Adeptia Suite 5.1

BPM Modeler and Simulation Guide

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Document Conventions

Convention	Description
Text Matter in font Verdana and font size 9 point.	Explains the installation guide.
Text matter	Click on link to reach target.
	Note:

Abbreviations Used

Abbreviation	Description
BPMN	Business Process Modeling Notation
FIFO	First in first out

LIFO	Last in first out

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1 ABOUT THIS GUIDE

This document provides an overview of Process Modeler and Simulation features of Adeptia Suite and covers the description and usage of these tools. It guides you to seamlessly use these tools to analyze, optimize and enhance a business process.

This document is divided into the following sections:

- Introduction
  - **Introduction to Business Process Modeling**
  - **Introduction to Business Process Simulation**
- Process Modeler
  - **Introduction to Adeptia Process Modeler**
  - **Understanding Adeptia Process Modeler Applet**
  - **Using Adeptia Process Modeler tool**
- Simulation
  - **Introduction to Adeptia Simulation tool**
  - **Understanding Adeptia Simulation Applet**
  - **Using Adeptia Simulation tool**

2 TARGET AUDIENCE

Adeptia Process Modeler tool is used primarily by business analysts or managers, in order to improve the efficiency and quality of business processes. It is assumed that these users have a comprehensive understanding of the functioning of the Adeptia Suite and can thus create a layout for a process flow.

Adeptia Simulation tool is used essentially by a business user who has thorough knowledge of the simulation process. Additionally, it is assumed that the user is aware and has used the Adeptia Suite product.

For detailed information about Adeptia Suite product, refer to the Adeptia Suite Guides.

INTRODUCTION

3 INTRODUCTION TO BUSINESS PROCESS MODELING

NEED OF PROCESS MODELER

The use of a business process modeling tool is highly critical and essential to an organization. By far, the most important issues for an organization are *increasing efficiency*, *reducing costs*, and *improving process effectiveness and innovation*, as well as *standardizing and harmonizing business processes*. These issues can be resolved by modeling processes using a business process modeling tool.

A *Process Modeler* is a tool for representing business processes of an organization, such that the current processes may be analyzed and improved in the future. This analysis and planning offers greater capabilities, and incorporates these improvements to create a model for business processes. For example, when creating a business process for claiming for loss of vehicle, the user can create a model for a successful business process by analyzing all aspects involved and thus efficiently identify and eliminate all redundancies in operations. It helps provide transparency in business processes.

CONCEPT OF PROCESS MODELER

A business process can be decomposed into several sub-processes, comprising of their own attributes, but simultaneously contributing to achieving the goal of the super business process. It defines the ways in which operations are carried out to accomplish the intended objectives of an organization. Such a model remains an abstraction and depends on the intended use of the model. It can be constructed in multiple levels. Each level is referred to as a *lane* and process model canvas, as a whole, is referred to as the *BPM Pool*.

The modeling of a business process involves the following steps:

1. Business process is divided into different levels and lanes are created for each level.
2. Elements and activities involved in the business process are identified and dragged in the respective lanes.
3. Documentation is added for all activities and the business process.
4. Flow of execution of activities is defined. Possibly it can have some decision point.
5. Once done, process model is saved. This process model can now be used to create the workflow for a business process.

4 INTRODUCTION TO BUSINESS PROCESS SIMULATION

NEED OF SIMULATION

When a business process is implemented, it may depict low process performance instead of yielding expected gains. This issue can be overcome by using a business process simulation tool, whose strategic objectives are *optimization to enhance performance* and *cost reduction*, such that all processes are targeted to achieve these objectives.

Simulation helps in developing better business process flow by providing a platform which facilitates an in-depth analysis of factors which govern the implementation of an efficient business process. It allows business manager to experience and explore a simulated business problem in a practical and pragmatic manner.

Efficiency of a business process is dependent on the efficient handling of the following basic factors:

- Time
- Cost

Better time distribution and lesser cost is undoubtedly the ultimate goal of a business process manager.

CONCEPT OF SIMULATION

Simulation is used to model a real-life situation on a computer so that it can be studied to see how the system works. By analyzing the situation and changing variables, predictions may be made about the behaviour of the system.

In context with business process management, simulation can be considered to be of two types:

- **Monte Carlo** : This is a method for iteratively evaluating a deterministic model using sets of random numbers as inputs. It is often used when the model is complex, nonlinear, or involves more than just a couple uncertain parameters.
- **Discrete event** : This is a way of building up models to observe the time- based (or dynamic) behavior of a system. It is a formal method for building simulation models and ensuring that they are credible. During the experimental phase the models are executed (run over time) in order to generate results. The results can then be used to provide insight into a system and a basis to make decisions on.

Randomness is the key feature in simulation. It provides a way of matching the build scenario with that of the real world. It is defined using a type of distribution (e.g. Normal, Exponential, and Poison etc) and a degree of randomness (e.g. Standard Deviation, Degree of Freedom etc).

The simulation of business processes involves the following steps:

1. Business Process is mapped onto a process model.
2. Activities are identified and attached with process model.
3. Flow of execution of activities is defined. Possibly it can have some decision point.
4. Resources are identified and assigned to the activities where they are necessary.
5. Simulation Scenarios are executed.
6. When the simulation is finished, the simulation result can be analyzed.

PROCESS MODELER

5 INTRODUCTION TO ADEPTIA SUITE PROCESS MODELER

Adeptia Suite provides a Process Modeling tool, which helps in designing better and effective business process flows. It enables you to visualize, analyze and improve complex business processes. It allows you to capture and document all aspects of an existing business process and analyze it using the Simulation tool, in order to improve them. Additionally, the Modeler also allows you to document all aspects of a new business process such as which activities are required, how they are performed and controlled, which resources are required, and the outcomes and outputs that are produced.

Adeptia Process Modeler helps create a detailed blueprint of its business processes and requirements from multiple viewpoints. It helps the user to effectively target, execute and communicate all changes that will result in improvements of business processes.

It uses the following features:

- **Pool**: It is a graphical rectangular shaped container for partitioning a set of activities of a business process.
- **Swim Lane**: It is a graphical sub-division of the *Pool* that extends to the entire length of the *Pool* and is used to organize and categorize activities of a business process.

In the Adeptia Suite, a **Process Modeler** is available in:

BPM Suite	Integration Suite	ETL Suite
√		

6 UNDERSTANDING ADEPTIA PROCESS MODELER APPLET

The Adeptia Process Modeler comprises of a Pool, which is further divided into Swim Lanes. Business Processes are dragged in these swim lanes to create a process model. The Business Process Modeling Notation (BPMN) standard is used to graphically depict these business processes. The Process Modeler applet is displayed in Figure 6.1 .

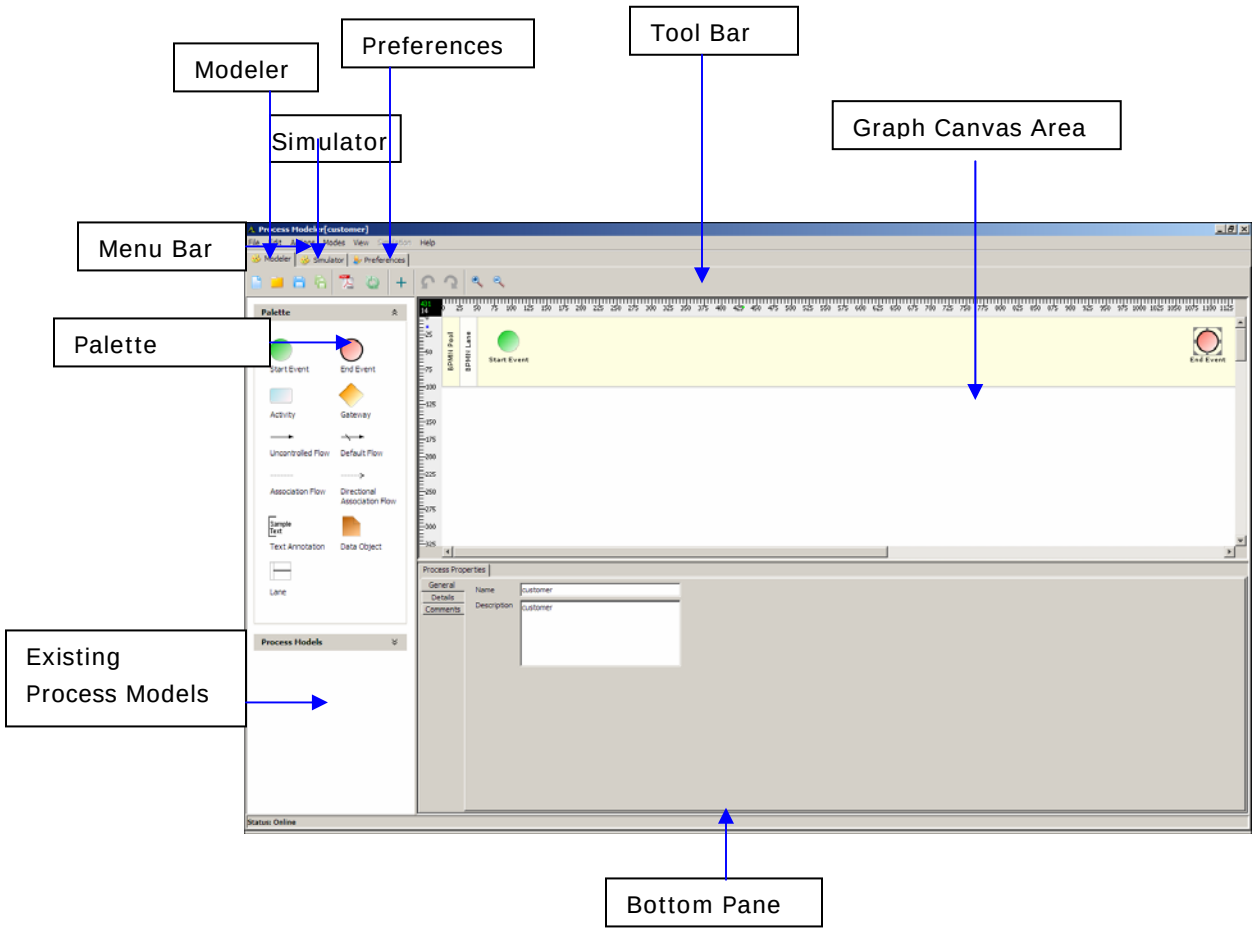


Figure 6.1: Process Modeler Applet

The Process Modeler window is divided into eight sections:

- Menu Bar
- Tool Bar
- Palette
- Existing Process Models
- Graph Canvas
- Bottom Pane
- Simulator
- Preferences

Menu Bar

Options of the Menu Bar are listed in the table below.

Table 6.1: Menu Bar Options

Menu Option	Sub-Option	Function
File	New	Open new Graph Canvas to create a new process model.
	Open locally saved Process Model	Open a process model saved to a local machine.
	Save Process Model to Server	Save process model to the Adeptia Suite.
	Save Process Model locally	Save process model to a local machine.
	Exit	Close the Process Modeler applet.
Edit	Undo	Undo the previous action.
	Redo	If you later decide you didn't want to undo an action, click the Redo button.
	Zoom In	Zoom and magnify the current selection.
	Zoom Out	Zoom and minimize the current selection.
Actions	Synchronize with Server	Synchronize the Process Modeler with a list of already created process models as activities.
	Enter Login Information	Enter login information for accessing process modeler.
	Maximize Graph Canvas	Maximize the Graph Canvas workspace.

	Process Model Attributes	Allow you to enter the properties of the process model.
Modes	Online/Offline	Toggle between online and offline mode.
View	Show Flow Object Labels	Display labels of process model objects.
	Show Connectivity Object Labels	Display labels while connecting objects.
	Show Artifacts and Associations	Display artifacts and associations.
	Show Control Flows	Display control flows.
Help	Help	Displays help for the Process Modeler applet.

The sub-options of the File, Edit, Actions and Help menus can also be accessed by their keyboard shortcuts. To view a list of the defined shortcuts, refer to the **Keyboard Shortcuts** section.

Tool Bar

Options of the Tool bar are explained in the table below.

Table 6.2: Tool Bar Options

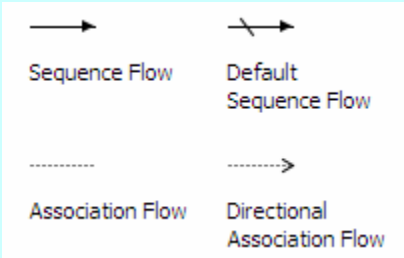
Button	Name	Function
	New Process Model	Open new graph canvas to create a process model
	Open Locally Saved Process Model	Open process model file saved on local hard disk.
	Save Process Model to Adeptia Server	Save Process model to the Adeptia Server.
	Save process Model Locally	Save process model on local hard disk.
	Generate PDF	Generate PDF file of the process model diagram.
	Synchronize with Adeptia Server	Synchronize a list of process models in Adeptia Server.
	Maximize/Restore Flow Canvas	Maximize and restore graph canvas.
	Undo	Undo the last action.

	Redo	If you later decide you didn't want to undo an action, click the Redo button.
	Zoom In	Zoom In the Graph Canvas area.
	Zoom Out	Zoom Out the Graph Canvas area.

Palette

The Palette contains a list of BPMN graphical elements. BPMN graphical elements are used to define the model of business processes. These BPMN graphical elements are listed in six different panels, listed in the table below.

Table 6.3: BPMN Graphical Elements

Element	Description	Notation
Events	An event is something that "happens" during the course of a business process. Events influence the flow of the process and usually have a cause (trigger) or an impact (result).	 Start  End  Intermediate Error
Activities	An activity is work that is performed within a business process. The rectangle image displayed in the next column is used to depict an Activity in a Process Model.	 Activity
Gateways	A Gateway is used to control the divergence and convergence of a sequence flow. Thus it determines branching, forking, merging, and joining of paths.	 Gateway
Flows	A flow (control flow) is used to show the order that activities are performed in a business process. There are four types of flows: ▪ Sequence flow ▪ Default Sequence flow ▪ Association flow ▪ Directional Association flow	 Sequence Flow; Default Sequence Flow; Association Flow; Directional Association Flow

Artifacts	Artifacts do not have any direct effect on the Sequence flow or message flow of the process. They are used to provide additional information for the reader of the Process Model diagram. You can add any amount of information in this element. However, you cannot add any color to the text. To view the information, you can resize the frame in all directions.	 Artifacts
Lane	A lane is used to add another division in the Pool. It is used to organize and categorize activities.	

	All the BPMN Graphical Elements can be resized.

To know more details about BPMN (Business Process Modeling Notations) visit the site:

http://www.bpmn.org/Documents/BPMN%20V1-0%20May%203%202004.pdf

Existing Process Models Panel

This panel lists the existing process models that have been created for the Adeptia Suite.

Graph Canvas

The Graph Canvas is the area where a process model is drawn. It comprises of a Pool that have multiple swim lanes. BPMN elements are dragged onto these lanes in the Graph Canvas and arranged in a sequence in order to create a process model. These lanes can be resized if an element is dragged beyond the default size, in turn resizing the Graph Canvas.

Bottom Pane

The Bottom Pane is used to view properties of the process model as a whole, and for specific activities added in it.

Process Properties

The properties of the process model are listed in the table below.

Table 6.4: Process Properties

Property Tab	Property Name	Description
General	Name	Displays the name of the process model. This is automatically loaded as entered in the Create Process Model screen. It cannot be edited.
	Description	Displays the description of the process model. This is automatically loaded as entered in the Create Process Model screen. It can be edited.
Details	Process Triggers	Enter the name of triggers used in the Process Model.
	Frequency and Interval of Triggers	Enter the number of runs of triggers per day/week and the interval between these runs
	Process Variables	Enter the variables created for the process model
Comments	Comments	Enter comments for the process model

Activity Properties

The properties of an activity used in the process model are listed in the table below.

Table 6.5: Activity Properties

Property Tab	Property Name	Description
General	Label	Enter the name for the activity. This is displayed in the activity in the Graph Canvas.
	Description	Enter description for the activity
	Process Participant	Enter users or roles using the activity

Input/Output	Define Parameters	Input	Enter the type of input parameter required for the activity. For example, in a claim insurance activity, *Claim Id* could be an input parameter.
		Output	Enter the type of output parameter required for the activity. For example, in a claim insurance activity, *Insurance Amount* could be an input parameter.
	Define Documents	Input	Enter the name of documents that can be attached and used as inputs for the activity. For example, in a claim insurance activity, *a photocopy of the Claim Policy form* could be attached as an input parameter.
		Output	Enter the name of documents that is to be uploaded by user and can be used as outputs for the activity. For example, in a claim insurance activity, *a photocopy of the receipt* could be an output parameter.
	Define Application Data		Enter parameters that are used to connect to the application, such as name of the url or database (host/port).
Details	Priority		Select priority of the activity in the process model
	Number of user resources		Select number of user resources used for the activity
	Expected Time Duration		Select the number of hours used to execute the activity
	Due in		Select the number of hours in which the activity is due in
	Task Expires in		Select the number of years in which the task will expire
	Name of Sub Process/Service		Enter the name of the sub-process or service associated with the activity
	Rules		Enter rules that are defined for the activity. For example, in a claim insurance activity, a rule could be defined as *if claim value > 50,000 then issue is escalated to Manager.*

Problems	Problems	Enter possible problems associated with the activity. For example, in a claim insurance activity, if an incorrect *Claim Id* is entered, then define the steps to handle this problem in the *Handling* field.
Comments	Comments	Enter comments associated with the activity

The Activity Properties tab is hidden by default. When you double-click an activity, then this tab is displayed.

Simulator

The Simulator window displays the Adeptia Simulation tool that allows you to simulate a process model using different resources and scenarios, before actually implementing the process model. To view the Adeptia Simulation tool click **Simulator** tab (see Figure 6.2).

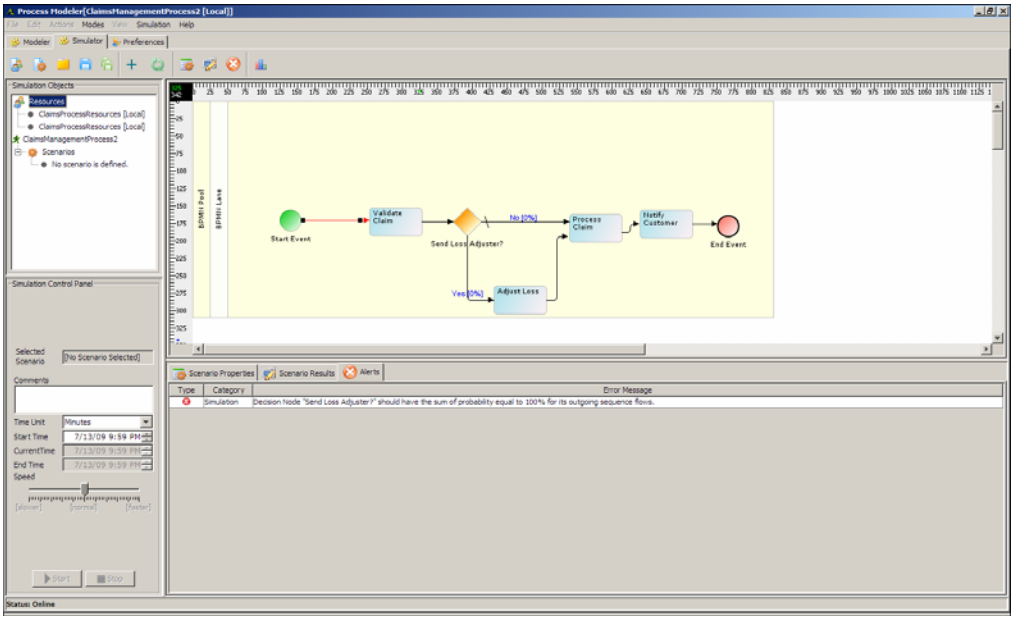


Figure 6.2: Adeptia Simulation Tool

For details on the Adeptia Simulator tool, refer to the **Simulation** section.

Preferences

The Preferences window allows you to select the background color of graph canvas and labels etc. You can also change the colors of the elements of the Palette. To view the Preferences window, click **Preferences** tab (see Figure 6.3).

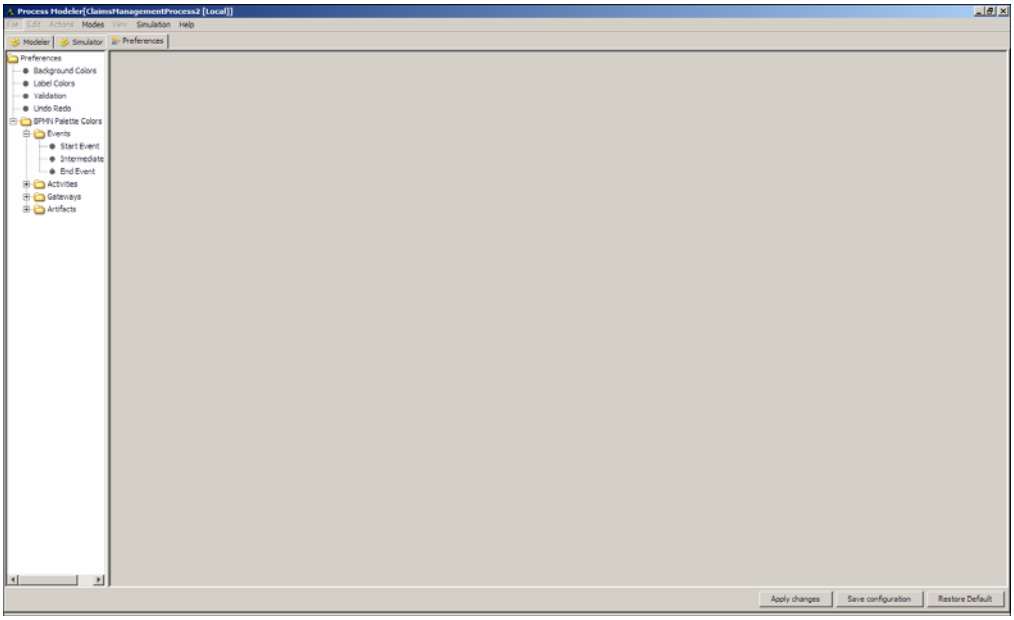


Figure 6.3: Preferences

You can modify various preferences. These are listed in the table below.

Table 6.6: Edit Preferences

Preferences	Description
Background Colors	Change the background color of the Graph Canvas
Label Colors	Change the colors of labels of activities displayed in the Graph Canvas.
Set Undo and Redo Limit	Set the number of actions that you can undo or redo.
BPMN Palette Colors	Change colors of Events, Activities, Gateway and Artifacts.

Keyboard Shortcuts

Table 6.7: Keyboard Shortcuts

Menu Option	Sub-Option	Keyboard Shortcut
File	New	<Ctrl> + <N>

	Open locally saved Process Flow	<Ctrl> + <O>
	Save to Server	<Ctrl> + <S>
	Save Process Flow locally	<Ctrl> + <B>
Edit	Undo	<Ctrl> + <Z>
	Redo	<Ctrl> + <Y>
	Zoom In	<Ctrl> + <NumPad +>
	Zoom Out	<Ctrl> + <NumPad ->
Actions	Synchronize with Server	<F5>
	Enter Login Information	<Ctrl> + <L>
	Maximize Graph Canvas	<Ctrl> + <M>
Help	Help	<F1>

7 USING ADEPTIA PROCESS MODELER TOOL

Using the Adeptia Process Modeler tool involves the following steps:

1. **Opening Process Modeler applet**
2. **Creating Swim Lanes**
3. **Designing Process Model using BPMN Elements**
4. **Defining Properties for a BPMN Element**
5. **Defining Properties for Process Model**
6. **Connecting BPMN Elements**
7. **Saving Process Model**
8. **Generating PDF for Process Model**

Additionally, the Adeptia Process Modeler allows you to manage and perform the following functions on the Pool and Swim Lanes in the Graph Canvas:

1. **Resizing Swim Lanes**
2. **Modifying Appearance of Pool and Swim Lanes**
3. **Deleting Swim Lanes**

Scenario

To explain the Process Modeler, a **Claim Management for loss of vehicle** scenario is used. The business process involves all steps of validation of claim, reviewing claim, processing claim and updating claim system.

You need to create a process model for this scenario.

Outlining Process Model

The process model for the above scenario is outlined in the following steps:

1. Claim Representative validates the claim request
2. Claim Handler enters details in the Claim System
3. Claim Handler reviews the claim request
4. Claim Specialist sets the reserve
5. Claim Specialist processes claim request
6. Call Center Representative updates the Claim System and notifies customer
7. If Subrogation is needed after processing claim, then the Subrogation Expert conducts the Subrogation Sub-process and then the Claim System is updated.

OPENING PROCESS MODELER APPLET

Steps to open Adeptia Process Modeler applet

1. In the Adeptia Suite Home Page, click **[+] Design** to expand the tree. All the items in the **Design** category are displayed.
2. Click **Process Model**. The Manage Process Model screen is displayed (see Figure 7.1).

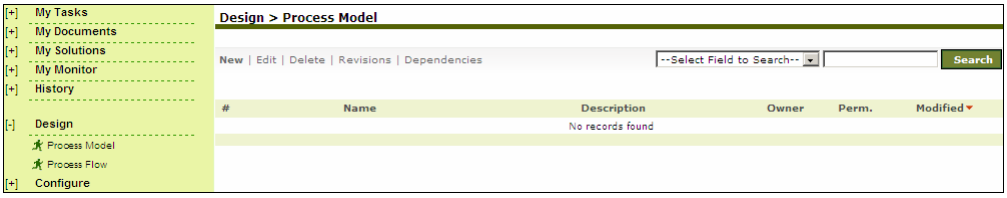


Figure 7.1: Manage Process Model

3. Click **New** link. This displays the Create Process Model screen (see Figure 7.2).

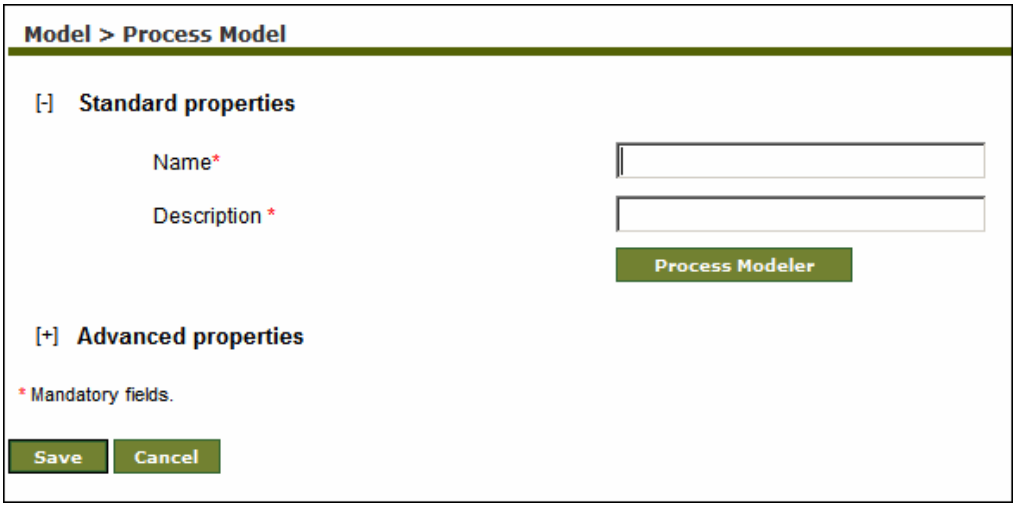


Figure 7.2: Create Process Model

4. Enter the name and description of the process model in their respective fields.
5. Click **Process Modeler** button. The Process Modeler applet is displayed (see Figure 7.3).

	If you are starting the Process Modeler applet on your system for the first time, then a warning message is displayed that prevents you from starting this application. Just ignore this message and click **Start** to continue.

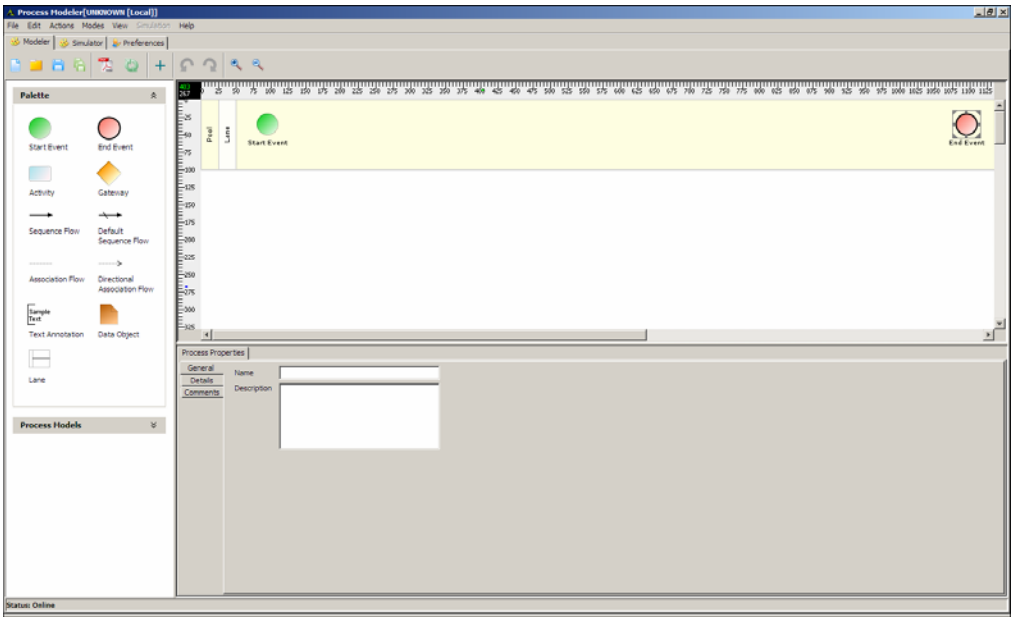


Figure 7.3: Process Modeler

6. This applet has a pre-created Pool with one swim lane. You can create more swim lanes if required.

CREATING SWIM LANES

A Swim Lane is a graphical sub-division of the Pool that extends to the entire length of the Pool and is used to organize and categorize activities of a business process. The business process for *Claim Management for loss of vehicle* scenario can be categorized into the following activities:

Initial Claim Representative

- Validating Claim Request

Claim Handler

- Entering claim details in Claim System
- Reviewing Claim

Claim Specialist

- Setting Reserve
- Processing Claim

Call Center Representative

- Updating Claim System

- Notifying Customer

Subrogation Expert

- Conducting Subrogation Sub-process

This scenario is depicted in five swim lanes (*Initial Claim Representative, Claim Handler, Claim Specialist, Call Center Representative* and *Subrogation Expert*). By default, a Process Modeler applet comprises of one Pool with one swim lane. You need to create the other swim lanes.

Steps to a create swim lane

1. In the Process Modeler applet, click **Lane** ( ) button in the Palette and drag it to the graph canvas. A new lane gets added to the Pool (see Figure 7.4).

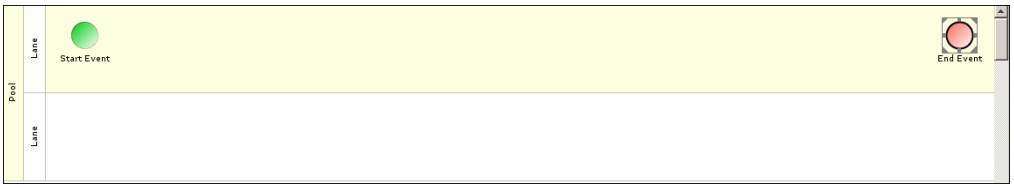


Figure 7.4: New Swim Lane Added

Similarly, you can add multiple lanes to the Pool. Each lane gets added to the bottom of the last lane in the Pool. You can **resize**, **rename**, **modify colors** and **delete** swim lanes.

	A Process Model can comprise of multiple swim lanes, however, it can have only one Pool.

DESIGNING PROCESS MODEL USING BPMN ELEMENTS

Once you have created a swim lane, you can add BPMN elements to it. In the Claim Management scenario, you need to add elements to all the swim lanes.

Steps to design a Process Model using BPMN elements

1. Click **Activity** element ( ) in the Palette and drag it to the first swim lane (*Claim Handler*), on the Graph Canvas. The dragged activity element is displayed in the selected swim lane on the Graph Canvas (see Figure 7.5).

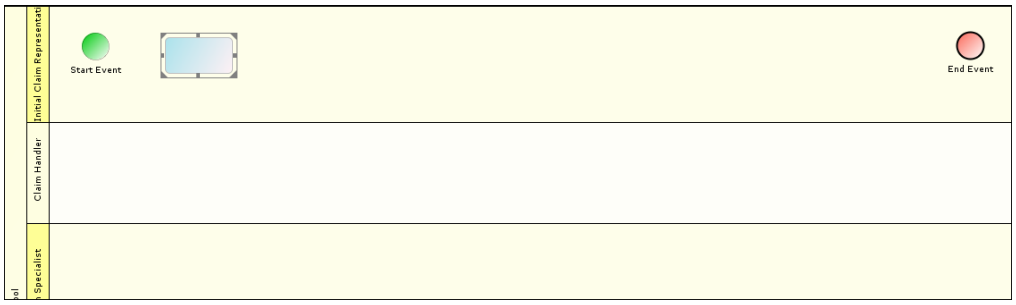


Figure 7.5: Dragging BPMN Activity into Swim Lane

	If you drag and drop an activity element outside the Pool, then the width of the pool and all its swim lanes gets resized automatically. The height of the pool and the last swim lane also gets adjusted accordingly. However, you cannot drag and drop an activity element on the boundaries of swim lanes.

2. Similarly, you can drag all activity elements in all the swim lanes.
3. You also need gateway elements in this scenario. Click **Gateway** element ( ) in the Palette and drag in the required swim lanes (see Figure 7.6).

Figure 7.6: Dragging BPMN Gateway into Swim Lane

Once you have dragged all elements on the graph canvas, you can define properties for the elements.

DEFINING PROPERTIES FOR A BPMN ELEMENT

By default, all activity elements except Event objects are blank. You can define properties such as label, input and output parameters, possible problems, rules, comments and all other information associated with an activity.

Steps to define properties for a BPMN element

1. Double-click the activity element (for example, the first activity element in the *Initial Claim Representative* swim lane). This displays the properties

associated with the activity element in the *Activity Properties Panel* in the Bottom Pane. Alternately, you can right-click the activity element and select **View Properties** option (see Figure 7.7).

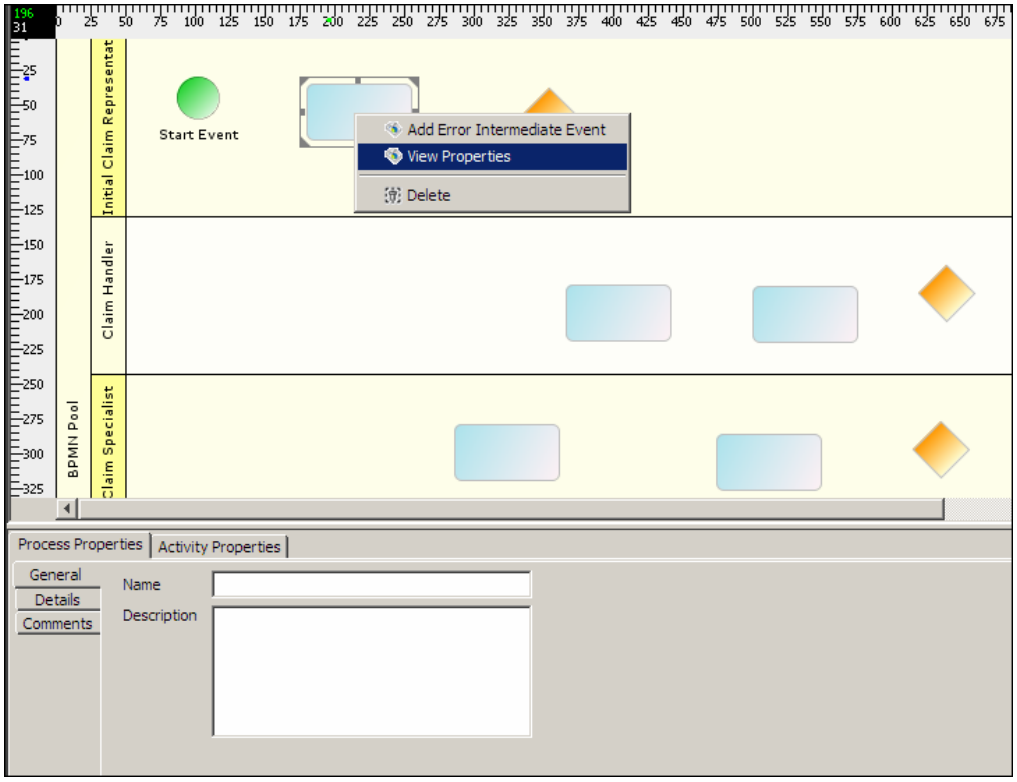


Figure 7.7: Viewing Properties of an Activity Element

The Activity Properties Panel is displayed in the Bottom Pane. It comprises of five tabs:

- General
- Input/Output
- Details
- Problems
- Comments

General Properties

2. When you click an element, the **General** tab appears as selected. Enter the name and description for the selected activity element in the *Label* and *Description* fields. Click the element again in the Graph Canvas to display the name in the element (see Figure 7.8).

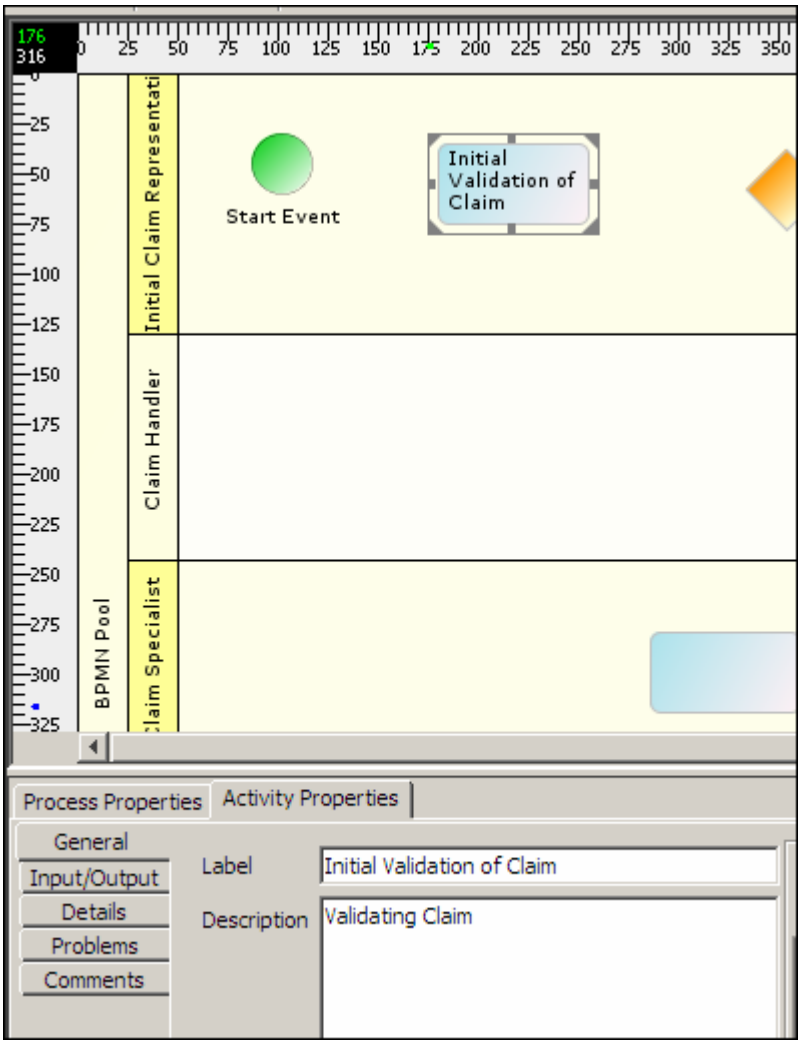


Figure 7.8: Displaying Name of Activity

	Similarly, you can label all other BPMN elements in the Pool.

3. You can enter details of users who will be executing this process model. Click **Create New Process Participant** ( ). This displays a new user field in Process Participant section (see Figure 7.9).

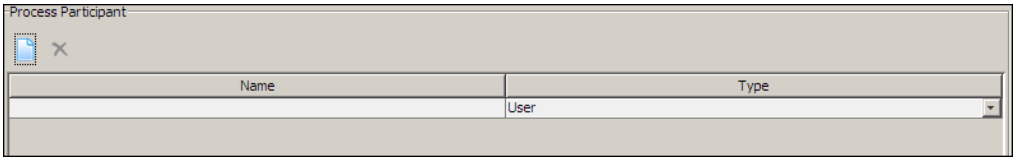


Figure 7.9: Creating Process Participant

4. Enter the name of the user who would be using this process model, in the *Name* field. For example, this process can be used by a manager. Enter name of the manager.
5. Select the type of user as *User* or *Role*, who would be using this process model, from the *Type* drop-down list. A single user or a group of users assigned a particular role, can use this process model.

Input/Output Properties

6. Click **Input/Output** tab to display all input and output properties for the selected element (see Figure 7.10).

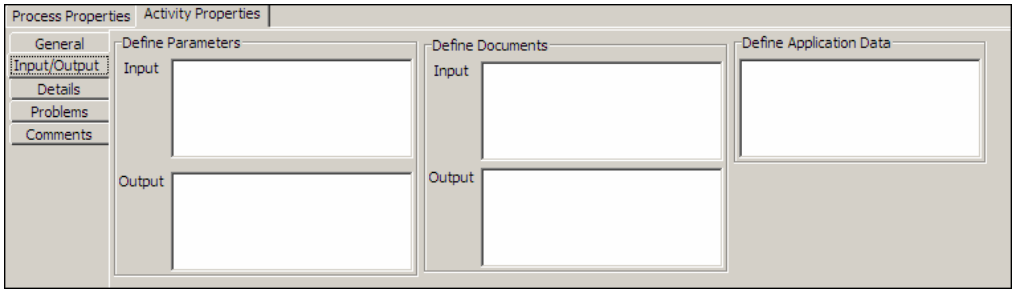


Figure 7.10: Input/Output Properties

7. Enter the name of input parameters required for the selected element, in the *Input Parameters* field. For example, when the Claim Specialist processes the Claim, he requires details such as *Claim_ID* or *Policy_Number*. These could be entered as input parameters.
8. Enter the name of output parameters required of the selected element, in the *Output Parameters* field. For example, when the Claim Specialist processes the Claim, he generates the *Claim Amount*. This could be entered as output parameter.
9. Enter the name of documents required as input for the selected element, in the *Input Documents* field. For example, when the Subrogation Expert conducts the Subrogate sub-process, he requires documents such as copies of *Driver's License* and *Registration Certificate* of vehicle. These could be entered as input documents.
10. Enter the name of documents required as output of the selected element, in the *Output Documents* field. For example, when the Subrogation Expert conducts the Subrogate sub-process, he can upload a copy of the *Subrogation Amount Certificate*. This could be entered as output documents.
11. Enter the parameters used to connect to the Claim Management application, in the *Define Application Data* field. For example, enter the name of the *url* of the Claim Management application, or the *host* or *port* used.

Details Properties

12. Click **Details** tab to display all detailed properties for the selected element (see Figure 7.11).

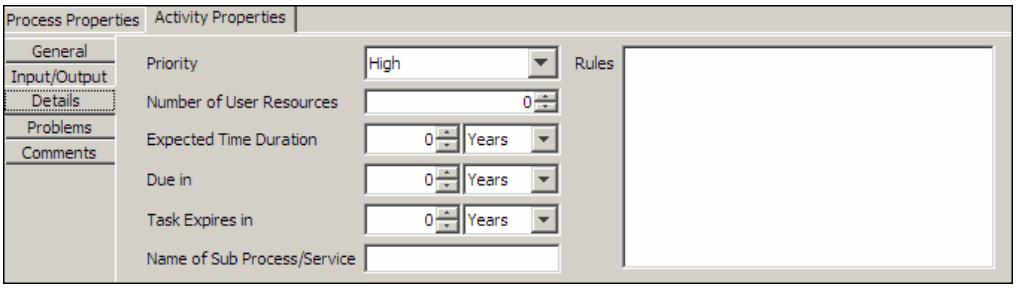


Figure 7.11: Details Properties

13. Select priority of the selected element, from the *Priority* drop-down list.
14. Select the number of user resources required for the selected element, from the *Number of User Resources* field.
15. Select expected time duration of execution of the selected element, from the *Expected Time Duration* drop-down lists.
16. Select time duration when the selected element will be due, from the *Due In* drop-down lists.
17. Select time duration when task associated with the selected element will expire, from the *Task Expires In* drop-down lists.
18. Enter the name of sub-process or service associated with the selected element, in the *Name of Sub Process/Service* field.
19. Enter the rules that are defined for the selected element, in the *Rules* field. For example, when a Claim Adjustor verifies the claim, a rule could be defined that *if Claim value>50,000, then the issue is escalated to Manager.*

Problems Properties

20. Click **Problems** tab to display all possible problems associated with the selected element (see Figure 7.12).

Figure 7.12: Problems Properties

21. You can enter details of all possible problems associated with the selected element. For example, when Call Center Representative updates the Claim System, the *Claim_ID* could be entered as incorrect. Click **Create New Problem** ( ). This displays a new field.
22. Enter description of the problem in the *Description* field.

23. Enter details on handling this problem in the *Handling* field.
24. Select type of problem as related to whole application or a particular activity, from the *Type* drop-down list.
25. Select severity of problem from the *Severity* drop-down list.
26. Select frequency of the problem from the *Frequency* drop-down list.

Comments Properties

27. Click **Comments** tab to display comments properties for the selected element (see Figure 7.13).

Figure 7.13: Comments Properties

28. Enter comments for the selected element in the text field.

Apart from entering properties for an element, you can also enter properties for the entire process model.

DEFINING PROPERTIES FOR PROCESS MODEL

Steps to define properties for process model

1. Click the **Process Properties** tab in the Bottom Pane. It displays the properties for the entire process model in the *Process Properties Panel* in the Bottom Pane (see Figure 7.14).

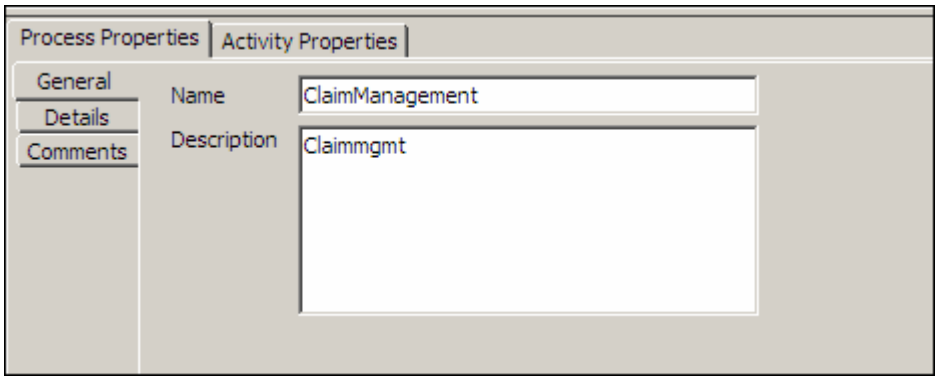


Figure 7.14: Viewing Properties of Entire Process Model

The Process Properties Panel comprises of three tabs:

- General
- Details
- Comments

General Properties

2. When you click an element, the **General** tab appears as selected. The name and description for the process model, as entered in Create Process Model screen is displayed in the *Name* and *Description* fields. The *Name* field is read-only. However, you can change the description, if required.

Details Properties

3. Click **Details** tab to display all detailed properties for the process model (see Figure 7.15).

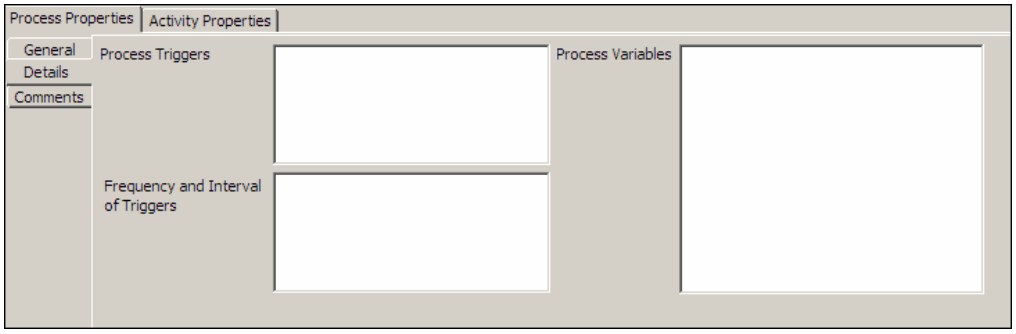


Figure 7.15: Details Properties

4. Enter the name of triggers used in the process model, in the *Process Triggers* field.
5. Enter the number of runs of triggers per day/week and the interval between these runs, used in the process model, in the *Frequency and Interval of Triggers* field.
6. Enter the name of variables created for the process model, in the *Process Variables* field.

Comments Properties

7. Click **Comments** tab to display comments properties for the process model (see Figure 7.16).

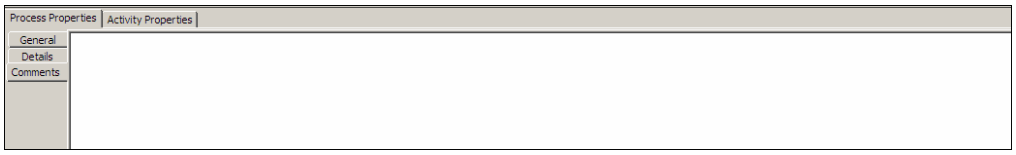


Figure 7.16: Comments Properties

8. Enter comments for the process model in the text field.

Once you have entered properties for the process model and elements, you can connect all elements in the Pool to design the business flow.

CONNECTING BPMN ELEMENTS

Steps to connect BPMN elements

1. Click a flow, for example, **Sequence flow** (⟶) in the Palette. The flow is selected.
2. Drag the cursor between two BPMN elements. Both BPMN elements are connected with the selected flows (see Figure 7.17).

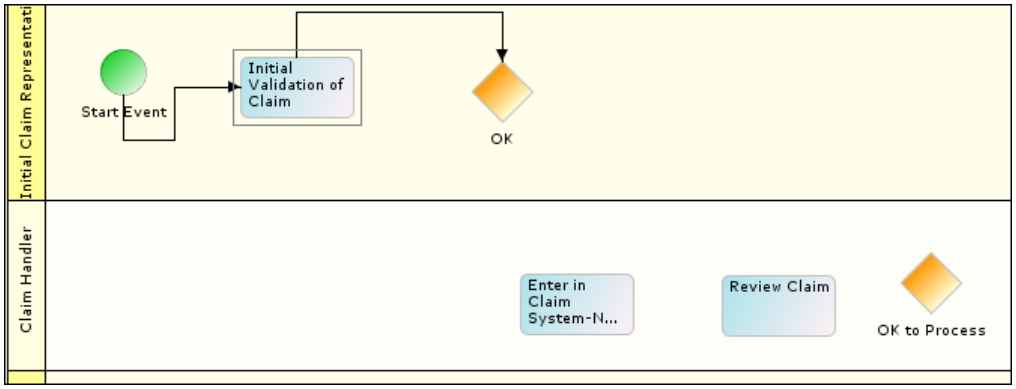


Figure 7.17: Connecting BPMN Elements

3. Connect all BPMN elements with appropriate control flow (see Figure 7.18).

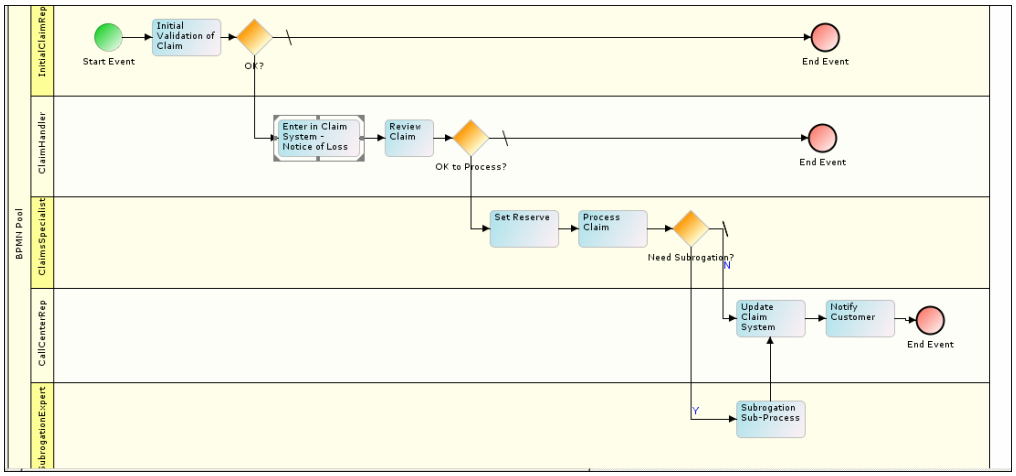


Figure 7.18: Connecting all BPMN Elements

	You can reposition the BPMN elements by moving the arrow keys. All elements except Sequence flow can be repositioned. Repositioning elements automatically resizes the swim lanes and the Pool.

4. Similarly, you can add BPMN elements to all swim lanes and connect them using the required control flow.

Once you have designed the complete process model, you need to save the process model.

SAVING PROCESS MODEL

Steps to save process model

1. Click **File** menu and then select **Save Process Model to Server**, to save the process model on the Adeptia Suite. This displays a screen confirming that the process model has been created successfully. If the comments property is enabled, then clicking **Save Process Model to Server** will display a screen where you need to enter comments related to creating the process model (see Figure 7.19).

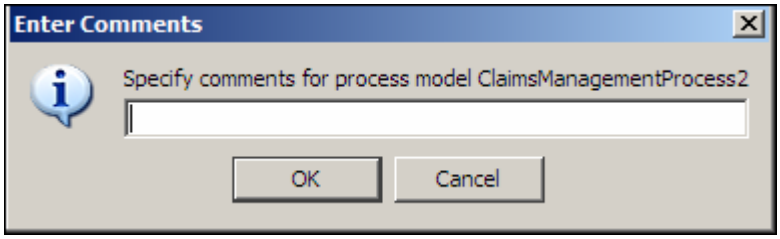


Figure 7.19: Enter Comments (Process Model)

2. Enter the comments in the Specify Comments for process flow <process model name> field.

	• The comment should be at least 1 character in length. • If you enable/disable the *Comments* property in the middle of a Process Model, you need to restart the Process Modeler applet.

3. Click **OK** to save the comments. This displays a screen confirming that the process model has been created successfully.

	By default, the *Comments* property is disabled. To enable it, refer to the section **Updating System Properties** in the **Administrator Guide**.

Save Process Model on Local Hard Disk

Steps to save the Process Model on local hard disk

1. Click **File** menu and select **Save Process Model Locally** option. The Save window is displayed (see Figure 7.20).

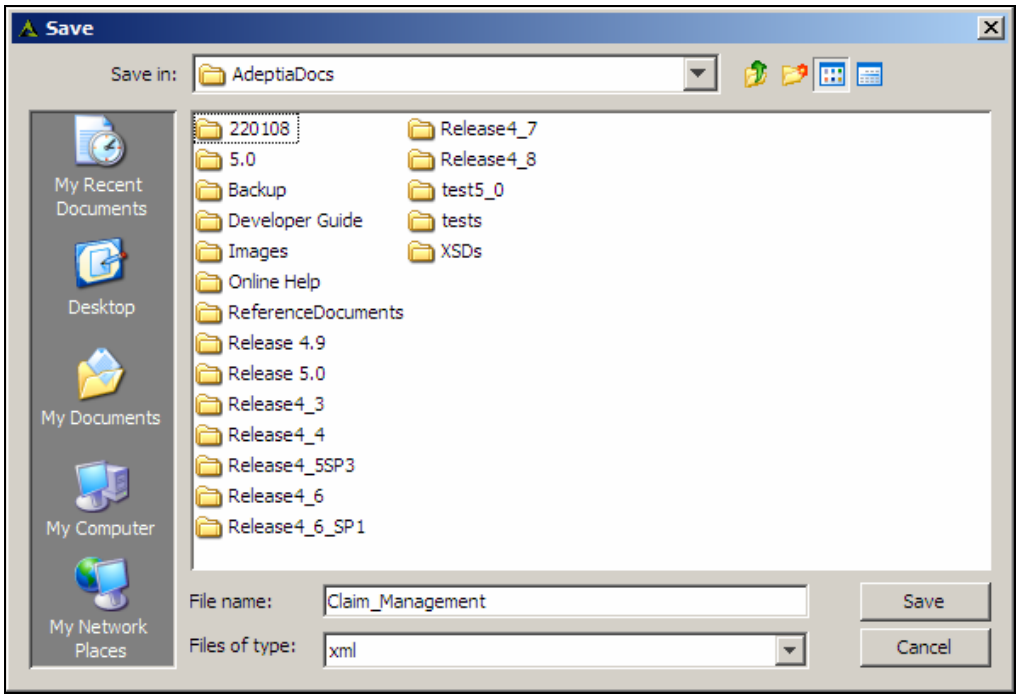


Figure 7.20: Save Process Model

2. The filename is automatically displayed in *File Name* field. However, you can change it, if required. Click **Save** button. Two files are saved; one saves the process model in XML format in the specified location, and the other saves all properties of the process model.

	When you open a locally saved process model, both files are opened. If the xml and properties files are in the same folder, it opens both automatically. However, if they are in separate folders, you need to open them separately. If a process model is opened in **Read-Only** mode, you can view and modify it, but you cannot save the changes, as all Save options are disabled. However, if you open a process model that has write permissions, from the Process Modeler applet, then Save options become activated.

GENERATING PDF FOR PROCESS MODEL

The process model information can be saved into a PDF file for documentation purposes.

Steps to generating PDF of process model

1. In Process Modeler, click **Generate PDF** ( ) button. The Save PDF screen appears to select the path, where PDF file will be saved (see Figure 7.21).

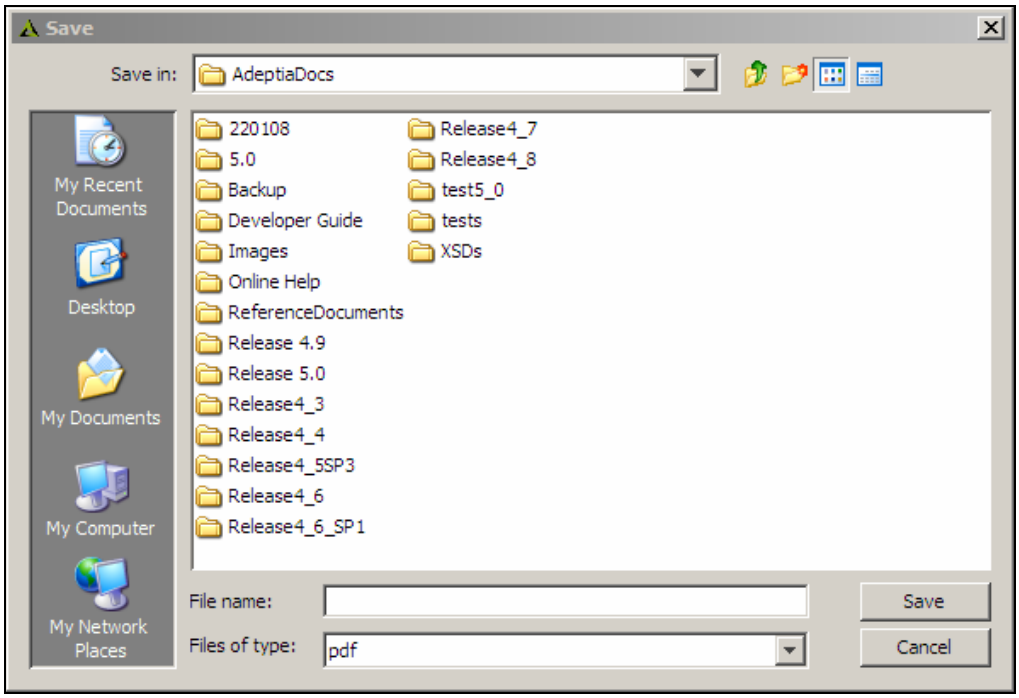


Figure 7.21: Save PDF

2. Select the path and enter the name of the file in the File Name field.
3. Click **Save** button. The generated PDF file is saved in the specified folder.

USING SWIM LANES

Once you add swim lanes in the Adeptia Suite Process Modeler, you can perform the following changes on them:

- Resize Swim Lanes
- Modify Appearance of Pool and Swim Lanes
- Delete Swim Lanes

Resizing Swim Lanes

When you add a new swim lane in the Pool, the width of the new lane is the same as that of the existing lanes, whereas its height is 100 units. However, you can modify this height from the bottom boundary and can be decreased to a minimum height of 50 units. The height of swim lanes can vary depending upon the activities inside the swim lane. The width of all swim lanes remains the same throughout the Pool. It is defined to be 50 units more than the right-most activity in the entire process model.

Repositioning Activities in Swim Lanes

Swim lanes are usually resized when you reposition the activities within the swim lanes of the Pool. You can move the activities within the swim lanes using the arrow keys. When you move an activity of any swim lane towards the right direction, it changes the width of all the swim lanes and the entire Pool. If you move an activity of the last swim lane in the Pool, towards the bottom direction, it changes the height of only the last lane and the whole Pool.

Steps to reposition an activity within swim lane

1. Click the **Activity** element that you want to reposition, in the swim lane. Use the desired arrow key to move the activity element in the preferred direction. If you move it upwards or towards the left, then it will not affect the size of the swim lane. However, if you move it towards the right or downwards, then it will automatically resize the swim lane (see Figure 7.22).

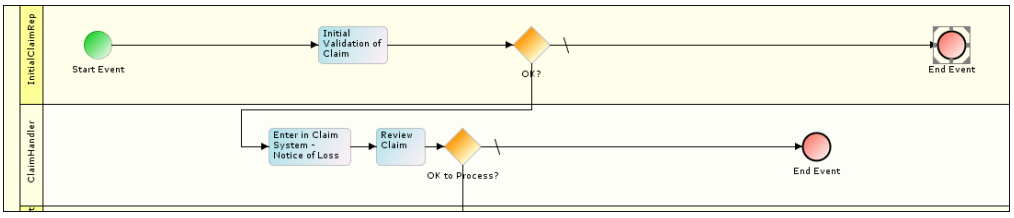


Figure 7.22: Repositioning Activity Elements and Resizing Swim Lanes

Modifying Appearance of Pool and Swim Lanes

You can modify the appearance of the Pool and the swim lanes in two ways:

- **Edit labels**
- **Edit background colors**

Edit Labels

You can edit labels of Pool and Swim Lanes.

Edit Label of Pool

Steps to edit label of Pool

1. Right-click the Pool and select **Edit Label** option (see Figure 7.23).

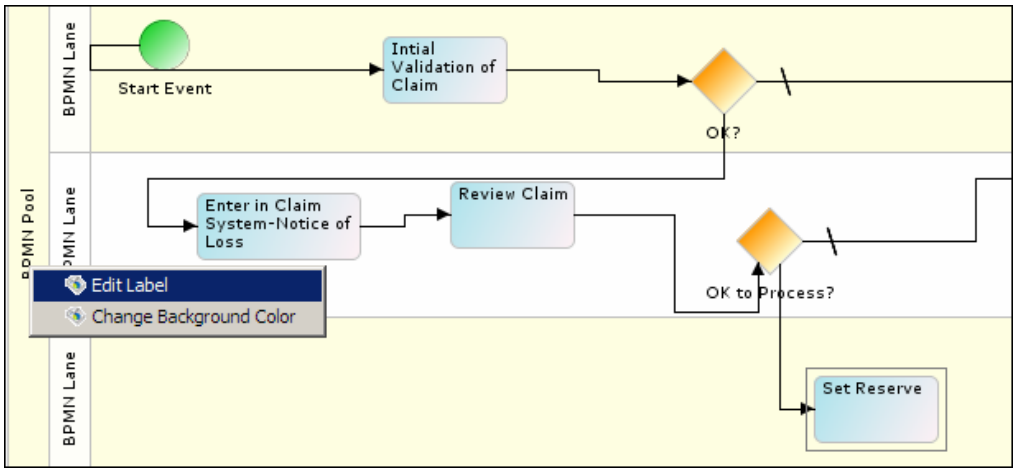


Figure 7.23: Selecting Edit Label Option for Pool

2. The Edit Label screen is displayed (see Figure 7.24).

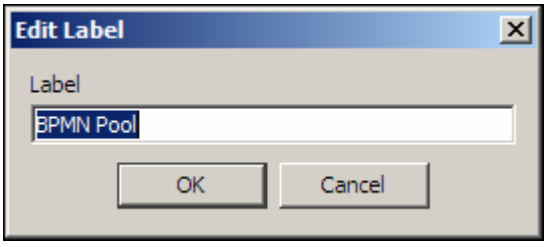


Figure 7.24: Edit Label

3. Enter the new label that you want for the Pool and click **OK**. This renames the Pool.

	Alternately, you can double-click the Pool to edit its label.

Edit Label of Swim Lane

Steps to edit label of a Swim Lane

1. Right-click the Swim Lane that you want to rename and select **Edit Label** option (see Figure 7.25).

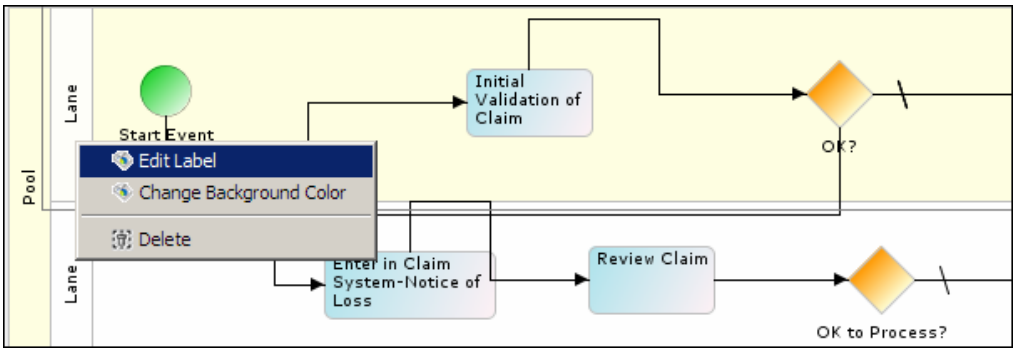


Figure 7.25: Select Edit Label for Swim Lane

2. The Edit Label screen is displayed (see Figure 7.26).

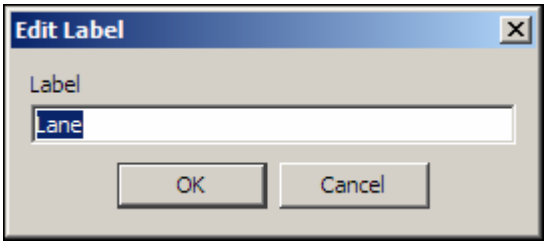


Figure 7.26: Edit Label

3. Enter the new label that you want for the swim lane and click **OK**. This renames the selected swim lane. Similarly, you can rename all swim lanes.

	Alternately, you can double-click the swim lane to edit its label.

Edit Background Colors

You can edit the background colors of Pool and Swim Lanes.

Edit Background Color of Pool

Steps to edit background color of Pool

1. Right-click the Pool and select **Change Background Color** option (see Figure 7.27).

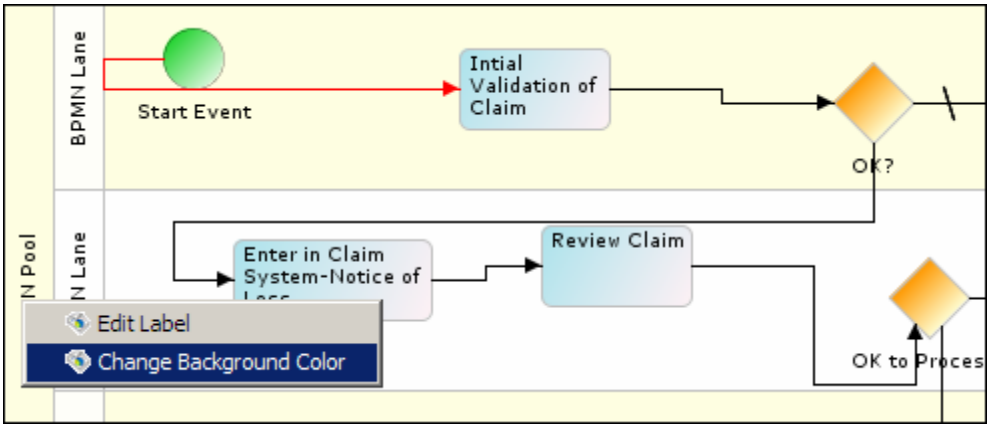


Figure 7.27: Change Background Color

2. The Select Color screen is displayed (see Figure 7.28).

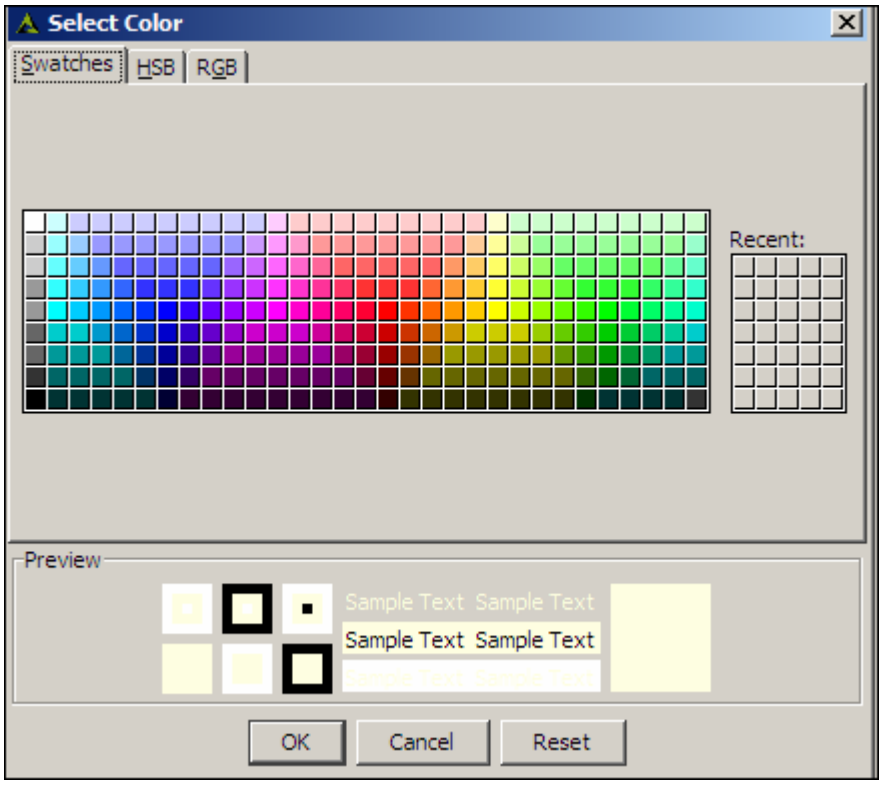


Figure 7.28: Select Color

3. Select the color for the Pool and click **OK**. This changes the Pool color to the new color (see Figure 7.29).

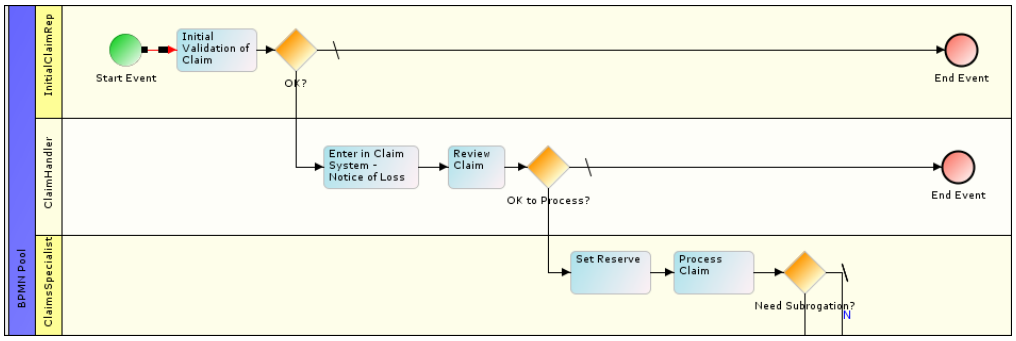


Figure 7.29: New Color for Pool

Edit Background Color of Swim Lane

Steps to edit background color of a Swim Lane

1. Right-click the Swim Lane whose color you want to change and select **Change Background Color** option.
2. This displays the Select Color screen (refer to Figure 7.28).
3. Select the color for the selected swim lane and click **OK**. This changes the label and background color for the selected lane (see Figure 7.30).

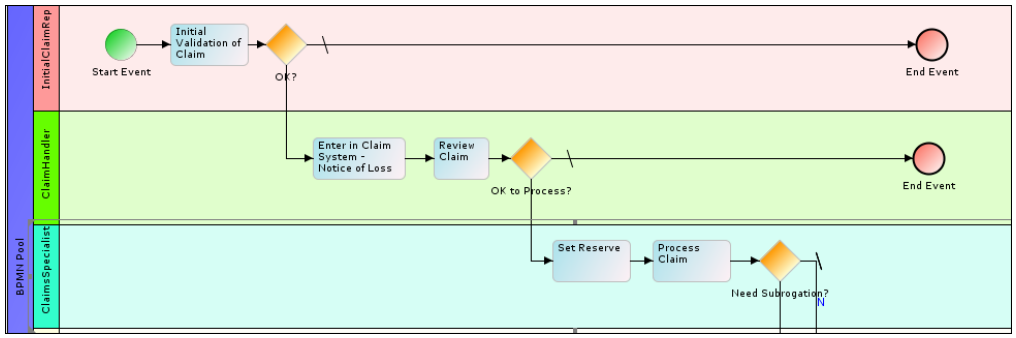


Figure 7.30: New Color for Swim Lane

Deleting Swim Lanes

A process model is loaded with one Pool and one swim lane by default. You can add multiple swim lanes to the Pool; however the process model cannot have more than one Pool. Thus, you cannot delete the Pool.

When deleting swim lanes from the Pool, you can delete the swim lanes, but a minimum of one swim lane needs to exist in the Pool.

Steps to delete a Swim Lane

1. Right-click the Swim Lane that you want to delete and select Delete option.
2. If there are more than one swim lanes in the Pool, then the selected swim lane and all associated activities within that swim lane get deleted. Else the following screen is displayed (see Figure 7.31).

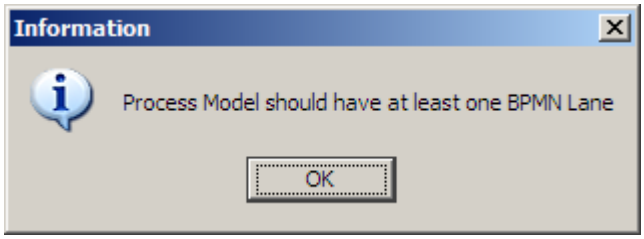


Figure 7.31: Delete Alert

3. Click **OK** to close this screen and return to the Modeler screen. The swim lane does not get deleted.

SIMULATOR

8 INTRODUCTION TO ADEPTIA SUITE SIMULATION

Adeptia Suite provides a Process Simulation tool, which helps in designing better and effective business process flows. It enables you to run processes in a virtual environment. It allows you to analyze, enhance and optimize processes and generate an effective and realistic approach to business process management.

The Adeptia Simulation tool aims to achieve the following benefits:

- **Resource planning**: It helps and guides you to analyze, understand and plan the usage and utilization of resources in a business process.
- **Identify bottlenecks**: Since the queue capacity can be defined for an activity in a process flow, this tool helps you to understand and identify the bottlenecks that can arise in a process flow, and thus take appropriate measures to avoid the bottlenecks.
- **Check-before-you-invest what-if analysis**: It provides a complete time and cost analysis of implementing a business process. It enables you to understand the maximum and minimum costs and time involved in implementing a business process without actually implementing it.

It uses the following features:

- **Resource Set**: This is a collection of resources that identify the expenses incurred by a business process's component activities as they are being performed. The activity expenses can be examined and optimized individually. The expense elements can be defined at the activity level which can be of three types:
  - **Direct** - Direct resource is the resource whose expenses are attributed to the execution of an activity. These expenses are accumulated each time an activity is performed. Examples include materials that become part of the activity's output, and supplies consumed by the activity (but which are not part of the output). Each direct resource specifies a unit cost. An activity will incur this cost for each unit used by the activity.
  - **Indirect -** Indirect resource is the resource which refers to fixed expenses incurred by the enterprise. These expenses are accumulated regardless of the number of times an activity is executed, even if an activity is never performed. Examples include rent for floor space, utilities consumed by the activity, insurance costs, etc. Historically, these costs have been traced to an organization, but can now be attributed to an activity based on the activity's characteristics.
  - **People -** People resource refers to labor expenses incurred when an activity is performed. Such costs typically include salaries, hourly wages, benefit costs and employer taxes. These costs are entered

into the organization role as a cost per some period of usage. Usage costs are designated as an hourly, monthly or annual figure.

- **Process Timing**: This identifies the time incurred by a business process's component activities as they are being performed. Activity timing can be examined and optimized individually. To achieve the real-world situation randomness is involved in the simulation of business process. To achieve this, different distribution algorithm along with random number generator can be applied on the time elements. Involvement of randomness in the process can be achieved by either or both of following ways:
  - **Random factor defined at process flow:** Using this approach the random factor (which includes selection of distribution algorithm) can be defined at the process flow level. This will apply to all the activity included in the process flow. This approach will basically imply to **Monte Carlo** type of simulation.
  - **Random factor defined at activity level:** Using this approach the random factor can be defined at the activity level. Because of the involvement of random factor for each activity, this approach provides better way to achieve more efficiency with the real-time process as compared to previous approach. This approach will basically imply to **Discrete Event type** of simulation.

9 UNDERSTANDING ADEPTIA SIMULATION APPLET

Adeptia Suite provides Process Simulation tool, which allows you to simulate a process flow using different resource and scenarios. The process simulator applet is displayed in the

Figure 9.1:

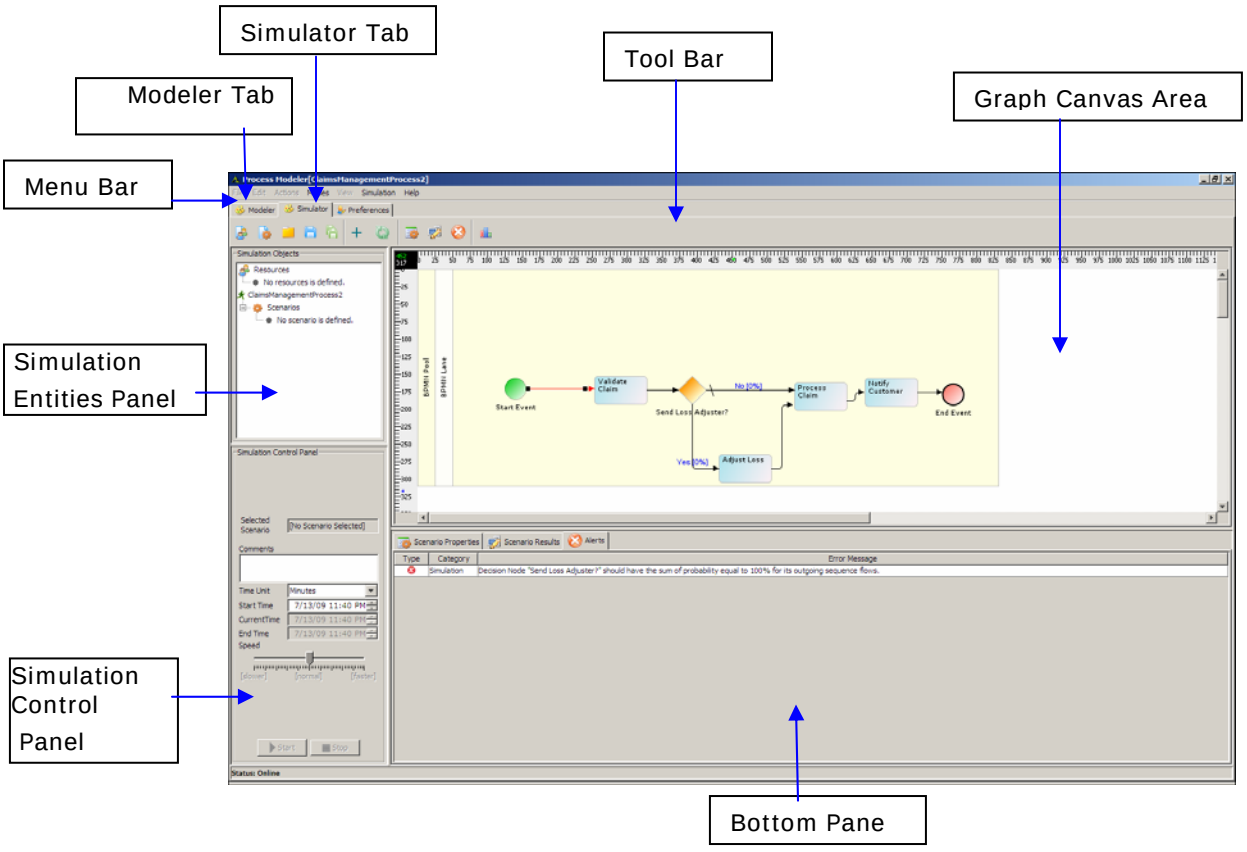


Figure 9.1: Process Simulation applet

The Process Simulator applet is divided into seven sections:

- **Menu Bar**
- **Tool Bar**
- **Simulation Entities Panel**
- **Simulation Control Panel**

- **Graph Canvas**
- **Bottom Pane**

Menu Bar

Options of the Menu Bar are listed in the Table 9.1.

Table 9.1: Menu Bar options

Menu Option	Sub-Option	Function
Simulation	New	Creates New Resource or Scenario
	Open Locally Saved Resource or Scenario	Opens Resource or Scenario saved to a local machine.
	Save Scenario to Server	Saves Scenario to the Adeptia Server.
	Save Scenario Locally	Saves Scenario to a local machine.
	Show Scenario Properties Panel	Shows Scenario Properties of the selected activity
	Show Scenario Results Pane	Shows results of the running scenario
	Show Alerts Panel	Shows Alerts Panel
	Generate Simulation Summary Report	Generate reports of the executed simulation scenario
Modes	Online/Offline	Toggle between online and offline mode.
Help	Help	Displays help for the Process Modeler and Simulator Guide.

Tool Bar

Options of the Tool bar are explained in the Table 9.2

Table 9.2: Tool Bar options

Button	Name	Function
	Create New Resources	Opens Define Resource Set dialog box
	Create New Scenario	Opens Define Scenario dialog box
	Open Locally Saved Scenario Resource	Open Scenario or Resource saved on local hard disk.

	Save Scenario to Adeptia Server	Saves Scenario to Adeptia Server
	Save Scenario Locally	Saves Scenario to a local machine.
	Maximize/Restore Flow Canvas	Maximize and restore graph canvas.
	Synchronize with Adeptia Server	Synchronize the list of Resources and Scenarios from the Adeptia Server.
	Show Properties Panel	Shows the Scenario Properties panel in the bottom pane.
	Show Scenario Results Panel	Shows the Scenario Results Panel in the bottom pane
	Show Alerts Panel	Show the Alerts panel in the bottom pane.
	Generate Simulation Summary Report	Generates Reports of the executed scenario in HTML format

Simulation Entities Panel

Simulation Entities panel contains a list of Resources and Scenarios. You can open or delete a resource or a scenario from here. You can also save another instance of resource or scenario from here.

Simulation Control Panel

Simulation Panel is used to run the simulation and to control the simulation speed. Fields of the Simulation control panel and there descriptions are given in the Table 9.3.

Table 9.3: Edit Preferences

Field name	Description
Selected Scenario	Shows the name of the scenario selected in the Simulation Entities panel
Comments	You can enter your comments here, before running the simulation. This comment is displayed in the Simulation Report
Time Unit	Select the time unit from the drop-down list. The selected time unit is used in the

	Simulation Report.
Start Time	Select the start date and time in mm/dd/yyyy hh:mm format. This is the actual time when your process flow execution will start.
Current Time	During the execution of Simulation scenario, it shows the current time based on the time specified in Start Time field.
End Time	When execution of simulation scenario is completed, it shows the actual time when you process flow execution will be finished. This time is based on the start time specified in the Start Time field, number of count and the calendar specified.

Graph Canvas

The Graph Canvas is the area where the selected process flow is shown. During the execution of the simulation scenario, progress of the simulation is shown in the graph canvas area.

Bottom Pane

The Bottom Pane is used to view scenario properties of the activities, result of the scenario execution and error if any. There are three panels in the Bottom Pane:

- Scenario Properties
- Scenario Results
- Alerts

Preferences

The Preferences window allows you to select the background color of graph canvas and labels etc. To view the Preferences window, click Preferences tab (see Figure 9.2).

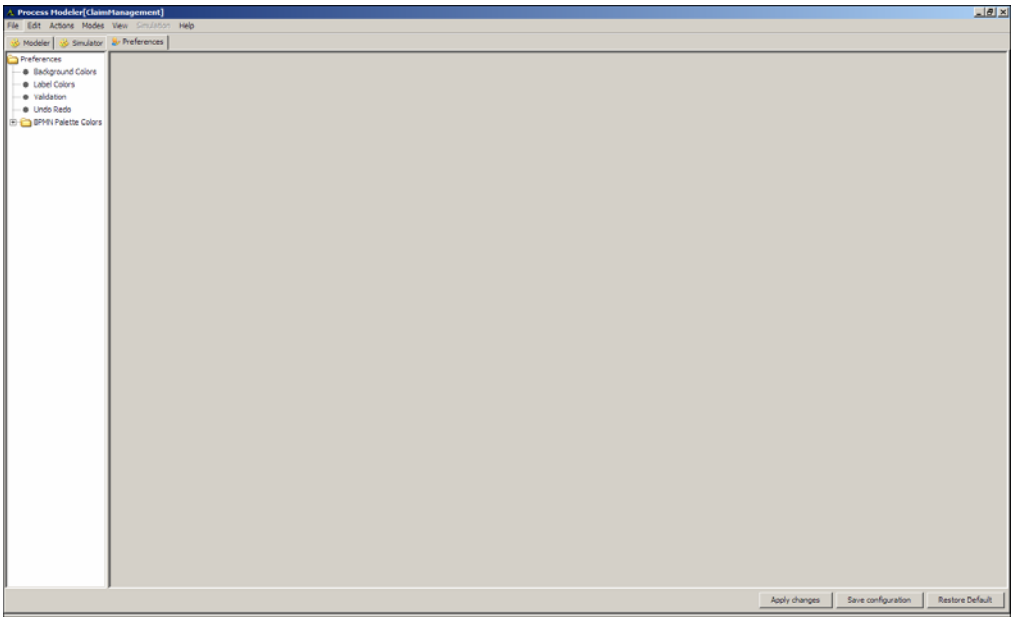


Figure 9.2: Preferences

You can modify various preferences. These are listed in the Table 9.4.

Table 9.4: Edit Preferences

Preferences	Description
Background Colors	Change the background color of the Graph Canvas, BPMN Events Panel or Activities Panel.
Label Colors	Change the colors of labels of activities displayed in the Graph Canvas.
Validation	Verifies that the process flow created in the Graph Canvas is correct as per the BPMN standard and Adeptia Server. You can enable/disable Validation in the Preferences window. By default, it is enabled.
Revert Action	Reverts the action done by the user in the Graph Canvas. You can enable/disable Validation in the Preferences window. By default, it is disabled.
Set Undo and Redo	Set the number of actions that

Limit	you can undo or redo.
BPMN Entities Colors	Change colors of Events, Activities, Gateway and Artifacts.

10 USING ADEPTIA SIMULATION TOOL

Using the Adeptia Simulation tool involves the following steps:

1. **Creating a Process Model**
2. **Opening Process Simulator applet**
3. **Creating Resource Set**
4. **Creating Scenario**
5. **Executing Simulation Scenario**
6. **Generating Simulation report**

CREATING A PROCESS MODEL

A process model is a set of activities arranged in a sequence to perform a specific task(s). To know how to create a process flow, refer to Adeptia Suite User Guide.

To explain the process simulation, **Claim Management** process model is used. The Claim Management process flow first verifies the claim that has been requested. For example, you have filed a claim for loss of vehicle. The process model, first verifies whether the claim is valid or not. Next, it has a decision node which validates the claim. If the claim is valid, then it sends it to the Claim Handler, who enters the claim request in the Claim System and reviews the claim request. Then a decision node is used to check the review. If it is ok, then it is sent to the Claim Specialist to set the Reserve for the claim and process the claim. A decision node is added to check if Subrogation is required. If no, then it is sent to Call Center Representative, who updates the Claim System and notifies the customer. Else, if subrogation is required, then it is sent to the Subrogation Expert who conducts the Subrogation sub-process and then sends it to the Call Center Representative.

OPENING PROCESS SIMULATOR APPLET

Steps to open Adeptia Suite Simulation applet

1. In the Adeptia Suite Home Page, click **[+] Design** to expand the tree. All the items in the **Design** category are displayed.
2. Click **Process Model**. The Manage Process Model screen is displayed (refer to Figure 7.1).
3. Select the radio button against the required process model and click **Edit** link. This displays the Edit Process Model screen (see Figure 10.1).

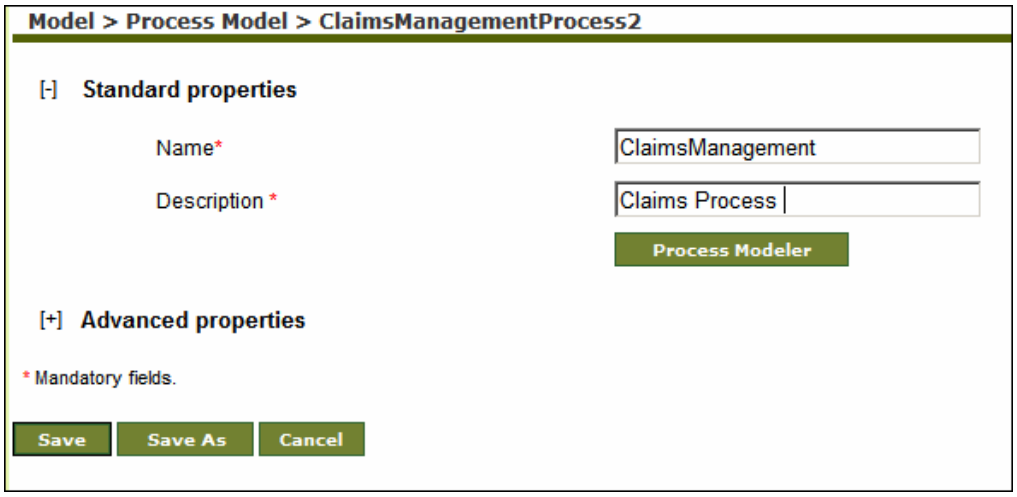


Figure 10.1: Edit Process Model

4. Click **Process Modeler** button. The Process Modeler window is displayed (see Figure 10.2).

	If you are starting the Process Modeler on your system for the first time, then a warning message is displayed that prevents you from starting this application. Just ignore this message and click **Start** to continue.

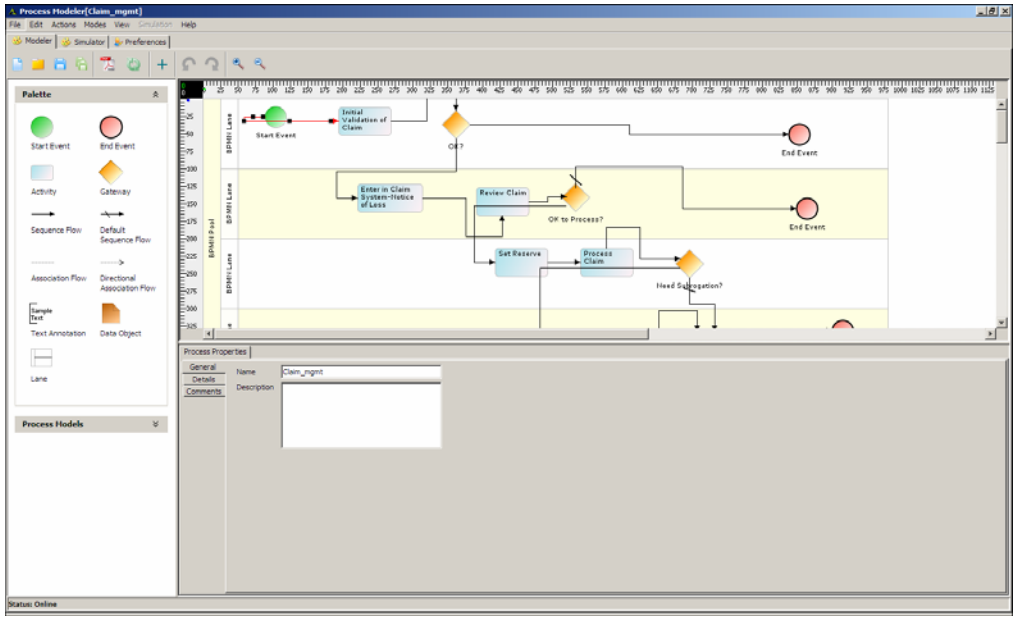


Figure 10.2: Process Modeler

5. In the Process Modeler applet click the **Simulator** tab. The process Simulation applet is displayed (see Figure 10.3).

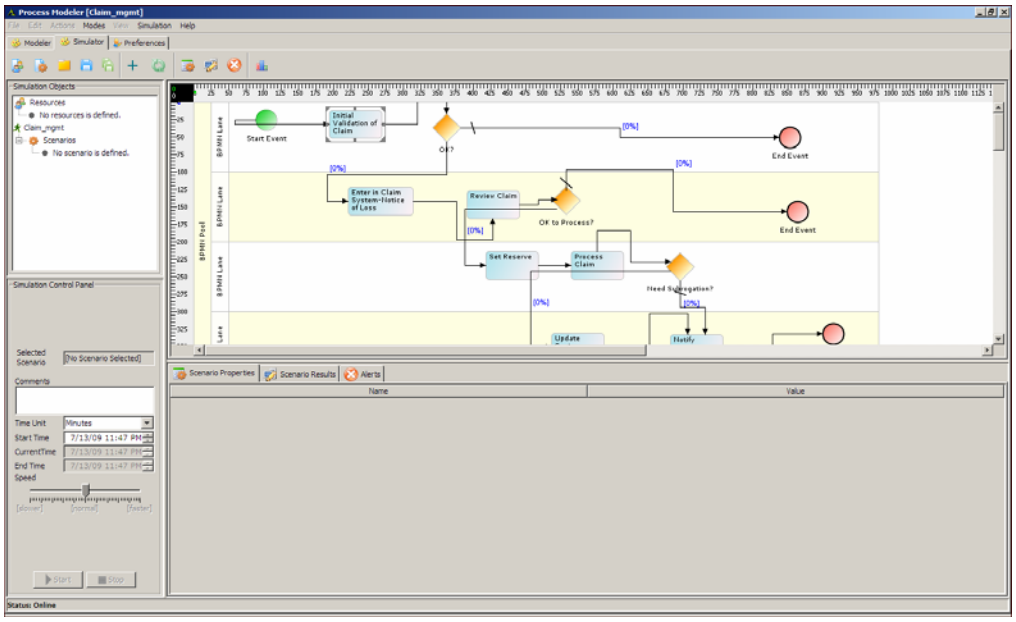


Figure 10.3: Process Simulator

CREATING RESOURCE SET

A Resource Set is a collection of resources that identify the expenses incurred by a business process's component activities as they are being performed. One resource set contains more than one resource. One resource set can be used for more than one process model depending upon permission assigned to it.

Steps to a create resource set

1. In the Process Simulator applet, click **Create New Resources** ( ) icon. The Define Resource Set dialog box appears (see Figure 10.4).

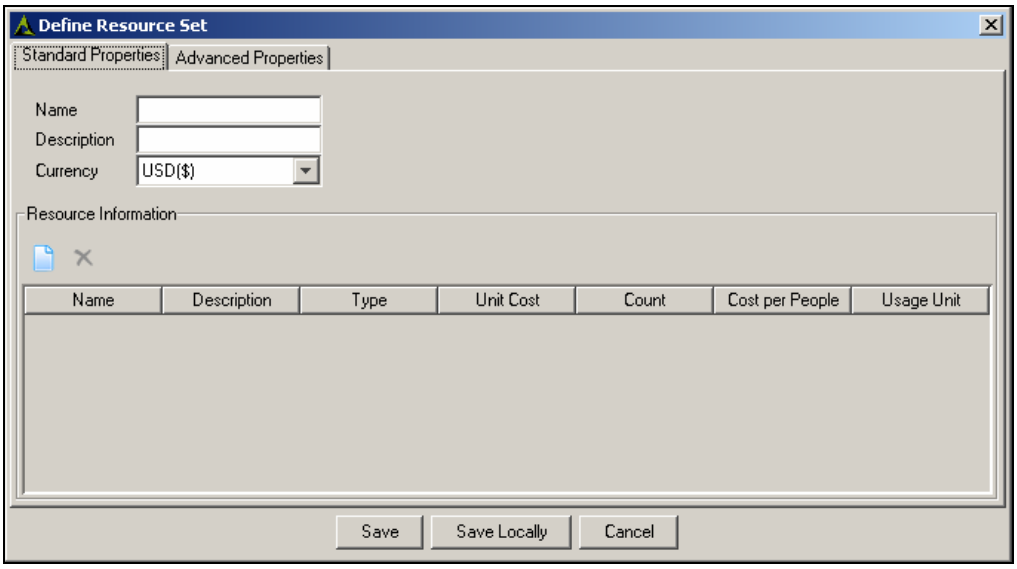


Figure 10.4: Create New Resource

2. Enter the name and description of the resource set in the *Name* and *Description* fields respectively.
3. Select the currency of the money, in which you want to calculate the expenses.
4. To create a new resource, click **Create New Resource** ( ) icon. A new row is added, in *Resource Information* Pane, where you can enter the name, description, and cost etc of the new resource (see Figure 10.5).

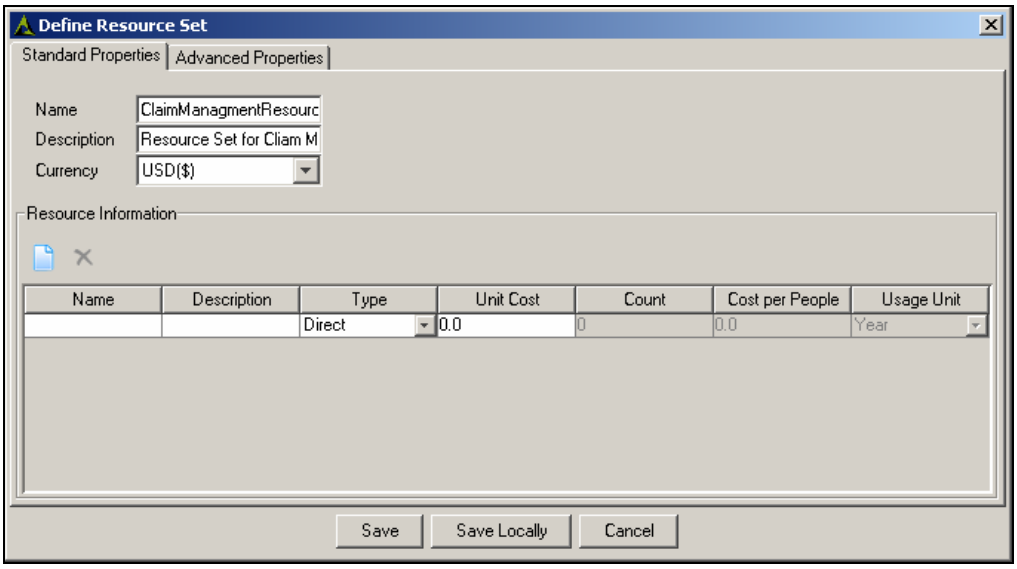


Figure 10.5: Add New Resource

5. Similarly, you can add more resources. There is no limit to the number of resources that can be added to a resource set. Figure 10.6, shows the resource set, used by Claim Management Process Model.

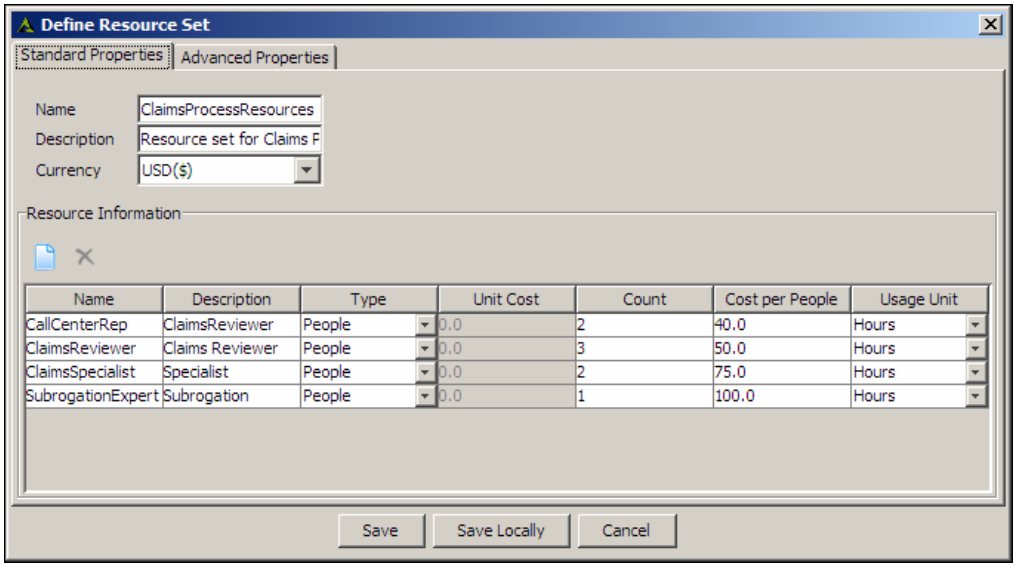


Figure 10.6: Claim Management Resource Set

The fields of the resource set and their description is given in the table below:

Table 10.1: Fields of the resource set and their description

Field	Description
Name	Name of the resource
Description	Description of the resource
Type	Type of the resource. Resource can be of three type: ▪ Direct ▪ Indirect ▪ People
Unit Cost	Cost of the resource per unit. Unit Cost is applicable for Direct Resource only.
Count	Count indicates the number of people. Count is applicable for People type of resource only.
Cost Per People	Cost of one people. This is applicable for People type of resource only.
Usage Unit	Usage unit specifies the duration of the cost per people. For example if you enter 100 US$ in cost per people field and select hour in Usage Unit, the cost of one people for one hour will be 100 US$. Usage Unit is applicable for People type of resource only.

6. To save the resource set on Adeptia Suite, click **Save**. A dialog box appears to confirm that the resource set has been has been successfully saved. The added resource set is shown in the *Simulation Entities Panel* under *Resource* tree.
7. To save the resource set on the local machine, click **Save Locally**, select the location where you want to save the resource set, and specify the file name. The resource set is saved in XML format.

CREATING SCENARIO

A Scenario contains a complete set of data used to simulate a business process. It includes resources used by activities of the process flow, time used by each activity, randomness, and the number of times the process flow will execute to get the simulation result. A scenario can be used for only one process flow but multiple scenarios can be used for a single process flow.

Creating a scenario involves the following steps:

1. **Defining the Scenario**
2. **Assigning Resources**
3. **Defining Time**
4. **Defining Queue Processing Method**
5. **Assigning Probability**

DEFINING SCENARIO

Steps to define a scenario

1. In the Process Simulator applet, click **Create New Scenario** () icon. The Define Scenario dialog box appears (see Figure 10.7).

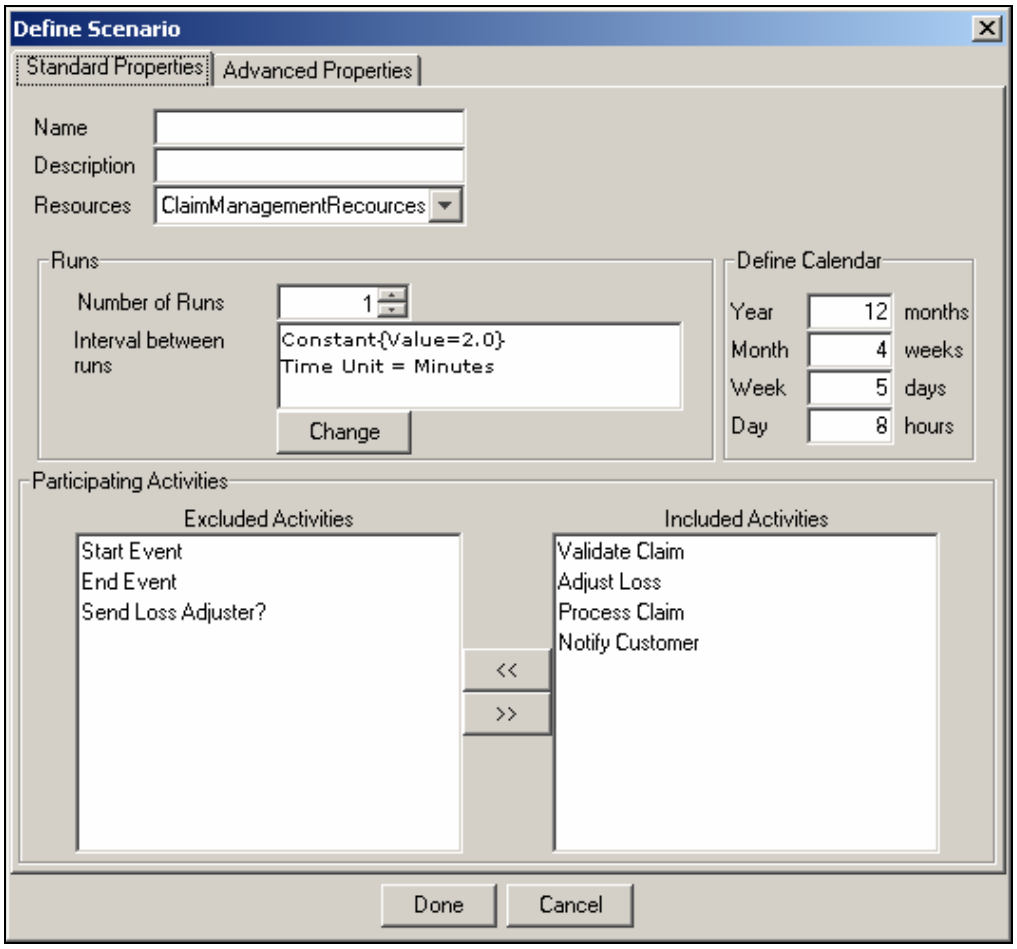


Figure 10.7: Create New Scenario

2. Enter the name and description of the scenario in the *Name* and *Description* fields respectively.
3. Select the resource set, you want to use in this scenario, from the *Resources* drop-down list.
4. Select the number of runs you want to execute the process flow while running simulation, from the *Number of Runs* drop-down list.
5. *Interval between runs* field shows the time interval between subsequent runs of the process flow. By default it is set to 2 minute constant. You can define different distribution function to generate the random values for time interval.
6. To change the time interval, click *Change.* The *Specify Timing Information* dialog box appears (see Figure 10.8).

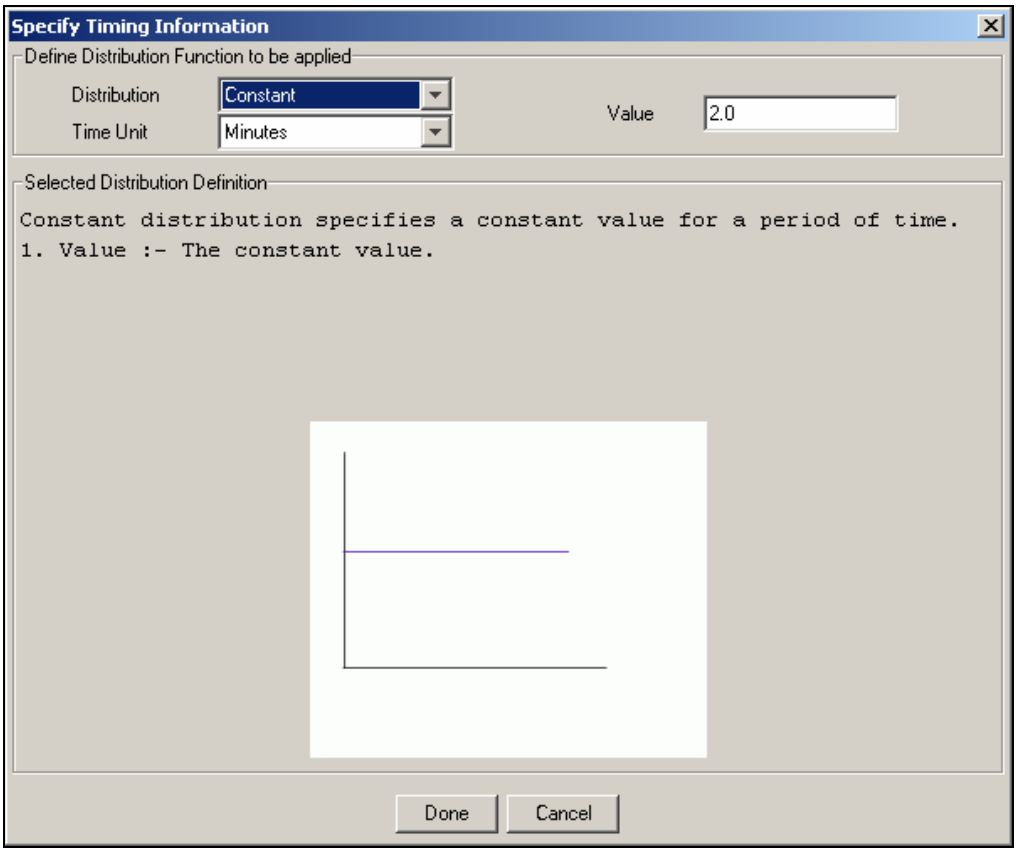


Figure 10.8: Define Time

7. Select the distribution function from *Distribution* drop-down list.
8. Select the unit of time specified in the value field, from the *Time Unit* drop-down list.
9. Enter the time interval for subsequent runs, in the *Value* field. Field to enter time interval may change depending upon the type of distribution selected in the *Distribution* drop down list. For example, if you select *constant* in *Distribution* drop-down list, you will get *Value* field to enter the time interval. And if you select *Normal* distribution, you will get *Standard Deviation* and *Mean* field.
10. A brief description along with the graphical representation of the selected distribution is shown in the *Selected Distribution Definition* field.
11. Click **Done** to close the Define Time dialog box and to return to Define Scenario dialog box. Selected time interval along with the distribution type is shown in the *Interval between runs* field.
12. *Define Calendar* specifies the working calendar for which the process flow will be executed. The calendar contains 12 months in a year, 4 weeks in a month, 5 days in week and 8 hours in a day. You can customize this calendar as per you requirement.

	To understand the significance of calendar, suppose the Claim Management process flow takes 6 hours for one execution. Now if you want to know that when the work will be finished if you have 12 claims to process, starting from 14 May 2007, 9 AM. If you select 5 days in a week and 8 hours in a day, your work will be finished by the end of 24 May 2007. Now if you select 9 hours in a day, you work will be finished by the end of 23 May 2007.

13. You can include or exclude an activity in the simulation scenario to get different statistics. *Participating Activities* section shows the list of activities which are included in the scenario and which are not included in the scenario. You can exclude and include an activity using << and >> button. Figure 10.9 shows the scenario used in Claim Management process flow.

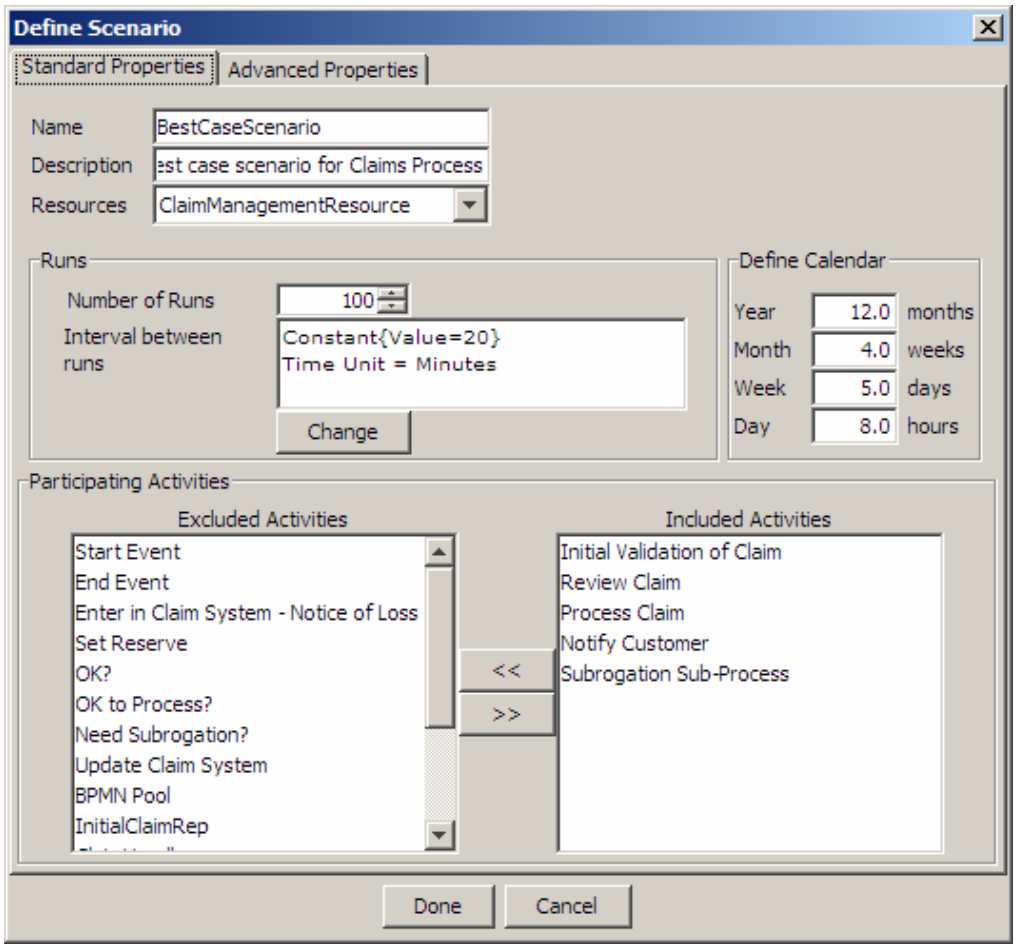


Figure 10.9: Claim Management Scenario

14. Click **Done** to close the Define Scenario dialog box. The created scenario is shown in the *Simulation Entities Panel* under *Scenarios* tree.

	This should be noted that the new scenario created is not yet saved. If you closed the Process Designer applet, the scenario will be lost. You can save the scenario now or after assigning resource and time etc to all activities of the process flow.

15. To save the scenario, select the scenario by double clicking on it in the *Scenario* tree and click **Save Scenario to Server** ( ) icon in the tool bar. A dialog box appears to confirm that the scenario has been saved to the server.

ASSIGNING RESOURCE

Once you have created a scenario, you need to assign resources to activities of the process flow and in turn evaluate its costs.

Steps to a assign a resource

1. Select the scenario from the *Scenario* tree. The selected scenario tree is highlighted in blue.
2. To assign a resource to an activity, double-click the activity in the graph canvas area. Properties of the activity are shown in the Scenario Properties panel in the bottom pane (see Figure 10.10).

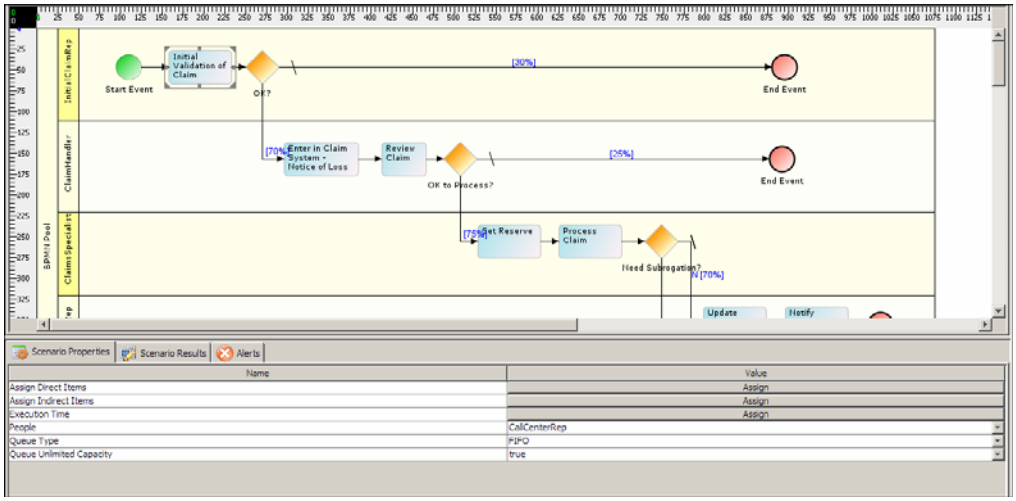


Figure 10.10: Scenario Properties

You can assign any resource type to an activity.

Assigning Direct Resource

3. To assign the direct resource used by the activity, click **Assign** in *Value* column of the *Assign Direct Items* property. The Assign Direct Items dialog box appears (see Figure 10.11).

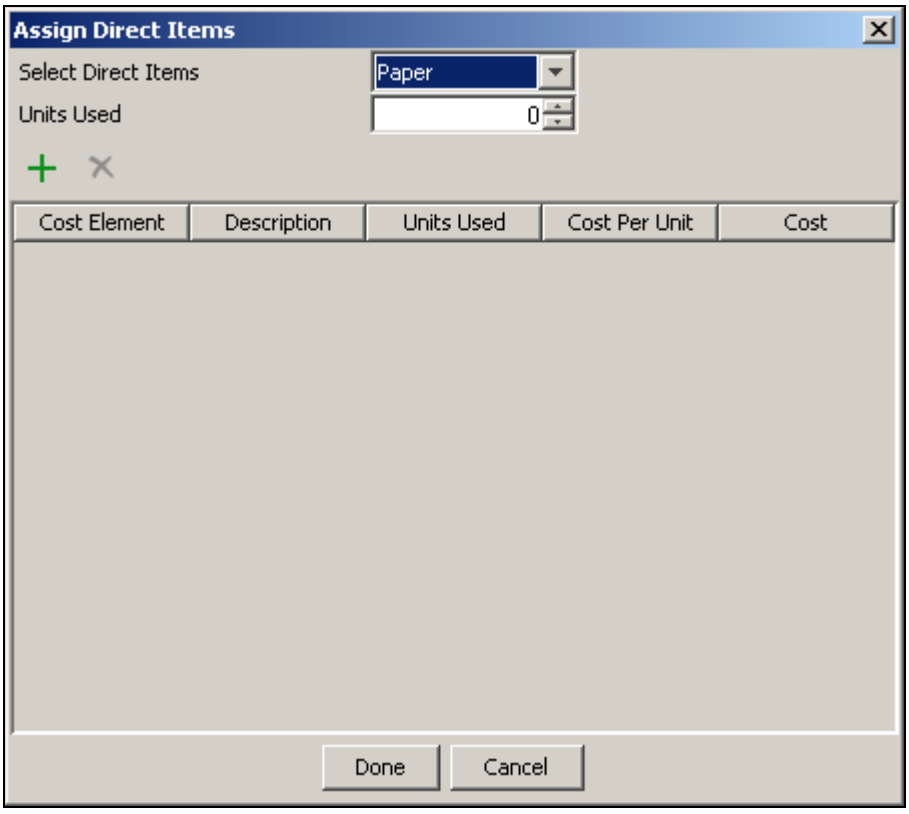


Figure 10.11: Assign Direct Resource

4. Select the direct resource to be added, from *Select Direct Items* drop-down list. All direct resources that are added in the Resource Set are listed in *Select Direct Items* drop-down list.

5. Select the number of direct resources selected from the *select Units Used* drop-down list, which will be consumed by the activity and click *Direct Item* (+) icon. The selected direct resource is added as shown in Figure 10.12.

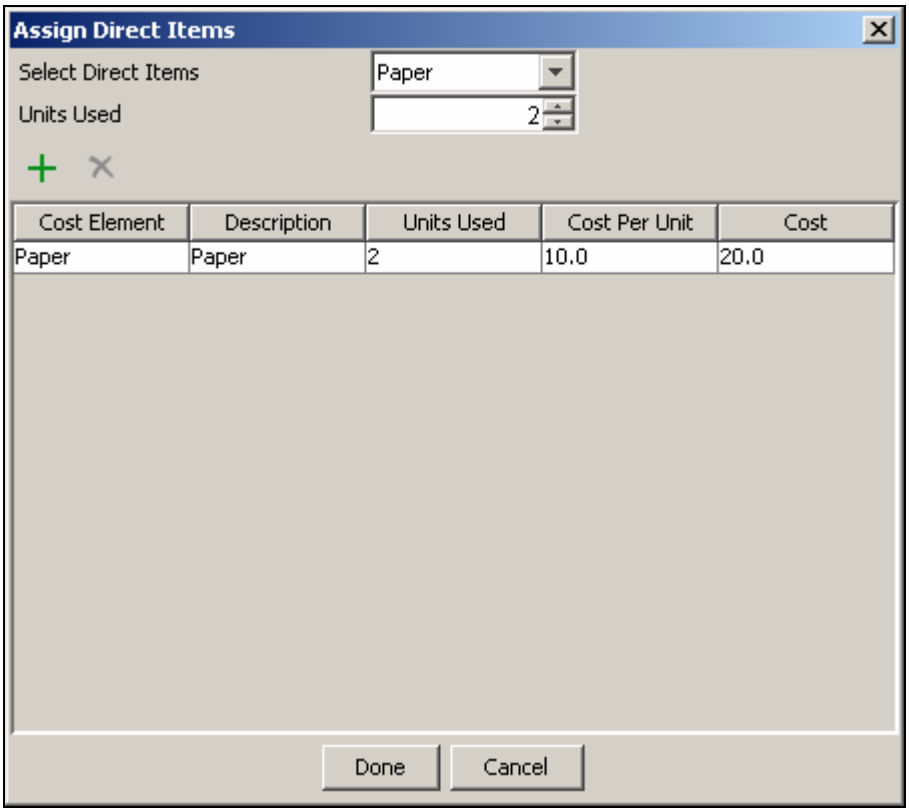


Figure 10.12: Direct Resource Added

- When you add a direct resource, the cost of the item is selected from the resource set.
- There is no limit to the number of direct resources that can be added.

6. After adding required resource, click **Done** to close the Assign Direct Items dialog box.

Assigning Indirect Resource

7. To assign the indirect resource used by the activity, click **Assign** in the value column of the *Assign Indirect Items* property. The Assign Indirect Items dialog box appears (see Figure 10.13).

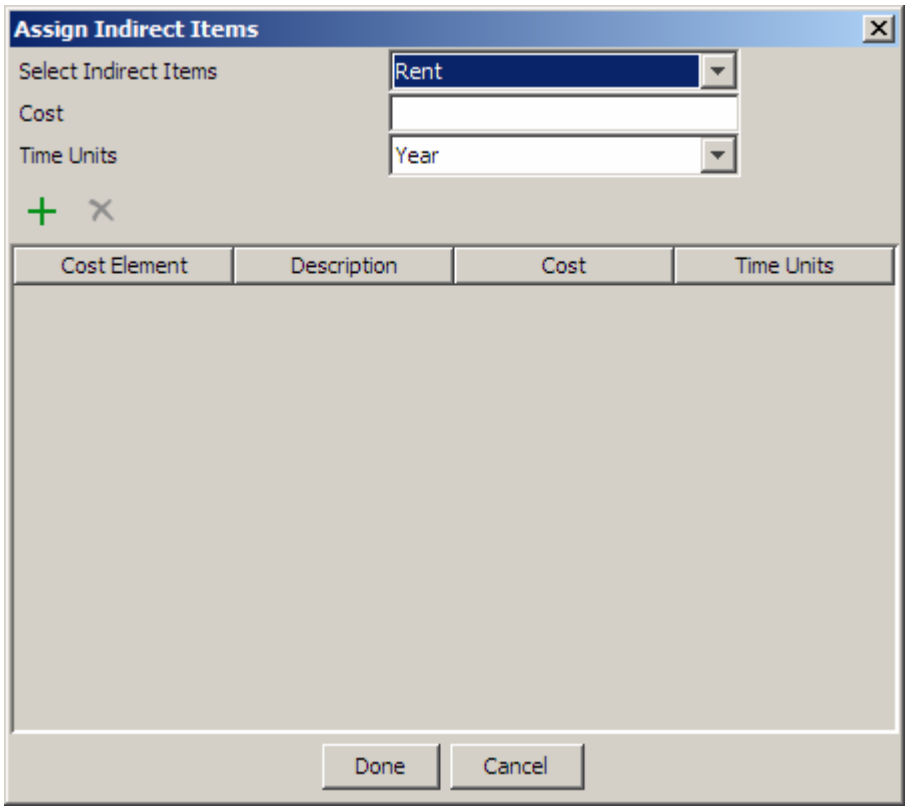


Figure 10.13: Assign Indirect Resource

8. Select the required indirect resource from *Select Indirect Items* drop-down list. All indirect resources that are added in the Resource Set are listed in *Select Indirect Items* drop-down list.
9. Enter the cost in the *Cost* field.
10. Select the unit of time for the rate is applicable from *Time Unit* drop-down list. For example rent is US$ 1000 per month.
11. Click *Add Indirect Item* (**)** to add the selected indirect item. The selected item is added as shown in the Figure 10.14.

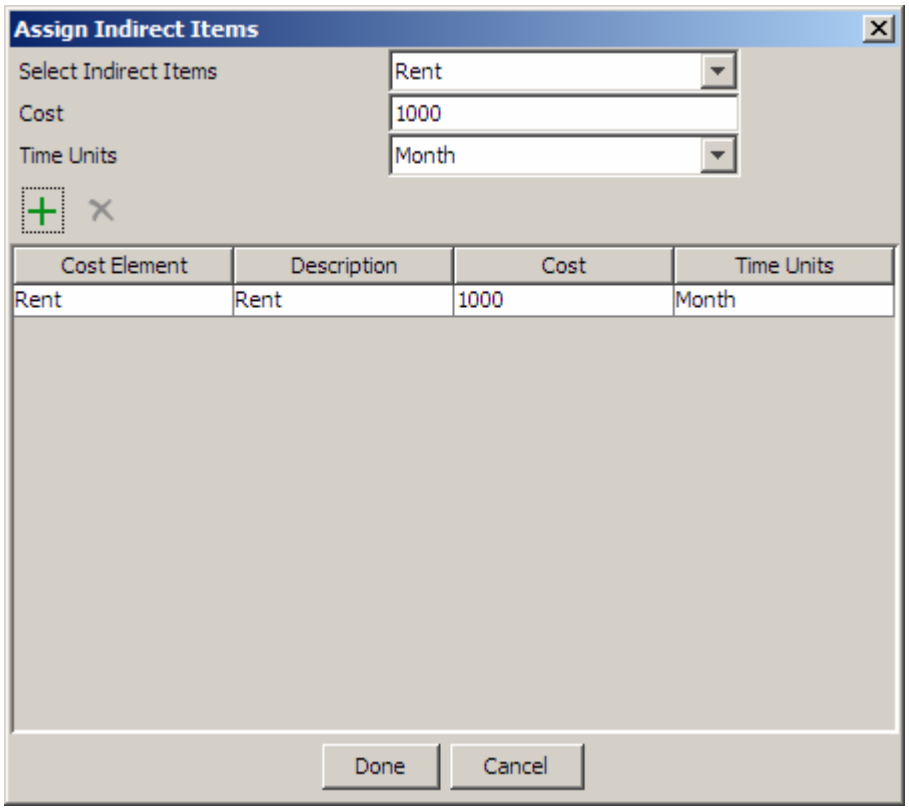


Figure 10.14: Indirect Resource Added

12. After adding the required indirect resource, click **Done** to close the *Assign Indirect Item* dialog box.

Assigning People Resource

13. Select the people resource, if any required by the activity from the P*eople* drop-down list. All people resources that are added in the Resource Set are listed in this drop-down list.

DEFINING EXECUTION TIME

Once you have assigned the resources to activities, you need to assign the execution time for the scenario.

Steps to assign execution time

1. To assign the execution time, click **Assign** in *Value* column of the *Execution Time* property. The *Specify Timing Information* dialog box is displayed (see Figure 10.15).

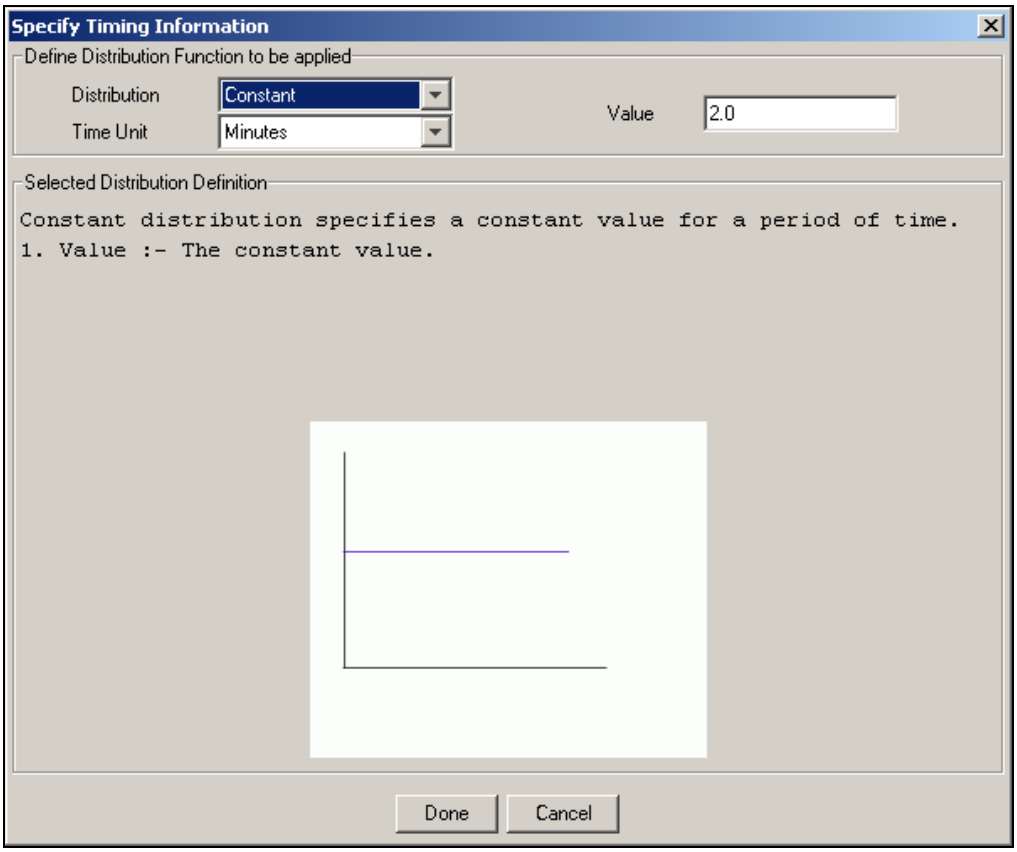


Figure 10.15: Define Execution Time

2. Select the distribution function from *Distribution* drop-down list.
3. Select the unit of time specified in the value field, from the *Time Unit* drop-down list.
4. Enter the time required for execution of the activity in the *Value* field. Field to enter time interval may change depending upon the type of distribution selected in the *Distribution* drop down list. For example, if you select *constant* in *Distribution* drop-down list, you will get *Value* field to enter the time interval. And if you select *Normal* distribution, you will get *Standard Deviation* and *Mean* field. A brief description along with graphical representation of the selected distribution is shown in the *Selected Distribution Definition* field.
5. Click **Done** to close the Define Time dialog box.

DEFINING QUEUE PROCESSING METHOD

Once you have defined the time for the scenario, you need to define the queue processing method for the scenario.

Steps to define Queue Processing method

1. Select the method in which the activity will process the queue from the *Queue Type* property drop-down list.

   Each activity of the process flow, maintains a queue in which the input data gets accumulated. You can specify that in which the activity processes the input data. The types of queues are described in the table below.

Table 10.2: Queue Type

Queue Type	Description
FIFO	First in first out. Data which comes first is processed first.
LIFO	Last in first out. Data which comes last is processed first.

2. Specify whether the queue capacity will be unlimited or not by selecting *true* or *false* from *Queue Unlimited capacity* property drop-down list. By default *true* is selected. It implies that unlimited data can be queued for the activity to be processed. If you want to limit the queue capacity, select *false* from the *Queue Unlimited Capacity* drop-down list.
3. When you select the *Queue Unlimited Capacity* as false, a new property *Queue Capacity* is added. Specify the maximum number of entities that can be kept waiting for processing, in the *value* column of the *Queue Capacity* property.

If the queue exceeds from *Queue Capacity* value, a bottleneck is identified and surplus data is lost.

ASSIGNING PROBABILITY

Once you have defined the queue processing method, you need to assign the probability for each possibility of the decision node.

Steps to assign probability

1. If any decision node is used in the process flow, you can assign the probability for each possibility of the decision node. To assign the probability, double-click the sequence coming out of the decision node. Properties of the sequence flow are shown in *Scenario Properties* panel (see Figure 10.16).

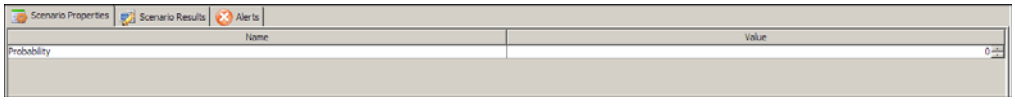


Figure 10.16: Assign Probability

2. Enter the probability in percentage, in the V*alue* column of the *Probability* property.
3. Similarly, assign the probability on sequence flows coming out of the decision node.

Once you have assigned and defined all the simulation parameters for all activities to be used in the process flow, you need to save the scenario. To save the scenario, click **Save Scenario to server** ( ) icon form the simulation tool bar. A dialog box displayed to confirm that the selected simulation is saved successfully.

EXECUTING SIMULATION SCENARIO

The Simulation Control Panel is used to execute a simulation scenario. In this Control Panel, you can specify the actual *Start Time* of the process flow and you can adjust the *speed* of the simulation.

Steps to execute a simulation scenario

1. In the Process Simulator applet, double-click the required scenario from the *scenarios* tree in the simulation entities panel. The selected scenario is shown in the *Selected Scenario* field in the *Simulation Control panel* (see Figure 10.17).

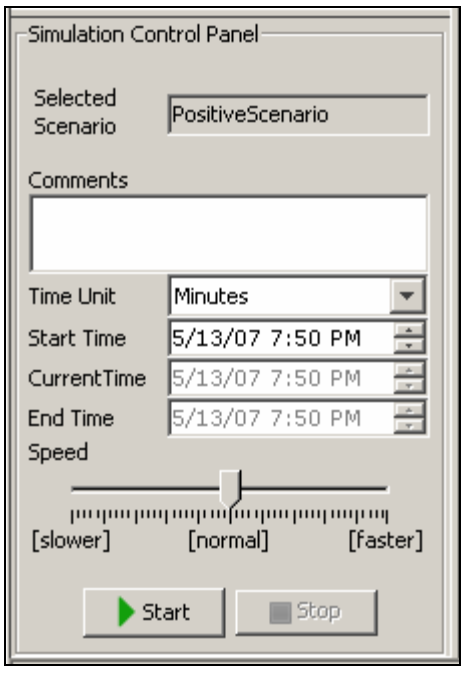


Figure 10.17: Simulation Control Panel

2. Enter the comment in the *Comments* field. This comment is displayed in the simulation report.

3. Select the unit of the time in which time related statistics will be shown in the simulation report.

4. Select the start date and time in mm/dd/yyyy hh:mm format from the *Start Time* drop-down list. You can change the date and time using up and down arrow or you can enter them manually. This is the actual time when your process flow execution will start.

5. During the execution of Simulation scenario, current time is shown in *Current Time* field. This time is based on the time specified in *Start Time* field.

6. When execution of simulation scenario is completed, *End Time* field shows the actual time when you process flow execution will be finished. This time is based on the start time specified in the *Start Time* field, number of count and the *Calendar* specified in the simulation scenario.

7. Adjust the speed of simulation using *Speed* sliding bar.

8. To start the simulation, click *Start* button. The simulation scenario execution starts. A graphical representation is shown in the graph canvas and the result of the simulation is shown in *Simulation Result* panel (see Figure 10.18).

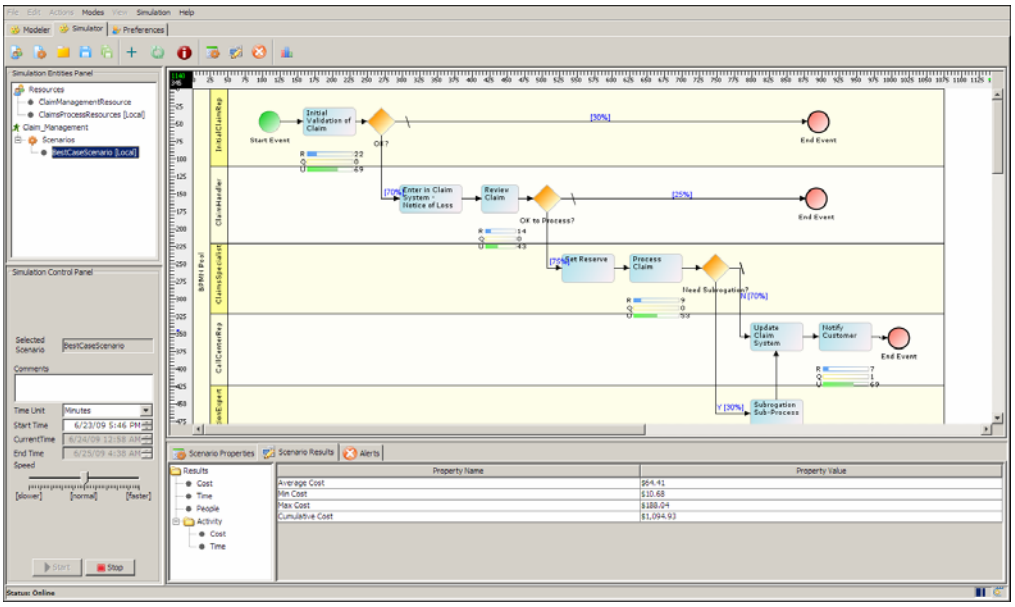


Figure 10.18: Simulation Progress

9. As shown in the figure above, three progress bars is shown for each activity of the process flow. The first progress bar is the *Counts Observed Bar*, which shows the number of cases or counts observed till now. The second progress bar is the *Current Queue Size Bar*, which shows the number of entities that are currently queued and are to be processed by the activity. The third progress bar is the *Resource Utilization Bar*, which shows the percentage of resources that are currently being utilized.

10. In the *Scenario Results Panel*, the consolidated result is shown. The result is divided into two parts. First part shows the cost, time and resource utilization by the process flow. The second part shows the cost and time utilization for each activity.

11. To view the details of any resource used, double-click it. The detailed information of the selected resource is shown. For detailed information about parameters shown in the result, refer to **Appendix A: Scenario Result Properties** .

GENERATING SIMULATION REPORT

Once the simulation is finished, you can generate the detailed report of the simulation result. The report is generated in the HTML form and by default is saved in the location:

C:\Documents and Settings\<user>\Local Settings\Temp\PD\SimulationReports\ Simulation Summary_report.html.

The simulation report contains the following information:

- Simulation summary report
- Graphical analysis of cost, time, maximum queue size and resource utilization
- Resource utilization for each activity
- Cost analysis for each activity
- Time analysis for each activity

Steps to a generate simulation report

1. To generate the simulation report, click **Generate Simulation Summary Report** ( ) button from the tool bar. The report is generated in the HTML form and shown in your browser. Figure 10.19 shows the *Simulation Summary* and *Graphical Analysis* report.

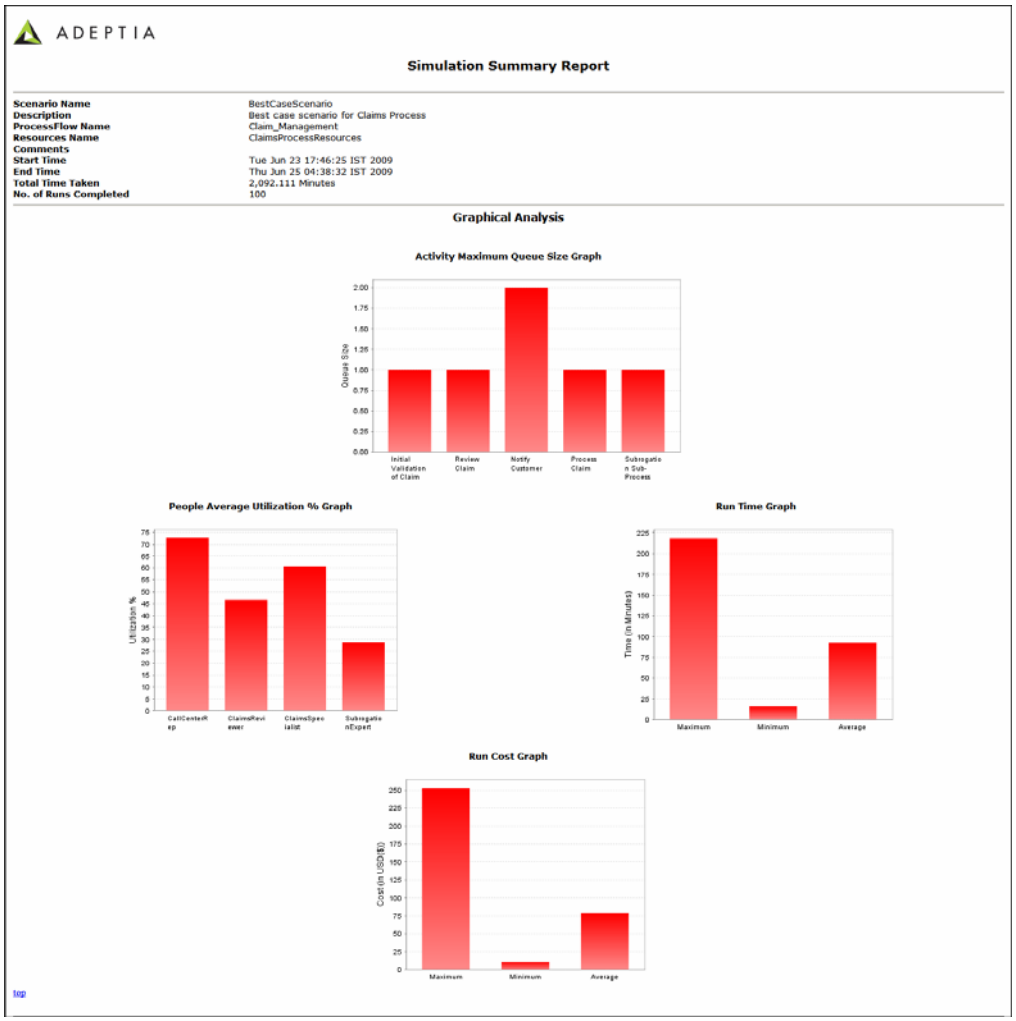
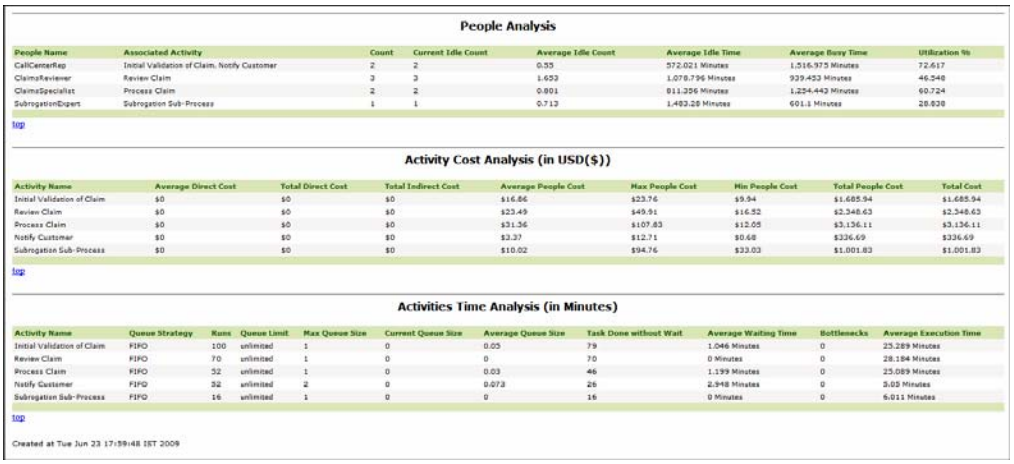


Figure 10.19: Simulation Summary Report (Graphical Analysis)

2. Figure 10.20 shows the *Resource Utilization*, *Cost Analysis*, and *Time Analysis* for each activity.



People Analysis

People Name	Associated Activity	Count	Current Idle Count	Average Idle Count	Average Idle Time	Average Busy Time	Utilization %
CallCenterRep	Initial Validation of Claim, Notify Customer	2	2	0.55	572.021 Minutes	1,516.975 Minutes	72.617
ClaimsReviewer	Review Claim	3	3	1.653	1,070.796 Minutes	939.453 Minutes	46.548
ClaimsSpecialist	Process Claim	2	2	0.801	811.396 Minutes	1,234.442 Minutes	60.724
SubrogationExpert	Subrogation Sub-Process	1	1	0.713	1,483.28 Minutes	601.1 Minutes	28.838

top

Activity Cost Analysis (in USD($))

Activity Name	Average Direct Cost	Total Direct Cost	Total Indirect Cost	Average People Cost	Max People Cost	Min People Cost	Total People Cost	Total Cost
Initial Validation of Claim	$0	$0	$0	$16.86	$23.76	$9.94	$1,685.94	$1,685.94
Review Claim	$0	$0	$0	$23.49	$49.91	$16.52	$2,348.63	$2,348.63
Process Claim	$0	$0	$0	$31.36	$107.83	$12.05	$3,136.11	$3,136.11
Notify Customer	$0	$0	$0	$2.37	$12.71	$0.68	$336.69	$336.69
Subrogation Sub-Process	$0	$0	$0	$10.02	$94.76	$33.03	$1,001.83	$1,001.83

top

Activities Time Analysis (in Minutes)

Activity Name	Queue Strategy	Runs	Queue Limit	Max Queue Size	Current Queue Size	Average Queue Size	Task Done without Wait	Average Waiting Time	Bottlenecks	Average Execution Time
Initial Validation of Claim	FIFO	100	unlimited	1	0	0.05	79	1.046 Minutes	0	25.289 Minutes
Review Claim	FIFO	70	unlimited	1	0	0	70	0 Minutes	0	28.184 Minutes
Process Claim	FIFO	52	unlimited	1	0	0.03	46	1.199 Minutes	0	25.089 Minutes
Notify Customer	FIFO	32	unlimited	2	0	0.072	26	2.948 Minutes	0	3.03 Minutes
Subrogation Sub-Process	FIFO	16	unlimited	1	0	0	16	0 Minutes	0	6.011 Minutes

top

Created at Tue Jun 23 17:59:48 IST 2009

Figure 10.20: Simulation Summary Report (Analysis)

11 APPENDIX A: SCENARIO RESULT PROPERTIES

This appendix describes the term which are shown in the *Scenario Result* Pane. The result is divided into two parts. First part which is shown under *Result* tree shows the statistics of complete Business process. Second Part, which is shown under *Activity* tree, shows the statistics of each activity.

RESULTS

Results section shows the statistics of *Cost, Time* and *People* resources used by the complete business process.

Table 11.1: Cost related information

Name	Description
Average Cost	Cumulative cost /Number of runs
Min Cost	Minimum cost among all runs
Max Cost	Maximum cost among all runs
Cumulative cost	Total cost of all runs

Table 11.2: Time related information

Name	Description
Runs Started	Number of cases started
Runs Finished	Number of cases finished
Average Run Time	Total Process Time/Number of Runs
Min Run Time	Minimum time among all runs
Max Run Time	Maximum time among all runs
Total Process Time	Total time taken by all runs.

Table 11.3: People related information

Name	Description
People Name	Name of the people resource
Associated Activity	Activity associated with the people
Count	Number of people assigned

Current Idle Count	Number of people currently idle.
Average Idle Count	Total Idle Count/Number of Run
Average Idle Time	Total Idle Time for a people/Number of runs
Average Busy Time	Total Busy Time for a people/Number of runs

ACTIVITY

Activity section shown the statistics of Cost and Time resources used by each activity of the business process.

Table 11.4: Activity wise cost related information

Name	Description
Activity Name	Name of the activity
Average Direct Cost	Total direct cost for the activity/Number of runs
Total Direct Cost	Direct cost of all runs
Total Indirect Cost	Total Indirect cost of the activity
Average People Cost	Total People cost of the activity/ number of runs
Max People Cost	Maximum people cost of the activity among all runs
Min People Cost	Minimum people cost of the activity among all runs
Total People Cost	Total people cost of the activity for all runs
Total Cost	Sum of Direct cost , Indirect cost and People cost of the activity

Table 11.5: Activity wise time related information

Name	Description
Activity Name	Name of the activity
Runs	Total number of runs
Queue Limit	Number of entities that can be queued for execution
Max Queue Size	Maximum number of entities that has been queued for execution
Current Queue Size	Number of activities currently queued for execution
Average Queue Size	Sum of queue size/Number of runs
Task Done without Wait	Number of task which has be processed

	without wait
Average Waiting Time	Total number of waiting time/ Number of runs
Average Execution Time	Total execution time of activity/Number of runs

12 ABOUT ADEPTIA INC.

Adeptia, an enterprise software company headquartered in Chicago, Illinois, provides a business process integration technology to easily and quickly automate business processes using industry-specific standards. Adeptia's unique product combines business process management with business-to-business integration. Adeptia's reusable and highly scalable technology has been deployed by Fortune 1000 companies. For more information, visit **http://www.adeptia.com** .

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