IBM
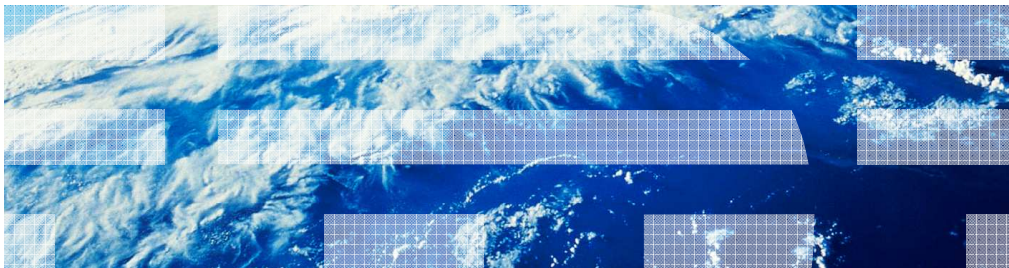
Business Process Management
IBM Business Process Manager V7.5.1

Integrating IBM Case Manager work items and BPM BPDs

This presentation introduces new integration support in IBM Business Process Manager version 7.5.1 and IBM Case Manager version 5.1. The support enables the integration of BPM business processes with Case Manager case instances.

Agenda

- Introduction to IBM Case Manager
- An Case Manager task is implemented by a BPM process
- A BPM process invokes operations on an Case Manager case instance

The presentation starts with a short introduction to IBM Case Manager. The next section looks at the integration support enabling a Case Manager task to be implemented by a BPM business process definition (BPD). The last section introduces you to the support enabling a BPM BPD to invoke operations on a Case Manager case instance.
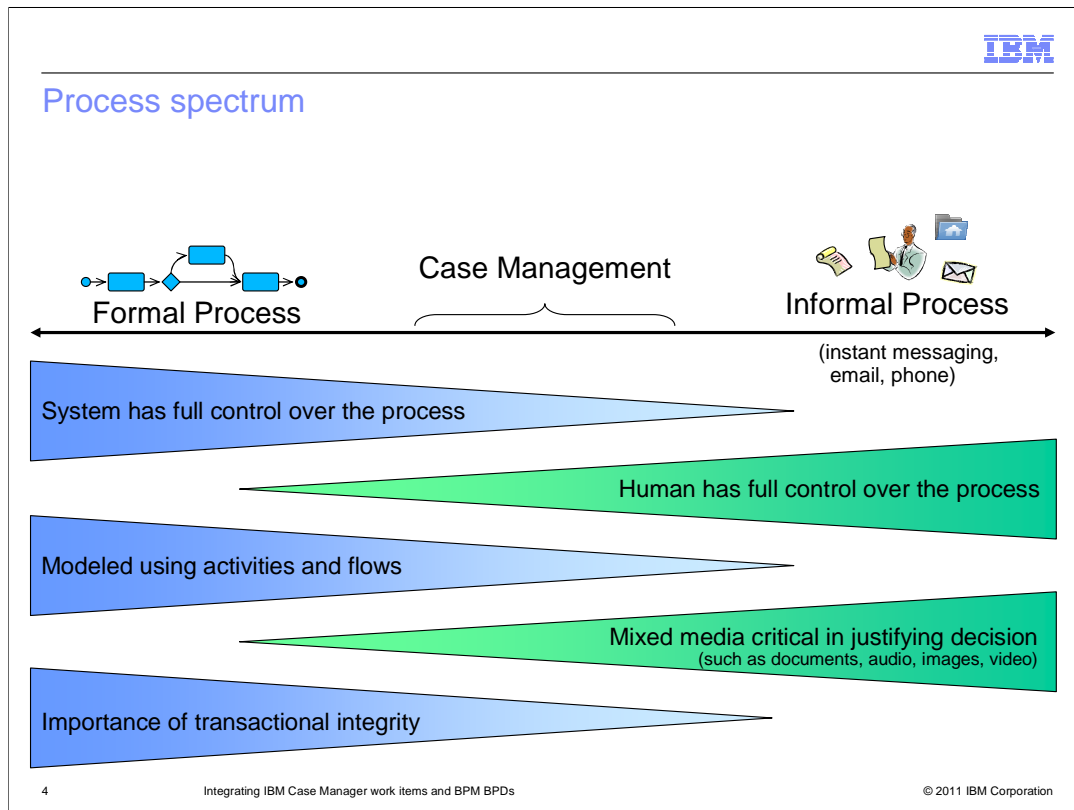
Section

Introduction to IBM Case Manager

Integrating IBM Case Manager work items and BPM BPDs

This section provides a short introduction to IBM Case Manager.

Process spectrum

Formal Process   Case Management   Informal Process
(instant messaging, email, phone)

System has full control over the process

Human has full control over the process

Modeled using activities and flows

Mixed media critical in justifying decision
(such as documents, audio, images, video)

Importance of transactional integrity

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This slide looks at case management in terms of a process spectrum where formal, well structured processes are at one end and informal, ad-hoc processes are at the other.

A formal process encodes the business goals the process is designed to accomplish, giving the BPM system full control over the business goal. These types of processes might not have any human intervention. However, if they do, the participants do not need to know the business goal. As long as they perform their assigned activities, the BPM system will guarantee the business goal is achieved. The BPM system is complete, providing functionality to model, track, monitor, and manage the processes. The process can contain business rules that change the execution path of the process, however the alternative paths taken are still ones that are modeled.

Informal or ad-hoc processes, at the other extreme of the spectrum, use collaboration techniques such as email, instant messaging, documents and conversations. The informal process is not modeled and cannot be easily tracked by the system. The participants in the process must agree and understand the business goal that they are trying to achieve and have enough information about how to achieve it. There is no process to follow, and the system does not know when the goal is achieved. These types of processes are useful for non-repetitive and one-of-a-kind assignments that do not need to be tracked or audited.

Case management tries to achieve a balance between formal and informal processes by formalizing parts of the process, and by having the system be aware of when the case starts and when it finishes. Therefore, the system can track and monitor the cases. In a case management system, the case workers are in control of how cases are processed. However, they do not need to know all the details of how to achieve the business goal, and the system can detect when the goal is achieved.
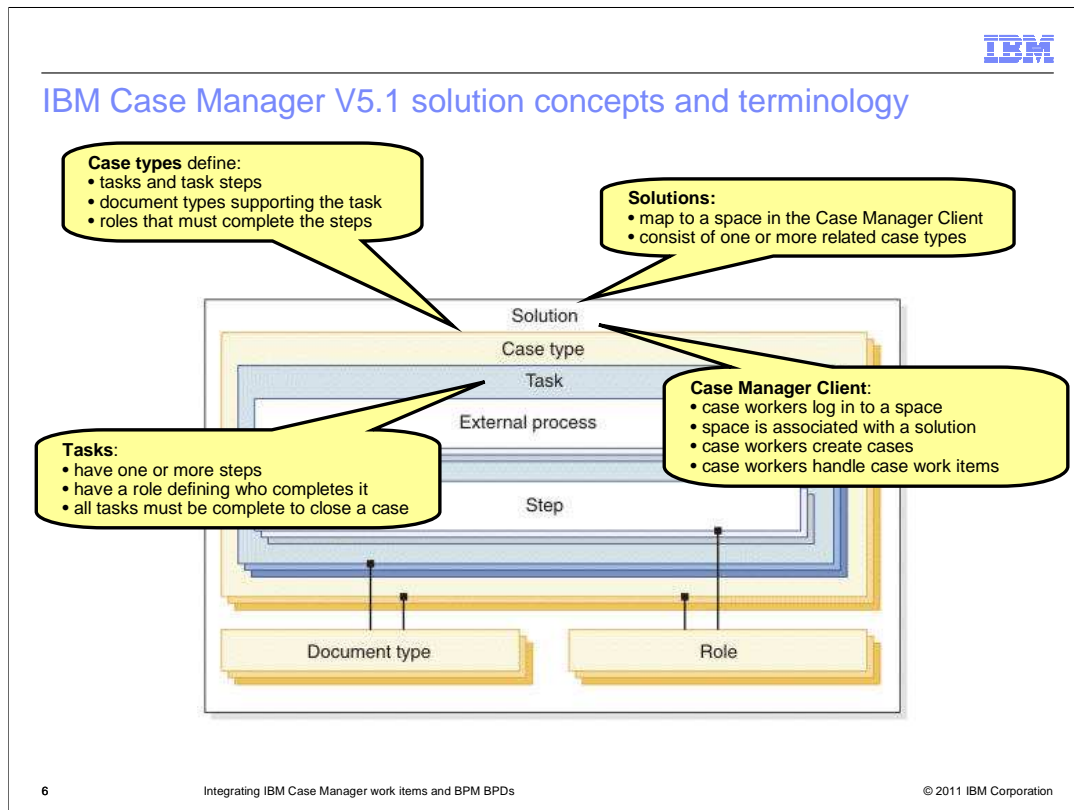
BPMv751_ICM_Integration.ppt

Different types of 'cases across industries
.... Similar patterns and challenges

Invoice, contract, employee, vendor, customer, project, change request, complaint, exception, incident, audit, eDiscovery, etc.

INSURANCE
- Policy
- Underwriting
- Claim
- Annuity

BANKING
- Loan
- Dispute
- Mortgage
- Account
- Credit card
- Personal line
- Investment

HEALTHCARE
- Patient case
- Member
- Provider

GOVERNMENT
- Benefits enrolment
- Grant
- Court case
- Citizen
- Taxpayer

ENERGY
- Rate case
- Claim
- Permit
- Land
- Property

Thinking about processes in terms of the process spectrum described on the previous slide, you can see that case management lends itself to many different scenarios across various industries. The actual processes are different, but similar patterns and challenges exist when implementing a case management system to process these various scenarios. The IBM Case Manager provides a runtime infrastructure and development tools that enable the implementations needed to manage these scenarios.

IBM Case Manager V5.1 solution concepts and terminology

Case types define:
• tasks and task steps
• document types supporting the task
• roles that must complete the steps

Solutions:
• map to a space in the Case Manager Client
• consist of one or more related case types

Case Manager Client:
• case workers log in to a space
• space is associated with a solution
• case workers create cases
• case workers handle case work items

Tasks:
• have one or more steps
• have a role defining who completes it
• all tasks must be complete to close a case

Solution
Case type
Task
External process
Step
Document type
Role

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It is not possible in this presentation to go into details describing the IBM Case Manager. However, the terminology and concepts depicted here are helpful in understanding the integration discussions in the subsequent sections.

A solution maps to a space in the Case Manager Client. Case workers log into the space so that they can manage their cases. A solution consists of related case types of interest to a particular set of case workers and provides the documents, data, business processing, and routing to the case workers.

Within the solution are the related case types. Case types define the tasks, including the document types to support the task, the task steps, and the roles that must complete those steps to solve a business problem. You create a case type in the Case Manager Builder. When working with cases, the case workers create case instances using the case types. A case organizes all of the tasks that must complete to close the case. A task can be composed of external processes or steps. A task is role based, so it must be completed by a worker within the specified role. Steps within a task are work items that are presented to the case worker in the Case Manager Client.

Reference material

- IBM Case Manager – overview
  - http://public.dhe.ibm.com/common/ssi/ecm/en/zzd03088usen/ZZD03088USEN.PDF

- IBM Case Manager – V 5.1 Information Center
  - http://publib.boulder.ibm.com/infocenter/casemgmt/v5r1m0/index.jsp

- developerWorks Enterprise Content Management Zone
  - http://www.ibm.com/developerworks/data/products/ecm

- Redbooks publication – Advanced Case Management with IBM Case Manager
  - http://www.redbooks.ibm.com/abstracts/sg247929.html?Open

Integrating IBM Case Manager work items and BPM BPDs

The links on this slide provide you with resources you can use to learn more about the IBM Case Manager. The first one is a four page brochure describing the IBM Case Manager. The next is to the Information Center for IBM Case Manager version 5.1. The developerWorks Enterprise Content Management Zone contains links to many different resources related to the Case Manager and other IBM content management technology. The last link is to a Redbooks publication addressing advance case management capabilities provided by IBM Case Manager.

Section

Case Manager calls BPM

An Case Manager task is implemented by a BPM process

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This section looks at capabilities with Case Manager to implement a case task by calling a BPM business process definition (BPD).

Case Manager to BPM integration

- Steps to implement an Case Manager task that calls a BPM process
  – Configure server
    • In Case Builder, configure information for IBM BPM runtime environments
    • Unique name for each configuration
  – Associate an Case Manager solution with a BPM process application
    • Choose the IBM BPM runtime environment
    • Connect to the chosen environment
    • Browse the process applications and select one to associate
  – When modeling a Case Manager task, associate existing BPD from process application
    • Select from BPDs from the associated process application
    • Map case properties with the input and output variables of the selected BPD
  – Test in Case Manager unit test environment

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Described here are the steps needed to implement a Case Manager task that calls a BPM process. First you need to configure information in the Case Manager Builder that identifies the BPM runtime server environment. You can have multiple BPM environments configured. Each BPM environment must be given a unique name by which it can be identified.

The next step is to associate a Case Manager solution with a BPM process application. To do this, you must choose one of the configured environments, connect to it, browse the available process applications and select the one you want to associate with.

Now that the association is made between the solution and the process application, you can implement a task within the solution by selecting a BPD implemented by the associated process application. You must map case properties to the input and output variables of the selected BPD.

The task can now be tested in the Case Manager unit test environment server.

Add a BPM BPD as Case Manager task implementation
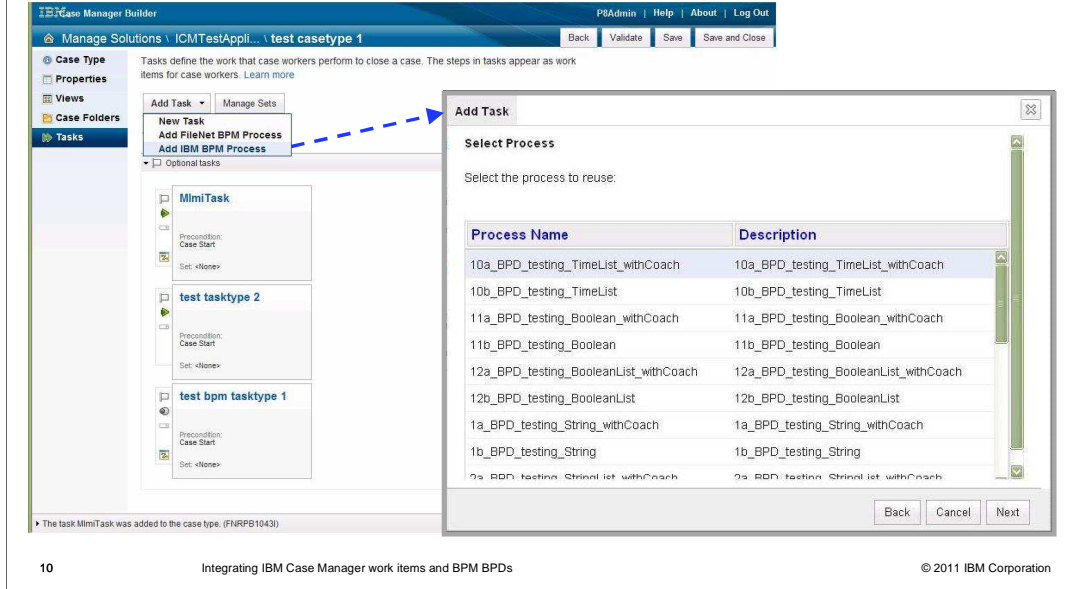
The screen captures here show the Case Manager Builder. In the Add Task drop down, you can select the Add IBM BPM Process item. This brings up a list of the BPDs in the associated process application from which you can choose.

Map case properties to/from process input/output data

IBM Case Manager Builder

Manage Solutions \ ICMTestAppli... \ test casetype 1

P8Admin | Help | About | Log Out

Back | Validate | Save | Save and Close

Case Type
Properties
Views
Case Folders
Tasks

Tasks define the work that case workers perform to close a case. The steps in tasks appear as work items for case workers. Learn more

Add Task ▾ | Manage Sets

New Task
Add FileNet BPM Process
Add IBM BPM Process

Optional tasks

MlmiTask
Precondition:
Case Start
Set: <None>

test tasktype 2
Precondition:
Case Start
Set: <None>

test bpm tasktype 1
Precondition:
Case Start
Set: <None>

Add Task

Map Properties
1a_BPD_testing_String_withCoach(Reused Business Process Manager process)
Map process
data fields to solution properties.

Click the "+" button to save the data field to property mapping.

Process data field name:
outputData (string, output)

Case type property name:
out_s string ➕

Single Valued , output

Property map:
inputData = prop_s1 (string, input)

Back | Finish | Next

The task MlmiTask was added to the case type. (FNRPB1043I)

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Having chosen the BPD to implement the task, the next panel in the Add Task dialog enables you to map the input and output data of the BPD to case properties.

A Case Manager task Implemented by a BPM process
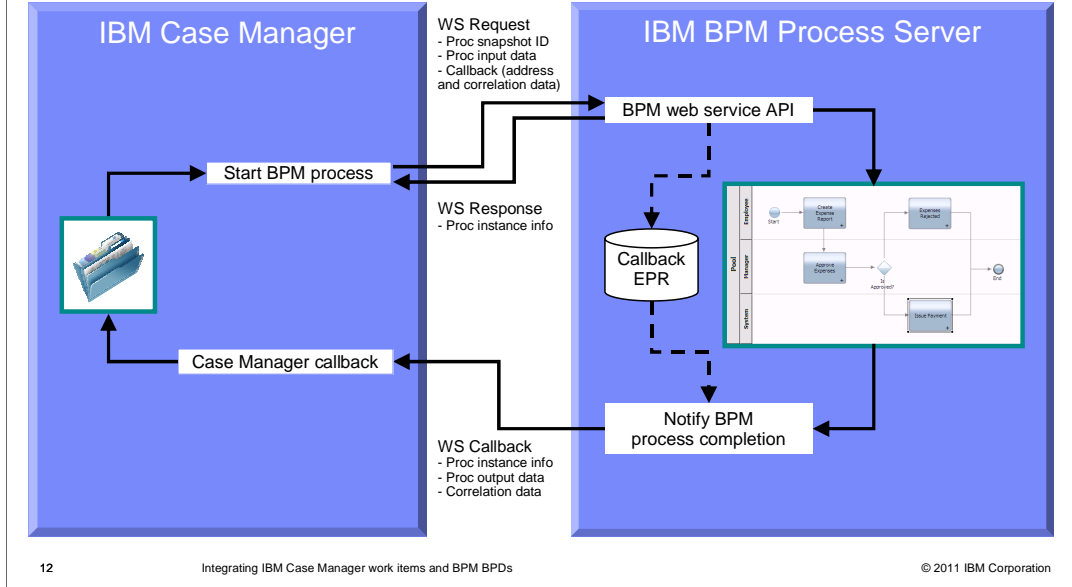
This diagram illustrates the interaction between the Case Manager server and the BPM server when a Case Manager task calls a BPM BPD. Because the BPD can be long running, the Case Manager cannot make a synchronous call and wait for the response. Rather, the Case Manager makes a web service call to the process server passing it the snapshot ID of the process application version to use, the input data required by the BPD and callback information. The process server responds, identifying the instance of the process it started. When the BPD completes, a web service call is made from the process server to the Case Manager server. The call passes the process instance identity, the output data from the BPD and any correlation data that was passed on the original request. The Case Manager is now able to associate the result with the appropriate case instance by using the process instance identifier and correlation data.

Reference material

- IBM Case Manager V5.1 – Information Center
  - http://publib.boulder.ibm.com/infocenter/casemgmt/v5r1m0/index.jsp

  - Integrating with IBM Business Process Manager

Integrating IBM Case Manager work items and BPM BPDs

For more detailed information you should see the IBM Case Manager version 5.1 Information Center. There are two links on the slide, one being the URL for the information center and the other one to the specific page entitled Integrating with IBM Business Process Manager.

Section

BPM calls Case Manager

A BPM process invokes operations on an Case Manager case instance

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This section examines a BPM BPD that invokes operations on a Case Manager case instance.

IBM BPM process calls IBM Case Manager operations

- Discovery
  - From Process Designer discover an already deployed Case Manager case type

- Operations on Case Manager invoked from BPM
  - **Create** a case instance
  - **Search** for a case instance by providing search criteria
  - **Retrieve** the properties of a case instance
  - **Update** the properties of a case instance

The capabilities of this support include the ability from the Process Designer to determine the deployed case types in a Case Manager solution. The operations that can be performed include creating a new case instance of a particular case type and searching for an existing case instance based on a search criteria. Operations on a specific case instance include retrieving the properties from the case instance and updating the properties of the case instance.

Defining the Case Manager server

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The first step required is to define the Case Manager server in which the appropriate Case Manager solution is deployed. The host and port information for the server is needed along with credentials to authenticate with the server. This configuration is done at the process application level in BPM. The association between the process application and solution is done by name. The solution must have the same name as the process application.

IBM Case Manager integration service

- A new service type introduced, the IBM Case Manager integration service
- Creating a new IBM Case Manager integration service:

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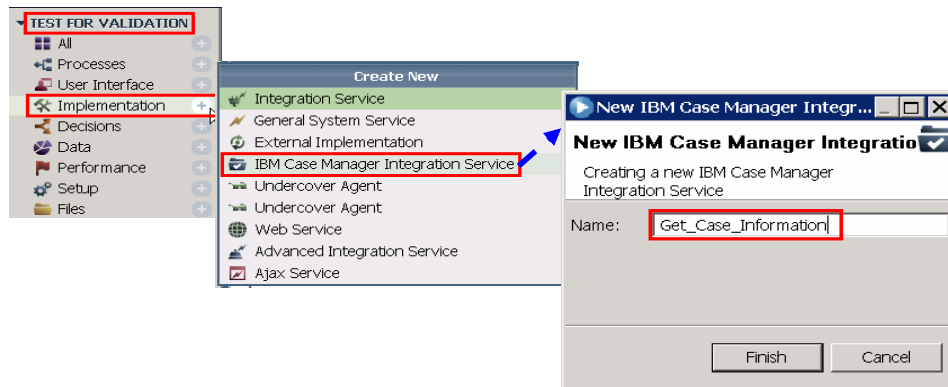
A new implementation type for an activity within a BPD has been introduced to support integration with Case Manager, the IBM Case Manager integration service. This slide shows the menu options used to create a new instance of this service type.

IBM Case Manager integration service editor

Integration component for performing a case operation

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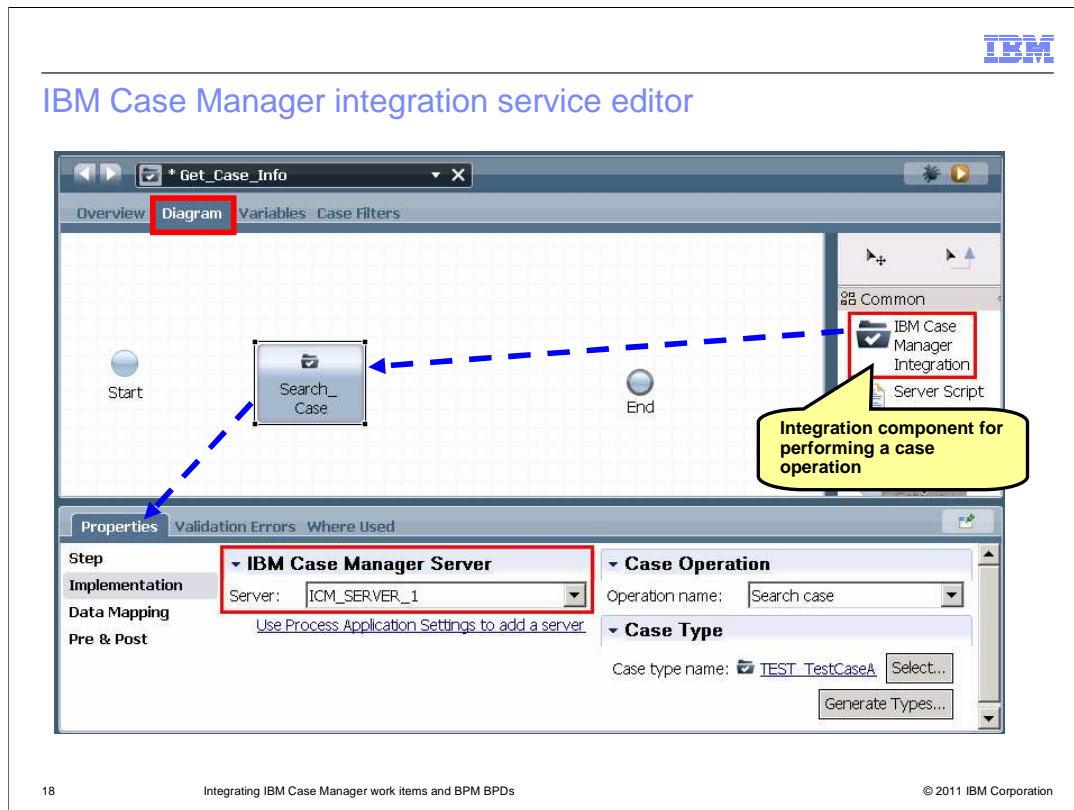
A new editor has been added specifically for defining the implementation of an IBM Case Manager integration service, as is shown in this screen capture. Multiple operations interacting with the case manager can be defined within the integration service. To implement, you drag an IBM Case Manager Integration component from the palette to the canvas. Then use the properties to define which configured Case Manager server to interact with, the operation to perform and additional information needed for that operation.

IBM Case Manager integration service editor - properties

The screen captures here provide further details on how you set the properties. There is a drop down box for defining the operation to be performed. For selection of the case type, a dialog is presented that shows all the case types deployed within the Case Manager solution that has the same name as the process application or toolkit containing this integration. Once the operation and case type is determined, business objects defining the input and output data that is sent to and received from the Case Manager can be generated. The variables in the business objects are specific to the case type and operation to be performed.

Case operation data mapping

- Create case operation
  - Input : case properties
  - Output: case reference, return code, response message
- Search case operation
  - Input: IBM Content Management Interoperability Services* query
  - Output: array of case references, return code, response message
- Retrieve case operation
  - Input: case reference
  - Output: case instance, return code, response message
- Update case operation
  - Input: case reference, case properties
  - Output: return code, response message

* IBM Content Management Interoperability Services is a separate product

The data mapping for each of the case operations is defined on this slide. All of the operations have a return code and a response message.

For creation of a new case instance, the case properties, specified as a set of name value pairs, are passed on input and a reference to the case instance is returned.

For the search operation, a Content Management Interoperability Services query is passed on input and an array of case references, satisfying that query, are returned. Note that IBM Content Management Interoperability Services is a separate product used with IBM FileNet Content Manager, which is an integral part of the IBM Case Manager product.

The retrieve operation is passed a case reference on input and returns a case instance. The case instance data mapping is generated when you defined the integration service, and is based on the properties of the case type of the case instances being retrieved.

The update operation takes a case reference for the case instance to be updated and a set of case properties, specified as name value pairs. There is no output other than the return code and response message.

Common data types

- **CaseReference** (System Toolkit)
  – caseId: String
  – caseFolderId: String
  – caseTitle: String
- **{caseType}CaseProperties** (generated) – collection of properties for the case type
  – A variable for each case property that has these attributes:
    - Updatability = readwrite
    - Inherited = false
    - Hidden = false
- **{caseType}Case** (generated) – case instance
  – caseReference: CaseReference
  – caseProperties: {caseType}CaseProperties

Integrating IBM Case Manager work items and BPM BPDs

The data types used with a Case Manager integration operation are defined here. The CaseReference is defined in the system toolkit and is composed of three strings, the caseId, caseFolderId and caseTitle.

For a specific case type, a CaseProperties data type is generated with a variable for each case property. To be included, the case property in Case Manager must be defined as read write and must not be inherited or hidden.

Finally, for a specific case type, a Case data type is generated. This represents the case instance and is composed of the CaseReference and the CaseProperties for that type.

IBM Case Manager integration service editor – case filters
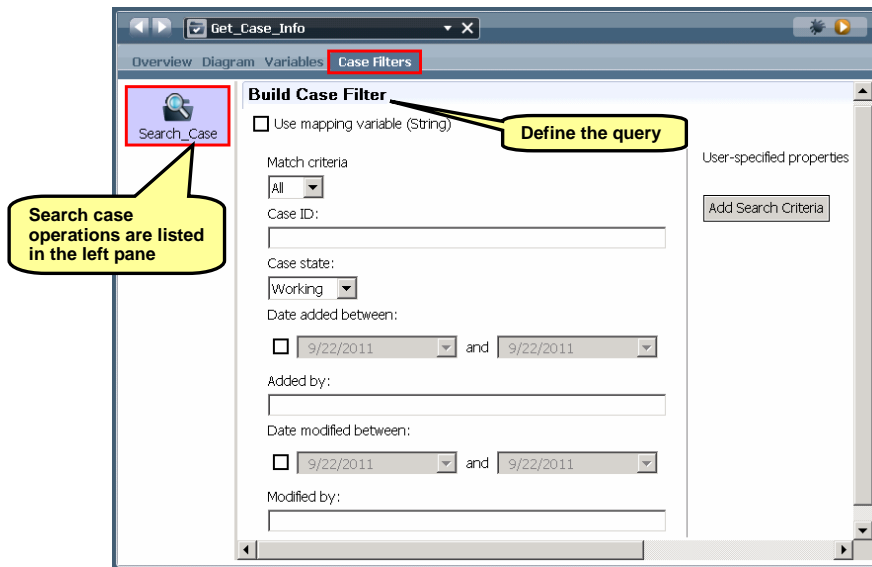
In the integration service editor, each search operation is shown on the left side panel. Selecting one of the searches displays the Build Case Filter dialog. It is here that you define the search criteria to be used for the query to Case Manager.
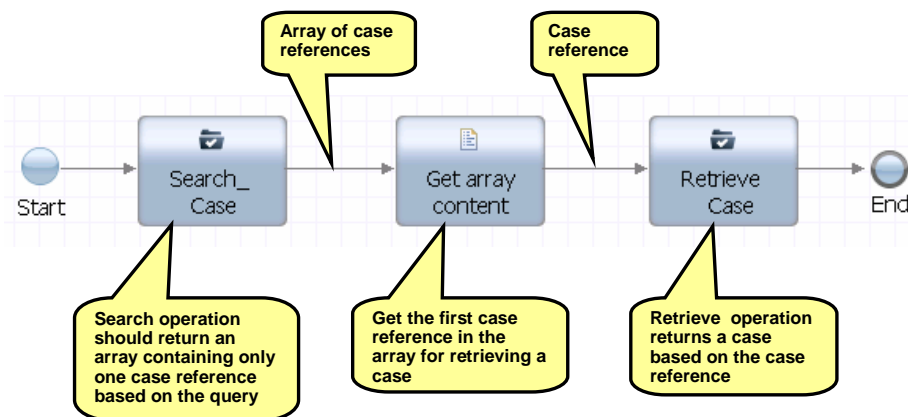
This slide shows an example of a Case Manager integration service implementation that is designed to get the properties for a specific case instance. The search operation is first, and for this example assume that the query is designed so that only one case instance is selected by the query. The result of the search is an array of case references, and for this scenario there should only be one element in the array. Then the case reference is extracted from the array and passed to a retrieve case operation that accesses the case instance.

Reference material

- IBM Business Process Manager V7.5.1 – Information Center
    - http://publib.boulder.ibm.com/infocenter/dmndhelp/v7r5m1/index.jsp

    - Building an IBM Case Manager Integration service

Integrating IBM Case Manager work items and BPM BPDs

For more detailed information you can reference the Information Center. The first link is the URL of the Information Center for IBM Business Process Manager version 7.5.1. The second link is to a page in the Information Center entitled Building an IBM Case Manager Integration service. Once there, you will find links to all the other relevant content within the Information Center.

Summary

- In this presentation you were given:
  - An introduction to IBM Case Manager
  - Description of how a Case Manager task is implemented by a BPM process
  - Description of how a BPM process invokes operations on a Case Manager case instance

Integrating IBM Case Manager work items and BPM BPDs

In summary, this presentation introduced you to a few basic concepts of the IBM Case Manager and you were given references to some good sources of additional information. Then the capability for enabling a Case Manager task to be implemented by a BPM BPD was described. Following that, a description of how a BPM BPD invokes operations on Case Manager case instances was provided.

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