



JBPM 6 Quick Starter

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1. Quick tour of what is JBPM

- If you think about BPM (BUSINESS PROCESS MANAGEMENT), then you should know about JBPM. So let's see actually what JBPM is and how it will be best option for your organization to build BPM.
- JBPM stands for JBOSS BUSINESS PROCESS MANAGEMENT. It is released under the ASL (or LGPL in earlier versions) by the JBoss community (By Red hat). It is an open-source workflow engine written in Java that can execute business processes described in BPMN 2.0 specification.
- JBPM is a flexible suite. It's providing the platform to build bridge between business analysts and developers. Previous BPM mainly focus on limited to non-technical person only. But now providing focus by JBPM on non-technical as well as technical persons. So, you can involve your all team to build up your large scale system. JBPM enables organizations to be more efficient, more effective and more capable of change than a functionally focused, traditional hierarchical management approach
- You don't need to worry about binding with particular platform area. It can run in any Java environment, embedded in an application or as a service. You can initiate business process via web service. You can use it in your java based system or .net based or other platform which you are working on.



- JBPM is able to interpret complex state in business process. It can execute long running processes in your application. It is embedded with BPMN (Business Process Modeling Notation), so any one can easily understand by graphical representation of business process. This greatly improves the visibility and agility of your business logic, results in higher-level and domain-specific representations that can be understood by business persons and is easier to monitor.
- JBPM is based on PVM (**Process Virtual Machine**).It provides a high-level abstraction for business process. JBPM provide supports to model complex, real-life situations that cannot easily be described using a rigid process.
- JBPM v6 beta2 provide various tools to create, deploy, execute and manage business processes throughout their life cycle. Using JBPM console, it's a web-based management console has been redesigned completely. Using JBPM console, you can start new process instances, check the status of process, complete your task list etc.

2. BPMN MODELER

- The BPMN2 Modeler is a graphical modeling tool which allows creation and editing of BPMN (Business Process Modeling Notation) diagrams. The tool is built on Eclipse Graphiti and uses the BPMN 2.0 EMF Meta model currently being developed within the Eclipse Model Development Tools (MDT) project. This Meta model is compatible with the BPMN 2.0 specification proposed by the Object Management Group.

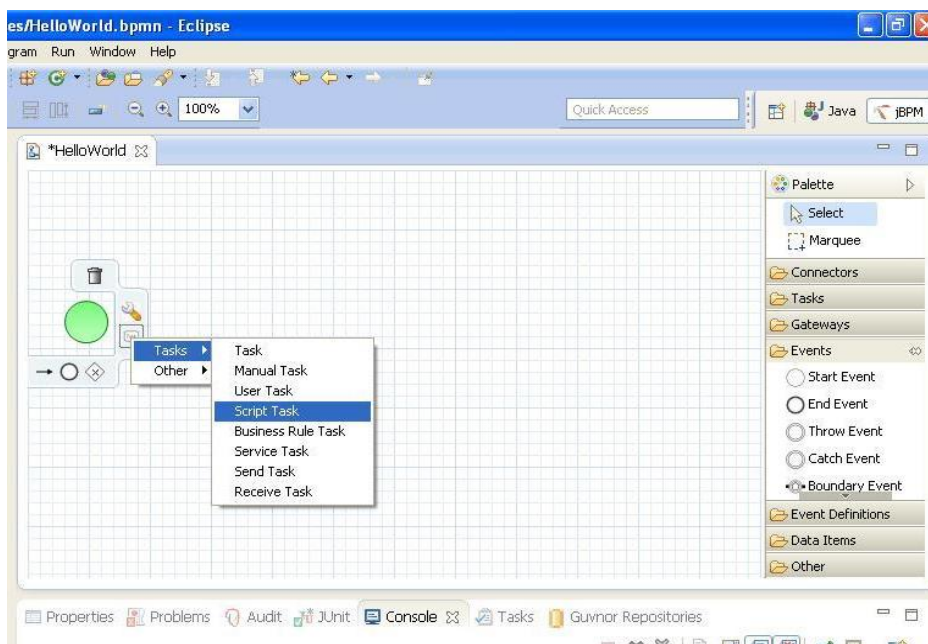


Figure 1 : BPMN 2.0



3. Installation of JBPM v6.0 Beta2

3.1. Prerequisites:

To install jBPM installer, you have a set JDK 1.6+ (set as JAVA_HOME), and Ant 1.7+ installed. If you don't have, then follow next step.

3.2. Installing Java:

We are going to use jBPM installer which is mainly based on java, so we need to install JDK 1.6+ and set as JAVA_HOME.

Use following links to download and follow installation document.

Java: <http://java.sun.com/javase/downloads/index.jsp>

3.3. Installing Ant:

Apache ant is a tool for automating software build processes and is implemented using the Java language, requires the Java platform, and is best suited to building Java projects.

Use following links to download and follow installation document.

Ant: <http://ant.apache.org/bindownload.cgi>



3.4. Download the installer:

To build business process and to use new components provided by jBPM v6 beta2, then you need a jBPM installer in your system.

Two versions available:

- Full installer (Having a almost dependencies that are require for installation)

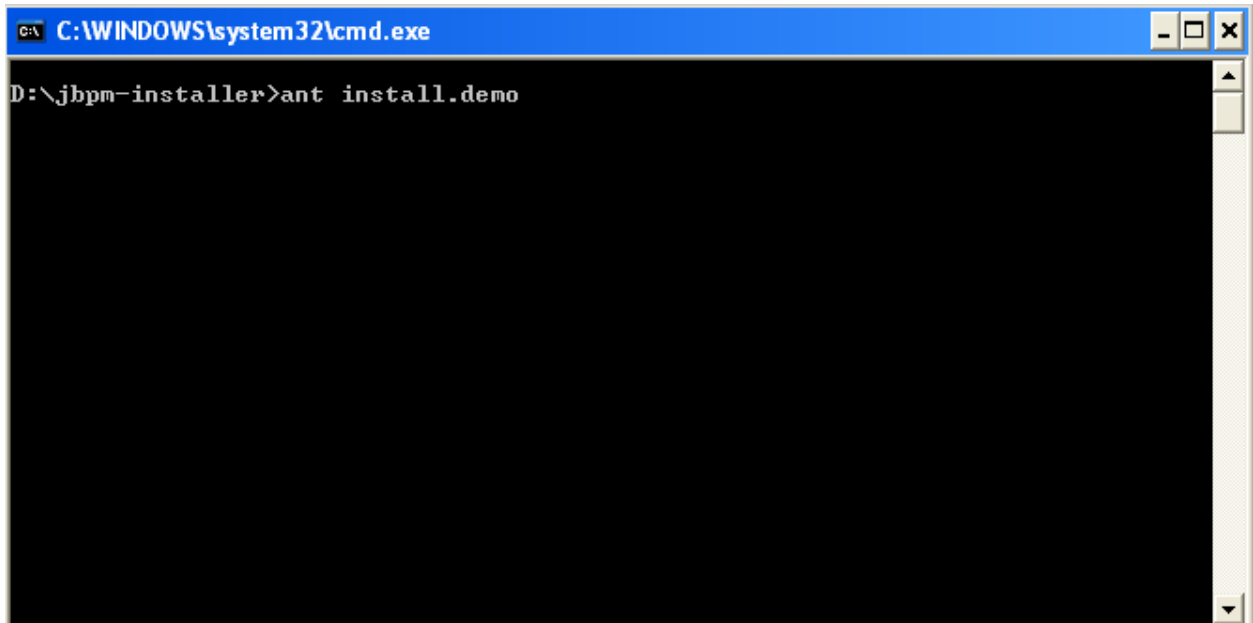
- Minimal installer (Only contain installer)

I recommend that download full jbpm-6.0.0.Beta2-full-installer.zip.

First of all, download full installer from following link:

<http://sourceforge.net/projects/jbpm/files/jBPM%206/jbpm-6.0.0.Beta2/>

3.5. Extract it into your local drive and set directory path in Command prompt and type following Command:



```
C:\WINDOWS\system32\cmd.exe
D:\jbpm-installer>ant install.demo
```

- Ant install.demo

Figure 2 : Install jbpm

This will:

- Download JBoss AS
- Download Eclipse
- Install the jBPM web tooling into JBoss AS



- Install the jBPM and Drools Eclipse plug-in
- Install the BPMN2 Eclipse Modeler

This will take some time to install all these stuffs, so wait for some time.
You will get successful message

Note:

You will get error message for jbpm modeler because some jar file is not found during installation .So after installation you will get older bpmn modeler. So I have covered how to install new bpmn modeler in next step.

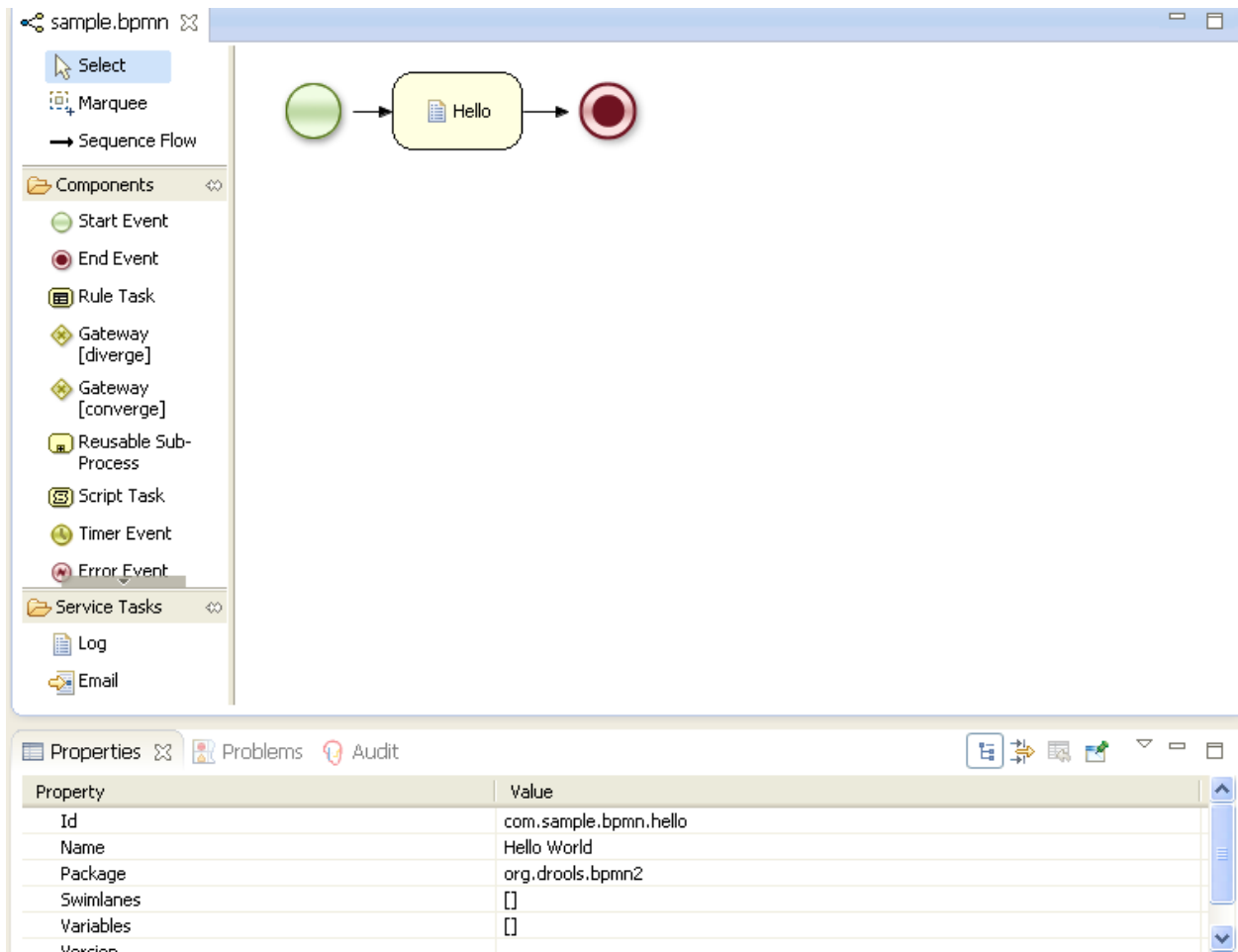
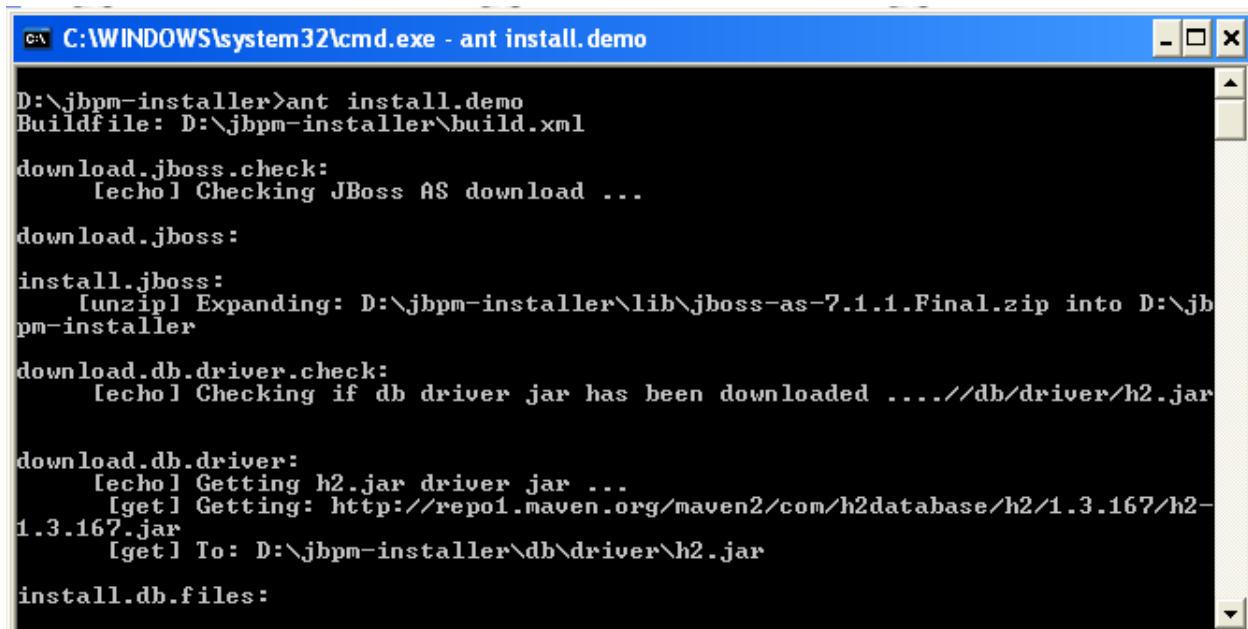


Figure 3 : Old BPMN

3.6. Start JBPM:

Once the demo setup has been finished, you can start this all components by following command.

- Ant start.demo



```
C:\WINDOWS\system32\cmd.exe - ant install.demo

D:\jbpm-installer>ant install.demo
Buildfile: D:\jbpm-installer\build.xml

download.jboss.check:
    [echo] Checking JBoss AS download ...

download.jboss:

install.jboss:
    [unzip] Expanding: D:\jbpm-installer\lib\jboss-as-7.1.1.Final.zip into D:\jbpm-installer

download.db.driver.check:
    [echo] Checking if db driver jar has been downloaded ....//db/driver/h2.jar

download.db.driver:
    [echo] Getting h2.jar driver jar ...
    [get] Getting: http://repo1.maven.org/maven2/com/h2database/h2/1.3.167/h2-1.3.167.jar
    [get] To: D:\jbpm-installer\db\driver\h2.jar

install.db.files:
```

Figure 4 : Installation

This will:

- Start the H2 database
- Start the JBoss AS
- Start Eclipse

3.7. Install Dashboard web application(Optional):

After successfully installing and starting all these components,

Install the dashboard web application, which can be used to monitor your process instances.

To do so, run:

Ant install.dashboard.into.jboss

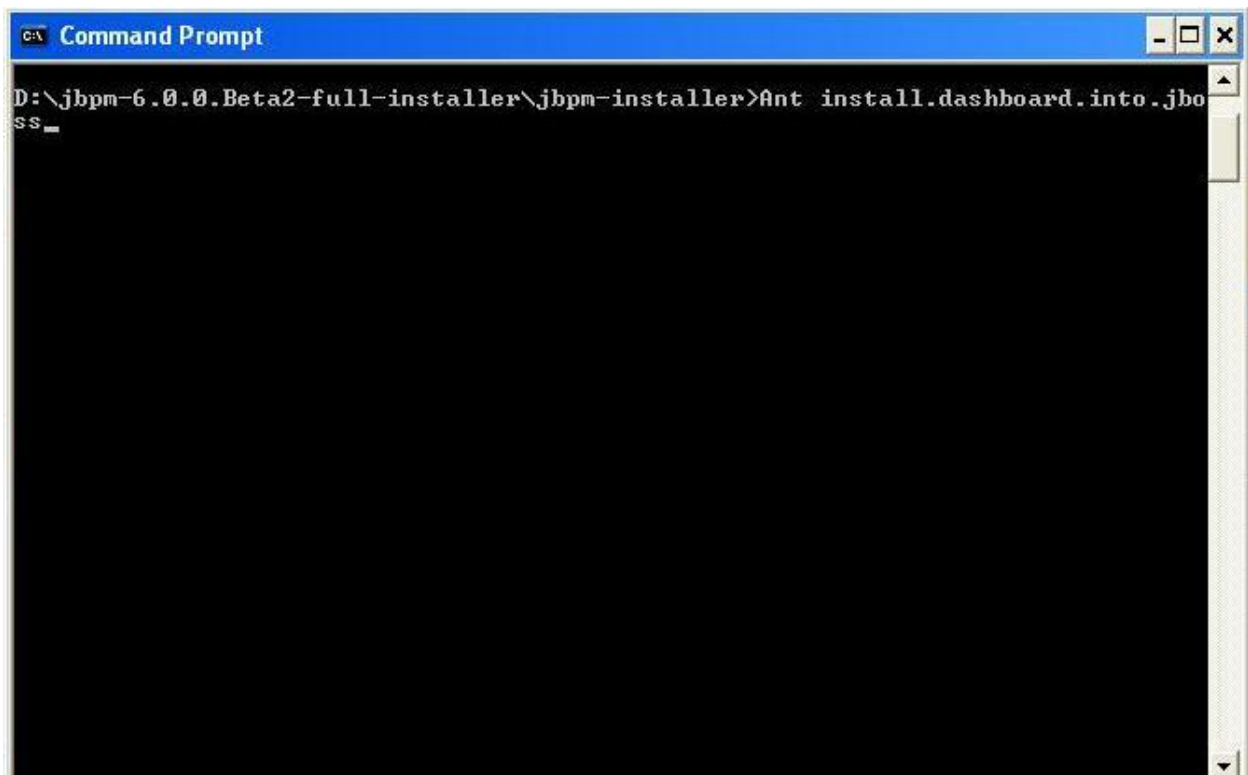


Figure 5 : Dashboard installation

It will install dash board web application into your system and now you can monitor your process instances and status and many more.

3.8. Update new *BPMN* Modeler:

You can see by creating one bpmn process, there is old bpmn editor.

So let's update new Bpmn modeler.

3.8.1:

Click on help and then select install new software

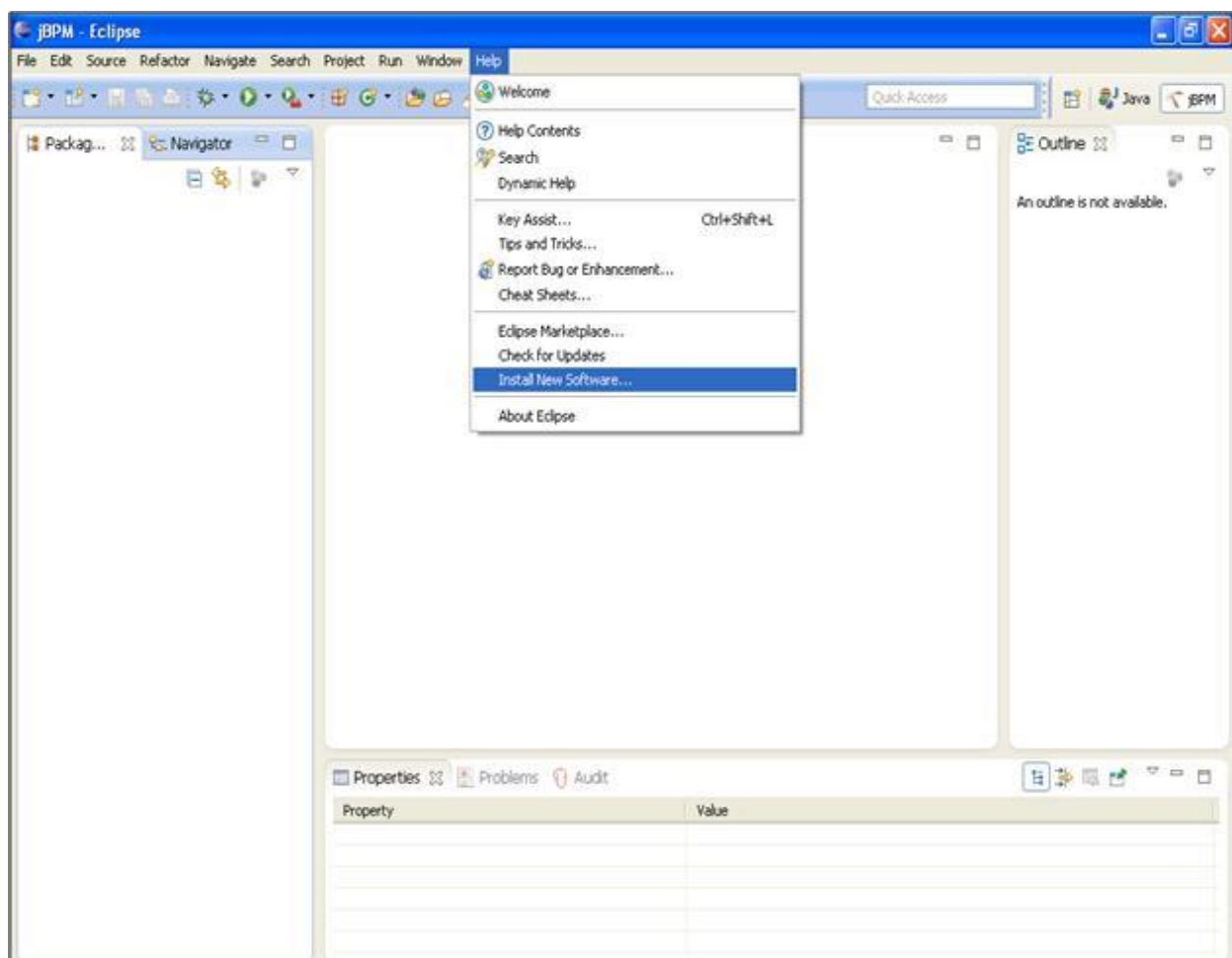


Figure 6 : Install New Software

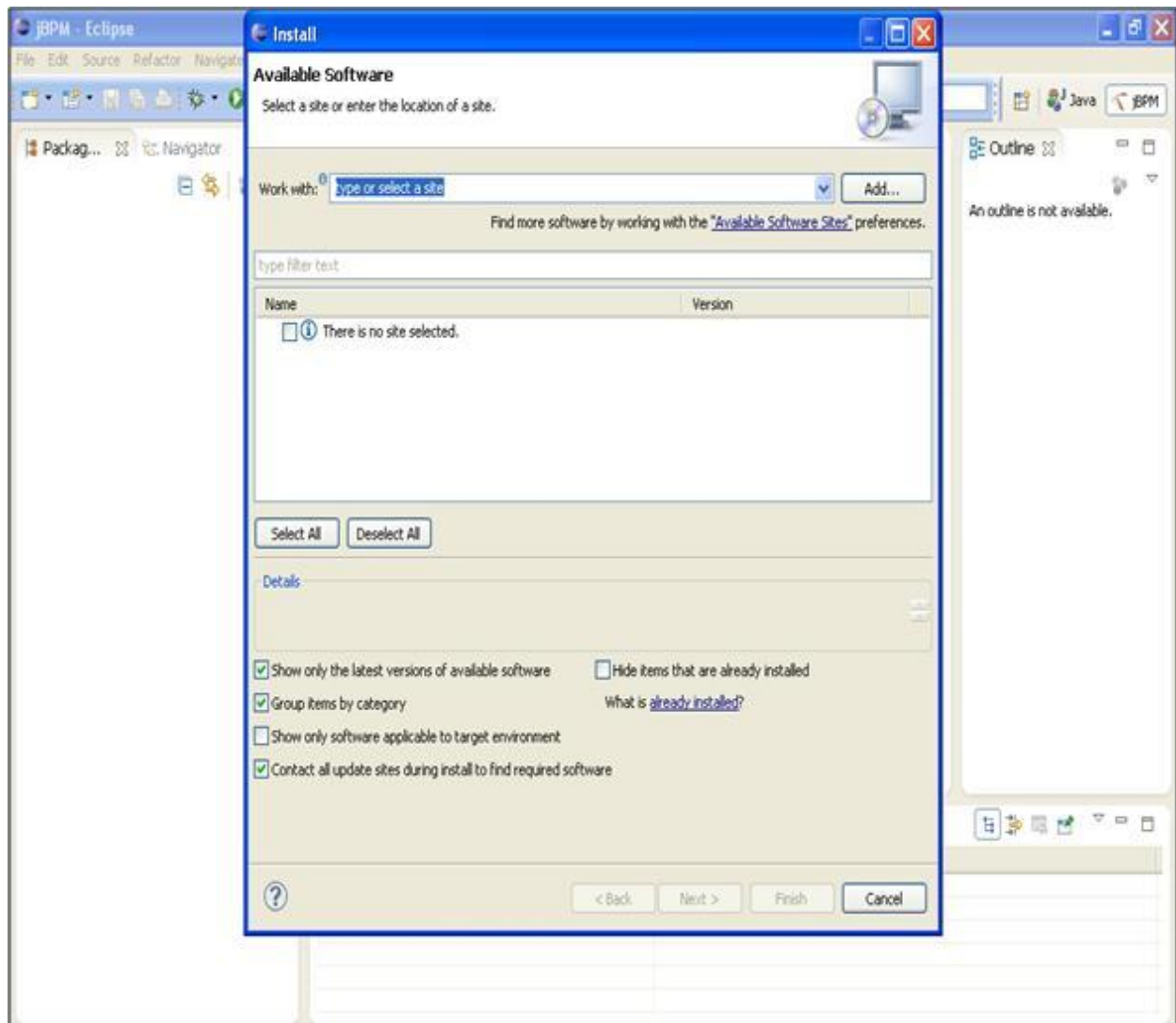


Figure 7 : Click On Add

Click on Add:

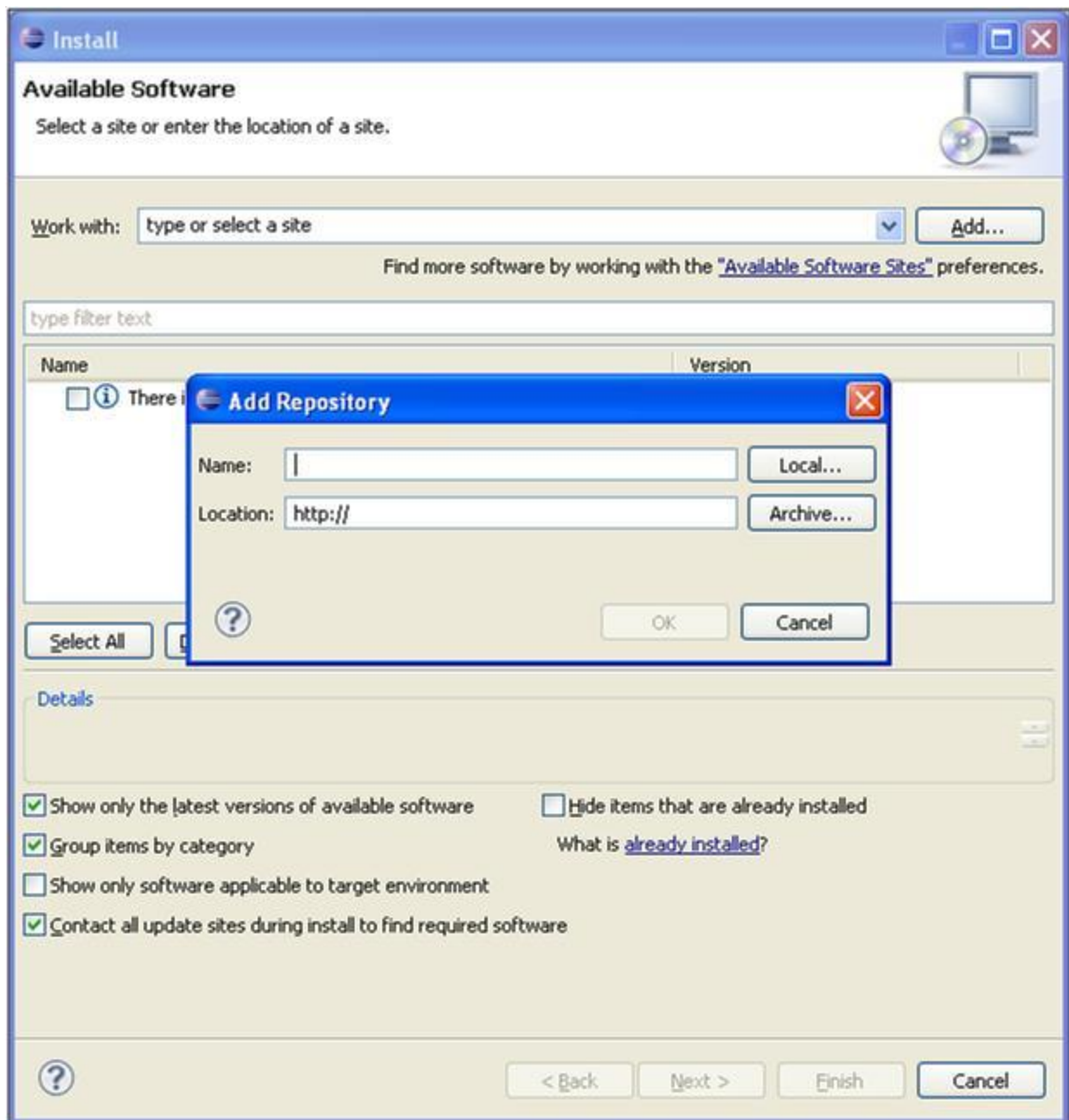


Figure 8 : Add link

3.8.2:

Give any name and add following link:

<http://download.eclipse.org/bpmn2-modeler/updates/juno/0.2.5>

Or you can refer following link:

<http://eclipse.org/bpmn2-modeler/downloads.php>

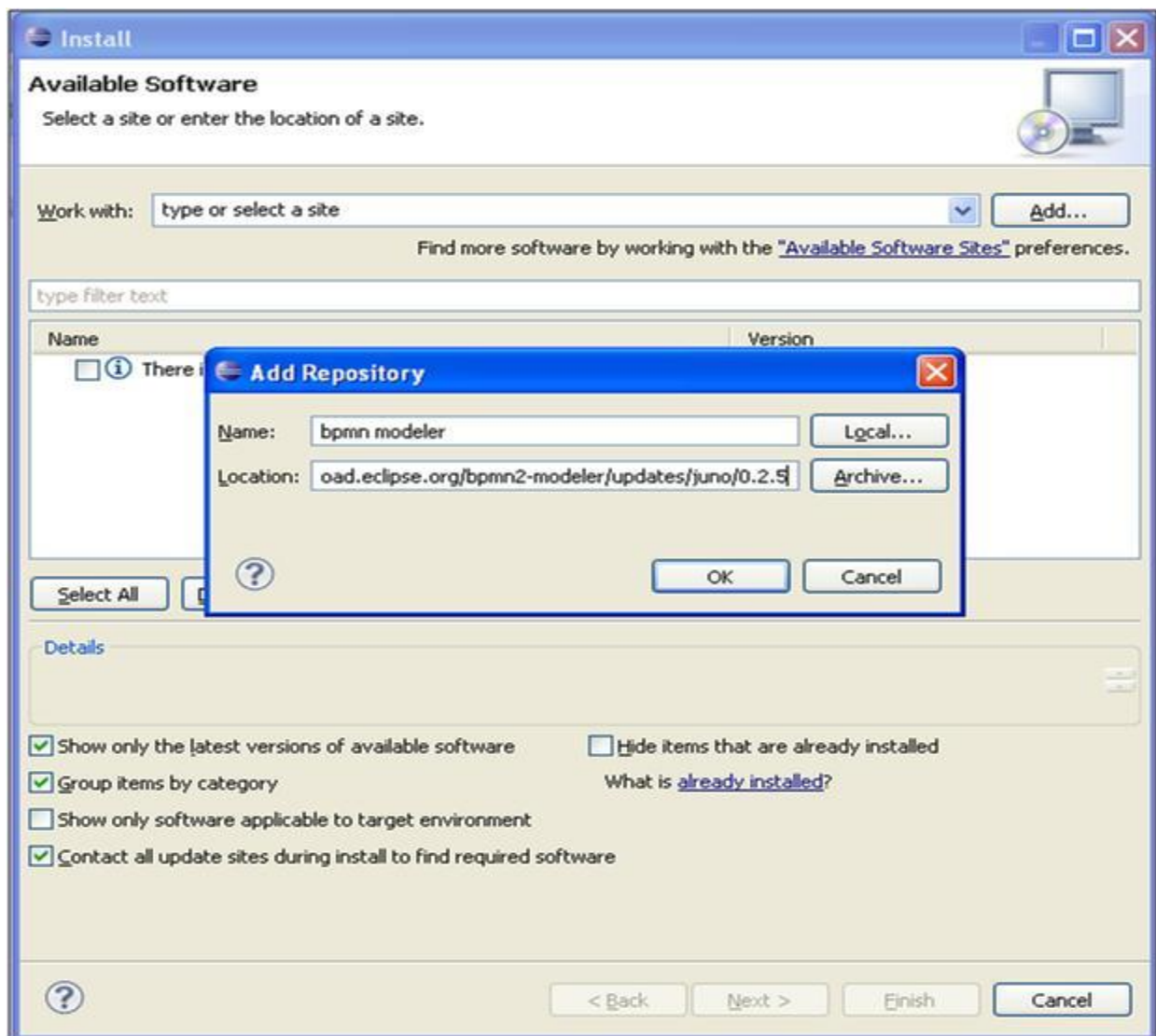


Figure 9 : Define location

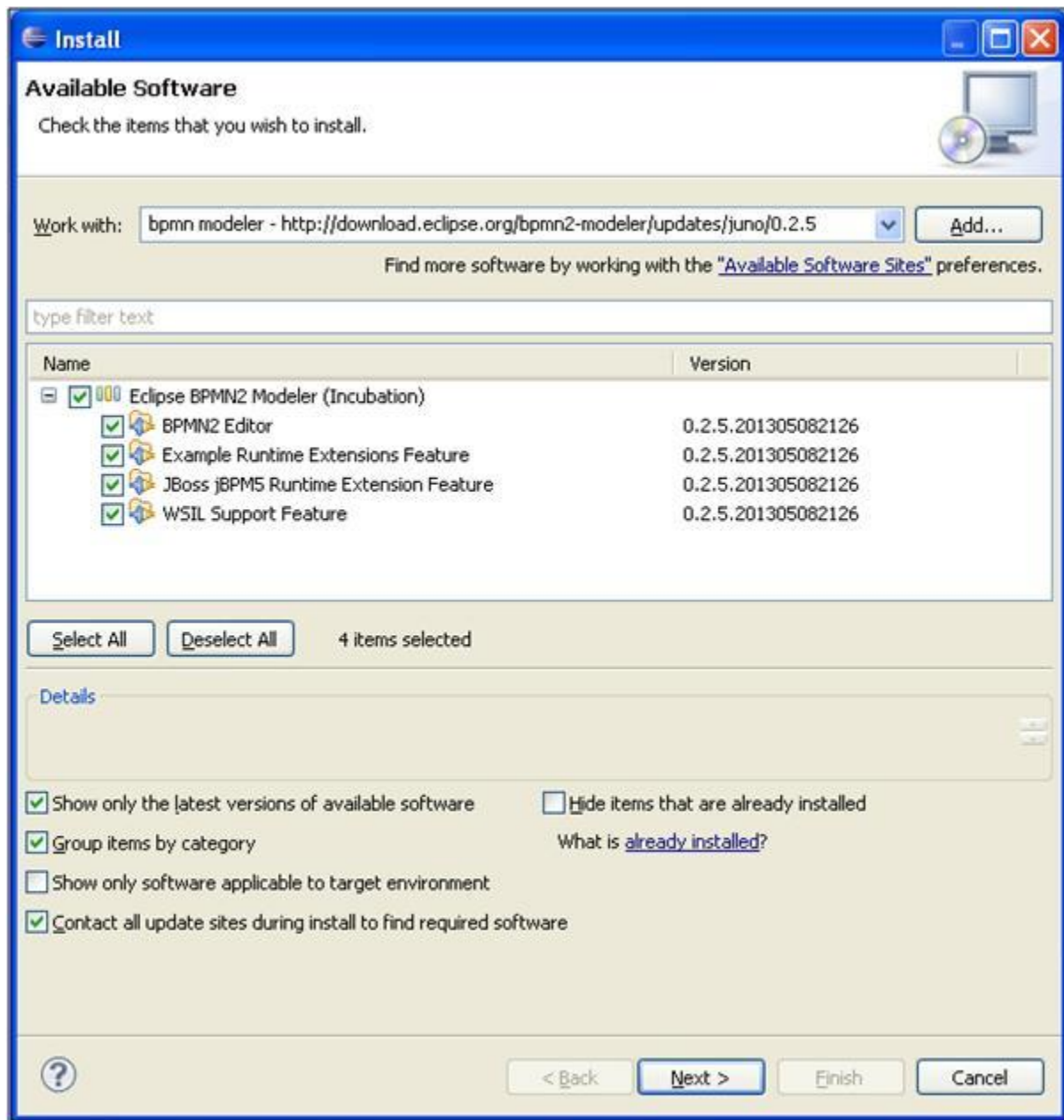


Figure 10 : Select Modeler

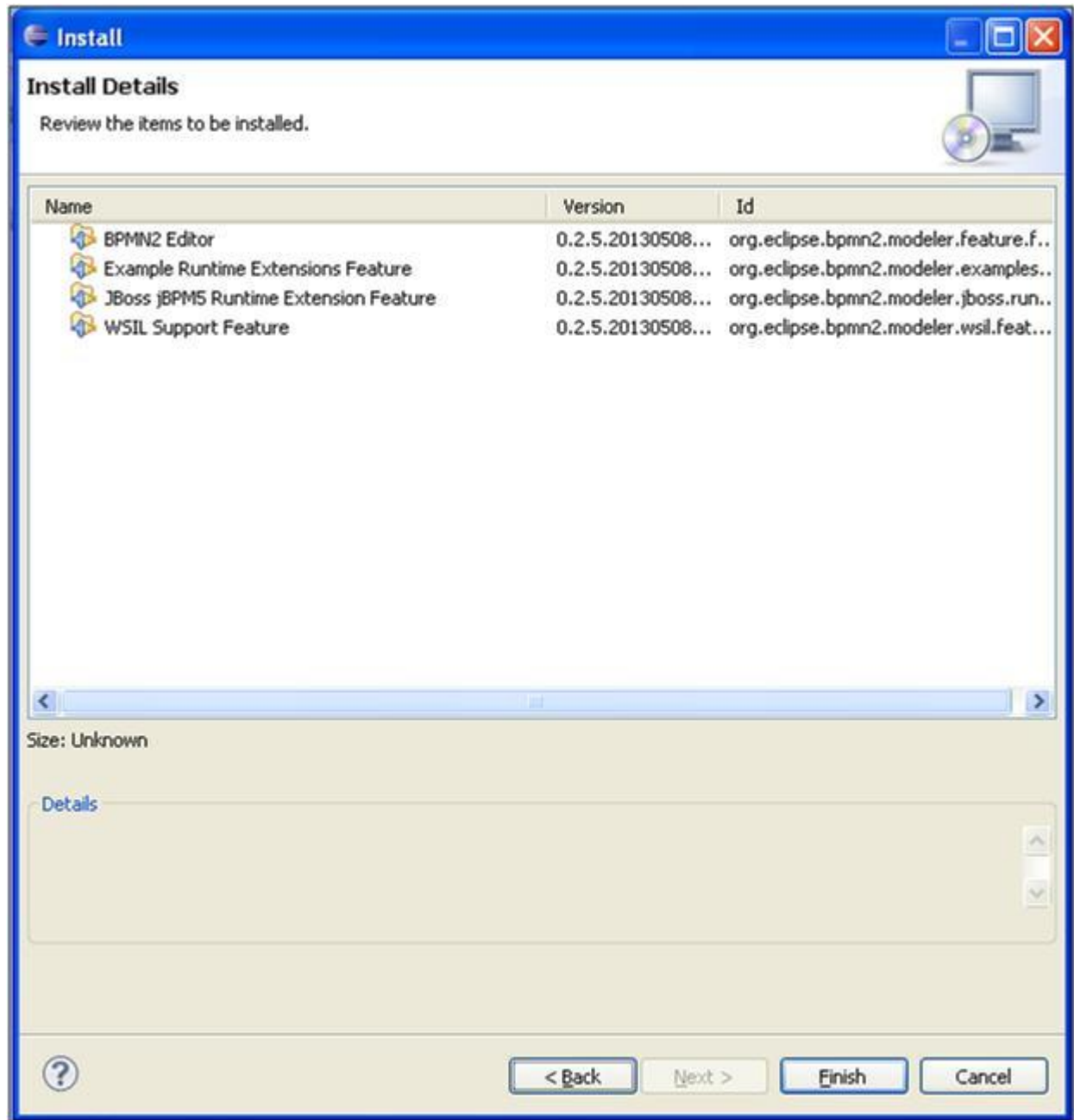


Figure 11 : Click on finish

Click on finish.

3.8.3:

Now restart eclipse and you will get new bpmn2 modeler

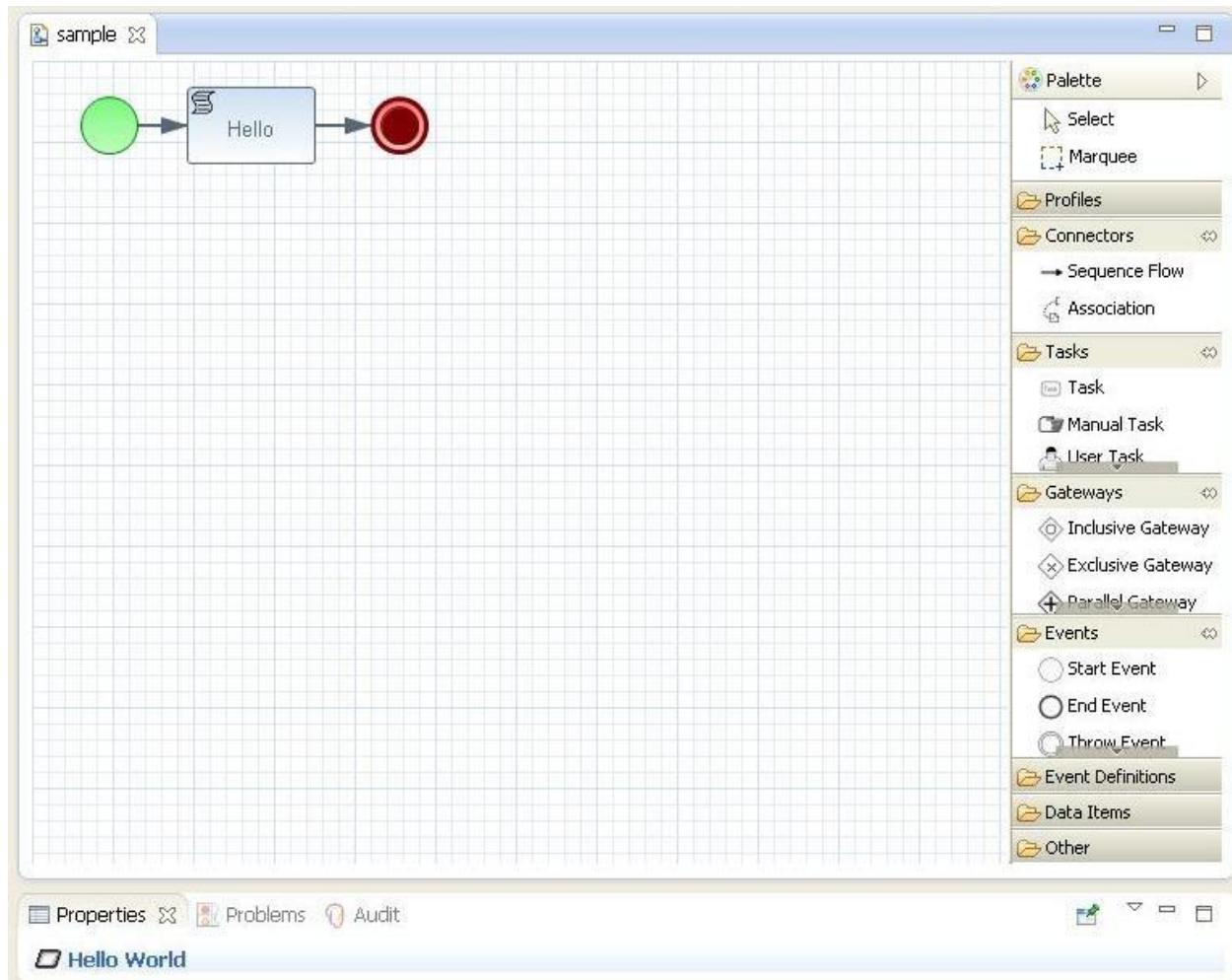


Figure 12 : New bpmn modeler

It's ready to Rock:

Now you have finished installation of JBPM installer successfully in your system and if you face any problem than you can get help from JBoss community.

4. Develop your first JBPM Application:

To learn and get basic idea, hello world example is our first choice.

So let's create hello world example in JBPM and get the knowledge about this stuff.

Step 1:

Create new JBPM project.

Click on New->JBPM project

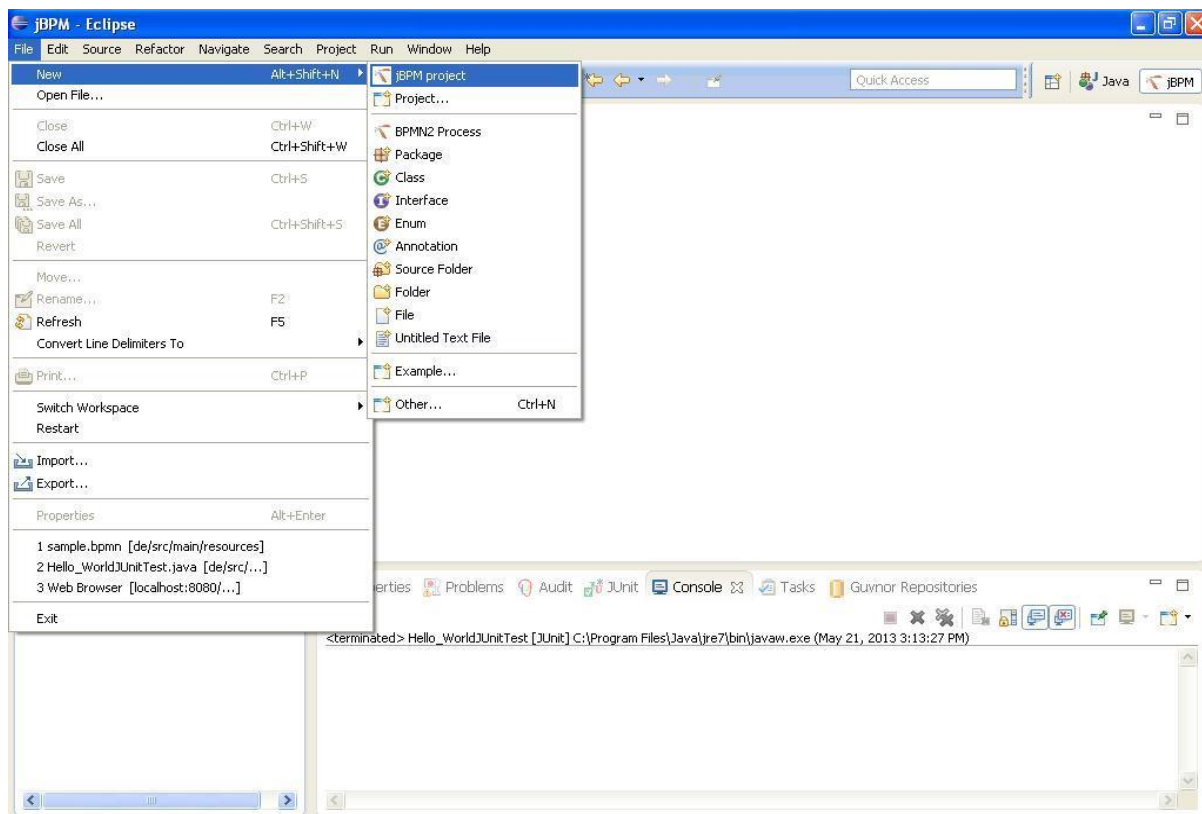


Figure 13 : Create JBPM Project

Give project Name as Hello Process

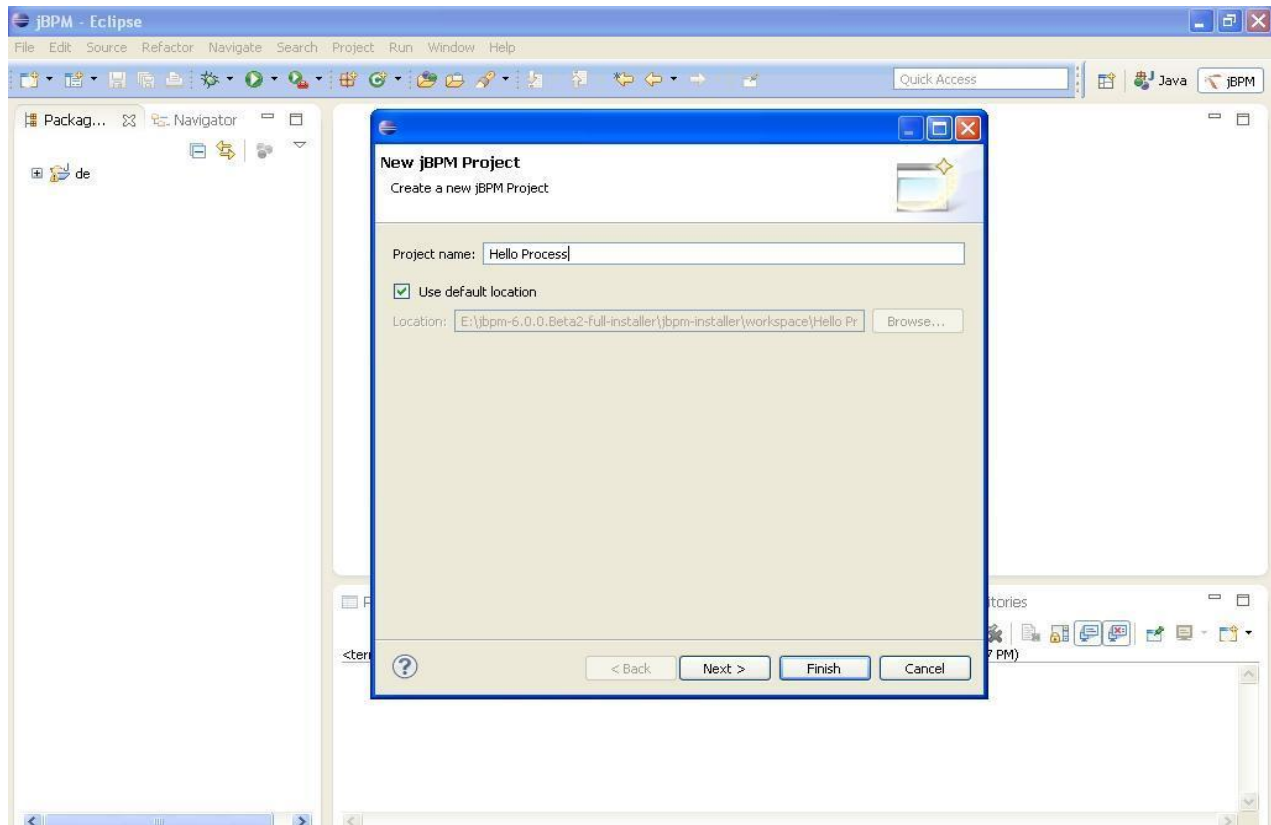


Figure 14 : Hello process project name

Click on Empty Project:

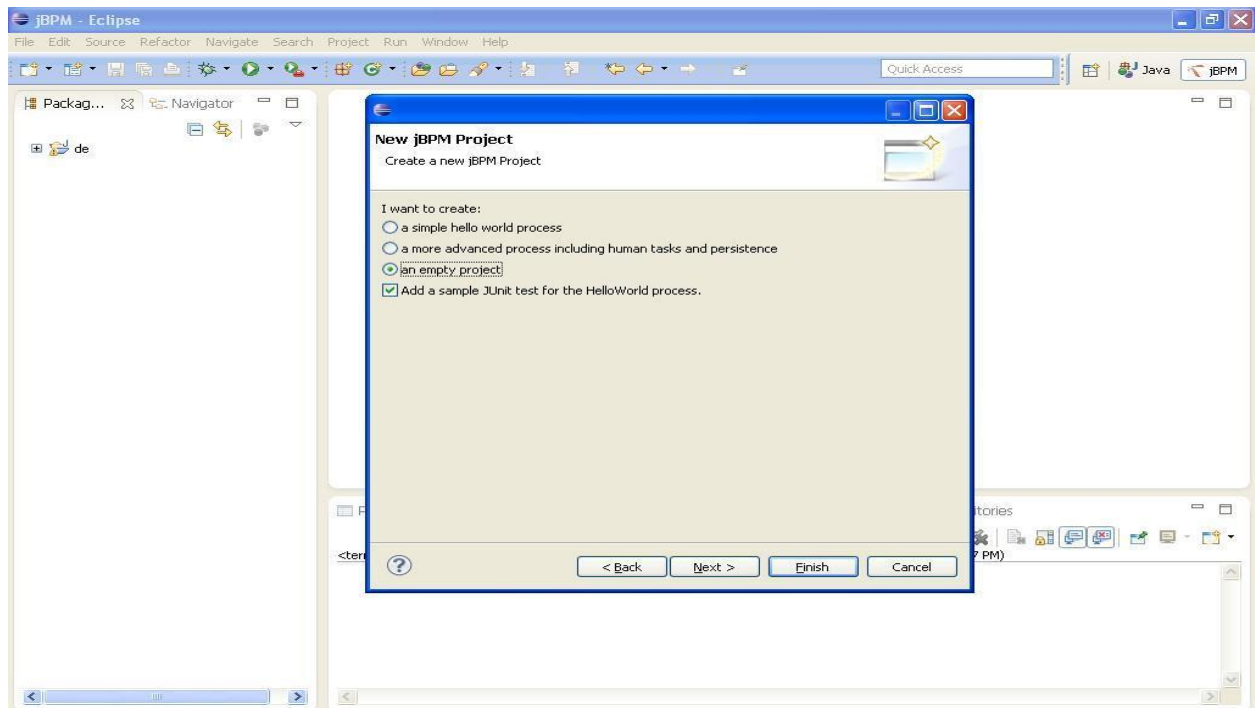


Figure 15 : Select empty project

Click On Finish

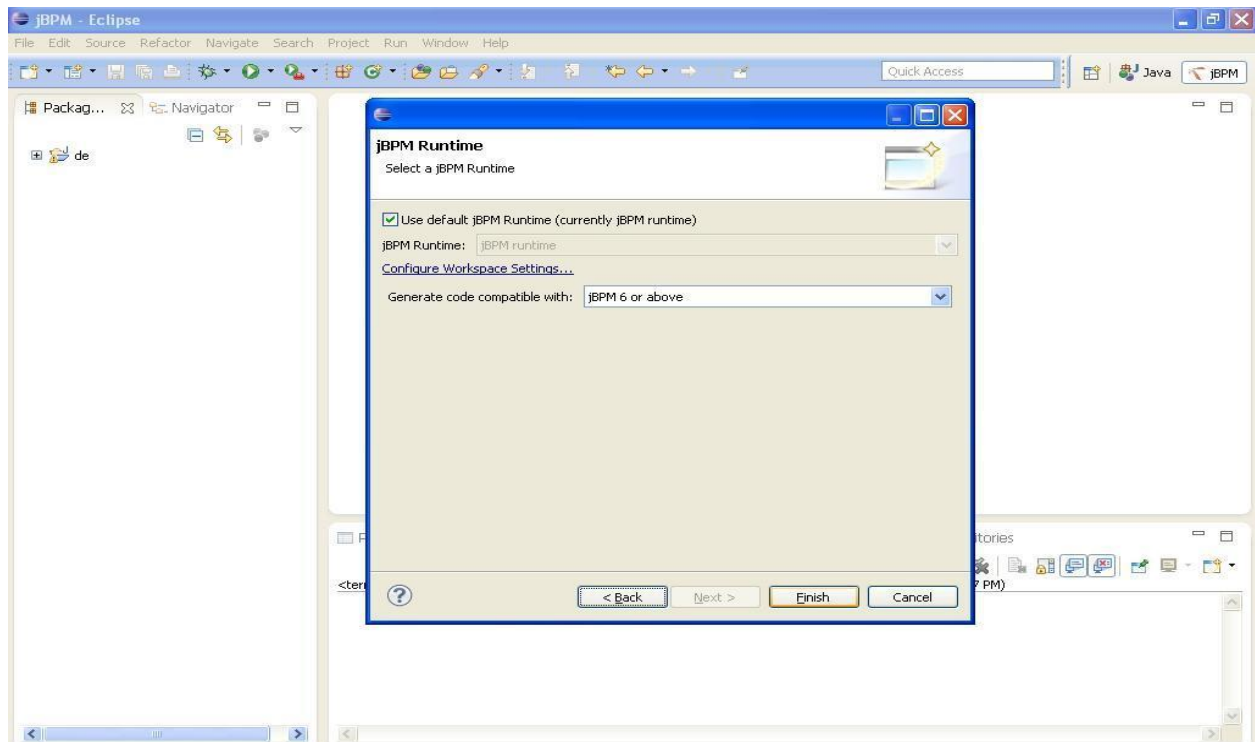


Figure 16 : Finish

You can see the default structure of JBPM project. You can see all require jar files into JBPM library

Step 2:

Create bpmn process.

Right click on resources and click on New->Bpmn2 process

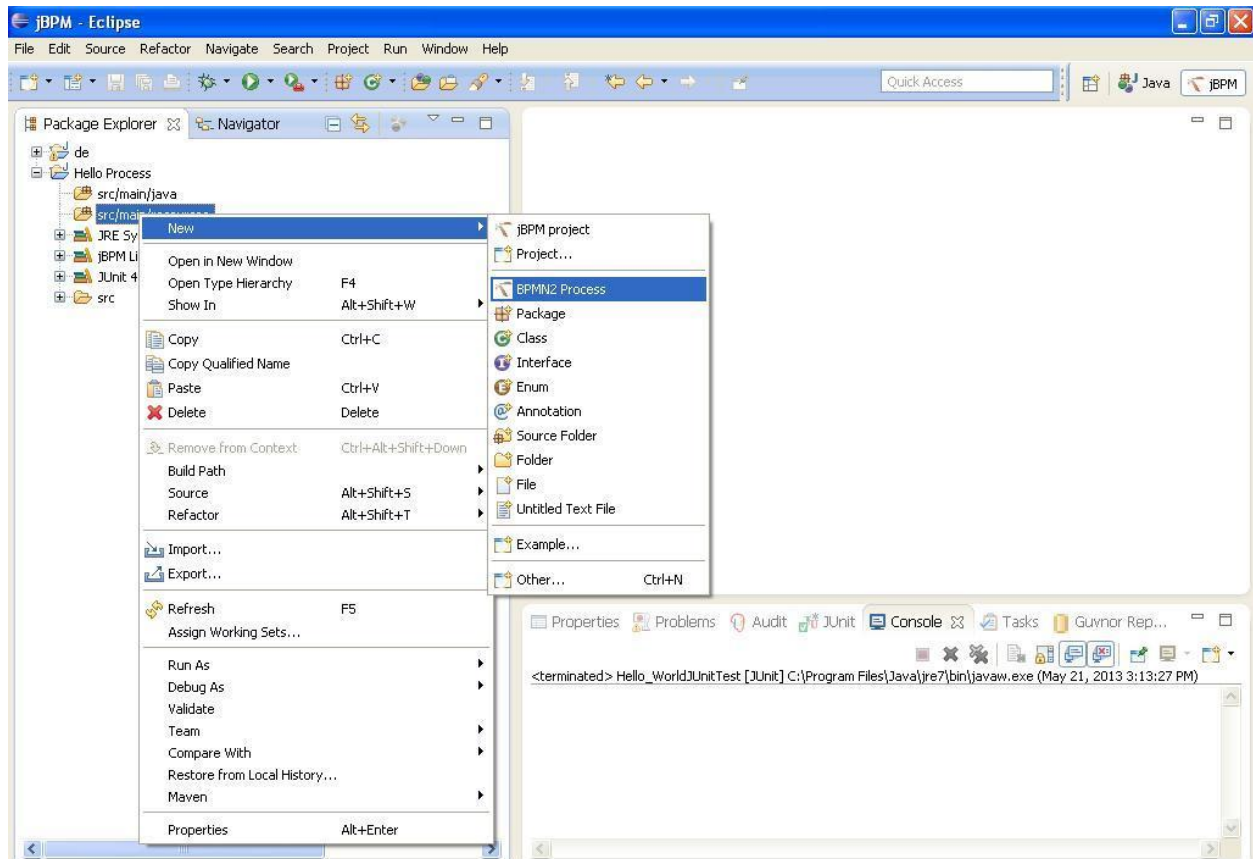


Figure 17 : Make Bpmn process

Give Name Hello World:

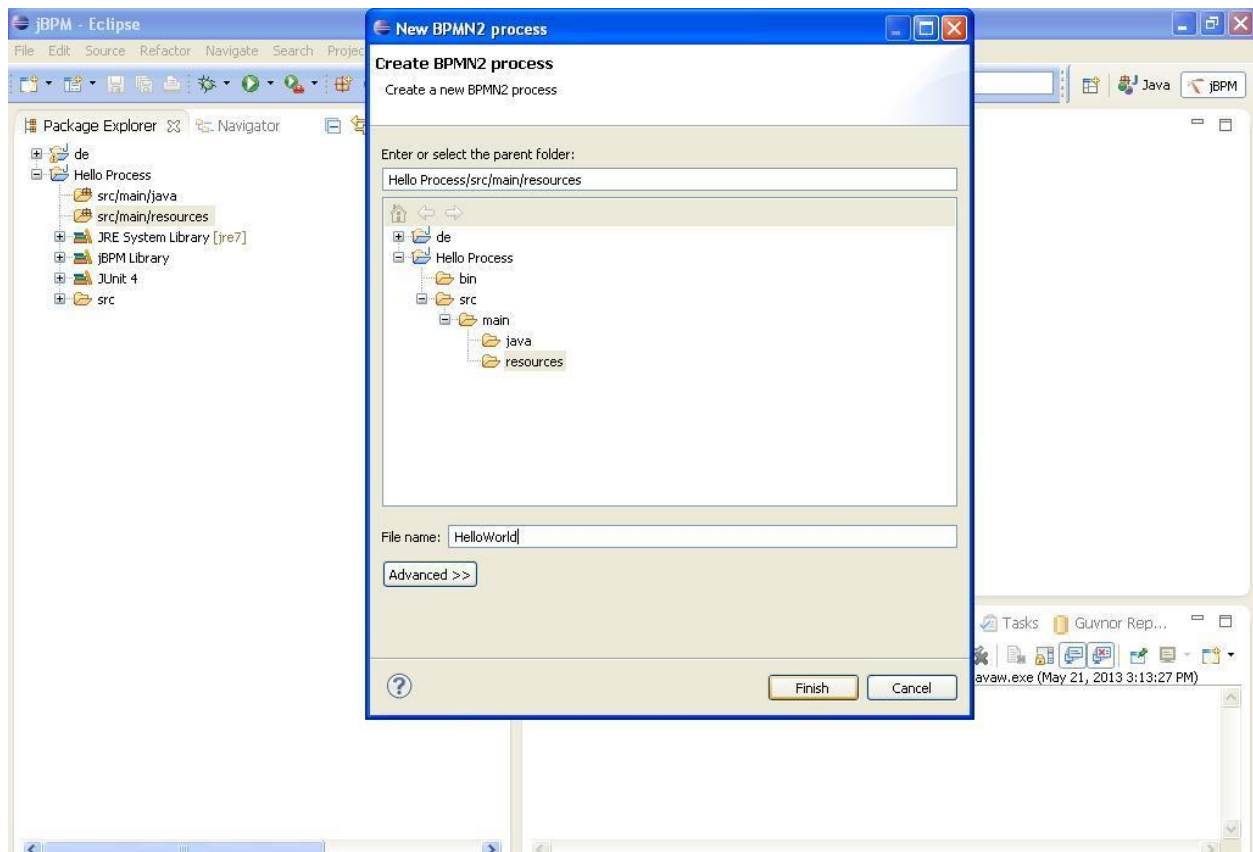


Figure 18 : Hello world file name

You can see, Helloworld.bpmn is created

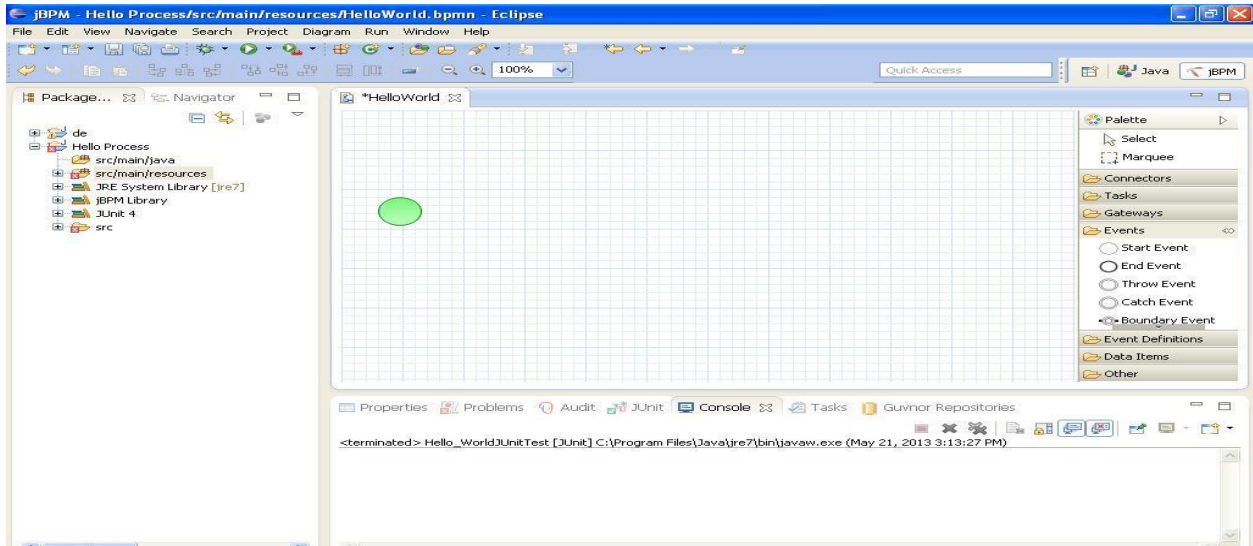


Figure 19 : Start node

Now you can see, start node.

Click on Start node and select Task->Script Task

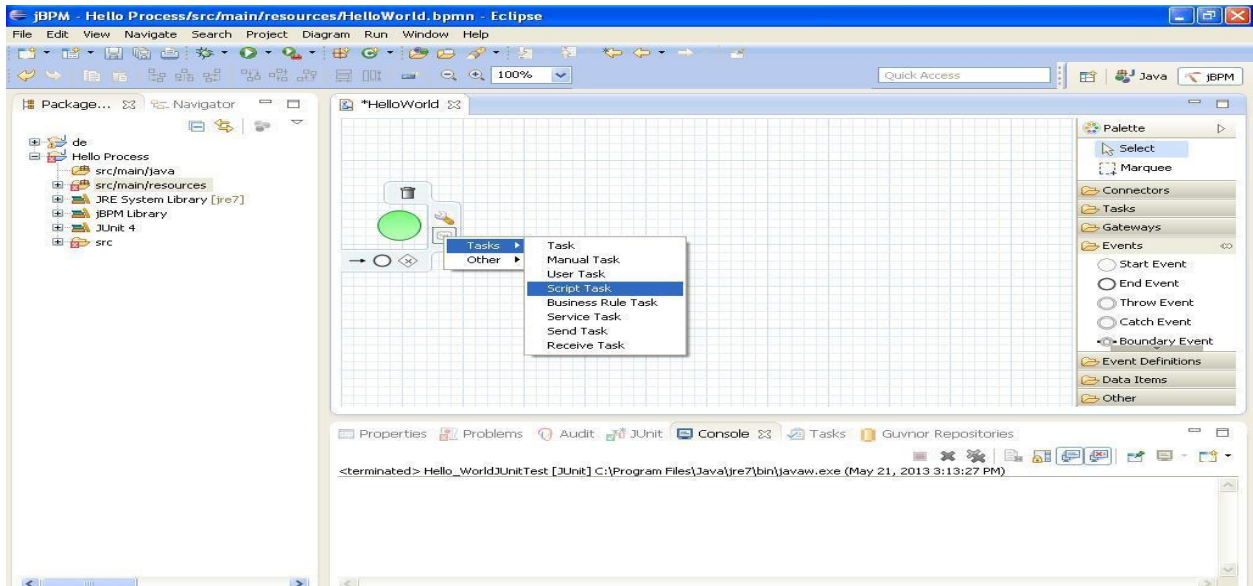


Figure 20 : Select Script Task

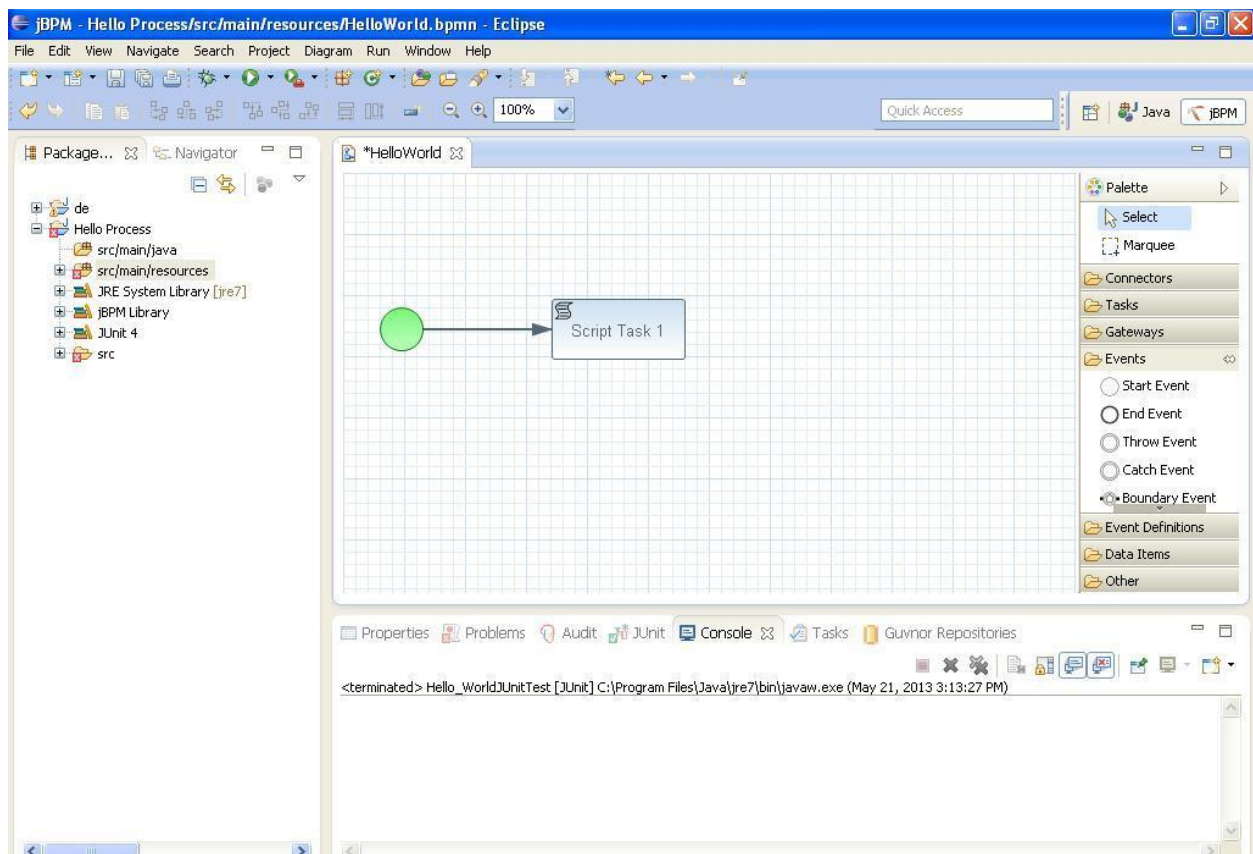


Figure 21 : Script Task

Select End node and connect with script task

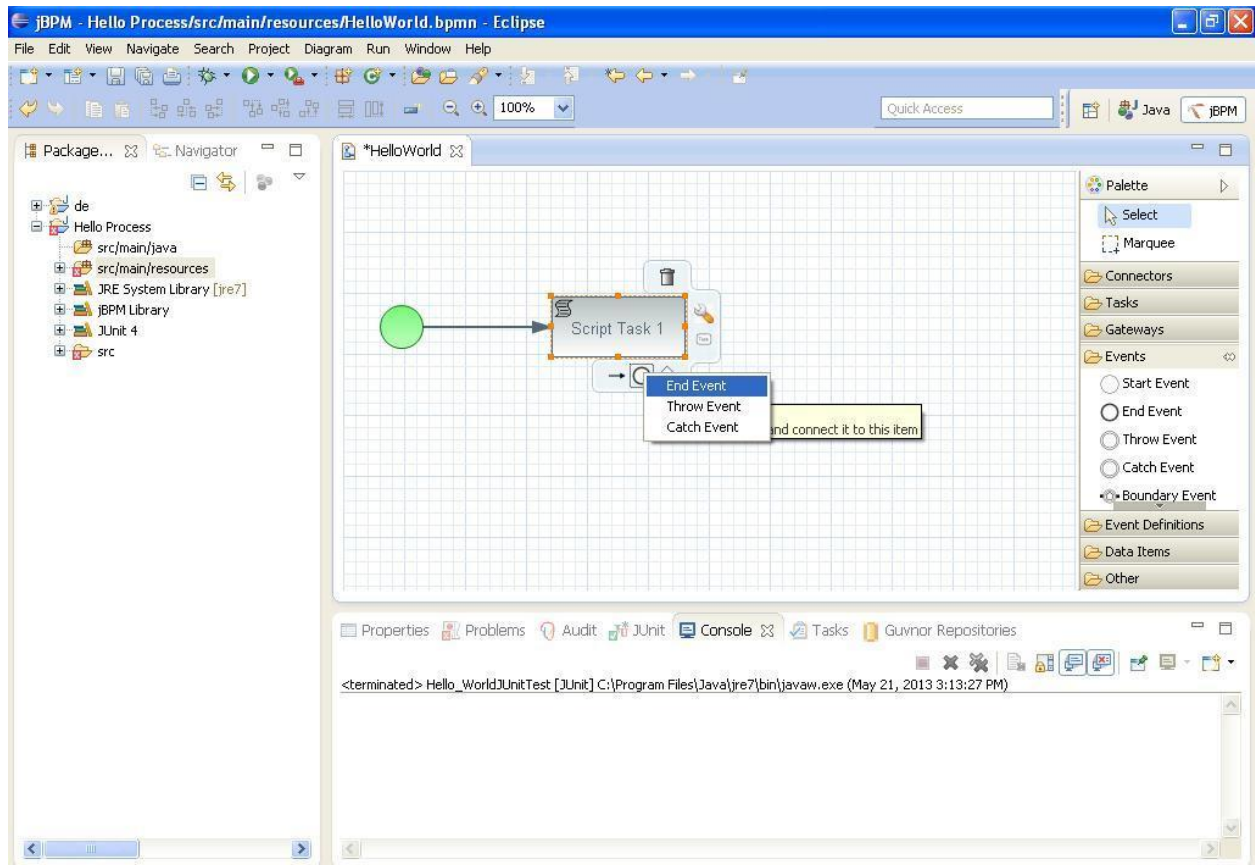


Figure 22 : End Event

Now designing of Hello World business process is ready

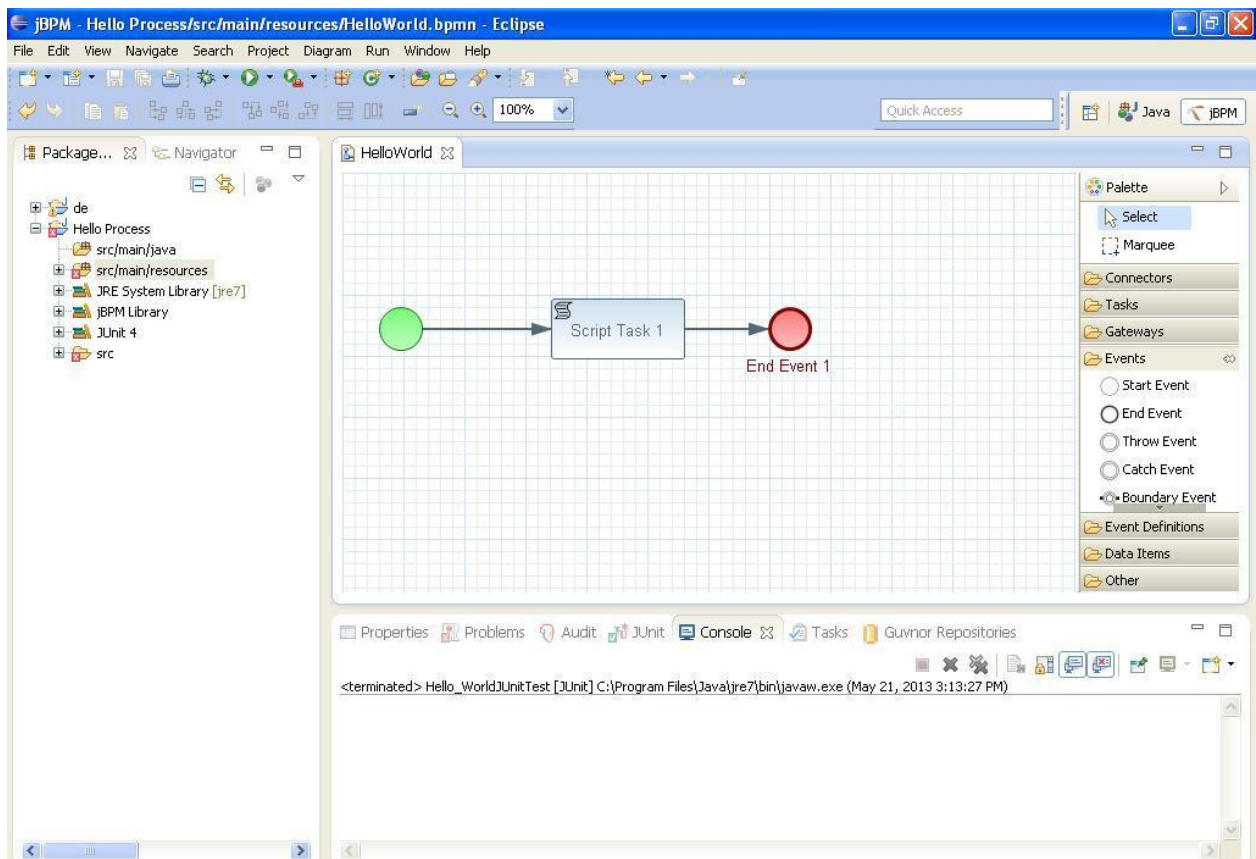


Figure 23 : Workflow

Click on properties

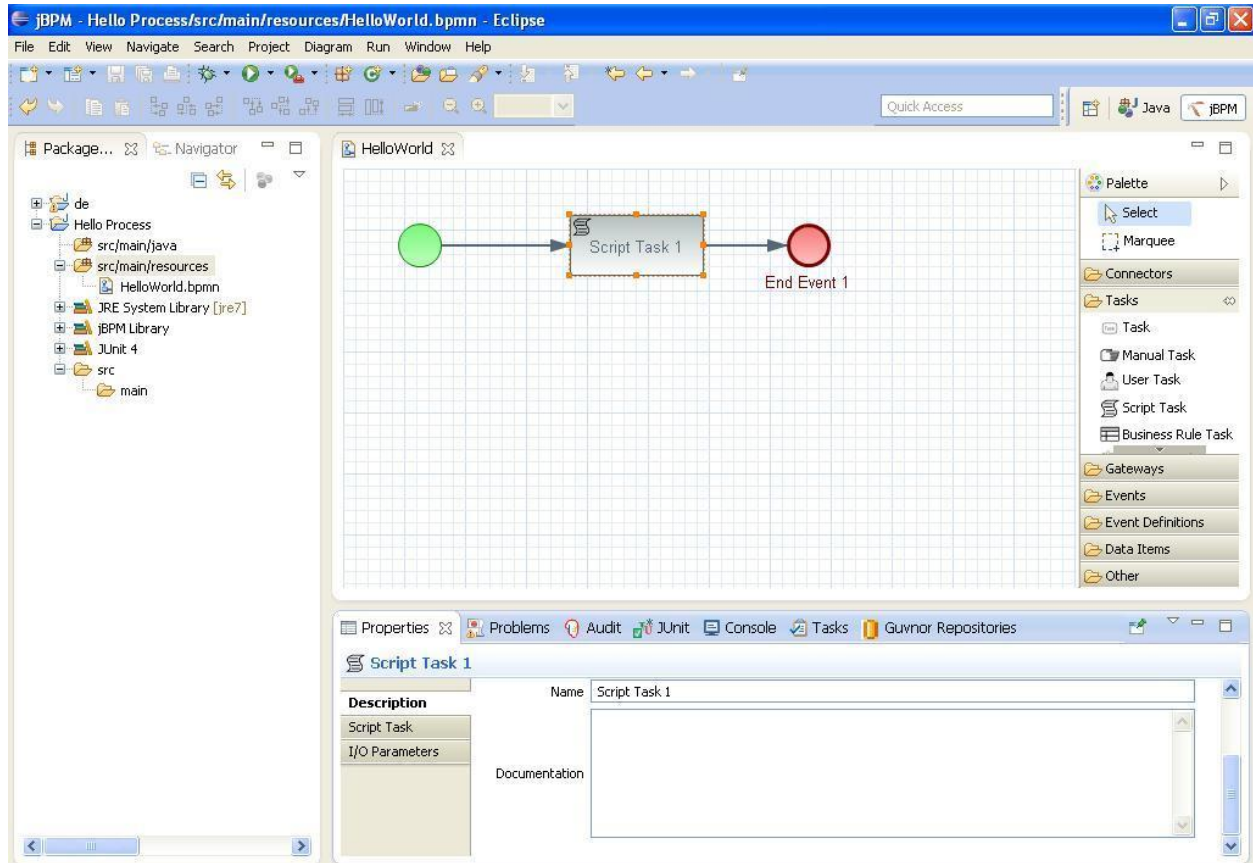


Figure 24 : Property of script task

You can see, Description of script task, Script task and I/O parameters.

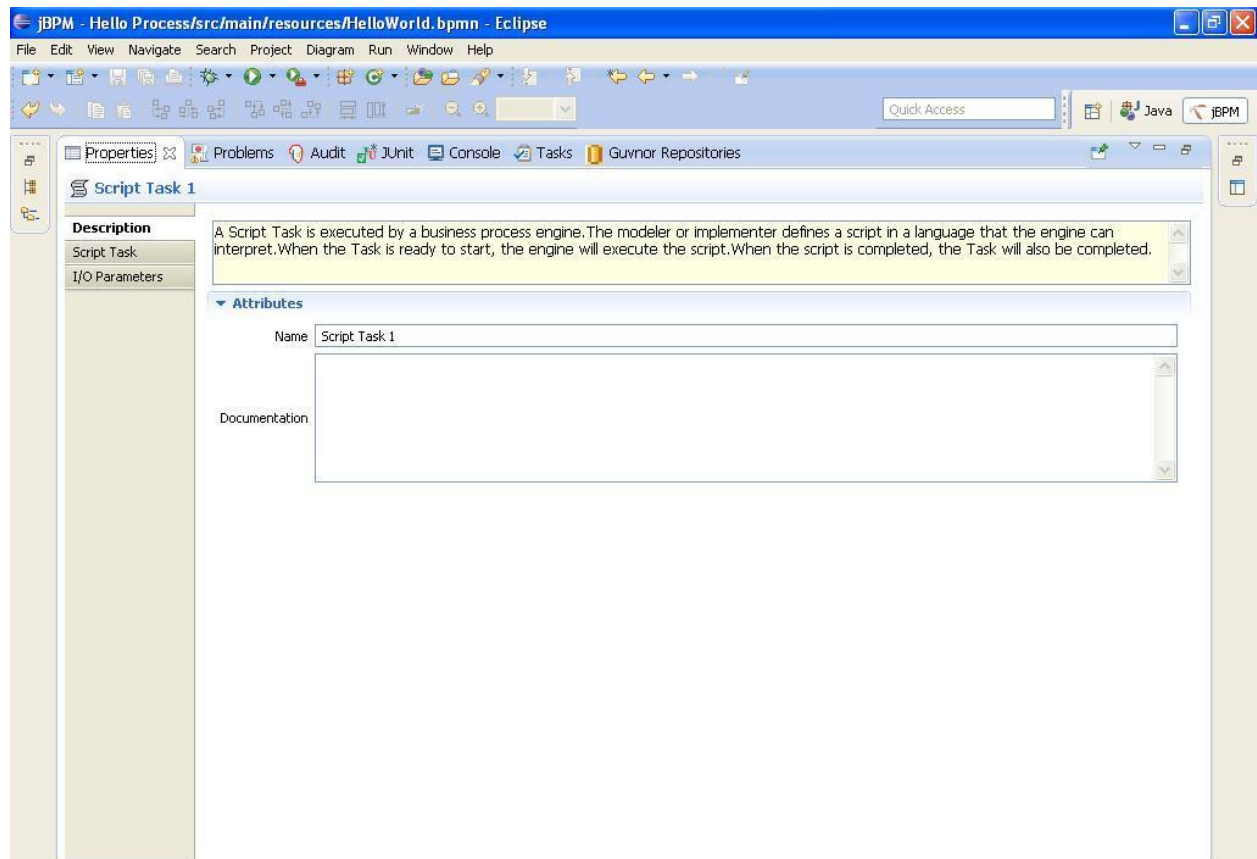


Figure 25 : Script task

Select script task and write java code for print hello world message into script.

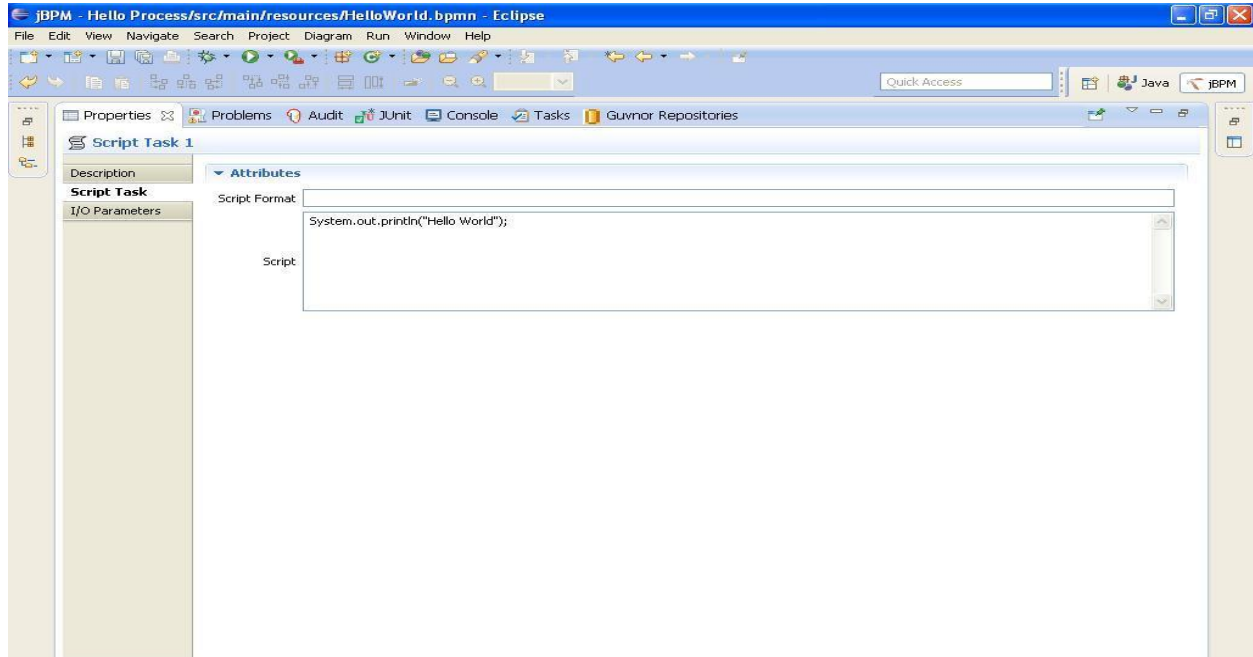


Figure 26 : Hello World

You can specify input/output parameter in I/O Parameter.

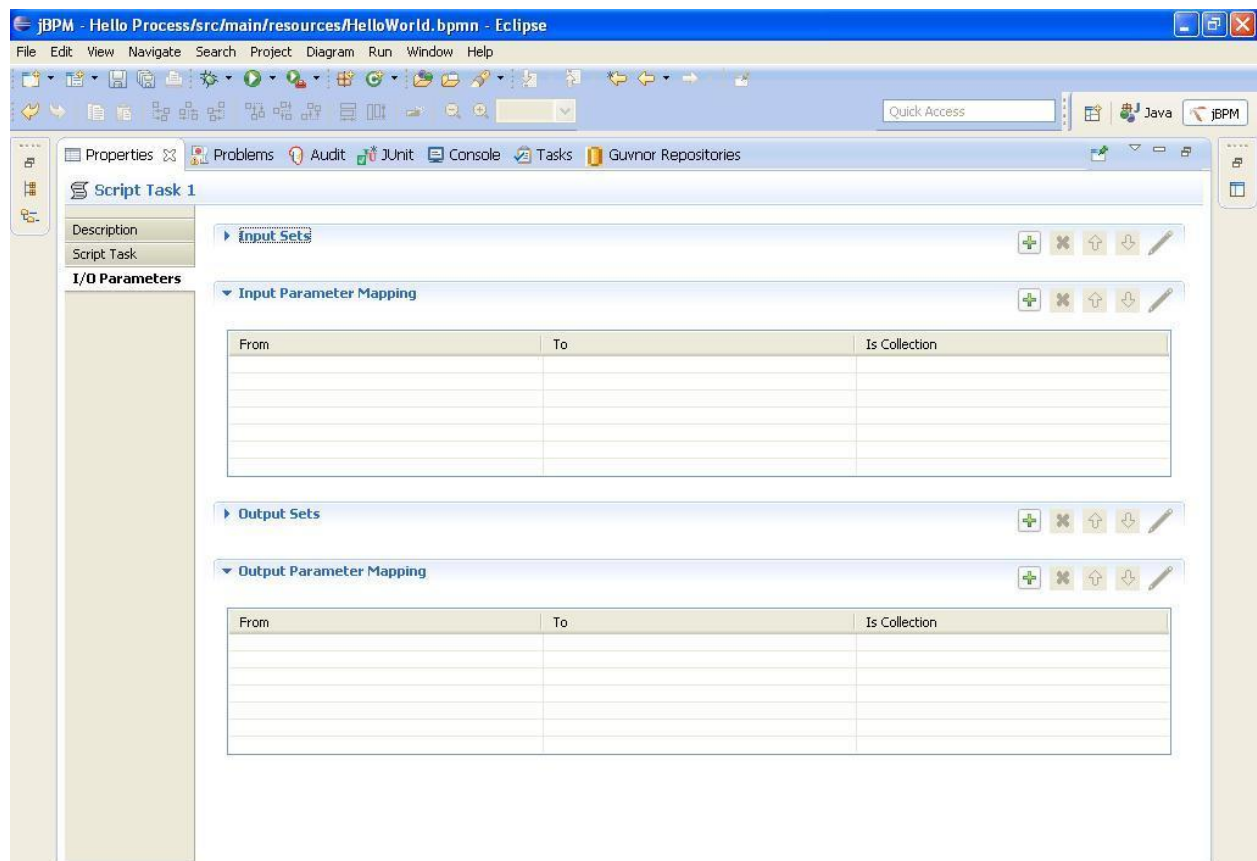


Figure 27 : Input/output Parameter

Step 3:

Now, Let's Testing it.

Right click on Helloworld.bpmn and click on Generate JBPM Junit tests.

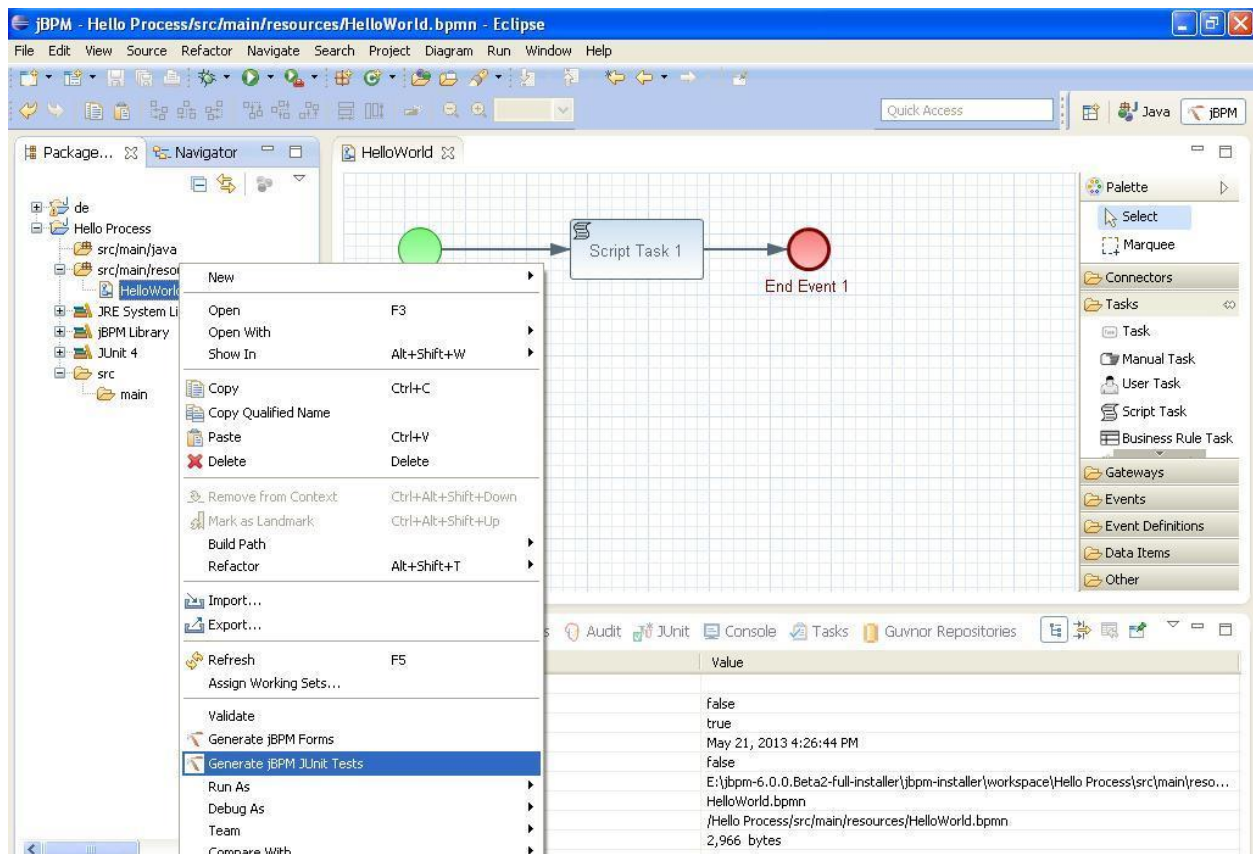


Figure 28 : Jbpm unit test

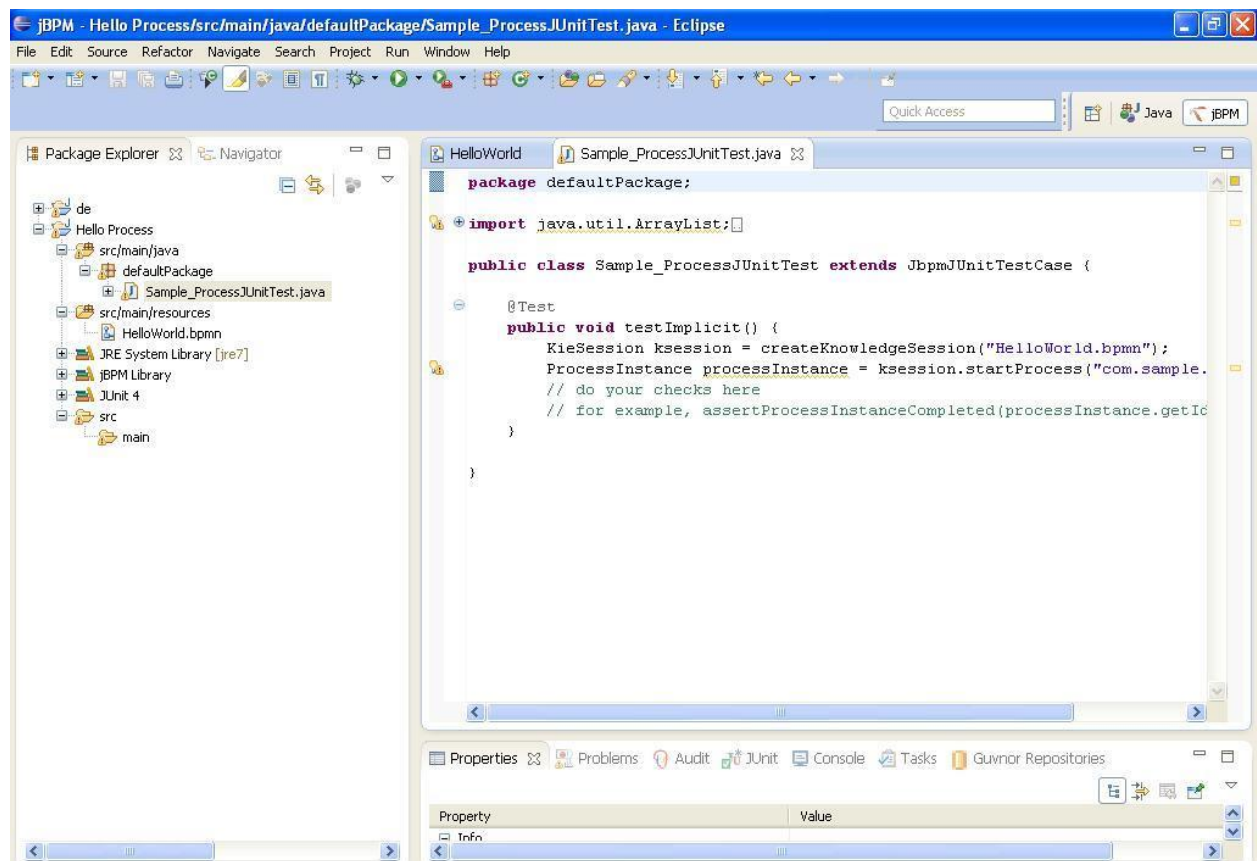


Figure 29 : Unit test code

Step 4:

Now let's check output.

Right click and Run as Junit test..

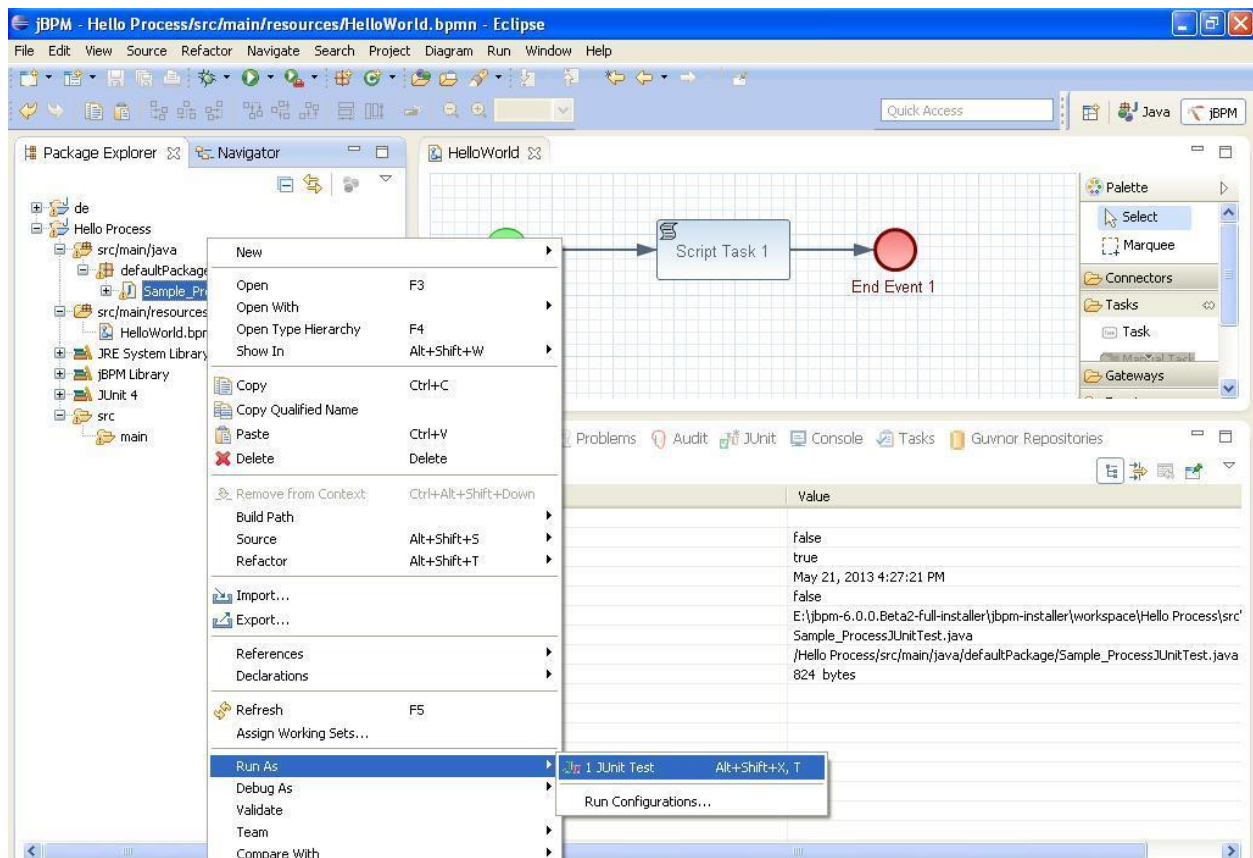


Figure 30 : Execute workflow

You can see output on console screen

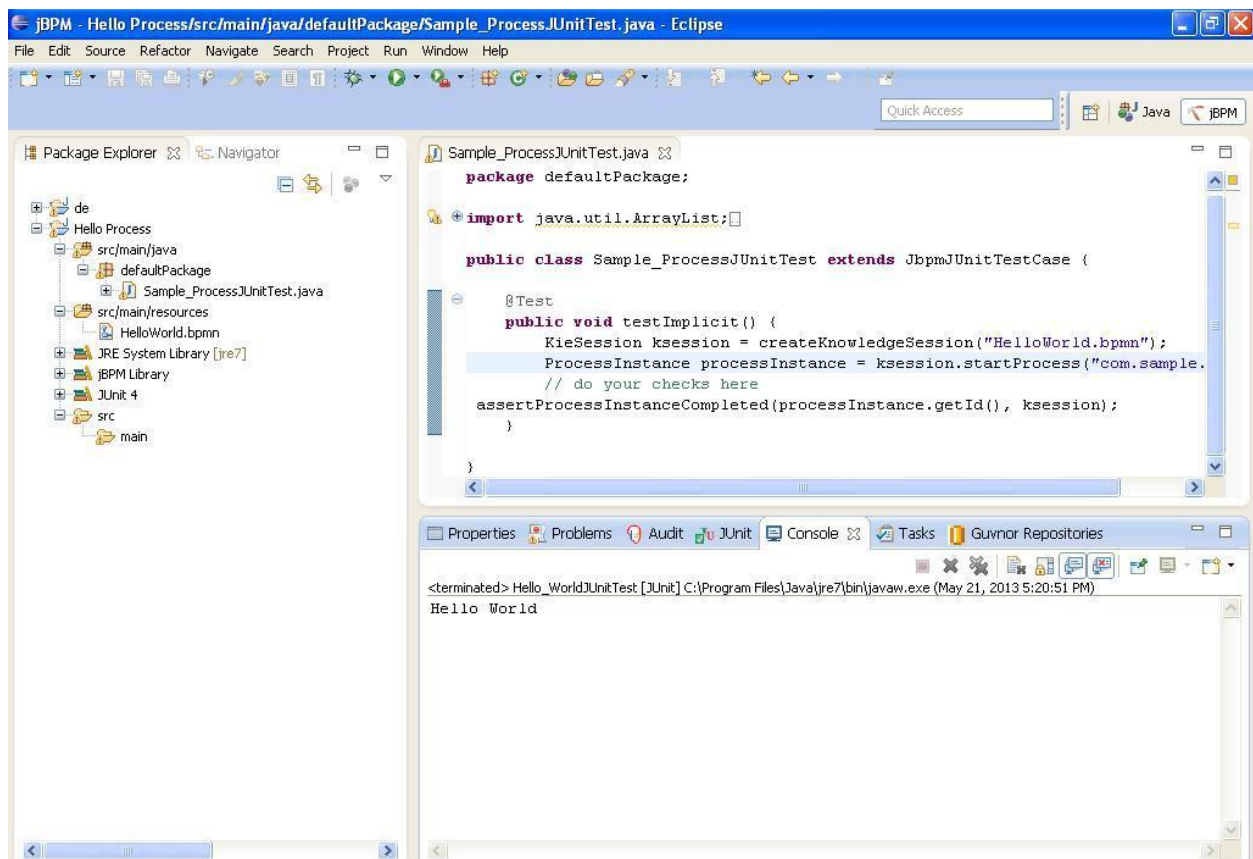


Figure 31 : Output on console

That's it.

5. Quick Tour of JBPM Console:



JBoss has launch new JBPM console ng in jBPM v6.0.It's designing is very nice compare to old jBPM console. Its UI is very user friendly so that system analyst and manager can develop business process as per requirement.

Business process can be managed using this jbpm console. You can perform tasks like....

- Start process instance
- Manage all process instances
- Look up the current status of running process
- Look your own task
- Complete task
- View Task in Calendar view and Grid view

Now, let's see jBPM console in more detail.



Open the process Management Console using following link:

<http://localhost:8080/jbpm-console>

You will get following jBPM console login screen to authentic using username and password.

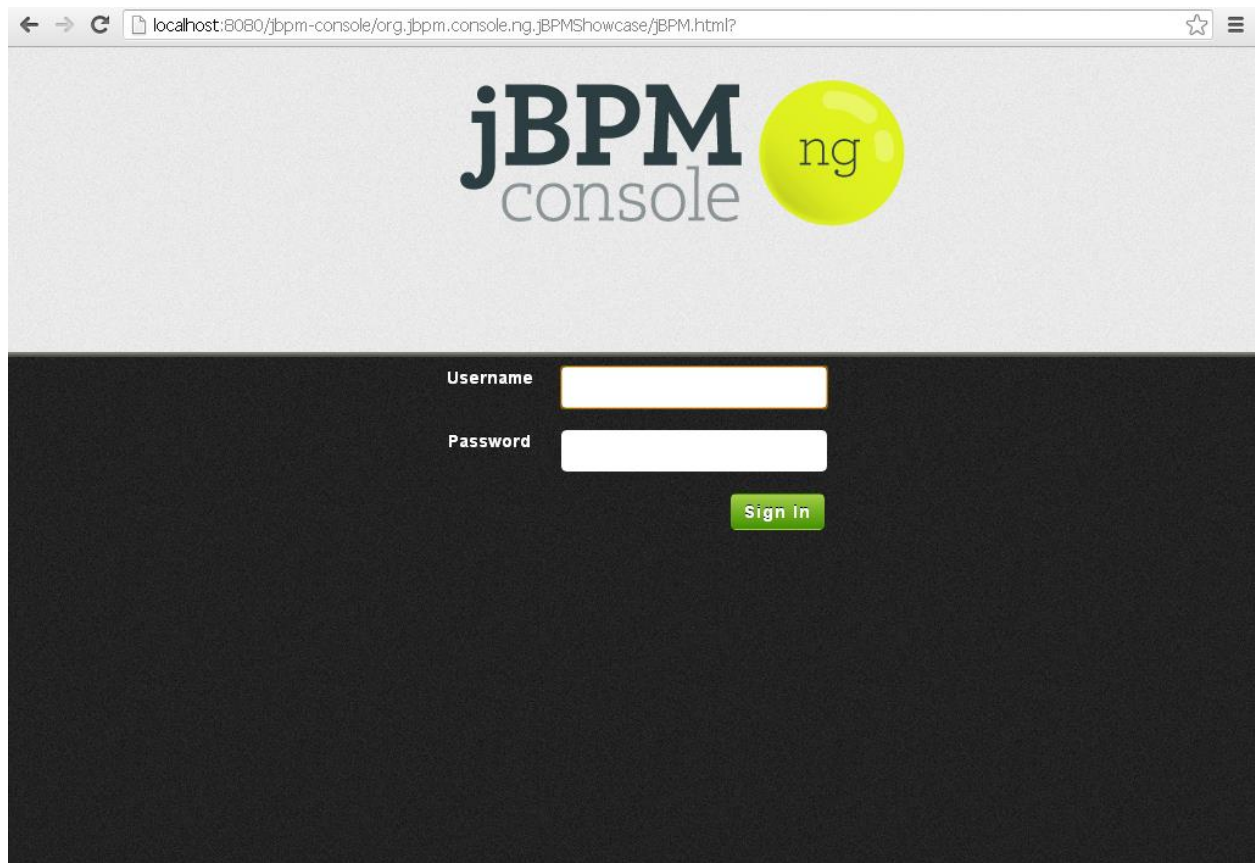


Figure 32 : Login screen

By default following username/password available:

-admin/admin,

-krisv/krisv

-john/john



-mary/mary

- Sales-rep/sales-rep

Let's login with username=krisv, password=krisv.



Figure 33 : Login using krisv/krisv

After successfully login, you will get following home screen.

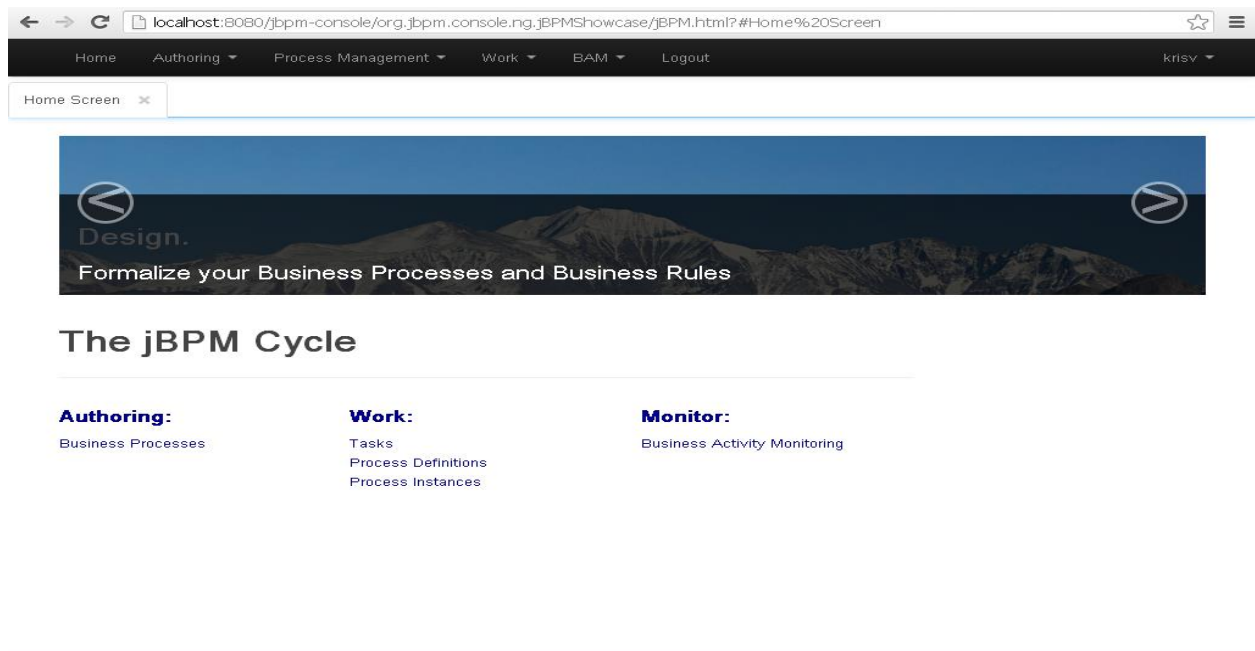


Figure 34 : Home screen

It's providing following useful panels to finalize business process:

- Authoring
- Process Management
- Work
- BAM

Now it's right time to see it in more detail.

Authoring:

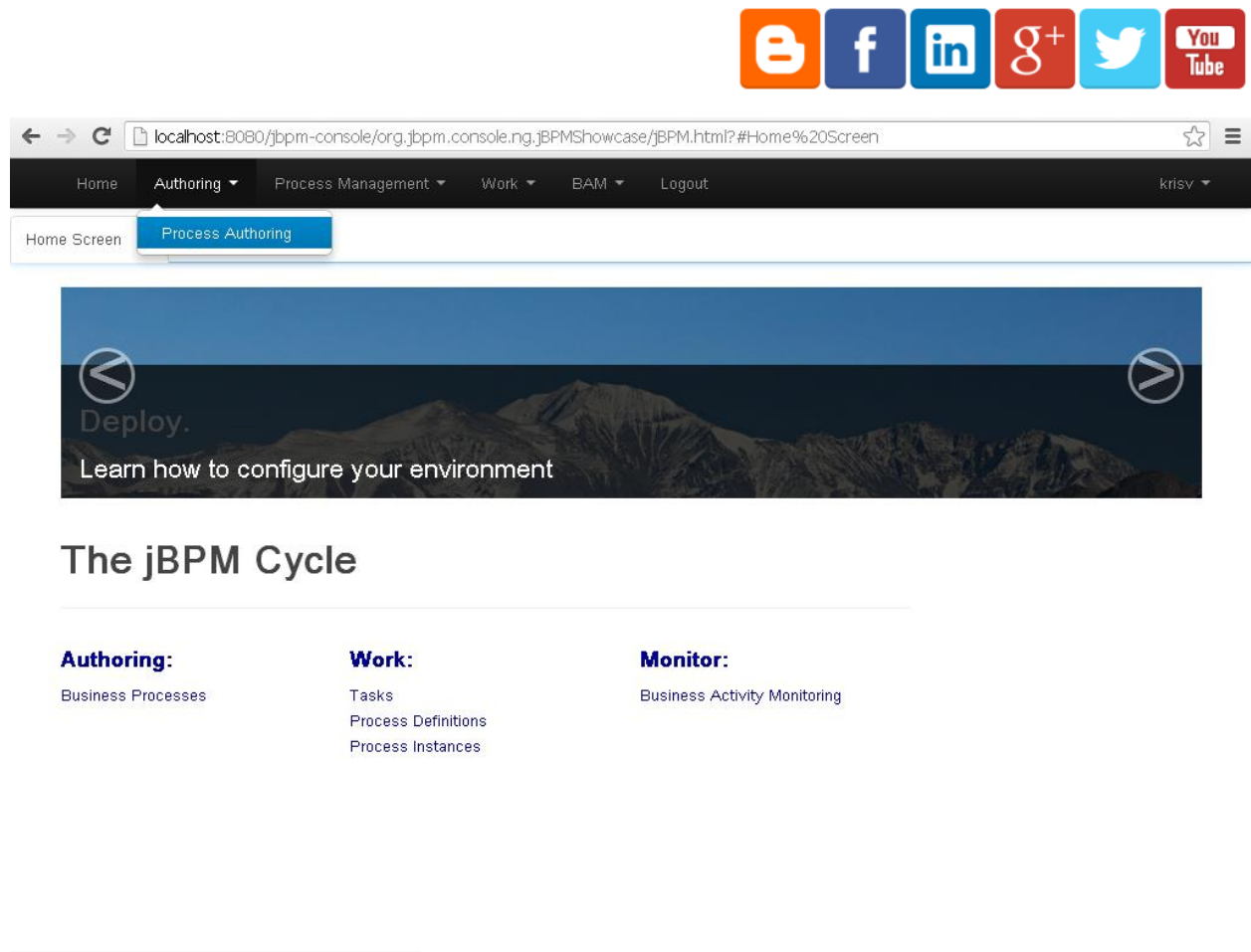


Figure 35 : Click on Authoring

You can see in below screenshot, after click on authoring you can get all available directory of project contain various files of business process.

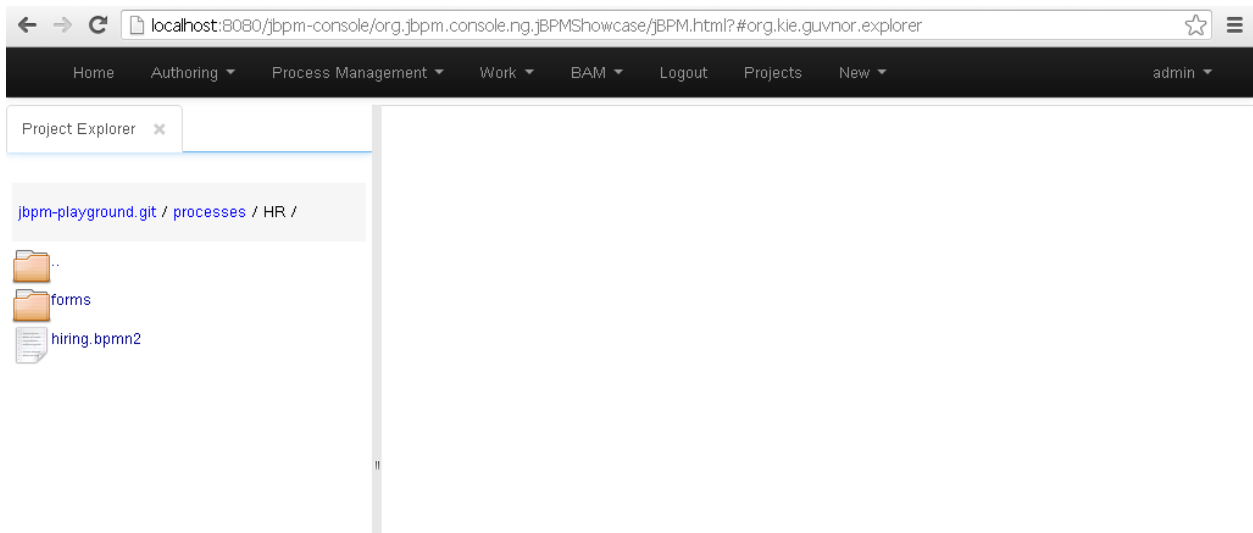
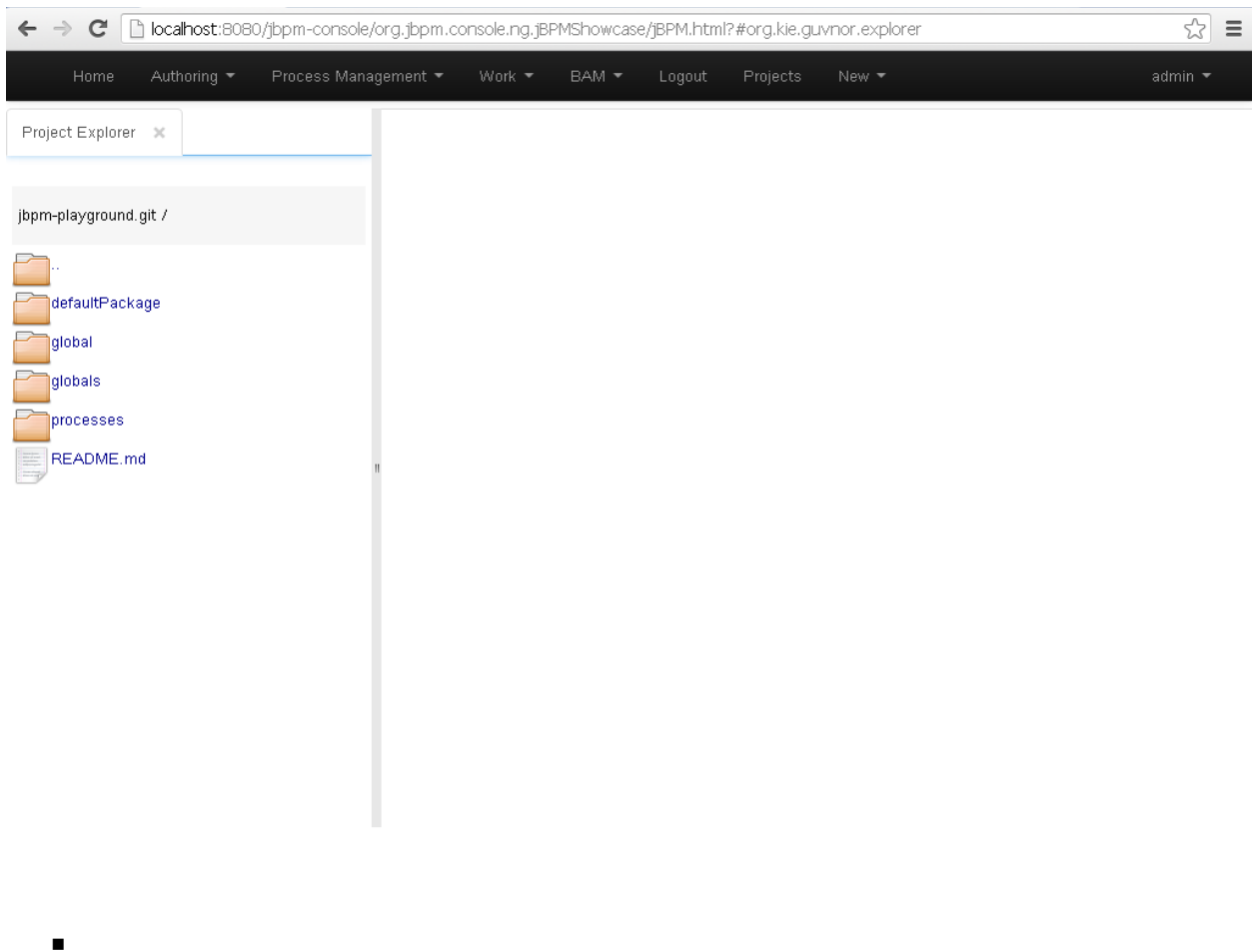


Figure 36 : Project explorer

: Process Management

The screenshot shows the JBPM console interface. The top navigation bar includes links for Home, Authoring, Process Management (selected), Work, BAM, and Logout. The user is logged in as 'admin'. Below the navigation bar, the 'Process Management' section is active, showing a dropdown menu with 'Process Definitions' and 'Process Instances'. The 'Process Definitions' tab is selected, displaying a table of process definitions.

Name	Version	Actions
Parent Process		
Release Process	1	
Hiring a Developer	1	
Default Process	1	
MoveFileWorkItemHandlerTest		
Support Process	1	
humanTaskSample	1	

At the bottom of the table, there is a pagination control showing '1-7 of 7' and navigation buttons.

Figure 37 : Process Management

It will allow you to see list of available business process in repository. You can start the process instances and also you can see detail of business process. You can monitor process instances.

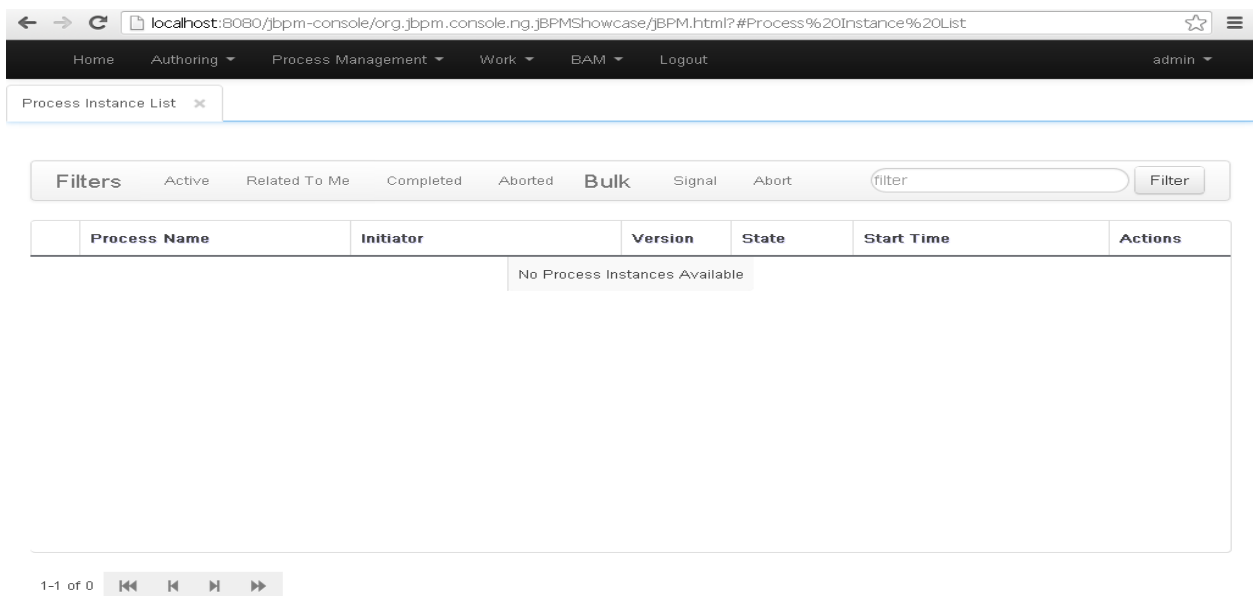


Figure 38 : Process Instance List

Work panel:

Work panel allow you to access Task lists which is allocated to you.

You can view task in two way:

1) Calendar View

2) Grid View



← → ↻ localhost:8080/jbpm-console/org.jbpm.console.ng.jBPMShowcase/jBPM.html?#Tasks%20List ☆ ☰

Home Authoring ▾ Process Management ▾ Work ▾ BAM ▾ Logout admin ▾

Tasks List ×

Tasks - Calendar View
Tasks - Grid View

New Task Filters Day Week Month Advanced Active Personal Group All

Search Refresh

Wednesday 22 (0)

Thursday 23 (0)

Friday 24 (0)

← → ↻ localhost:8080/jbpm-console/org.jbpm.console.ng.jBPMShowcase/jBPM.html?#Grid%20Tasks%20List ☆ ☰

Home Authoring ▾ Process Management ▾ Work ▾ BAM ▾ Logout krisv ▾

Process Instance List × Personal Tasks ×

New Task Filters Active Personal Group All

Search Refresh

	Id	Task	Priority	Status	Due On	Parent	Actions
Hooray you dont have any pending Task!!							

1-1 of 0 ⏮ ⏪ ⏩ ⏭

BAM:

Allow you to monitor your Business process. You can generate no's of useful reports by date, by process instances, by date as per your requirement. It can be used to monitor and analyze the execution of your processes.

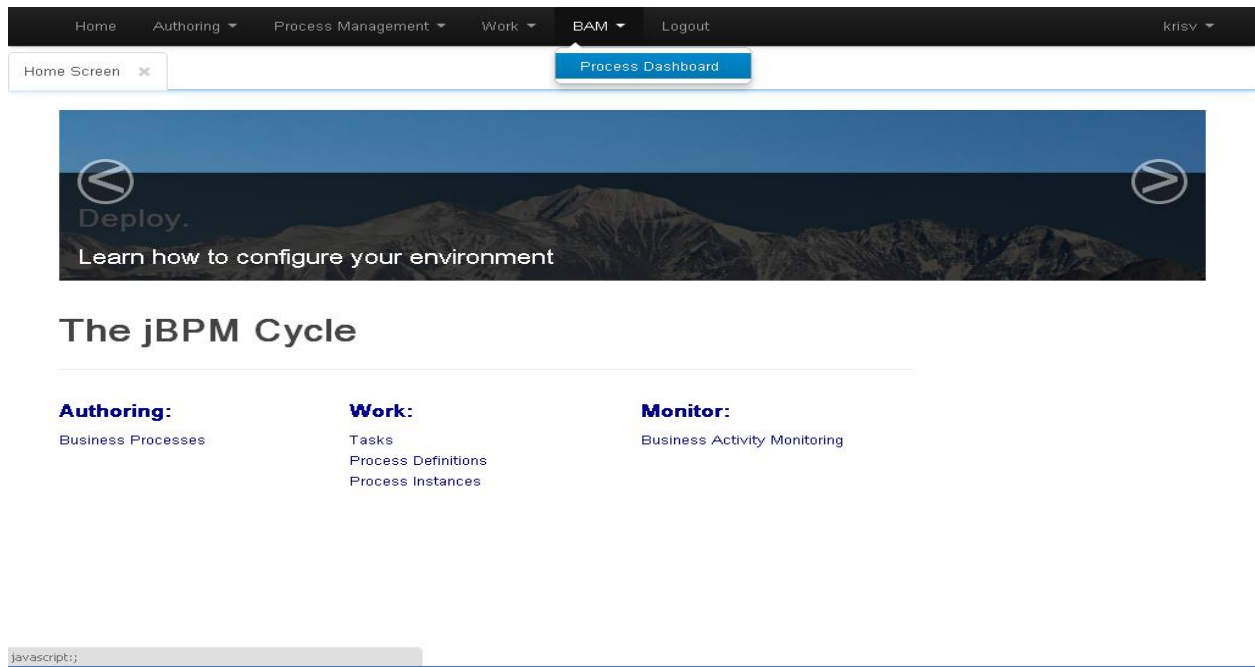


Figure 39 : Click on process dashboard

After click on Process Dashboard, you will get following screen.

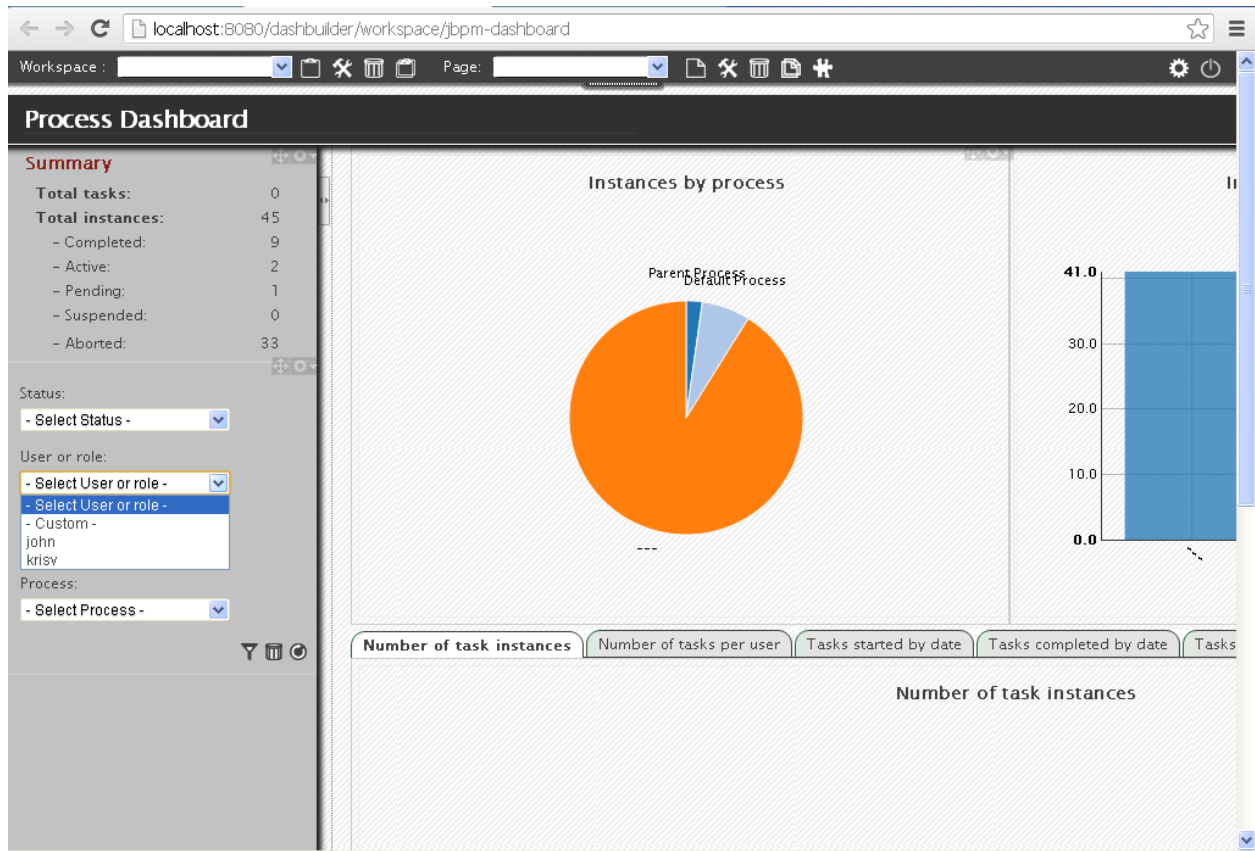


Figure 40 : Process dashboard

Using process dashboard, you can view the summary of total tasks, total instances.

You can view instances by process in graph, pie chart etc.

You can also access jbpmm dashboard properties and can be configured as per your requirement.

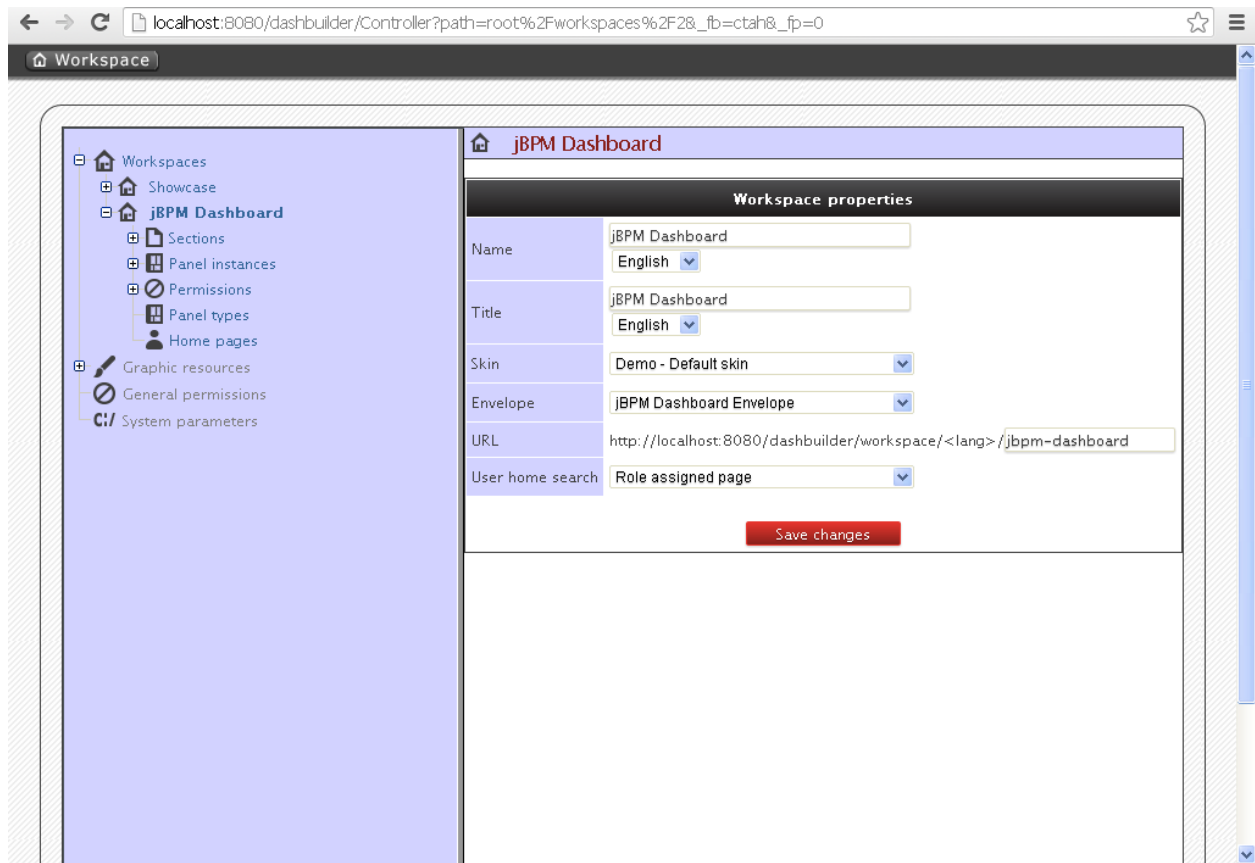


Figure 41 : Workspace property



6. Quick Tour of Example Using JBPM Console:

We have already seen one example using eclipse tooling. Now let's see one example using jbpm console, so you can get idea how can we start instance, start, execute and complete.

Step1:

Login with following username and password:

Username: krisv

Password: krisv



Step2:

Click on Process Definitions

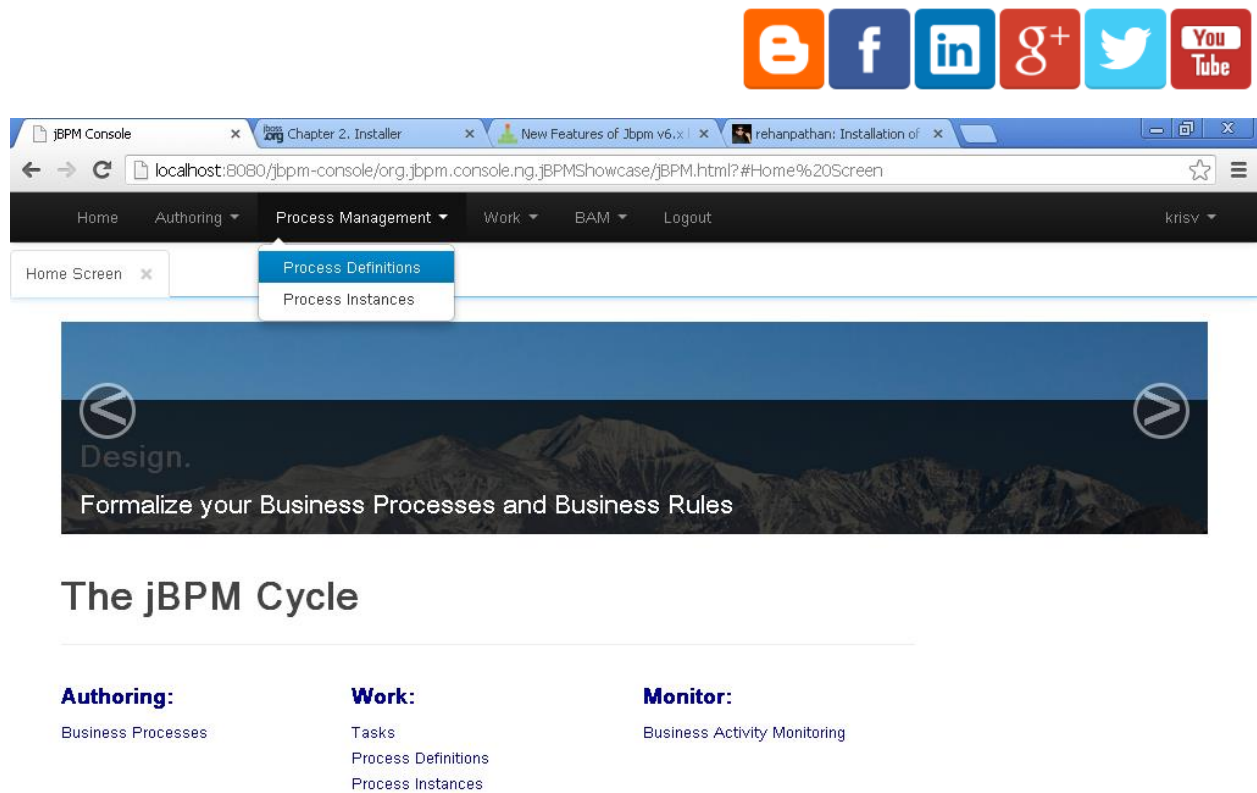


Figure 42 : Access process definition

You will get following available process. You can access any available process.

Name	Version	Actions
Parent Process		
Release Process	1	
Hiring a Developer	1	
Default Process	1	
MoveFileWorkItemHandlerTest		
Support Process	1	
humanTaskSample	1	

1-7 of 7

Figure 43 : Available process

Step3: Open Process authoring and click on support.bpmn, you will get following jBPM designer

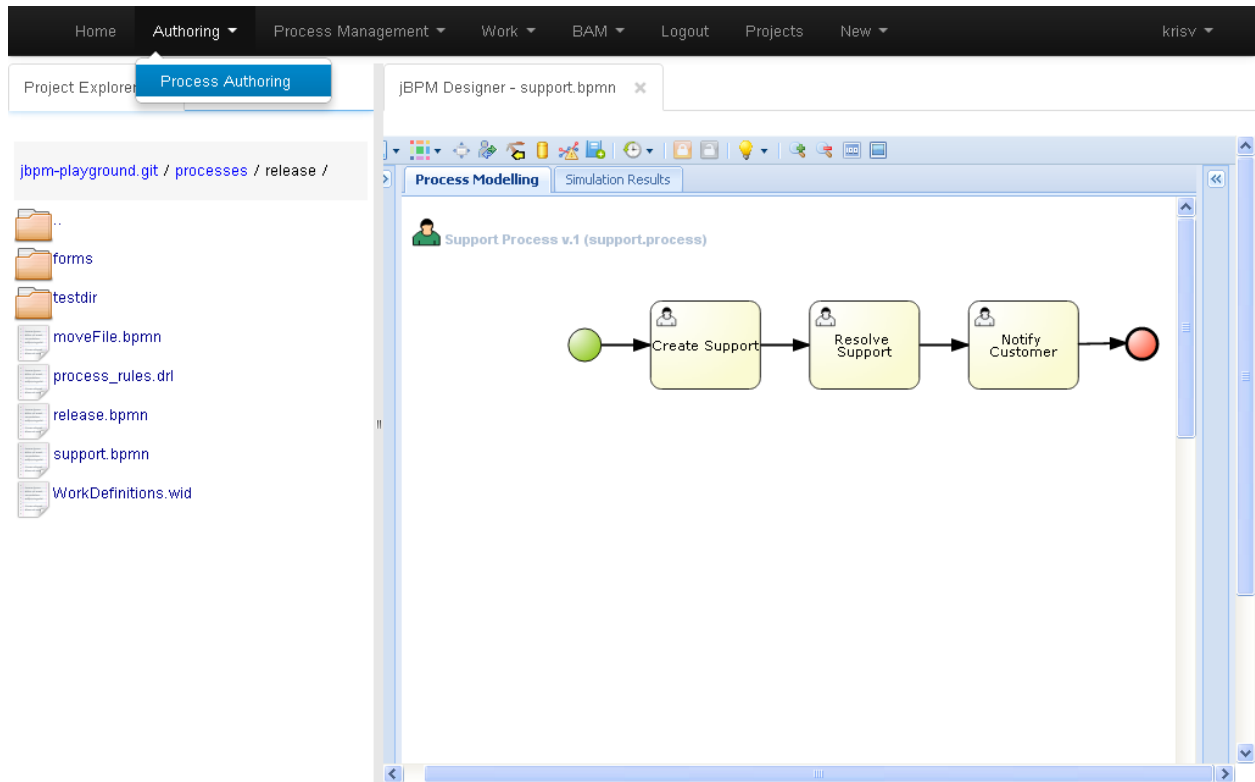


Figure 44 : Jbpm designer

Step4: Click on create support and select properties

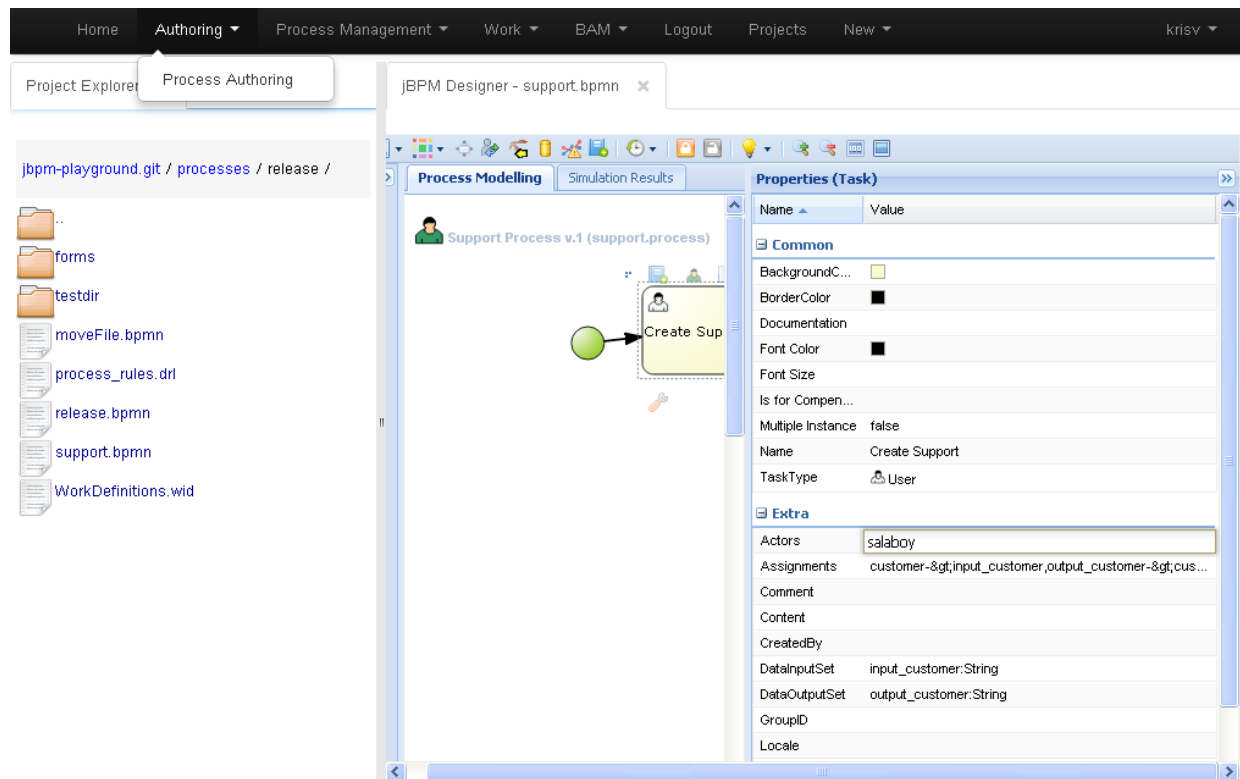


Figure 45 : Select properties

Step5: Change actors name from salaboy to krisv in each human task.

The screenshot shows the jBPM Designer interface. On the left, the 'Project Explorer' displays the file structure of 'jbpm-playground.git / processes / release /', including files like 'moveFile.bpmn', 'process_rules.drl', 'release.bpmn', 'support.bpmn', and 'WorkDefinitions.wid'. The main workspace shows a BPMN diagram for 'Support Process v.1 (support.process)' with a task named 'Create Support'. The 'Properties (Task)' panel on the right is open, showing various configuration options. The 'Actors' field is highlighted, and its value is 'salaboy'. Other visible properties include 'Name' (Create Support), 'TaskType' (User), 'DataInputSet' (input_customer:String), and 'DataOutputSet' (output_customer:String).

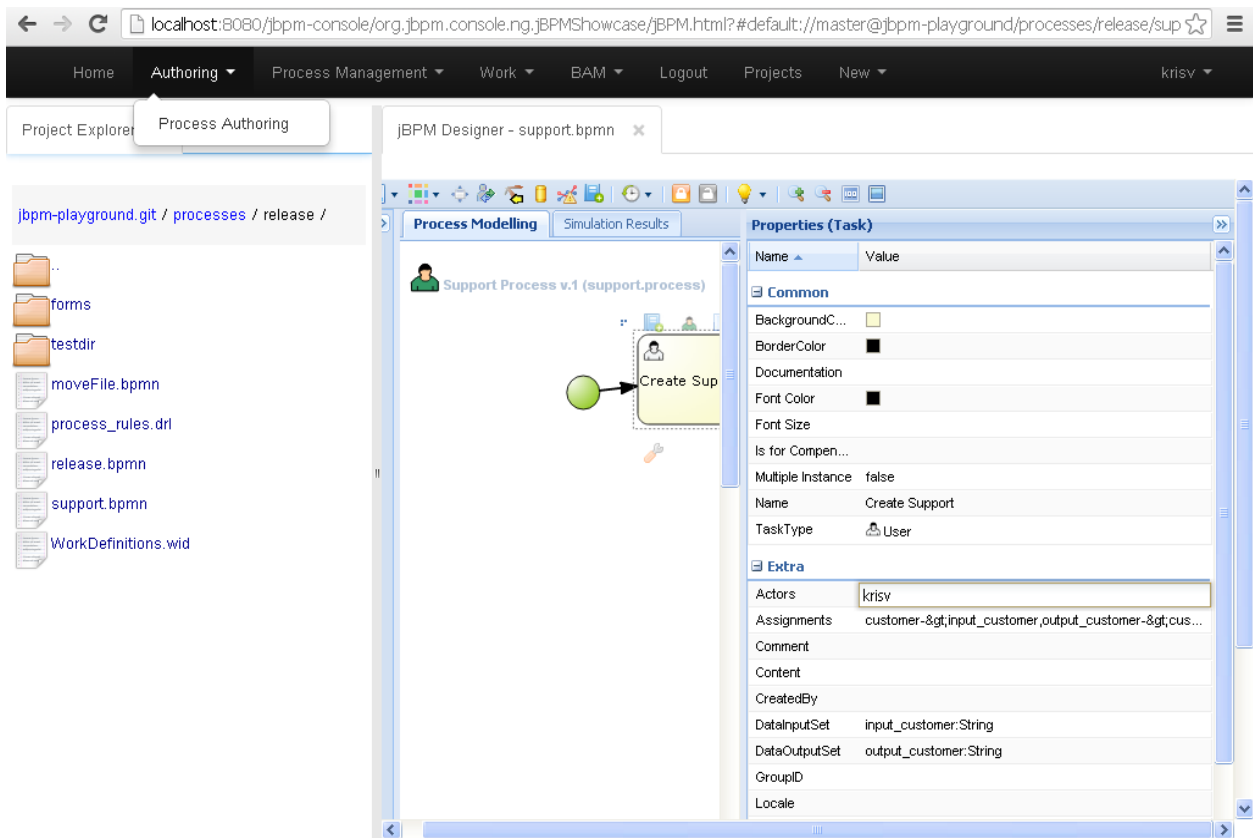


Figure 46 : Change Version

Change version from 1 to 2

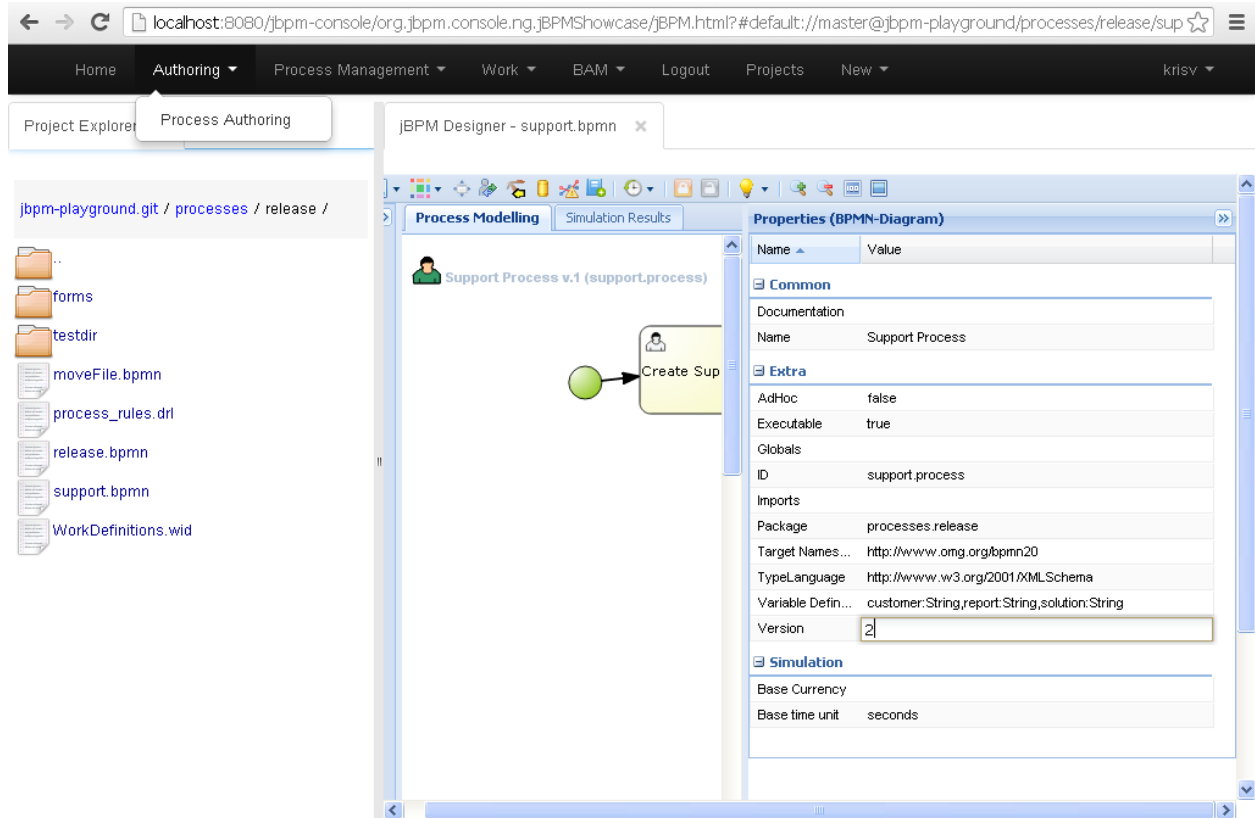
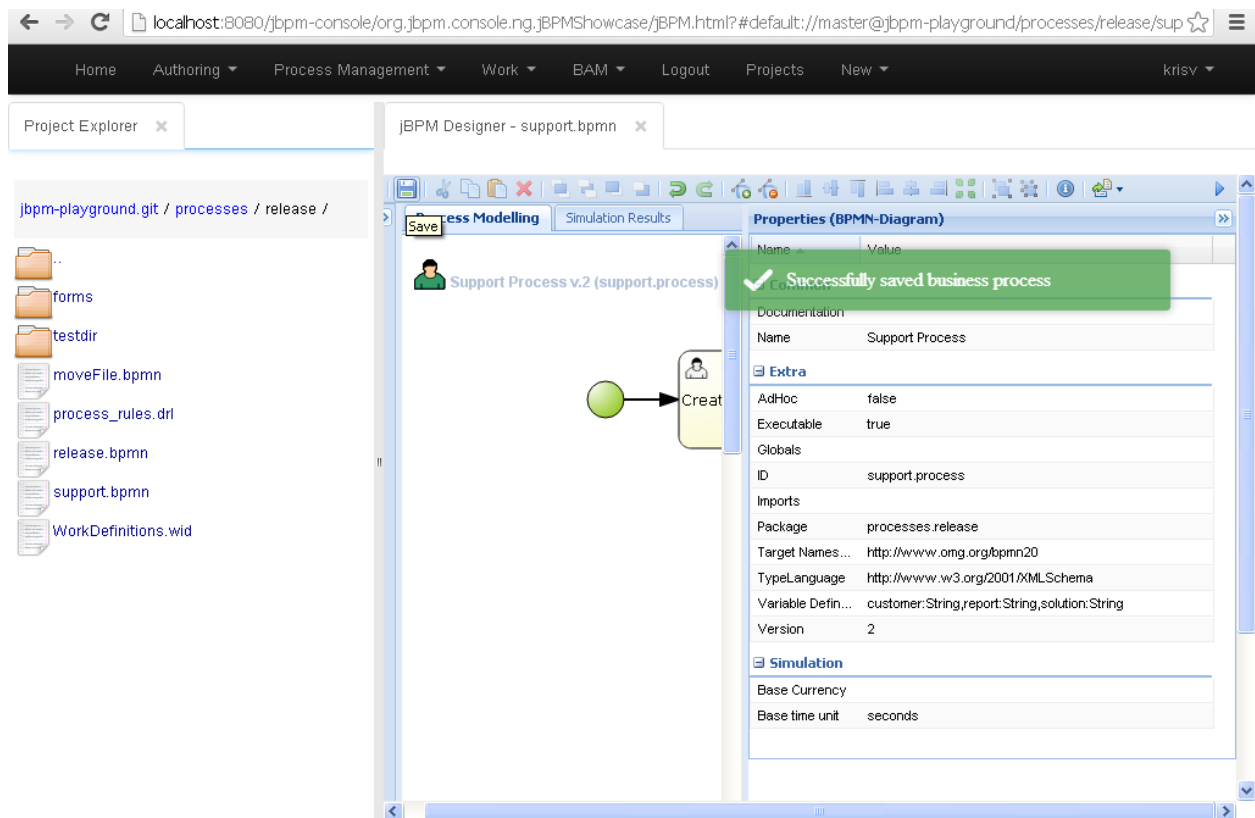


Figure 47 : Version 2

Now save it.



Step 6: Click on reload repository in process definition list. You can see version 2 of support process.

Step7: Now click on start action.

← → ↻ localhost:8080/jbpm-console/org.jbpm.console.ng.jBPMShowcase/jBPM.html?#Process%20Definition%20List ☆ ☰

Home Authoring ▾ Process Management ▾ Work ▾ BAM ▾ Logout krisv ▾

Process Definition List ✕

Actions Reload Repository

Name	Version	Actions
Release Process	1	▶
Parent Process		▶
Hiring a Developer	1	▶
MoveFileWorkItemHandlerTest		▶
Default Process	1	▶
Support Process	2	▶
humanTaskSample	1	▶ Start

1-7 of 7 ◀◀ ◀ ▶ ▶▶

Figure 48 : Process list

You will get following screen.

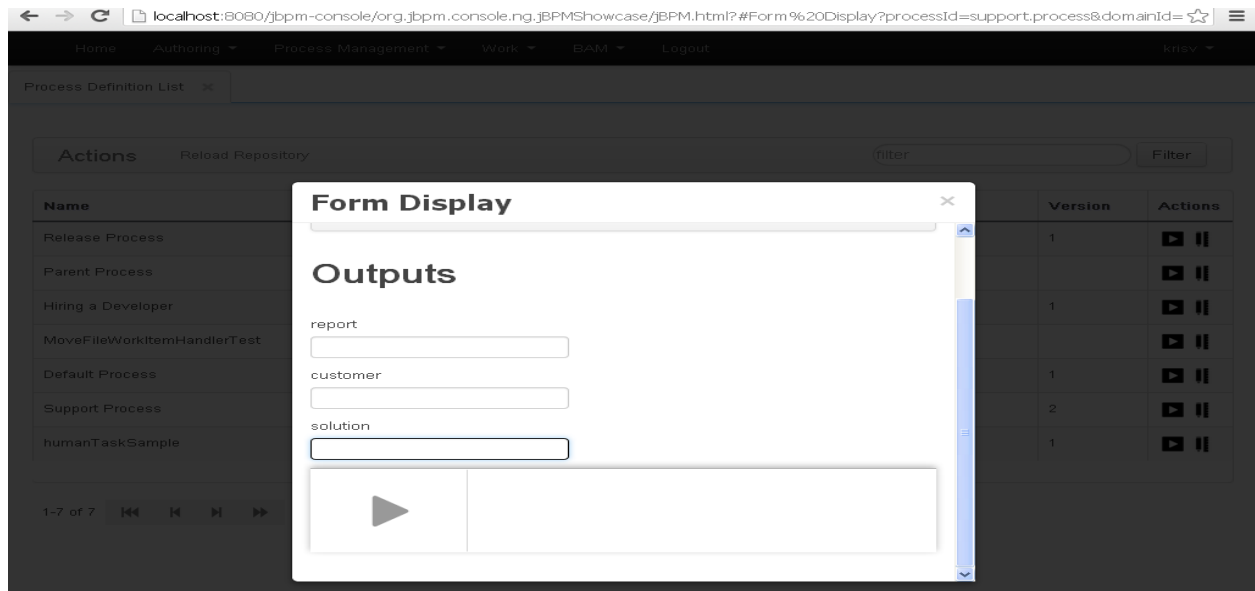


Figure 49 : Process form

Step7: Fill up form. Click on Start button.

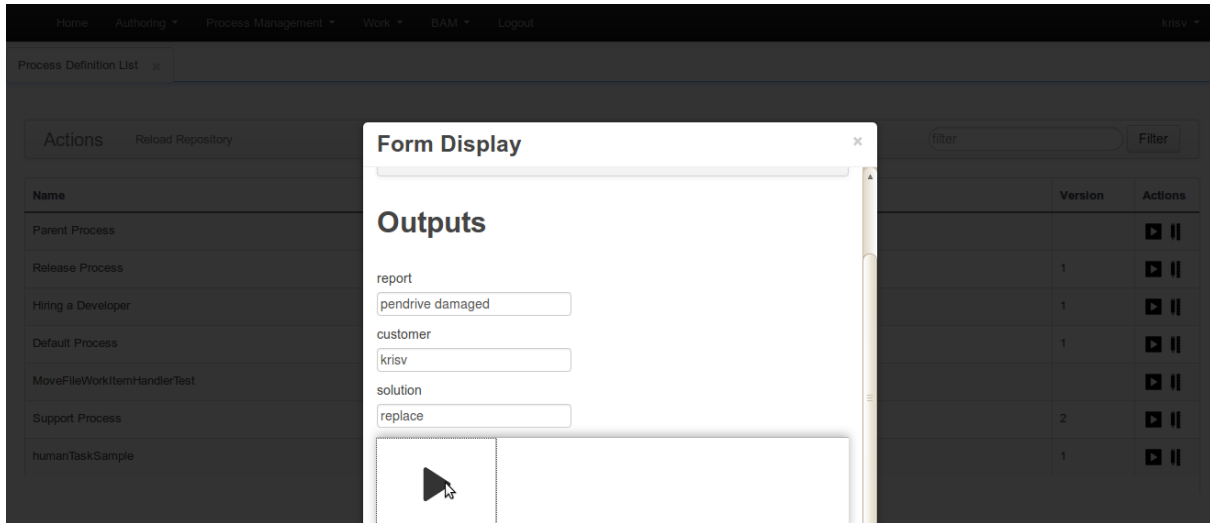


Figure 50 : Click on start

You will get Process instance detail.

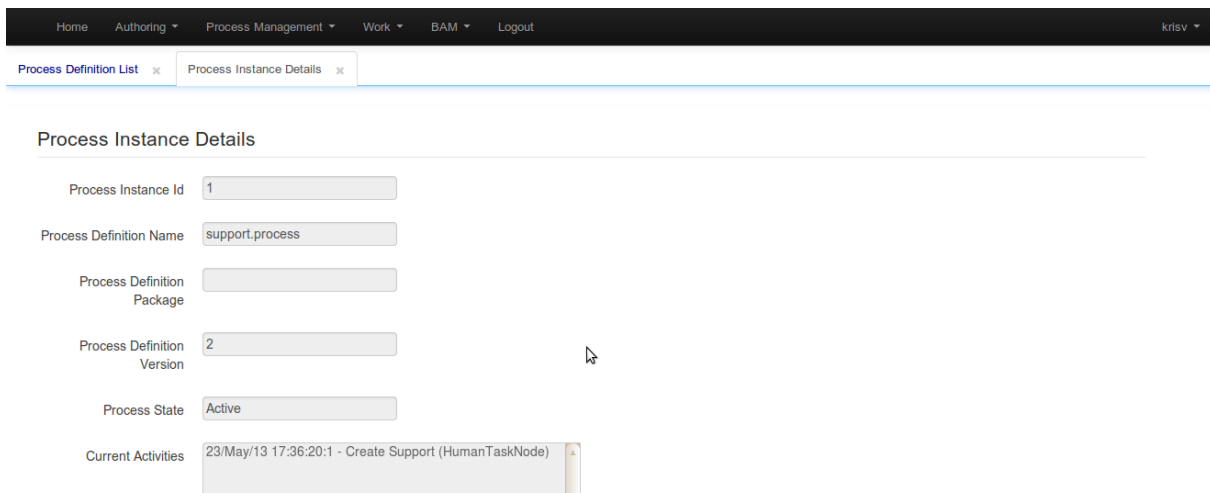


Figure 51 : Instance detail

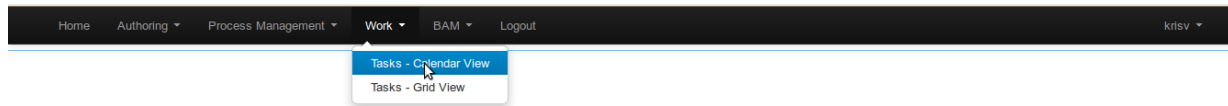
You can also view all variables and their values.

Variable	Value	Type	Last Time Changed	Actions
report	pendrive damaged	Object	2013-05-23 17:36:20.908	
customer	krisv	Object	2013-05-23 17:36:20.917	
solution	replace	Object	2013-05-23 17:36:20.921	

1-3 of 3

Figure 52 : Values of Variables

Step 8: Click on Tasks-by Calendar view



You can see current task, so to start that task click on tick mark to start create support task.

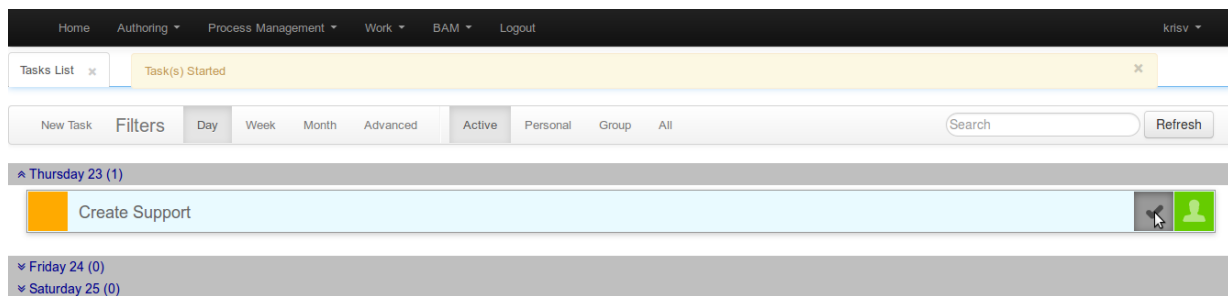
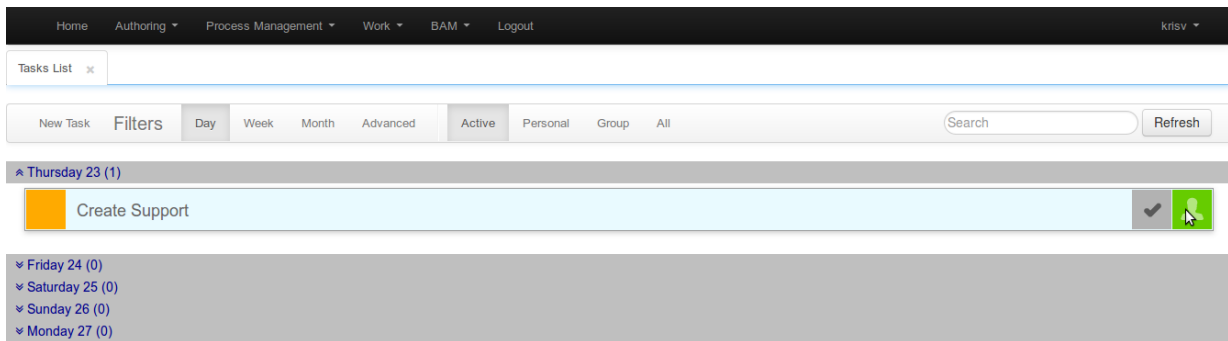


Figure 53 : View task by Calander

View the task



Step 8: Fill the form and complete the task

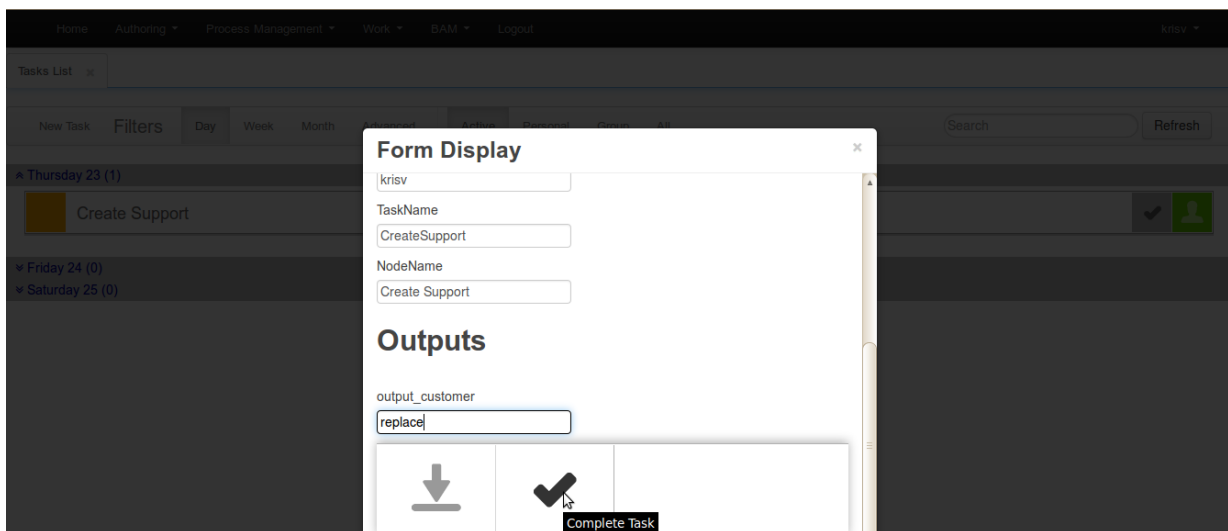


Figure 54 : Complete task

Step 9: View process in process dashboard



[Home](#) [Authoring](#) [Process Management](#) [Work](#) **BAM** [Logout](#) krisy

[Process Instance List](#) [Process Dashboard](#)

Filters

[Active](#) [Related To Me](#) [Completed](#) [Aborted](#) [Bulk](#) [Signal](#) [Abort](#)

filter [Filter](#)

	Process Name	Initiator	Version	State	Start Time	Actions
<input type="checkbox"/>	Support Process	krisy	2	Active	23/May/13 17:36:20	 ⌂ ⌂

You can see process instances in dashboard.

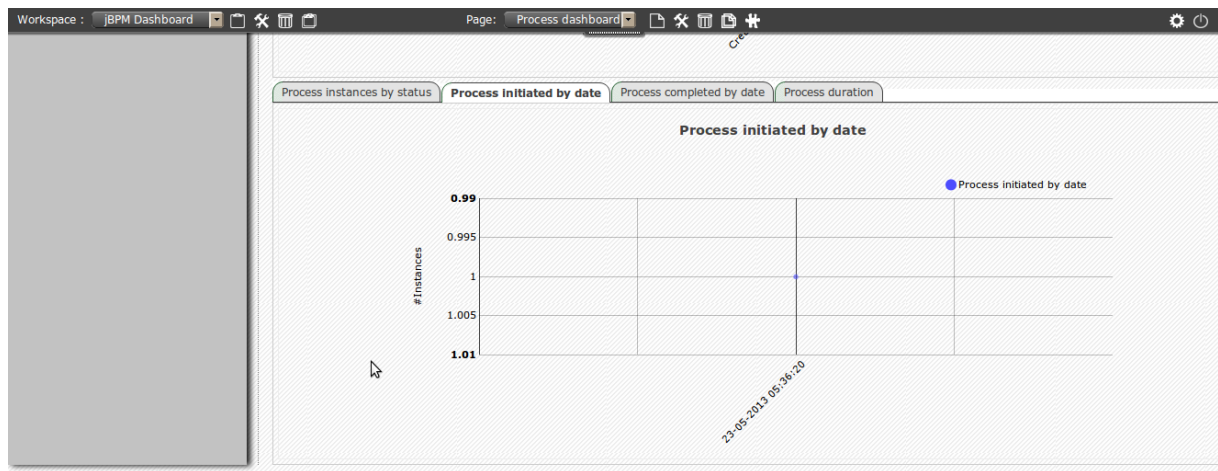
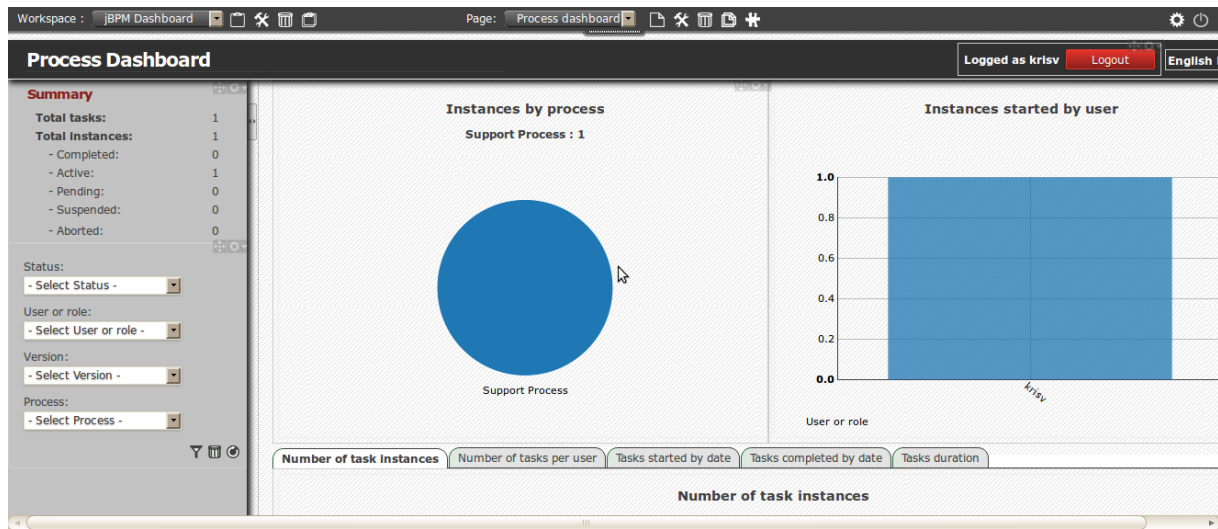


Figure 55 : Process instance view in process dashboard

Step 10: Now start Resolve Support task

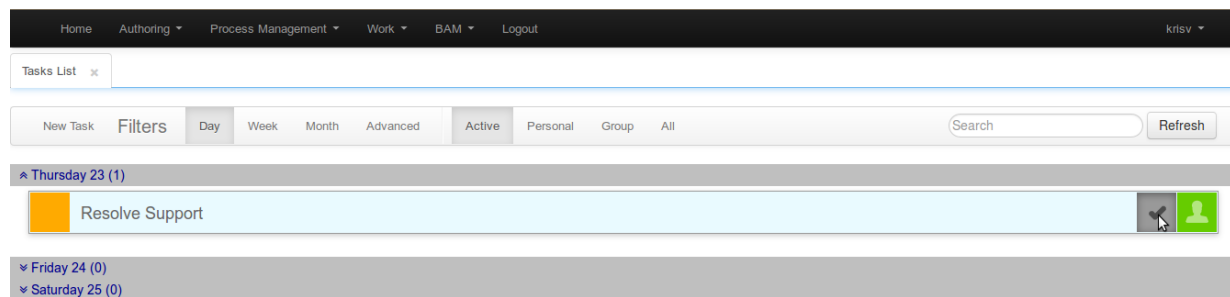
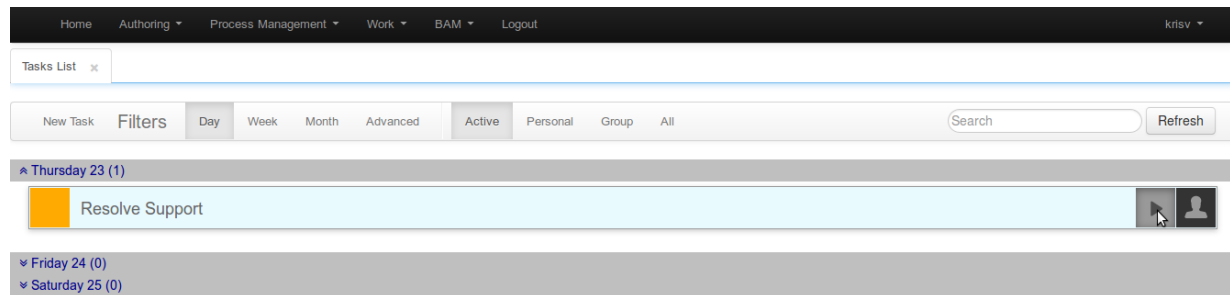
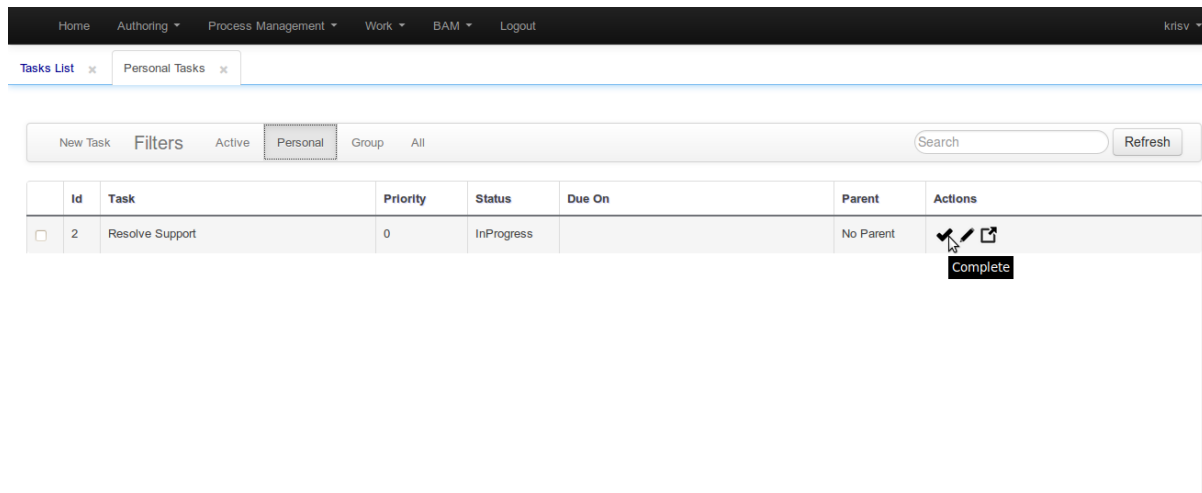


Figure 56 : Complete task

You can complete task



By click on comment in action, you can add comment.

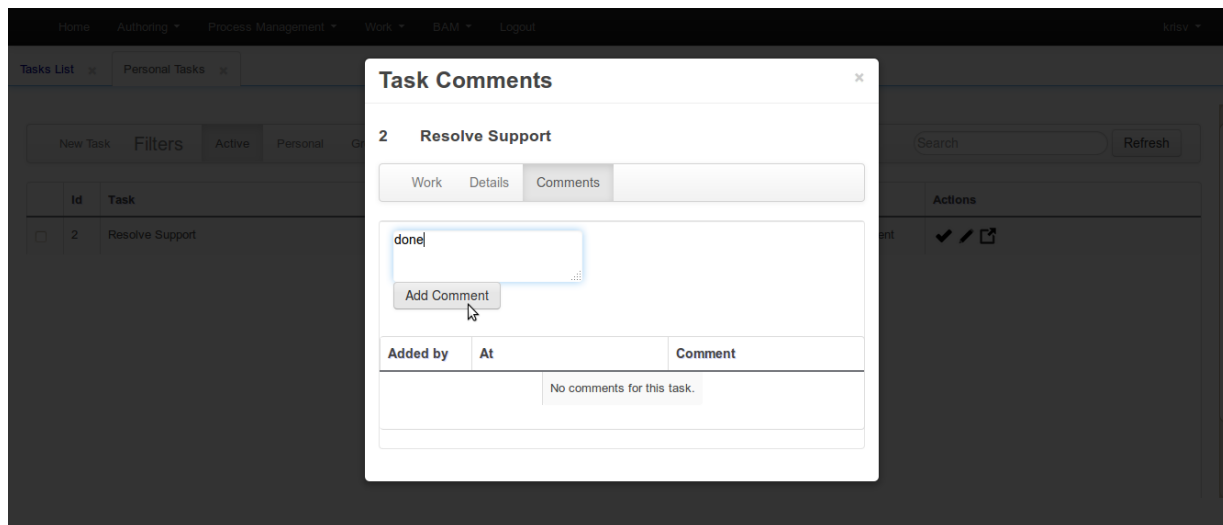


Figure 57 : Task comment



Home | Authoring | Process Management | Work | BAM | Logout

Tasks List | Personal Tasks

New Task | Filters | Active | Personal

	Id	Task
<input type="checkbox"/>	2	Resolve Support

Task Comments

2 Resolve Support

Work | Details | Comments

done

Add Comment

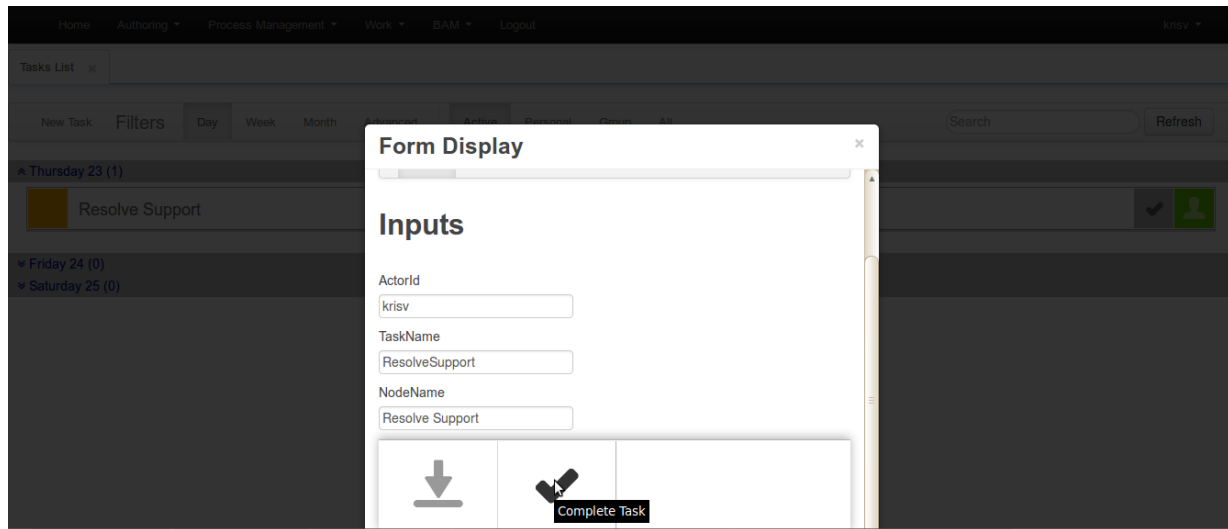
Added by	At	Comment
krisv	Thu May 23 17:51:25 GMT+530 2013	done

Search | Refresh

Actions

✓ / ✎ / 📎

Step 11: Now complete the task



Step 12: Start Notify Customer task.

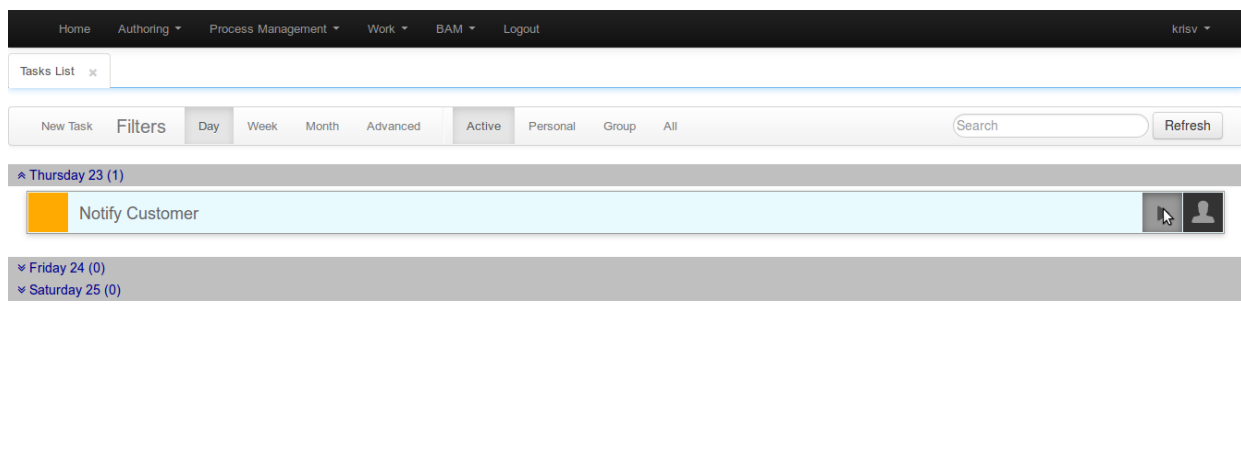


Figure 58 : Start Notify customer task

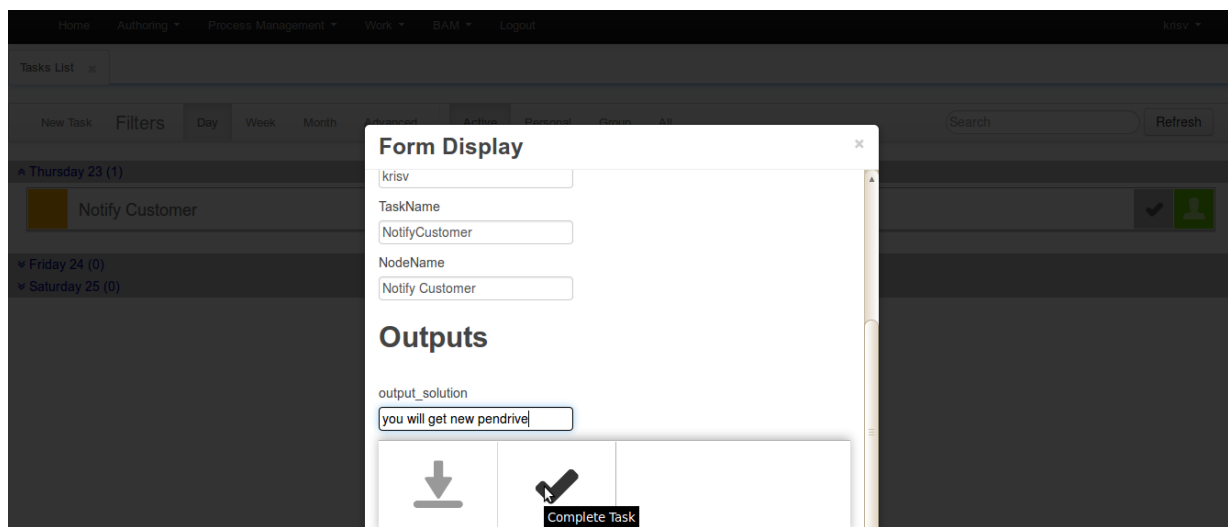


Figure 59 : Complete Task

You can see, now all tasks are completed by krisv.

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krisv

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[Group](#)
[All](#)

[Refresh](#)

Id	Task	Priority	Status	Due On	Parent	Actions
Hooray you dont have any pending Task!!						

Figure 60 : No task remaining

So, by this way any non-technical person can easily access tasks and task action.

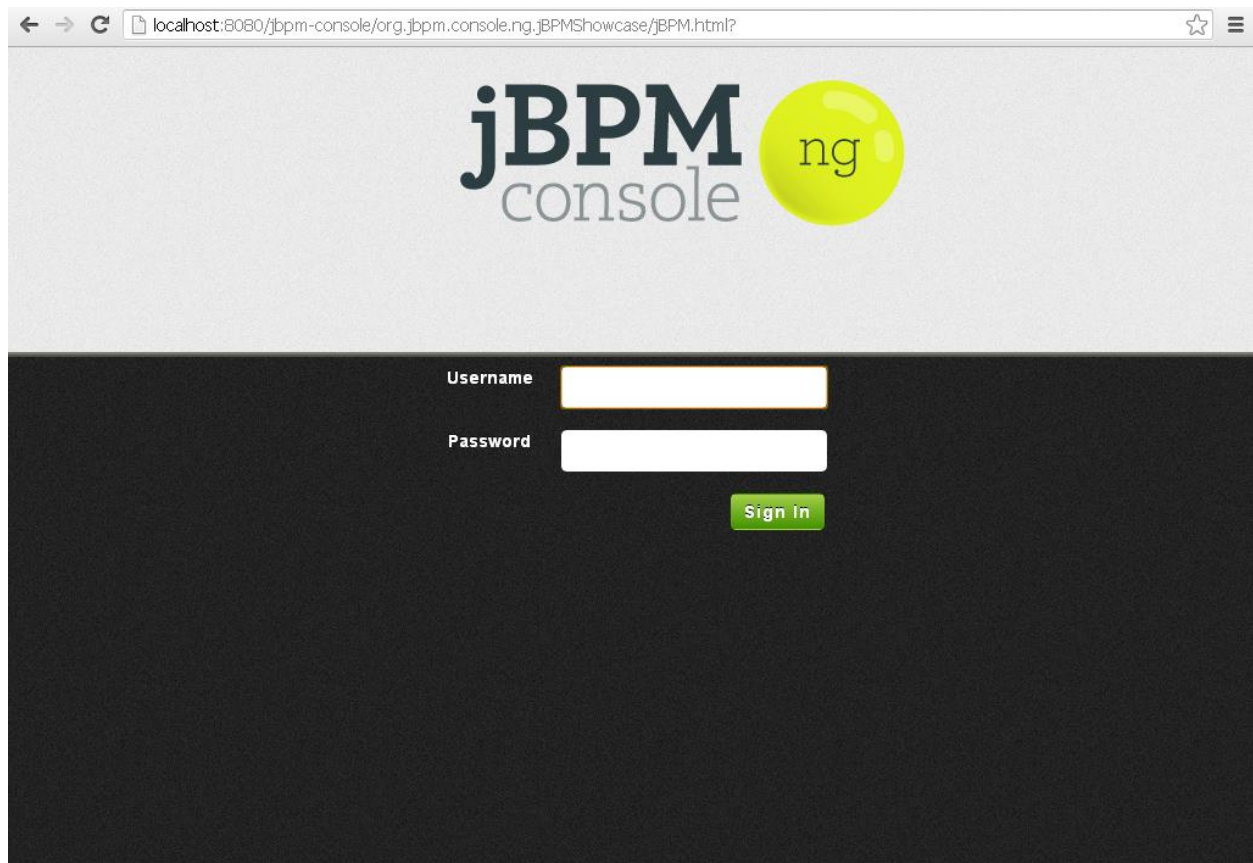
7. New features in JBPM v6.x:

JBoss (By Red Hat) has launched jBPM v6.0 beta2. We have already seen its some new features in previous topic. There are no's of features in JBPM v6.x.

JBPM-console:

JBoss team has designed new jBPM-console that a new Web based management console.

It's look cool compare to old one.





Runtime Manager

New Guvnor Repository

Dashboard Web Application:

- This is a new component provided in jbpm v6. It's an excellent feature.
- Using Dashboard web application, you can see the reports of each process.
- You can generate report by user also.
- You can also monitor your system by using this web application.
- Charts and allows users to define their own custom reports

Extend BPMN 2.0 support:

It's come with new bpmn designer and it will be extended in future.

Data Modeler:

The ability to model your data in a web-based, business-user-friendly application, so it can be used in your processes later.

Form builder:



A web-based form builder for creating task and process forms that will be shown to the user to show and/or request data.

"No code" tooling:

The ability for business users to create deploys, execute and monitor their processes without having to write any code.

Simulation replay:

Using history log it's allow scenarios to be created and provide ability to replay the execution of a process instance.

Cloud:

You will be able to deploy all web based tools on OpenShift (Cloud computing platform by Red Hat).

Dynamic processes:

The ability to dynamically change running process instances, add tasks on the fly, etc.

The jBPM and mobile:

UIs targeted to mobile users to participate in processes (task lists, etc.), monitor running processes, etc.

Case management:



The ability to track and execute business logic without up-front process modeling, the case is built and managed on the fly

Process instance migration tool:

A tool to migrate running process instances to a newer process definition, including diff management and graphical support

Process analysis and process mining:

Analyzing processes to detect issues or optimizations, or discover / improve processes based on history information, etc.

Goal-driven BPM:

Instead of modeling processes as a sequence of steps, focus more on goals and preconditions, where the resulting process can almost be generated based on these.

8. Other Famous BPM Vendor:

We have seen JBPM. It's an open source by Red Hat. In today's market, there are other no's of BPM vendors are available and you should know about that.

Following are the some known BPM vendors.

Activiti:

- It's a very well known BPM vendor by Alfresco. It's open-source and distributed under the Apache license.
- It's a light-weight workflow.
- Its core is a super-fast and rock-solid BPMN 2 process engine for Java
- It integrates perfectly with spring

Bonitasoft:

- It's an open source BPM, created in 2001.
- Provide three major components:
 - Bonita studio
 - Bonita BPM Engine
 - Bonita User Experience



- It's provide 100+ built-in and contributed connectors – for many commonly used commercial and open-source databases, messaging, ERP, CRM, ECM and more. If the connector you need isn't already there, it's easy to add new ones with Bonita Studio's connector creator.

Appian:

- It's a provider of BPM software.
- It's extending the power of BPM to mobile devices, cloud computing and social business.
- Appian provides a modern application platform to drive better business decisions, actions and results. All the data, all the processes, all the documents and all the collaborations – in one environment, on any device, through a simple social interface



