Modeling PCM with the Processeditor

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The Processeditor[1] gives the opportunity to create different diagrams. Those diagrams can be a graphical representation of process models. They may be used to be executed inside a Process Engine. In the following we will describe how you can model and configure Production Case Management models, which can be used for the execution inside the JEngine[2]. Before we will introduce you to the basic deployment and usage of the Processeditor.

1 Deployment

The Processeditor consists of two components, the server which allows you to create and alter models inside your process as well as saving them to a centralized repository and the Workbench, a Rich Client which allows you to create, alter and save models locally and to publish them on a running Processeditor server. If you want to integrate the Processeditor and the JEngine you need both components. You can deploy them using Ant[3] and Ivy.

1.1 Cloning the Repository

The code of the Processeditor is hosted on Github[4]. We recommend to use git[5] to clone the repository. To clone the repository type the following command (Figure 1):

```
git clone --recursive https://github.com/BP2014W1/processeditor
```

Figure 1: Command for cloning the repository using git

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[1] https://github.com/BP2014W1/processeditor
[2] https://github.com/BP2014W1/JEngine
[3] https://ant.apache.org
[4] http://github.com
[5] http://git-scm.com/

1.2 Workbench

The Workbench is a Rich Client for the Processeditor. If you would like to deploy it using Ant run the following commands from the command line. Assert that you are inside the Projects root directory with the build.xml file.

```
ant init-ivy deps clean-build-workbench
```

Figure 2: Command for deploying the Workbench

Inside the build/jar folder will be a processeditor.jar file. If you execute this using java (figure 3) a window with a Java application - the Workbench - will be opened.

```
java -jar build/jar/processeditor.jar
```

Figure 3: Command for starting the workbench

1.3 Server

The server is another component of the Processeditor. It can be used as an online modeling tool and as a model repository. If you want to deploy the server you first need to add the necessary dependencies. All Java dependencies can be added running Ivy (figure 4).

```
ant init-ivy deps
```

Figure 4: Command for downloading Java dependencies

In addition you need ExtJS 4[6]. This is necessary to display the components of the webmodeler. Please copy the files into www/js/ext (Figure 5).

If you have successfully completed the previous steps you can deploy the server using the command (figure 6).

> **Please note:** If you need both, the Processeditor server and the Workbench, make sure to copy the jar file created during the first steps, because deploying the other component will automatically overwrite the jar.

If you want to start the Processeditor server you can do so from the command line (figure 7).

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[6]http://www.sencha.com/products/extjs/download/ext-js-4.2.1/2281
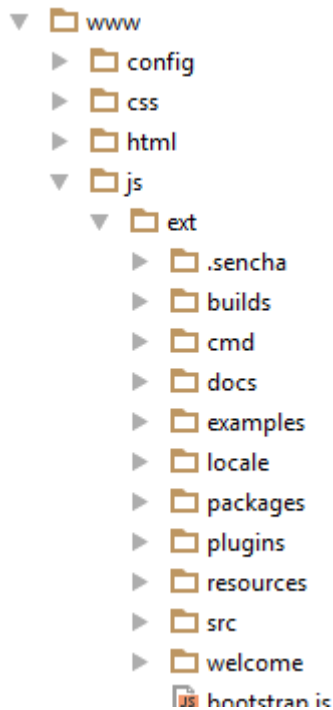
Figure 5: www folder with ExtJS dependency

```
ant clean-build-server
```

Figure 6: Command for deploying the Processeditor server

```
java -jar processeditor.jar -Xmx 1024m
```

Figure 7: Command for starting the deployed Processeditor Server

2 Modeling

In the following we describe how you can create PCM-Models using the Workbench and how you can publish them to the server.

2.1 Creating a new Model

We assume that you have started the Workbench and the server. There are two ways to create a new model. You can either use the File>>New menu or the New Icon. Nevertheless, you always have to choose the type of the model to be created.

2.2 Publish a Model

If you create your diagrams in the Workbench and if you have a Processeditor Server running you can publish a model to the centralized repository (the server). Therefore you have to do either, click on the Publish icon or use the menu item inside the file Menu. Then you have to select a server and a name for the model. In addition you can choose if you want to save the model as a new version of an existing one or as a new model.

2.3 Fetch a Model

If you work inside your Workbench you have to fetch Models from the server, in order to alter or view them. To do so click on the Fetch icon or use the menu item inside the File menu. You can now connect to a server. After that you will see a tree with all diagrams and folders on the server model repository. Choose the one you want to open.

2.4 Modeling PCM-Fragments

You can model a PCM Fragment by choosing the PCM Fragment type from the context menu. Now you can add nodes by clicking right on the canvas. You can choose from Start Events, Activities, Gateways, End Events and Data Objects.

If you want to use the created model for the execution in the engine you have to be aware of the following constraints:

- Every fragment must contain exactly one start and end event

- All Events must be blank

- The activities must be either blank or Sending Mail Task

- The Gateways must be exclusive or parallel ones

Referring an Activity From Another Fragment
If you want to refer an activity from another Fragment you have to do the following steps.

1. The task in the other fragment has to be marked as global (right click on activity, properties, global).

2. This fragment has to be published on a server.

3. Make a right click choose Copy and Refer Task. Select the Fragment and the Task to be copied.

The task will be added to the current model. You can add edges either by dragging a new node from the context menu of the previous node or by pressing and holding the right button.
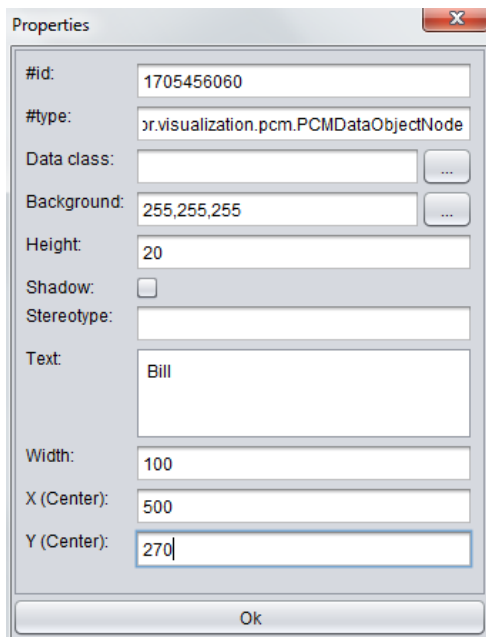
2.5 Modeling a Data Model

If you want to create a Data Model for the Data Objects in your PCM Process you have to create a new Domain Model. Again, if you want to use this model from within the JEngine you have to publish it and you should at most create one Root Class. Right click "Edit Attributes" Allows you to add and remove attributes for each class. You can create relations between data classes using an Aggregation by pressing and holding the right mouse button.

2.6 Modeling a PCM Scenario

A PCM Scenario holds the whole Process, therefore it needs information about all fragments, the data objects and their relation to data classes. Hence, a couple of steps are necessary.

1. **Adding Fragments**. First of all you have to add new Fragments. You can do this by using the plugin "Add Fragments" from within the process's contexts menu. Now you can connect to a server and select a number of Fragments from the right side, which should be added to the scenario.

2. **Define a Domain-Model**. Every Scenario needs an Domain Model, therefore go to the properties of the model and paste the URL of the domain model into the domainModelURL Property. The server address must be the same as specified in the configuration class of the JEngine. This means the default URL would be `http://localhost:1205/models/<domainModelId>.pm`.

3. **Map Data Objects to Data Classes**. Every Data Object needs one Data Class. Hence, you must assign one. You can do this by editing the properties (figure 8). If you want to execute the scenario you have to make sure, that the selected data class is in the model assigned to the PCM Scenario.

4. **Define a Termination Condition**. A Scenario needs a clear termination condition. You can define it inside the properties menu (figure 9) of the process. There type the name of exactly one data object int the field and the state surrounded by [ ] in the state field.

Make sure to publish the scenario, the domain model and all fragments to the process repository.
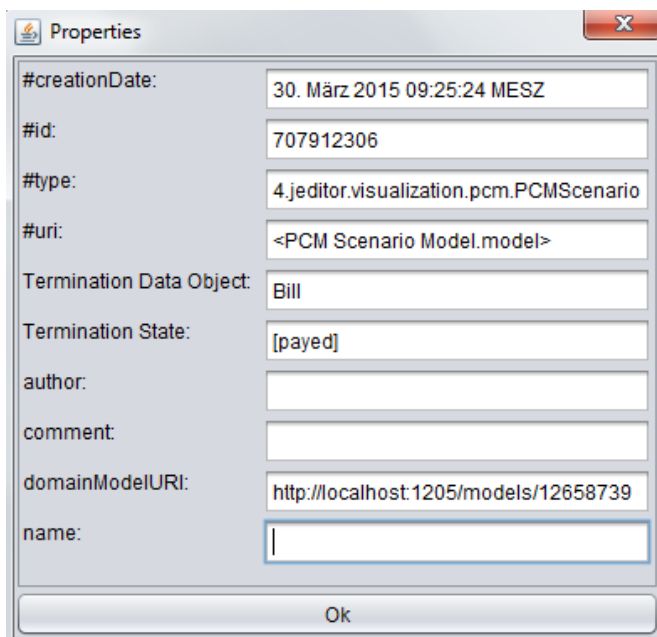
Figure 8: Properties of a Data Object Node

Figure 9: Properties of a PCM Scenario