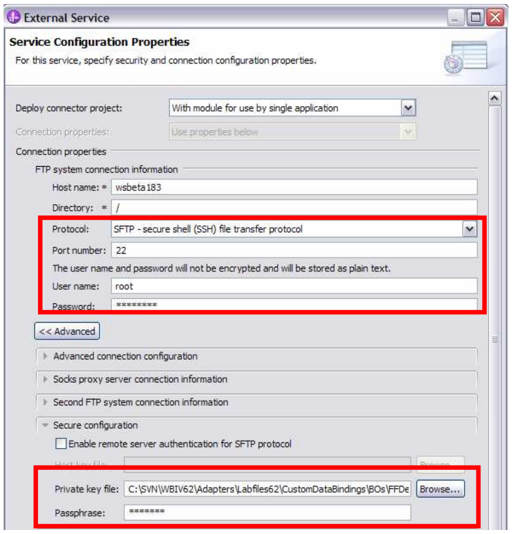
The configuration steps involve generating business object definitions for the required COBOL copy book records using “Business Object from External Data” wizard provided by WebSphere Integration Developer. Once the business objects are generated, you use the external service wizard to configure the 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 flat file 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



External Service

Service Configuration Properties

For this service, specify security and connection configuration properties.

Deploy connector project: With module for use by single application

Connection properties: Use properties below

Connection properties

FTP system connection information

Host name: * wsbeta183

Directory: * /

Protocol: SFTP - secure shell (SSH) file transfer protocol

Port number: 22

The user name and password will not be encrypted and will be stored as plain text.

User name: root

Password: ********

<< Advanced
Advanced connection configuration
Socks proxy server connection information
Second FTP system connection information
Secure configuration

□ Enable remote server authentication for SFTP protocol

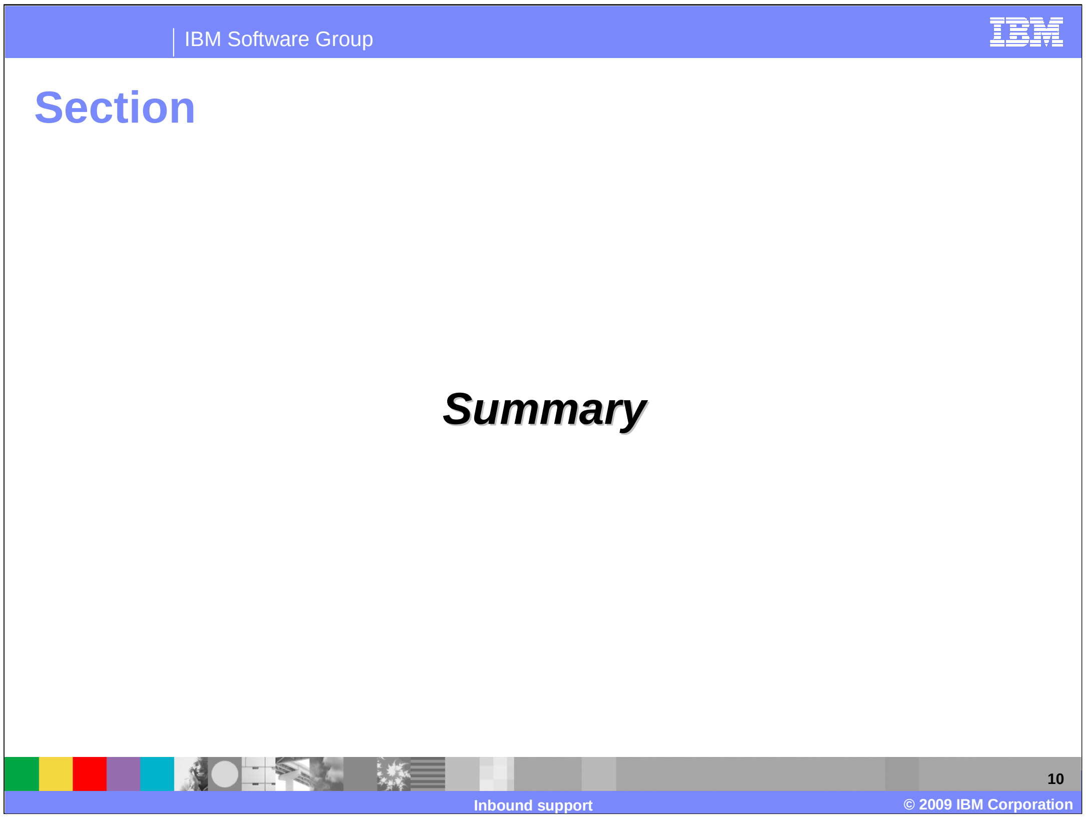
Private key file: C:\SVN\WBIV62\Adapters\Labfiles62\CustomDataBindings\BOs\FFDe

Passphrase: *******

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 algorithm. 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.



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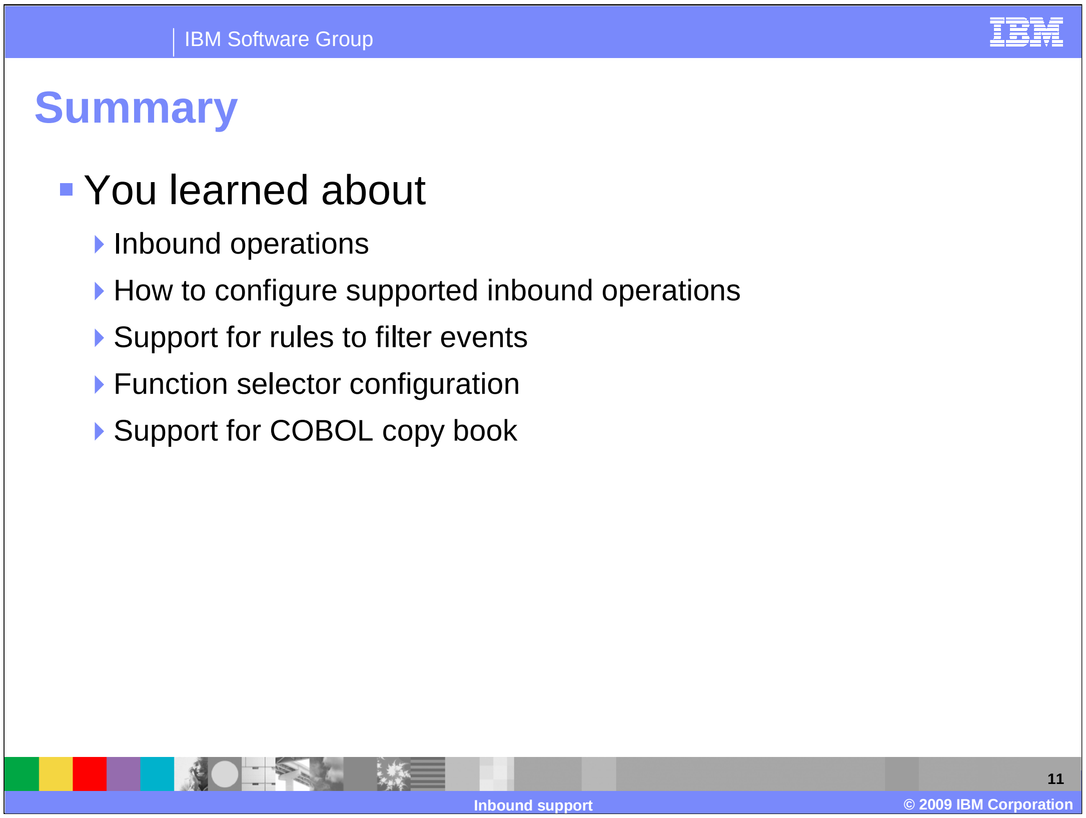
Section

Summary

10

Inbound support

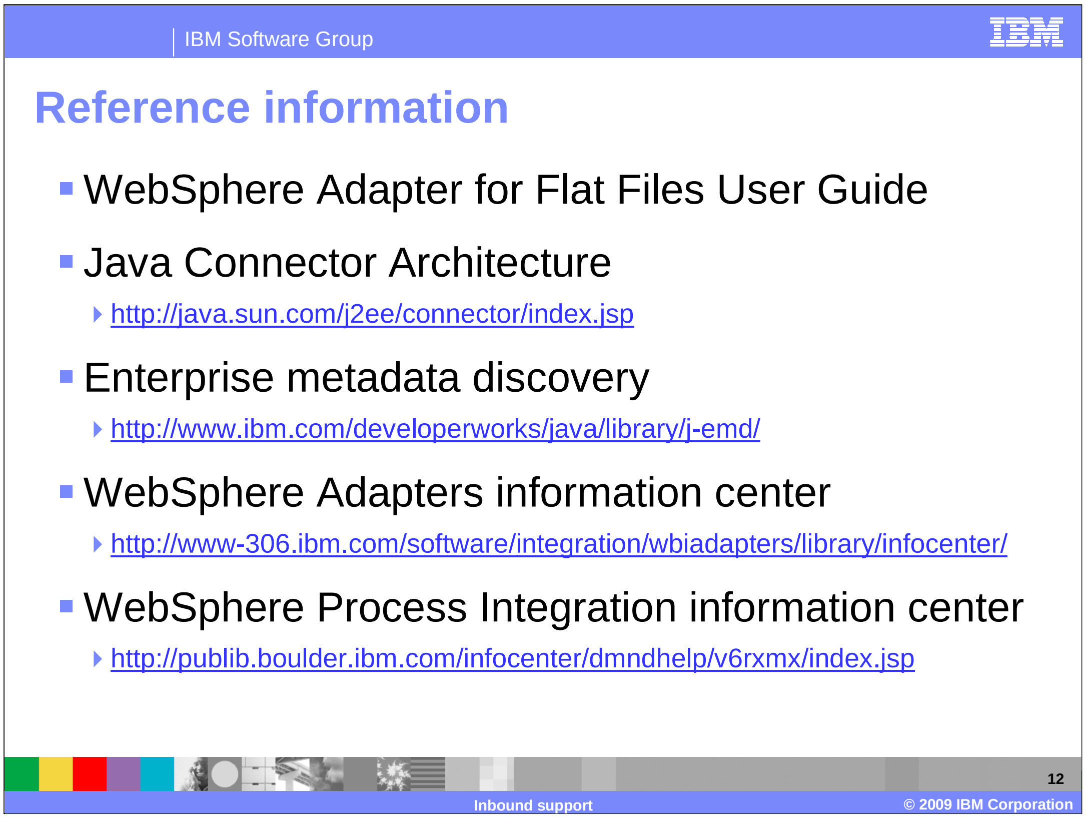
This section will provide a summary of the topics covered in this presentation.



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

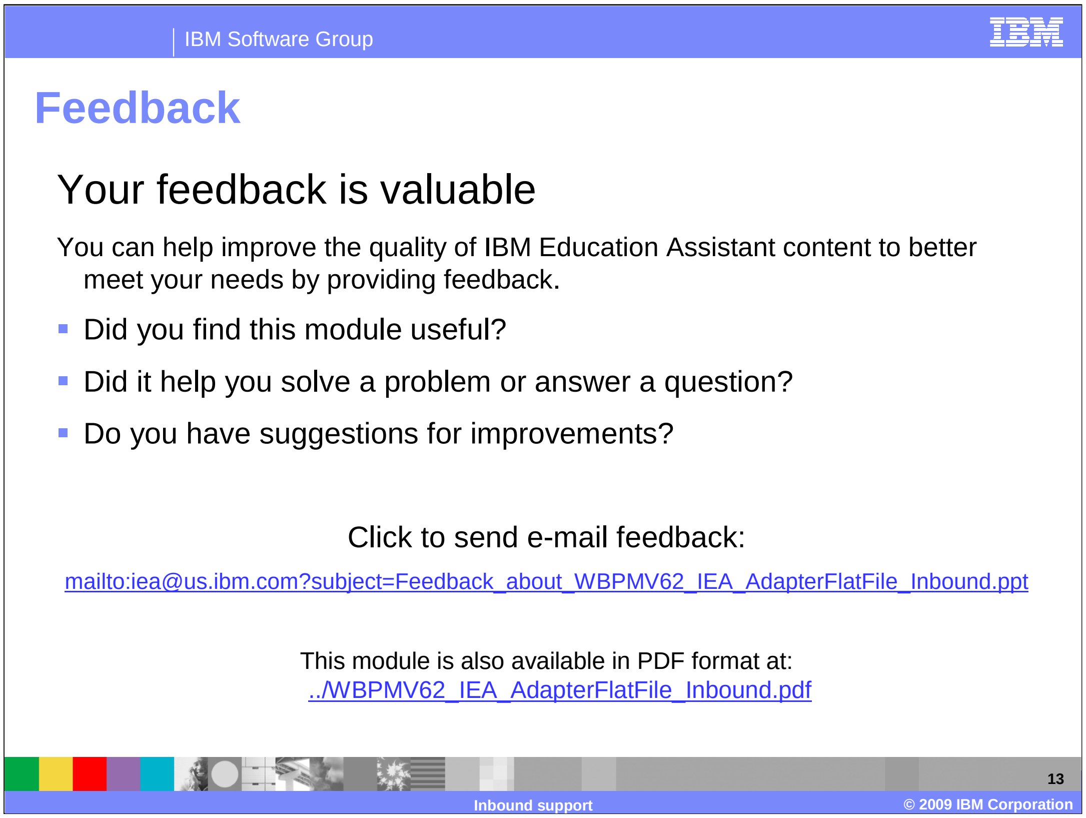
In this presentation you learned about the key concepts of the WebSphere Adapter for Flat Files inbound support. Specifically the new support for COBOL copy books, support of rules to filter incoming events and function selector. Finally, you learned about the various wizards provided by integration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



Reference information

- WebSphere Adapter for Flat Files 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 Adapters information center
  - http://www-306.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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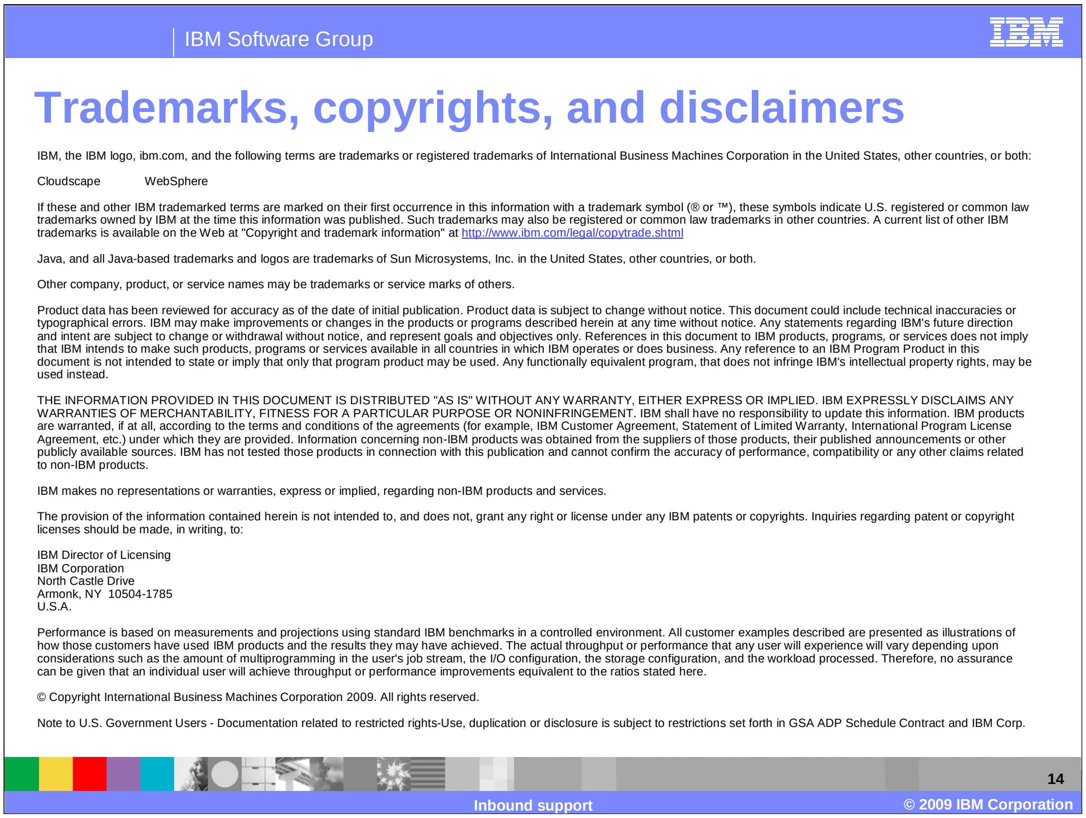

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