IBM BPM – Loan assessment process lab

This tutorial refers to the "loan assessment" process example used in Chap. 9 of M. Dumas, M. La Rosa, J. Mendling, H.A. Reijers, *Fundamentals of Business Process Management*, Springer 2013. This example can be downloaded from <u>http://fundamentals-of-bpm.org/wp-content/uploads/LoanAssessmentProcessDescription.zip</u>.

The loan assessment process (also called mortgage application process in this document) is a mixture of modern and archaic. Loan applications can be completed either at branch offices or over the Web. However, once applications are received, they are printed out and assigned to inboxes.

Processing these loan applications is a highly variable, non-standard process with little to no visibility on status of any particular loan, nor how the loan company is performing overall on its key metrics and targets. Once a loan is approved, the actual creation of the customer and loan information in the systems of record is a "swivel-chair" action, requiring Loan Officers to enter the loan information in a legacy application or database manually.

In this lab, we will design an automated process in IBM BPM that will provide better automation, process consistency, and visibility. You will see how the process will be created by reusing some existing assets to achieve quicker time to delivery. You will see how the process is designed in multiple iterations, adding first the process steps, then user screens, then a decision point and branches, and at each iteration the process is "played back" to show progress to that point. This is a key benefit of IBM® Business Process Manager (BPM), that the solution can be developed layer by layer, with each iteration in the development process able to be shared with the rest of the team to show progress, gain concurrence and refine requirements as the solution is built.

Let's get started!

2.1 IBM BPM Introduction

IBM supports a broad range of BPM use cases, but the predominant use case for our current customers has been "Rapid composition and proactive management of process-based applications". Most of our customers have selected IBM BPM to create new, flexible applications that orchestrate specific critical business processes that span work group boundaries and multiple back-office systems.

IBM BPM is a complete platform for composing model-driven process-oriented applications, including the following capabilities:

- Full-function run-time environment with specialized engines for application execution and monitoring.
- Graphical programming model based on BPMN, where activities are mapped to "services". Most services are defined graphically (microflows), with access to scripting (Javascript, XML/XSLT) and Java APIs if needed.
- Built-in support for complex data-object definition, persistence, searching, and transformation.
- Built-in support for defining adapters to external applications or web services.
- Built-in support for exposing process applications as web services.
- Built-in support for event-driven execution.
- Run-time engines execute within J2EE app server tier, with clustering for high scalability and availability.

IBM BPM is unique in that its model-driven architecture is based on a single shared model of the process. The BPMN flow diagram, the underlying physical implementation details, the in-flight process state, and the historical performance data are all aggregated together in the same process model. Consequently, the "round-tripping" between design, implementation, and analysis views of the process across its lifecycle is straightforward – with a single shared model there is no translation or information-loss like you see in competitive suites that have multiple independent tools with multiple underlying process data representations.

Authoring Environment:

The IBM BPM Process Designer is a visual process definition tool. The Process Designer is an application that allows Business Analysts and process designers to visually specify discrete process activities, assign them to various participant roles, and implement the rules, events, and split/merges that govern the flow between those activities.

The Process Designer is a simple, Visio-like, drag-and drop application for building Business Process Diagrams (BPDs). A Business Analyst can build these diagrams rapidly because they are in swim-lane format, the most common format for process definition. IBM BPM was the first commercial vendor to implement BPDM, the Business Process Definition Metamodel. BPDM is the official "serialization format" for BPMN, and was ratified by the Object Management Group (OMG) Architecture Board in 2007. IBM is a member of the OMG committee responsible for defining the Business Process Definition Metamodel (BPDM). The alignment and synchronization of the BPMN and BPDM standards is ensured,

since they are driven by the same organisation. The standard format ensures maximum portability of your existing process diagrams into and from tools like Visio, CaseWise, ProForma, IDS Sheer, etc.

IBM BPM imports, exports, and exchanges process models using BPDM. IBM BPM can also import dialects of BPEL, the standard language for process orchestration and automation of web-service execution.

IBM BPM's architecture is 100% data-driven. No coding is required to define behavior. Most components can be built graphically or with textual wizards. IBM BPM includes property sheets and graphical wizards for the business process diagram (BPD), activities, forms, integrations, rules, reports, events, etc. Javascript is optional for the development of user interfaces, business logic, or reusable script components. Generally, lower level coding is not required in IBM BPM, but minor .Net or Java coding may be needed for exposing external system APIs for IBM BPM consumption.

IBM BPM does not require any proprietary languages or scripting. Graphical modeling is fully BPMN Compliant, including the constructs for events. Web based forms are built in a WYSIWYG "Coach Designer" (the modeled form definitions are represented internally as XML). If scripting is needed, IBM BPM utilises standard Javascript. Standards are a core focus of IBM BPM, from being 100% J2EE to providing a unified Authoring Environment in Eclipse to all the underlying representation of components.

IBM BPM relies on 100% standard, proven RDBMS systems to host its process and performance databases. This ensures that process data can be easily consumed by non-IBM BPM tools, report writers, and data warehouses.

IBM BPM is a full-function BPMS platform specifically designed to support the development and execution of "end-to-end processes" that may be long-lived, and may span multiple sub-processes, applications, user groups, or functional organisations. In IBM BPM, sub-processes and activities may be implemented using multiple existing applications or different BPMS tools, but still enables the end-to-end process to be monitored and governed as a single distributed entity. This is in contrast to application-specific "workflow" modules / add-ons that are only designed for automation of the application in which they run.

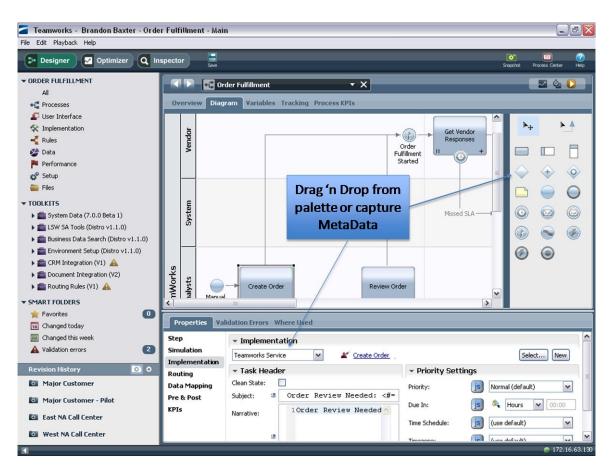


Figure 1. IBM BPM Authoring environment

Performance and KPI Tracking

IBM BPM tracks Key Performance Indicators (KPIs) – i.e., process performance metrics – during process execution. IBM BPM includes several out-of-the-box KPIs that reside in the IBM BPM Library, such as Total Time, Rework, Cost, and others. IBM BPM also enables you to create custom KPIs and add those to the IBM BPM Library for reuse. IBM BPM KPIs can be used for reporting, for Service Level Agreement (SLA) rules that trigger real-time alerts, and for process optimization analyses. KPIs can be tracked for individual activities, as well as for entire processes.

In addition, IBM BPM "Tracking Groups" and "Timing Intervals" provide the tracking context for process metrics and KPIs across process boundaries. These constructs are unique to IBM BPM, are defined explicitly in the IBM BPM process models, and are managed automatically by IBM BPM' patented Performance Server. Timing Intervals are especially powerful, as they map logical time-based KPIs (like "Approval Duration") to multiple underlying process paths, all transparently to the report author. This allows reports to be authored in terms of the logical KPIs (for example, "what is the average Approval Duration?") without requiring the report queries to enumerate all possible paths, or requiring the queries to be rewritten as paths change with the process implementation.

Service Level Agreements (SLAs) are specified as shared, reusable IBM BPM components that can be applied to process activities. Once defined, IBM BPM automatically monitors the SLA every time the associated process activity is executed. The SLA is expressed as an English-like business "rule" that can be easily created and understood by non-technical users of IBM BPM – a syntax-directed sentence editor in the Authoring Environment helps users construct a rule properly. The SLA rule specifies the activity and KPI to monitor, the "trigger" condition, and the triggered operation – sending a notification or invoking an exception process.

SLAs can be monitored using IBM BPM reports in the real-time web ScoreBoards, and in the Optimizer view of the Authoring Environment.

Performance Optimization

The IBM BPM Optimizer has been enhanced to support analysis and optimization across multiple processes. The Optimizer displays "heat maps" that show the magnitude of a specific process KPI (like "Execution Time", "Wait Time", "Total Time", "Rework", or a custom KPI) overlaid directly on top of IBM BPM process models. The KPI measures are aggregated across multiple processes to avoid sub optimizing for just a single process.

In fact, one can perform analysis and optimization work over different "Scenarios" – a Scenario defines a specific set of processes, filtered by time and/or by business data values (for example, only processes involving customer X).

For each scenario analysis, the Optimizer shows a "Smart Start" summary of which processes and which organisational groups are providing the most to the overall performance – or bottleneck!

For each scenario analysis, the Optimizer displays interactive reports showing more details about the aggregate performance of each component of the process. For example, by clicking on an activity in the heat map view, a report is displayed showing which user executed that activity, how often, and what other processes were those users involved in.

The IBM BPM Optimizer recommends performance improvements based upon historical, in-flight, and simulated data. Those recommendations go well beyond most engines, which simply ask you to reduce an activity time or throw more resources at a step. IBM BPM understands which activities take a consistently long period of time and which have peak bottleneck issues. It also understands activities that loop back based upon a decision, such as an approval step. For those looping steps if they are an issue (a number of rejections or a bottleneck), IBM BPM will recommend automating the step by creating business rules. IBM BPM includes a Guided Optimization wizard that will suggest business rules based upon real data correlation so that you understand when a decision can be automated and when not. Thus the Optimization Wizard might tell you that 200 out of 200 times when an order was "Urgent" and from "Woolworths" that it was always approved. Not only does it recommend that (And others) as rules, it can automatically create those rules, implement them in the model, and then do a comparative analysis of the new process to the old, again using historical data. Thus IBM BPM differentiates by leveraging a greater notion of process, more powerful analysis tools, and real historical metadata to provide more meaningful recommendations to the business analyst.

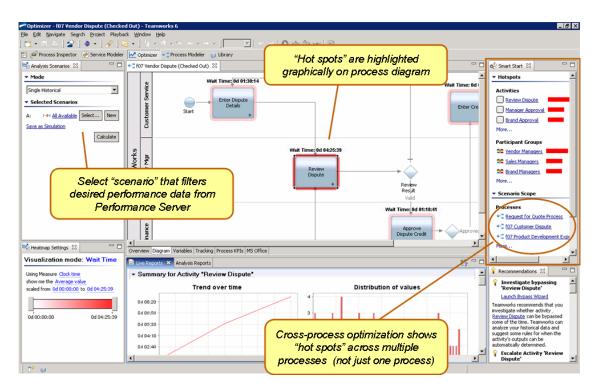


Figure 2. Performance simulation and analysis

2.2 Getting started with Process Designer

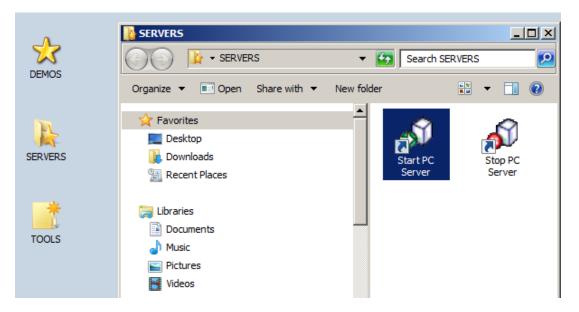
2.2.1 Start Process Center

Process Center



Process Center is a component of IBM BPM that provides a shared repository for BPM development, testing, deployment, and overall BPM governance. We will be connecting to Process Center as we design the process to iteratively develop and test our process design.

- ___1. Locate the **Servers** shortcut folder on your desktop.
- ___2. Double-click the **Servers** shortcut folder to open it.
- __3. Double-click **Start PC Server** as shown.



The server will take approximately five minutes to start. Please wait for the server to start completely (the command window will disappear).

2.2.2 Start Process Designer

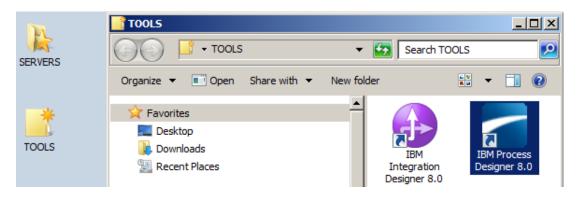


Process Designer

Process Designer is a component of IBM BPM that enables multiple roles to collaborate on process design. The same tool is used for designing the process diagram, user interface screens, the dashboard metrics (KPIs and SLAs), process rules, and integration services.

We will start Process Designer and connect it to Process Center to begin.

- ___4. Locate the **Tools** shortcut folder on your desktop.
- __5. Double-click the **Tools** shortcut folder to open it.
- __6. Double-click **IBM Process Designer 8.0** as shown.



	IBM.
IBM Process Designer	
8.0 User Name	 -
admin Password	
Password	
Login Cancel	

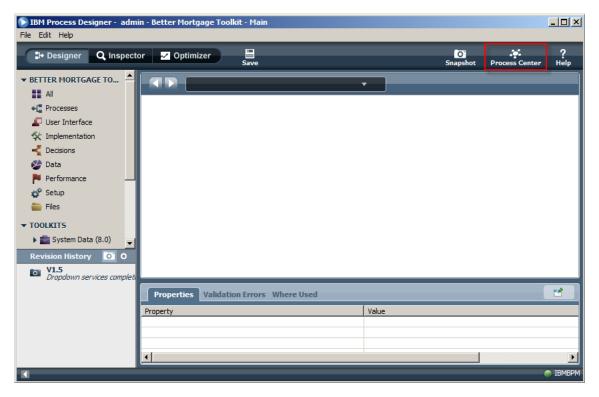
___7. When Process Designer launches, log in with **admin** for User Name and **admin** as shown:

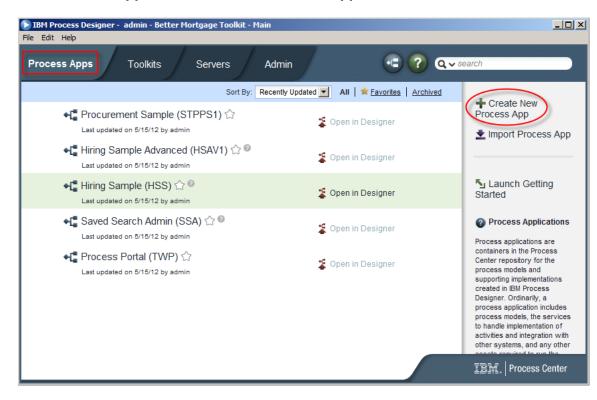
2.3 Creating the process – Version 1

Now we will proceed to create the mortgage application process. We will start with identifying the steps within the process and the roles that will be responsible for completing each step. We will connect the steps from beginning to end. Finally, we will test the results to confirm proper process flow in our first playback.

2.3.1 Create Process Application

___1. Click the **Process Center** link in Process Designer.



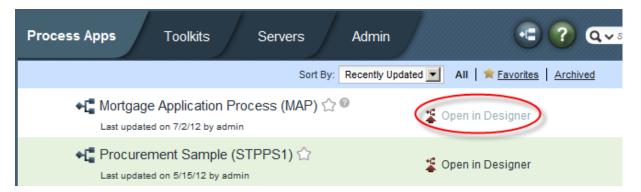


___2. Click Process Apps and Create New Process App.

___3. In the dialog box, enter the **Process App Name**, **Acronym**, and **Description** as shown:

Create New Process App	×
Process App Name: Mortgage Application Process Acronym: MAP Description:	
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This process will handle mortgage applications from Better Mortgage customers, routing through the steps of document gathering, underwriting, approval, and notification.	
Create	>

___4. Click **Open** in Designer.

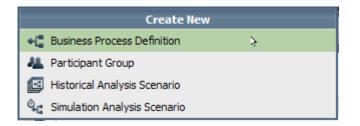


2.3.2 Create Business Process Diagram

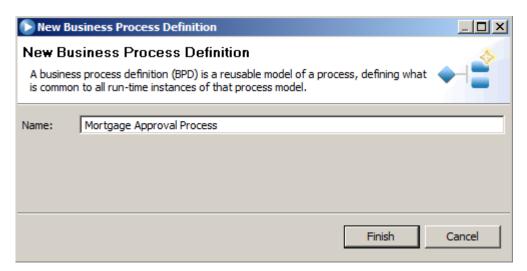
- __1. Create the Business Process diagram.
 - ___a. Click the + sign next to Processes.



__b. Choose to Create New Business Process Definition.



__c. Enter **Mortgage Approval Process** as the name for the business process definition and click **Finish**.



____d. You will be presented with a default business process diagram with two lanes, and a Start and End element as shown in the highlighted box. You will be adding elements to the business process diagram by clicking and dropping elements from the palette shown in the highlighted oval.

K	Mortgage Approval Proces		M 상 🔾
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Participant	Start	End	
System			
•			

- ___2. Creating process swimlanes
 - ___a. Change the first swimlane from **Participant** to **Loan Officer**. Do this by clicking the grey rectangle on the left side of the swimlane, then either clicking again to change in place or make the change in the properties window below the diagram (see two highlighted ovals). Click **Enter** when you are done with this change.

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0	verview	Diag	ram	Variables Track	ing Process KPIs		
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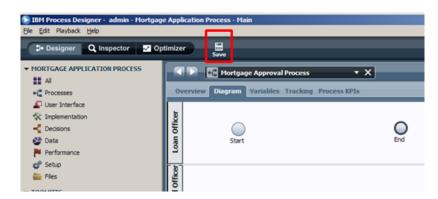
_b. Click the swimlane icon in the palette indicated by the oval and drag it into the diagram similar to the illustration. Change the name of the swimlane to **Loan Officer**.



- ___c. Click and drag three more swimlanes and name them **Financial Officer**, Property **Appraiser** and **Insurance Sales Rep.**
- __d. You will now have five swimlanes on the diagram. For readability, rearrange the swimlanes so that they are in this order Applicant, Loan Officer, Financial Officer, Property Appraiser, Insurance Sales Rep and System. You can rearrange the swimlanes by dragging the grey rectangle "handle" on the left and dropping them down on top of other lanes to move them below the lane you dropped on similar the illustration.
- ___e. The resulting process diagram will look like this. You can double click the diagram tab to make it full screen.

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___f. Press the **Save** button to save our work so far.



__3. Add Activities to Process Diagram.

Now we will add the major process steps, or activities, to the diagram.

___a. From the palette on the right, click the **Activity** icon and drop it between the **Start** and **End** icons in the **Applicant** swimlane as shown:



___b. Give the Activity a name of **Check Application form** and press **Enter**.

___c. Create the following activities in each of the following swimlanes by dropping an Activity from the palette and giving the appropriate name shown:

Role	Steps
Loan Officer	Check Credit history Assess Eligibility Prepare and send acceptance pack Verify repayment agreement Take final decision
Financial Officer	Check credit history
Property Appraiser	Appraise Property
Insurance Sales rep	Prepare and send home insurance quote

___i. Your process diagram will look similar to the illustration:

		🕨 💽 * Mortga	ge Approval Process	• X				
	0v	erview Diagram '	Variables Tracking	Process KPIs				
	Loan Officer	Start	Check application form	Assess Eligibility	Prepare and send acceptance	Survey Verify repayment agreement	Cake final decision	End
	Financial Officer			Check credit history				
	roperty Appraise				Appraise Property			
,	Isurance Sales Reroperty Appraise Financial Officer					Prepare and send home insurance		
	System			Assess Loan Risk	Reject application			

So far we have modeled the human steps in the process. We will now proceed to the system steps.

__d. Scroll down to the System swimlane. This swimlane is for steps that are performed by IT systems or services. Add two activities to this swimlane – Assess Loan risk, and Reject application. This part of your diagram will look similar to the illustration in the System swimlane.



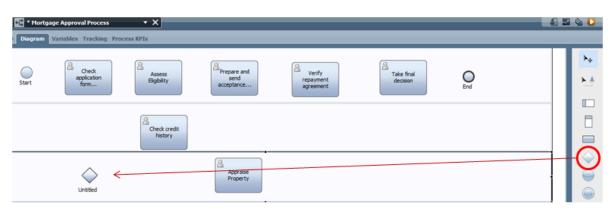
___4. We will now connect the activities in our process together. Locate and click the **connector icon** in the palette on the right.



___a. As you hover over each icon in the process diagram, you will see blue connector points appear. First, connect **Start** to **Enter Application Data**, as shown:

	Mortgage Approval Process									
01	verview Diagram Variables Tracking Process KPIs									
Loan Officer	Start Check application form									
ise Financial Officer	Check credit history									

__b. We want to add a decision point to the diagram, drag and drop a diamond from the palette into the canvas:



____c. Click the diamond and in the properties tab select the parallel gateway symbol to invoke check credit history and appraise property at the same time:

- < 🕨 💽 • Mo	rtgage Approval Proc	ess 🔹 🗙			£.
Overview Diagram	n Variables Tracki	ng Process KPIs			
Start	Check application form	Assess Bigblity	Prepare and send acceptance	A Verify repayment agreement	A Take final decision
surance Sales Reroperty Appraise Financial Officer	Unsted	Check credit history			
kroperty Apprak			Appraise Property		
surance Sales R				Prepare an send home insurance	
1					<u>×</u>
Properties Valida	tion Errors Where U	sed			
General Simulation Decision	Common Name: Name Visible:	Untitled		✓ Behavior Gateway Type:	Exclusive Gateway
Implementation Pre & Post	Presentation Icon:	Click <u>Edit</u> to add or edit text.	×		usive Gateway Parallel Gateway
I	(Edit)			Ind	usive Gateway Event Gateway

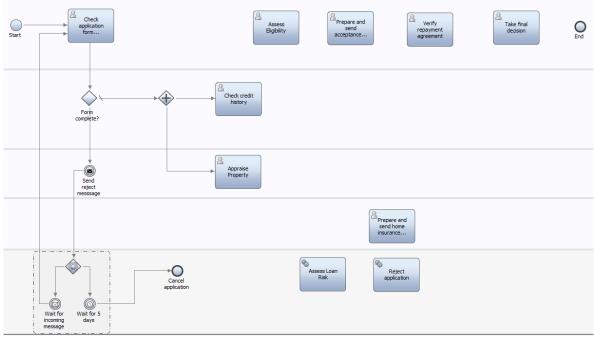
___d. Create messaging steps by dragging an intermediate message event into the canvas and select the event gateway type:

() Wa	att for Wait for 5 days	Cancel application	Assess Loan Risk	Reject application		
rties Validatio	on Errors Where Use	ed				
	- Common				- Behavior	
ion	Name:	Untitled5			Gateway Type:	Event Gateway 🔻
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	Documentation: (Edit)	Click <u>Edit</u> to add or edit text.		<u> </u>		Exclusive Gateway Parallel Gateway

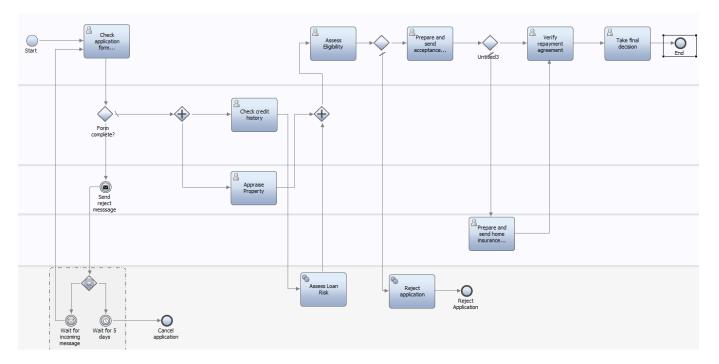
__e. Note that the message type will need to be linked to a UCA agent service (later on):

Properties Validation	on Errors Where Used				
General Simulation	✓ Intermediate Ever	nt Details	_		
Implementation	Message	-	Receiving		-
Data Mapping	💌 Message Trigger			\sim	
Pre & Post	Attached Message UCA:	<u><none></none></u>	Receiving	Sending	
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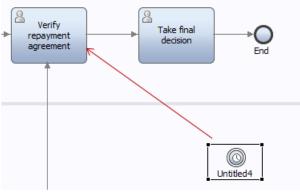
__f. Your process should now look like this:



_g. connect the remainder of our process diagram together, connect the activities in the diagram as follows:



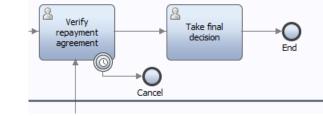
_h. Note that we still need to add a timer event to the verify repayment agreement step, drag an intermediate event to the canvas and change the type to timer:



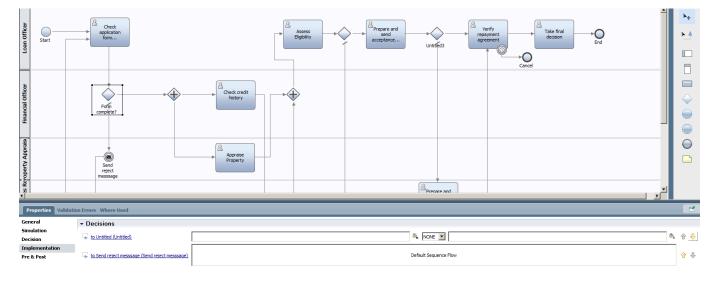
___i. Now drag the timer event onto the verify repayment agreement until it 'snaps' onto it:



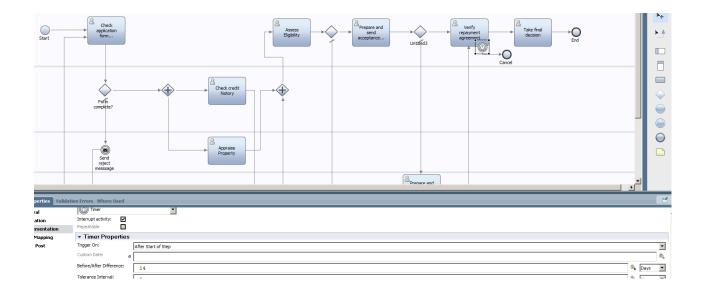
___j. You can then link the timer event to an escalation path if the timer has been triggered:



- __k. After the last element, press **Esc** to unload the connector tool, and press **Save** to save your work so far.
- __5. Change the decision order to have the path to check credit history be selected first by using the arrows on the right.



__6. Change the timer element that is linked to the verify repayment step to 14 days:



__7. We have now added all the main tasks of our process diagram and connected them together. We are now ready to test the initial flow, because, amazingly, the process is able to execute even at this early stage. We will do our first playback of the process next.

2.3.3 Play back the process – Iteration 1

- __1. Locate the Play button at the upper right of Process Designer. Click the button.
- ____2. When presented with the **Switch View?** dialog, confirm by clicking **Yes**. We are confirming to switch to the Inspector view to "play back" the process steps interactively.
- ___3. In the **Inspector** view, there are multiple panes to be aware of as we play back the process. Also, notice the control ribbon at upper right which we will use in successive steps.

Process Instances Services in Debug								
Instance Name: Status: All								
Instance Name Snapshot Process Status Due Date Instan	e Id Status		Subject Pric					
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- __a. **Process Instances** Every time we click **Start**, a process instance is started and will show in this view. Multiple instances can be played through at a time.
- __b. **Tasks** The current active task(s) are shown in this view, including information about the task such as status, owner, priority, and so on. Each of these tasks can be walked through as we step through the process in our playback.
- __c. **Process Diagram** This shows our business process diagram, with the current active task(s) "haloed" to show the state of the process.
- ___d. **Execution State/Breakpoints** This view shows a tree view of all the steps in our process, with the current active step highlighted. The token refers to the task data that is being worked on within the task.
- ___e. Variables/Execution Evaluator All variables are shown here so that business data can be inspected as it is changed through the process.

__4. Highlight the task in the **Tasks** pane with status of **Received**. Click the **Play** button at upper right again in the control ribbon, indicating we want to Play this task at this point in the process. We will be performing the first task (Enter Application Data) as the Applicant.

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							Runs	the sel	ected t	ask
Status	Owner	Subject	Priority	Due Date	Task Id					
Received	(ROLE) Al	Step: Enter Application Data	Normal	Jul 2, 2012 5:5	16					_

Roles and Tasks in IBM BPM

We have already added roles to each of the tasks by placing each task in a Swimlane. IBM BPM works by assigning a task to a particular role at runtime. In this lab, we will be testing all roles (Applicant, Loan Officer, Underwriting, Mortgage Manager) in the process with a common ID of "admin" for simplicity, since admin can test all roles.



For a real project, you would configure these runtime assignment criteria to, for instance, assign the Loan Officer role to an LDAP directory group in your organization that can perform this role (such as "Home Loan Officers"). Other assignment criteria can be configured such as direct assignment to particular users, last user in lane, and custom criteria which you can customize to your project's needs (such as "follow the sun" assignment criteria).

You will see in the Process Portal lab how task assignment works in assigning work to individual users within the Process Portal.

_5. In the **Pick User from Role** dialog box, accept the default **admin** role to run the task and click **OK**.



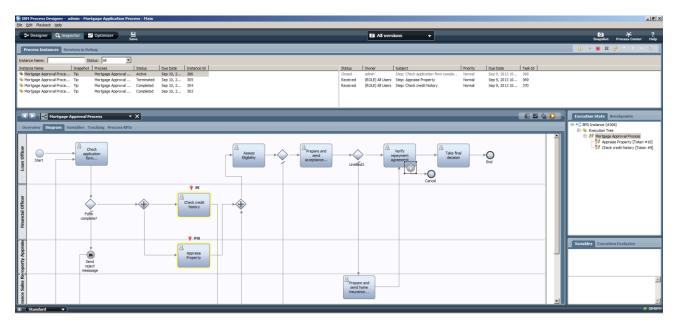
_6. You will see a screen similar to this illustration. This shows a default user screen for the Enter Application Data Step.

Smarter Process (IBM BPM 8.5 V2.0) - VMware Workstation		_ 0 <u>×</u>
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🔞 EM Bluevoris Live 📄 REST API Tester 📄 Admin Console 📄 Process Admin 📄 BPC Explorer 📄 Process Center 💽 Process Portal 🎁 Business Space powe 📄 Monitor Admin Console 🌍 OOM Business Console	»	
Check application form completeness	Priority Due Date Task Id	
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Done Complete Later		
		Variables Execution Evaluator
		🏝 🌄 🧓 📵 🕼 🗐 9:23 PM 🗮

We will make this look a lot nicer in a short while. For now, it's important to understand that even before we have assigned what business data the process will need to work with, we are able to step through the process in its current state, completing activities in their default form. This is useful in being able to validate the current process activities and basic flow, and can be used in an initial playback between the process designer and process owner to ensure that requirements at this early stage have been captured effectively and completely.

- ___7. Click **Done** to complete the task.
- ___8. Click the **Refresh** button in the control ribbon to refresh the state of the process.

_9. You will notice that in the Tasks pane, the first task now shows closed and the second task is now ready to run. In addition, the process diagram shows the current task highlighted in the process, and a new token is being worked on in the execution state pane.



__10. As before, highlight the current task and click **Play**, and click **OK** to **Pick User From Role** as **admin**. As before, you will be presented with the default screen for the next step in the process. Continue completing each task, refreshing the process, and clicking **Play** on each task as you continue through to the end of the process. The process has now completed.

System Tasks

You may have noticed that when you refreshed the process at a certain point, the activities that were in the System lane were not available to be played as a user screen. This is because these are designed to be executed in the background without human interaction. These could be calls to databases, web services, packaged applications, or other back-end systems.

We will do more with system tasks later, but it is important to understand that processes typically are composed of a combination of human and system tasks, and that the Inspector will step through the entire process, including both types of tasks.

__11. Since we have tested through the first iteration of our process, this would be a good time to take a snapshot. This allows us to save our work at this stage in a "version" of the process application to this point.

Snapshots in IBM BPM

IBM BPM provides the ability to take "snapshots" throughout the BPM design process. This gives you the ability to create a version of your work quickly and easily within Process Designer, storing the snapshots of your application in Process Center. Snapshots give you the ability to try out changes and then roll back to a prior version later if desired, and also are an effective mechanism for rolling versioned processes into production.

> O' Snapshot

- ___a. In the upper-left corner, click **Designer** to ensure you are in the Designer view.
- __b. In the upper-right corner, click the **Snapshot** button.
- ___c. Enter the following information for snapshot name and description and click **OK**:

🕞 Take Snapshot	×
V1	
111	
Enter the description of your new snapshot	
<u>B</u> <u><i>I</i></u> <u><u>U</u></u> ^{10pt} ▼ <u>≡</u> <u>≡</u> <u>≡</u> <u>≡</u> <u>≡</u> <u>≡</u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u>	
Added swimlanes, main process steps, and connected process diagram.	
	_
OK Canc	el

__d. The snapshot will now appear in **Revision History** on the bottom left and can be rolled back to later if desired.



- __12. In summary, we have designed the initial process by:
 - __a. adding swimlanes for roles
 - __b. adding activities (some human steps, some system steps)
 - ___c. connecting the activities into an overall process flow
 - ____d. tested the basic process flow in the Inspector (also known as a process playback)
 - __e. taken a snapshot of the first version of the process

The snapshot of the process is available for import here:

Snapshot: Initial process design: Mortgage_Application_Process - Part_1_Process_Design.twx

2.4 Adding "Coach" screens to process – Iteration 2

In this section, we will enhance the process by adding business data to keep track of the loan application as it proceeds through the process. We will create highly engaging user screens to present to the process participants as they carry out the human activities within the process. We will then do a second playback of the process and take a second snapshot of our work.

2.4.1 Add business data to the process

- ___1. The Loan Assessment Process should be displayed in the main pane. Click the **Variables** tab in the process editor. We are going to add our business data here. Click **Add Input** to add a variable to hold the loan application data for the process.
- ___2. In **Details**, type **mortgageData** as the name of the private variable.
- ___3. For Variable Type, click the New button and enter mortgageData as the new object name.

	* Mortgage Approval Process			
	Overview Diagram Variables Tracking Process KPIs			
	✓ Variables		✓ Details	-
	🗆 😓 Variables	Add Input	Name: mortgageData	Ľ
	□ 😓 Local □ 🗝 Input	Add Output	Click Edit to add or edit text	Ľ
	mortgageData (String) Output	Add Private	(Edit)	Ľ
	👄 Private	Link EPV	Is List:	
	Exposed Process Variables	Remove	Variable Type: String System Data Select New	
1	New Business Object		▼ Default Value	Ľ
New Business Object		→ WI		
	Business objects represent that data that is used during the running of a process. You can create complex business objects with multiple fields of different variable		1	
l	Name: Untitled			
				4
I			✓ Business Data Search	
			Available in Search:	
			Search Alias:	

__4. The variable editor screen now pops up. This screen is used to define the structure of the data element that is passed through the process, the object can be of complex type with several sub objects. Make sure you check the box "Shared Object" so that data in parallel paths is immediately synchronized.

D IBM Process Designer - admin - Mortgage Application Process - MainX File Edit Help								
🕞 Designer 🔍 Inspector 📈 C	Optimizer 🛛					O Snapshot	Process Center	? Help
▼ MORTGAGE APPLICATION PROCESS		ortgageData 🔹 🗙						
All								
•[Processes	Business Ob	iect					9	33 🕇
🖉 User Interface]						2
🛠 Implementation	- Common			 Behavior 				
	Name:	mortgageData		Definition Type:	Complex Structure Type			-
🌽 Data	System ID:	guid: 11d1def534ea1be0:-1279961c: 14100347293:-7e90		Shared Object:				
Performance	Modified:	admin (Oct 30, 2013 10:49:30 PM)						
🗳 Setup			A					
🚞 Files		Click Edit to add or edit text.	_					
TOOLKITS	Documentation: (Edit)							
System Data (8.5.0) A	<u>teory</u>		-					
• 💼 Coaches (8.5.0) 🛕	Parameter	e e		 Parameter 	Properties			
Multi-Type Tab Control (Second A			Add	Name:	Поренаез			_
Content Management (8.5.0)			Add	Is List:				_
▼ BLUEWORKS LIVE PROCESSES			Remove	Variable Type:	_	c	elect New	1
DEDEWORKS LIVE PROCESSES			Up		<u><none></none></u>	2	19000	
▼ SMART FOLDERS			Down					<u> </u>
🚖 Favorites 🚺 🚺			Down	Documentation:				
16 Changed today				(View More)				-
Changed this week		lidation Errors Where Used						-
A Validation errors	Properties Va	hidation Errors Where Used						

__5. Click "Add" to add a new entry to the **mortgageData** variable, enter **loanApplication** as its name and select New to define a new object for it, name this new object **loanApplication**.

6.	Inside the	IoanApplication	object enter	the following data fields:	
					÷

Object Name	Variables and type
applicantInfo *	Name (String) Surname (String) Email (String) Home Phone (String) Mobile Phone (String) CurrentAddress (String) PreviousAddress (String) (non mandatory)
financialInfo *	CurrentEmployer (String) MonthlyNetRevenue (Double) BankAccountDetails (bankAccountDetails)
bankAccountDetails (List) *	bankName (String) accountType (String) accountNumber (String) accountBalance (Double)
propertyInfo *	propertyType (String) address (String) purchasingPrice (String)
loanInfo *	IoanType (String) IoandProvider (String) amount (Double) duration (Double) startDate (Date) endDate (Date) interestRate (Double) interestType (String)
insuranceQuoteRequired *	Boolean
administrationInfo	applicationIdentifier (String) submissionDate (Date) revisionDate (Date) status (String) comments (String) eligibility (Boolean) IoanOfficerIdentifier (String)

___7. * indicates a mandatory field. We'll implement the logic for that later.

▼ Parameters	 Parameter 	 Parameter Properties 		
= 🖨 loanApplication (loanApplication) Add	Name:	loanApplication		
e applicantInfo (applicantInfo)	Is List:			
e financialInfo (financialInfo)	Variable Type:	PloanApplication Select New		
currentEmployer (String)				
monthlyNetRevenue (Decimal)		Click Edit to add or edit text.		
	1			
• loanInfo (loanInfo)				
 insuranceQuoteRequired (Boolean) 	Documentation:			
	(Edit)			
		-		

The screen should look as follows with the mortgageData the top object and the loanApplication its first complext object. Let's now create the rest of the objects.

___8. The **credit history report data** fields are as follows:

Object Name	Variables and type
creditHistoryReport	financialOfficerIdentifier (String) IoanApplicationReference (String) creditInformation (creditInformation)
creditInformation	IoanApplicationHistory (IoanInfo) (List) overdueCreditAccounts (IoanInfo) (List) currentCreditCardProvider (IoanInfo) (List) publicRecordInfo (String) bankruptcyInfo (String) creditAssessment (String)

__9. The **risk assessment data** fields are as follows:

Object Name	Variables and type
riskAssessment	creditHistoryReportReference (String) riskWeight (Decimal)

___10. The **property appraisal data** fields are as follows:

Object Name

propertyAppraisal	IoanApplicationReference (String) identifier (String) surroundingProperties (surroundingProperties) (List) estimatedValue (Decimal) comments (String)
surroundingProperties	Name (String) Value (Decimal)

___11. The **repayment data** fields are as follows:

Object Name	Variables and type
repaymentAgreement	loanApplicationReference (String) monthlyRepaymentAmount (Decimal) numberOfRepayments (Decimal)

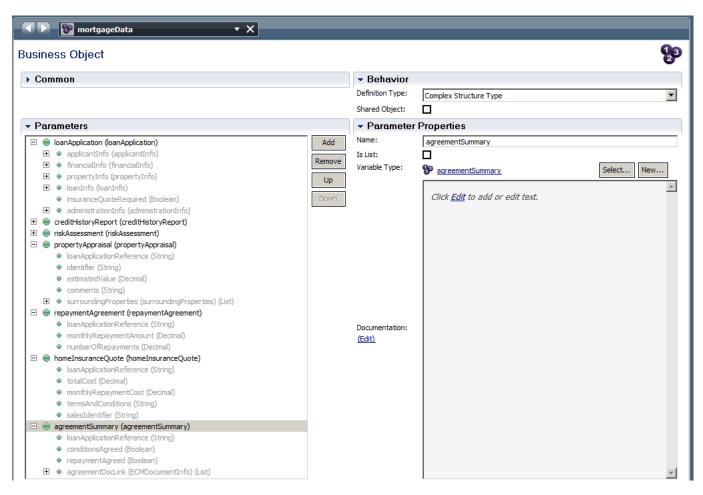
___12. The home insurance data fields are as follows:

Object Name	Variables and type
homeInsuranceQuote	IoanApplicationReference (String) totalCost (Decimal) monthlyRepaymentCost (Decimal) termsAndConditions (String) salesRepIdentifier (String)

___13. The **agreement summary data** fields are as follows. if the ECMDocumentInfo type is not visible, activate the Content Management toolkit, click on the '+' symbol next to TOOLKITS to add it, right click on the toolkit to upgrade its version to 8.5.0 if necessary.

Object Name	Variables and type
agreementSummary	loanApplicationReference (String) conditionsAgreed (Boolean) repaymentAgreed (Boolean) agreementDocLink (ECMDocumentInfo) (List)

___14. The final business object should look like this:

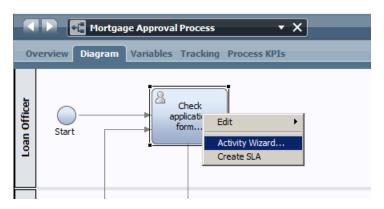


As you can see all data is part of a single encapsulating object called mortgageData, this structure reduces the need for reference strings that are part of the current object such as loanApplicationIdentifier. Furthermore we are able to re-use the riskAsessment object multiple times as part of mortgageData.

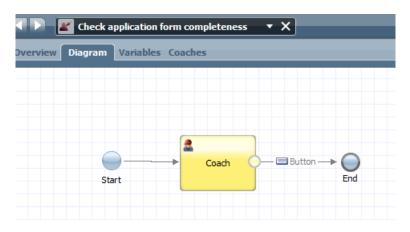
___15. Press **Save** to save your changes so far.

2.4.2 Create user screens to Enter Application Data

- __16. This chapter will explain how to create a Human Service for Enter Application Data
- ___17. Click the **Diagram** tab in the process editor. Right-click the **Check application form** activity and click the **Activity Wizard**.



- ___a. In the Activity Wizard, accept the default names for Activity Name and Service. Click Next.
- __b. Accept the defaults for passing the **mortgageData** Business Process Variable as **Input** and **Output**. Click **Finish**.
- ___18. Modify Generated Coach
 - __a. Go back to the **Check application form** activity in the process diagram. Double-click **Check application form** activity. You will now see the diagram for the human service with a single **Coach** element in the middle and a **Start** and **End**.

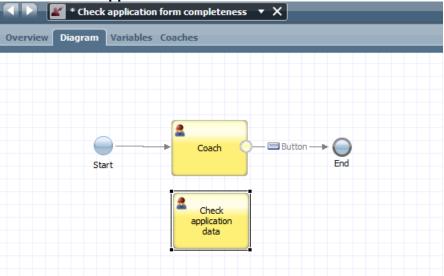


Coaches

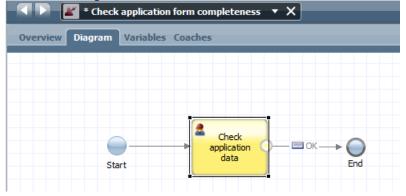


Coach is the term in IBM BPM for a user screen aka form, which is designed to "coach" process participants through the completion of their task. IBM BPM provides a built-in drag-and-drop screen editor, making it easy to create rich user interfaces for our process applications within the same Process Designer tool.

__b. Drag and drop a new coach from the palette on the right onto the canvas, change its name to **Check application data.**

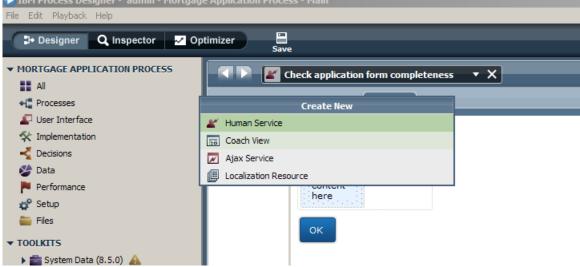


__c. Delete the original coach and reconnect the lines.



- ____d. Now double click on the coach. You will see an empty form with a single OK button.
- ___e. We now have an empty form. The variable data that we have in our mortgageData object is quite large so we want to split it up. In order to do that we use a feature called 'coach views' which are parts of a coach that can be shared across multiple coaches.

___f. Click on the '+' button next to User Interface and select Coach View:



- ___g. Name the new coach View: applicationView
- __h. You will now be presented with a black canvas, click on the Variables tab and click the '+' sign next to Business Data, name your object mortgageData of type mortgageData:

Overview Behavior Variables Layout	
overview benavior variables Edyode	
Variable Declarations	▼ Data

 Variable Declarations 		 Data 		
🖃 💱 Business Data		Name:	mortgageData	
🛨 🥌 mortgageData (mortgageData)		Is List:		
Configuration Options	× .	Variable Type:	🌮 mortgageData	Select New
Localization Resources			er montgagebata	beleetin
	문			

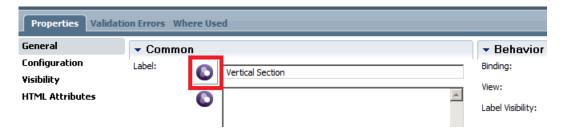
___i. From the palette on the right, click the **Variables** drawer and drag a **loanApplication** onto the canvas as shown, all the variables in the object will now be shown on the screen.

* applicationView	• • ×				
Overview Behavior Variables	Layout				
First name				1	Filter 🔻
					Views 🔹
Sur name					Control
					Button
Email					Checkbox
					ᡙ Date Time Picker
Home phone					T Decimal
					Image
Mobile phone					Integer
					Output Text
Current address					Radio Buttons
]				E Select
Previous address					⊞ Table ī⊐ Text
]				Text Area
Current employer					
					Section
Monthly net revenue					+++ Horizontal Section
					Tabs
Bank account details				- I	Advanced
Bank name	A	A h h	Account balance	1	🗁 Variables 🛛 🛇
Bank name Bank name	Account type	Account number	Account balance		👻 🍥 mortgageData
	Accodite type				IoanApplication
					creditHistoryRepo
Property type	1				▶
					propertyAppraisa
Address	1				repaymentAgreer

___j. We need to re-arrange the data fields to make it easier to identify the sections of the form. Click on 'Horizontal Sections element and drag it onto the canvas:

A b matrix application/View		
Overview Behavior Variables Layout		
Vertical Section Drop additional content here First name	1	Filter
Surname		 Output Text Radio Button: Select
Email Home phone		⊞ Table ⊡ Text ∏∃ Text Area
Mobile phone		Section +++ Horizontal Section

__k. In the properties part of the Vertical Section remove the title by clicking on the button in front of the label.



___I. Drag the first 5 fields into the vertical section:

* applicationView	• X
Overview Behavior Variables	Layout
First name	
Surname	
Email	
Home phone	
Mobile phone	
Current address	

__m. Create another vertical section, remove the title and drag the next 4 fields into it.

___n. Create a horizontal section, name it **Personal Info** and drag the two vertical sections into it, our screen now looks like this:

A D = applicationVie	2W • X		
Overview Behavior Variable	25 Layout		
Pe	rsonal Info		
First name	Current address		
Surname	Previous address		
Email	Current employer		
Home phone	Monthly net revenue		
Mobile phone	- [
Bank account details			
Bank name	Account type	Account number	Account balance
Bank name	Account type	Account number	Account balance

__o. Keep the bank account details in place, scroll down and create an identical structure for the property and loan info. Delete the remaining input fields

Overview Behavior Variabl	es Layout		
Mobile phone			
Bank account details			
Bank name Bank name	Account type	Account number	Account balance
Pr	operty Info		
Property type	Loan type		
Address	Amount		
Purchasing price	Duration		
Loan provider	Start date 8/8/2012		
	End date 8/8/2012		
	Interest rate		
	Interest type		

___p. Switch to the Overview tab, and create a new tag for this coach view, name it mortgageViews. This will allow us to group all views related to a certain topic

	A D applicationView X						
Overview Bel	Overview Behavior Variables Layout						
- Common		✓ Usage					
Name:	applicationView	Can Fire a Boundary Event:					
Modified:	admin (Sep 12, 2013 2:26:06 AM)	Use as a Template:					
Tags:	<none></none>	Supports a Label: Prototype-level event handlers:					
	Click Edit to add or edit text.	 Preview 					
		Select the images that represent t	the view during design time.				
	New Tag Value	×	<none> Select New X</none>				
	Enter the name for a new tag:		<none> Select New 🗶</none>				
	mortgageViews	p:					
		osition:	Тор				
	ОК	Cancel					
_q. <u>Clic</u>	k Save, now switch back to the origina	l coach:					
	Save						
	A D applicationView	• X					
	Overview Process App Settings						
	Mortgage Approval Process						
	W. Charle application form completeness						
	Mobile p						
	Rank account details						

__r. Make sure that the mortgageViews checkbox is checked:



__s. Click **applicationView** and drag it into canvas.

IBM Process Designer - admin - Mortgage File Edit Playback Help	e Application Proces	s - Main				_8×
	timizer Save				0' Snapshot	Process Center Help
MORTGAGE APPLICATION PROCESS Al Al C Processes User Interface % Unglementation		Check application form complete am Variables Coaches		_		Filter
🛃 Decisions 🍪 Data	Check applicatio	First name	rsonal Info			Views Control Button
Performance 🍄 Setup 🚞 Files		Surname	Previous address			Checkbox
		Email	Current employer			∏⊐ Decimal ▲ Image □ Integer
ELUEWORKS LIVE PROCESSES Loan Assessment Process BPMN		Home phone	Monthly net revenue			 Output Text Radio Buttons
SMART FOLDERS Favorites Ghanged today		Bank account details				☐ Select ∰ Table [□ Text
Changed this week Validation errors		Bank name Bank name	Account type Account type	Account number	Account balan	Section
🖓 Public 🚺						+++ Horizontal Section
		Property type	operty Info			Vertical Section mortgageViews
Revision History Image: O Image: O Part 1 Process Design		Address	Amount			applicationView
						Application Process)
	Properties Va	lidation Errors Where Used				2
	General Configuration Visibility	Common Label: Apple Apple	cationView	Binding:	the second	Select Gear
▲ ▲ 2 2 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0) 🧉 🚺 👄				* 🖳 👘) 🗊 👍 🗐 2:30 AM 💻

__t. Next you will bind the applicationView to the application process variable. Click the applicantionView component you just dropped. On the **Properties** view on **General** under **Behavior**, locate **Binding** and click **Select**. Then double-click the **mortgageData Output** variable.

			¢
	Property Info		e Picker
Property type	Loan type		
Address	Amount	Te: • • • • • • • • • • • • • • • • • • •	ext ttons
Purchasing price	Duration	Localization Resources	
Loan provider	Start date 8/8/2012	ea	3
	End date 8/8/2012		
	Interest rate	ag	geData
lidation Errors Where Used			E
- Common		► B Show matching variables only	
Label: 💽 🖪	applicationView	Binding: mortgageData (mortgageData) Select	Clear
•	<u>×</u>	View: Select	New

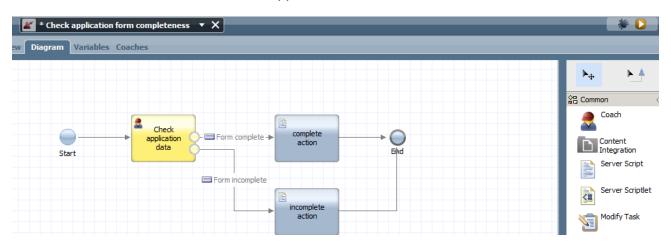
___u. Drag the administrationInfo to the bottom of the coach. Delete the eligibility Boolean as we'll set it using buttons instead.

Interest type	Image
	1 Integer
	Dutput Text
Application identifier	 Radio Buttons
	Select
Submission date	
8/8/2012	Advanced
Revision date	
8/8/2012	🕨 🕨 🥪 loanInfo
Status	nsuranceQuote
	🗸 🗸 😽 administration.Ir
Comments	->> applicationIde
	n 😔 submissionDa
Loan officer identifier	nevisionDate
	-📎 status
	net second secon
ок	🚽 🚽 eligibility
٩	▶ ■ → JoanOfficerId

_v. Create a horizontal section without title to hold the two action buttons: "Form complete" and "Form incomplete"

Comments	
Loan officer identifier	
Form complete	Form incomplete

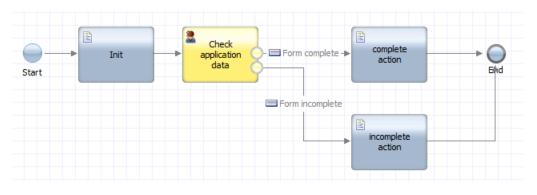
__w. Switch to the diagram tab of the coach and drag two server script activities onto the canvas, wire them to the Check application data and the End, delete the current OK wire.



__x. Click on complete action, select the Implementation section of the properties tab and enter the following script. tw.local.mortgageData.loanApplication.administrationInfo.eligibility = true; tw.local.mortgageData.loanApplication.administrationInfo.status = "complete";

Properties Validation Errors Where Used							
Step	▼ Script						
Implementation	1tw.local.mortgageData.loanApplication.administrationInfo.eligibility = true;						
Pre & Post	<pre>2tw.local.mortgageData.loanApplication.administrationInfo.status = "complete";</pre>						

- __y. Click on incomplete action and enter the following data: tw.local.mortgageData.loanApplication.administrationInfo.eligibility = false; tw.local.mortgageData.loanApplication.administrationInfo.status = "incomplete";
- __z. Drag another server script element onto the canvas and wire it to the 'start' and 'Check application data' activity. Call it 'Init'.



_aa. Enter the following script.

tw.local.mortgageData.loanApplication.administrationInfo.applicationIdentifier = tw.system.currentProcessInstanceID;

tw.local.mortgageData.loanApplication.administrationInfo.status = "received"; tw.local.mortgageData.loanApplication.administrationInfo.revisionDate = new TWDate(); tw.local.mortgageData.loanApplication.administrationInfo.loanOfficerIdentifier = tw.system.user_loginName;

Enter	Application Data 🔹 X	* D
Overview Diagram	Variables Coaches	
		Filter 💌
2	Qualifying Information	🔳 Better Mortgage 🛛 🗠
Enter Application	Qualitying Information	Applicant View
		Application View
	Marital Status Yearly Income Applicant Credit Score:	Control 🗢
	٩	Button
		Checkbox
		Date Time Picker
	Horizontal_Section4	Dutput Text
		C Select
	Is Applicant an Existing Homeowner?	Table
		I Text
		Mobile Ready
		Section
	Drop additional content here	Advanced
		▼ C→ Variables

__19. Test the Coach

- __a. Now we are ready to test the coach we have just built. Just as before, when we wanted to "play back" a process, we can do the same for a coach (as well as other types of services within IBM BPM). Press **Play** on the upper right to play back this Coach in the browser.
- __b. You should see the browser launch and the coach preview into the browser. Notice some of the system data. Enter in some data into both tabs, and click **Submit**. This will close the browser

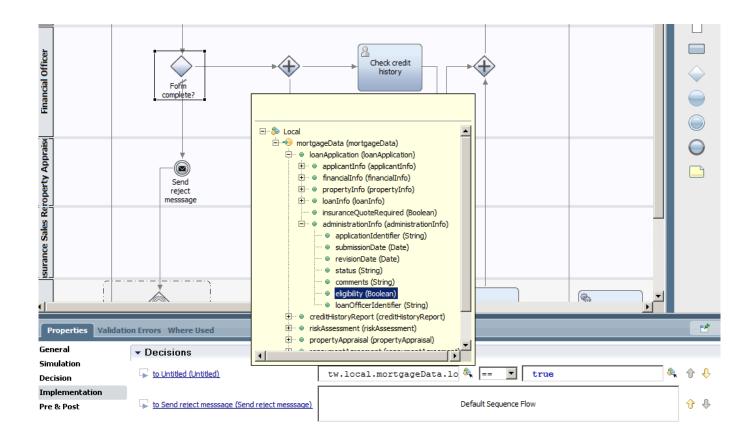
Check application data	+				
bmbpm:9080/teamw	orks/fauxRedirect.lsw?applicationIns	stanceId=guid%3A11d1def534ea1b	e0%3A7b06baca%3A141107a21ec%3A	-7ffe&zWorkflowState=2&zTa 🏠 ⊽ 🤁 🚼 ▼ Google	۶ 🍙
IBM Blueworks Live RE	ST API Tester 🔅 Admin Console	Process Admin BPC Explore	er 📋 Process Center 🚺 Process Po	rtal 👕 Business Space powe 🔅 Monitor Admin Console 🛛 🜐 ODM Bu	usiness Console
Surname	Previous address				
Email	Current employer				
Home phone	Monthly net revenue				
	0.00				
Mobile phone					
Bank name	Account type	Account number	Account balance		
			0.00		
Property Info					
Property type	Loan type				
Address	Amount				
	0.00				
Purchasing price	Duration				
0.00	0.00				
Loan provider	Start date				
	9/12/2013	16			
	End date				
	9/12/2013	12			
	Interest rate				
	0.00				
	Interest type				
pplication identifier					
ubmission date					
/12/2013	10				
evision date					
/12/2013	100				
tatus					
eceived					
omments					
oan officer identifier					

_20. Add initialization data to the process:

Switch to the process view and click the variables tab. Tick the 'Has Default' checkbox to ensure that all variables are properly initialized. The same principle applies when you create a coach, the default values in coach are overwritten when the process is played back instead of a standalone coach.

Mortgage Approval Process 🔹 🗙				🗐 🛛 🎃 🗋
Overview Diagram Variables Tracking Process KPIs				
Overview Diagram Variables Variables Image: Solution of the second state of the	Add Input Add Output Add Private Link EPV Remove Move Up	Details Name: Documentation: (Edit) Is List: Variable Type:	mortgageData Click Edit to add or edit text. Image: state	Select New
	Move Down	 edministra creditHistoryF financialO 	Value Info Info Info Quotel false ationIn	

___a. Select the 'Form complete' decision point and view the Implementation tab in its properties view. Set the eligibility Boolean to true as follows:



__b. Test the decision logic by playing back the process.

___21. Importing Toolkits into the project:

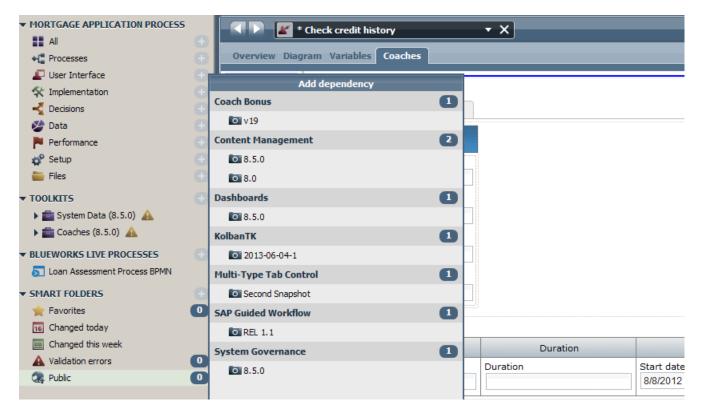
For this coach we want to use an element that does not exist in the standard palette. IBM BPM uses the principle of toolkits which are re-usable libraries that contain processes, coach, coach views, rules, data and palette controls. Basically anything that is available in a normal project. Toolkits are extremely powerful as they allow the managed re-use and sharing of components.

__a. Import the following toolkit into the Process Center by switching to the Process Center view's Toolkit tab.

Snapshot: Multi-tab control: Multi-Type_Tab_Control - Second_Snapshot.twx

▶ IBM Process Designer - admin - Mortgage Application Process - Main File Edit Playback Help		X
Process Apps Toolkits Servers Admin	•	Q v search
	Sort By: Recently Updated 💽 All 🚖 Favorites Subscriptions Shared Archived	- Oscata New Teelluit
SAP Guided Workflow (SGW) 🟠 @ Last updated on 8/18/13 by admin	🙎 Open in Designer	Create New Toolkit Import Toolkit
Coaches (SYSC) ☆ Last updated on 8/18/13 by admin	🙎 Open in Designer	Launch Getting Started
ᡖ System Data (TWSYS) ☆ 🖗 Last updated on 8/18/13 by admin	🖉 Open in Designer	Toolkits
Coach Bonus (CBONUS) 🏠 🖉	🖉 Open in Designer	Toolkits are collections of process assets that can be shared across multiple projects in IBM Process Designer. From the Designer view in IBM
Content Management (SYSCM) 🟠 🖗 Last updated on 8/12/13 by admin	🙎 Open in Designer	Process Designer, you can elect to create a dependency and choose the toolkit that you want.

__b. After the import has been completed, open the Mortgage Application Process again and click on the '+' on the Toolkits menu option:



- __c. Select 'Second Snapshot' of the Multi-Type Tab control.
- __d. Ignore the version dependency warning.

__e. Change the view to the mortgage application process and create a new coach by rightclicking Check credit history and selecting 'Activity Wizard', choose the default options and open the coach:



- ____f. As the in/out parameters of this coach are of mortgageData, it auto populates the coach with the applicationView coach view that is of type mortgageData. The application data is used as reference data for this person so we want to show it in a tab on the screen.
- __22. Drag a 'Multi TypeTab control' section to above the coach view, then drag the applicationView view into the first tab, bind the applicationView coach view to mortgageData:

	Check credit history	• X		* 🔾
Overview Diag	ram Variables Coaches			
Coach	Multi Type Tab Control	ere		Filter Views ↔ Control Button Checkbox Gote Time Picker
	First name	Current address		⊥ Decimal
	Surname	Previous address		I∏⊐ Integer ☐ Output Text
	Email	Current employer		Radio Buttons Select
	Home phone	Monthly net revenue		IIII Table IIII Text
	Mobile phone			Section
				+++ Horizontal Section
	Bank account details			Multi Type Tab Control
	Deels erer	A	A	Tabs

___a. Now we'll create a new coach view to contain the Credit check info. Using the same structure as in the applicationView we'll build up the creditView. Ensure to set the tag to 'mortgageViews' and bind the 'mortgageData' variable. There's no need to show the loanApplicationReference variable as all data is in a single object.

								đ
* creditView	• ×							
Overview Behavior Variable	es Layout					_		Į
							Filter 🔻	Ī
Credit Information	n						Views	
Financial officer identifier							Advanced	
							> Variables	<
Public record info							 mortgageData 	~
							,	
Bankruptcy info								
Credit assessment								
Loan application history								
Amount	Duration	Start date		End date				
Amount	Duration	Start date		End date		Intere		
		8/8/2012	16	8/8/2012	16			
Overdue credit accounts								
Amount	Duration	Start date		End date				
Amount	Duration	Start date		End date		Interes		
		8/8/2012	16	8/8/2012	16			
				[
Current credit card provider								
Amount	Duration	Start date		End date				
Amount	Duration	Start date		End date		Intere		
		8/8/2012	16	8/8/2012	16			

- __b. The Credit assessment text input box should in fact be a drop down menu with allowable choices. We can create a prepopulated drop down menu as follows:
- ___c. Add a new variable (String, List) to the creditHistoryReport object called creditScoreValues:

< < =>*	creditHistoryReport	• X					
Business Obj	ect						9 3
- Common				 Behavior 			
Name:	creditHistoryReport			Definition Type:	Complex Structure Type	2	•
Modified:	admin (Sep 12, 2013 1:34:14 AM)			Shared Object:			
Documentation:	Click <u>Edit</u> to add or edit text.		A				
(Edit)			Ţ	▼ Parameter	Proportion		
				 Parameter Name: 	-		
	fficerIdentifier (String) ationReference (String)		Add	Is List:	creditScoreValues		
	rmation (creditInformation)		Remove	Variable Type:	≌ u ≌ <u>String</u>	System Data	Select New
creditScor	eValues (String) (List)		Up	.,,	er <u>sunu</u>	System Data	Select
			Down		Click <u>Edit</u> to add ol	r edit text.	*

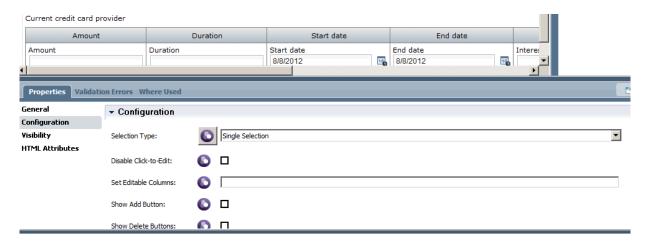
___d. Switch to the creditView coach view and delete Credit assessment, drag a Select object into the canvas. Bind it to the creditScoreValues List object that you've just created.

* creditView	• ×				
Overview Behavior Variables	Layout				
				Filter	•
Credit Information				Views	4
Financial officer identifier				Control	
				Button	
Public record info				Checkb	ox
				10 Date Ti	me Picker
Bankruptcy info				I⊐ Decima	I
				Image	
Select				[⊡ Integer	
٩				Dutput	
Loan application history					uttons
Amount	Duration	Start date			
Amount	Duration	Start date	E	E Business Data E mortgageData (mortgageData)	
		8/8/2012	1		ea
Overdue credit accounts					tal Section
Amount	Duration	Start date			no Tob Contr

___e. In the configurations tab of the Select object, bind the 'Selected Item' entry to the creditAssessment String:

Select Q Loan application histo Amount Overdue credit accou	Duration	 Start date Start date 8/8/2012		Business Data mortgageData (mortgageData)
Amount Amount Current credit card p	Duration	 Start date Start date 8/8/2012] 🖪	Image: Section Image
Amount Amount	Duration	 Start date Start date 8/8/2012	n.	Image: Construct of the second line second line of the second line of the second line of th
Properties Validat General Configuration Visibility HTML Attributes	Configuration List Type: Selected Item: Selected Items: Selection Service:		it	

- ___f. Change the name of the 'Select' element to Credit Assessment.
- ___g. In the coach view you can see that the loan application history is depicted as a set of tables that allows us to enter multiple rows of data for each entry. We need to enable actions on the table that allow us to control the allowable actions for the table. Click on the 'Configuration' tab of a table property:



__h. Check the 'Add' and 'Delete' buttons. Save and switch back to the Check Credit history tab. Drag the new creditView into a new tab as the first option and bind the view to mortgageData.

Image: A marked and a marked	Check credit history	• ×					* 🜔
Overview Diag	ram Variables Coaches						
	Tabs						Filter 🔻
~		1					Views
Coach	creditView Mortgage data 🕂						Control
	Credit Information						Button
							Checkbox
	Financial officer identifier						Date Time Picker
							I Decimal
	Public record info	1					Image
							🗇 Integer
	Bankruptcy info						Dutput Text
							 Radio Buttons
	Credit assessment						E Select
							III Table
	Loan application history						匝 Text
	Amount	Duration	Start date		En	d date	Text Area
	Amount	Duration	Start date		End date	diddte	Section
			8/8/2012	16			+++ Horizontal Section
							🛅 Tabs
	Overdue credit accounts						Vertical Section
	Amount	Duration	Start date		En	d date	mortgageViews
	Amount	Duration	Start date		End date		applicationView
			8/8/2012	16	8/8/2012		creditView

___i. change the containerType to 'Tabs' in the properties of the Tabs element and change the size to 800 by 800:

___j. Change the label of the submit button from 'Button' to 'Submit Credit Assessment'.

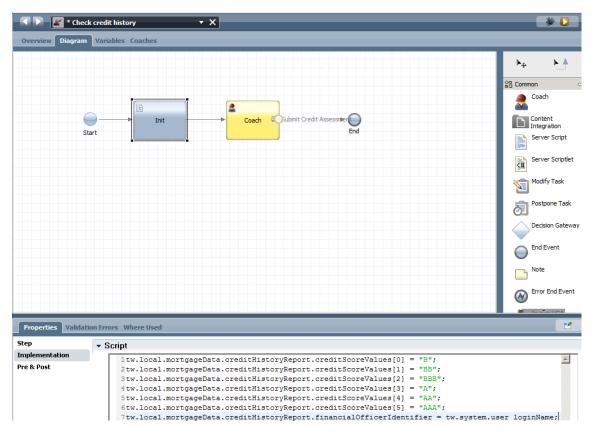
Properties Validation	on Errors Where Used			2
General	 Configuration 			
Configuration				
Visibility	Container Type:	O	Tabs	1
HTML Attributes		-		
	Height (Pixel value over 100):	0	800	
	Width (Pixel value over 100):	0	800]

__k. Switch to the variables tab and uncheck/recheck the 'Default Value' checkbox to refresh the default data as the object model has changed.

Move Down	Is List: Variable Type:	□ %	mortgageData	Select New
	✓ Default V			
	Has Default: Property		Value	•
	 loanApplica ① applica 			

___I. Switch to the Diagram view and add a new server script activity before the coach, name it 'Init'. Add the following code to the Implementation tab:

tw.local.mortgageData.creditHistoryReport.creditScoreValues[0] = "B"; tw.local.mortgageData.creditHistoryReport.creditScoreValues[1] = "BB"; tw.local.mortgageData.creditHistoryReport.creditScoreValues[2] = "BBB"; tw.local.mortgageData.creditHistoryReport.creditScoreValues[3] = "A"; tw.local.mortgageData.creditHistoryReport.creditScoreValues[4] = "AA"; tw.local.mortgageData.creditHistoryReport.creditScoreValues[5] = "AAA"; tw.local.mortgageData.creditHistoryReport.creditScoreValues[5] = "AAA"; tw.local.mortgageData.creditHistoryReport.creditScoreValues[5] = "AAA"; tw.local.mortgageData.creditHistoryReport.financialOfficerIdentifier = tw.system.user_loginName;



__m. The dropdown menu now has pre-populated values for the credit scores. Make this field mandatory by changing the visibility settings to "Required"

The second se	• X				
Overview Behavior Variables	Layout				
Credit Information Financial officer identifier Public record info Bankruptcy info				1	Filter Views Control Button Checkbox Cobection Date Time Picker Coccimal
Credit Assessment Q Loan application history					 ☐ Image ☐ Integer ☐ Output Text ⊙ Radio Buttons ☐ Select
Amount	Duration	Start date	End date End date	Interest r	III Table
		8/8/2012		Interest I ▶	 Advanced Variables
Properties Validation Errors W	/here Used				2
General Visibil Configuration Visibility	ity quired	٦			

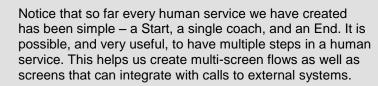
Press **Save** to save your work and play back the coach. Experiment with the tabs and table controls.

IBM Software

2.4.3 Creating the appraise Property coach

L

Human Services



- __23. The appraise property task will be created in similar fashion to the Check credit history task. Create a new coach View called appraiseView
 - ___a. Tag it as part of the group mortgageViews
 - __b. set the business data to bind to mortgageData, then drag the whole propertyAppraisal variable object onto the canvas, delete the loan application reference field.

appraiseView	• X	
Overview Behavior Variables	ayout	
Identifier		Filter 🔻
		Views
Surrounding properties		Advanced
Name	Value	🗁 Variables
	Value	🕨 📄 mortgageData
Estimated value		
Comments		
Comments		

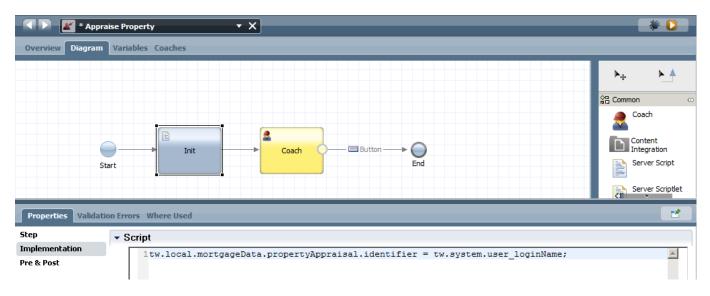
___24. Add 'Add' and 'Delete' functionality to the surrounding properties table

General	 Configuration 	
Configuration		
Visibility	Selection Type:	Single Selection
HTML Attributes	Disable Click-to-Edit:	
	Set Editable Columns:	© [
	Show Add Button:	
	Show Delete Buttons:	

__25. In the configuration tab of the value fields, set the currency to Australian Dollar:

Properties Validation	on Errors Where Used		1
General	 Configuration 		
Configuration			
Visibility	Currency:	Australian dollar	
HTML Attributes			
	Other Currency:		-
	Currency Symbol:	©	
	Hide Thousands Separators:		

- ___26. Change the view type of Comments to Text area instead of Text.
- ___27. Create a new coach called Appraise Property based on its task. Add a new Init server script to the coach diagram as follows:



__28. Create a new Multi Type Tab control onto the canvas and drag the appraisalView and applicationView onto it. Change its type from accordion to tab view. Change the submit button label to 'Submit Appraisal Result'. Save and test.

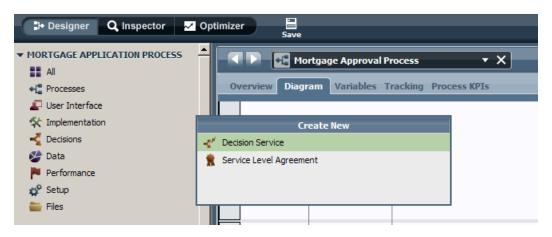
	Appraise Property	• X	* 🔾
Overview Diag	gram Variables Coaches		
Overview Diag	yram Variables Coaches Multi Type Tab Control appraiseView applicationView Identifier Surrounding properties Name Name Estimated value Comments	Value Value	 Filter ▼ Views ∞ Control Button Checkbox Date Time Picker Decimal Image Integer Output Text Radio Buttons Select Table Text Text Area Section ++ Horizontal Section
		1	Multi Type Tab Contro

2.5 Adding Decisions to the process

We will add a simulated credit check step as part of the Assess Loan Risk activity so that the Loan Officer will have this information to make their decision.

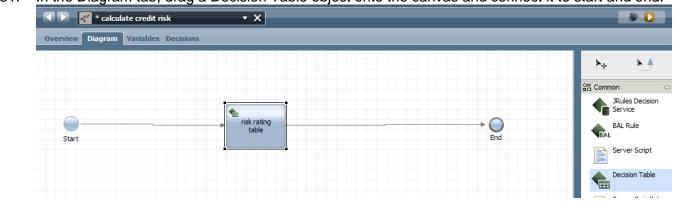
2.5.1 Add Calculate Credit Risk to Enter Application Data

___29. In the menu click the '+' sign next to Decisions and select Decision Service, name the service 'calculate credit risk'



___30. Add mortgageData as the IN/OUT parameters to this service.

🔍 🕨 📲 * calculate credit risk 🔹 🔹 🗙				* 🕗
Overview Diagram Variables Decisions				
▼ Variables		▼ Details		
🗆 🐉 Variables	Add Input	Name:	mortgageData	
E ಾ Input	Add Output		Click <u>Edit</u> to add or edit text.	<u> </u>
∃ → mortgageData (mortgageData)	Add Private			
🕀 🕞 mortgageData (mortgageData)	Link EPV			
Private Private Process Variables	Link Localization			
I Localization Resources	Remove			

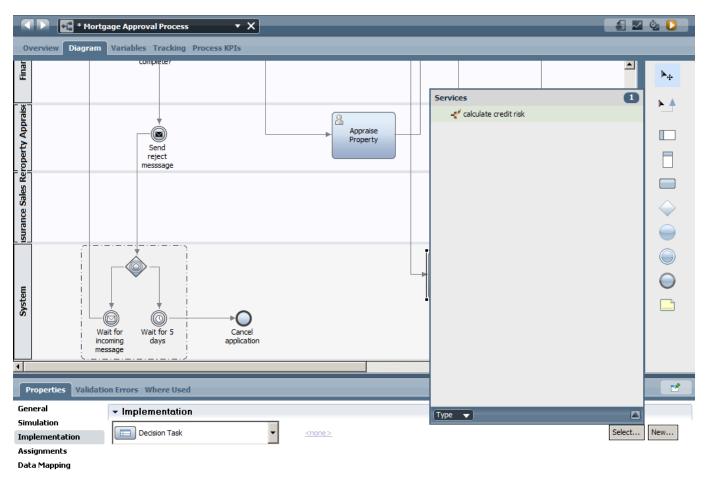


__31. In the Diagram tab, drag a Decision Table object onto the canvas and connect it to start and end.

- ___32. Doubleclick on the risk rating table activity. Click on the green '+' sign on the right to add a new condition column. Select the creditAssessment variable as part of creditInformation as the condition.
- __33. Click on the row number to add a new line. Add the following data to the risk table:

🔹 🕨 🧹 calculate c	redit risk		• X			* 🜔
Overview Diagram Va	iables Decisio	ns				
	Condition ((IF)			+ X	↑ ↓ ×
risk rating table	creditA	ssessment	Action Requirement			<u></u>
-	1	Α	60			
	2	AA I	80			
	3 4	AAA	100			
	4		0			
	5		20			
	6	BBB	40			
						-
	4					
	- Action (T	THEN)				
	Requirement:	60				
	Action:		w.local.mortgageData.risk	Assessment.riskWeight = 60;		*

__34. Save and close the service. In the process design screen, click on the Assess Loan Risk task. Change to the implementation tab in the properties view and change the Implementation type to Decision Task and then press on 'Select...' and choose the Calculate credit risk decision service just implemented:



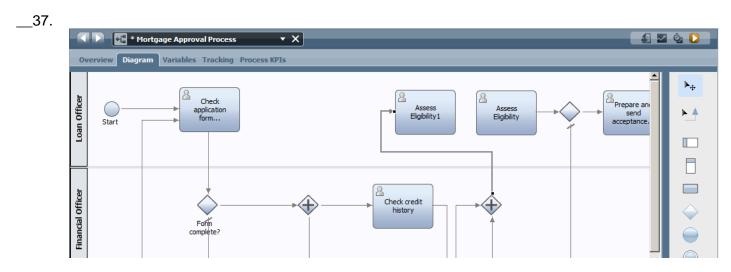
__35. Map the IN/OUT parameters of the service to mortgageData:

				Þ	
Properties Validat	ion Errors Where Used				
General Simulation	✓ Input Mapping	۲. ۲	 Output Mapping 		S
Implementation	tw.local.mortgageData	🍭 🔶 mortgageData (mortga	mortgageData (mortga 숙	tw.local.mortgageData	e
Assignments					
Data Mapping Pre & Post					
KPIs					

2.5.2 Creating the Assess Eligibility coach

In order to speed up development of the Assess Eligibility coach we'll simply duplicate the appraise property coach.

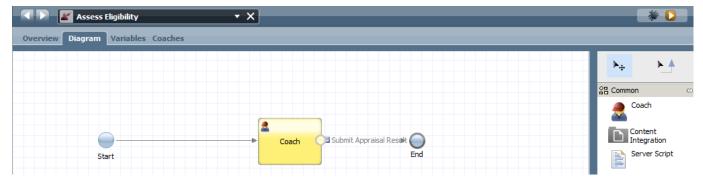
___36. From the **Process** diagram, right click the Appraise Property coach and select 'Duplicate...'. Drag the new coach onto the canvas. Connect the path from the original assess eligibility task to the new one and delete the old one.



_38. Map the IN/OUT parameters of the coach to mortgageData:

Properties Validation	on Errors Where Used				2
General Simulation	▼ Input Mapping		 Output Mapping 		5
Implementation Assignments	tw.local.mortgageData	🔍 🗘 mortqaqeData (mortqa	mortgageData (mortga 🔶	tw.local.mortgageData	_ ٩
Data Mapping					
Pre & Post					
KPIs					

Delete the Init task from the Diagram view and double click on the coach to open it.



___39. Add the creditView to the tab and in the visibility option, select 'read only' to make the entire coachView read only. Do the same for the applicationView and appraiseView tabs. Alternatively you can set the entire Multi Type Tab Control to be read-only.

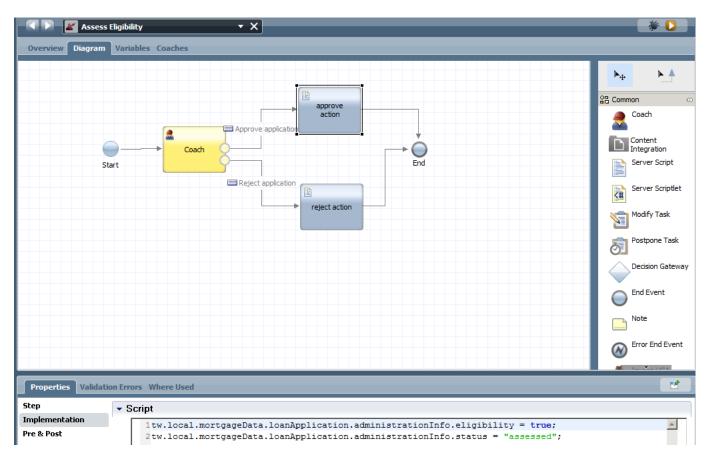
	ussess Eligibility	• X	_	-	-	* 🕽
Overview Diag	Image: square with the system of the syst		Filter			
	Loan application history					Text Area
	Amount Amount	Duration Duration	Start date Start date 8/8/2012	End date 8/8/2012		Section
	Overdue credit accounts				v	Multi Type Tab Control Advanced Variables
Properties Va	alidation Errors Where Used					2
General Configuration Visibility HTML Attributes	Visibility Source: Value C Rule C Scri	pt 💌				

_40. Add the application identifier, loan officer identifier, status and Comments variables to the coach.

Assess Eligibility X				
Overview Diagram Variables Coaches				
	1	Filter 🔻		
		Views		
Coach		Advanced		
		> Variables 🗠		
		🕨 🂫 propertyInfo		
		🕨 🅪 loanInfo		
		🥪 insuranceQuoteR		
		👻 👴 administrationInf		
Application identifier		->> applicationIder		
		ni submissionDate		
Loan officer identifier		nevisionDate		
		ne status		
Status		- comments		
		n eligibility		
Comments		- loanOfficerIdei		
		Report Provide the story of		
		Heiskassessment		
Submit Appraisal Result		PropertyAppraisal		
	•	repaymentAgreem		

__41. Change the Comments from text to text area type. Add two buttons at the bottom with the following labels:

__42. In the Diagram view, add two server scripts to the canvas, connect them and add the following script to the activities:



and

 Sci 	ript
Г	<pre>1tw.local.mortgageData.loanApplication.administrationInfo.eligibility = false;</pre>
	<pre>2tw.local.mortgageData.loanApplication.administrationInfo.status = "rejected";</pre>

 __43. Playback the process. Areas of potential errors: Uncheck/Recheck the 'Has Default' options of the variable in the process screen and coaches. Make sure you have mapped each coach view to the mortgageData variable. A snapshot of the current state is available here:

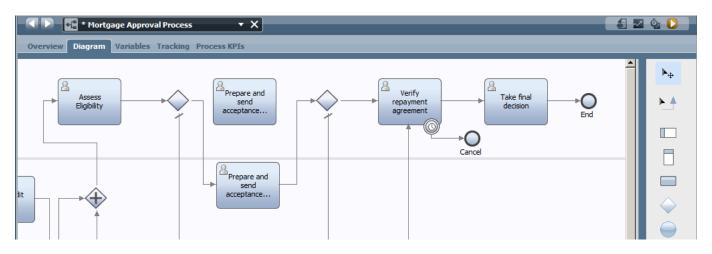
Snapshot: Decision Service and coach views.

Mortgage_Application_Process - Part_2_Decision_service_and_coach_views.twx

2.6 Creating the Prepare and send acceptance pack coach

In order to speed up development of the Prepare and send acceptance pack coach we'll simply duplicate the Assess Eligiblity coach.

___1. From the **Process** diagram, right click the Assess Eligiblity coach and select 'Duplicate..'. Drag the new coach onto the canvas. Connect the path from the original Prepare and send acceptance pack task to the new one and delete the old one.



___2. Map the IN/OUT parameters of the coach to mortgageData:

				Þ
Properties Validati	on Errors Where Used			2
General	🝷 Input Mapping	ф	 Output Mapping 	
Simulation				
Implementation	tw.local.mortgageData	🔍 🗣 🔶 mortgageData (mortga	mortgageData (mortga 🔶 🛛 tw.loc	cal.mortgageData 🦓
Assignments				
Data Mapping				
Pre & Post				
KPIs				

__3. in the original coach delete all extra fields that are under the coach views as we don't need them. Then drag the repaymentAgreement variable to the coach, this will generate 3 text fields containing the repayment information. Rename the 'Reject' application button to 'Complete'.

	Prepare and send acceptance pack	• X			* 🖸
Overview Diagra	am Variables Coaches				
	Purchasing price	Duration		_	Filter 💌
Print out pack					Views
Print out pack	Loan provider	Start date			Advanced
		8/8/2012	110		🗁 Variables 🛛 🔅
<u> </u>	Insurance quote required	End date			🔻 🌏 mortgageData
Coach		8/8/2012	12		IoanApplication
		Interest rate			▶ -⊗ creditHistoryRepor
					🕨 💫 riskAssessment
		Interest type			🕨 💫 propertyAppraisal
					repaymentAgreem
					🕨 👴 homeInsuranceQu
	Loan application reference) 👴 agreementSummar
	Monthly repayment amount				
	Number of repayments				
	Print out pack Complete				
				-	

__4. Double click on the task to open the coach diagram. We now want to create a separate coach that contains all the data that we want to print. Drag a coach symbol onto the canvas and connect it to the existing coach. Drag another arrow from the coach to the End for the complete action. In the new coach change the label to 'Print out pack'

Prepare and send acceptance pack	* 🖸
Overview Diagram Variables Coaches	
	►+ ►
	Coach ⇔
Coach Print out pack Print out pack	Content Integration
Start	Server Script

__5. Double click the 'Print out pack' coach to open it. We can now add any information that we want to print out to this coach. Open the applicationView coachView and copy the personal and property info table. Then drag and drop the repayment agreement variable onto the coach.

🔍 🕨 🔣 Prepare a	nd send acceptance pack 🔹 🗸	<			
Overview Diagram Va	riables Coaches			 	
Coach	Mobile phone				
2	Pro	perty Info			
Print out pack	Property type	Loan type			
	Address	Amount			
	Purchasing price	Duration			
	Loan provider	Start date 8/8/2012			
	[<u></u>	End date			
		Interest rate			
		Interest type			
		Repayment Agremen	t		
	Loan application reference	Monthly repayment amount	Number of repayments		

__6. To create custom text onto the coach, drag a custom HTML object onto the coach and enter free text on the screen.

	4					
	Repayment Agrement					
	Loan application reference Monthly repayment amount Number of repayments					
	Custom HTML					
Properties Validation	on Errors Where Used					
HTML	▼ HTML					
	Source: O Text O Managed File O Variable					
Text: We are happy to provide you with a home loan based on the information that you have provided on this property. We review the calculated information and make sure you read the T&C's carefully. Please sign this form and return it to us within 30 days Sign : 						

___7. Download and install the free CutePDF writer from http://www.cutepdf.com/Products/CutePDF/writer.asp:

🕞 Setup - CutePDF Writer	
	Welcome to the CutePDF Writer Setup Wizard
	This will install CutePDF Writer 3.0 on your computer.
	It is recommended that you close all other applications before continuing.
G	Click Next to continue, or Cancel to exit Setup.
	Next > Cancel

___8. Preview the coach, you can now use the normal print functions of your browser to either print the coach to a printer or to a PDF using CutePDF.

🥹 Print out pack - Mozilla Firefox 🛛									_ _ 8 ×
Ele Edit View Higtory Bookmark									
Print out pack	Print out pack	× Print out pack × OPr	int out pack	× Print	out oark	× Print out nack	× +		I
(ibmbpm:9080/teamworks/fau	uxRedirect.lsw?applicationInstanceId=g	uid%3A11d1def534ea1be0%3A7b06baca%3A141107a21ec%3A-7ffe8zWorkfio	File Edit View	k.pdf - Adobe Reader Window Help				_ C ×	P 🏦 🦗 •
IBM Blueworks Live REST API	Tester 🗍 Admin Console 🦳 Proce	ss Admin 📋 BPC Explorer 📋 Process Center 💽 Process Portal 🎁 Busine	- 🛃 🕄 🛛		1/1 = +	75.7% 🔹 📘 🔛 🔛 🦻	a de la companya de l	Tools Sign Comment	
Your Information			Signature	field(s) detected.				📝 Open Sign Pane	-
First name	Current address		100	Email	Current employer	_1		 Sign In 	
Surname	Previous address							Export PDF Files	
			0	Home phone	Monthly net revenue			Adobe ExportPDF	
Email	Current employer			Mobile phone				Convert PDF files to to Word or Excel online.	
Home phone	Monthly net revenue				1			Select PDF File:	
				Property type	Loan type			🔁 Print out pack.pdf	
Mobile phone								1 file / 14 KB	
				Address	Amount	7		Convert To:	
Property Info				Purchasing price	Duration			Microsoft Word (*.docx) *	
Property type	Loan type			Loan provide r	Start date			Recognize Text in English(U.S.) Change	
Address	Amount				End date			Change	
								Convert	
Purchasing price	Duration				Interest rate			Convert	
Loan provider	Start date				Interest type			Create PDF Files	
								► Send Files	
	End date	10		Loan application reference	Monthly repayment amount	Number of repayments			
	Interest rate				0.00	0.00			
				We are happy to provide you with a	home loan based on the information	n that you have provided on this property. 's carefully.			
	Interest type			Please sign this form and return it to	us within 30 days	s carorury.			
				Sign :			ŀ	_	
Repayment Agremen	nt			Date:					
Loan application reference	Monthly repayment amount 0.00	Number of repayments 0.00		bute.					
	0.00	0.00							
We are happy to provide you with a h We review the calculated information Please sign this form and return it to	n and make sure you read the T&C	n that you have provided on this property. 's carefully.						•	
灯 Start 🐁 🍞 🛛 🧊	谢 💿 🧉 💽 🗃	1 🗿 📴						* 🚾 🍬 📵 🔇	🛓 🛞 12:11 AM 💻

___9. For more advanced PDF export functionality and to programmatically build up the PDF export, import this toolkit.

Snapshot: PDF Generation sample.

PDF_Generation_Sample - 0.3.twx

2.6.1 Creating the Prepare and send home insurance quote coach

Duplicate the Prepare and send acceptance pack coach.

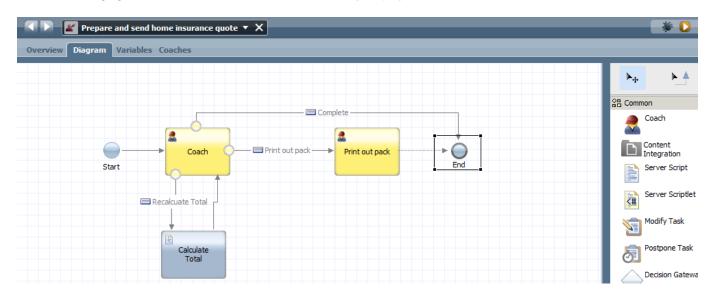
- ___10. From the **Process** diagram, right click the Prepare and send acceptance pack coach and select 'Duplicate..'. Drag the new coach onto the canvas. Connect the path from the original coach to the new one and delete the old one.
- ___11. Map the IN/OUT parameters of the coach to mortgageData:

•				<u> </u>	
Properties Validation	on Errors Where Used				1
General	 Input Mapping 	4	 Output Mapping 		5
Simulation					
Implementation	tw.local.mortgageData	🔍 🧼 🛶 mortgageData (mortga	mortgageData (mortga ሩ	tw.local.mortgageData	_ 🔍
Assignments					
Data Mapping					
Pre & Post					
KPIs					

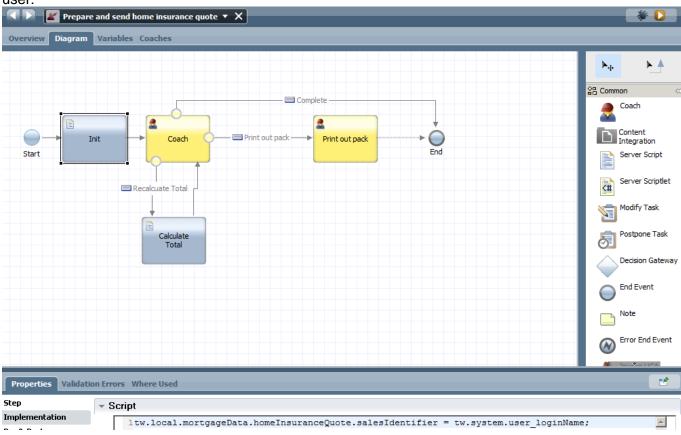
__12. Drag and drop the variable elements of repaymentAgreement and homeInsuranceQuote and rearrange them using horizontal and vertical sections into the following format. Add a button and name it 'Recalculate Total'

- < 🕨 - 🜌 P	T Prepare and send home insurance quote 🔻 🗙						
Overview Diag	ram Variables Coaches						
Print out pack				► Filter Filter Views Control Button Checkboo			
	Loan R	lepayment		Date Time	e Picker		
	Loan Quote	Insurance Quote		I Decimal Image			
	Monthly repayment amount	Loan application reference		t⊐ Integer			
				Dutput Te	ext		
	Number of repayments	Monthly repayment cost		 Radio But 	ttons		
				E Select			
		Total cost		III Table			
				⊥ Text			
		Sales identifier		I Text Area	a		
				Section			
				+++ Horizonta	al Section		
	Recalcuate Total Print out	t pack Complete			e Tab Control		
				Advanced			

__13. Switch to the diagram view and add a server script to the canvas with the following calculation: tw.local.mortgageData.homeInsuranceQuote.totalCost = tw.local.mortgageData.repaymentAgreement.monthlyRepaymentAmount + tw.local.mortgageData.homeInsuranceQuote.monthlyRepaymentCost;



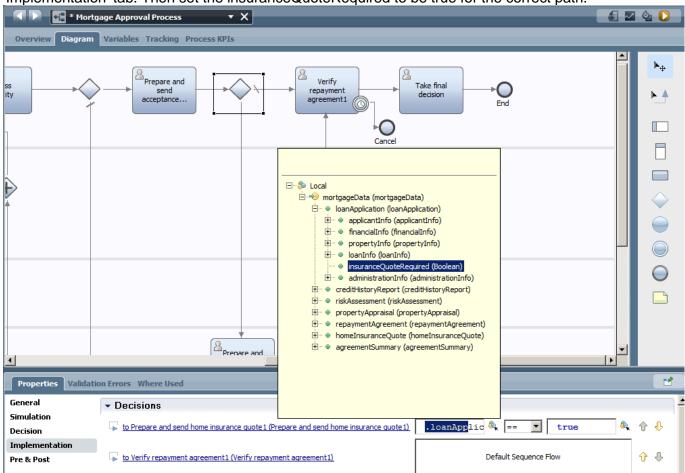
___14. Add an init field to the diagram to set the HomeInsurance salesIdentifier to the current logged in user:



___15. Adjust the print out pack coach to have the fields as shown below and adjust the Custom HTML text to reflect insurance content, change the Terms and Conditions field to be an output field:

Prepare and	l send home insurance quote 🔻 🕻	
Overview Diagram Varia	ables Coaches	
Rrint out pack	Address	Amount
Coach	Purchasing price	Duration
	Loan provider	Start date 8/8/2012
		End date 8/8/2012
		Interest rate
		Interest type
	Insura	nce Quote
	Monthly repayment cost	Total cost
	Terms and conditions	
	Custom HTML	

___16. Implement the decision gate logic to determine if the flow should go to insurance quote step or directly to the verify repayment agreement. Click on the decision diamond and select the 'Implementation' tab. Then set the insuranceQuoteRequired to be true for the correct path.



___17. We haven't added the insuranceQuoteRequired boolean to the applicationView coachView yet. Open the applicationView coachView and drag the insuranceQuoteRequired variable onto the canvas. Save and close the view. All coaches which have implemented this coachView will now be automatically updated.

* applicationView	• X				
Overview Behavior Variables	Layout				
Bank name	Account type	Account number	Account balance		Filter 🔻
Bank name	Account type	Account number	Account balance		Views
					 Advanced
Pron	erty Info				➢ Variables ↔
					mortgageData
Property type	Loan type				 loanApplication applicantInfo
					► inancialInfo
Address	Amount				propertyInfo
Purchasing price	Duration				🕨 🍵 loanInfo
					insuranceQuoteR
Loan provider	Start date				🕨 📄 administrationInf
		16			creditHistoryRepor
Insurance quote required	End date				riskAssessment
	8/8/2012	16			propertyAppraisal
	Interest rate				epaymentAgreem
					 homeInsuranceQue agreementSummar
	Interest type				P greenendunnar
				•	

2.6.2 Verify Repayment agreement coach

Duplicate the Prepare and send acceptance pack coach.

- ____18. From the **Process** diagram, right click the Prepare and send acceptance pack coach and select 'Duplicate..'. Drag the new coach onto the canvas. Connect the path from the original coach to the new one and delete the old one.
- ____19. Map the IN/OUT parameters of the coach to mortgageData:

•			
Properties Validation	on Errors Where Used		2
General	 Input Mapping 	🔄 👻 Output Mapping	V
Simulation			_
Implementation	tw.local.mortgageData	🔍 🗘 mortgageData (mortga mortgageData (mortga 🗘 tw.local.mortgageData	<u></u>
Assignments			
Data Mapping			
Pre & Post			
KPIs			

____20. Switch to the diagram view of the new coach and delete the 'Print out pack' coach.

Start	Coach	Print out pack	→ O End

___21. Switch to the coach layout view and add a Document List and Viewer from the Content Management toolkit on the canvas under the existing coach views, if the Content Management toolkit is not visible, click on the '+' symbol next to TOOLKITS to add it, right click on the toolkit to upgrade its version to 8.5.0 :

IBM Process Designer - admin - Mort: File Edit Playback Help	Type Viser Interface		_ <u>5 ×</u>
	Ajax Service	0	
🕽 🕂 Designer 🔍 Inspector 📈	Default ECM Search Service (Content)	O Snaps	
▼ MORTGAGE APPLICATION PROCESS	ECM Get All Document Versions (Content)) * X	* 🖸
All	ECM Get Document Service (Content)		
◆ [[■] [■] Processes	ECM Get Type Definition Service (Content	t)	
User Interface	ECM Get Type Descendants Service (Conte	tent) Duration	🗅 🛛 Filter 🔻
* Implementation	Coach View		🔳 Views 🗠
🚽 Decisions 🎾 Data	Document List (Content)	Start date	Control
Performance	Document Viewer (Content)	8/8/2012	Button
💕 Setup	Resource Bundle Groups	Document List	Checkbox
iii Files	DocumentList (Content)	A Document List retrieves,	Date Time Picker
TOOLKITS		displays, and stores te documents in the IBM BPM	I∏ Decimal
🕨 💼 System Data (8.5.0) 🔬		document store or an ECM server. In a Coach, the	Image
▶ 💼 Coaches (8.5.0) 🛕		Document List configuration pe	∏⊐ Integer
🕨 💼 Multi-Type Tab Control (Seco 🔺			Dutput Text
🔻 💼 Content Management (8.0) 🔺			 Radio Buttons
All			Select
◆[Processes			III Table
User Interface			I‡⊐ Text
☆ Implementation ✓ Decisions			Text Area
Secsions Data	Number of repayment	11.5	Section
Performance			+++ Horizontal Section
🗬 Setup			Multi Type Tab Control
iles Files	Print out pack	-	Advanced
▼ BLUEWORKS LIVE PROCESSES	•		Variables

__22. Delete the existing text fields under the coach views and replace them by the agreementSummary variables. As we use the build in attachment functionality we don't need the agreement doc link text field, delete it:

Verify repayment agre	_	• ×		-	-	-	-	-		_
		Intere	est type						•	Filter Views Advanced
Document List										> mortga
Document List										
Name	Date Created	Creator	Major Version Number	Actions						🕨 🌏 loan.
015a45hop5alesNo-2011.ten	2012/02/09 21 29 24 474 657	the state	1	۵ 🖊 🖉						🕨 🌏 cred
825wf5hop5alexDec2011.tem	2012/02/09 21 30 32 395 657	but	1	۵ 🖊 🖉						🕨 👴 riskA
035arf5hop5ales,Jan201218m	2012/02/09 21 31 27 989 657		•	۹ / ۵						🕨 🌏 prop
040wf0hop5alesFeb2012.ten	2012/02/00 21 33 24 236 EBT Page: 1	but	1	۹ 🖊 💋						 Prop repa
Document Viewer	Namber Surfraud Was Surf Eispetre Book Dohne Filp Flap Sandah Shack Repellent Sarfroard Was			en in new window) 👴 agre
Loan application ref Conditions agreed Repayment agreed										

___23. We now need to bind the Document List object to agreementDocLink and the Document Viewer object to agreementDocLink.listSelected.

Properties	Validatio	on Errors W	here Us	ed	_	_		1
General		- Commo	on			- Behavio	Dr	
Configuration Visibility HTML Attribute	s	Label:	0	Document Viewer		Binding: View:	mortgageDtSelected Too er (ECM ofo) Cont ment tw.local.mortgageData.agreementSummary.agr	
			•			Label Visibility:	Show	V

__24. Switch to the properties view of the Document List object and set the following options, make sure to set useBPMDocuments to 'BPM Documents'. As you test the coach you might notice that documents previously uploaded are also visible in the test screen. This is because the single coach playback test uses a generic instance ID. If you use the playback button on the process map screen you'll see that the document list is empty for every new instance.

Properties Validat	tion Errors Where Used		1
General	 Configuration 		
Configuration			
Visibility	Allow create:		
HTML Attributes	Allow update:		
	Open in new window:		
	Number of results to show:		
	Show all content:		
	[useBPMDocuments]:	BPM Documents	
	▼ [bpmDocumentOptions]:	 Display options Associated with process instance: Display match rule: None 	
		 Display properties Upload options 	
	[ecmDocumentOptions]:	0	

_25. Assign work to previous loan worker. To provide consistency across the case we'll assign the task to the same loan officer as in previous steps. Switch to the process map view and click on the verify repayment agreement task. Click on the Assignments tab and set 'user distribution' to 'Last User'.

Overview Diagram	ge Approval Process Variables Tracking	▼ X	_	_	_	£ 🛛 🔆 D
ss ity	Prepare and send acceptance	nd A	Verify repayment agreement1	Take final decision	End	
Properties Validati General	ion Errors Where Use	d				1
Simulation	 Assignments Assign To: 	Lane		▼ User Distribution:	None	•
Implementation	Team Filter Service:	1			None	
Assignments	Experts Team:	<u><none></none></u>			Last User Load Balance	
Data Mapping	Experts realli:	<u><none></none></u>			Round Robin	

2.6.3 Take Final Decision coach

Duplicate the Verify repayment agreement coach.

- __26. From the **Process** diagram, right click the Verify repayment agreement coach and select 'Duplicate..'. Drag the new coach onto the canvas. Connect the path from the original coach to the new one and delete the old one.
- ___27. Map the IN/OUT parameters of the coach to mortgageData:

•			
Properties Validation	on Errors Where Used		2
General	 Input Mapping 	🔄 👻 Output Mapping	V
Simulation			_
Implementation	tw.local.mortgageData	🔍 🗣 🔿 <u>mortqaqeData (mortqa</u> <u>mortqaqeData (mortqa</u> 🌳 tw.local.mortgageData	<u></u>
Assignments			
Data Mapping			
Pre & Post			
KPIs			

____28. Set all fields to be read-only if required, add two buttons with labels approve and reject loan:

Loar Con	an application reference nditions agreed	 Integer Output Text Radio Buttons Select Table Text Text Area
	Approve Loan Reject Loan	Section Horizontal Section Advanced Variables
General Configuration Visibility HTML Attributes	Visibility Source: Value C Rule C Script Same as parent Required Editable Read only None Hidden	

___29. In the Diagram view of the coach, create two server script activities, link them to the coach and add script to set the status to approved or rejected.

Take final decision X	* 🖸
Overview Diagram Variables Coaches	
	Common 🔹
Approve Loan	Coach
Coach O	Content Integration
Start Eld	Server Script
	Server Scriptlet
Reject	Modify Task
	Postpone Task
	Decision Gateway
	End Event
	Note
	Error End Event
Properties Validation Errors Where Used	2
Step Script	
Implementation Itw.local.mortgageData.loanApplication.administrationInfo.status = "approved"; Pre & Post	<u> </u>

___30. Map the IN/OUT parameters of the coach to mortgageData:

			Þ	
Properties Validat	tion Errors Where Used			2
General	✓ Input Mapping		▼ Output Mapping	5
Simulation				
Implementation	tw.local.mortgageData	🍇 🔿 <u>mortgageData (mortga</u>	mortgageData (mortga 🗘 🛛 tw.local.mortgageData	®
Assignments				
Data Mapping				
Pre & Post				
KPIs				

2.7 Assigning tasks to teams

At this stage we have finished the process definition, next step is to create users, assign them to teams and assign teams to process swimlanes.

2.7.1 Create users

Open the Process Admin screen in the browser by going to this link:

https://yourserver:9443/ProcessAdmin/ProcessAdmin/com.lombardisoftware.processadmin.ProcessAdmin/ProcessAdmin.jsp

	IBM。Process Admin Console Ser	dmin Process Inspector Installed Apps	
• BBM BPM Admin • User Management Group Management Buk User Athroite Assignment User Synchronization • Monitoring • Event Manager • Admin Tools • Saved Search Admin User Saved Search Admin User Management Admin User Settings Internal IBM BPM Users I	 IBM BPM Admin User Management Group Management Bulk User Attribute Assignment User Synchronization Monitoring Event Manager Admin Tools 	Retrieve Internal IBM BPM Users Internal IBM BPM Users User Name Full Name Password Confirm Password Confirm Password	

Enter a username, full name and a password (use tw_admin) for each new user, then click the 'add' button to confirm the creation.

User Management > Group Management		
Select Group to Modify:	(No group selected)	
New Group	Remove Team Manager Group (deprecated): No Team Manager Group	
Create Group Name: [] Description:	Remo	Ve
	v	-
Group Management Group Management creates groups that are used for security and cross process a	application security setup.	

On the group creation page, click 'New Group' and enter the name of a new group.

After creating a group, enter the group name in the 'Select Group to Modify' field, then click on the found result and select 'Add Users' to populate the group.

User Management > Group Management

Select Group to Modify: loan	loan_officers	
New Group	Remove Team Manager Group (deprecated): No Team Manager Group	
A loan_officers	Add Users Add Groups	Remove
Add Users	$\overline{\mathbf{x}}$	<u>_</u>
Search For Name:		
loan	Start typing to view matching results	
Results:		
Loan_officer2 (loan_officer2)		
	Add Selected	
Group Management		X

Group Management creates groups that are used for security and cross process application security setup.

In the popup screen, type the name of the users that you want to add, check the box and add the selected members. (there is no Save button on this page, each action will trigger an autosave)

Repeat the process for all other users in the table below.: use tw_admin as the default password for all of them.

User	Full name	Group	Team
loan_officer1	loan_officer1		
loan_officer2	loan_officer2	loan_officers	Loan officers
financial_officer1	financial_officer1	financial_officers	Financial officers
property_appraiser1	property_appraiser1	property_appraisers	Property appraisers
insurance_sales1	insurance_sales1	insurance_sellers	Insurance sellers

2.7.2 Create teams

Switch back to the Process Designer and click on the Loan Officer swimlane. In the property screen, you can now create a new lane team, use the table above to create the team for each swimlane. After creating a team, associate the corresponding group with that team.

	e Approval Process		£ 🛛 🎍 D
Underty Appraise	Variables Tracking	Precess KPIs	
Properties Validation	Errors Where Use	ed	1
Custom	Common Name: Presentation Color:	Behavior Loan Officer Default Loar Team: A Liters Sastem Data Default If System Lane: If Click Edit to add or edit text. If System Lane: If	Select
	Documentation: (<u>Edit)</u>		

Click on each swimlane and create the corresponding teams.

finanical offi	cers • X							
Team								22
- Common	finanical officers		- Simulation Pro	-		-		
Name: Modified:	admin (Oct 29, 2013 7:56:13 PM)		Capacity: Us % Availability:	e Estimated Cap	pacity			2
Documentation: (Edit)	Click <u>Edit</u> to add or edit text.	×	% Efficiency: Cost per Hour: 10	0.00]		Select
Specify Team Using Service:								
Members Select: Standard Members								
standard Members	•							Add user
								Add group
							Add Group Start typing group name	
							🚴 Debug	-
							5 financial_officers	
 Managers 							group1	-1
Managers Team: 							🔊 group2 3 group3	
Properties Validation Er	rors Where Used						insurance_sellers	•
Property		Value						

At this stage each lane has a team associated with it, the distribution of tasks among team members can be further refined per individual activity. In the scenario it has been specified that the final decision task cannot be performed by the same loan officer that verified the agreement.

In order to implement this logic we'll need to create a variable to store the previous user ID and apply a team filter for the 'Take Final Decision' task.

___1. On the process diagram, switch to the Variable tab: click on mortgageData and add a new variable called: previousLoanOfficer (String).

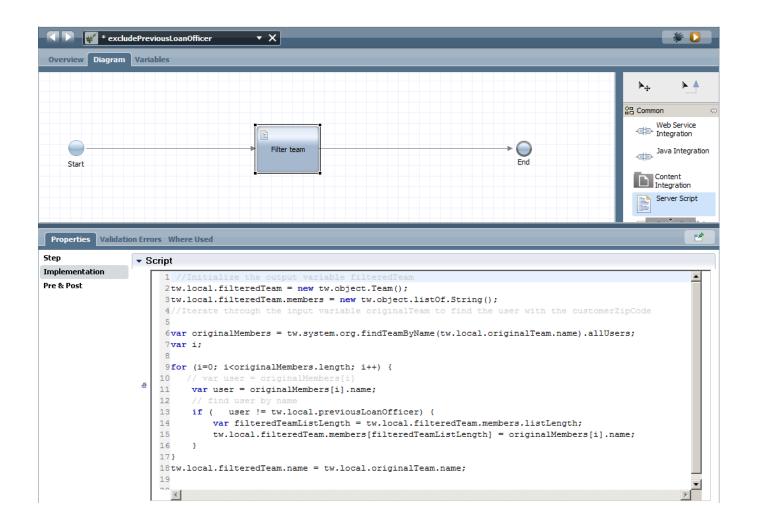
- < 🕨 - 🕲 m	ortgageData	• X
Business Ob	ject	
- Common		
Name:	mortgageData	
Modified:	admin (Oct 29, 2013 8:22:57 PM)	
Documentation: (Edit)	Click <u>Edit</u> to add or edit text.	*
 Parameters 	3	
⊕ credithist ⊕ riskAsses ⊕ property ⊕ repaymer ⊕ homeInsu ⊕ agreemen	ration (loanApplication) oryReport (creditHistoryReport) sment (riskAssessment) Appraisal (propertyAppraisal) htAgreement (repaymentAgreement) iranceQuote (homeInsuranceQuote) htSummary (agreementSummary) oanOfficer (String)	Add Remove Up Down

__2. On the **Process** diagram, click on the 'Verify repayment agreement' task and switch to the 'Pre & Post' tab in the properties view. Assign the tw.system.step.task.owner value to the tw.local.mortgageData.previousLoanOfficer variable.

		M 🖄 D
Overview Diagram	Prepare and send acceptance	
Properties Validati	ion Errors Where Used	1
General Simulation Implementation Assignments Data Mapping		+
Pre & Post KPIs Condition Custom	▼ Post Assignments tw.local.mortgageData.previousLoanOfficer \$	+ & x

- __3. We now need to create a team filter: Click on the "Assignments" tab and create a new Team Filter service: name the service excludePreviousLoanOfficer.
- __4. Create a server script on the canvas, connect it and insert the following code in the Implementation tab:

```
//Initialize the output variable filteredTeam
tw.local.filteredTeam = new tw.object.Team();
tw.local.filteredTeam.members = new tw.object.listOf.String();
//Iterate through the input variable originalTeam
var originalMembers =
tw.system.org.findTeamByName(tw.local.originalTeam.name).allUsers;
var i;
for (i=0; i<originalMembers.length; i++) {</pre>
    var user = originalMembers[i].name;
    // filter user by name
    if ( user != tw.local.previousLoanOfficer) {
        var filteredTeamListLength = tw.local.filteredTeam.members.listLength;
        tw.local.filteredTeam.members[filteredTeamListLength] =
originalMembers[i].name;
    }
}
tw.local.filteredTeam.name = tw.local.originalTeam.name;
```



__5. In the variables tab, create a new input variable called: previousLoanOfficer:

<pre>excludePreviousLoanOfficer</pre>				* 💟
Overview Diagram Variables				
▼ Variables		✓ Details		
	Add Input	Name:	previousLoanOfficer	
	Add Output Add Private Link EPV Link Localization Remove Move Up	Documentation: (Edit) Is List: Variable Type: Default Val Has Default:		Select New
	Move Down	1		×

__6. Save and close the service. In the previous assignment screen link the Team Filter service input parameter to tw.local.mortgageData.previousLoanOfficer.

	rtgage Approval Process X	🏭 🖾 🖏 D
Overview Diagram	n Variables Tracking Process KPIs	
ssess igibility	Prepare and send acceptance	
	ation Errors Where Used	ď
General Simulation Implementation Assignments Data Mapping		Select New X
Pre & Post KPIs Condition Custom	tw.local.mortgageData.previousLoanOfficer Experts Team: <none></none>	♣ ↔ previousLoanOfficer Select New

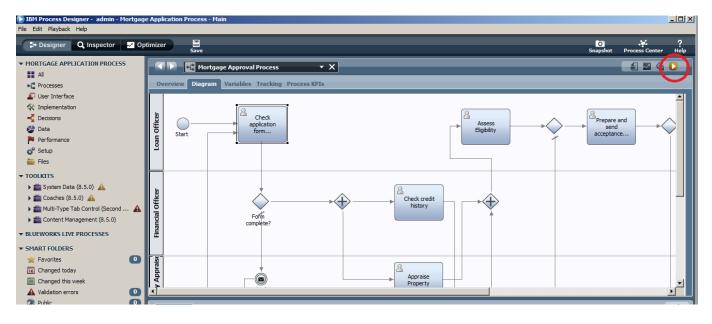
__7. Your process is now finished and ready for testing.

Snapshot: Final process diagram

Mortgage_Application_Process - Part_3_Completed_Process.twx

2.8 Testing & Deployment

At this stage we have finished the process definition and we're ready for testing. Testing can be done locally as the Process Centre includes a Process Server runtime. Alternatively we can deploy the process to test on a remote Test server. For quick debugging purposes we'll now perform a local test. On the process map view, click the orange Play button.



This will switch the designer into the "Inspector" view where we can step through the process.

-	rocess Designer - a Playback Help	dmin - Mor	tgage Application Proc	ess - Main								
3 + 0	lesigner Q Insp	ector ~	Optimizer	ve					O All versions	_	O Snapshot	Process Center He
Proc	ess Instances Ser	vices in De	bug									🔶 🕂 🕂 🗘 🏇
Instance	Name:	St	atus: All									
Instance	Name	Snapshot		Status	Due Date	Instance Id		Status	Owner			Subject
🗟 Mort	gage Approval Proce	Tip	Mortgage Approval	Failed	Oct 31, 20	430		Received	(ROLE) loan officers			Step: Check applicati
🗟 Mort	gage Approval Proce	Tip	Mortgage Approval	Failed	Oct 31, 20	431						
Mort	gage Approval Proce	Tip	Mortgage Approval	Active	Oct 31, 20	432						
Mort	gage Approval Proce	Tip	Mortgage Approval	Completed	Oct 31, 20	433						
Mort	gage Approval Proce	Tip	Mortgage Approval	Active	Oct 31, 20	434						
	gage Approval Proce		Mortgage Approval	Active	Oct 31, 20	436		4				
				_	-,		· <u>·</u>					
	Mortgage A	Approva <mark>l P</mark>	rocess 🔻	×						🛃 🖾 🂁 D	Execution State B	reakpoints
											BPD Instance (#4	26)
Over	view Diagram Va	riables T	racking Process KPIs								Execution Tree	
			#2								Ė-₩ Mortgage	
			#2									application form complete
_		8					0		(Greek	application form complete
8	\bigcirc		neck .				8			Prepare and		
	\bigcirc		cation m				As: Eligi	ess	\rightarrow	send 🛛		
21	Start	- TOT	m				ciigi	Dincy		acceptance		
3			¹									
					6							
Hinancial Officer				~	8			~				
Ĭ			>	*(+) −		Check credit		\Rightarrow				
5				~		history		\mathbf{V}				
3		Fof	'n					1				
		compl	ete?									1
											Variables Executio	- Further to -
											variables Executio	on Evaluator
ŭ T					_						🖃 🐌 Local Variables	
Appraise					8						🖳) 🖶 mortgageData	1
						Appraise						
*					-	Property						
operty		Se										
ě		reje mess										
		Incas	auge									

The list of instances appears on the right, click on the active instance to show the individual steps on the right. The process diagram will appear at the bottom. At the bottom right the process variables can be inspected.

After selecting an activity on the top-right, click the orange play button to launch the associated task:

Active Active	Oct 31, 20 Oct 31, 20		T 1
<			£ Z
	The tar that ro matche	le to run thi	n Team

If a team has been associated with a task, a user picker will show up. This allows the tester to assume the roles of multiple people without logging in and out all the time.

IBM Software

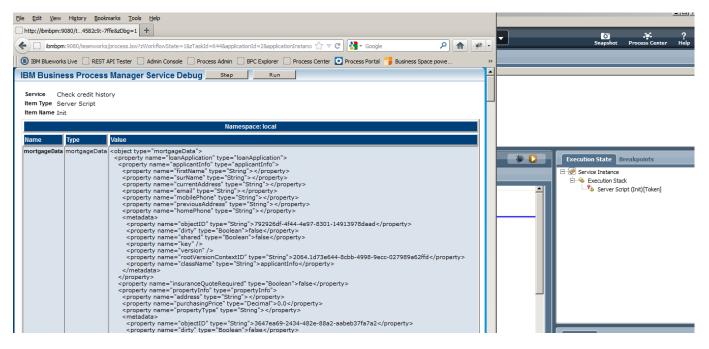
🕙 Check application data - Mozilla	Firefox		×		×				
Eile Edit View History Bookmar		_		نے ب <u>ع</u> لی					
Decision Center Enterprise ×	WebSphere Integrated Sol 🤉	IBM Business Process N	Mana × 🖸 Process Portal		🛛 🖄 Check applicatio	n data ×	+		D * ?
(ibmbpm:9080/teamworks/fam	uxRedirect.lsw?applicationInstar	۶ 🎓	·		Snapshot Process Center Help				
IBM Blueworks Live REST API	Tester 🗌 Admin Console	Process Admin 🔛 BPC Exp	lorer 🗍 Process Center 🚺	Process Por	tal 👕 Business Space po	owe	»		💷 🕩 🔳 🗶 🚸 🕆 🕒 🏇
Personal Info									Subject
First name	Current address								Step: Check application f
Surname	Previous address								
Email	Current employer								
Home phone	Monthly net revenue							i 🖬 🖄 🜔 🗍	Execution State Breakpoints
Mobile phone	0.00								E-+ BPD Instance (#436)
								^	Wortgage Approval Process
Bank name	Account type	Account number	Account balance					and	Check application form completeness
			0.00	Θ				e	
•									
Property Info									
Property type	Loan type								
Address	Amount								
	0.00								
Purchasing price 0.00	Duration 0.00								
Loan provider	Start date								Variables Execution Evaluator
	10/30/2013	10							E-& Local Variables
Insurance quote required	End date								mortgageData
insurance quote required	10/30/2013	1							
	Interest rate								
	0.00								
	Interest type						-		

The coach will launch in the browser and the tester can complete the coach as normal.

IBM Process Designer - admin - Mortgage Application Process - Main Edit Playback Help												
Designer Q Inspe	ector 📈	Optimizer Sa	ve					C All versions	•	O Snapshot	Process Center	? Help
Process Instances Ser	vices in Del	bug								0 🕨 🗮 🗙	🗞 🕆 🕂 🛇	\$
Instance Name:	Sta	atus: All										
Instance Name	Snapshot	Process	Status	Due Date	Instance Id		Status	Owner			Subject	
Source Approval Proce	Tip	Mortgage Approval	Failed	Oct 31, 20	430		Closed	loan_officer1			Step: Check ap	plication f
Solution Mortgage Approval Proce	Tip	Mortgage Approval	Failed	Oct 31, 20	431		Received	(ROLE) property appraisers			Step: Appraise	Property
Solution Mortgage Approval Proce	Tip	Mortgage Approval	Active	Oct 31, 20	432		Received	(ROLE) finanical officers			Step: Check cre	edit histo
😣 Mortgage Approval Proce	Tip	Mortgage Approval	Completed	Oct 31, 20	433							
😣 Mortgage Approval Proce	Tip	Mortgage Approval	Active	Oct 31, 20	434							
Source Approval Proce	Tip	Mortgage Approval	Active	Oct 31, 20	436	_	•					Þ
🔹 🕨 💽 Mortgage A	Approval Pr	ocess 🔻	×						á 🛛 🎍 🜔	Execution State	Breakpoints	
Overview Diagram Variables Tracking Process KPIs									BPD Instance (#4			
Lficer	Ch applic	eck				Ass	ess		epare and send		Approval Process ise Property [Token credit history [Token	

Press the yellow refresh button to make the next steps appear. Clicking on each task and playing each task back will allow the tester to go through the entire process.

Instead of the playback button, the 'debug' button can be used to execute the tasks via the debug screens:



The debug view shows a detailed view of the variable at each step of the execution. It allows the tester to do a step by step run of the process.

IBM Process Designer - admin - Mortgage File Edit Playback Help	e Application Process	- Main		
🕽 Designer 🔍 Inspector 🌌 Opt	timizer E Save			Snapshot Process Center Help
MORTGAGE APPLICATION PROCESS All Processes User Interface		rtgage Approval Process 🔹 X ram Variables Tracking Process KPIs		5 Z Q D
Timplementation	 Common 			- Advanced
	Name:	Mortgage Approval Process		Instance Name: 🔬 "Mortgage Approval Process:" + tw.system.
🖉 Data	System ID:	guid: 11d1def534ea1be0:-1279961c: 14100347293:-7ffb		Due in:
Performance	Modified:	admin (Oct 30, 2013 11:04:17 PM)		Enable Tracking:
🗬 Setup			*	
🚞 Files		Click <u>Edit</u> to add or edit text.		Allow Projected Path
▼ TOOLKITS				✓ Work Schedule
🕨 💼 System Data (8.5.0) 🔺				Time Schedule: (use default)
🕨 🚞 Coaches (8.5.0) 🔺				
🕨 💼 Multi-Type Tab Control (Second 🔺				Imezone: (use default)
Content Management (8.5.0)	Documentation: (Edit)			Holiday Schedule: (use default)
▼ BLUEWORKS LIVE PROCESSES				- Exposing
▼ SMART FOLDERS				Expose to Start: All Users System Data Select New 🗱
🚖 Favorites 🛛 🚺				Expose Business Data:
16 Changed today				
E Changed this week			-	Expose Performance Metrics:
A Validation errors				·
🕼 Public 🚺 🚺	Properties Vali	dation Errors Where Used		
			_	

The process can be deployed to the Process Portal, by specifying who can start the process: select the value "All Users" to the "Expose to Start" field.

IBM Software

🕙 Process Portal - Mozilla Firefox	
Eile Edit View History Bookmarks Tools Help	
Process Portal +	
🗲 💽 ibmbpm https://ibmbpm:9443/ProcessPortal/dashboards/TWP/BPM_WORK?tw.local.view=tasks&tw.local.star 🏠 💌	C Soogle 🔎 🏫 🥐
IBM Blueworks Live 🗌 REST API Tester 🗌 Admin Console 🗌 Process Admin 🗍 BPC Explorer 🗍 Process Center	🖸 Process Portal 🤭 Business Space powe »
🗘 WORK 坐 TEAM PERFORMANCE 🕂 PROCESS PERFORMANCE 🕀	financial_officer1 🔹 🌐 🔗 😨
My Work	
My Tasks Q S	Launch Following @Mentions
Open Tasks Completed Tasks	
▼ Overdue (4)	 Advanced HR Open New Position CSU change requesition2
Step: Appraise Property Due: September 12, 2013 10:31 PM Mortgage Approval Process: 358	 CSU student detail changes CSU student detail changes 2
Step: Check credit history Due: September 12, 2013 10:31 PM Mortgage Approval Process:358	Mortgage Apprival Process
Step: Prepare and send acceptance pack Due: September 13, 2013 3:08 AM Mortgage Approval Process:361	ReplenishmentBPD Standard HR Open New Position
Step: Check credit history Due: September 16, 2013 8:49 PM Mortgage Approval Process: 365	Test OTC process V3
▼ Due Tomorrow (1)	
Step: Check credit history Due: October 31, 2013 12:36 AM Morigage Approval Process:436	
Showing 5 of approximately 5 results	

After logging into the process portal, the Mortgage Approval Process is now visible and can be started by clicking on it.

Congratulations, you've finished the lab!

2.9 Further reading

2.9.1 Business Resources

IBM BPM 8.5 youtube video's https://www.youtube.com/playlist?list=PLBC07B35CC4847FF7

BPM for Dummies ebook http://public.dhe.ibm.com/software/in/events/softwareuniverse/resources/BPM for Dummies.pdf

Creating a BPM Centre of Excellence ebook www.redbooks.ibm.com/abstracts/redp4898.html

2.9.2 Technical Resources

IBM BPM Wiki Sample Exchange: http://bpmwiki.blueworkslive.com/display/samples/SAMPLE+EXCHANGE+HOME

PDF Generation toolkit http://bpmwiki.blueworkslive.com/display/samples/PDF+Generation+Toolkit

HTML 5 Mobile interface http://bpmwiki.blueworkslive.com/display/samples/Mobile+BPM+%28Web+Sample%29

BPM 8.5 Detailed System requirements http://www-01.ibm.com/support/docview.wss?uid=swg27023007

BPM 8.5 Product documentation

http://pic.dhe.ibm.com/infocenter/dmndhelp/v8r5m0/topic/com.ibm.wbpm.main.doc/ic-homepagebpm.html

IBM Support portal ticket system http://www-947.ibm.com/support/entry/portal/overview

Neil Kolban BPM ebook http://www.neilkolban.com/IBM/

Detailed tutorial video's http://www.neilkolban.com/IBM/videos.html