ProM 6 Getting Started

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1 Introduction

This document shows how to get started with ProM 6, which includes the ProM 6 Package Manager and XESame 1. First, Chapter 2 shows where to download ProM 6 and how to install it properly. The next three chapters explain the user interfaces for ProM 6, ProM 6 Package Manager, and XESame 1.

In case you have questions or comments related to ProM 6, we advice you to visit the ProM forum[1]. As an alternative, you can also send a message to the ProM users mailing list[2]. For both the forum and the mailing list, you might want to register yourself first. To register on the forum, you can select the "Apply for membership" button on the forum home page. To register on the mailing list, you can subscribe yourself on the ProM-users Info page[3].

2 Installation

This section shows how to install ProM 6. First, Section 2.1 shows where to download ProM 6 and which files the download contains. Second, Section 2.2 shows you which steps to take first. These steps ensure that you will have the proper collection of plug-ins installed in ProM 6, and should be performed before you start ProM 6. Last, Section 2.3 shows you some details on the plug-in installation that might help you fixing possible problems.

[1] http://prom.win.tue.nl/forum.
[2] mailto:prom-users@listserver.tue.nl.
[3] http://listserver.tue.nl/prom-users.

2.1 Download

You can download ProM 6 from prom.win.tue.nl/tools/prom6[4] or through www.processmining.org[5] using the following steps:

1. Visit www.processmining.org.
2. In the menu of the "Tools" section, select the "ProM" link. This will open the "ProM" page.
3. In the menu, select the "Downloads" link. This will open the "ProM Downloads" page.
4. Select the "Download ProM 6" link, and save the corresponding zip archive to a file on your local drive.

After having downloaded the tar.gz archive, you can extract its contents into some folder on your local drive. The following files will be extracted:

ProM6.bat A Windows batch file that starts ProM 6 and that can be used to create similar Linux shell scripts, or that can be used to tailor the Java VM to your personal wishes.

ProM6.exe A Windows executable that starts ProM 6, provided that ProM 6 or ProM 6 Package Manager are not already running.

ProM6.jar The runnable jar file that contains both ProM 6 and ProM 6 Package Manager. In the end, the corresponding batch files and executables rely on this jar file.

ProM6PM.bat A Windows batch file that starts ProM 6 Package Manager and that can be used to create similar Linux shell scripts, or that can be used to tailor the Java VM to your personal wishes.

ProM6PM.exe A Windows executable that starts ProM 6 Package Manager, provided that ProM 6 or ProM 6 Package Manager are not already running.

XESame10.bat A Windows batch file that starts XESame 1 and that can be used to create similar Linux shell scripts, or that can be used to tailor the Java VM to your personal wishes.

XESame10.exe A Windows executable that starts XESame 1, provided that XESame 1 is not already running.

[4] `http://prom.win.tue.nl/tools/prom6`.
[5] `http://www.processmining.org/`.

XESame10.jar The runnable jar file that contains XESame 1. In the end, the corresponding batch files and executables rely on this jar file.

Alternatively, when using a Windows platform, you can download the Windows installer, which will copy the required files to the proper folder, and will add three shortcuts in a ProM 6 Start menu folder: ProM 6, Package Manager, and XESame 1. Selecting one of these shortcuts will run the appropriate tool.

2.2 First steps

After having installed ProM 6, you need to install a number of additional ProM 6 packages. In ProM 6, a lot of functionality has been implemented in these additional packages, and this has been done for three reasons:

License issues ProM 6 is available under the L-GPL license, which is an OpenSource license that is incompatible with some other OpenSource licenses, like for example the CPL license. These licenses forbid us to distribute ProM 6 if it includes any part that uses an incompatible license. As an example, take the Decision Point analysis plug-in that was available for ProM 5.2 (and some earlier versions). As this plug-in used an L-GPL licensed library, and as ProM 5.2 used the CPL license, we were not able to distribute the plug-in together with ProM 5.2. However, these licenses do not forbid you (as the end-user) to install both the Decision Point analysis plug-in and ProM 5.2 on your local machine, they only forbid us (and you) to distribute them together. For this reason, we decided to separate many of the plug-ins from the ProM 6 core, as it allows us to distribute ProM 6 and the plug-ins as separate entities.

Download size Some of the plug-ins are platform dependent, and different versions of these plug-ins exist for different platforms. By using a separate package for these plug-ins, you need only to download the version of the plug-in that agrees with your computer (ProM 6 Package Manager will take care of this). As a result, you need to download less.

Unused plug-ins Some of the plug-ins might not be relevant for you. By using a separate package, you can simply remove these plug-ins by removing (or not installing) the corresponding package. As a result, these plug-in swill not show in your versions of ProM 6.

To install these packages, you need to run ProM 6 or the Package Manager. ProM 6 will install the required plug-ins on its maiden run. When run for the first time, ProM 6 will call the Package Manager, and will have it install the required packages. Of course, you do need an internet connection for this, so make sure

you have an internet connection when running ProM 6 for the first time. After the Package Manager has installed the required packages (which may take some time), ProM 6 will continue. As a result, there is no need to run the Package Manager, except for when one wants to update some packages.

Alternatively, you may run the Package Manager yourself. Figure 1 shows what ProM 6 Package Manager looks like when it is run for the first time. As Figure 1 shows, initially no additional packages have been installed. You should now install these additional ProM 6 packages, and for this you need to take the following steps:

1. Select the "Not installed" tab.
2. Select the "BPM2010" package.
3. Select the "Install" button (as shown in Figure 2).

ProM 6 Package Manager will now install the "BPM2010" package and all the packages it depends on. As this package depends on all other required additional ProM 6 packages, after having installed this package, all these packages will be installed. If you now return to the "Up to date" tab, you will see that a lot of packages have now been installed. Your installation of ProM 6 is now complete, and, you can close ProM 6 Package Manager.

2.3 Troubleshooting

Packages The ProM 6 Package Manager stores all installed additional packages into a folder on your local hard drive. This folder is named ".ProM" and is located in your user folder. On Windows 7, your user folder would be located in the "C:\Users\ <your user name>" folder. The "packages.xml" file in this folder contains your local package repository, which is basically a collection of available packages. Furthermore, this file also contains information on which packages actually have been installed. The "packages" folder in this folder contains the installed packages.

In case you experience any problems with your installed packages, then you might want to remove both the "packages.xml" file and the "packages" folder for the ".ProM" folder manually. Basically, this provides you with a clean sheet. After this, you can run ProM 6 Package Manager again and (re-)install the "BPM2010" package.

Workspace The ".ProM" folder contains another file: "UITopiapersistence.xml.gz.wsp". This file contains the workspace of the last ProM 6 that terminated normally. When you start ProM 6, it will read this file and restore your workspace to the

Figure 1: ProM 6 Package Manager.

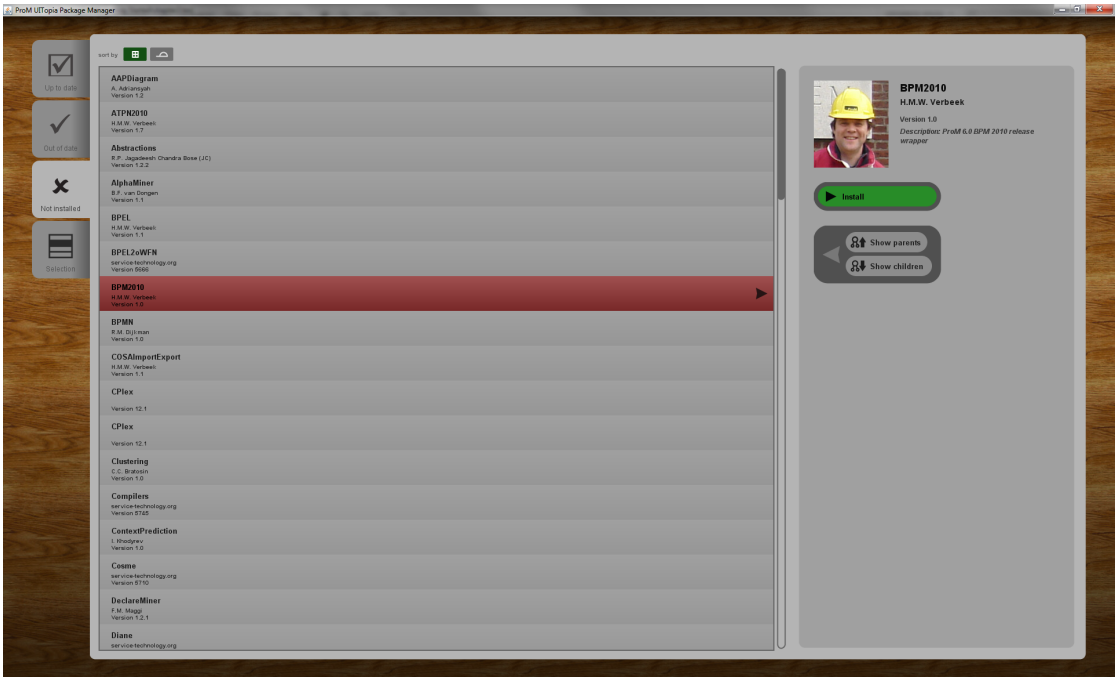

Figure 2: Installing the additional ProM 6 plug-ins.

workspace of the former ProM 6 session, which includes, for example, resources like event logs and Petri nets.

In case you experience problems with this former workspace, you may want to remove the "UITopiapersistence.xml.gz.wsp" file manually.

3 ProM 6

Figure 3 shows the user interface of ProM 6. This section explains the basic features of this user interface by explaining the different objects in this interface. To do so, the figures in this section (and the next two sections) assigns a character (from A to Z) to every object, and explain the use of every object. For example, Figure 3 assigns "A", "B", and "C" to the main tabs, which allow you to choose from the different views, as is explained below.

(A) The "Workspace" tab brings you to the workspace view. Section 3.1 explains this view.

(B) The "Action" tab brings you to the action view. Section 3.2 explains this view.

(C) The "View" tab brings you to the view view. Section 3.3 explains this view.

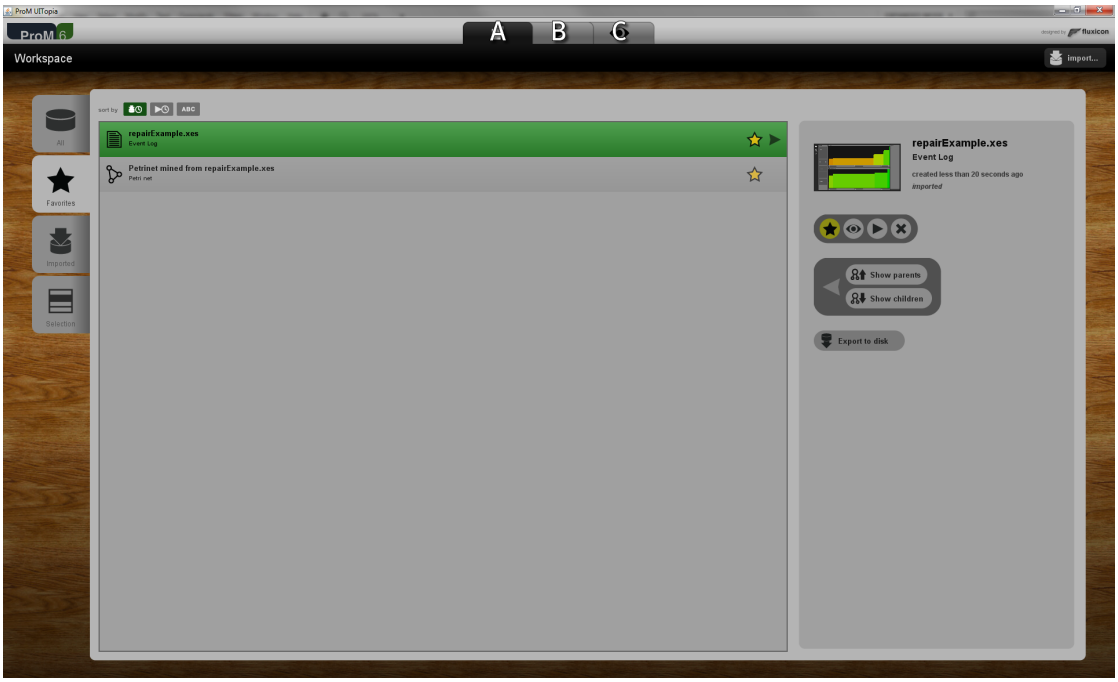

Figure 3: ProM 6 views.

3.1 Workspace view

This section explains the workspace view. Basically, this view shows all resources (like event logs and Petri nets) that either

- have either been imported into ProM 6 or
- are a result of executing an action on some other resources.

From these resources, at most one can be selected, for which additional details can be shown. Figure 4 shows the workspace view.

(A) The "import..." button imports a resource from a file into ProM 6.

(B) The "All" tab shows all resources in the resource pool (G).

(C) The "Favorites" tab shows the favorite resources in the resource pool (G).

(D) The "Imported" tab shows the imported resources in the resource pool (G).

(E) The "Selection" tab allows you to view a selection of resources (see (P) and (Q)) in the resource pool (G).

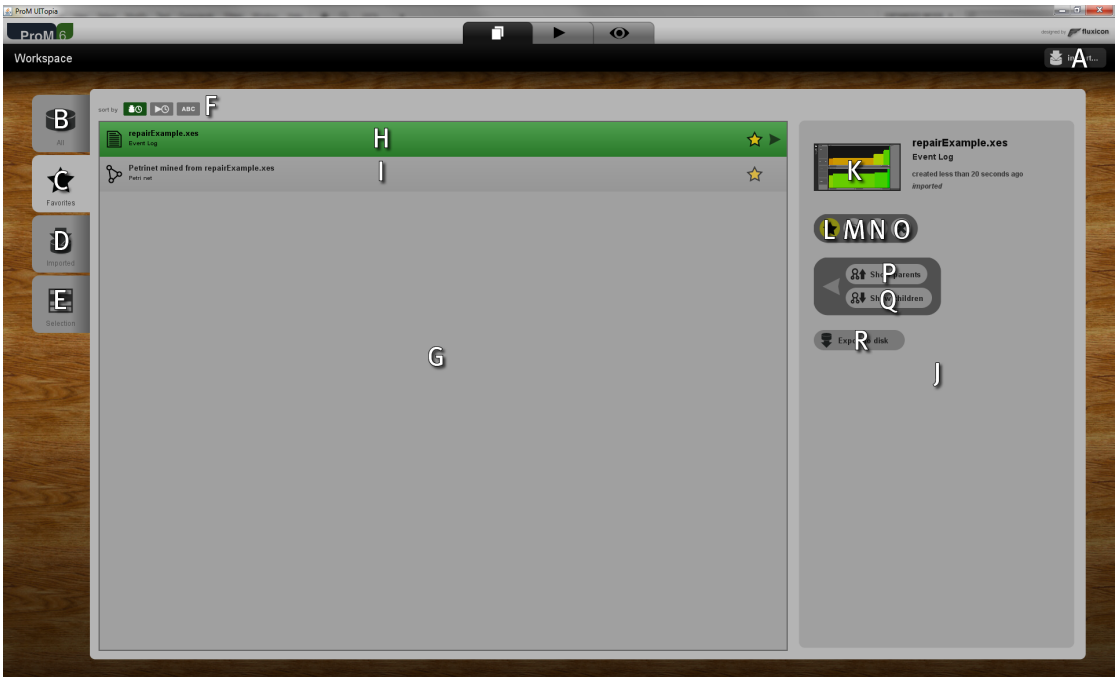

Figure 4: ProM 6 workspace view.

(F) The sorting buttons sort the resources in the resource pool (G). The leftmost button allows you to sort them on the time they were created, the middle button on the time they were last used (as import of some action), and the rightmost button on the name.

(G) The resource pool shows the appropriate (through tabs (B) to (E)) resources in the appropriate order (see (F)).

(H) A selected resource. The resource view pane (J) shows details on this resource.

(I) A non-selected resource.

(J) The resource view pane. Shows details on the selected resource (if any).

(K) A preview of the selected resource, if available, with additional details such as name, type, and where it came from.

(L) The "Favorite" button toggles whether the selected resource is a favorite.

(M) The "View" button brings you to the view view for the the selected resource, which is explained in Section 3.3.

(N) The "Action" button brings you to the action view with the selected resource added as an input for the action. The action view is explained in Section 3.2.

(O) The "Remove" button removes the selected resource.

(P) The "Show parents" button brings you to the "Selection" tab (E) showing the parent resources of the selected resource, that is, the resources that were used to create the selected resource.

(Q) The "Show children" button brings you to the "Selection" tab (E) showing the child resources of the selected resource, that is, the resources for which the selected resource is a parent.

(R) The "Export to disk" button exports a resource from ProM 6 into a file.

3.2 Action view

This section explains the action view. Basically, this view shows all actions that can take certain resources as inputs, result in certain types as outputs, and that match certain filter criteria. Using the action view, it is straightforward to select appropriate actions for your resources. Even better: given your current resources, and given a resource type you would like to have, the action view can show you the actions which could generate a resource of the desired type from the current

resources. Figure 5 shows the action view, where the top part shows a situation where no action has been selected yet (hence the required inputs and generated outputs are not yet known), and the bottom part shows a situation where an action has been selected.

(A) The "Activity..." button opens activity view, which is shown in Figure 6. This view shows which actions have been executed and which actions are still running. For example, in Figure 6, the "α-algorithm" action has been executed and the "Transition system miner" action is still running. Selecting the "X" button for a running action cancels that action.

(B) The input pane shows the input resource pool. If an action is started, then these resource will be used as inputs for the action.

(C) The resource element shows that the corresponding resource (in this case the event log imported from "repairExample.xes") is in the current input resource pool.

(D) The "Workspace" button brings you to the Workspace view with the corresponding resource selected.

(E) The "Remove" button removes the corresponding resource from the input resource pool. Note that this will not remove the resource itself, it only removes the resource from this pool.

(F) The resource placeholder allows you to add a resource to the input resource pool. Figure 7 shows the details. Note that this placeholder is only available if no action has been selected in the action pool (G).

(G) The action pane shows the action pool, which lists possible actions based on both the input resource pool (B), the output type pool (M), and the action filter (L).

(H) This "Action" element shows (note the symbol on the left-hand side) that the corresponding action ("ILP Miner") is interactive, that is, it may require to be configured by the user.

(I) This "Action" element shows (note the symbol on the left-hand side) that the corresponding action ("α-algorithm") is batch, that is, it does not require to be configured by the user.

(J) The "Interactive" button toggles the interactive filter, which filters on the interactive actions.

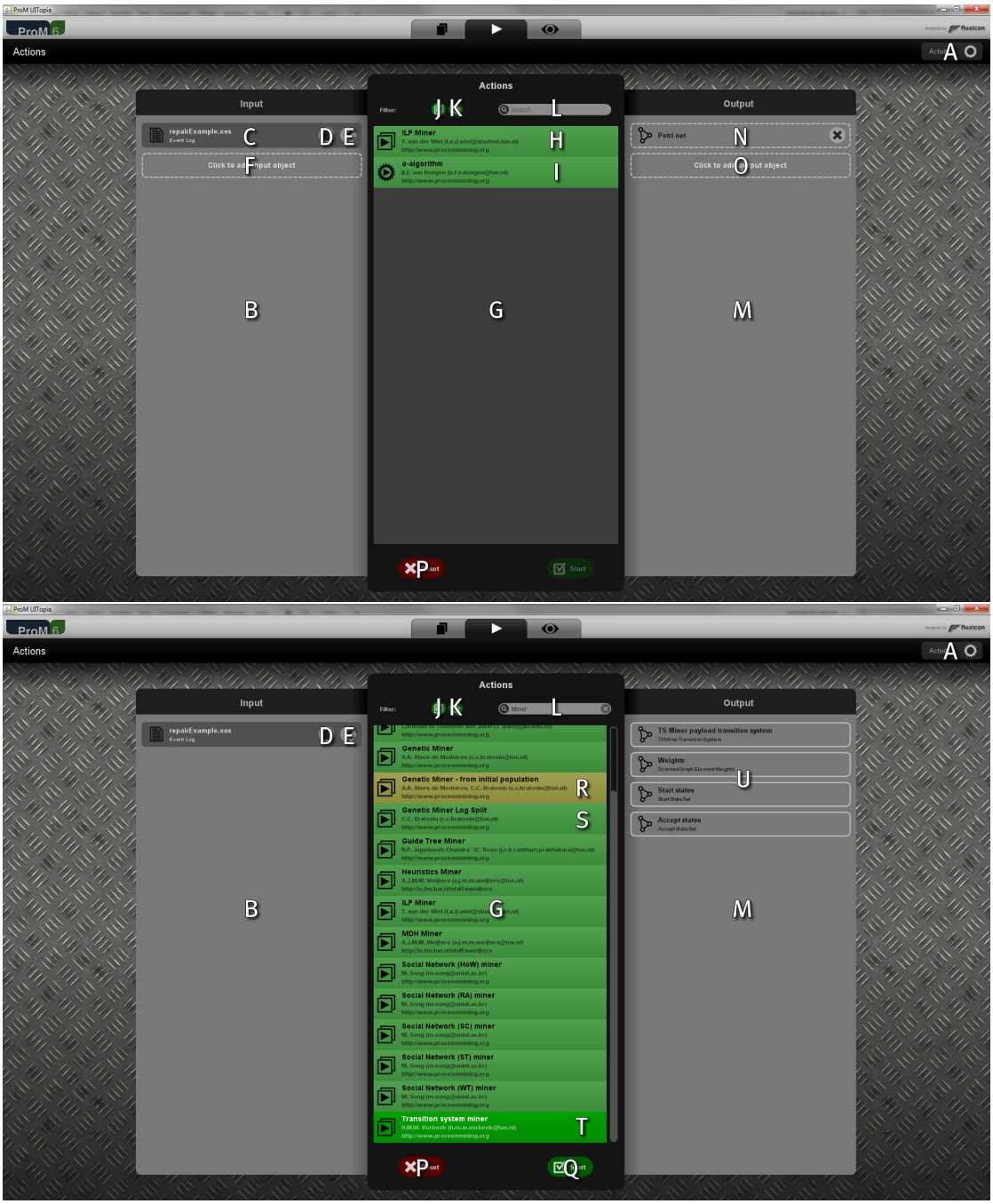

Figure 5: ProM 6 action view.

(K) The “Batch” button toggles the batch filter, which filters on the batch actions.

(L) The “Search” field allows you to filter on action name.

(M) The output pane shows the output type pool. If an action completes, then resources of these types will be generated.

(N) The type element shows that a resource of the corresponding type (in this case a Petri net) is in the current output type pool.

(O) The type placeholder allows you to add a type to the output type pool. Figure 8 shows the details. Note that this placeholder is only available if no action has been selected in the action pool (G).

(P) The “Reset” button resets the action view: it clears the input resource pool, the output type pool, and the filter, and it deselects all actions in the action pool.

(Q) The “Start” button starts the selected action on the selected input resources.

(R) An action that requires additional input resources. For easy recognition, such an action is colored yellow.

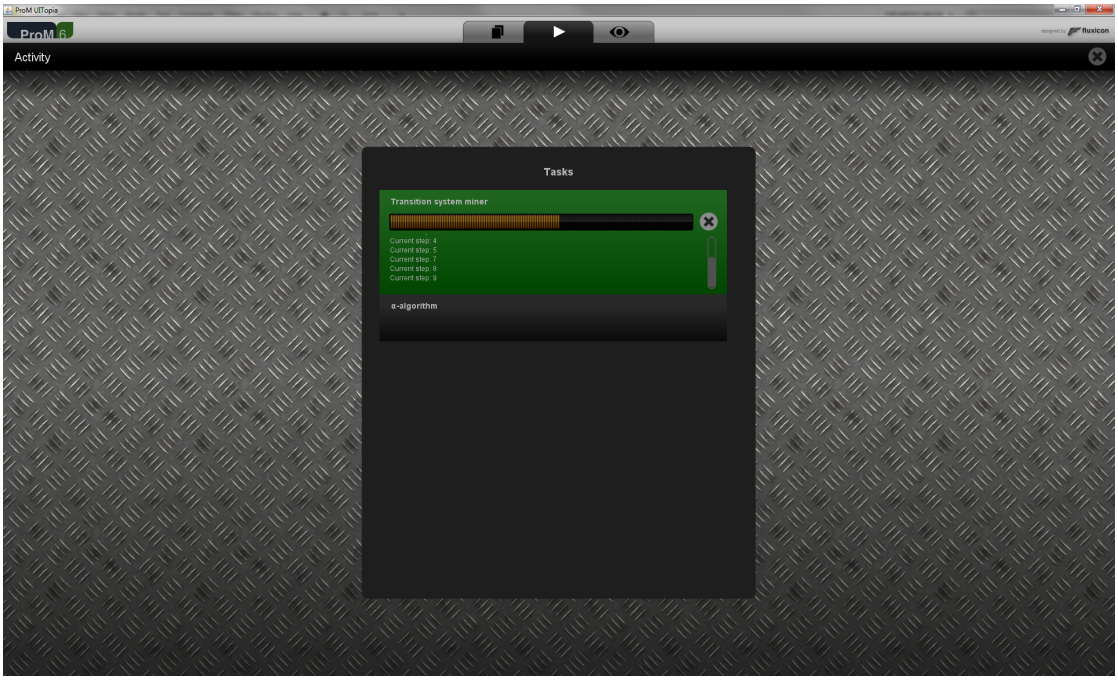

Figure 6: ProM 6 activity view.

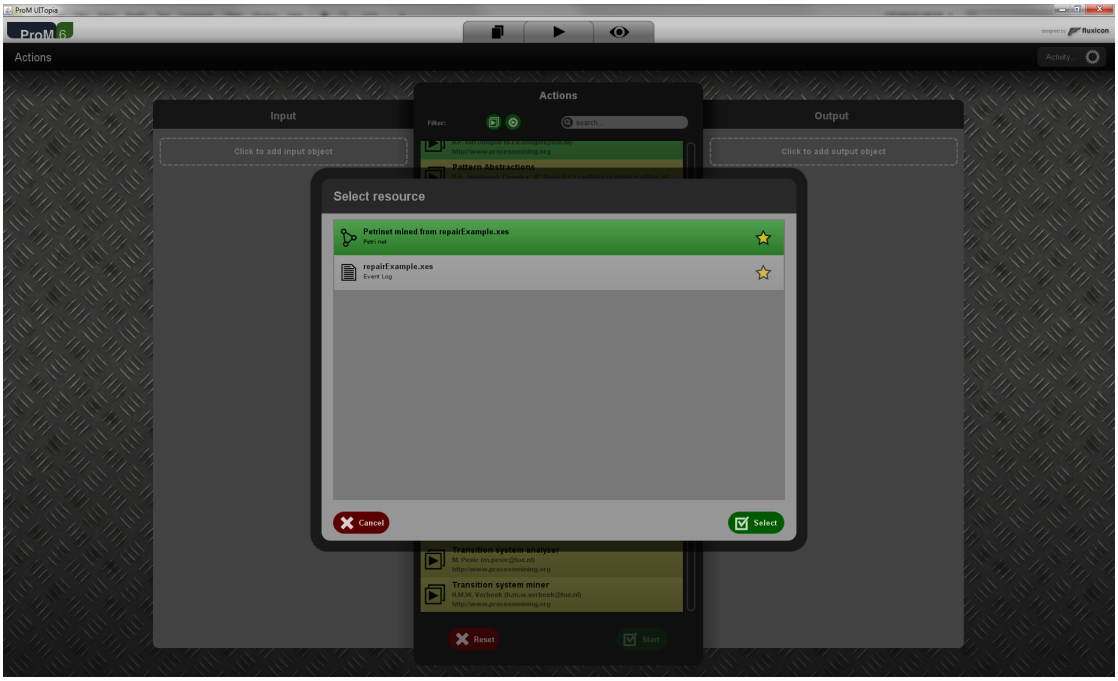

Figure 7: ProM 6 input view.

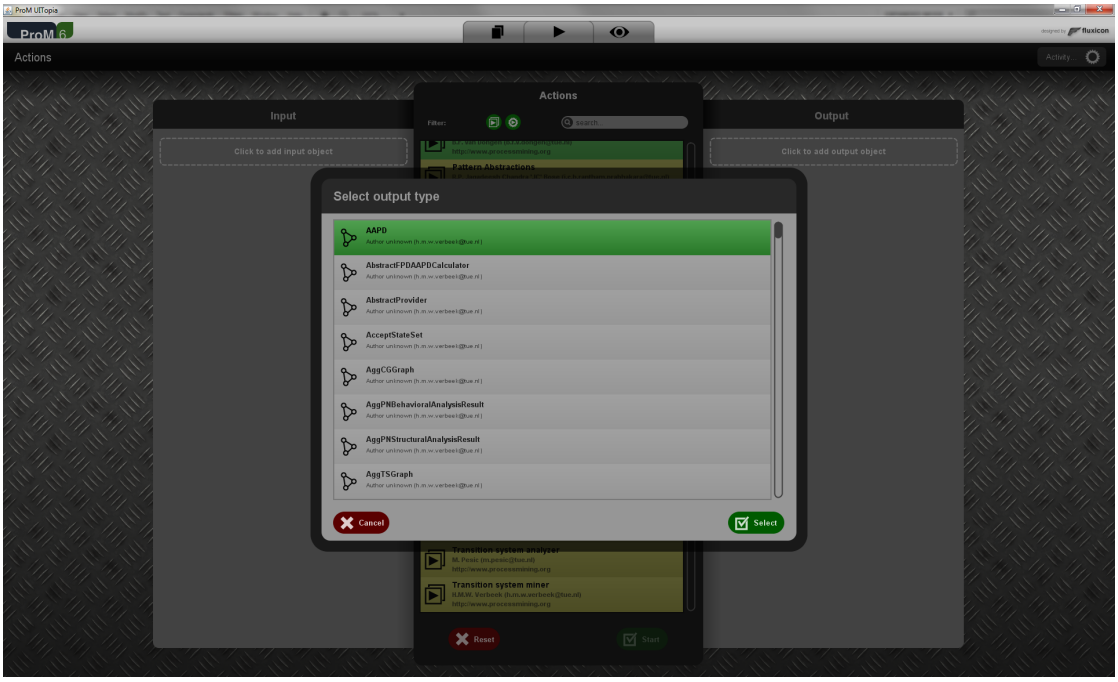

Figure 8: ProM 6 output view.

(S) An action that does not require additional input resources, that is, this action can be started on the current set of input resources. For easy recognition, such an action is colored green.

(T) The selected action. In this case, this action does not require additional resources, but it is also possible to select an action that requires additional resources. In that case, placeholders for these additional resources are added to the input resource pool, and the user can select the appropriate resources for these placeholders.

(U) The output type pool shows the types of the resources that will be generated if the selected action is performed. In this case, it shows that the "Transition system miner" action will generate a transition system, a collection of state and transition weights, a collection of start states, and a collection of accept states.

3.3 View view

This section explains the view view. Basically, the view view shows one resource, or an overview of all resources for which a view exists. Figure 9 shows the view view, where the top part shows the view on one resource, and the bottom part shows the overview.

(A) The view dropdown list allows you to select alternative views (on the same resource).

(B) The "Refresh" button refreshes the current view.

(C) The "Print" button prints the current view.

(D) The "Favorite" button toggles whether the corresponding resource is favorite.

(E) The "Action" button brings you to the action view with the corresponding resource added as an input for the action.

(F) The "Workspace" button brings you to the workspace view with the corresponding resource selected.

(G) The "Overview" button brings you to the overview view (the bottom half of Figure 9).

(H) The main area shows the view on the corresponding resource.

(I) A slide shows a preview on the corresponding resource.

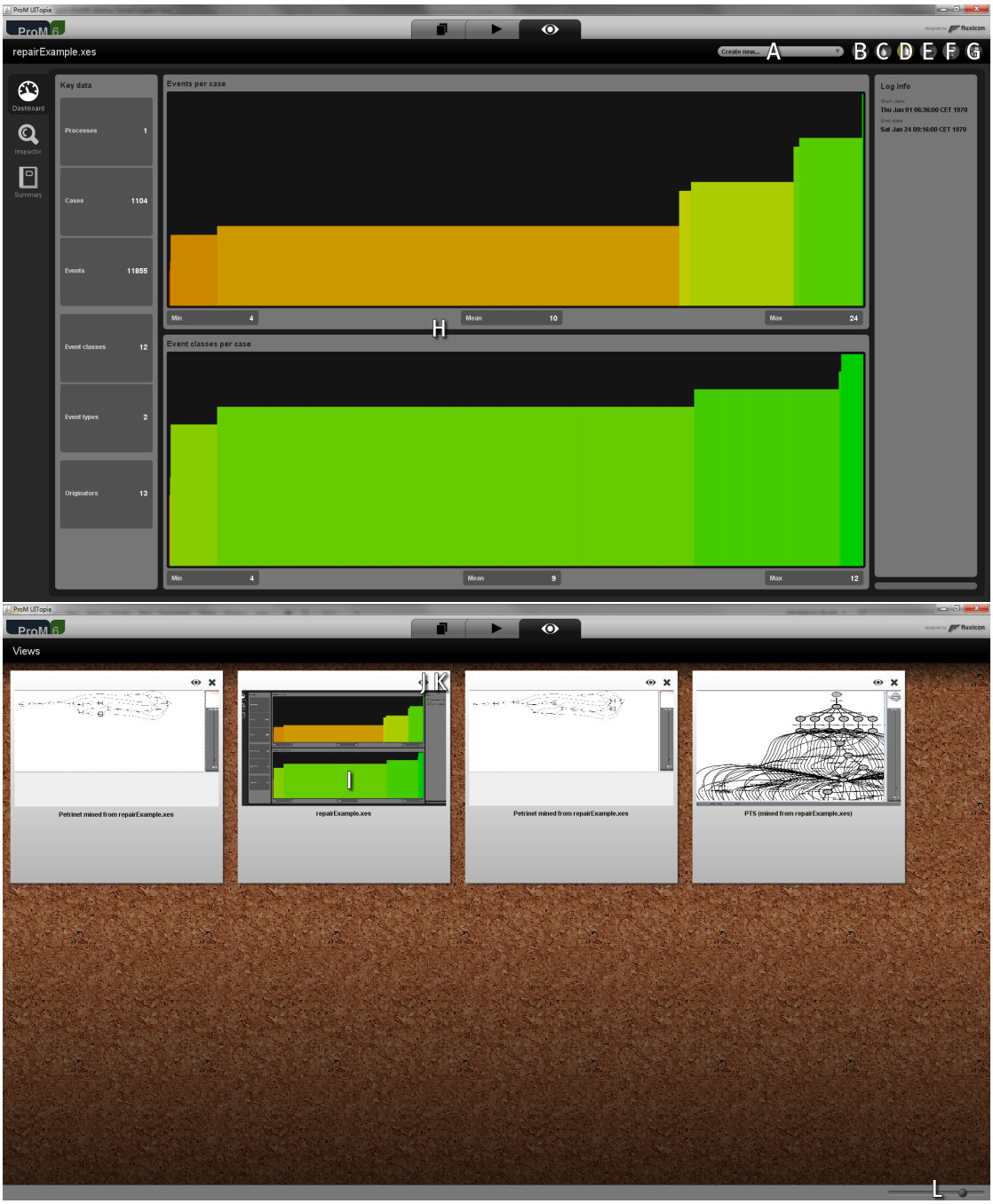

Figure 9: ProM 6 view view.

(J) The “View” button opens the view view for the corresponding resource.

(K) The “Remove” buttons removes the view for the corresponding object. Note that this will not remove the resource itself, it only removes this view on the resource.

(L) The slider in the lower-right corner controls the size of the slides.

4 ProM 6 Package Manager

Figure 10 shows the user interface of ProM 6 Package Manager. This section explains the basic features of this interface by explaining the different objects in this interface.

(A) The “Up to date” tab shows the packages in the package pool (F) that are installed and up-to-date.

(B) The “Out of date” tab shows the packages in the package pool (F) that are installed but out of date (a newer version of such a package is available).

(C) The “Not installed” tab shows the packages in the package pool (F) that have not been installed.

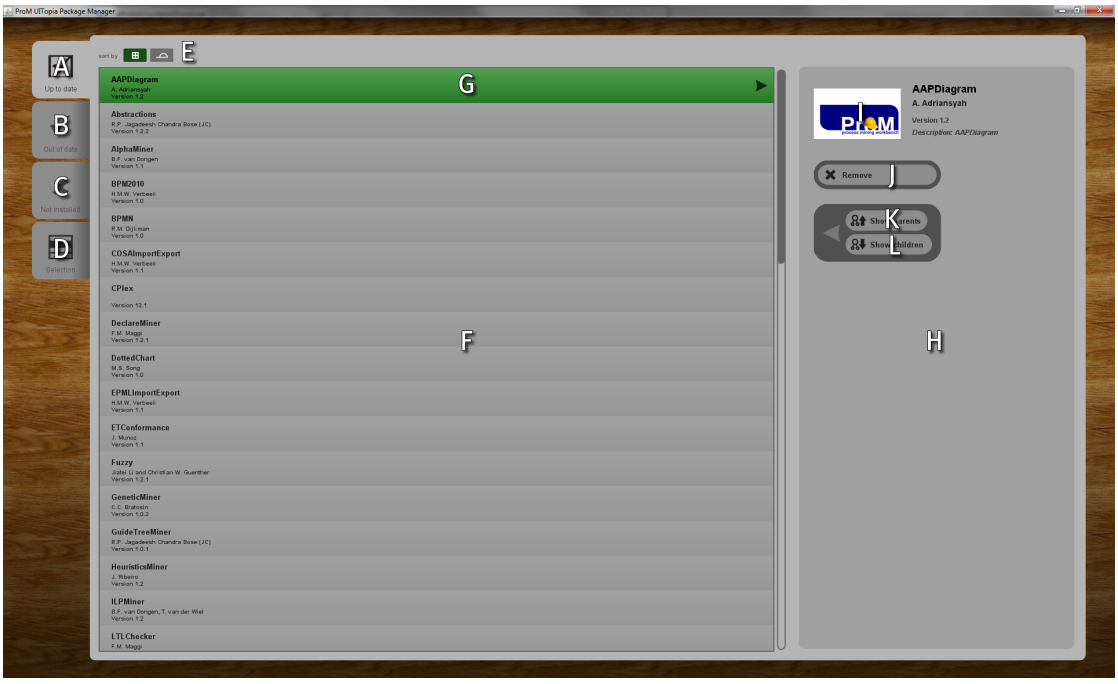

Figure 10: ProM 6 Package Manager view.

(D) The "Selection" tab allows you to view selected packages (see (K) and (L)) in the package pool (F).

(E) The sorting buttons sort the packages in the packages pool (G). The left button allows you to sort them on the package name and the right button on the author name.

(F) The package pool shows the appropriate (through tabs (A) to (D)) packages in the appropriate order (see (E)).

(G) A selected package. The package view pane (H) shows details on this package.

(H) The package view pane. Shows details on the selected package (if any).

(I) An image related to the selected package, if available, with additional details such as package name, author name, version, and description.

(J) The "Install" button installs the latest version of the selected package, the "Update" button updates the selected packages to the latest version, and the "Remove" button removes (uninstalls) the selected package.

(K) The "Show parents" button brings you to the "Selection" tab (D) showing the parent packages of the selected package, that is, the packages that the selected package depends on. Installing a package will also install its uninstalled parents.

(L) The "Show children" button brings you to the "Selection" tab (D) showing the child packages of the selected package, that is, the packages for which the selected package is a parent. Removing a package will also remove its children.

5 XESame 1

Figure 11 shows the user interface of XESame 1. This section explains the basic features of this interface by explaining the different objects in this interface.

(A) The "Configuration" tab brings you to the configuration view. Section 5.1 explains this view.

(B) The "Mapping" tab brings you to the mapping view. Section 5.2 explains this view.

(C) The "Action" tab brings you to the action view. Section 5.3 explains this view.

(D) The “New” button creates a new mapping.

(E) The “Open” button imports a mapping from file.

(F) The “Save” button exports a mapping to file.

(G) The “Save as” button exports a mapping to another file.

(H) The “Help” button shows some help on XESame 1.

5.1 Configuration view

This section explains the configuration view. Basically, this view allows you to configure your mapping, like setting its name, specifying the connection to the source database, and changing the XES extensions to use. Figure 12 shows the configuration view.

(A) The “General” tab brings you to the general configuration view, see the first part of Figure 12.

(B) The “Connection” tab brings you to the connection configuration view, see the second part of Figure 12.

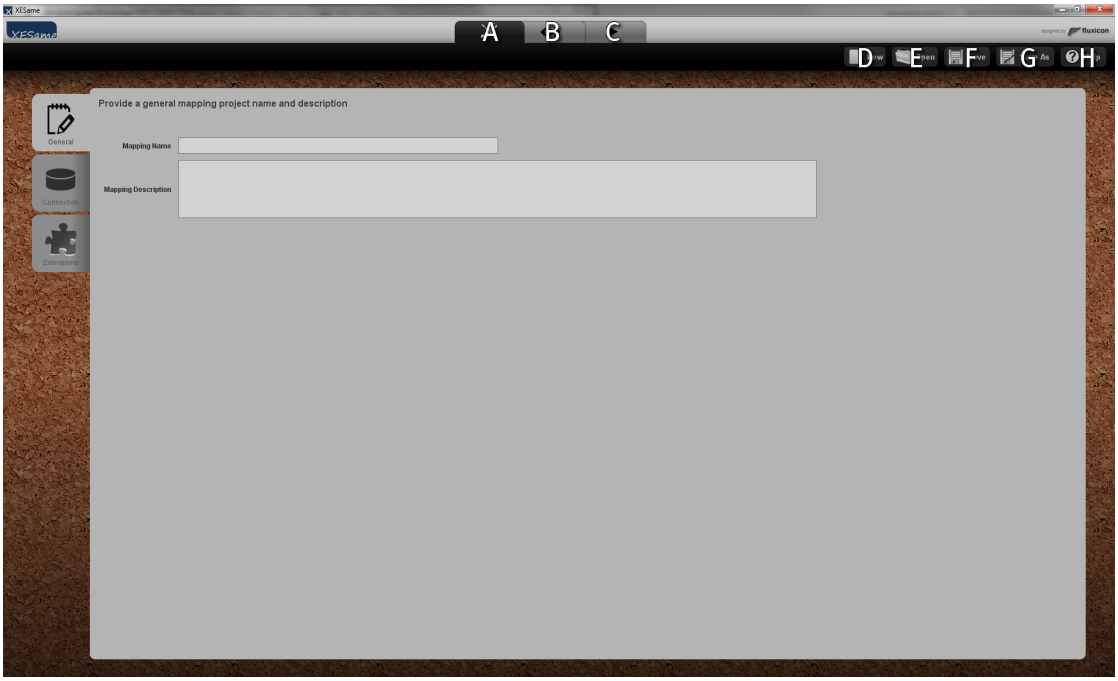

Figure 11: XESame 1 view.

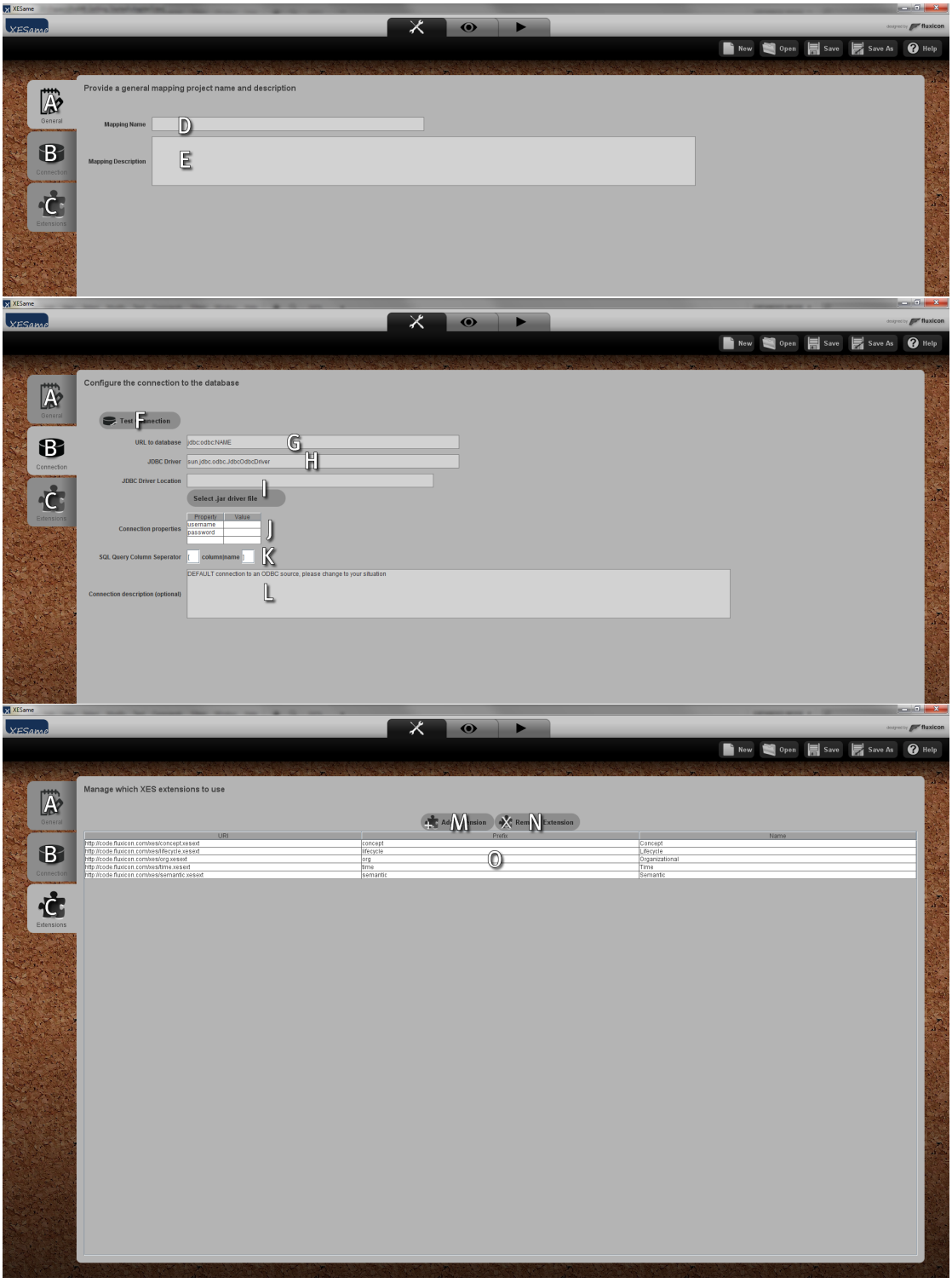

Figure 12: XESame 1 configuration view.

(C) The “Extensions” tab brings you to the extensions configuration view, see the third part of Figure 12.

(D) The “Mapping name” field allows you to provide a name to your mapping.

(E) The “Mapping description” field allows you to provide a description to your mapping.

(F) The “Test Connection” button tests the connection to the JDBC database using settings as provided at (G) to (L).

(G) The “URL to database” field allows you to provide the URL to the JDBC database.

(H) The “JDBC Driver” field allows you to choose your favorite JDBC driver.

(I) The “Select.jar driver file” button allows you to specify the path to an alternative JDBC driver. This path will be displayed by the “JDBC Driver Location” field.

(J) The “Connection properties” table allows you to specify additional connection properties.

(K) The “SQL Query Column Separator” fields allow you to set alternative column separators.

(L) The “Connection description (optional)” field allows you to provide a description for your connection.

(M) The “Add Extension” button adds an extension to the extension pool (O).

(N) The “Remove Extension” button removes the selected extension from the extension pool (O).

(O) The extension pool shows the current collection of extensions for the log to be generated.

5.2 Mapping view

This section explains the mapping view. Basically, this view allows you to define your mapping, that is, to define which XES attributes (on the log, trace, event, or attribute level) should be included where in the XES log, and how the value of these attributes can be retrieved from the source database. Furthermore, this view also allows you to view the links between XES attributes and source database in a graphical way (the mapping visualization). Figure 13 shows the mapping view.

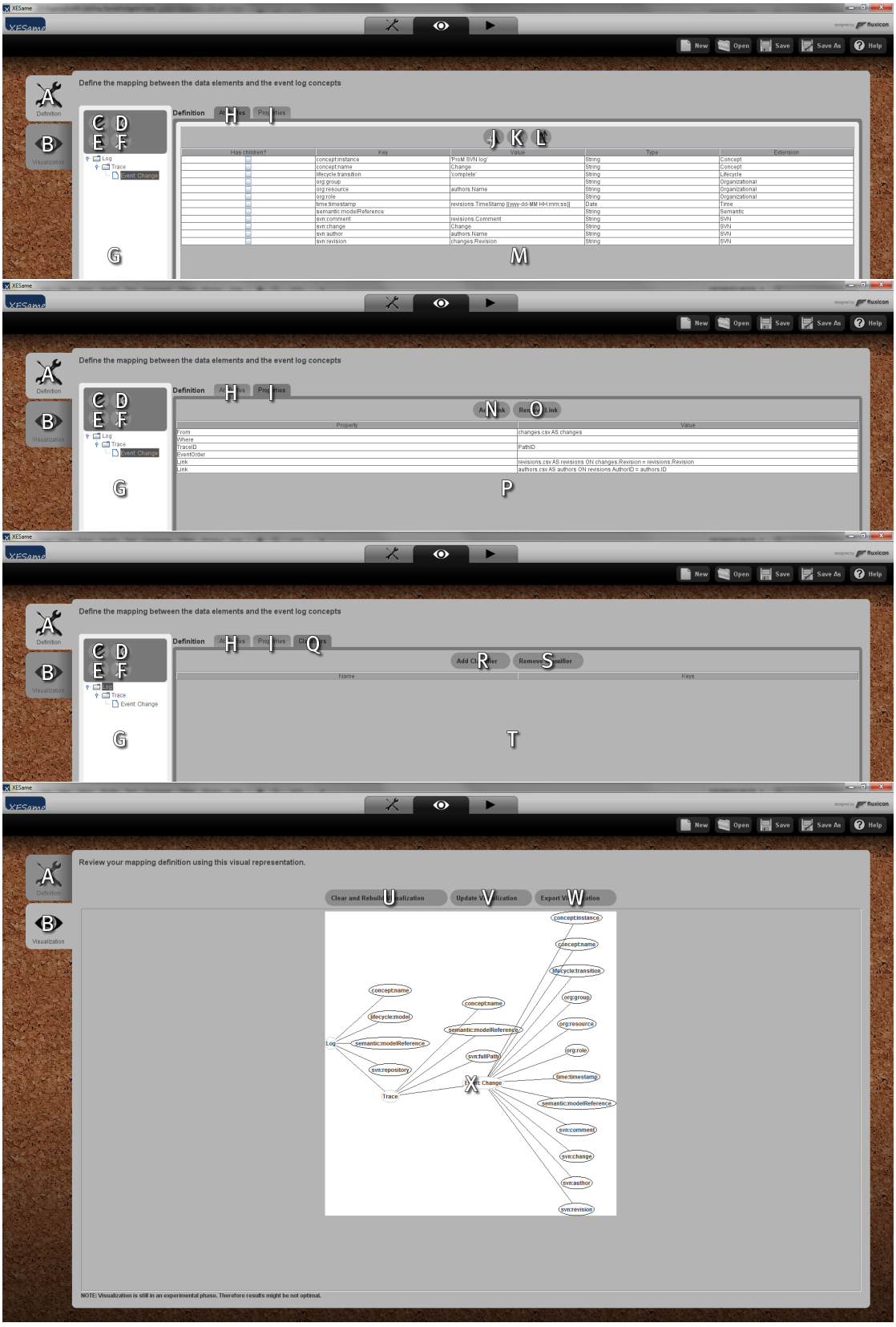

Figure 13: XESame 1 mapping view.

(A) The “Definition” tab allows you to edit your mapping definition, see the first three parts of Figure 13.

(B) The “Visualization” tab allows you to view your mapping definition, see the fourth part of Figure 13.

(C) The “Add event” button adds an event definition to the trace definition.

(D) The “Remove event” button removes the selected event from the trace definition.

(E) The “Add attribute” button adds an attribute definition to the selected log, trace, event, or attribute definition.

(F) The “Remove attribute” button removes an attribute definition from the selected log, trace, event, or attribute definition.

(G) The tree view shows the log, trace, event, and attribute definitions and allows you to select one. Details on the selected object will be shown in (M).

(H) The “Attributes” tab (first part of Figure 13) allows you to edit the attributes of the selected object.

(I) The “Properties” tab (second part of Figure 13) allows you to edit the properties of the selected object.

(J) The “Add attribute” button adds an attribute to the object.

(K) The “Remove attribute” button removes the selected attribute from the object.

(L) The “Promote attribute” button adds a child attribute to the object.

(M) The attribute pool for this object.

(N) The “Add link” adds a link from the “From” table to another table.

(O) The “Remove link” button removes the selected link.

(P) The properties pool for this object.

(Q) The “Classifiers” tab (third part of Figure 13) allows you to edit the classifier pool (T), which will act as the collection of classifiers in the resulting log.

(R) The “Add Classifier” button adds a classifier to the classifier pool (T).

(S) The "Remove Classifier" button removes the selected classifier from the classifier pool (T).

(T) The classifier pool for the log to be generated.

(U) The "Clear and Rebuild Visualization" performs a deep redraw of the mapping visualization.

(V) The "Update Visualization" performs a shallow redraw of the mapping visualization.

(W) The "Export Visualization" exports the mapping visualization to a number of graphic formats, like PNG, BMP, JPG, and SVG.

(X) The mapping visualization.

5.3 Action view

This section explains the action view. Basically, this view allows you to control and monitor the execution of the mapping, that is the generation of the XES log from the source database using the mapping configuration and definition as specified by the previous two views. Figure 14 shows the action view.

(A) The "Settings" tab allows you to change the conversion settings, see the first part of Figure 14.

(B) The "Console" tab allows you to view conversion progress and any conversion messages, see the second part of Figure 14.

(C) The "Execute Conversion" button executes the conversion, that is, it runs the defined mapping (see Section 5.2) against the specified database (see Section 5.1) and stores the results in an intermediary database, and afterwards it exports the contents of this intermediary database into an event log.

(D) The "Number of trace ..." field allows you to specify how many traces the generated log should contain. Especially when testing the mapping this number should be set low.

(E) The two check marks control whether the resulting event log is in the XES format or in the MXML format, and whether it will be compressed or not.

(F) The "Change CacheDB Location" controls the location of the intermediary database on the disk. This location is reflected by the "Location of ..." field.

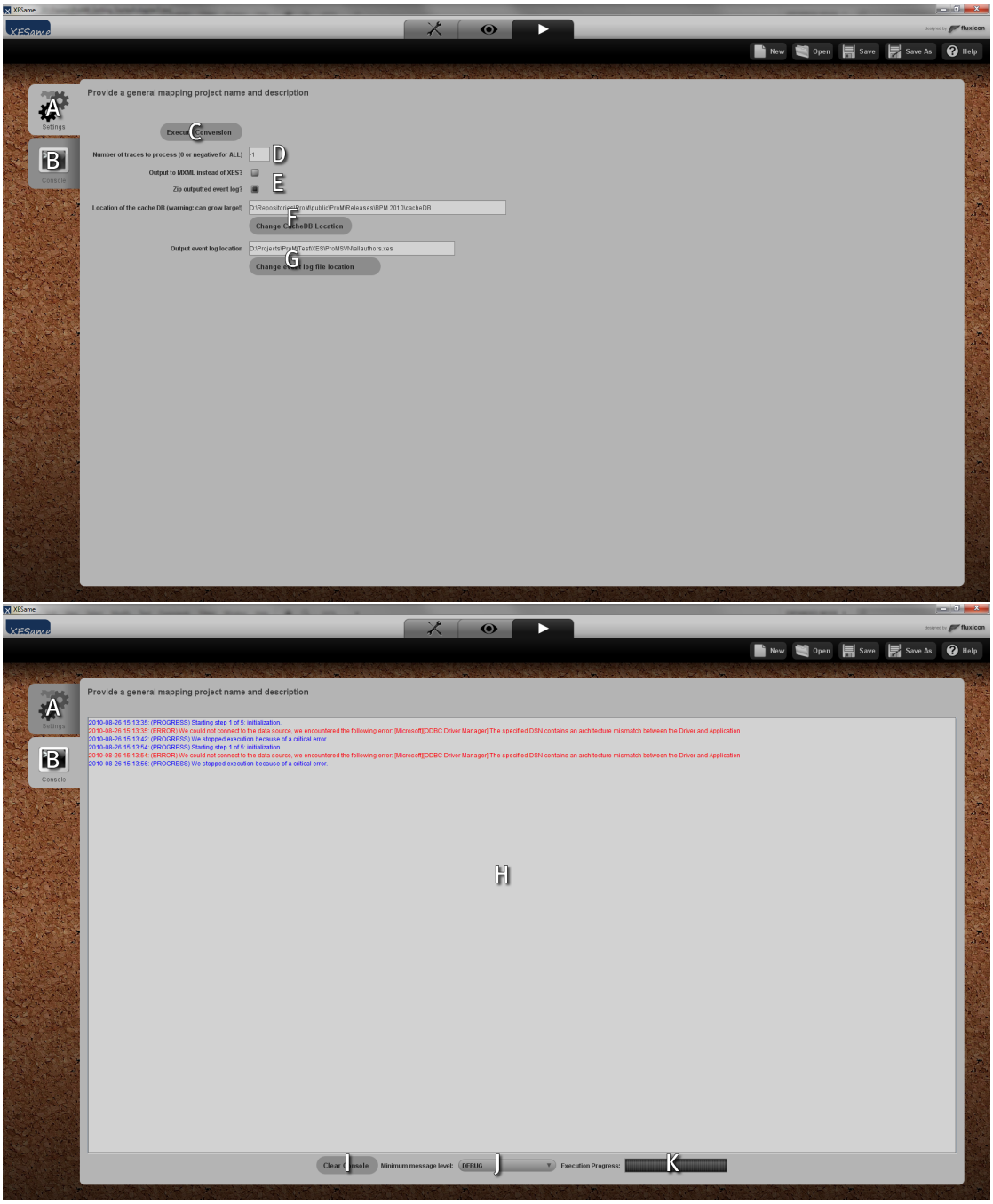

Figure 14: XESame 1 action view.

(G) The “Change event log file location” controls the location of the resulting log on the disk. This location is reflected by the “Output event . . . ” field.

(H) The conversion message console.

(I) The “Clear Console” button clears the console (H).

(J) The “Minimum message level” dropdown list controls the level of messages to show in the console. Possible levels are (from high to low) “ERROR”, “WARNING”, “PROGRESS”, “NOTICE”, and “DEBUG”.

(K) The progress indicator shows the progress of the conversion.