PROCESSMAN Manual

Technical Report

Duc Minh Le
duclm@hanu.edu.vn
Department Software Engineering, Hanoi University

1. Introduction

This manual describes how to run and use the PROCESSMAN software. This software was developed as a case study in a recent publication.

2. Setting Up The Software

A summary of the steps are as follows:

1. Download and configure the PostgreSQL DBMS

2. Download and extract the software

3. Download the `Ant` program

4. Execute the set-up command

2.1. Downloading and configuring PostgreSQL

1. Download the latest PostgreSQL RDBMS from https://www.postgresql.org/download/

   The latest PostgreSQL version that was tested in this manual is 10.

2. Install PostgreSQL as instructed

3. Make sure that PostgreSQL listens on the default port (5432) and that it listens for non-local network connections

4. Use the PostgreSQL database administration software (PGADMIN3) to:

   4.1. Create a database user (a.k.a login role) named `admin`, password: `password`

   4.2. Connect to the database as the user `admin` and create a database named `processman4j` (so that `admin` becomes the owner of the database)

2.2. Downloading and preparing the software

1. Download `ProcessMan.zip` from https://github.com/vnu-dse/mccl/tree/master/casestudies/processman

2. Extract the zip file to a directory on the local hard disk. This then becomes the software directory of PROCESSMAN, which we will subsequently refer to by the variable $PM_DIR.

All the commands that we will use in this manual will be executed of the directory $PM_DIR.

2.3. Downloading the Ant program

To make it easier to execute the PROCESSMAN software, we have written a deployment script (called `build.xml`) which is processed automatically by the Apache's Ant program. The steps below describe how to download and make this program ready for use.

1. Download Ant from `https://ant.apache.org/bindownload.cgi`

2. Extract the file to a directory on your hard drive. This then becomes the program directory of Ant, which we will refer to by the variable `$ANT_DIR`.

3. Add `$ANT_DIR/bin` to the execution path, so that we can conveniently execute the `ant` command

2.4. Executing the set-up command

Execute the followings from the command line:

1. Change directory to `$PM_DIR`

   ```
   cd $PM_DIR
   ```

2. Execute this command:

   ```
   ant setuplight
   ```

Listing 1 shows the expected console output of the above command. Note that the various WARNING messages at the end are not a problem. They are displayed because the set-up process is adding some initial data to the database, which is initially empty.

Listing 1: The expected console output of the set-up command

```
$ ant setuplight
Buildfile: /data/projects/domainapp/examples/processman4j/dist/build.xml

setuplight:
     [echo] Setting up ProcessMan...
     [echo]
     [java] Setting up the program...
     [java] Validating program settings...
     [java] ---------------------------------------------------
     [java] Program settings:
     [java]
     [java] + Operating system    : linux
     [java] + Program name        : ProcessMan
     [java] + Set up folder       : /data/projects/domainapp/examples/processman4j/dist
     [java] + Program folder      : /home/ducmle/ProcessMan
     [java] + Database            : jdbc:postgresql://localhost:5432/processman4j
     [java] ---------------------------------------------------
     [java]
     [java] Deleting configuration schema
     [java] Registering configuration schema
     [java] Registering system model classes
     [java] Creating domain classes
     [java] Removing domain configuration
     [java] Creating domain configuration
     [java] Initialising program data
```

```
    [java] WARNING in DOM.loadMetadata:
    [java]    Details: [NotFoundException.OBJECT_ID_RANGE_NOT_FOUND] Không tìm thấy khoảng mã dữ liệu cho:
Role
    [java] WARNING in DOM.loadMetadata:
    [java]    Details: [NotFoundException.OBJECT_ID_RANGE_NOT_FOUND] Không tìm thấy khoảng mã dữ liệu cho:
DomainUser
    [java] WARNING in DOM.loadMetadata:
    [java]    Details: [NotFoundException.OBJECT_ID_RANGE_NOT_FOUND] Không tìm thấy khoảng mã dữ liệu cho:
UserRole
    [java] WARNING in DOM.loadMetadata:
    [java]    Details: [NotFoundException.OBJECT_ID_RANGE_NOT_FOUND] Không tìm thấy khoảng mã dữ liệu cho:
OrgUnit
    [java] WARNING in DOM.loadMetadata:
    [java]    Details: [NotFoundException.OBJECT_ID_RANGE_NOT_FOUND] Không tìm thấy khoảng mã dữ liệu cho:
Process
    [java] WARNING in DOM.loadMetadata:
    [java]    Details: [NotFoundException.OBJECT_ID_RANGE_NOT_FOUND] Không tìm thấy khoảng mã dữ liệu cho:
Task
    [java] WARNING in DOM.loadMetadata:
    [java]    Details: [NotFoundException.OBJECT_ID_RANGE_NOT_FOUND] Không tìm thấy khoảng mã dữ liệu cho:
Task4Subject
    [java] WARNING in DOM.loadMetadata:
    [java]    Details: [NotFoundException.OBJECT_ID_RANGE_NOT_FOUND] Không tìm thấy khoảng mã dữ liệu cho:
Action
    [java] WARNING in DOM.loadMetadata:
    [java]    Details: [NotFoundException.OBJECT_ID_RANGE_NOT_FOUND] Không tìm thấy khoảng mã dữ liệu cho:
Action
    [java] WARNING in DOM.loadMetadata:
    [java]    Details: [NotFoundException.OBJECT_ID_RANGE_NOT_FOUND] Không tìm thấy khoảng mã dữ liệu cho:
Action4Subject
    [java] WARNING in DOM.loadMetadata:
    [java]    Details: [NotFoundException.OBJECT_ID_RANGE_NOT_FOUND] Không tìm thấy khoảng mã dữ liệu cho:
Subject

BUILD SUCCESSFUL
Total time: 27 seconds
```

3. Running the software

Execute the followings from the command line:

1. Change directory to `$PM_DIR`

   ```
   cd $PM_DIR
   ```

2. Execute this command:

   ```
   ant run
   ```

Figure 1 shows the PROCESSMAN's software which is generated as the result of the `run` command. The `Tools` menu lists all the software modules that are visible to the user.
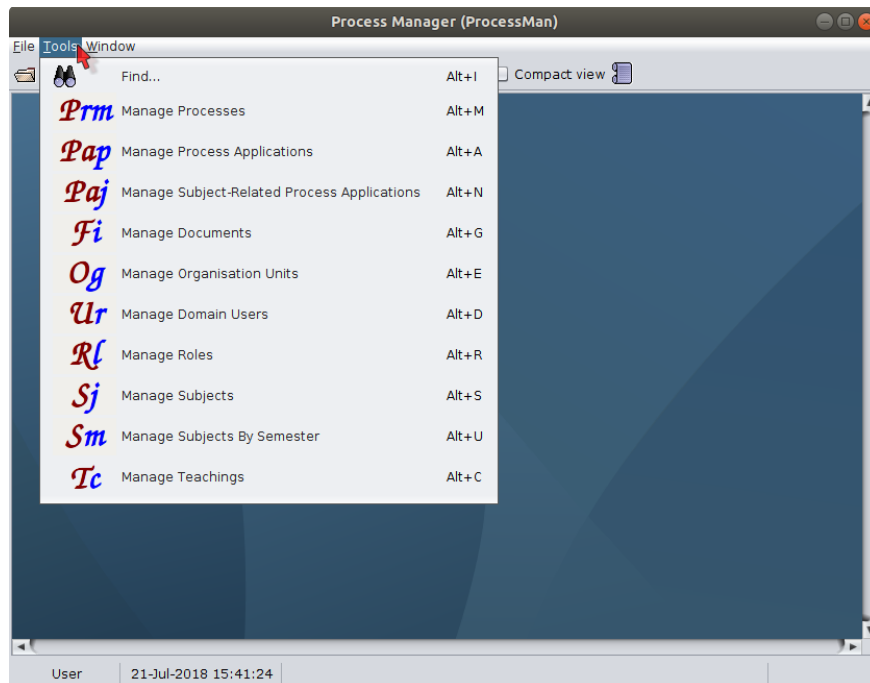

Figure 1: The PROCESSMAN's software.

3.1. Creating a new process application

The set-up software already contains two processes, whose code are `dt-05` and `dt-06`. What we need to do is to apply one of these (e.g. `dt-05`) to a particular semester and for some particular subjects. To achieve this, we need to follow these steps:

1. [Figure 2] From the `Tools` menu, click on the module named "`Manage Subject-related Process Applications`"

2. Click the button `New` on the tool bar to create a new object. The software automatically detects the current semester and fills it into the two fields "`Semester`" and "`Year`".

3. Enter value "`dt-05`" for the field named "`Process code`"

4. Choose all three subjects for the field named "`Choose subject(s)`"

5. Click the `Create` button

6. [Figure 3] Move focus to the sub-view labelled "`Processes`", by clicking on its `Id` field.

7. Click the button `New` on the tool bar.

   Click "Ok" on the confirmation dialog when asked.

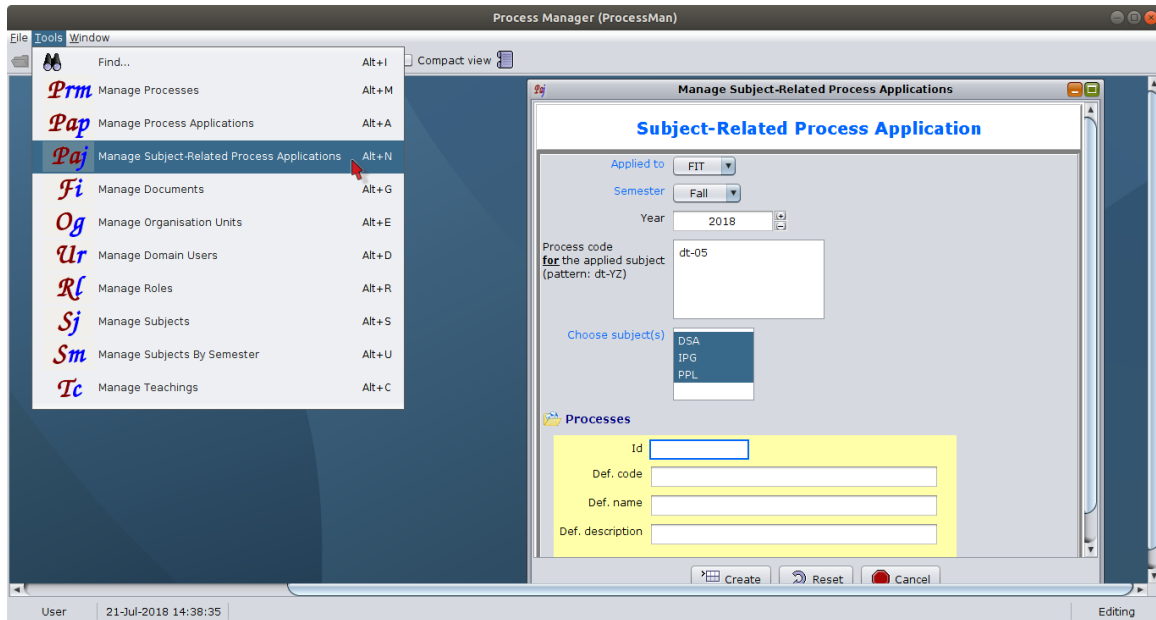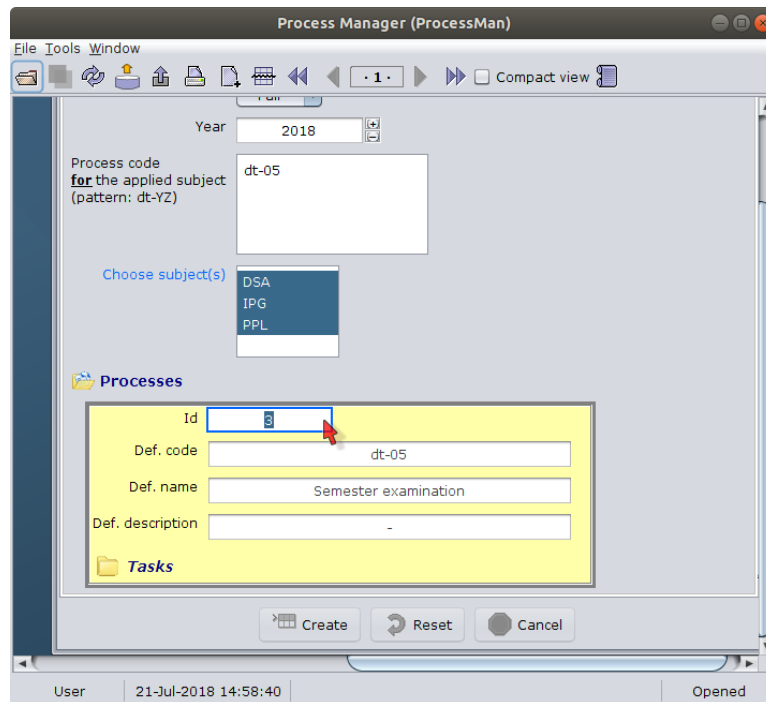   Then, click "Ok" on the information dialog that is displayed shortly after that.

Figure 2

Figure 3

3.2. Updating a user to become a teacher

Having applied a teaching process to the current semester, we now need to have some teachers. Follow these steps to update a user to become a teacher (by updating the user role):

1. [Figure 4] From the `Tools` menu, click the module named "`Manage Domain Users`"

2. Click the `Open` button on the tool bar

3. Click the `First` button on the tool bar. This browses to the first `Domain User` object, which is the user with the login named "`duclm`"

4. [Figure 5] While holding the `Ctrl` key, choose the additional role named "`GIAV`" on the field labelled "`Roles`". This additional role means "Teacher".

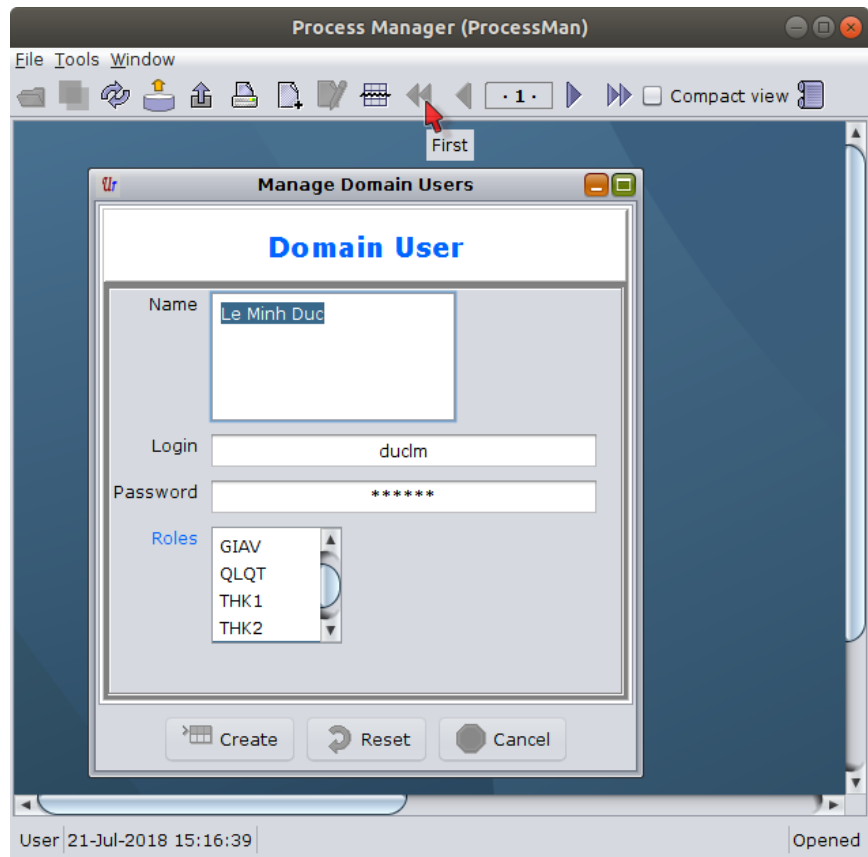5. Click the `Update` button on the tool bar to update the user.
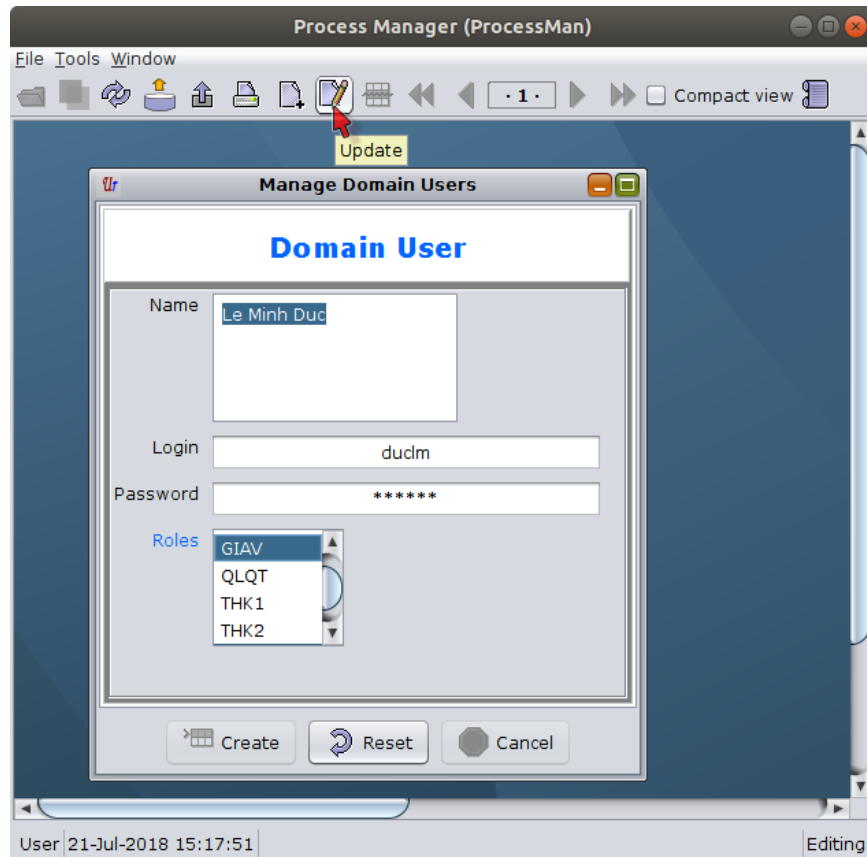
Figure 4

Figure 5

3.3. Assigning a teacher to subjects

Finally, the following steps explain how to assign the teacher user that we configured in the Section 3.2 to some of the subjects that we have created for the current semester. These subjects were created by the process application step performed in Section 3.1.

1. From the `Tools` menu, click the module named "`Manage Teachings`"

2. Click the `Open` button on the tool bar

3. Click the `First` button on the tool bar. This browses to the first `Teaching` object, which is currently configured for the user with the login named "`duclm`"

4. [Figure 6] While holding the `Ctrl` key, choose from the field labelled "`Subjects (by semester)`" two subject-by-semesters, whose codes are "`DSA`" and "`PPL`" and whose semesters are Fall 2018.

5. Click the `Update` button on the tool bar to save the assignment.
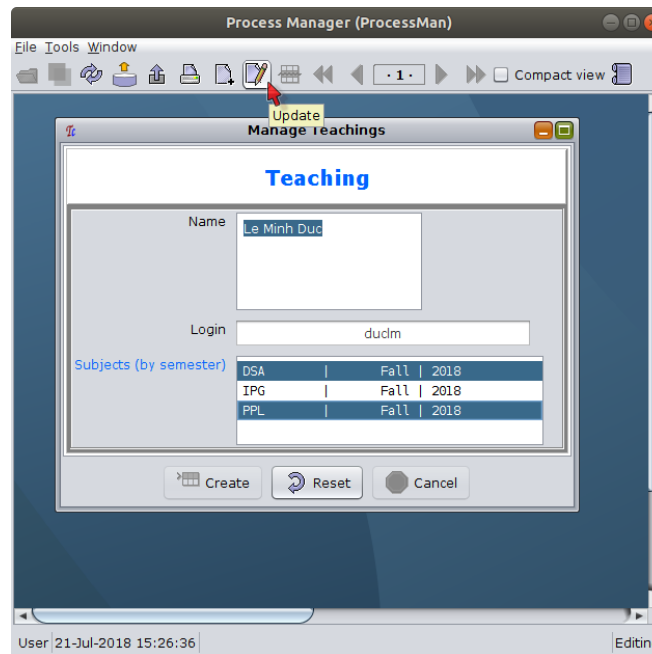
10

Figure 6

4. Configuring and running the software tool

We call the PROCESSMAN software that is created by the DOMAINAPPTOOL software tool. The following subsections describe how to configure and run this tool.
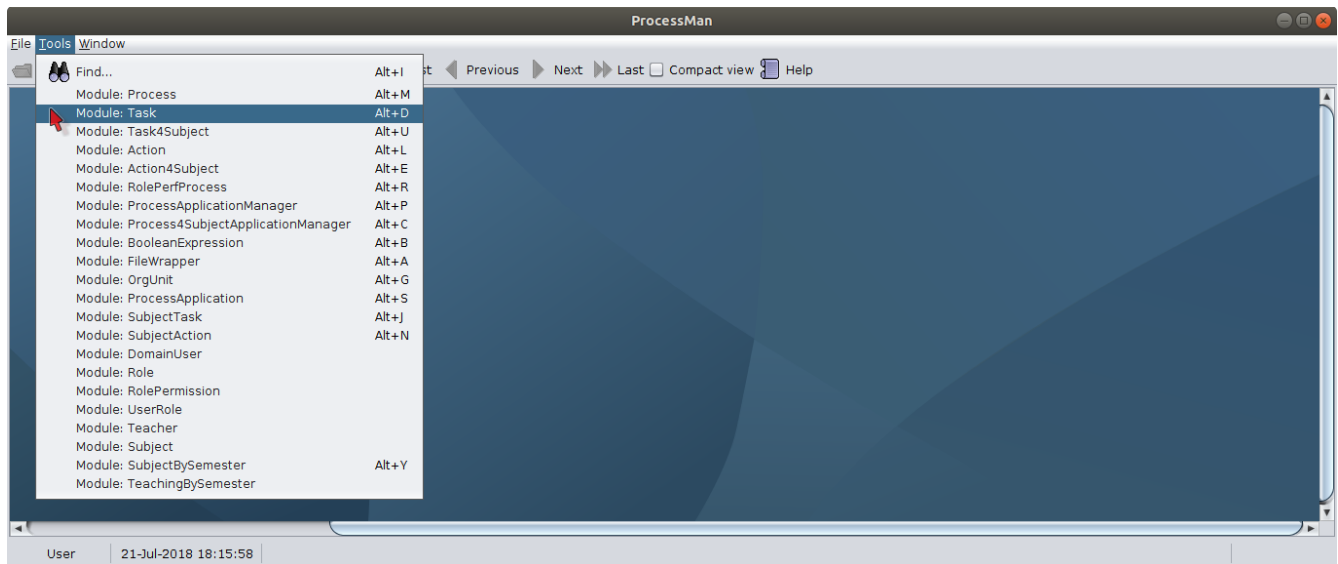

Figure 7: The PROCESSMAN software tool.

4.1. Configuring the software tool

Follow these steps to configure the software tool. Note that, to keep the software tool separate from the main software, we design the tool to use a different database named `process4jtool`.

1. As the `admin` user, create a PostgreSQL database named `process4jtool`.

2. From the command line, change the directory to `$PM_DIR`

   ```
   cd $PG_DIR
   ```

3. Run the `configuretool` task:

   ```
   ant configuretool
   ```

4.2. Running the software tool

1. From the command line, change the directory to `$PM_DIR`

   ```
   cd $PG_DIR
   ```

2. Run the `runtool` task:

   ```
   ant runtool
   ```

Figure 7 shows the GUI of the software tool that is generated by the `runtool` task. Notice how the `Tools` menu differs from that of the PROCESSMAN software shown in Figure 1. More specifically, the menu lists the raw module names, that are generated automatically from the domain class names.