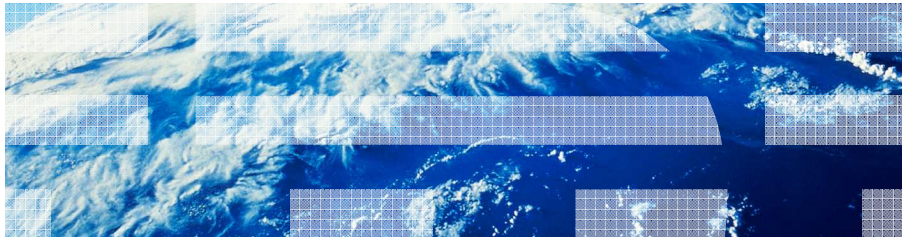




Business Process Management IBM Business Process Manager V8.0

Enterprise Content Management integration –
business objects and operations



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This presentation provides the details of data mappings in Enterprise Content Management operations as part of integrating with ECM systems that is new in BPM version 8.0.

Agenda

- ECM repository connection information
- Content business objects
- Content operations

The presentation starts out by providing steps in adding an Enterprise Content Management server. You need at least one Enterprise Content Management (ECM) server for the service you develop. Then, providing information about content business objects and content operations. With all of these details, you can build a service that integrates with an Enterprise Content Management system.

ECM repository connection information

This section provides information on how to specify the connection properties to use for accessing an ECM server.

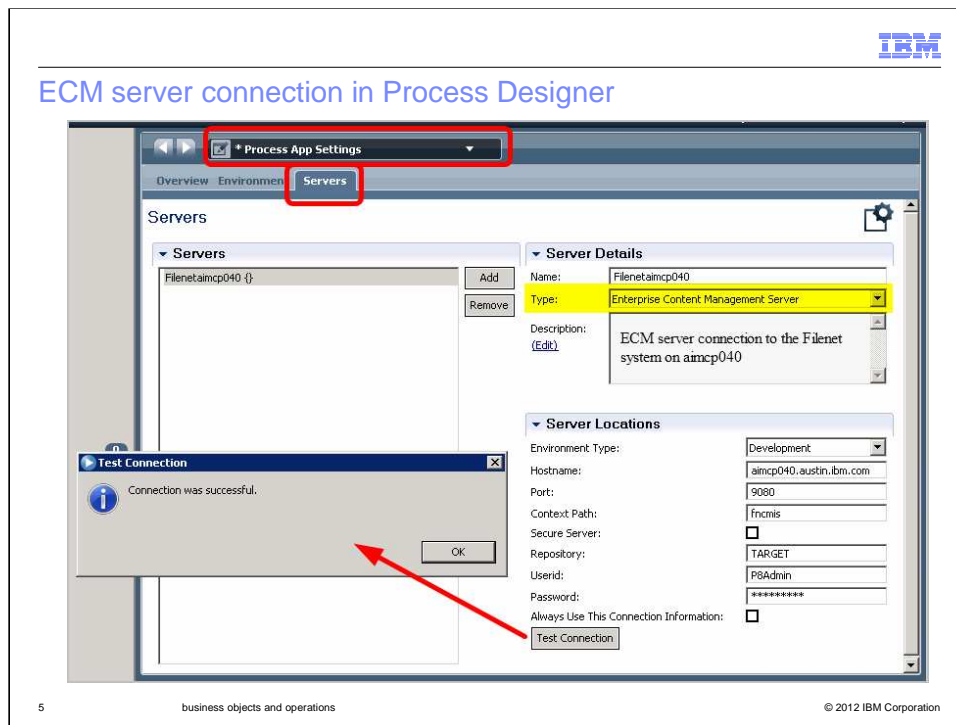
Setting ECM server connection information in Process Designer

- To set server information in PD:
 - Process App Settings → Servers tab → select Enterprise Content Management Server

Property Name	Description
Name	Name used to refer to this server connection information
Environment Type	Default, Development, Test, Staging, Production
Description	Relevant text describing this server
Hostname	Hostname of the ECM server
Port	Port of the ECM server
Context Path	Context root (for example, frcmis for a Filenet server)
Secure Server	Indicates if HTTPS protocol required
Repository	Name of repository to access
Userid	User name for outbound interaction
Password	Password for specified userid
Always Use This Connection Information	Specifies if this user used for all outbound interactions

Here you can set server information in Process App Settings Servers page for a process application or Toolkit Settings Servers page for a toolkit. These connection properties are specified to use for accessing an ECM server. More details on how to specify these values is at the next slide.

ECM server connection in Process Designer

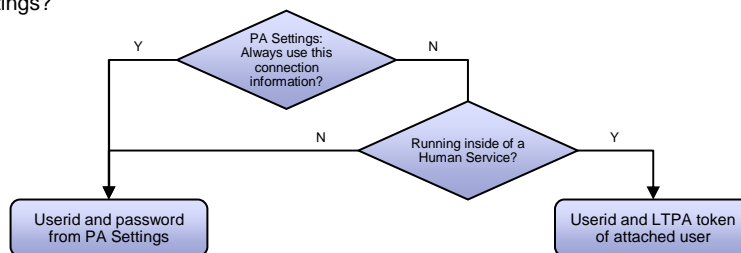


Here is a screen capture of the server connection in Process Designer. As mentioned in previous slide, the server definition can be specified in Process App Settings Servers tab for process application. You can create multiple servers within a server configuration. Starting by: click Add under Servers to add new connection to ECM server. Under Server details, specify a meaningful name for the server. From the drop-down list in the Type field, select Enterprise Content Management Server. Enter a meaningful description of the server in the Description field as optional. Beneath server locations, select appropriate values from the drop list for Environment type. These environments are related to IBM Process Server environments. There are five types to choose from. They are default, development, test, staging, and production. If you do not provide values for these environments, the values from the default environment type is used. This allows you to set environment-specific for your service. Enter server location information (host name, port, context path, if it is a secure server, repository name, user ID and password) for each environment type. to configure the security. As for secure server, specify whether you want your service to be secure, that is, to use the Hypertext Transfer Protocol Secure (HTTPS) protocol. You need to configure the security. Note that one server setting page is required for each repository, even if it is for the same endpoint. By default, the 'Always use this connection information' is selected, this means only this user ID and password is used for authentication. For example, a human service, which your service is associated with when a Document List or Document Viewer is configured, also has a user context. Human service users are specified by an administrator using the Manage Users function. Selecting this check box means this user ID and password overrides any other user information.

Last step is to test connection to confirm the connection to the server works.

Authentication

- WS-Security policy – one of these authentication mechanisms
 - LTPA token (ECM system and BPM system with shared security and federated trust)
 - UserName token (ECM system and BPM system do not share security)
- “Always Use This Connection Information” specified for ECM server in Process App settings?



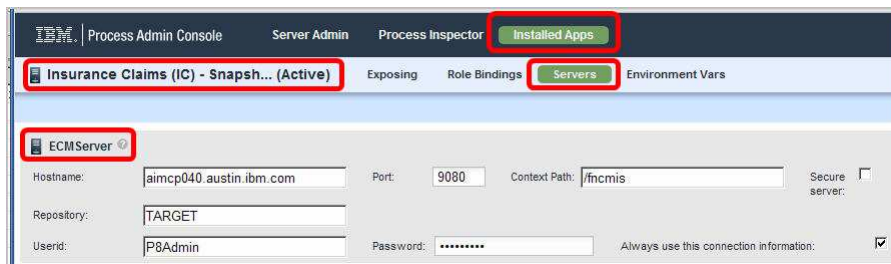
IBM® Business Process Manager allows you three ways to grant access to an Enterprise Content Management server. First, you can set a user ID and password for the process application that is recognized by the Enterprise Content Management system. Second, you can design a business process to use personal credentials to control access to specific documents and folders on the ECM server. Third way is to design a business process that uses each method of authentication for different steps in the process.

If you use the default setting, the ID and password do not need to have validity on the BPM system, but they must be valid for the Enterprise Content Management server. At the end of the settings is a check box labeled 'Always use this connection information'. When that check box is selected, which it is by default, that user ID and password are attached to all calls made from that process application to the ECM server. The advantage of this method is that the Enterprise Content Management server is immediately available for use by the actions in the process application. However, do not use this option if you want to restrict which documents or folders individual users can see and use. Using this method, a static username and password as defined in the process application settings is the only credential that can be submitted from IBM BPM to the Enterprise Content Management server. Therefore, even if you set up single sign on (SSO), there is no way of fine-grained access control and gathering auditing data by individual user.

You can design a business process definition to use both authentication methods, depending on the context. If the 'Always use this connection information' check box is not selected, authorization depends on how you model your business process. By choosing the context from which the call is made, you can restrict access to the Enterprise Content Management server to a user ID specified in the process application server settings or to a task owner.

Updating server information with Process Admin console

- Updating ECM server connection/authentication information for an installed process app
 - Log into the Process Admin console
 - Select Installed Apps
 - Open the appropriate app from the list
 - Select Servers
 - Open the appropriate server from the list
 - Edit connection/authentication information as required



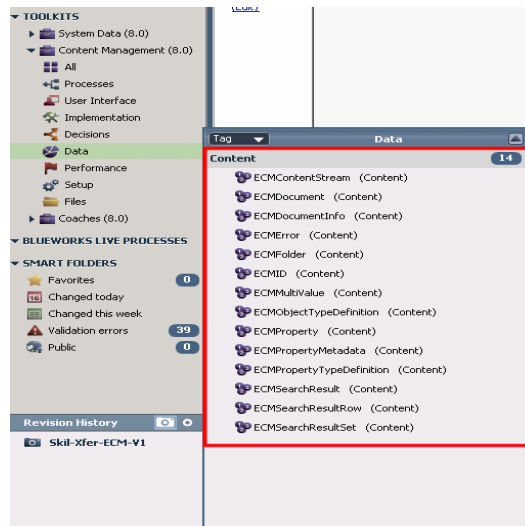
This slide shows how to update server information from Process administrative console for a particular installed process app. Starting by open the installed app from the admin console and select Servers tab. Edit connection and authentication information as required.

Content Business Objects

This section provides details about content business objects.

Content Business Objects in Content Management Toolkit

- Content business objects
 - Are provided as part of the Content Management Toolkit
 - Represent entities in an ECM repository
 - Used as parameter types and return types in ECM operations
 - Complex type
 - Simple Type
 - ECMID



These content business objects are located in Content Management Toolkit which is separated from System Toolkit. They represent entities in an ECM repository such as folder and documents. They can be used as parameter and return types in ECM operations.

As with any service, if you have errors at run time, you can use catching error events to handle errors created by a content integration step. A content integration step can raise an error with error code ECMEError and error data of type ECMEError. These errors are mapped from CMIS exception type according to CMIS 1.0 OASIS Standard. You can use error intermediate events to catch errors and error end events to create errors.

Example Content Business Object - ECMDocument

Business Object

▶ Common

▼ Parameters

- objectId (ECMID)
- serverName (String)
- repositoryId (ECMID)
- objectTypeId (ECMID)
- name (String)
- contentURL (String)
- creationDate (Date)
- createdBy (String)
- lastModificationDate (Date)
- lastModifiedBy (String)
- versionLabel (String)
- isLatestVersion (Boolean)
- isMajorVersion (Boolean)
- isLatestMajorVersion (Boolean)
- checkInComment (String)
- ☒ ● properties (ECMProperty) (List)

Here is another screen capture of what each business object contains. In this particular screen capture, the business object is ECMDocument which contains document ID and its properties.

Content Operations

This section provides details about content operations available in V8.0 release.

Introduction to Content Operations

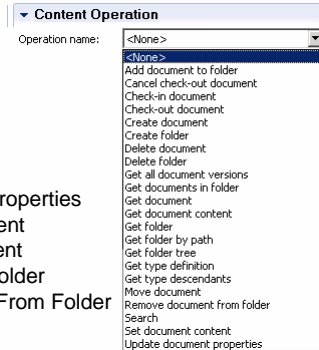
- Content operations:
 - Interact with folders, documents and associated properties in an ECM server
 - Are implemented using CMIS web services
 - Are step types within Human Services, Integration Services and Ajax Services

The content operations are used to interact with folder, documents, and associated properties in an ECM server. Each operation requires that variables be mapped to the input and output fields. You can create them manually by yourself or use the auto-map function. The auto-map function creates private variables for the business objects, which are used by the service you create.

The Content Integration step types are supported in various different types of services because they are useful in different contexts. They can be used within human services, integration services, and Ajax services.

Content Operations

- **Server/Repository operations**
 - Get Type Descendants
 - Get Type Definition
- **Search operation**
 - Search
- **Folder operations**
 - Create Folder
 - Get Folder
 - Get Folder Tree
 - Get Documents In Folder
 - Get Folder By Path
 - Delete Folder
- **Document operations**
 - Create Document
 - Get Document
 - Update Document Properties
 - Get Document Content
 - Set Document Content
 - Add Document To Folder
 - Remove Document From Folder
 - Move Document
 - Delete Document
- **Document version handling operations**
 - Get All Document Versions
 - Check Out Document
 - Cancel Check Out Document
 - Check In Document



When you build a service that integrates with an Enterprise Content Management system, these are list of available operations in this release. You can view these operations from Implementation tab in the Properties view.

Example Content Operation – Get Folder

The screenshot displays the IBM Business Process Manager interface. At the top, there are tabs for 'Overview', 'Diagram', 'Variables', and 'Content Filters'. The 'Diagram' tab is active, showing a process flow starting with a 'Start' node, followed by an 'ECM Example' step, and ending at an 'End' node. A yellow callout bubble labeled 'Content Integration Step' points to the 'ECM Example' step. Below the diagram is the 'Properties' panel, which is divided into several sections: 'Step', 'Implementation', 'Data Mapping', and 'Pre & Post'. The 'Step' section shows 'Enterprise Content Management Server' selected. The 'Implementation' section has a 'Server' dropdown menu with 'ECMServer' selected. A yellow callout bubble labeled 'Implementation Tab' points to this section. The 'Data Mapping' section contains a link: 'Use Process Application Settings to add a server'. The 'Pre & Post' section is currently empty. The 'Content Operation' section has a dropdown menu with 'Get Folder' selected. A yellow callout bubble labeled 'Select Operation' points to this dropdown. A list of available operations is shown below the dropdown, with 'Get Folder' highlighted. The list includes: '<None>', 'Check-out document', 'Create document', 'Create folder', 'Delete document', 'Delete folder', 'Get all document versions', 'Get document', 'Get document content', 'Get Folder', 'Get folder by path', 'Get folder tree', 'Get type definition', 'Get type descendants', and 'Search'.

- Drag/drop a Content Integration step from palette
- On the Implementation panel:
 - Select name of a configured ECM server
 - Select operation to perform

Here is an example of content integration step within human service. You can drag/drop a content integration step from the palette. And within its implementation tab, you can select the server that you have defined in process application settings. In this case, you don't have to specify the server name in data mapping. Then select an appropriate operation to perform. The 'Get Folder' operation is selected for this particular sample.

Example Content Operation – Get Folder

Operation	Input	Output	Implementation Notes
Get Folder	String <code>serverName</code> ECMID <code>folderId</code>	ECMFolder <code>folder</code>	CMIS getObject (error if not a folder)

Properties Validation Errors Where Used
 Step Implementation
 Data Mapping
 Pre & Post

Input Mapping: tw.local.folderId → Folder ID, Server name (disabled)
 Output Mapping: Folder → tw.local.folder

Callouts:
 - Data Mapping Tab
 - Server name disabled. It was specified on Implementation Tab
 - Automap creates Private variables

- Data mapping dependent upon operation type

Local
 Input
 Output
 Private
 folderId (ECMID)
 folder (ECMFolder)
 - objectId (ECMID)
 - serverName (String)
 - repositoryId (ECMID)
 - objectTypeId (ECMID)
 - path (String)
 - parentId (ECMID)
 - name (String)
 - creationDate (Date)
 - createdBy (String)
 - lastModificationDate (Date)
 - lastModifiedBy (String)
 - properties (ECMProperty)(List)
 - subFolders (ECMFolder)(List)
 Localization Resources

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Moving on to data mapping, depending on which operation you have previously selected in Implementation panel, each operation requires that variables be mapped to the input and output fields. As mentioned, you can also select the auto-map function which automatically creates and assigns variables of the right type to each field. Some might not require output.

In this example, a 'Get Folder' operation is selected. This operation requires inputs of folder ID and server name. The folder ID is a unique identifier of a folder and the server name is the name of the server containing the folder. Notice the server name field is disabled as it was already specified on Implementation tab. As for output field, it returns the folder object which contains folder ID and its properties.

IBM

Search

Select type of object to search for.

Select which of the properties from the previously selected object type you are interested in.

Optionally add search criteria here to search for a particular subset of documents.

- The cmisQuery is a simplified SQL statement as defined by the CMIS 1.0 OASIS Standard


```
SELECT selectClause FROM fromClause [WHERE whereClause] [ORDER BY orderByClause]
```
- A search query can be built using the Content Filters editor

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A graphical interface helps you build a query to an Enterprise Content Management server search operation. Here you can select type of object to search for whether using content filter or data mapping if you are experienced in writing Content Management Interoperability Services (CMIS) queries and want to write your own hand-coded query. Selection will disable the fields in the Content Filters page and make the CMIS query Input Mapping field editable on the Data Mapping tab.

Once you select the object type (Document/Folder), you can select properties from the object type you are interested in. Select additional properties based on your application. As you select a property, it displays a column in the pane beneath Properties along with sample data from the selected Enterprise Content Management server. Columns are added from left to right.

Optionally, search criteria allows you to search for a particular subset of documents. Under Search Criteria, you can specify constraints for specific properties by selecting Add Search Criterion. For example, you might want to only search for objects whose Current State is equal to Working.

Summary

- Introduced the ECM support added in BPM V8.0
 - ECM repository connection information
 - ECM content business objects
 - ECM content operations

In summary, you were introduced to the new ECM support in BPM V8.0 by starting with details on how to add an Enterprise Content Management server. You then learned on how to build a service or a query to allow a business process developed in IBM® Process Designer to work with an Enterprise Content Management system. These services and queries are implemented using content business objects and operations that have been added in BPM V8.0.



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