Nova Bonita BPM

Quick Start

Nova Bonita BPM

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Nova Bonita (aka Bonita v4)

Software

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Table of Contents

Chapter 1. Welcome to the Nova Bonita BPM suite....6

Chapter 2. Setting up Nova Bonita BPM tools....7
2.1.1 Downloading the products....7
2.1.2 Installing and launching the designer....7
2.1.3 Installing and launching the console and the runtime....8

Chapter 3. The Web Sale application....10
3.1 The Web Sale Process definition....10
3.1.1 BPM project creation....10
3.1.2 Process definition....11
3.1.3 Adding participants....12
3.1.4 All about Activities....13
3.1.5 Adding transitions....15
3.1.6 Working with variables....16
3.1.7 Conditions in transitions....18
3.1.8 Iterations/loops/cycles....19
3.1.9 Working with connectors/hooks....21
3.2 Running the Web Sale process....23
3.2.1 Deploying the Web Sale process....24
3.2.2 Creating an instance of Web Sale process....24
3.2.3 Interacting with the Web Sale process through the worklist....26
3.2.4 Monitoring the Web Sale process....27
3.2.5 Web forms generation and automatic types detection....28

List of Figures

Figure 2-1. Creating a New BPM Project....8
Figure 2-2. Login into the web 2.0 BPM console....9
Figure 2-3. Web 2.0 BPM environment....9
Figure 3-4. WebSale process definition included in the distribution....10
Figure 3-5. BPM project structure....11
Figure 3-6. Creating a New XPDL file....11
Figure 3-7. New BPM process view....12
Figure 3-8. Participants definition in the designer....12
Figure 3-9. Activity definition dialog....13
Figure 3-10. Manual activities in WebSale process....14
Figure 3-11. Hook definition dialog....14
Figure 3-12. Activities creation before arrangement....15
Figure 3-13. WebSale process activities and transitions....15
Figure 3-14. Variable definition dialog....16
Figure 3-15. Designers participants view....17
Figure 3-16. Designers XML view (XPDL file format)....17
Figure 3-17. Decision variable in a condition between two activities....18
Figure 3-18. WebSale process view including conditions....18
Figure 3-19. ExpressDelivery variable in a condition between two activities....19
Figure 3-20. Adding points to transitions....19
Figure 3-21. Designer view using points....20
Figure 3-22. Changing the default activity type....20
Figure 3-23. Hook creation Wizard....21

Figure 3-24. Hook/Connector name dialog....21
Figure 3-25.Developers Hook view....22
Figure 3-26. BPM management application....23
Figure 3-27. Web Sale process deployment....24
Figure 3-28. Users worklist application....24
Figure 3-29. Web forms creation in the console....25
Figure 3-30. Users activity list....25
Figure 3-31. Selection of values from an enumerated variable....26
Figure 3-32. User worklist application....27
Figure 3-33. Monitoring a Web Sale process instance....27
Figure 3-34. Monitoring Web Sale process activities....27
Figure 3-35. Automatic types detection in web forms....28
Figure 3-36. Date field selection in web forms....28
Figure 3-37. Check semantics in web forms....29

Chapter 1. Welcome to the Nova Bonita BPM suite

Nova Bonita comes with an open source set of tools providing an easy way to work with processes in your organization. Build up your business processes the way Bonita team sees them:

- Create a BPM project in your Eclipse
- Start modeling a process
- Add connectors to the previous process
- Deploy your BPM project in Nova Bonita
- Interact with your BPM project through the web 2.0 based console

Nova Bonita can be used by anyone in an IT organization, no matter how big or small the organization is.
This Quick Start Guide covers the main features of Nova Bonita, and will help you to get started right away. To learn more about any of the features outlined here, or to get guidelines and other useful information, please take a look to the other documents available in the Nova Bonita distribution.

Chapter 2. Setting up Nova Bonita BPM tools

2.1.1 Downloading the products

Nova Bonita products suite is composed by three different components that can be used separately or in common. Multiple configurations of those components are allowed: JSE (standard) vs JEE (enterprise). In this quick start guide we will download those three components and we will use them in a standard configuration (default):

- Nova Bonita runtime: this is the Nova Bonita process engine. Processes can be deployed, executed and monitored through a rich API providing BPM services.
- Nova Bonita console: this is the web 2.0 graphical interface fostering the user experience during BPM deployment, execution and monitoring phases.
- Nova Bonita designer: this is the BPM development environment allowing to graphically define your processes as well as BPM connectors to your information system.

Those three components can be downloaded from the Nova Bonita download forge: bonita-runtime-4.1, bonita-console-4.1, bonita-designer-4.1 respectively.

Note:

Nova Bonita console distribution embeds a runtime component. This BPM runtime is already configured to be deployed locally in the same server in which the web 2.0 console will be running.

For more details about the prerequisites to install and run Nova Bonita please check BonitaCookBook.pdf document included in the distribution

2.1.2 Installing and launching the designer

Unzip bonita-eclipseDesigner-4.1.zip file into your favorite Eclipse environment (up to 3.4.0 version). Previous file already contains a “plugins” directory so please unzip this file into your root Eclipse installation directory.

Once unzipped, just restart your Eclipse, go to “File” menu and then check that the “Bonita BPM” wizard is available in the list:

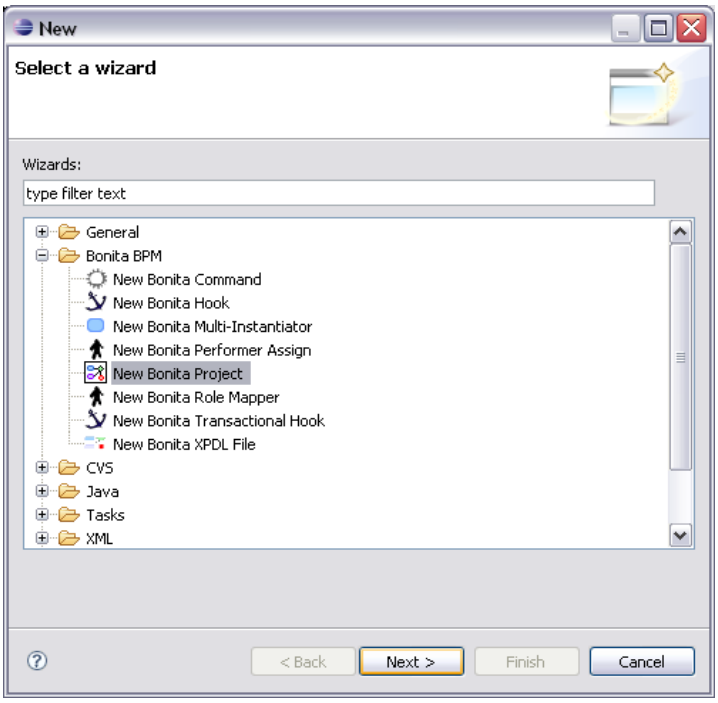

Figure 2-1. Creating a New BPM Project

2.1.3 Installing and launching the console and the runtime

In this quick start guide we are going to leverage the integrated version of the runtime and the console components. This component/distribution is in fact the bonita-console-4.1.zip file.

The bonita-runtime-4.1.zip component is targeted to be used separately from the console one in distributed environments (client-server installation) or embedded in custom web applications. Those use case are out of the scope of this guide. Don't hesitate to take a look to the BonitaCookBook.pdf document for more details about configuring the runtime component in those environments.

Unzip bonita-console-4.1.zip file into your file system and a new directory called bonita-console-4.1 will be created.

To start the Nova Bonita Console just go to the "bin" directory and launch "bpm run" command (Linux users we suggest to see the BonitaCookBook.pdf document, chapter administration and execution). This will automatically start the runtime and will deploy the web console application in a custom version of a Tomcat server. Was easy right?

Let's now check that Nova Bonita was successfully installed. For that just open your favorite web browser and connect to the following URL: http://localhost:8080/portal/

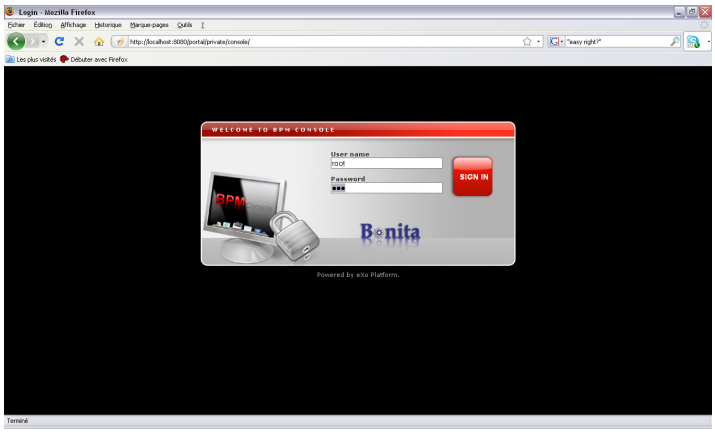

Figure 2-2. Login into the web 2.0 BPM console

After logged as root/bpm by default (admin user) the following screen will appear:

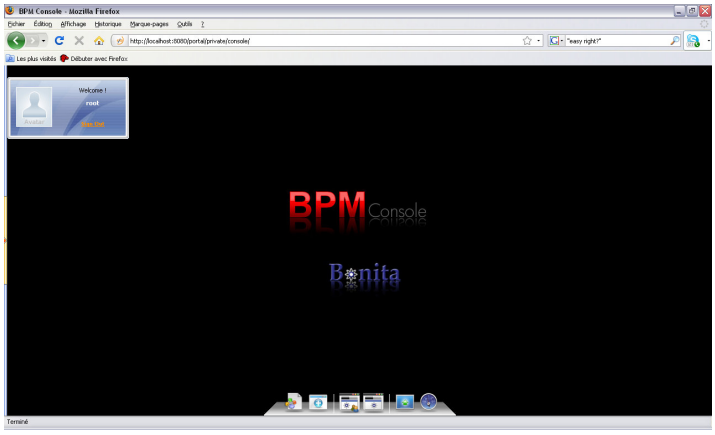

Figure 2-3. Web 2.0 BPM environment

Note:

Nova Bonita console distribution embeds a Tomcat server which is properly configured to deploy Nova Bonita runtime and web console components.

Chapter 3. The Web Sale application

This is the reference example we are going to use all over this quick start guide. The idea is to illustrate how easy is to set up a BPM based application in Nova Bonita by:

- Defining the Web Sale BPM process through the graphical designer
- Deploy it and interact with the web sale application through the web console

The Web Sale process shows a simple but common use case in which a customer and an online shop agent/employee are involved in a purchase request.

The Web Sale application is a web application build on top of the Web Sale process which is embedded in the Web 2.0 BPM console environment. Thus, business logic of this application is delegated to the BPM runtime rather than coded into the application itself.

Future versions of Nova Bonita will also allow to automatically generates this web application as an standalone web application that could be deployed out of the scope of the Web 2.0 Console.

3.1 The Web Sale Process definition

In this quick start guide you will work with a WebSale like process. This process is already included in the Nova Bonita distribution:

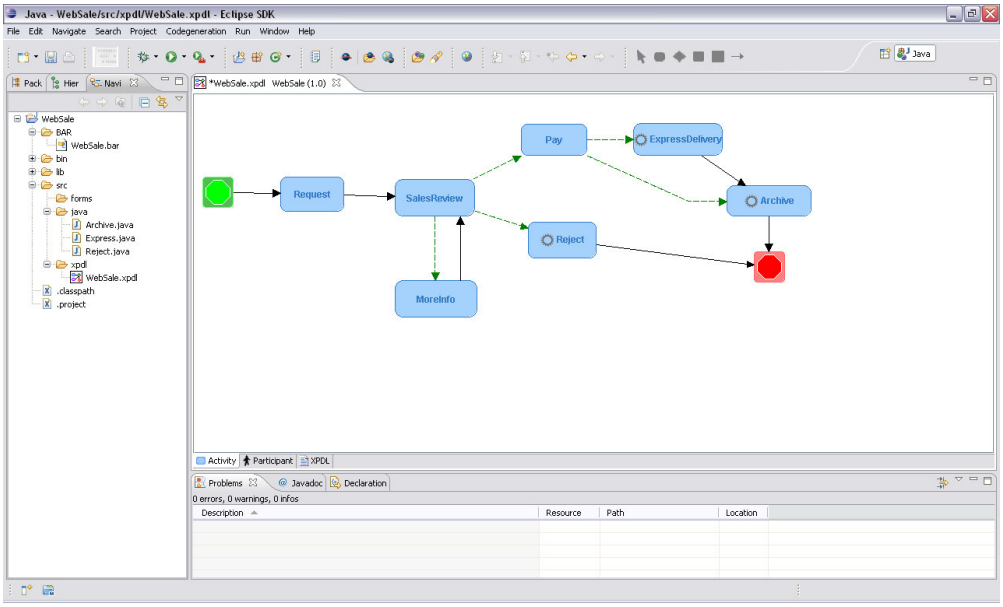

Figure 3-4. WebSale process definition included in the distribution

3.1.1 BPM project creation

Let's start by creating a new BPM process with the designer. A BPM project represents an unified environment in which the process definition and connectors will be put together before deploy the whole into the rutime. The deployment units in Nova Bonita are .bar files.

For that, just go to Eclipse File menu and select “New -> Project” feature. Then select the “New Bonita Project” feature and specify the name of your BPM project (i.e SimpleWebSale).

Click on the “Finish” button when you are done and this wizard will automatically create a new project in your Eclipse :

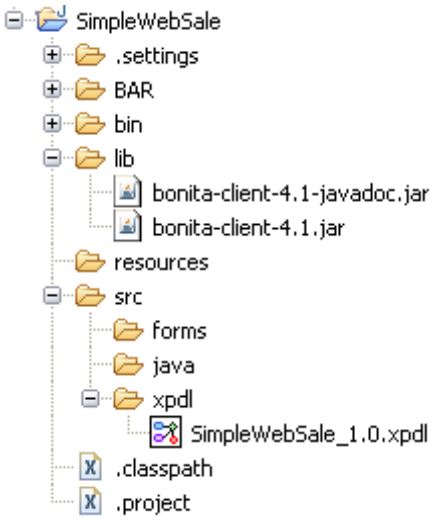

Figure 3-5. BPM project structure

As you can see this wizard has automatically added required libraries to compile java related BPM entities. We will come back to this point later on.

3.1.2 Process definition

Let’s now focus on the BPM process definition. For that, select the “xpdl” directory and click right button on “New -> Other -> New Bonita XPDL file”. This will show you the following dialog:

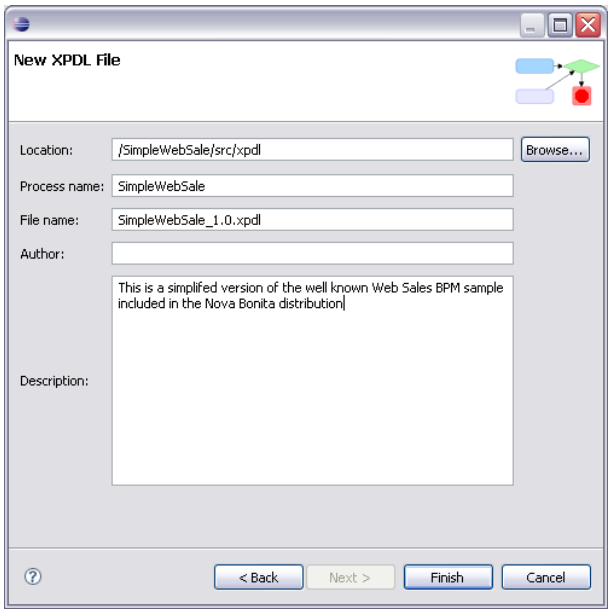

Figure 3-6. Creating a New XPDL file

In the previous dialog just enter the name of your process (i.e SimpleWebSale) as well as a description (if required). This will automatically create an empty XPDL file and will open the Nova Bonita designer:

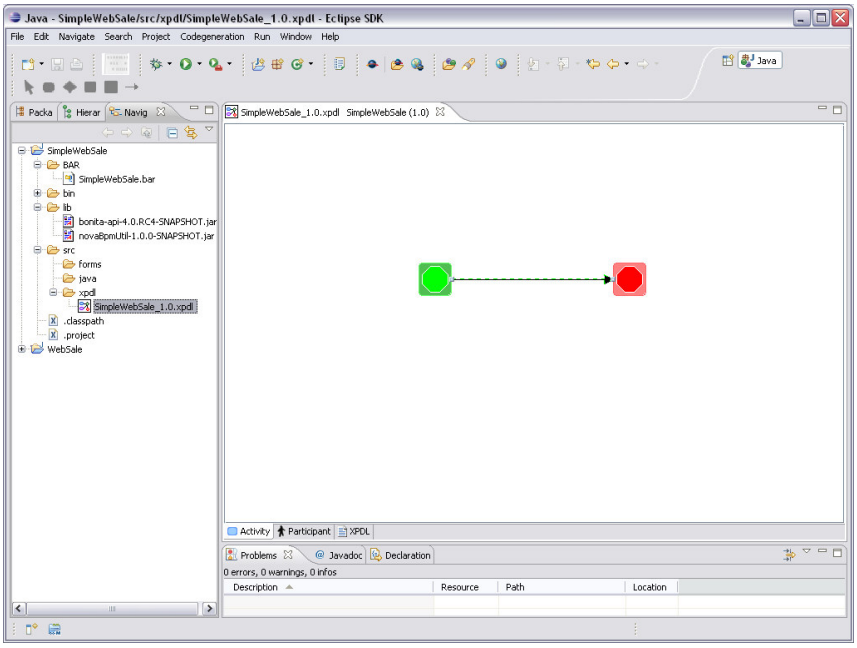

Figure 3-7. New BPM process view

By default, a process with “start” and “end” activities is created. Time now to add activities in-between corresponding to the WebSale business process.

3.1.3 Adding participants

We will start by creating the actors/participants of this process. Those are a “customer” and an “employee”. Click right over the designer and select “properties” view. Then create the previous participants.

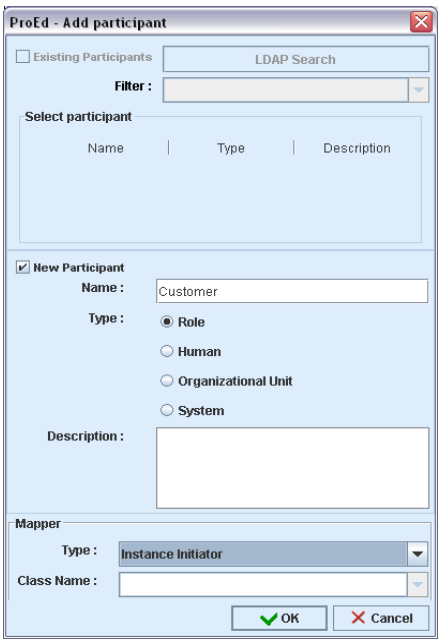

Figure 3-8. Participants definition in the designer

Both participants will be added with type “Role” (meaning potentially more than one actor could be part of them) and using the default mapper operation: Instance Initiator.

Note:

Participants mappers are operations that resolve at runtime the users that will be assigned to a particular role/participant definition. Commonly mappers are connectors to user repositories such LDAP, DB, Active Directory…

In this quick start guide we are using a default mapper implementation that assigns the role to the user that will create an instance of the BPM process. This is just for learning purposes; in a real use case at least two different actors would be involved in the Web Sale process.

3.1.4 All about Activities

Time now to create the main activities of the WebSale BPM process. The following activities will be created:

- “Request”, “Pay” and “MoreInfo” activities will be created as manual activities (aka user task) and so assigned to the “customer” role previously created.
- “SalesReview” activity is also a user activity that will be assigned to the “employee” role.
- “Reject”, “ExpressDelivery” and “Archive” activities are automatic activities that will interact with the information system (i.e sending a notification, updating a row in the database…)

In order to create those activities we will leverage an activity type called “basic activity”. To add one basic activity just click over the “Add Activity” icon available in the toolbar:

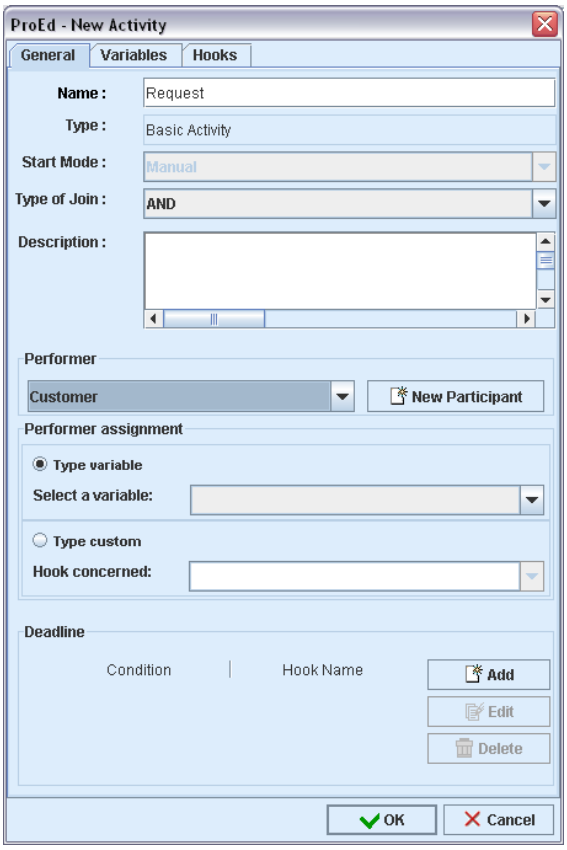

Figure 3-9. Activity definition dialog

Note:

By default a basic activity is consider to be automatic. To change it to manual just select one of the existing participants/actors available. Those are called activity performers

After the creation of previous four manual activities your designer should looks like as follows:

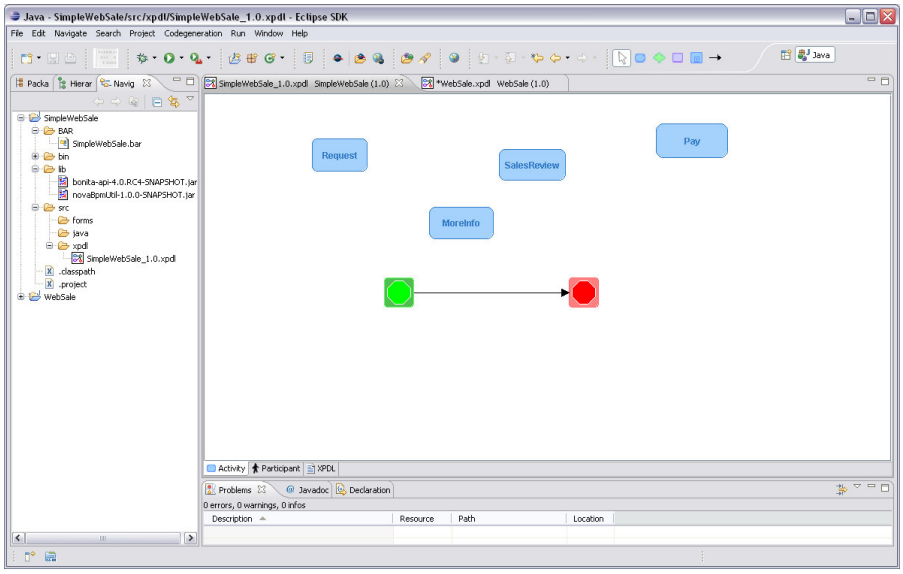

Figure 3-10. Manual activities in WebSale process

Add now three new “basic activities” to the WebSale process (all three automatic activities) and assign a hook called “Message” to each one of them:

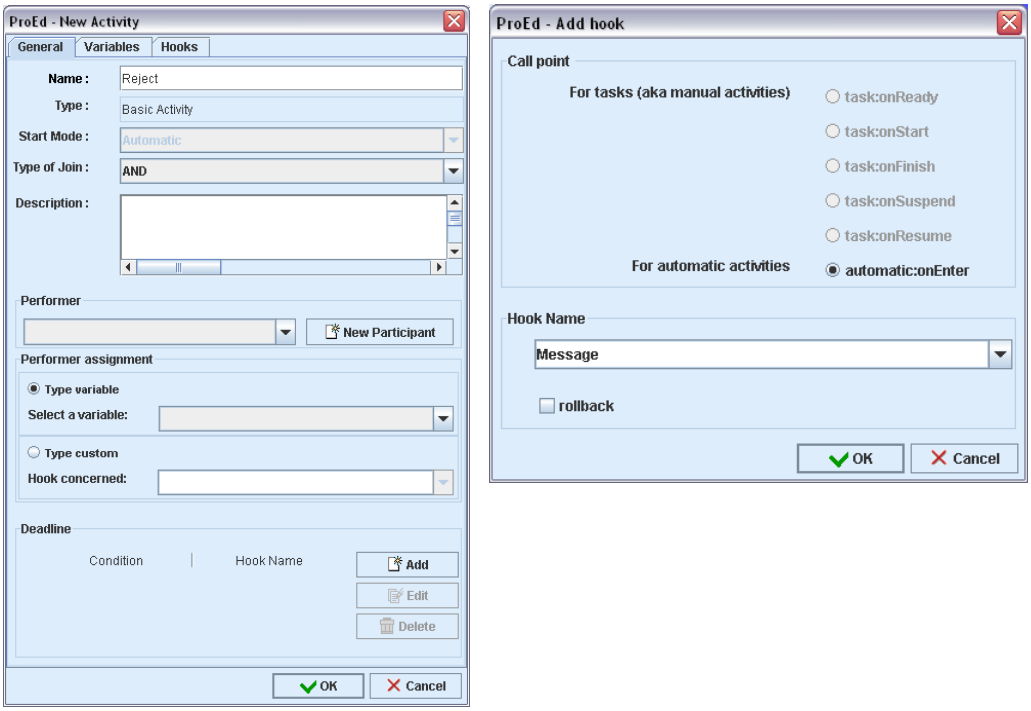

Figure 3-11. Hook definition dialog

Automatic activities creation operation is always associated to BPM connectors. Connectors, called hooks in Bonita, are java artifacts that will allow interaction with the information system. Email notifications, database updates or web services calls are example of connectors.

The Nova Bonita designer requires a hook definition when adding automatic activities. In this guide we use a very simple hook/connector that just print a message on the server console. We will call this connector “Message”.

Once those three activities are created your BPM process appearance should be:

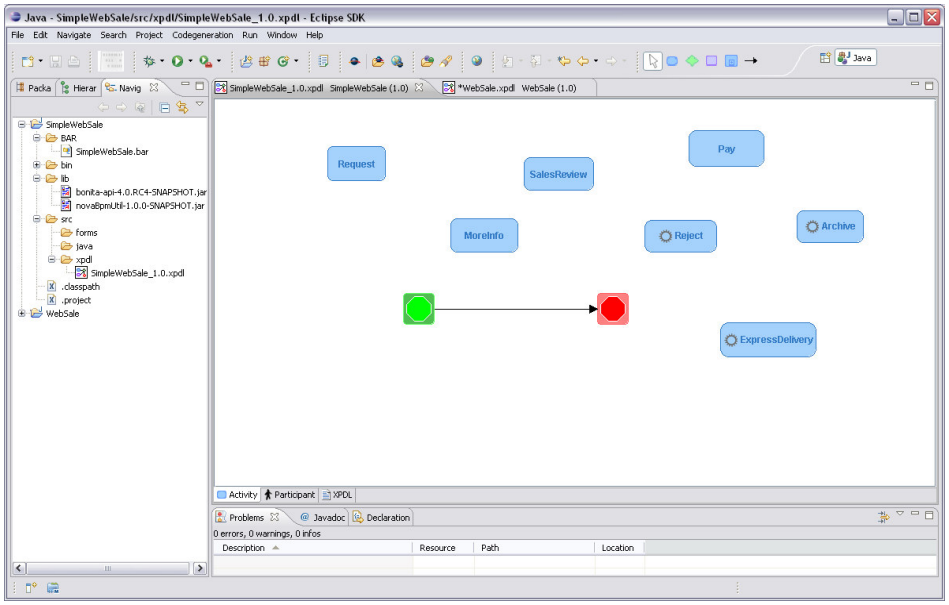

Figure 3-12. Activities creation before arrangement

3.1.5 Adding transitions

Resize now those activities and add transitions in-between. For that, please use the “transition” icon and follow the activity sequence illustrated in the diagram below:

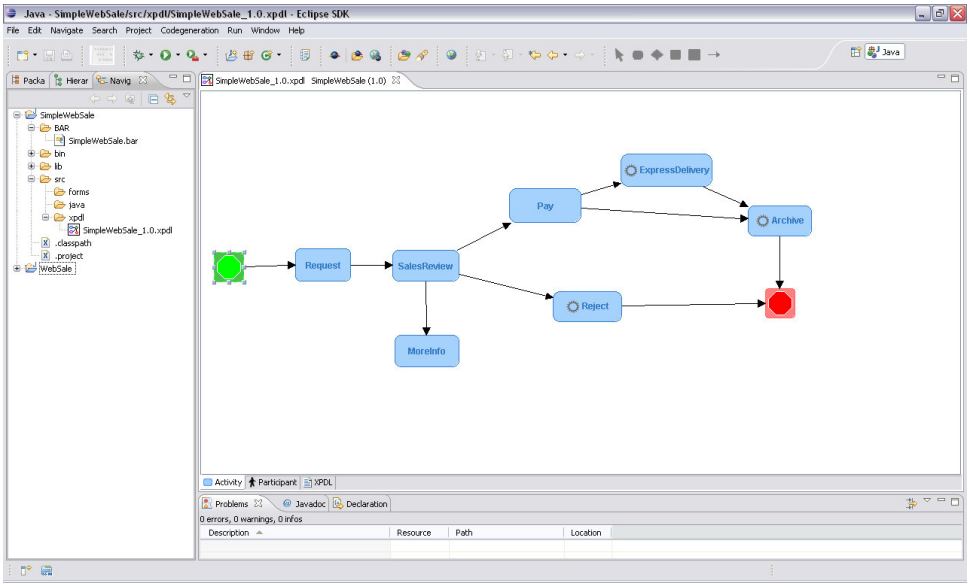

Figure 3-13. WebSale process activities and transitions

Note:

Each “Save” operation in the designer will automatically generate a “.bar” file (SimpleWebSale.bar in the example). This .bar file is the one that you will deploy into the runtime when the definition phase is completed.

By default; the .bar file will be located under the BAR directory of your Web Sale project.

3.1.6 Working with variables

Lets’ now focus on the variables definition for the Web Sale process. In this example we will add both global and local variables. Global variables can be added by clicking right on the designer and going over the variables tab. Local variables (aka activity variables) are accessible by either double clicking on a particular activity or clicking right mouse button over it.

In both cases, the following dialog will allow you to add new variables:

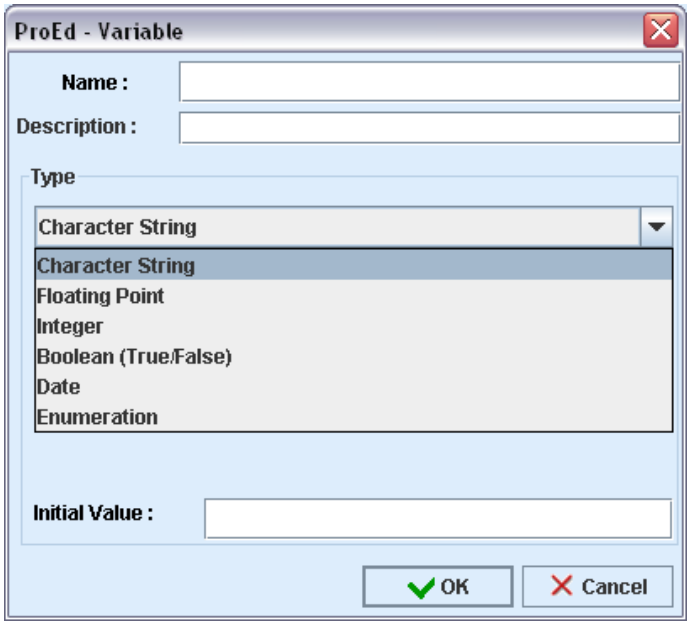

Figure 3-14. Variable definition dialog

Note:

An initial value can be defined for each variable, in this sample its not relevant.

Types selected for variables during the process definition will be used later on by the Nova Bonita Console to automatically generate web forms associated to BPM operations. Those web forms could also be customized.

The following variables are required for the Web Sales sample:

- Global variables: “UserName” type String, “UserPhone” type String, “UserEmail” type String and “Products” type Enumeration with the following possibles values: TV, Cellphone and Laptop

- Local variables:
    - Activity “SalesReview”: variable “Decision” type Enumeration with possible values grant, reject and moreinfo.
    - Activity “Pay”: variable “CreditCardNumber” type Integer, “CreditCardExpirationDate” type Date and “ExpressDelivery” type Boolean
    - Activity “MoreInfo”: variable “Comment” type String

Note:

At any time during the process definition, you can switch the designer view from the default one to either the participants or the xml one

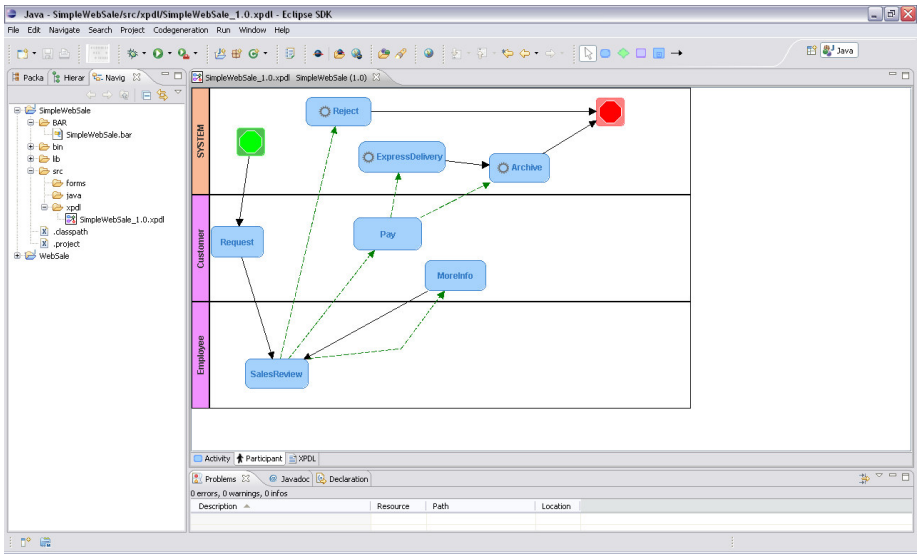

Figure 3-15. Designers participants view

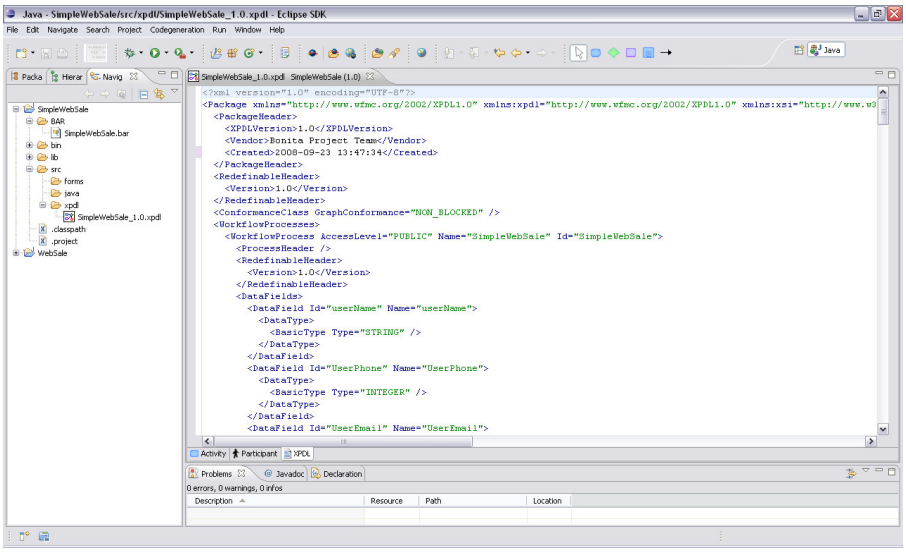

Figure 3-16. Designers XML view (XPDL file format)

3.1.7 Conditions in transitions

We are about to finish the Web Sale design. Before that we will leverage some of the variables we have just created in transitions:

- "SalesReview" activity: click on each one of the outgoing transitions starting from "SalesReview" and set a condition by using the "Decision" local variable with values grant, reject and moreinfo respectively:

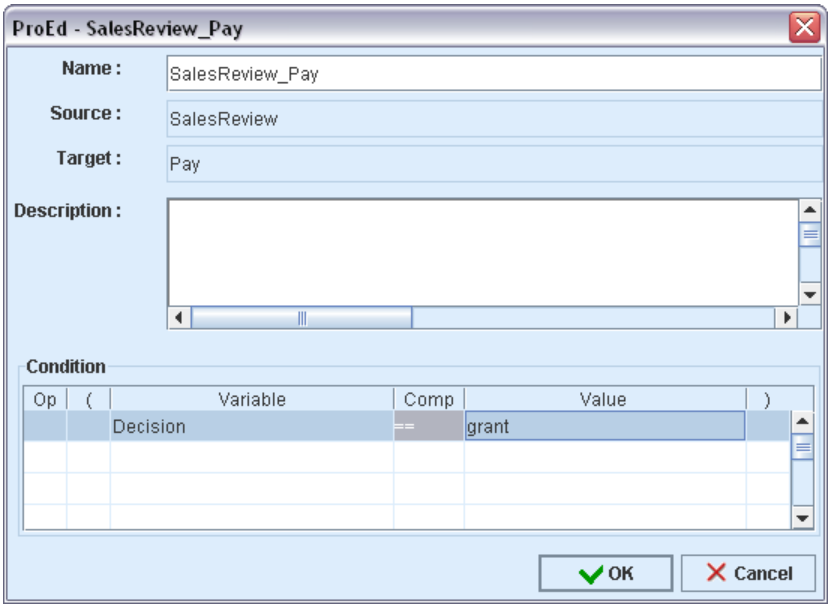

Figure 3-17. Decision variable in a condition between two activities

In the dialog above, you can easily use the smart conditions editor to set up conditions in transitions. The editor provides the list of variables accessible from a particular activity as well as corresponding operators.

The designer will change the look and feel of transitions for which conditions were defined:

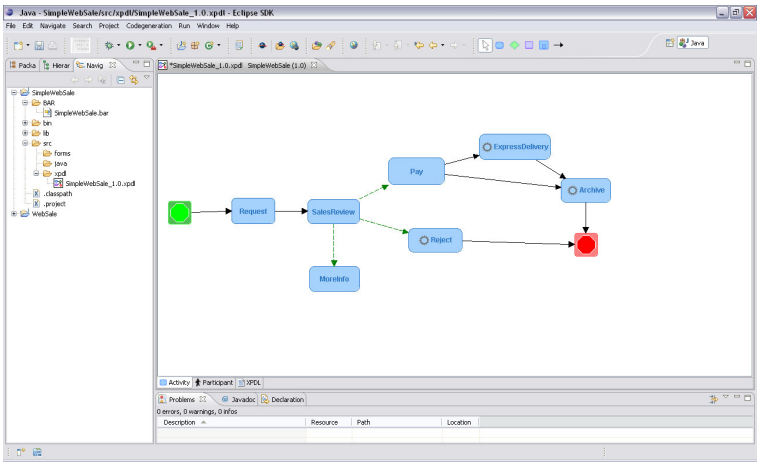

Figure 3-18. WebSale process view including conditions

- "Pay" activity: set a condition in both outgoing transitions using the "ExpressDelivery" variable in conditions, use true and false values respectively:

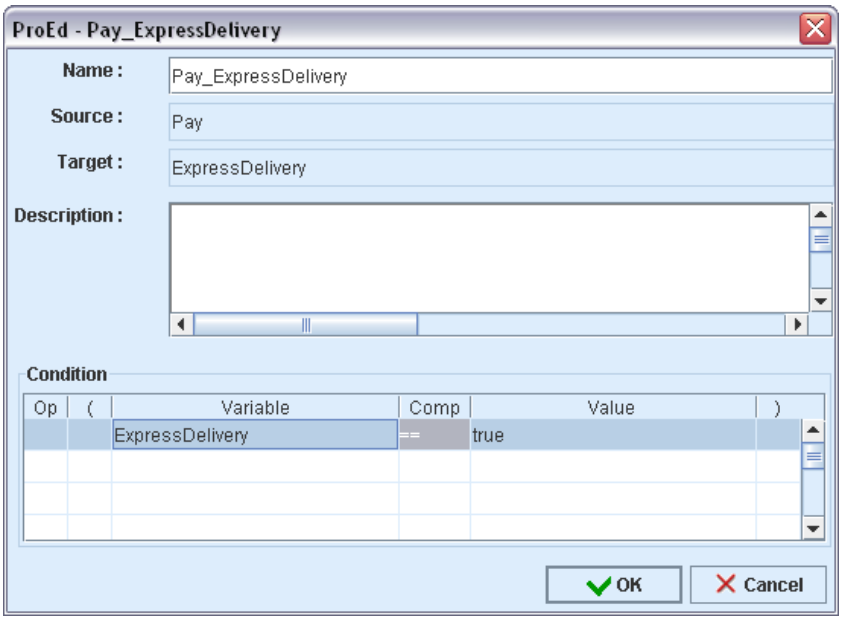

Figure 3-19. ExpressDelivery variable in a condition between two activities

3.1.8 Iterations/loops/cycles

As you can see in the current process definition, there is a missing return path between "MoreInfo" and "ReviewSales" activities. This connection will allow to retry the sales review after some additional information was provided by the customer.

Let's so add the missing transition between those activities. This transition will create an iteration or a loop between previous activities:

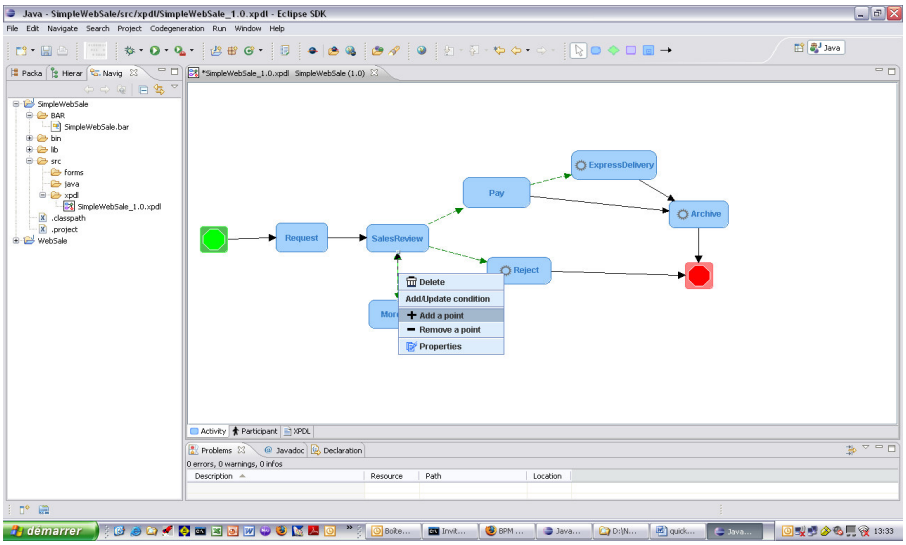

Figure 3-20. Adding points to transitions

In those use cases we suggest you to "add points" (as shown in the picture above) on one of the transitions of an iteration between activities. Points will allow to properly adjusting the view:

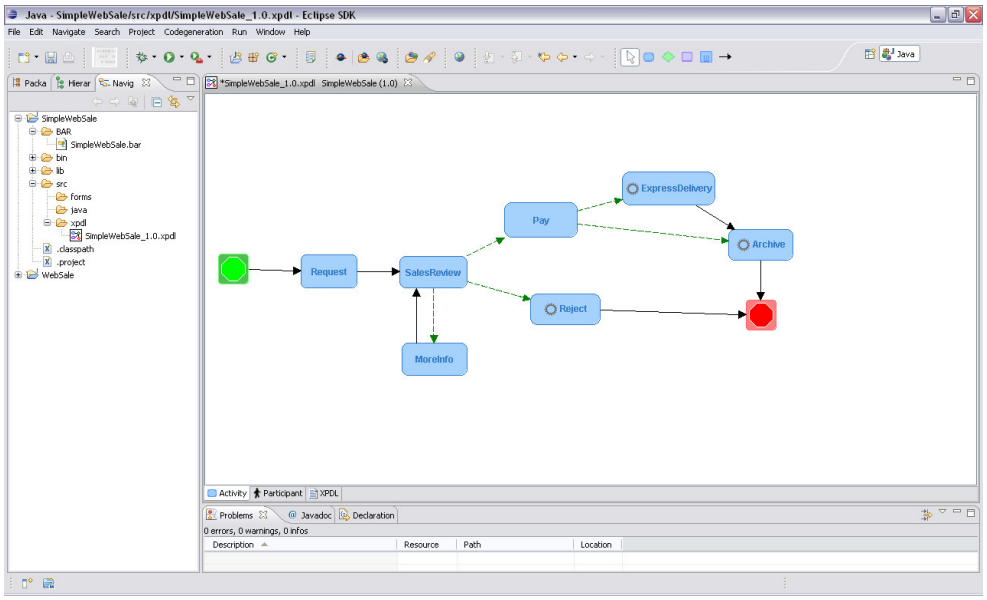

Figure 3-21. Designer view using points

Edit also the “SalesReview” activity to allow it to handle this iteration. To do that just double clicks on this activity and set the activity type to XOR rather than AND by default. For more details on XOR and AND semantics please refer to the BonitaCookBook.pdf document.

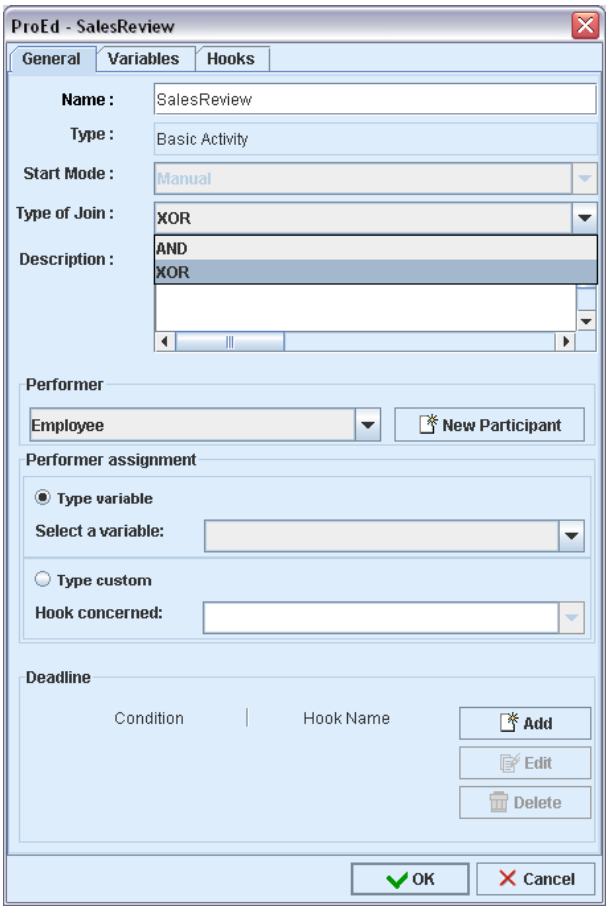

Figure 3-22. Changing the default activity type

3.1.9 Working with connectors/hooks

Let's finish the WebSale process definition by adding a new connector to the Web Sale Eclipse project.

Remember that you referenced one connector called "Message" during the automatic activities creation. Let's so create a new connector/hook using the Bonita designer wizard. Select your directory called "java" in your Web Sale Eclipse project and click right button -> "New" -> "Other" -> "Bonita BPM" -> "New Bonita Hook":

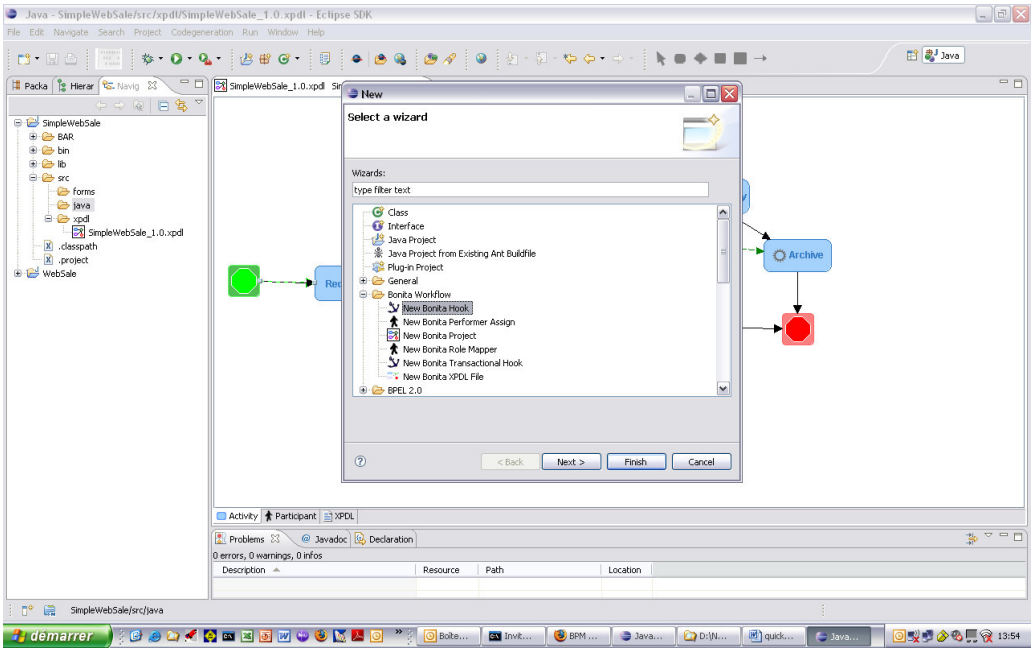

Figure 3-23. Hook creation Wizard

Insert "Message" as Hook name in the following dialog:

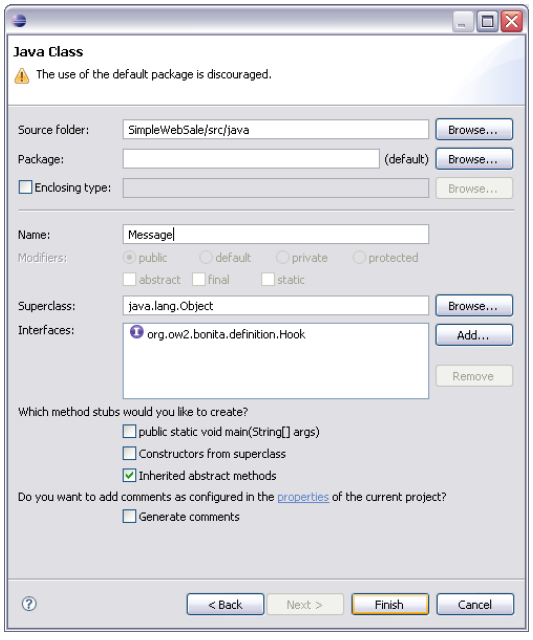

Figure 3-24. Hook/Connector name dialog

The Bonita designer wizard will automatically create a Java class with the default structure of a Hook. The wizard will also compile this class automatically each time it's saved. Lets' now add our custom implementation of this connector:

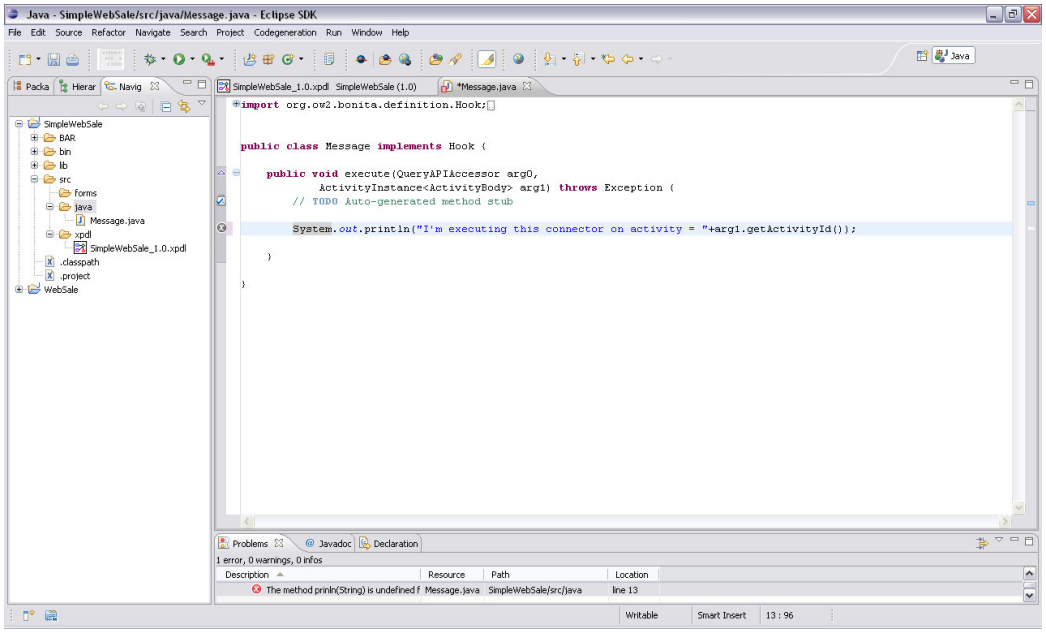

Figure 3-25.Developers Hook view

This connector will be executed at runtime by each automatic activity in which you referenced it !

Congratulations ! you have just finished the definition of your first BPM process with Nova Bonita. ! You are now ready to deploy it into the runtime !

3.2 Running the Web Sale process

Time now to deploy the Web Sale process you have just designed and to start playing with it. Open your favorite web browser and connect to http://localhost:8080/portal URL to start using the Nova Bonita Web 2.0 console (please see chapter 2 of this guide to know more about how to install the console).

Login into the console using root/bpm as user/password. This user will give you access to whole list of features available in the console

Once done, please go to the dynamic toolbar and open the BPM Management application in your default BPM desktop:

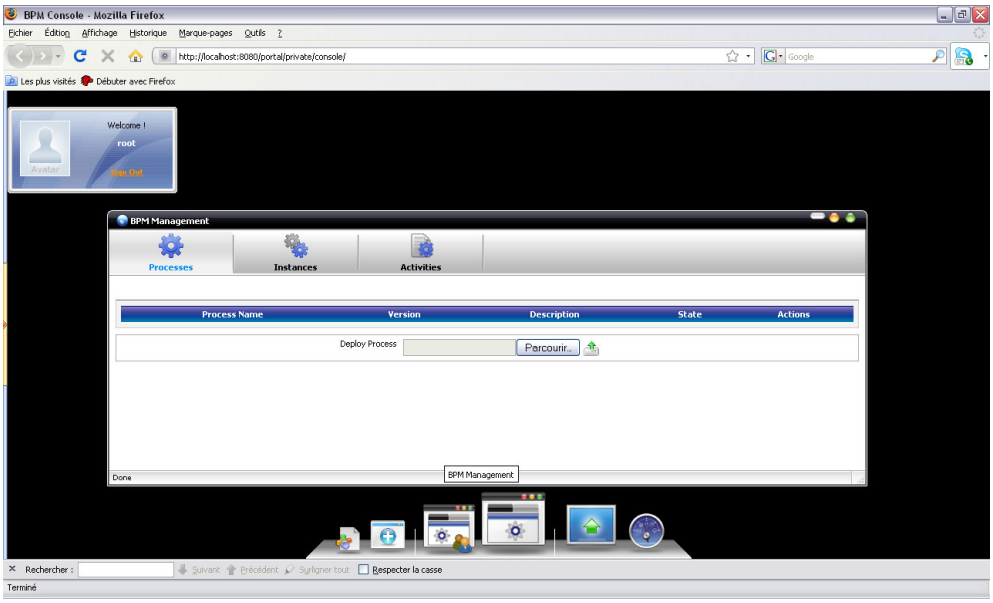

Figure 3-26. BPM management application

This application is in fact the key entry point for processes deployment and monitoring operations. In the Nova Bonita Web 2.0 environment you are allowed to resize and place this application wherever you want in your BPM desktop.

Note:

Default desktop view can be changed to a traditional web application view through the Nova Bonita console configuration panel. Please check the Nova Bonita console documentation to know more about customization

3.2.1 Deploying the Web Sale process

Nothing easier than just browse the SimpleWebSale.bar file that was automatically generated by the designer and clicks on the upload icon to deploy this process and related connectors into the Nova Bonita runtime.

If no definition errors were detected, the Web Sale application will be deployed and so available into the runtime:

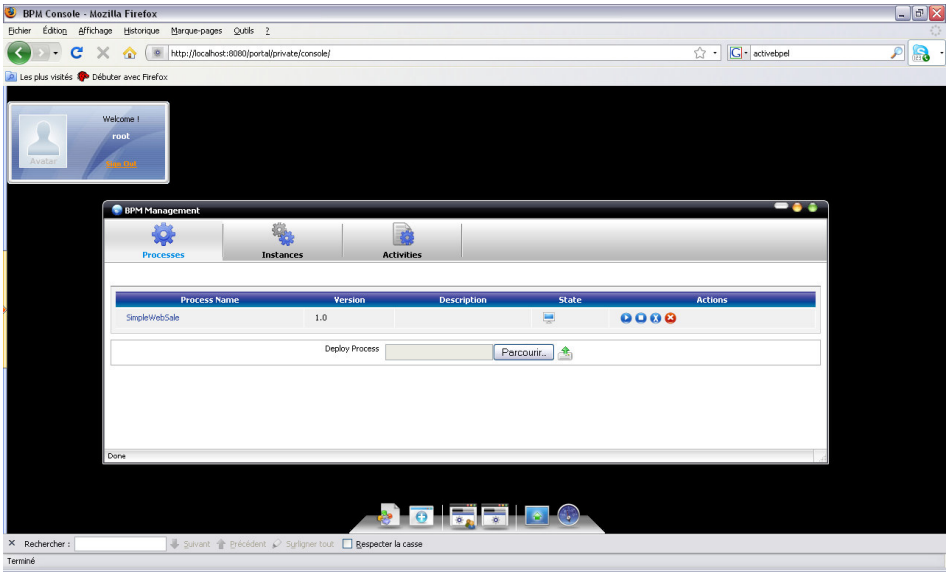

Figure 3-27. Web Sale process deployment

3.2.2 Creating an instance of Web Sale process

Let's now create an instance of the Web Sale process. For that, just open the BPM Users application (also available in the dynamic bar):

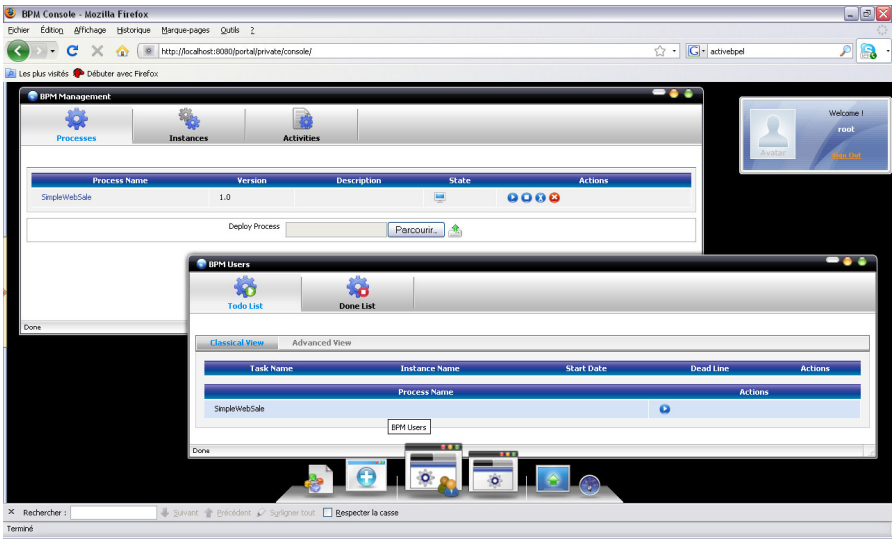

Figure 3-28. Users worklist application

This application allows users to create new instances of existing processes and take over activities assigned to them. The BPM Users application is the users “worklist”. By default, any process deployed into de runtime is available in users worklist.

Let’s create a new instance of the Web Sale process. By just clicking on the creation icon :

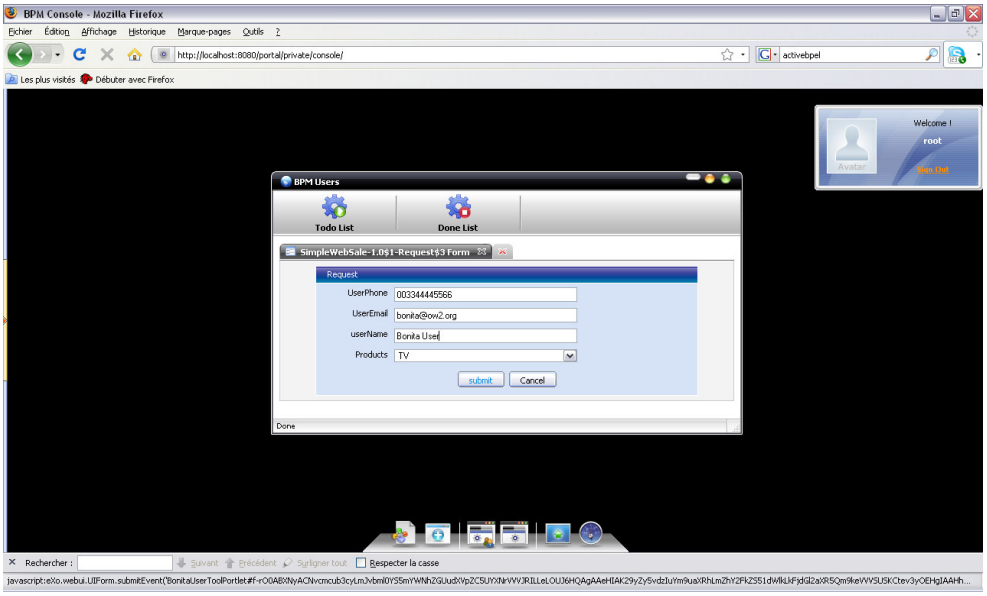

Figure 3-29. Web forms creation in the console

The console will automatically create a web form composed by the list of variables defined in the Web Sale process. Submitting this form will create a new process instance and will execute the first activity called “Request”.

As soon as the Request form is submitted the user workflist will be updated as follows:

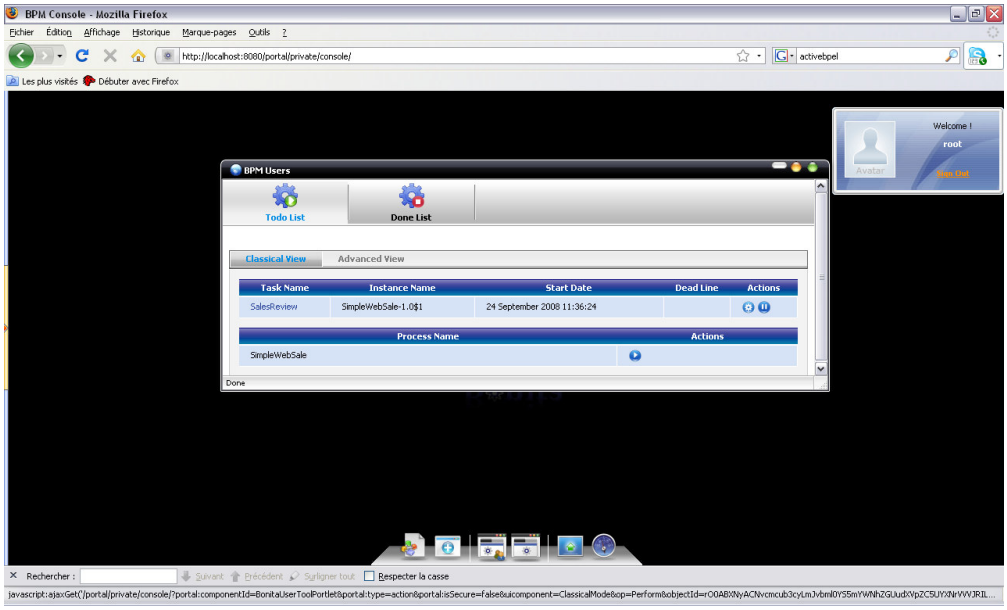

Figure 3-30. Users activity list

The user worklist contains now the next activity corresponding to the Web Sale instance we have just created.

3.2.3 Interacting with the Web Sale process through the worklist

Remember that we configured in the designer that in this simple example, “Customer” and “Employee” BPM participants will be assigned to the same user to simplify the execution of this sample application. In a production environment, Customer and Employee participants would be mapped to different actors and so the worklist of the current user would be empty after the submission of the request.

Click now on the perform icon corresponding to the “SalesReview” activity and the following form will be shown:

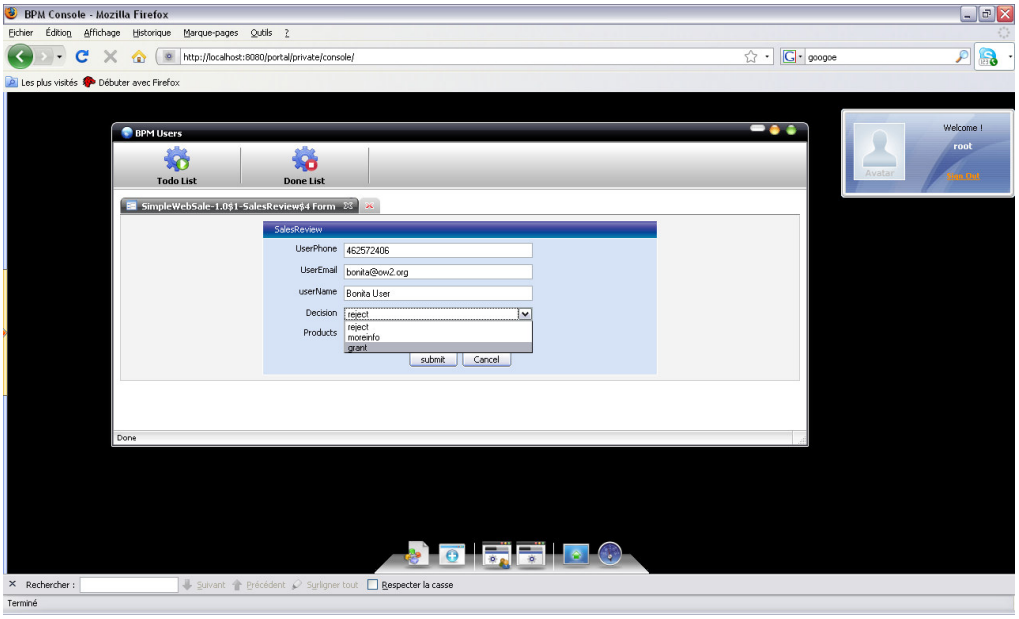

Figure 3-31. Selection of values from an enumerated variable

The Sales Review form includes the values of the variables fulfilled in the request and adds the “Decision” one that as defined locally in during the process definition. In this sample please select “grant” as a value (for sure you can also leverage “moreinfo” or “reject” values as they were properly defined in the process.):

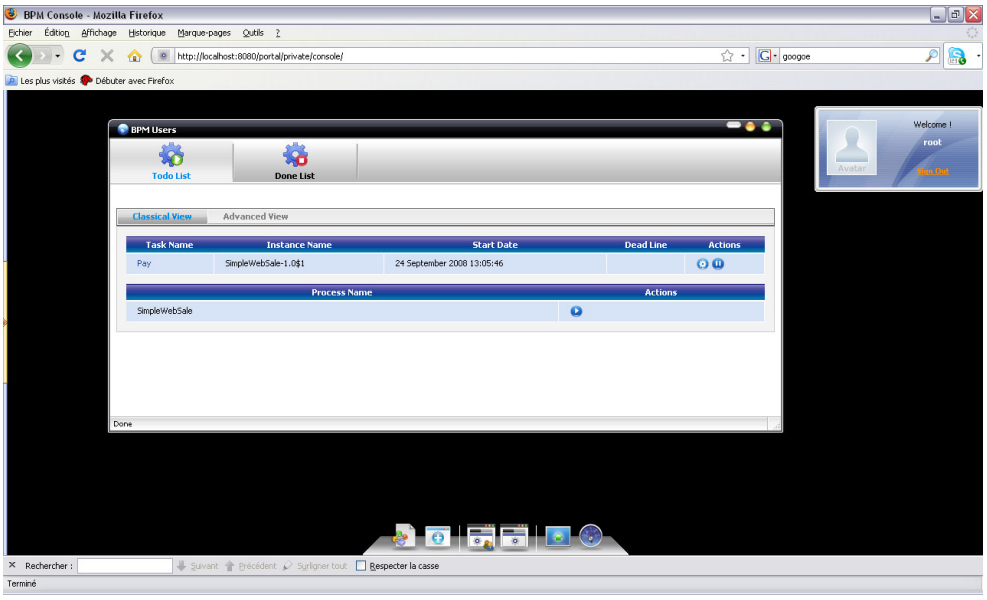

Figure 3-32. User worklist application

3.2.4 Monitoring the Web Sale process

Before we move forward on the Web Sale process execution I would like to come back and show you the status of the Management application we have just introduced.

So, click again into the BPM Management application and go to the activities view:

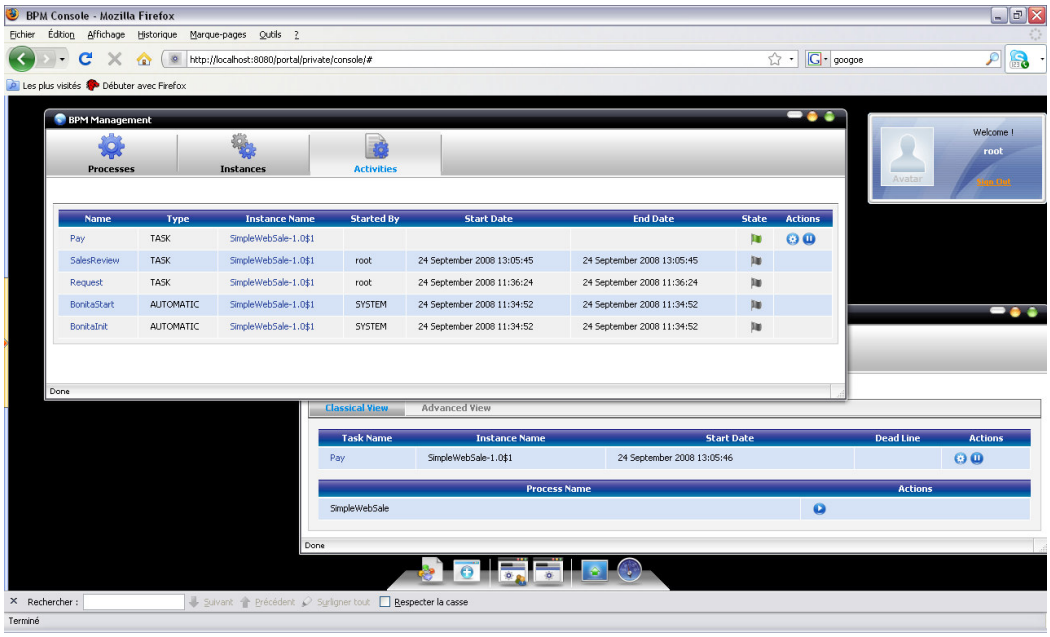

Figure 3-33. Monitoring a Web Sale process instance

In this view the list of activities available into the runtime is listed in a paginated way. You can even filter by instance name or by activity name by just clicking in the corresponding column:

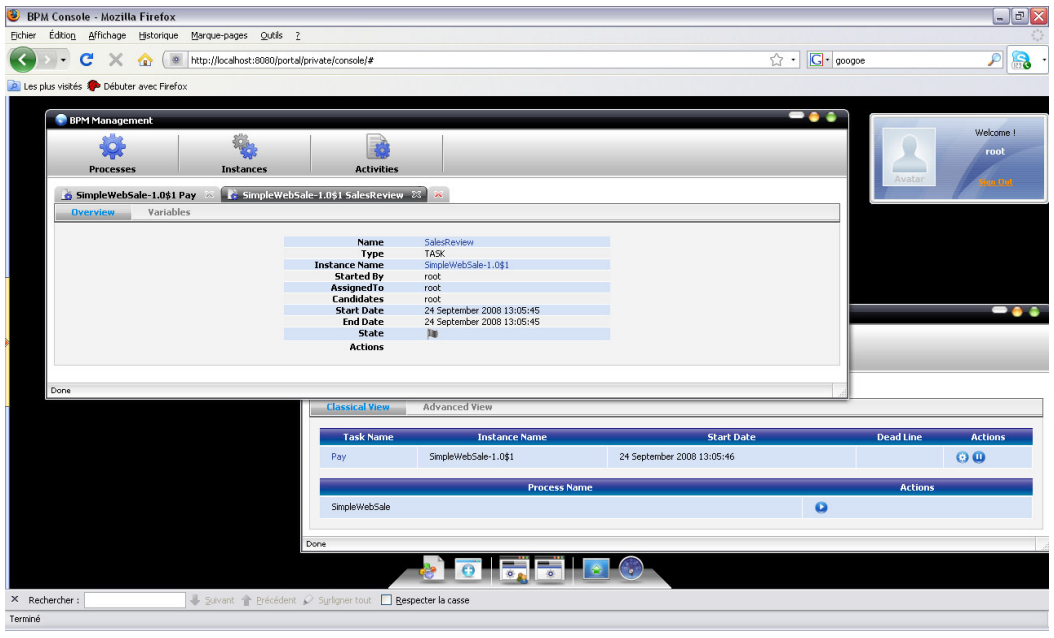

Figure 3-34. Monitoring Web Sale process activities

In the previous example I've asked for more details on both "Pay" and "SalesReview" activities

3.2.5 Web forms generation and automatic types detection

Ok, back to the Web Sale process execution I suggest to complete the ongoing process instance. So move to the Users worklist application and click on perform "Pay" activity:

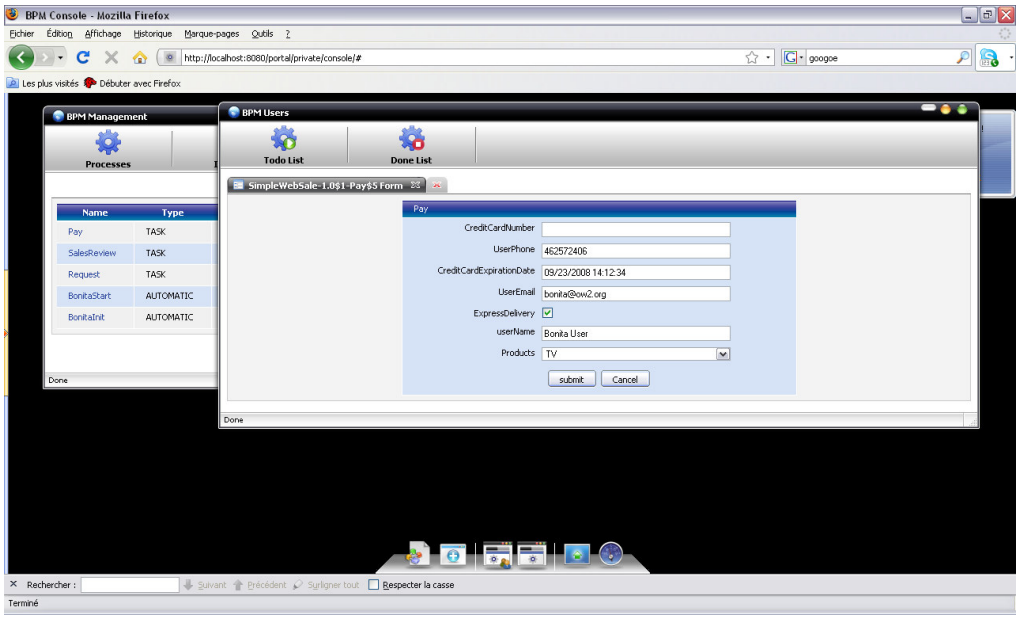

Figure 3-35. Automatic types detection in web forms

As you can observe, the web form has automatically detected the types defined in the designer for variables involved in this Web Sale process. The view for each variable type is automatically adapted by the console. See for instance the appearance of the Date variables:

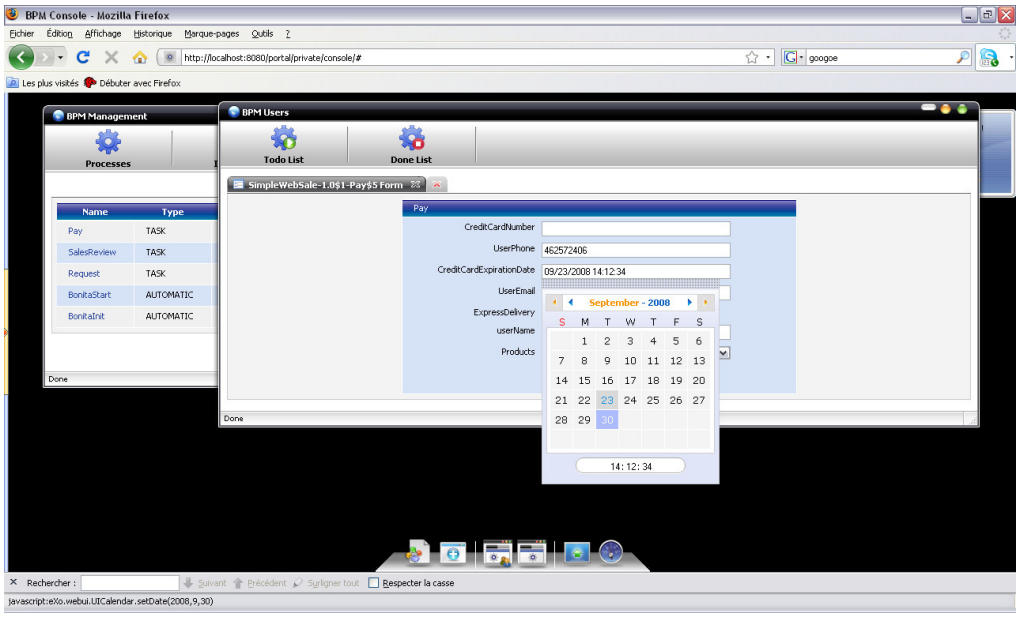

Figure 3-36. Date field selection in web forms

Check types before the form submission operation is also performed by the console. For instance type some characters into the “CreditCardNumber” variable rather than a integer value and the following error will appear during the form submission:

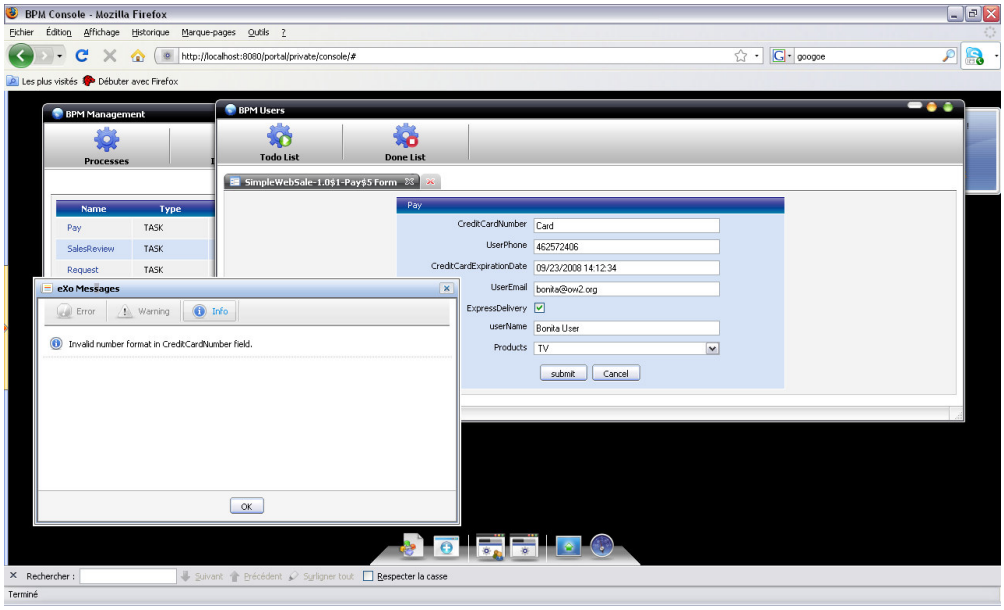

Figure 3-37. Check semantics in web forms

Note:

Web forms can also be customized by means of properties files configuration.

If you enter an integer instead of a set of characters the Web Sale process should end the execution property.

What’s Next ?

With this last operation we came to the end of this Quick Start Guide. The Bonita project team hopes you enjoined your first BPM deployment !

For detailed information on Nova Bonita, we suggest you to see the following document: BonitaCookBook.pdf

If you have any question, please send an email to bonita@ow2.org, he Bonita community will we happy to answer you !