PETROLEDGE®

USER'S GUIDE

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1. PETROLEDGE Overview

PETROLEDGE is an intelligent database application for the description and interpretation of sedimentary rock descriptions with the objective of supporting the evaluation of oil reservoirs.

- The system guides the **rock descriptions**, suggesting an order of description for the geologist;
- The system makes possible a detailed description and quantification of rock composition using an **electromechanical stage controlled by computer** and connected to a microscope;
- The system also allows the **standardization of geological terminology** for all aspects that can described about a rock sample;
- PETROLEDGE has a module to export rock description data to XML, HTML and PDF formats. From the description of rock samples in the database, the data export module allows creation and validation of XML files for **sharing information** with other applications and platforms;
- Additionally, PETROLEDGE has an inference module on rock descriptions. From the descriptions of rock samples in the database, the inference module proposes **geological interpretations** that suggest the environments where the rock was consolidated during its diagenetic evolution, and automatic **classification** of composition and provenance;
- These interpretations are important in the process of **measuring economic potential of an oil well**. That means, they assist in verifying the possibility of existence of oil reserves.

1.1. Application

- This user guide contains all functionalities of Petroledge Server version. Some functionalities does not exist on Single and Workstation version.

Recommended hardware and software
* Microsoft® Windows, MacOS 10.4+ (Java 5+), Linux (Java 5+)
Pentium IV 2.4 GHz
512 MB RAM
250 MB of free hard disk space (without a local database)
Video resolution 1280x1024 pixels
Network access (if database is not local)

- * The installer to Windows versions already includes a Java Virtual Machine version 1.6. Mac or Linux must already have a JVM 1.5 or greater, besides additional settings provided by ENDEEPER.

1.2. Installing

1.2.1. Installing from CD or Other Memory Unit

1. Put the CD or connect the memory unity with the installer;
2. Locate the CD-ROM driver or memory unit and double click the SETUP file;
3. Installation program will start;
4. Follow the instructions in the screen:
    - Close other applications windows;
    - Read the license and if you agree and want to continue choose "I agree";
    - Choose directory where the system will be installed;
    - After finishing the installation, restart the machine;
5. The PETROLEDGE system is ready to run.

1.2.2. Installing from the WEB

1. Download the file in a directory;
2. Locate the file in the directory and execute;
3. Installation program will start
4. Follow the instructions in the screen:
    1. Close other applications windows;
    2. Read the license and if you agree and want to continue choose "I agree";
    3. Choose directory where the system will be installed;
    4. After finishing the installation, restart the machine;
5. The PETROLEDGE system is ready to run.

1.3. Running PETROLEDGE on Windows

How to *start* the system PETROLEDGE:

1. double click the icon PETROLEDGE in Desktop, or;
2. select Start > Programs > Installation Place > PETROLEDGE, or;
3. from the directory where is installed, execute the file PETROLEDGE.

After started, the main interface will be presented and the system can be used.

How to *close* the application:

1. Select the menu item Description > Exit.

2. Workflow

The PETROLEDGE workflow starts with description and follows with interpretation. The sequence that should be followed is showed on Figure 2.1.

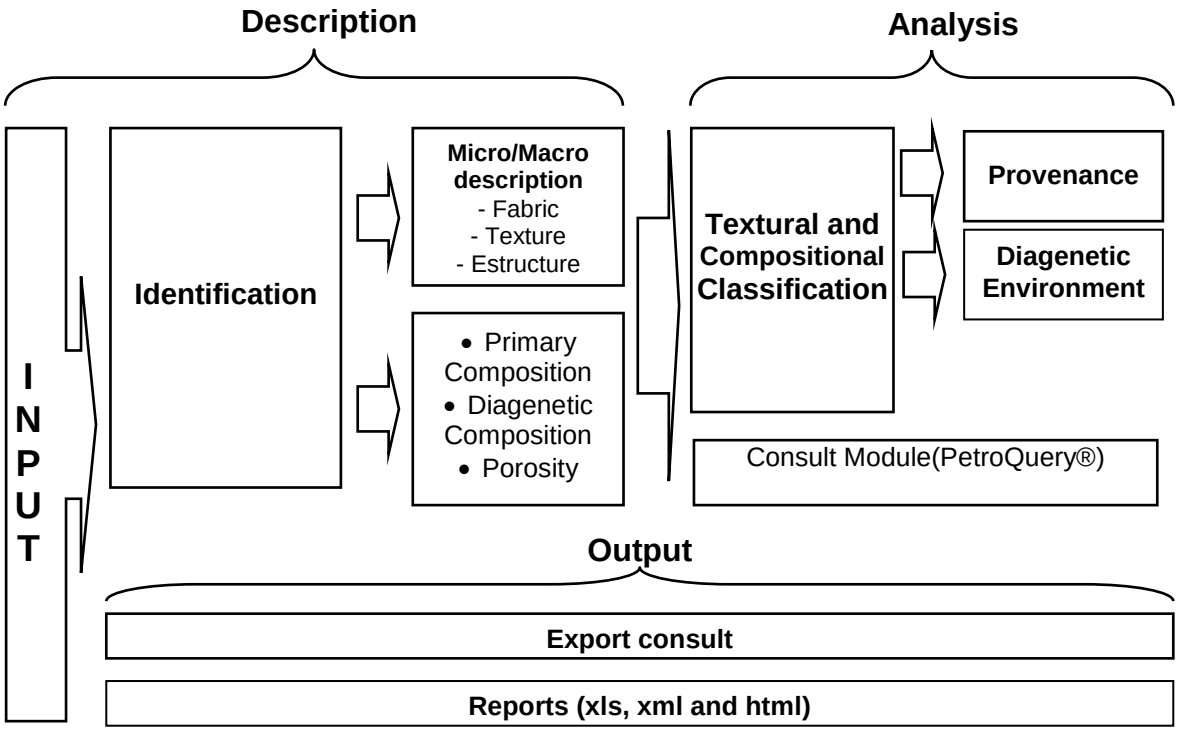


Figure 2.1: PETROLEDGE Workflow

The PETROLEDGE workflow is defined by "description", "analysis" and "Output". The user (petrologist) describes the rock samples using the modules: "Identification", "Macroscopic", "Microscopic", "Composition", "Additional Analysis". The system Output are textual reports with complete description and interpretation results. The PETROLEDGE modules will be presented following the workflow.

3. Main

The main module provides an integrated environment where you can work with several modules opened at the same moment. These modules are opened through a menu located at the top of the main module interface. The main screen of the system grants access to all the available functionalities.

Modules load in the Main interface are: Load Description, Identification, Macroscopic, Microscopic, Composition, Diagenetic Interpretation, Stage Controller, Rock classification, XML, HTML and XML Files Importer. There also external tools (activated by the Main module, but not inside the Main interface). They are: Knowledge Base Tools, PetroQuery and MultiDescription Classification.

Some important features used by all interfaces are detailed in Common Interface Elements.

Working with Descriptions

PETROLEDGE works with only one current description at each time, that means, information presented in Identification, Macroscopic, Microscopic Descriptions, Classification and Composition forms, are always in reference to the same description. Multiple descriptions in multiple forms are not allowed.

To query or start a new description when there is already a description being edited, the system will request closing the current forms before opening the new description.

The name of the current description can be seen in the top bar of any window.

Figure 3.1. Title Bar

Menus:

- Description
  - New Description: initializes a new description, showing an unfilled Identification Analysis window, so that the description of the new description can be started;
  - Load Description: this option will make available the list of descriptions already described in the system;
  - Save Description: save the current description informations contained in the internal modules (Identification, Macroscopic, Microscopic and Composition modules);
  - Save As: creates a copy of the current description, saving it with a different name;

  - Close Description: closes all windows of the current description. If the modifications are not saved, a message will be shown with options of saving it before closing or closing it without saving;
  - Export Description: shortcut to export descriptions in XLS, HTML, or PDF format;
  - Import Description: shortcut to import descriptions from XML files;
  - Remove Descriptions (only some versions): allows removing of descriptions;
  - Exit: closes the application.
- Analysis
  - Identification Description: opens the module Identification Analysis;
  - Macroscopic Description: opens the module Macroscopic Analysis;
  - Microscopic Description: opens the module Microscopic Analysis;
  - Composition: opens the module Composition;
  - Pore System: opens the module Pore System;
  - Additional Analysis: opens the module Additional Analysis;
  - Analysis Request: opens the module Analysis Request;
  - Sample Location: information about the location of the sample.
- Interpretation
  - Diagenetic Interpretation: opens the module Diagenetic Interpretation;
  - Rock Classification: opens the module Rock Classification.
- Tools
  - PetroQuery: opens a tool for query the PETROLEDGE database (includes modules to export data in XML and HTML);
  - MultiDescription Classification.
  - Plug-in Manager: opens the tool to install and uninstall plug-ins for the system;
  - Plug-ins: list of installed plug-ins;
  - Update Profile: opens a tool to update the system user settings;
  - System Updater: allows the installation of system updates (not available on all versions).
- Help
  - Contents: opens the help of the system;
  - Knowledge Graphs: opens the knowledge graphs;
  - About: information on the project PETROLEDGE.
  - Support: contact with ENDEEPER.

3.1. Main Buttons

Opens the Identification Analysis module to start the description;

Opens the interface Load Description to choose the description to be loaded from the database;

Saves all the modifications of the current description;

Opens the Composition module for the current description;

Opens the system help.

4. Tutorial PETROLEDGE

PETROLEDGE is an intelligent database system supporting oil reservoir characterization. It integrates techniques of knowledge systems and databases promoting the management of descriptions of rock descriptions, the storage of complex information and reasoning on them.

This tutorial contains instructions with links to common uses of the PETROLEDGE System.

4.1. How to Describe a New Description

- Start PETROLEDGE;
- Choose **Description** > **New Description**. The Identification Analysis window will open;
- After filling the fields, save the current description: choose **Description** > **Save** or use the button;
- Continue describing the description through the other windows in the menu **Description** (see more details in each module help: Macroscopic, Microscopic, Composition);
- Save the description after finish editing.

4.2. How to Load a Description

- Start PETROLEDGE;
- Choose **Description** > **Load Description** in the Main interface, or use the button;
- The Load Description dialog will open.

4.3. How to Query Descriptions

- Start PETROLEDGE;
- Choose **Tools** > **PetroQuery** in the Main interface;
- See the PetroQuery help for more details.

4.4. Rock Classification

- First, describe a new description or open a previous described description;
- Then choose **Tools** > **Rock Classification** in the Main interface;
- See the Rock Classification help for more details.

4.5. How to Export Data

- If you want to export the data of the currently open description, you can select in the Main interface, under the menu **Description** > **Export Description** one of the following options:

  - **Export to HTML**;
  - **Export to Excel**;
  - **Export to PDF**.

- If you want to export several descriptions at once, please take a look at PetroQuery - Exporting Data.

4.6. How to Import Data

- If you want to import descriptions from XML files, choose Description > Import Description in the Main interface;
- See the XML Files Importer help for more details.

4.7. How to Edit a Nomenclature

- In the Macroscopic analysis / Microscopic analysis interfaces, select any named combo box and choose "Edit". An attribute editor for the selected field will appear;
- Or in the Composition interface, choose the **Knowledge Edit** button. An attribute editor will appear;
- See the knowledge base tools help to use the attribute editors.
- *Available only in some versions. Check additional information.

5. Common Interface Elements

Most windows in PETROLEDGE have these elements in common.

5.1. Title bar

The title bar is in the top of the window. In this bar you find the name of the description. The right corner of the bar contains the buttons to minimizate, to maximizate or to close the window. In the figure below, you can see the title bar of a description opened in the **Composition** module.

Figure 5.1. Example of an title Bar

5.2. Status Bar

At the bottom of the window there is the status bar. Its function is to exhibit messages of the module. There are two kinds of messages:

1. information, to inform about the function of a button, a column, etc;

Figure 5.2. Example of an information message (in black)

2. warning, alert you about a necessary action or that an action is not allowed.

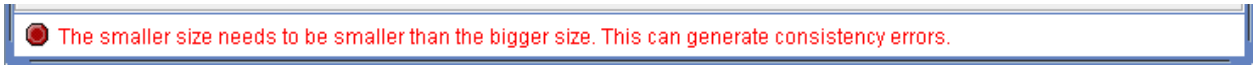


Figura 5.3. Example of a warning message (in red with an exclamation mark)

In the case of problems, always look for information in the *status bar*.

6. Identification Description

The interface Identification Description provides means to describe important information for description identification and description.

The most import field is **Description identification**. It is the unique name of a description and it is required to save a description. All other description modules are enabled only after saving the description identification. After saving the description, this field will become no editable (but you can create a new description with another identification and the same data using the **Save as...** available in the **Description** menu. Available in some versions).

Two fields that present format restrictions are:

- **Top depth** and **Base depth** that accept only values in the interval of 0 to 9999.99;
- and **Core number** that accepts only numerical values.

First Edition Date and **Last Edition Date** are filled automatically and are not editable.

The **Clear** button clears all fields of the form (except the **Description identification** and date fields).

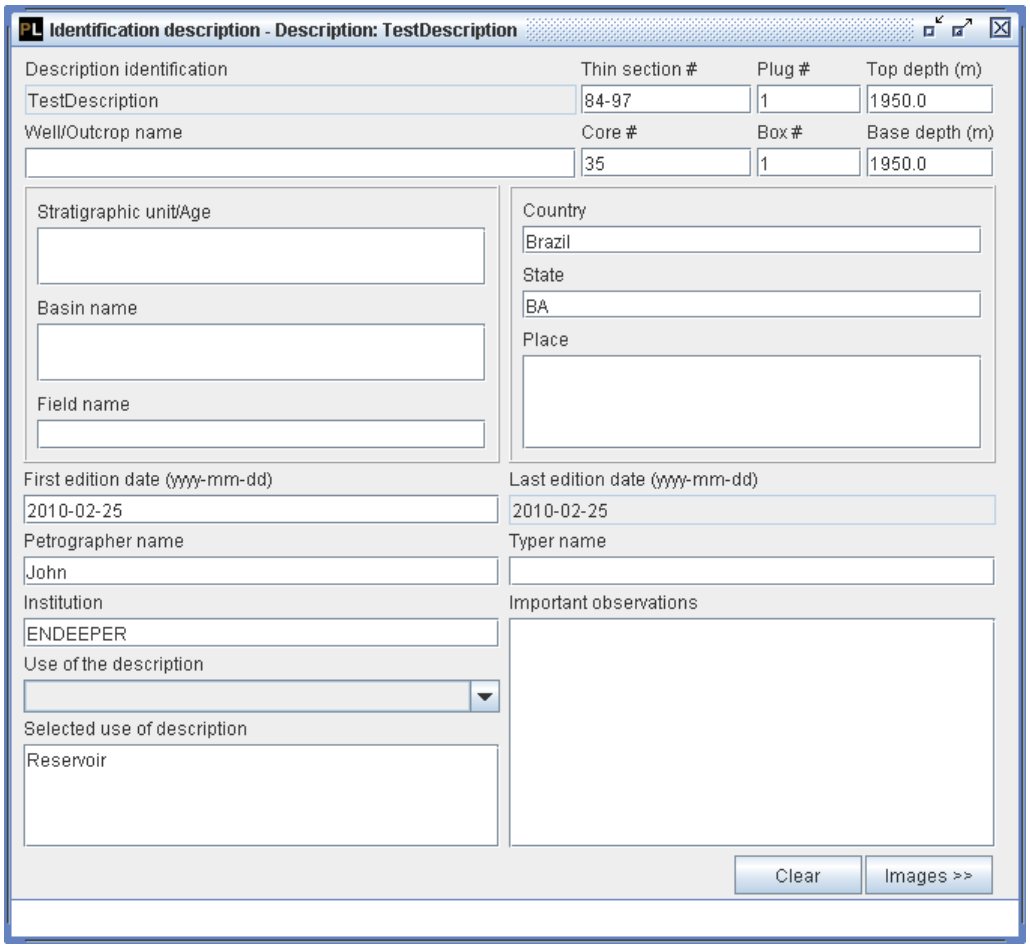


Figure 6.1. Identification Description Module

Obs. Some PETROLEDGE versions requires the selection of a thin section when creating a new description. This blocks the thin identification fields to edition and clearing them by the **Clear** button.

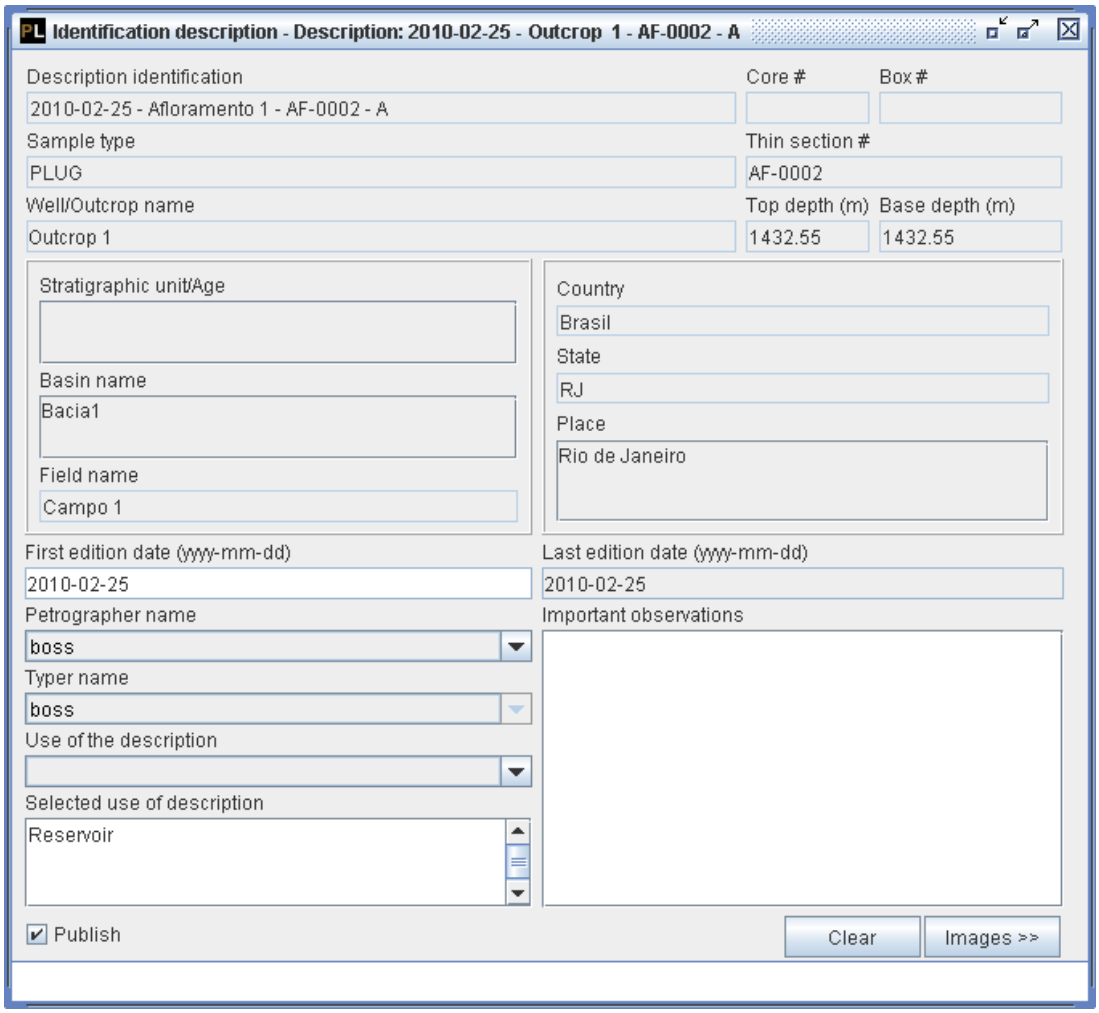


Figure 6.2. Identification Description Module (Differentiated Version)

6.1. Using the Field Selected Use of Description

- To *include items* in **Selected use of description**, just select an item in the **Use of the description** combo box, and it will be included. At most 3 (non-repeated) items can be included, new items will remove old ones;
- To *remove items* from **Selected use of description**, select the item you want to remove and press <DEL> key.

7. Annotation Editor

In this interface you can view and annotate images. An image can be annotated with labels, arrows and regions, by using the system nomenclature. These visual elements stay in layers above the image, so the original image is preserved (diagrams can be moved). Besides diagrams, there is a textual field for each image.

The top bar shows buttons to activate functionalities on the interface:

- **Selection**: in this mode an object can be moved using drag and its properties can be edited by using a single click;

- **Delete**: delete the selected shape.

- **Arrow**: in this mode click in some point, move to the preferred endpoint and click again. The initial point pressed and the endpoint will be the arrow extremities. After the arrow creation, a window to select the arrow color and thickness will be showed. After the visual configuration, a window to assign nomenclature terms to the shape will be showed;

- **Region**: in this mode click in some point, move to the preferred endpoint and click again. It will create a transparent region. After the region creation, a window to select the region color and its outline thickness will be showed. After the visual configuration, a window to assign nomenclature terms to the shape will be showed;

- **Label box**: mode to insert labels, click in the image and inform the label text and the font properties. After the visual configuration, a window to assign nomenclature terms to the label will be showed;

- **General annotation:** it shows the description identification data. It allows to assign a text as observation to the imagem and to assign nomenclature terms to it;

- **Subtitle viewer:** shows the subtitle generated to the image based on the annotations assigned to it;

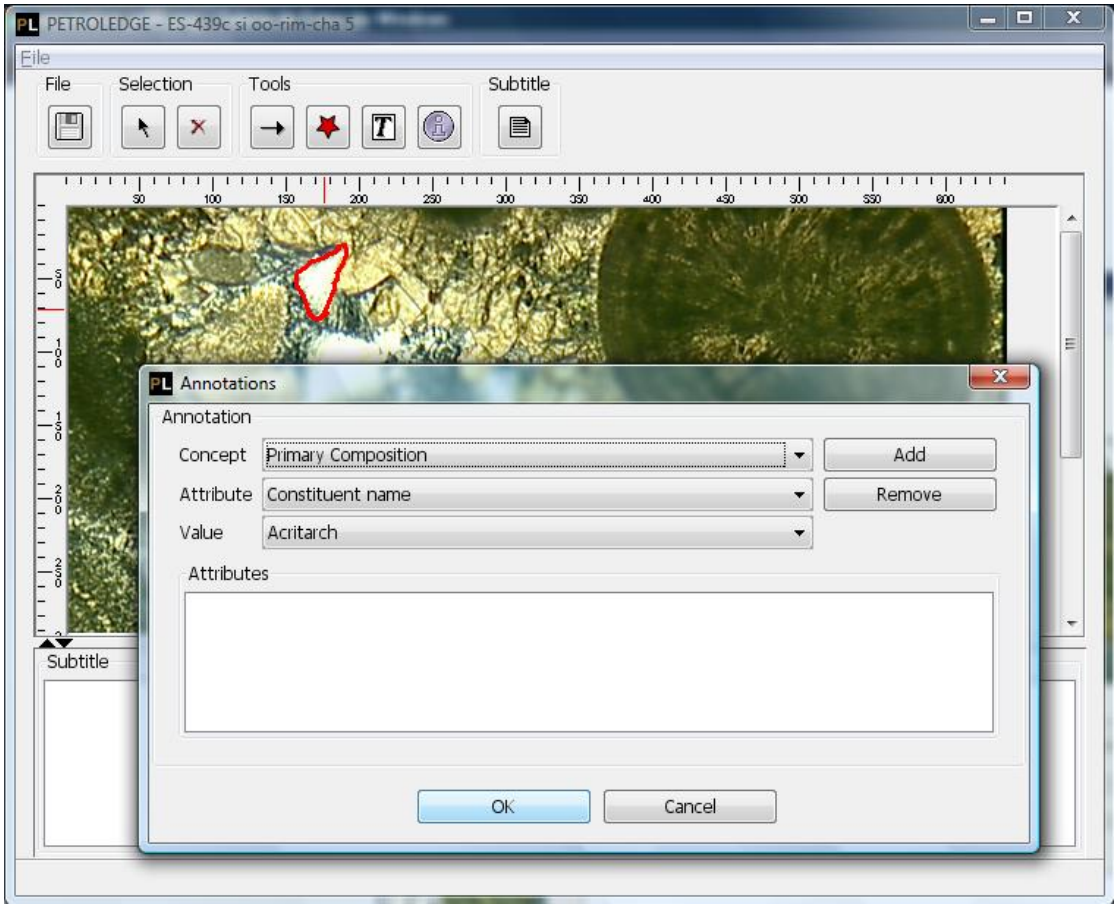


Figure 7.1. Annotation Image Tool

8. Image Viewer

The function of this interface is to store and to preview a collection of images of the current description. The images can be annotated using the annotation editor. An image thumbnail is showed in the center of the interface. You can transverse the image list using **Next** and **Previous** buttons.

The top buttons are:

- **Import**: imports a selection of image files. After the images selection, a window to inform the observation (the initial observation of each image is the original file name) and the purposes of the image is showed. This information can be changed using the **Change** button;
- **Export**: presents the following options:
  - **Export current**: exports the current image without annotations;
  - **Export all**: exports description images without applying annotations (images will be exported in the selected folder with names like PICx);
  - **Export current annotated**: the current image with annotations;
  - **Export all annotated**: exports description images applying annotations (images will be exported in the selected folder with names like APICx).
- **Remove**: removes the current image;
- **Edit**: opens annotation editor showing the image with actual size.

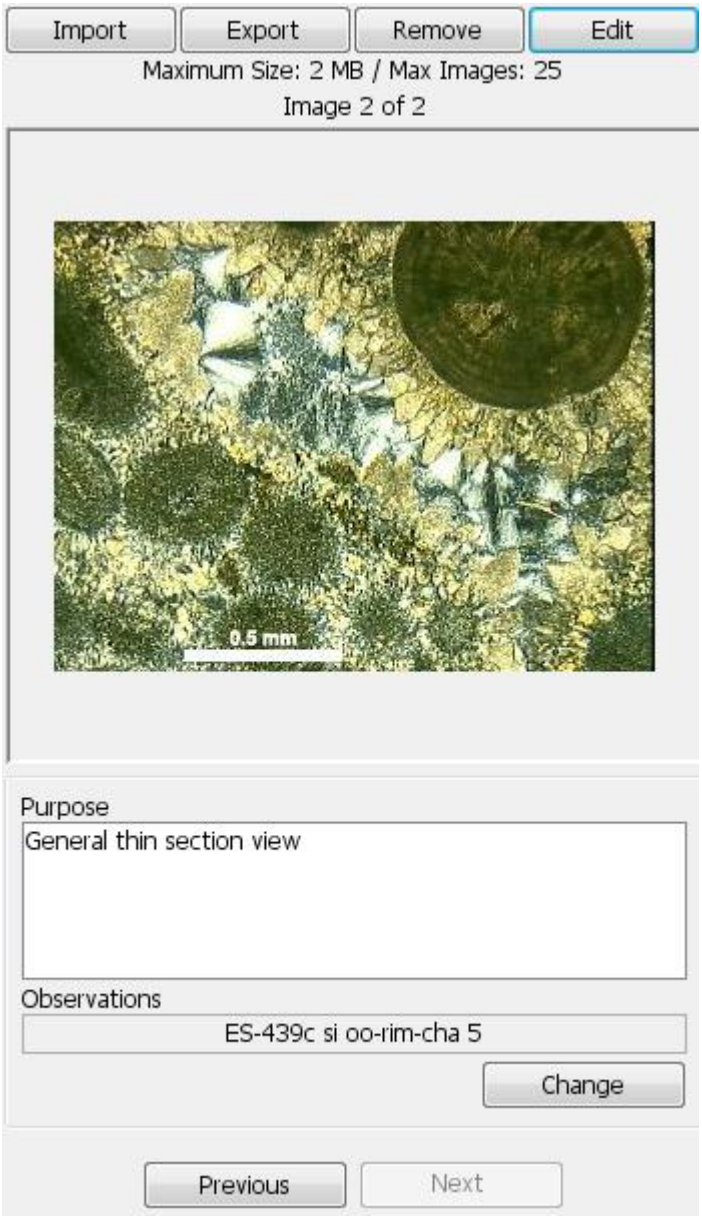


Figure 8.1. Image Viewer

9. Load Description

This interface lists all descriptions that can be queried and/or modified according the database. To load a description, choose one in the description list and click the button **Load**. The Identification description will be presented and you can edit.

Obs. Some PETROLEDGE versions allow a description to be selected only after a thin section selection.

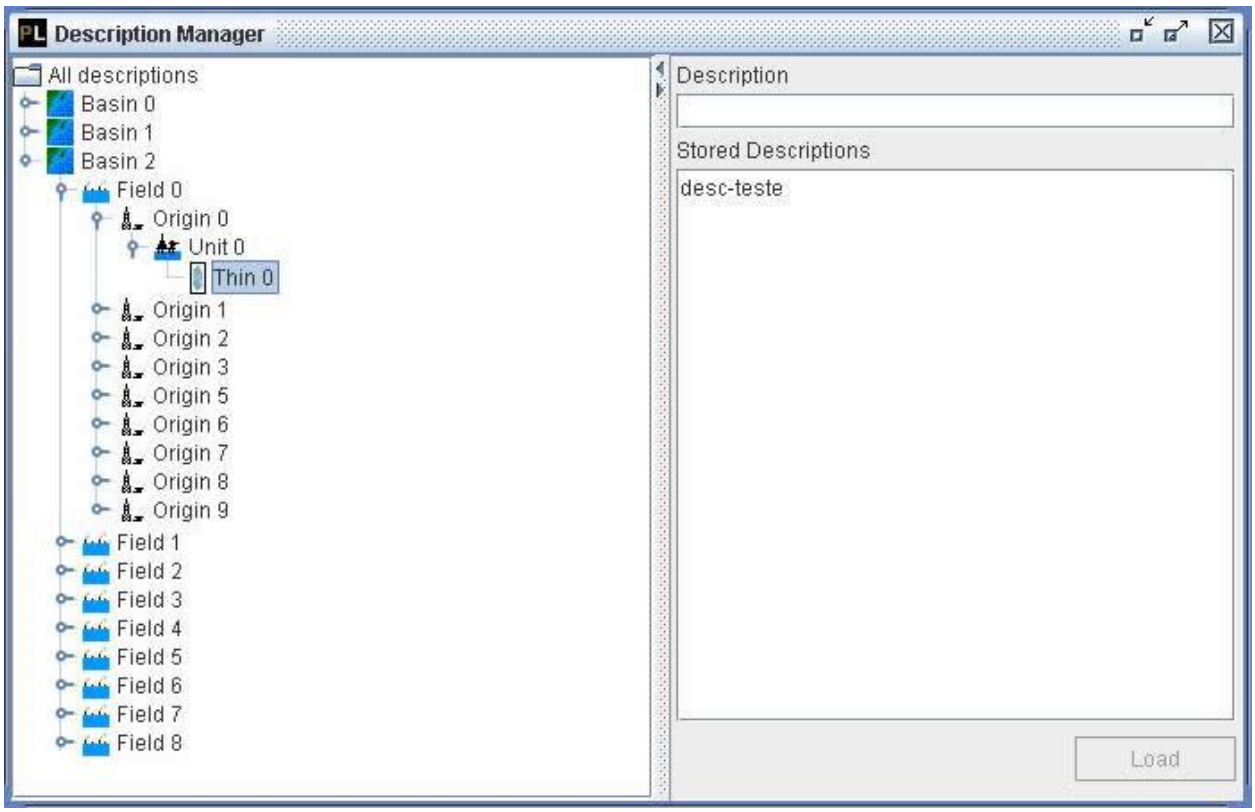


Figure 9.1. Description Manager

10. Macroscopic Analysis

In this interface, you can enter the macroscopic features of the descriptions. If there is any information already registered for this description, the system will load them automatically. Many features are provided to facilitate the description, such as lists of the possible values.

The section **Structure and scale** is to be filled with the 3 main structures and their respective scales. Structures can be repeated and it is not necessary to fill all three. Possible sizes are in the interval of 0 to 100. Values out of this interval will be ignored.

The **Clear** button clears all fields of the form.

Error and warning messages appear in status bar.

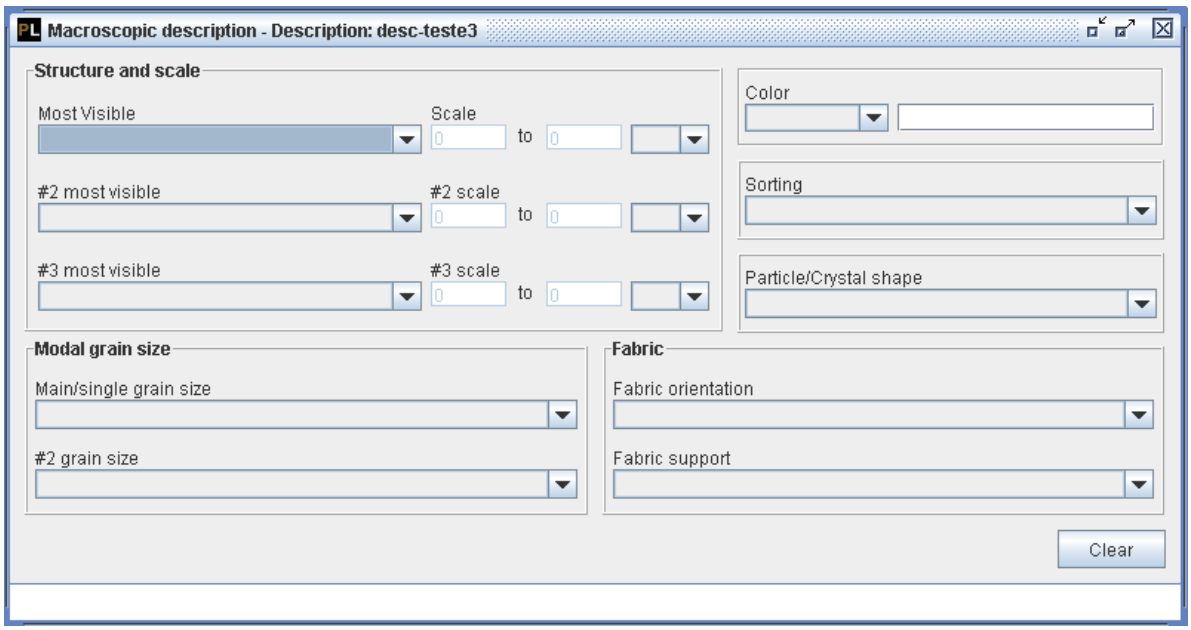


Figure 10.1. Macroscopic Description Module

11. Microscopic Analysis

In this interface, you can enter the microscopic features of the descriptions. If there is any information already registered for the description, the system will load it automatically. Many features are provided to facilitate the description, such as lists of the possible values.

The section **Structure and scale** is to be filled with the 3 main structures and respective scales. Structures can be repeated and it is not necessary to fill all three. Possible sizes are in the interval of 0 to 100. Values out of this interval will be ignored.

Error and warning messages appear in status bar.

A special feature of many fields in this form is coherence between numeric fields and textual fields. For example, **Main/single size mode** and the corresponding **size(mm)** should be filled with values conforming the table *Grain Size* (click the button besides **size(mm)** to make the table visible). Consider the example **Main/single size mode** and **size (mm)**, these fields can be used in two ways:

1. User fills **Main/single size mode**, and then fills **size (mm)** considering the value chosen in **Main/single size mode**.
    - If the pressed numeric value is incoherent with the textual value and the user proceeds with <TAB> key, the **size (mm)** field will be made blank and a warning will be presented in the status bar. Example: Choose "**Medium Sand**" and "**1.5**" using <TAB>, the numeric field will be made blank and the warning "** This value must be between 0.25 and 0.5 **" will be presented in the status bar.
    - If the user enters the numeric value and press <ENTER>, the text of "**Main/single size mode**" will be modified according the numeric value. Example: Choose "**Medium Sand**" and "**1.5**" using <ENTER>, the text field will be changed to "**Very coarse sand**".
2. The second way is not to fill **Main/single size mode**, and fill **size (mm)**. This way the **Main/single size mode** text field will be be filled automatically according the pressed numeric value. Example: Pass the text field with <TAB> and enter "**1.5**" in the numeric field, the text field will be changed to "**Very coarse sand**".

In resume, there is coherence between numeric values and textual values. And the numeric value dominates the textual one.

Fields with this behavior are:

Text field	Corresponding Numeric field
Grain Size interval	size (mm)
Main/single size mode	size (mm)
#2 size mode	size (mm)
#3 size mode	size (mm)
#4 size mode	size (mm)
Sorting	Numeric Sorting
Packing	Packing Index (Packing Proximity)

The packing value can be automatically calculated based on the percent values of each contact type. With these fields filled, click on the button and the packing will be automatically selected. The system calculates the packing proximity as follow:

$$PP = \left(\frac{\%\,PC + \%\,LC + \%\,CC + \%\,SC}{\%\,GC + \%\,PC + \%\,LC + \%\,CC + \%\,SC} \right) \times 100$$, where PP = Packing Proximity, PC = Point Contact, LC =Long Contact, CC = Concave-Convex Contact, SC = Sutured Contact and GC =Grain/Non-grain Contact.

If the packing proximity has a value lower than 40%, then the packing is classified as *loose*; if it has a value between 40% and 55%, the packing is classified as *normal*, and if the value is higher than 55%, then the packing is *tight*.

The field **Grain size interval** does not allow the values to be switched, that means the values must be entered in order, the smaller size first and then the bigger size (inferior limit to superior limit). The limit field that is not filled (containing "0.0" or empty value) will be ignored and will not be checked, once it does not exist. The modal grain sizes informed below must be inside the defined interval. If you enter any invalid value, you will be warned at the status bar.

Another restriction is that the sum of **Gravel percent**, **Sand percent** and **Mud percent** should complete 100%. Otherwise it will you show a warning, but it will let you save anyway.

The **Clear** button clears all fields of the form.

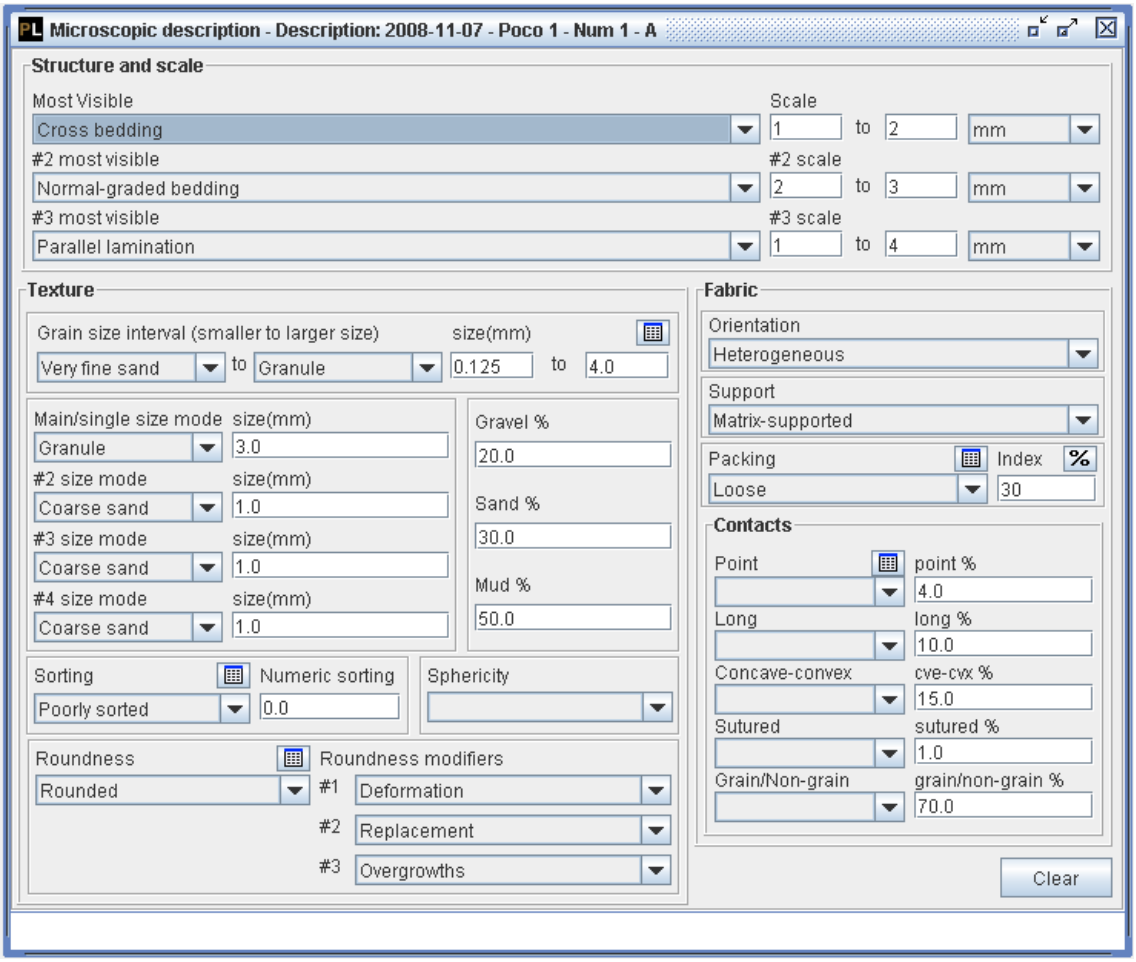


Figure 11.1. Microscopic Description Module

12. Additional Analysis

The **Additional Analysis** module is used to inform results or the existence and/or location of results from non-petrographic analysis performed on the analyzed description, such as: conventional **Petrophysics** (porosity and permeability can be directly informed in this window), special petrophysics (capillary pressure, mechanical or acoustic tests, etc...), X-ray diffractometry of whole-rock or fine fraction, scanning electron microscopy of secondary or backscattered electrons, isotope, chemical, biostratigraphic analyses, etc...

The **Clear** button clears all fields of the form.

Error and warning messages appear in status bar.

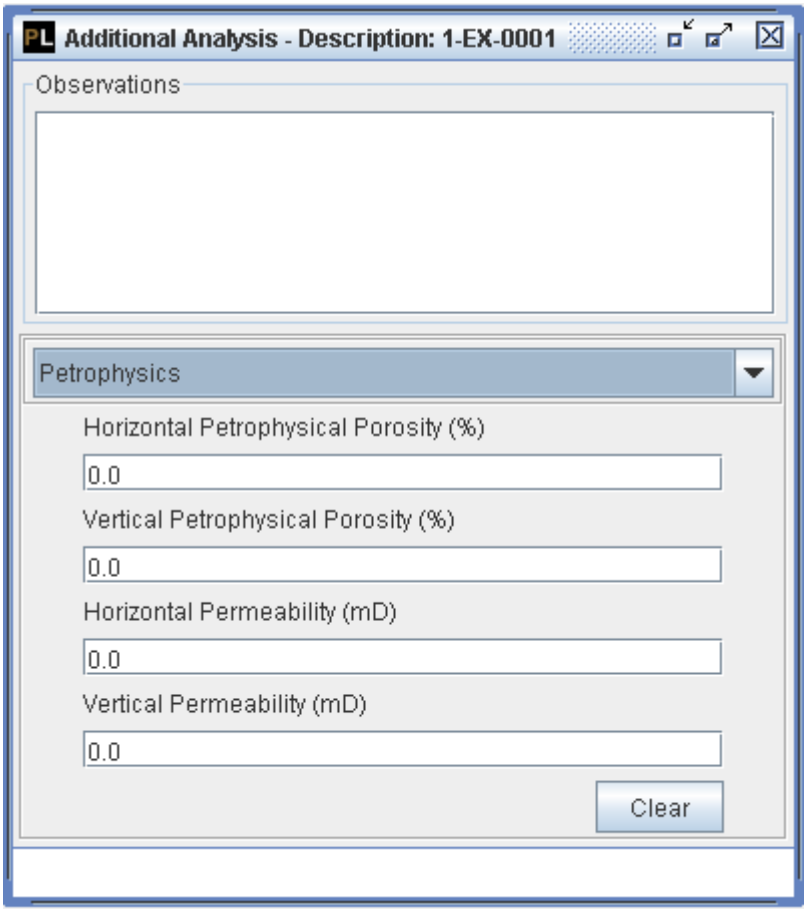


Figure 12.1. Additional Analysis Module

13. Analysis Request

The **Analysis Request** module is used to assign laboratorial analysis that must be performed over the thin-section that is being described.

For each selected analysis, a tip will be showed in order to guide the user on how the analysis objective must be informed. Besides the objectives, the user can assign pictures (previously imported on the description) to the requested analysis.

The **Add** button adds a new analysis request.

The **Edit** button allows to change the objetctives and pictures assigned to the analysis.

The **Delete** button removes an analysis request.

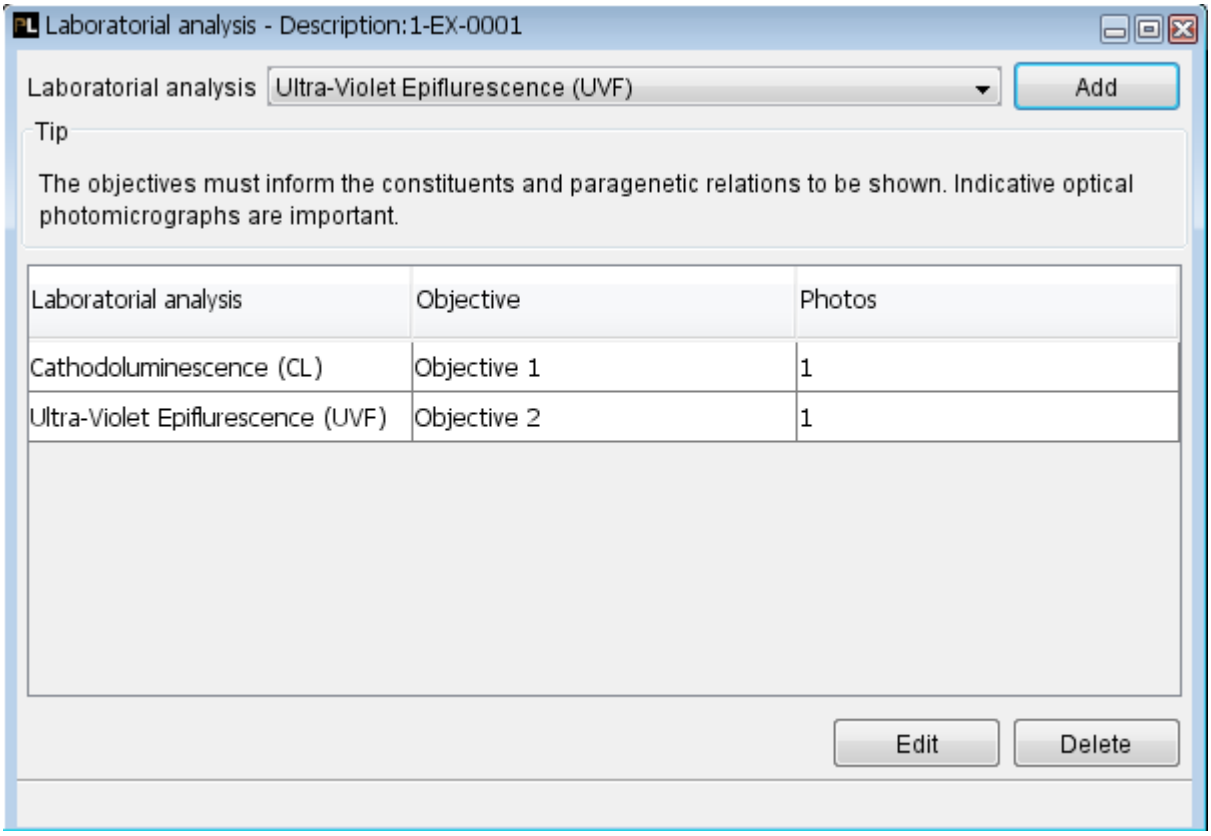


Figure 13.1. Analysis Request Module

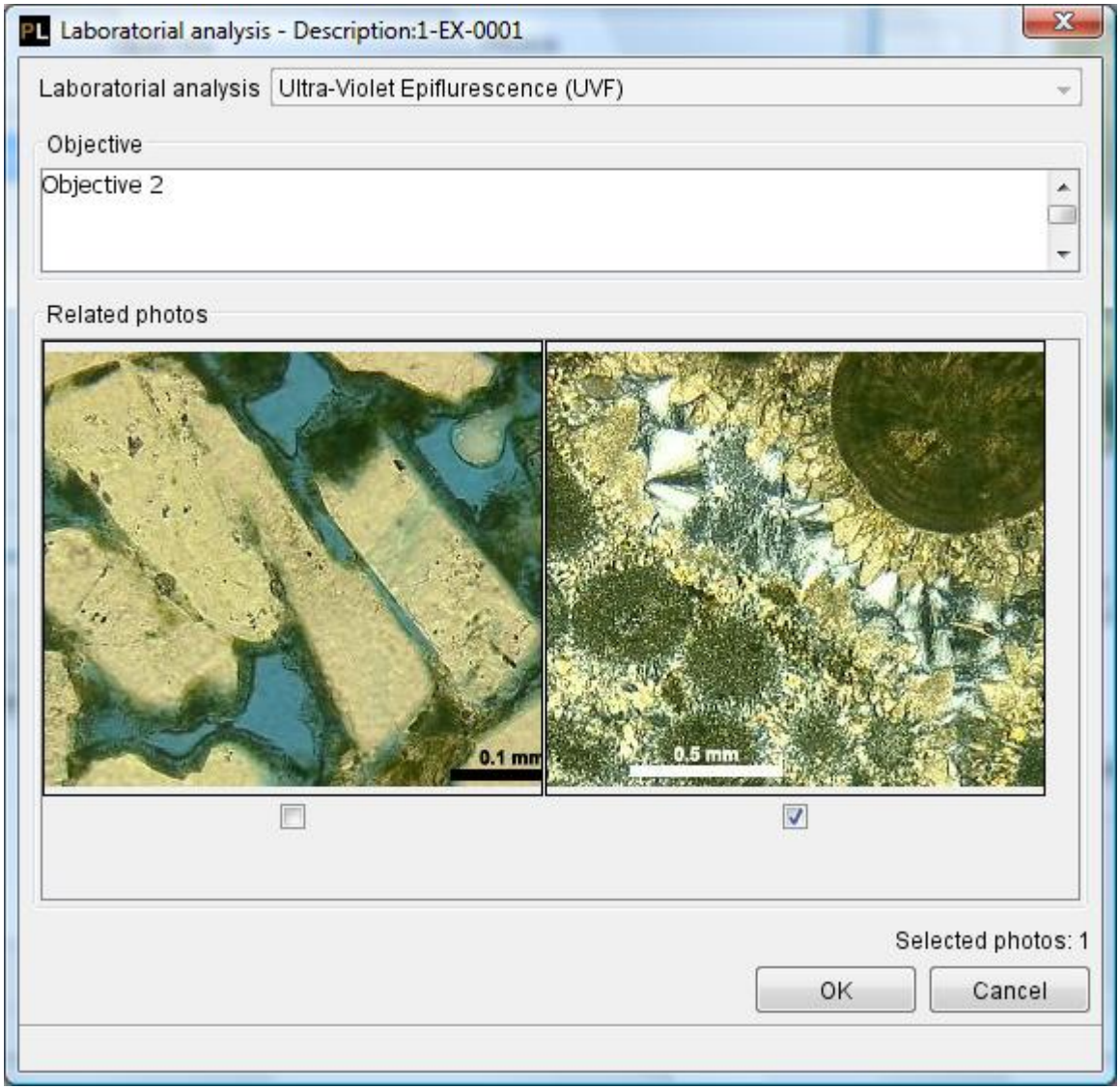


Figure 13.2. Analysis Request Update

14. Composition

The Composition Module supports the quantitative description of most aspects of the description, such as: constituents, geological faces of each one and, also, description and observations from geologists. Through this interface is possible a swift and flexible selection of primary or diagenetic constituents and porosity, and their characteristics.

The user can describe the constituents and register the number of points quantified during modal analysis. As well as the chosen constituent, other features can be entered by the user. Further information, such as percentages, is available to the user. This interface interacts with the user, issuing messages that enhance the importance of informing aspects such as location, habit and saving the description.

It is also possible using the electro-mechanical stage integrated to the system to control the quantification in an automatic way. For each point described in the Composition interface, the stage is moved in the microscope to view the next point.

14.1. Loading the Composition Module

In the main interface, you can load the Composition module through:

1. in menu **Description**, click **Composition** or
2. click the button.

Obs:

- To access this module, it is necessary to have a description opened in the PETROLEDGE system, otherwise menu item will remain disabled.

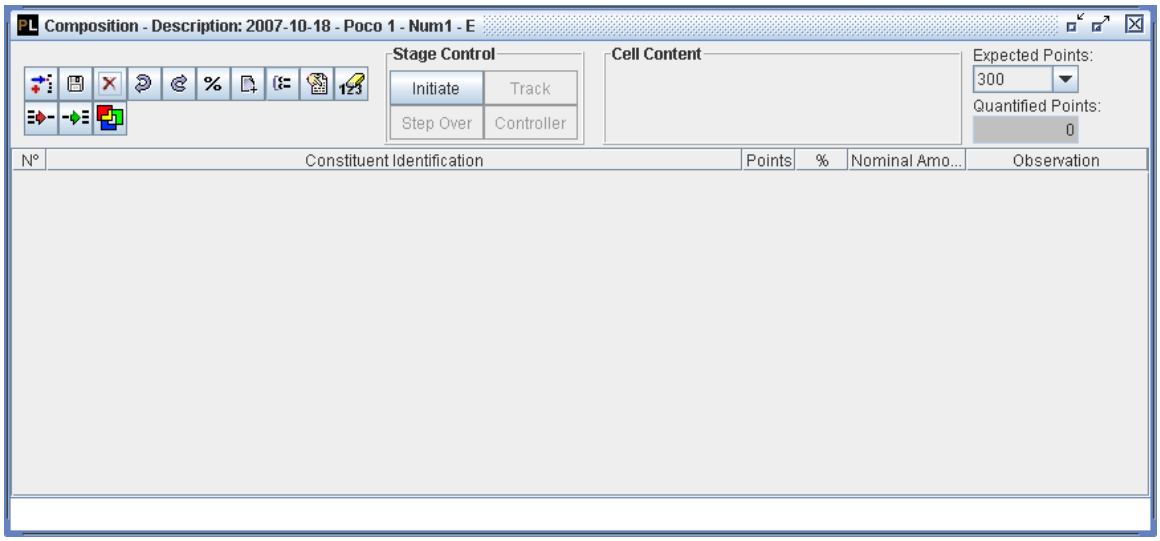


Figure 13.1. Composition Interface

14.2. Composition Interface Elements

The interface is divided in 4 main parts:

- Title Bar - See Title Bar in Common Interface Elements
- Button Bar
- Constituents Description Table
- Status Bar - See Status Bar in Common Interface Elements

14.3. Button Bar

In the figure bellow, you can see the button bar of the **Composition** interface.

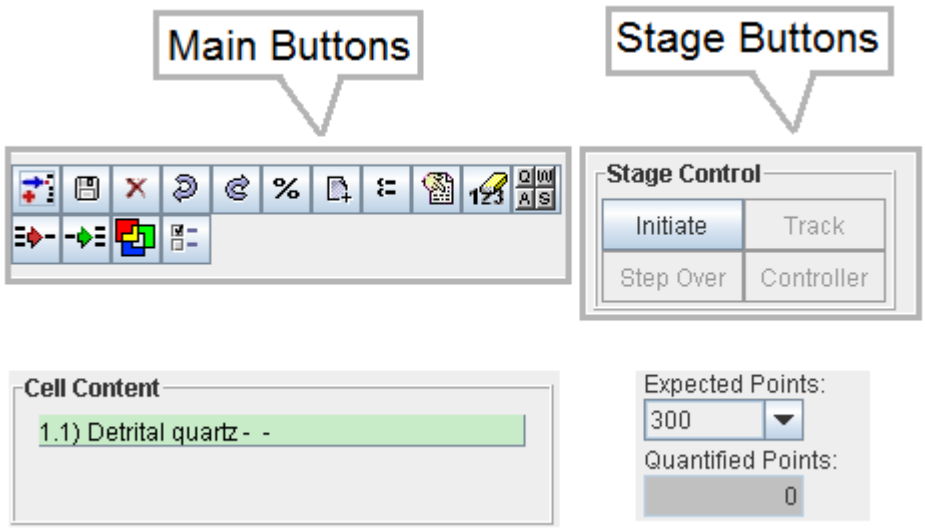


Figure 13.2. Button Bar

This bar has 4 divisions:

14.3.1. Main Buttons

Insert button allows add a new constituent in the description. When you click on this button, a menu will be exhibited to choose the mineral kinds that compose the constituent. For example: the figure below shows how to insert a new constituent of the kind **Diagenetic feldspar**.

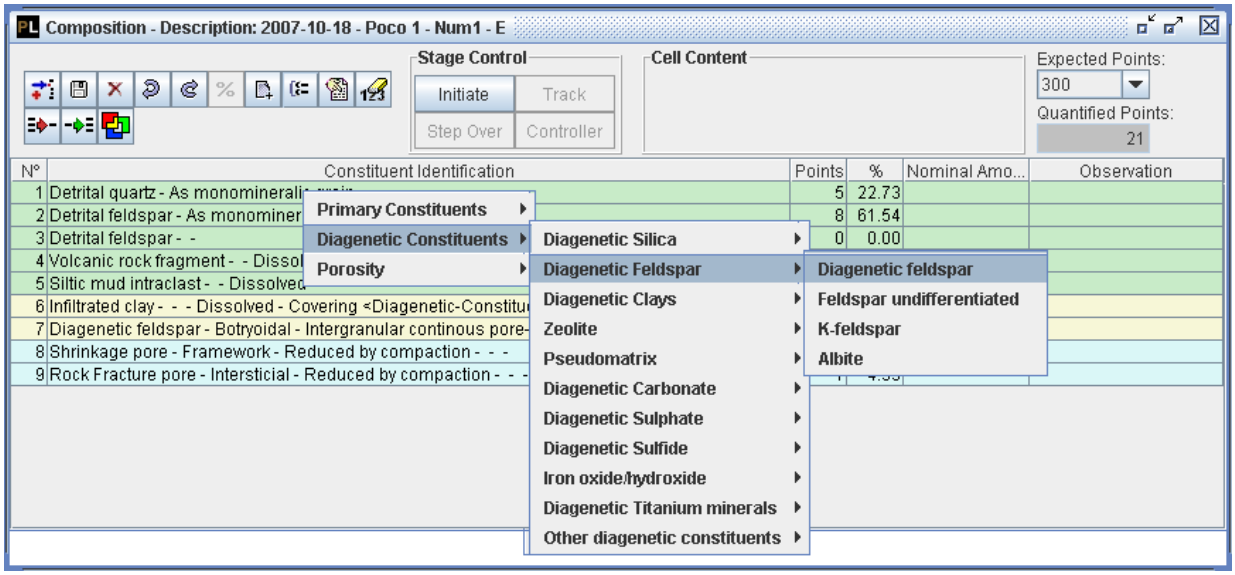


Figure 13.3. Constituent Insertion

Deletion of constituents button allows deleting one or many constituents form Composition table. To do this, select the constituents you want to delete and then click this button. When deleting a group, a warning window will be exhibited.

Manual percentage button should be selected when you want to supply manually the percentage of a description constituent. For example, if you are describing a previous analyzed description.

Manual entry points button allows informing manually the points of a previous analyzed description. When you opt for manually entry points, you cannot use the stage to enter points.

The **group/ungroup constituents** button allows viewing constituents grouped or separately.

When the button looks like , you are operating in the grouped mode.

When the button looks like , you are operating in ungrouped mode.

In grouped mode, constituents that belong to groups are not exhibited, in this mode you only view the groups and constituents that do not belong to any group. The group line is presented in the same color of the constituents (for example, it will be a green line, if formed by **Primary** constituents) and with font in red.

In grouped mode, you can select a set of constituents of the same type and then press <CTRL+G> or instead, click the **Group** button to create a group with the selected constituents. You might also want to ungroup the constituents contained in a

group. To perform this operation, you must select the group and then press <CTRL+U> or click the **Ungroup** button.

In ungrouped mode, groups are not exhibited, only constituents.

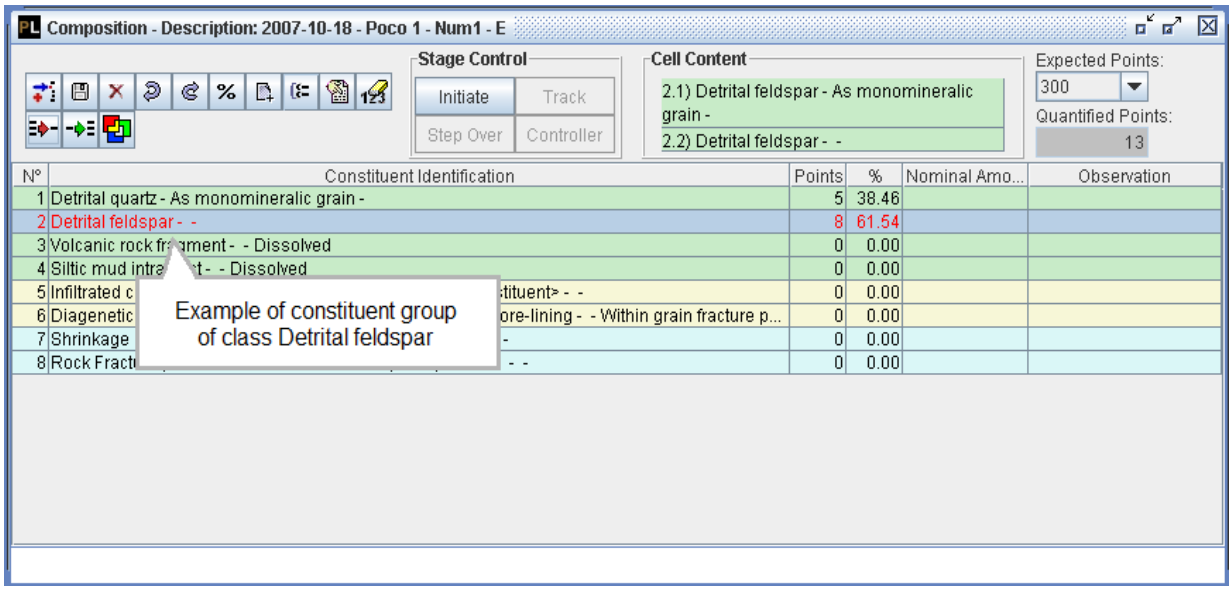


Figure 13.4. Grouped Mode

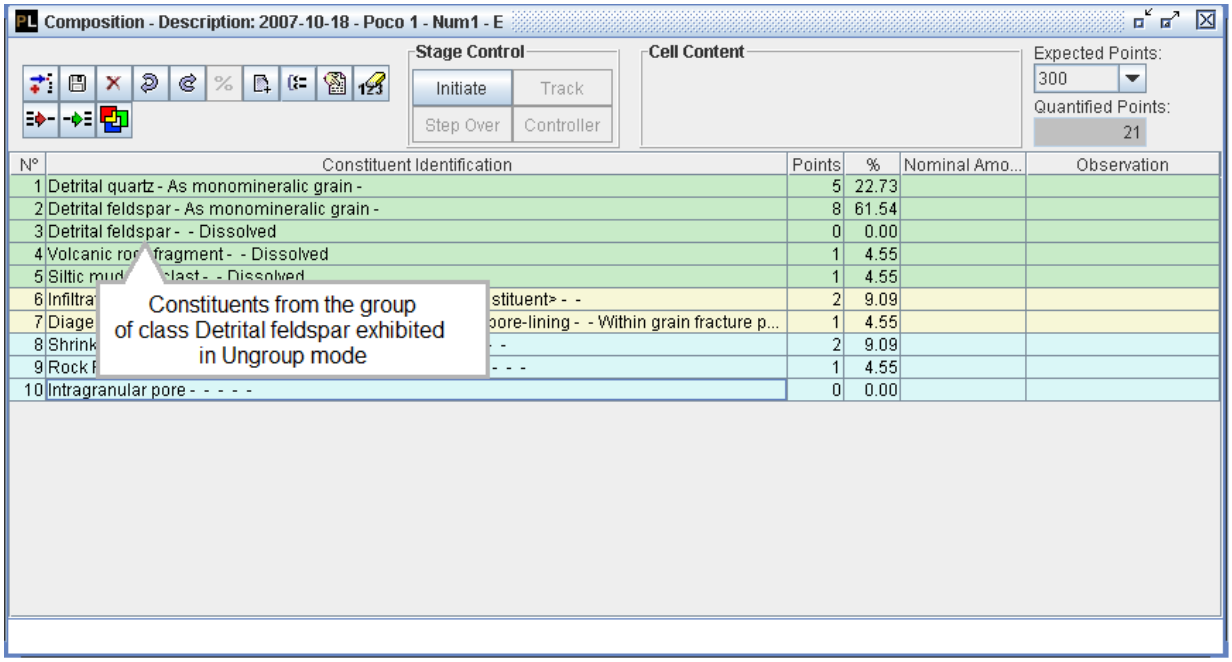


Figure 13.5. Ungrouped Mode

Knowledge Edit button opens the Knowledge Editor. * Available only in some versions.

Clear Points button is used to clear the fields "Points" and "%" in all rows of the table at once. It can be used to save very similar description descriptions, where the constituents remain the same but the points amounts are differents. The action of this button can not be undone.

- Available only in some versions. **Keyboard Shortcuts** button opens the keyboard shortcuts configuration window. In this window, you can define 20 shortcut keys that, once pressed, will immediatelly increase the number of points of one constituent described in the Composition table and configure if you want the shortcuts enabled or disabled.

button allows to configure the composition window preferences like, for example, the number of clicks you want to perform to increase the points amount in the table.

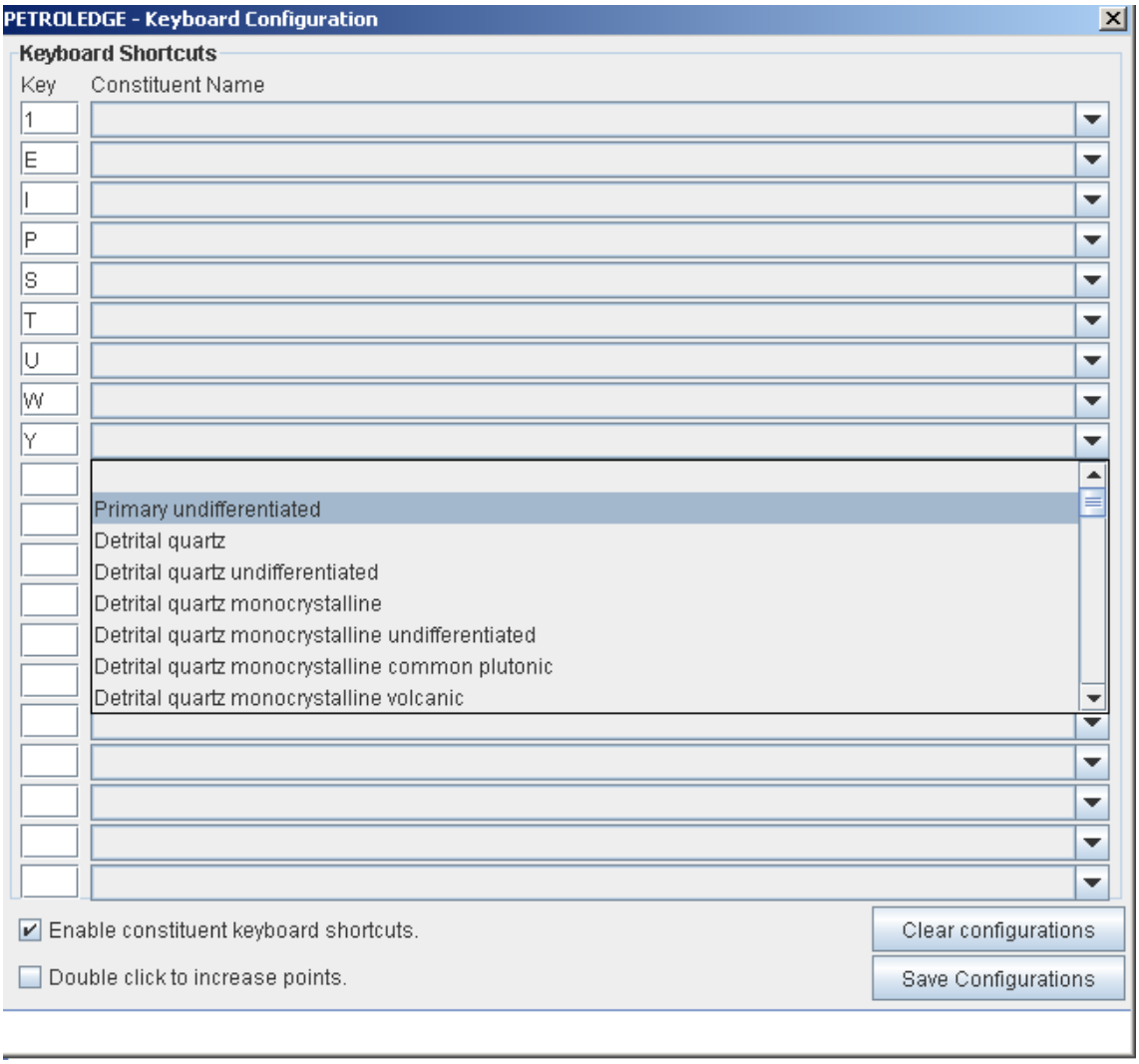


Figure 13.6. Keyboard Shortcuts Configuration

Save button is used to save a description in the database for later recovery. If you save a description, you can close the program and continue to describe the description in Composition interface another time. If the description does not have a **Location**, a message box asks if you want to enter this information before save it.

Undo and **Redo** buttons are used to undo and redo actions.

14.3.2. **Stage Buttons**

They handle the stage in the semi-automatic mode. In the Composition interface the buttons located at the **Stage Control** panel are used to initiate and configure the stage operation mode.

The **Initiate** button is used to open the main window of stage controller, where it is configured the axle to be quantified, the initial point to be analyzed and the step size used to movement the stage.

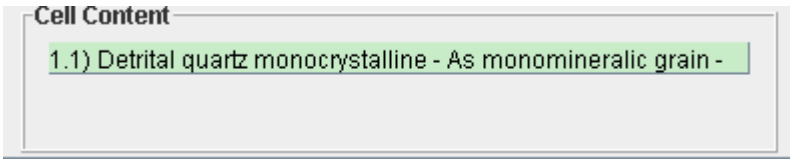
The **Track** button is used to change the track to be quantified on the thin section by the microscope.

The **Step Over** button is used when the current point may not be quantified. This operation only moves to the next point without storing a constituent value to the current point.

The **Controller** button opens the main window of stage controller. This button is enabled after the execution of **Initiate** operation.

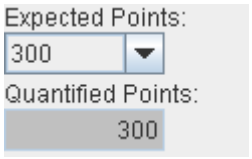
14.3.3. **Cell Content**

In the table header, there is a viewer of cells. This viewer shows the content of a selected cell. If you select a cell of a constituent group, the viewer will show a column of constituent cells that compose the selected group cell.



14.3.4. **Points Quantified**

Describe the number of total number of points quantified in the description.



14.4. Basic Tasks within the Composition Interface

14.4.1. Filling the Composition Table

Steps to fill the table:

1. In the header of the table or using the **Insertion** button: you can choose **Primary**, **Diagenetic** and **Porosity** constituents. You must select with the mouse within each class of constituent. The selected constituent is automatically added to the Composition table;
2. In the **Constituent Identification** column: you can add information to each constituent, such as **Location**, **Habit** and others through a double click on the first column of the table;
3. In the **Points** column: you can increase points to one constituent by a double click with the left button of mouse. When you desire to decrease one point from the total, you must use <ALT+Click with left button of mouse>;
4. In the **Percentage** column: this column will automatically update the input of points or you can still choose to manually enter the percentages. This can happens when it already exists a description of a description on a report. For this situation it is enough to click in the **Percentage(%)** button to indicate this preference for this description;
5. In the **Nominal Amount** column: this column presents some options for semi-quantitative data entry evaluated by visual comparison. Just select the desired one;
6. In the **Observation** column: double click with the left button of mouse, the system shows an interface for the input of the desired description.

When you finish the description of the description in **Composition** interface, click in the **Save** button. If you try to close it without saving the description, the system will alert you with a message. If you described a description, but you did not save it and you decide to describe a new description, the system will alert you to save the old one.

14.4.2. Using the Stage

If you have the hardware, an electromechanical stage controller, you can enable the automation of the mechanical stage movements. To use the stage within the **Composition** module is necessary to do the following steps:

1. Turn on the electromechanical stage. It will automatically goes to the initial physical extremities of each axis;
2. Click the **Initiate** button at the composition interface to start the Stage Controller interface;
3. A selection dialog will be shown. Select the operation mode of stagelede: free or advanced;

14.4.2.1. Free Mode

This mode provides an interface for stage movement, but it does not record the log of movements.

When a point is quantified, stage moves automatically to the next point.

14.4.2.2. Advanced Mode

This mode provides a lot of functions related to the log of the movements during point-counting.

1. In the Stage Controller interface, configure the axle along which point-counting will take place and the step size. After that, click the **Set** button.
2. Using the arrows buttons on Stage Control interface, move the stage to the first point that you want to quantify. This is the first point you will add to the composition. The path from the origin to this point will appear in yellow color on the map. .
3. Start the constituent description at the composition interface;
4. After each inserted point in column **Points**, the electromechanical stage moves automatically to the next point. The step size can be changed any time during the point quantification process;
5. The automatic movement is done only within a track. To change the track you can use one of the following options:
    1. Move the stage to another track using the arrow buttons and press the **Orientation** button, so the arrow in the button points towards the direction you want the stage to move to;
    2. Press the **Track** button at the composition interface and choose the orientation you desire to move the axis orthogonal to the automatic point-counting movement. If you want you can change the direction of movements by marking the option **Change direction of main axle?**;

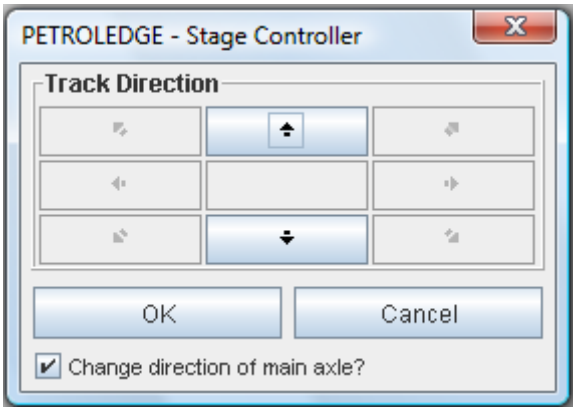


Figure 13.7. Track Direction

6. The stage goes to the next track and the analysis can continue until finishing the point-counting.

While in the course, a log of the movements of the stage is created to resume or analyze the previous work if necessary.

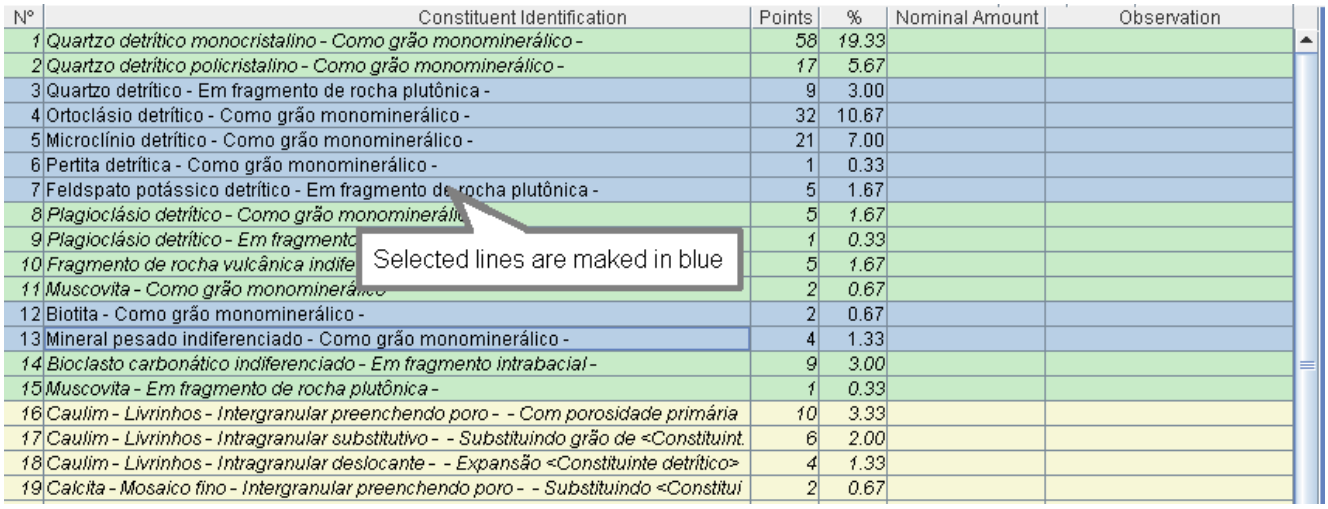
If you are using the electromechanical stage in semi-automatic mode, that means, controlled by computer, and then modify the course manually, you will lose the log and the exact position on the plate.

14.5. Handling Composition Table Lines

14.5.1. Constituent Selection

In the module Composition you can select one or multiple constituents.

- To select one constituent, click with the left button of the mouse in the table line with the constituent;
- To select a sequence of lines, click in the first constituent, press and hold the <SHIFT> key and select the last element;
- To select randomly constituents from the table, just select the lines with the <CTRL> key pressed;
- To remove the line from a selection, just click again with the <CTRL> key pressed.



N°	Constituent Identification	Points	%	Nominal Amount	Observation
1	Quartzo detrítico monocristalino - Como grão monominerálico -	58	19.33		
2	Quartzo detrítico policristalino - Como grão monominerálico -	17	5.67		
3	Quartzo detrítico - Em fragmento de rocha plutônica -	9	3.00		
4	Ortoclásio detrítico - Como grão monominerálico -	32	10.67		
5	Microclínio detrítico - Como grão monominerálico -	21	7.00		
6	Pertita detrítica - Como grão monominerálico -	1	0.33		
7	Feldspato potássico detrítico - Em fragmento de rocha plutônica -	5	1.67		
8	Plagioclásio detrítico - Como grão monominerálic	5	1.67		
9	Plagioclásio detrítico - Em fragmento	1	0.33		
10	Fragmento de rocha vulcânica indife	5	1.67		
11	Muscovita - Como grão monominerálico	2	0.67		
12	Biotita - Como grão monominerálico -	2	0.67		
13	Mineral pesado indiferenciado - Como grão monominerálico -	4	1.33		
14	Bioclasto carbonático indiferenciado - Em fragmento intrabacial -	9	3.00		
15	Muscovita - Em fragmento de rocha plutônica -	1	0.33		
16	Caulim - Livrinhos - Intergranular preenchendo poro - - Com porosidade primária	10	3.33		
17	Caulim - Livrinhos - Intragranular substitutivo - - Substituindo grão de <Constituint.	6	2.00		
18	Caulim - Livrinhos - Intragranular deslocante - - Expansão <Constituinte detrítico>	4	1.33		
19	Calcita - Mosaico fino - Intergranular preenchendo poro - - Substituindo <Constitui	2	0.67		

Figure 13.8. Example of Multiple Selection in Composition

14.5.2. **Copying and Pasting Lines**

- To copy one or more constituents, just select them and copy using <CTRL+C>;
- To paste, just use <CTRL+V>. Pasted elements are inserted in the table after the last constituent of the same kind. For example: a constituent of **Primary** type will be inserted after the last **Primary** constituent.

14.5.3. **Deleting Lines**

- Select the lines and then press <DEL> key;
- If the selected line is a group (see Grouping constituents), you will be asked if you really want to delete the group. If you confirm, the group and its constituents will be deleted.

14.5.4. **Moving Lines**

- You can move only one line at a time.

- To move a line, click in the line and move the mouse with left button pressed (the line will follow the mouse until you release the button or it reaches the limit of its type group).

14.5.5. **Grouping Constituents**

You can only group constituents of the same type.

- To group constituents:

1. enter in the Group mode (view Group/Ungroup button for more details);

2. select the constituents you want to group;
3. use the combination <CTRL+G>.

- To separate constituents:

1. enter in the Group mode (view Group/Ungroup button for more details);
2. select the constituent group you want to separate;
3. use the combination <CTRL+U>.

- To view the constituents of one group, just click the **Group/Ungroup** button. If you click the same button again, you will see the groups again. Notice that clicking the **Group/Ungroup** just allows viewing the group and its constituents and not to separate the elements from the group.

14.5.6. **Undo/Redo Actions**

In the composition module you can undo or redo an action.

- To undo an action:
  1. click on the button or
  2. use the combination <CTRL+Z>.
- To redo an action:
  1. click on the button or
  2. use the combination <CTRL+Y>.
- Notice that you can just to undo/redo an action on table lines. For example, you can undo/redo a deletion of a line.

15. Rock Classification

The Rock Classification Interface function is to make textural, compositional and provenance classification of descriptions in *PETROLEDGE* system, besides calculating a Total Table, that gives a general view of description characteristics.

15.1. How it Works?

The module of rock classification uses the same procedure of classification based on triangles that a geologist executes:

- Survey of macroscopic description, microscopic description and composition of a description;
- Selection of a classification method to be applied;
- Selection of described constituent by the selected classification method;
- Calculation of a point (a tricoordinate value);
- Plotting the point on the selected triangle and obtaining a classification.

The obtained classifications for each method are automatically saved.

15.2. Interfaces Presentation

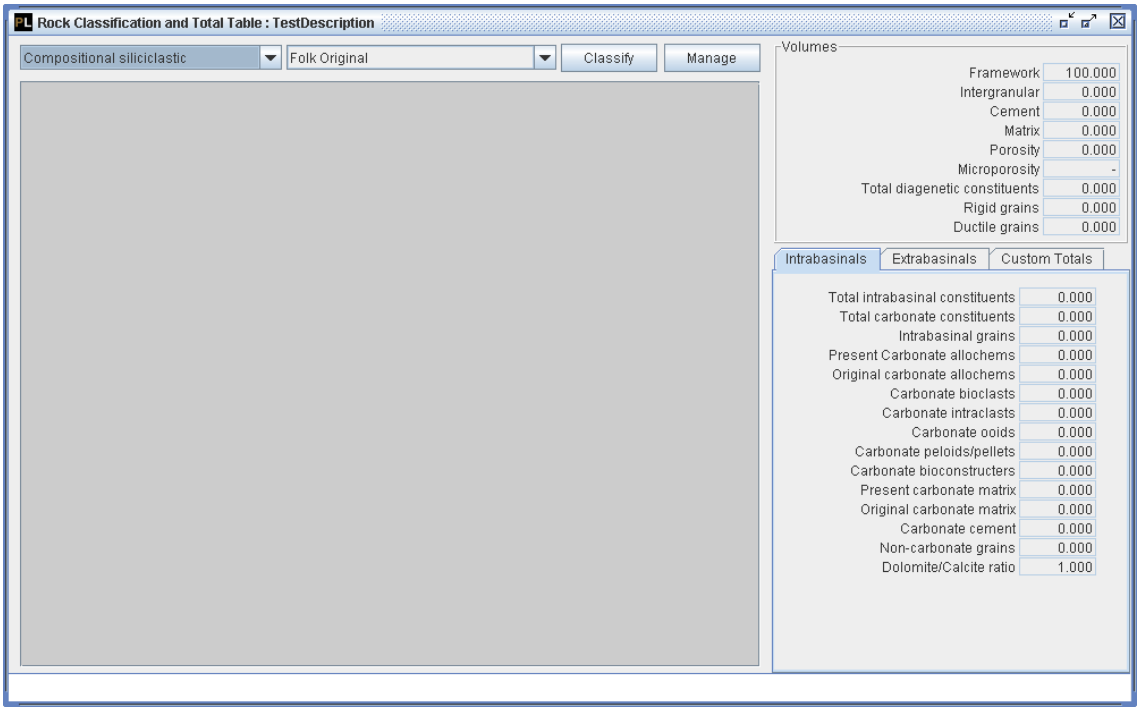


Figure 14.1. Rock Classification Module

In the main window there is space for working with classifications. All classification data are calculated with information from the description indicated by window title and any warning will be sent to the status bar in the bottom of the interface. The interface has classification and methods options. The interface also presents:

- **Classify** button: executes and exhibit the selected classification;
- **Manage** button: shows a list of all the classifications done for the current description;
- **Volume**, **Extrabasinal Constituents**, **Intrabasinal Constituents** and **Custom Totals**: together, they form the Total Table. Data are calculated, exhibited and automatically saved when the Classification module is loaded.

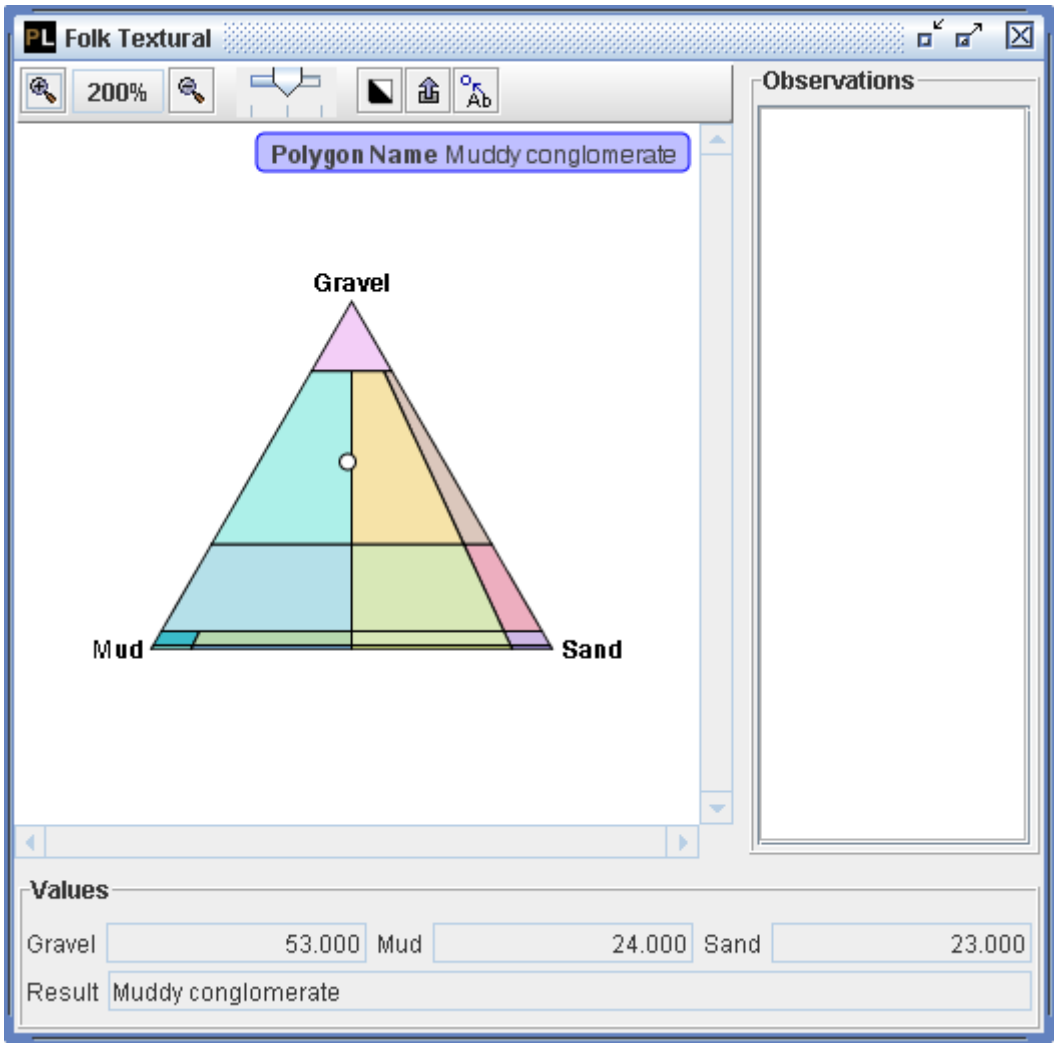


Figure 14.2. Siliciclastic Classification Window

In the classification window are presented specific data calculated for each classification method. The window is composed by:

- and buttons: respectively are buttons to **zoom in** and **zoom out**. They are used to increase or to reduce the size of the visualization triangle.
- The button is used to increase or decrease the size of the point plotted on the triangle;
- The button shows the triangle without colors;
- The button , is used to export the triangle as a picture;

- The button is used to enable and disable an annotation with the name of the description. It is also possible to enable it by clicking on the point;
- The text box **Polygon name** indicates the name of the triangle polygon under the mouse pointer ;
- **Values**: field with the point coordinates calculated and weighed;
- **Result**: indicates the classification result, depending on the used method;

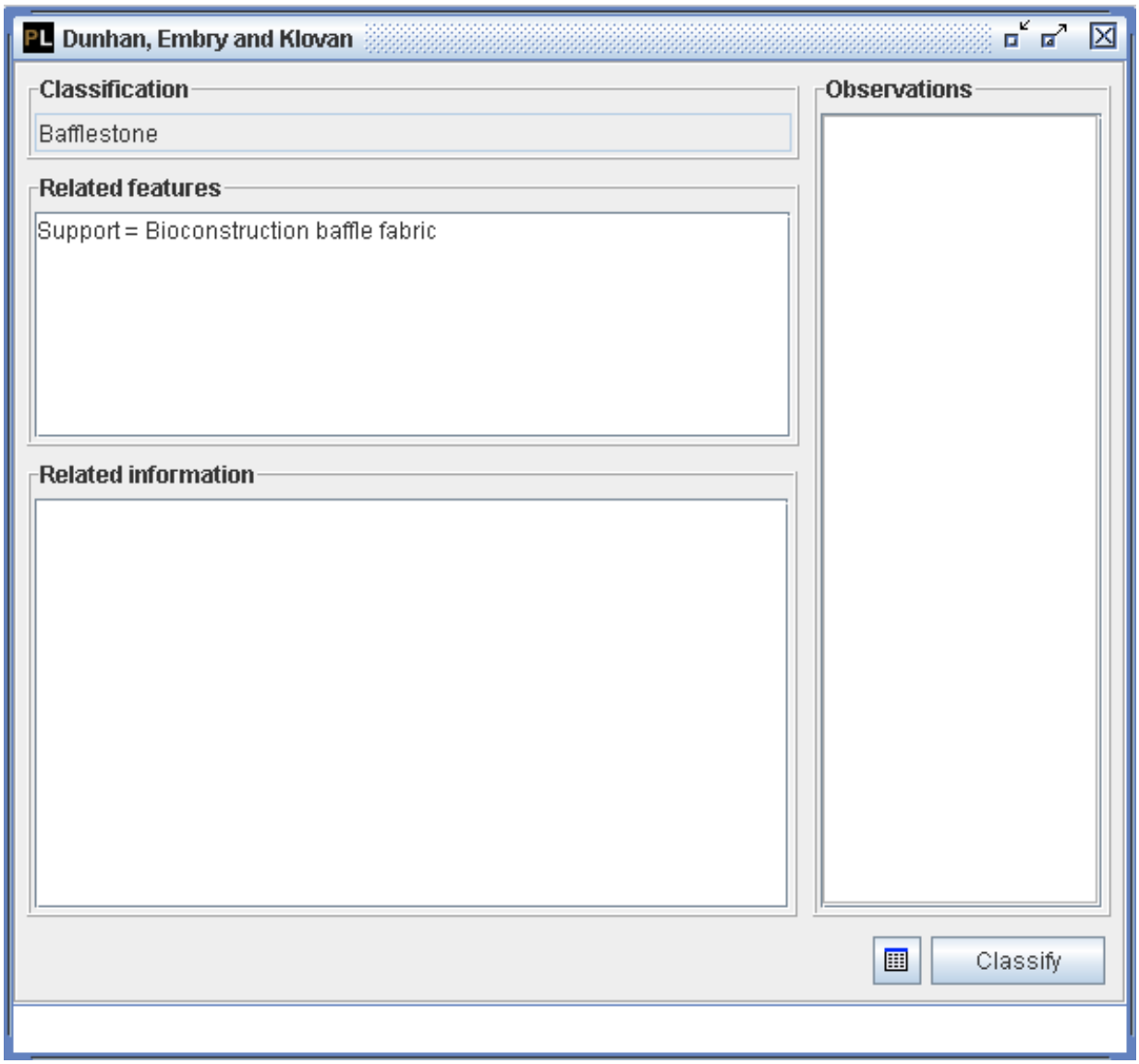


Figure 14.3. Carbonate Classification Window

The carbonate classification window presents specific data calculated for each classification method. The window is composed by:

- **Classification**: indicates the obtained result for the used method;
- **Related features**: shows what are the features present in the sample that support the given classification;

- **Related information**: shows information related to the obtained classification;
- **Observations**: field where observations about the classification can be made;
- **Button** : shows the table containing the classification possibilities for the used method;
- **Button Classify**: runs the inference process.

15.3. Usage

15.3.1. Loading the Module

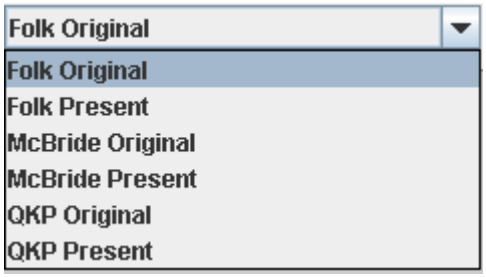
1. In menu **Interpretation**, choose **Rock Classification**;
2. The **Total Table and Classification** window (the main Rock Classification module window) will appear on main PETROLEDGE window.

Obs. 1: To access the Rock Classification Module a description must be opened in PETROLEDGE, otherwise the menu item will remain disabled.

Obs. 2: Using other modules with the Rock Classification Module open is allowed but not recommended, since change in description properties can make classifications inconsistent with the new descriptions. It is recommended to save the description before classifying.

15.3.2. Executing a Classification Method

1. With the Rock Classification Module opened, select the classification type and after choose the method to be applied and then click the **Classify** button;



2. A window for the new method will be opened in the center of the Rock Classification Module, with all the calculated data, as well with the specific classification triangle.

Obs. 1: If the description does not have the minimum needed data to use the method (at least one constituent defined by the method), the Rock Classification Module will show the triangle without any classification point and a specific warning will be showed in the status bar.

Obs. 2: Additionally to the compositional classification, the textural classification is calculated. If it can not be calculated, the triangle will be shown without a classification point and a specific warning will be presented in the status bar.

Obs. 3: The carbonate rock classification does not use triangles diagrams. If it is not possible to calculate a message will be presented on status bar.

15.3.3. **Saving a Classification**

1. After a classification is performed, the classification is automatically saved. If observations are updated, a dialog will ask about saving the modifications when the window is closed.

Obs. 1: PETROLEDGE system distinguishes compositional and provenance classification, saving information in specific database places.

Obs. 2: If a classification was already saved, the Rock Classification Module will overwrite the new classification on the old one, keeping the old observation text.

Obs. 3: Total Table information are saved automatically after being calculated, overwriting the old values.

16. Diagenetic Interpretation

The Diagenetic Interpretation Module evaluates the provenance of rock sediments. Through this interface is possible to verify the diagenetic environment formation of a rock.

16.1. Loading the Interpretation Module

In the main interface, you can load the Diagenetic Interpretation module through:

1. in menu **Interpretation**, click in **Diagenetic Environment Interpretation**.

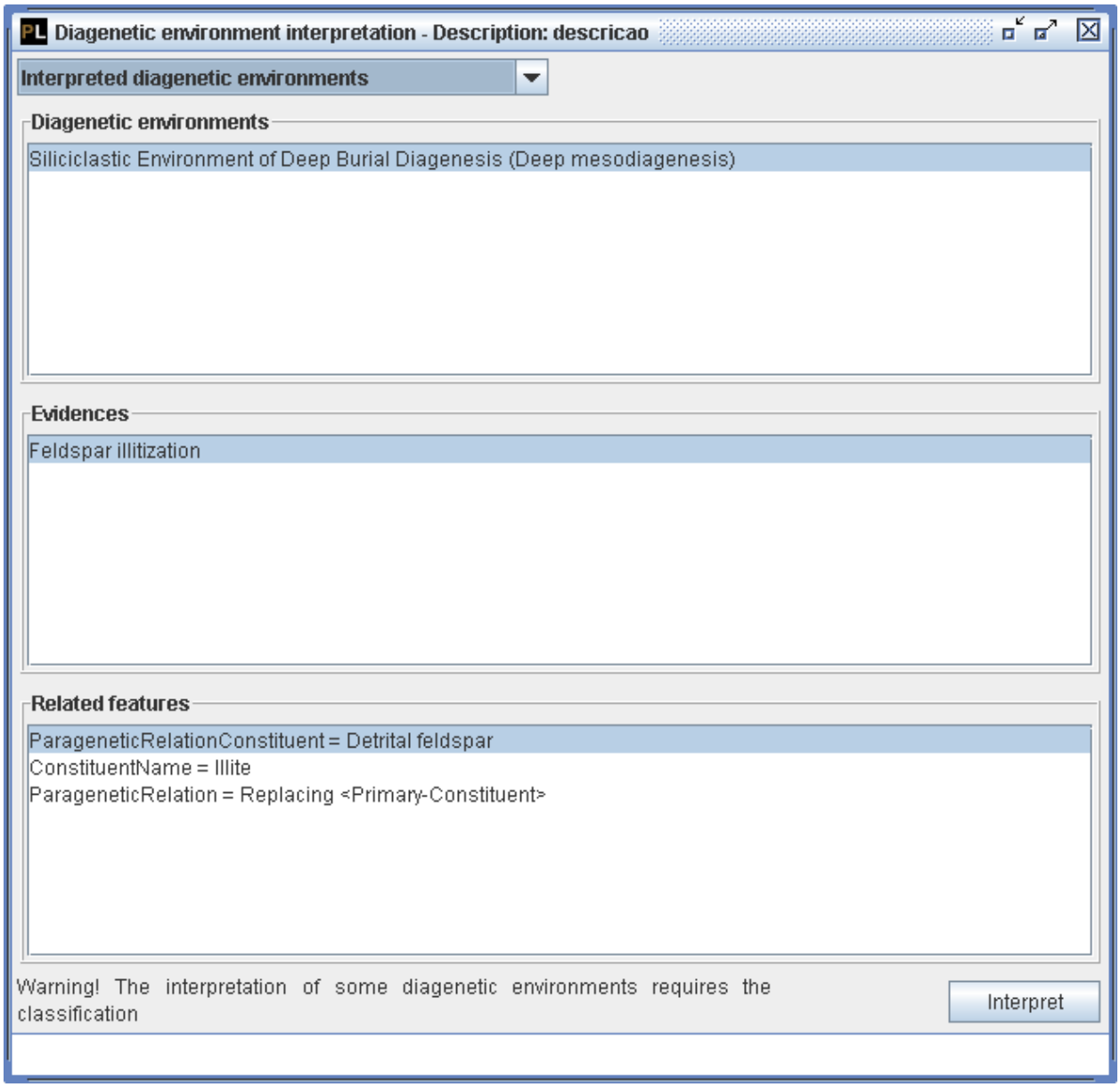


Figure 15.1. Diagenetic Interpretation

16.2. Basic Tasks

16.2.1. Generating Diagenetic Interpretation

The Diagenetic Interpretation of a description is automatically generated when the interface is showed. It is possible to select the diagenetic environment interpreted and diagenetic environment with some evidences. Through diagenetic environment it is possible to check evidence and features, it is necessary:

1. Select the environment to check evidences;
2. Select the evidence;
3. The features are showed.

16.2.2. Saving a Description Diagenetic Interpretation

To save a description Diagenetic interpretation, follow the steps bellow:

1. Click on Save button.

All interpretations generated for the description will be saved as well as the partial results of the interpretation This information is used to create the reports generated by the software.

16.3. Elements of Diagenetic Interpretation Interface

The interface is divided in 6 main parts:

- Title Bar - See Title Bar in Common Interface
- Diagenetic Environment Interpreted or with some Evidences Selection Region
- Diagenetic Environment Information Region
- Evidences and features Regions
- Action Buttons
- Status Bar - See Status Bar in Common Interface

16.3.1. Diagenetic Environment Interpreted or with some Evidences

Select the option interpreted diagenetic environment, diagenetic environment with some evidences founded. To select an environment, click on the desired environment in the list.

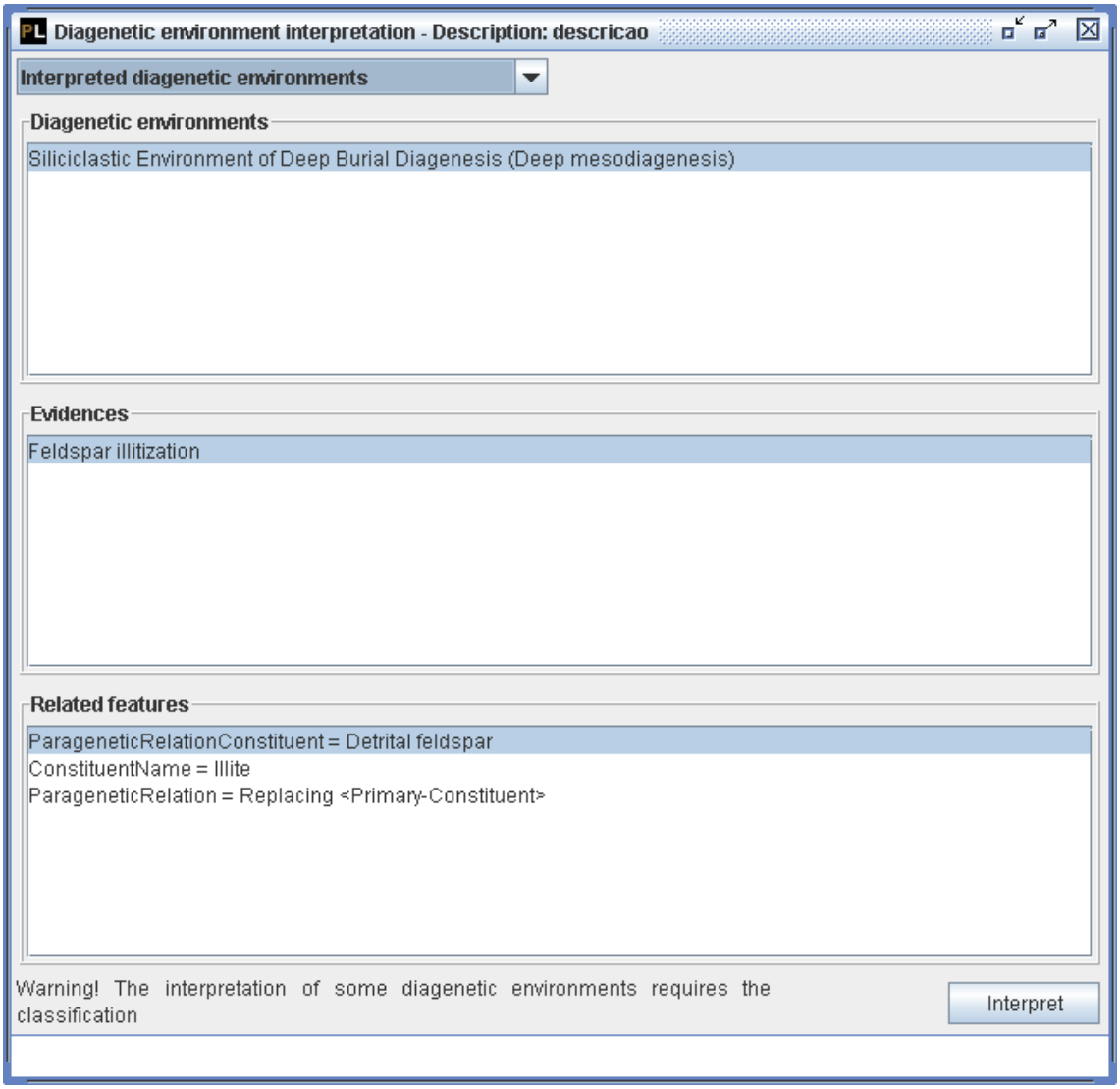


Figure 15.2. Diagenetic Environment Inference Module

16.3.2. Diagenetic Environment Information Region

The Information Region about diagenetic environments found in the description.

16.3.3. Evidences and Features Regions

The Evidence Region of determined environment and features of determined evidence.

16.3.4. Action Buttons

The Diagenetic Environment Interpretation Interface is composed of one button:

- **Interpret**: this button performs again the interpretations. The results are included in the description's reports.

17. PetroQuery

This tool allows you select and query descriptions previously stored in the system's database. You have access to attribute values of any concept that compound a description and can filter groups of descriptions.

17.1. Simple Query

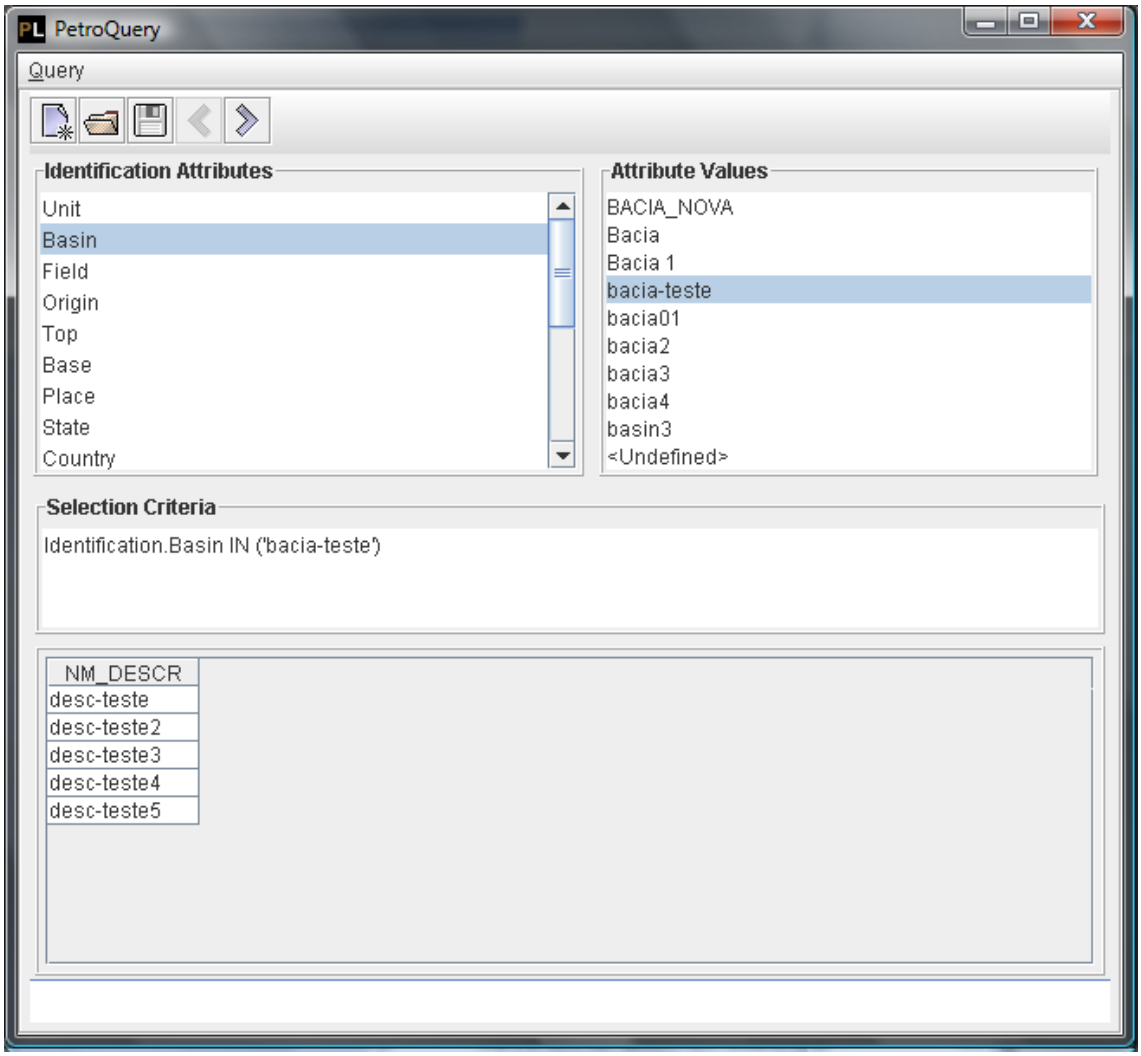


Figure 16.1. Initial Query Module

In this screen the user has available all attributes of the Identification concept to select relevant values for the query.

How to use:

1. Select one identification attribute from the description in **Identification Attributes** to exhibit a value list in the **Attribute Values** list;
2. In **Attribute Values** list, select relevant values for the query, the tool will present the selected criteria in the **Selection Criteria**;

3. Descriptions that satisfy the defined criteria are exhibited in the table in the low region of the interface (in the figure above, the region with a list of **Descriptions**);
4. If you want to delete a selection criterion, just select the criterion in **Selection Criteria** list and press the <DEL> key;
5. If you want to access all concepts that compound the description, go to the advanced query screen (use the button).

17.2. Advanced Query

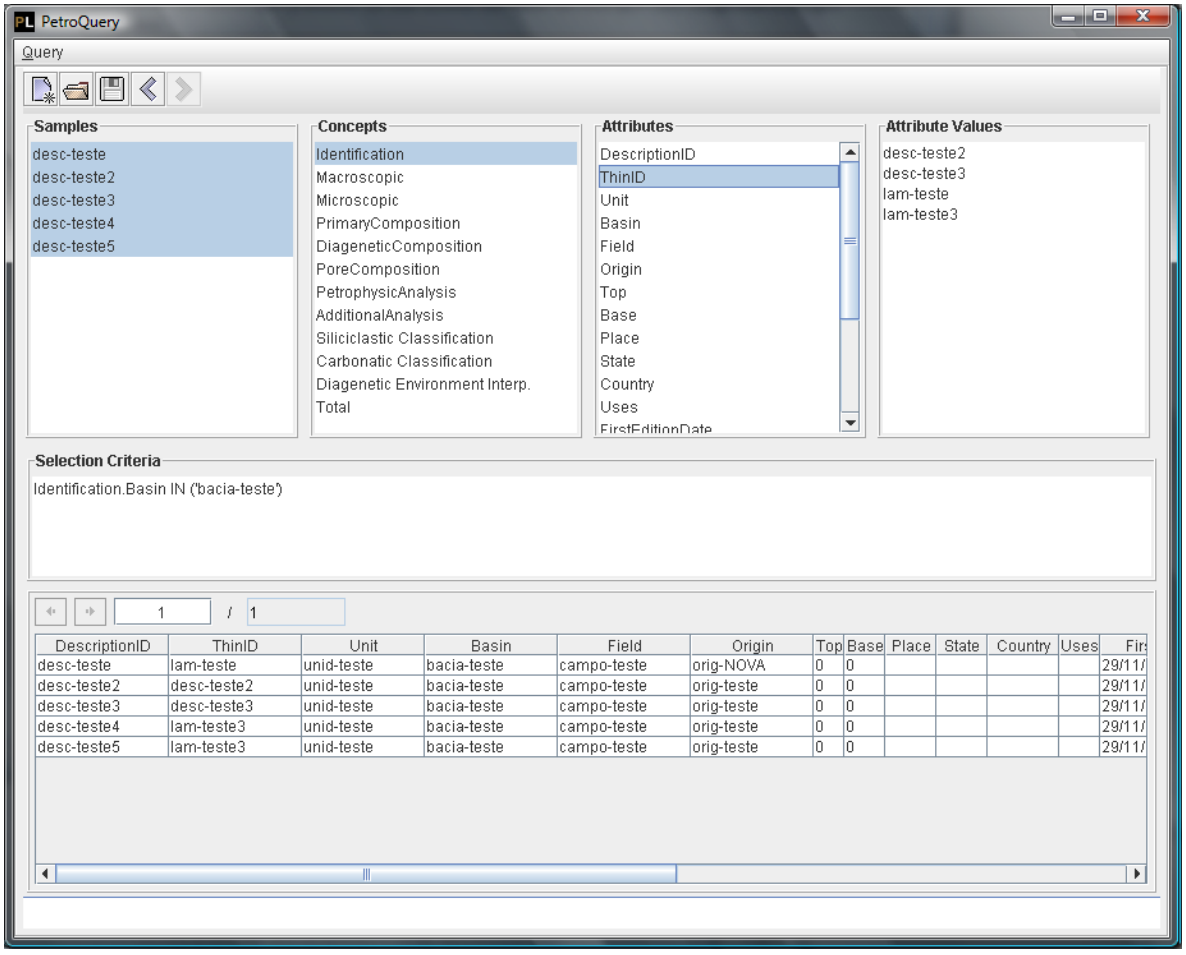


Figure 16.2. Advanced Query Module

In this screen the user has available all concepts that compound a description description.

How to use:

1. In the **Descriptions** list are exhibited names of all description descriptions in accord with the criteria defined in the previous screen. Select the ones you want to see more information;
2. In the **Concepts** list are exhibited all concepts that compound a description description. Select one;

3. After choosing a concept, the **Attributes** list is filled with a list of attributes that compound this concept and descriptions that satisfy the defined criteria are exhibited in the table in the low region of the interface;
4. If you select an attribute in the **Attributes** list, the values in the set of selected descriptions of this attribute are exhibited in the **Attribute Values** list;
5. Select one or more values in **Attribute Values** list to restrict the set of queried description descriptions. The selection of attribute values generates new selection criteria that are exhibited in the **Selection Criteria** list;
6. If the value is numeric, an option group (see figure below) allows restricting the interval of values.

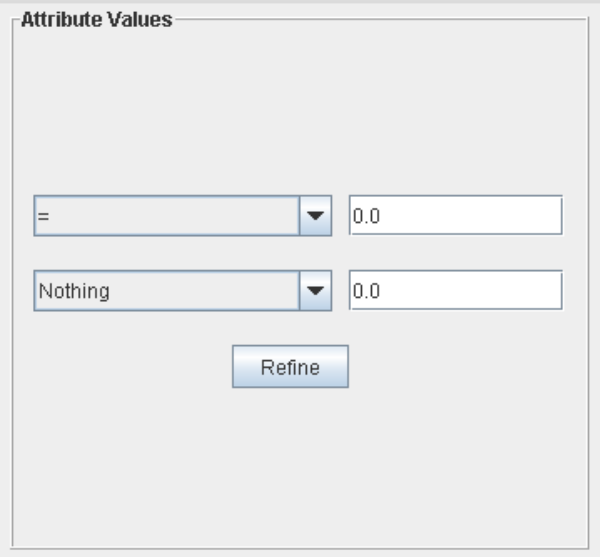


Figura 16.3. Restriction Group Option of Numeric Values

17.3. Saving Query

After creating a query, you can save it using the button, then the following dialog box will be showed:

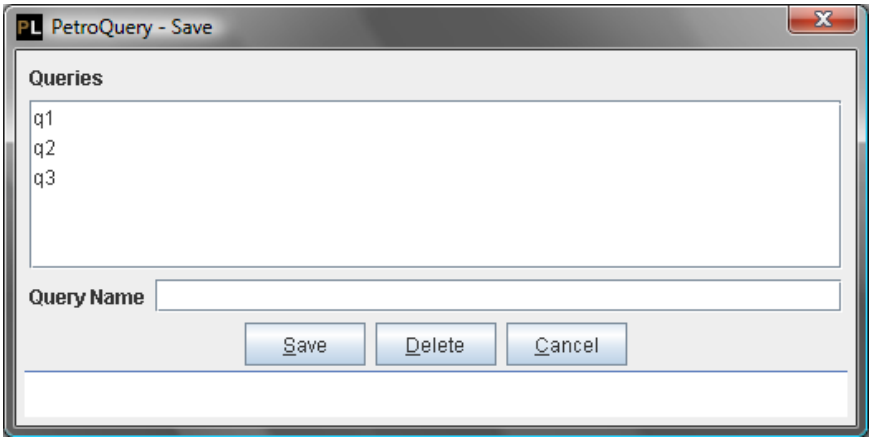


Figure 16.4. Dialog Box to Save a Query

To save a query, enter a name in the **Query Name** field and click in **Save**. If you want to delete a previous saved query, select the query and click in **Delete**. To close this dialog box, click in **Close**.

17.4. Opening a Query

To open a previous saved query, click in the button and the following will be presented:

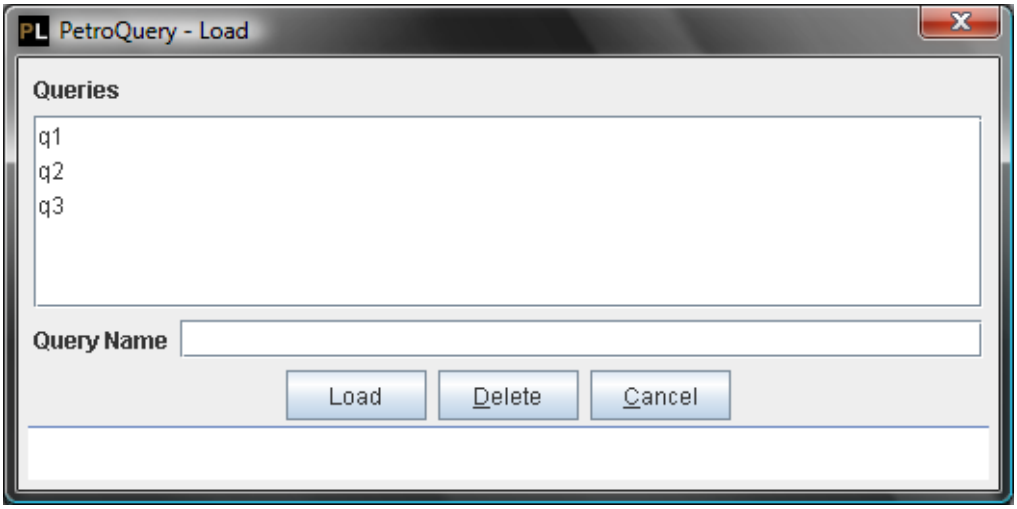


Figure 16.5. Dialog Box to Open a Query

To open a query, select a query in the **Queries** list or enter a name in the **Query Name** field and click in **Load**. If you want to delete a previous saved query, select the query and click in **Delete**. To close this dialog box, click in **Close**.

17.5. Exporting Data

PetroQuery allows the exportation of data in several ways. Each of them is explained below.

Exporting query result

The query result table, displayed in the bottom of the window, can be exported to Excel format. To do so, select **Export to XLS** under the menu **Query**.

Exporting descriptions

- Selected by filter

  After creating a query, the descriptions that match the selection criteria can be exported to different file formats, under the menu **Export selected descriptions**:

- HTML;
- Excel;
- PDF.

- Manually selected

Instead of using a query to filter the descriptions to be exported, it is possible to select descriptions manually, under the menu **Query**:

- Export to HTML;
- Export to XML.

Configuration

It is possible to configure the report to be generated. Besides the report language, it is also possible to configure the size of images assigned to descriptions and the size of classification triangles generated by the system. It is also possible to configure the positioning of images in the report.

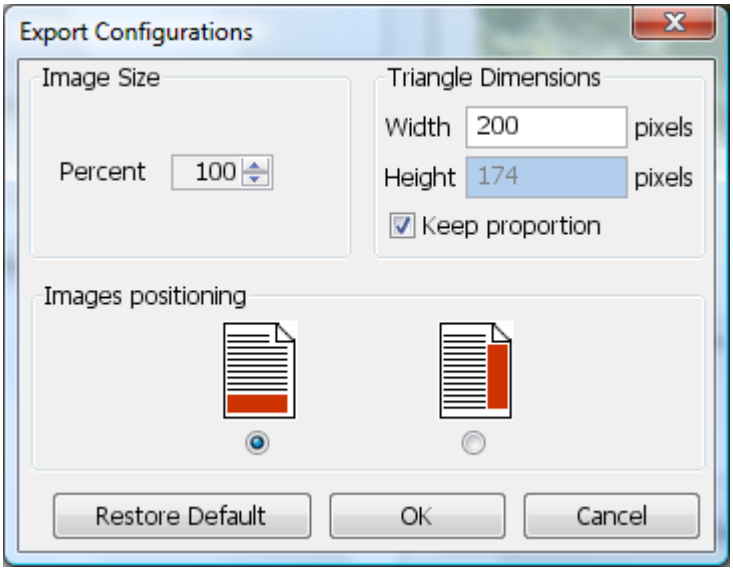


Figure 16.6. Export Configurations

When exporting the query result to HTML or PDF, the configuration screen above is shown automatically. To configure the exportation settings when exporting manually selected descriptions, click on the button **Configure** and choose the parameters that you want to modify.

17.6. Buttons

Button	Action
	Start a new query.

Button	Action
	Load a previous query.
	Save query.
	Go to advanced query screen.
	Return to initial screen.

18. MultiDescription Classification

As the Rock Classification Interface, the MultiDescription Classification function is also to make textural, compositional and provenance classification, but it shows many descriptions in the same triangle. It is not available for carbonate rock classification.

18.1. How it Works?

In the MultiDescription Classification module we can use a maximum of 10 groups of descriptions, that are loaded based on PetroQuery query. Each group can be shown with a specific icon for the points.

The descriptions loaded for each group are classified and displayed on the screen. The classification is **redone** even if the descriptions are already classified, to ensure the consistency with the latest data.

18.2. Interface Presentation

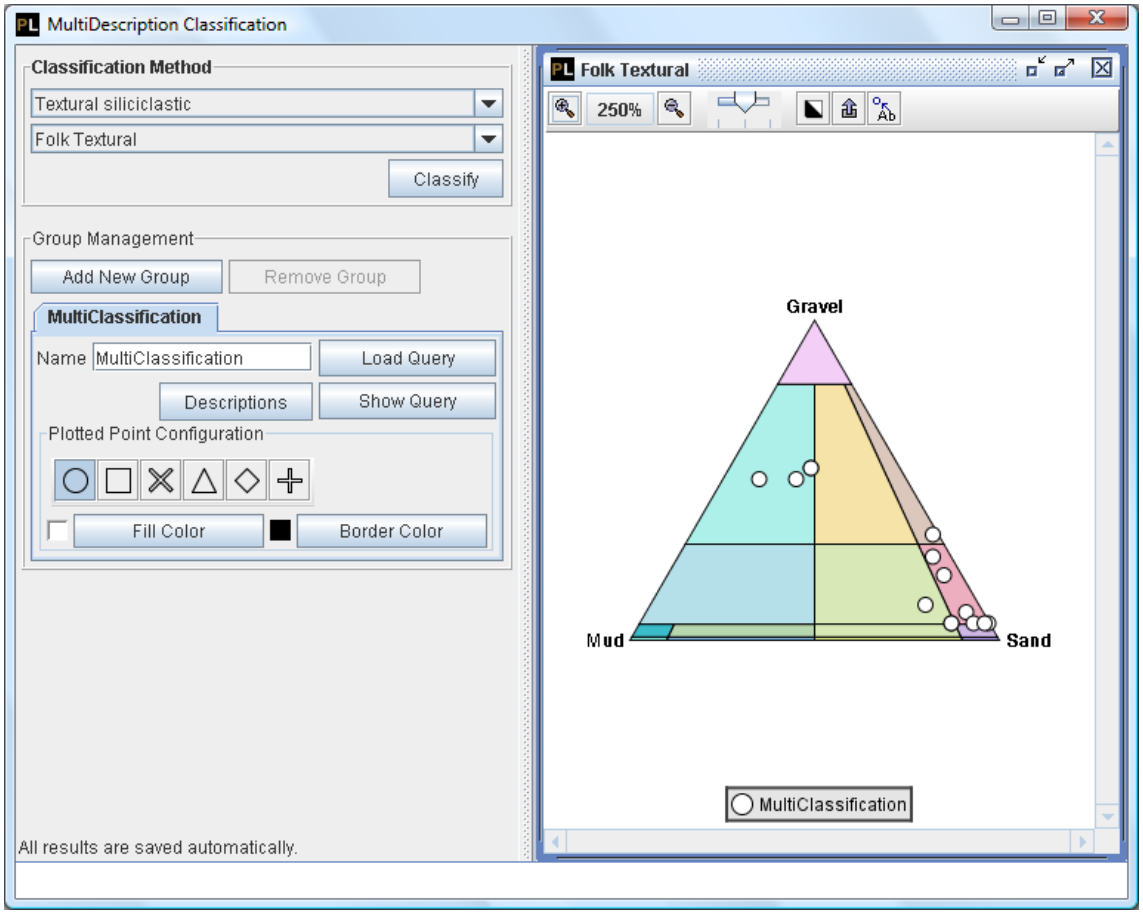


Figure 17.1. MultiDescription Classification Module

In the main windows we can manipulate the description groups to be shown and their basic characteristics. All the controls of the module are in the left side of the window. They are:

- In the top region are the classification methods and their options.
- In the bottom region, there are the controls of the description groups. In each group, we have controls to load query and to define the graphic features of the group;

The elements and the use of the interface are explained in the following:

- Controls of the description groups:
  - The button **Load Query** opens a list with PetroQuery consults to be used to retrieve a set of descriptions to the group;
  - The button **Descriptions** opens a list with the descriptions retrieved by the opened query;
  - The button **Show Query** shows a list of restrictions corresponding to the loaded query;
  - The buttons , **Fill Color** and **Border Color** define the visual features of the plotted points;

- In the lists of classification methods, we have the same methods available in Rock Classification Interface, excepting the related to the Carbonate Classification;

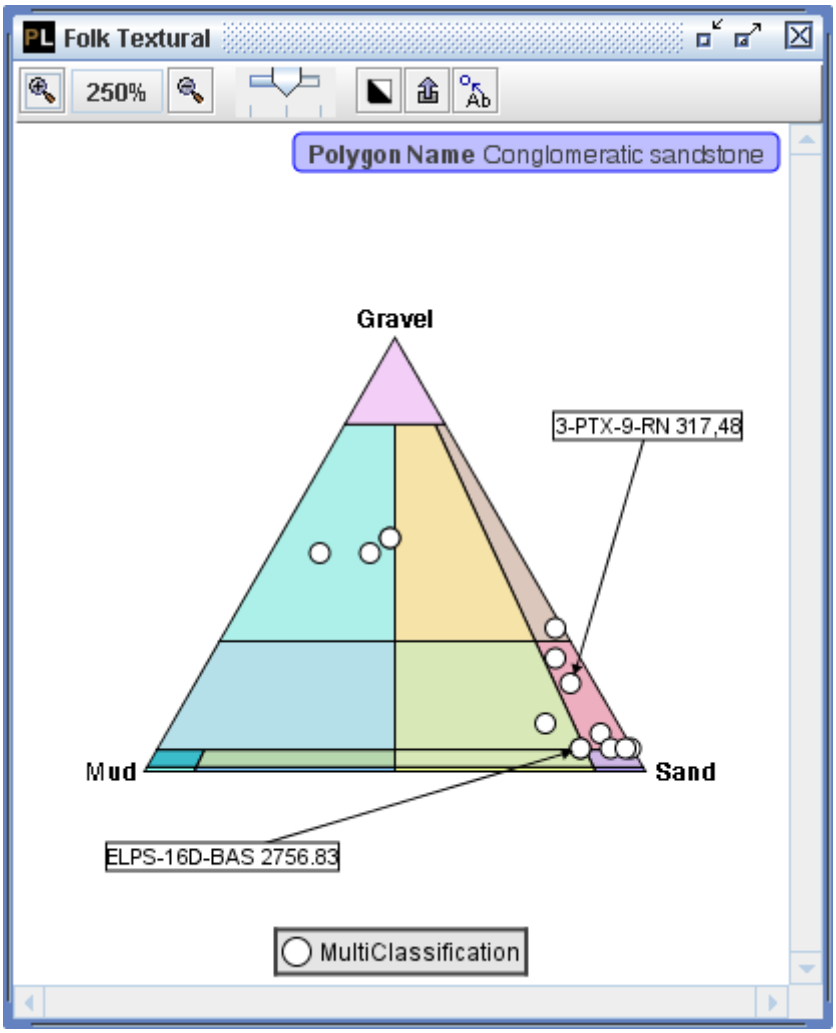


Figura 17.2. Classification Window

In the classification window are shown the points of selected description groups. The window is composed by:

- The buttons and are used to **zoom in** and **zoom out**, respectively. They are used to resize the visualization triangle;
- The button is used to increase or decrease the size of the points plotted on the triangle;
- The button shows the triangle without colors;
- The button , is used to export the triangle as a picture.

- The button is used to enable and disable annotations with the names of all the descriptions. It is also possible to enable them individually by clicking on each point;
- The text box **Polygon name** indicates the name of the triangle polygon under the mouse pointer;
- Legend with the name of the description groups plotted on the triangle. The groups without any plotted description are not shown in the legend.

When moving the mouse over the plotted points on the triangle, a box with the name of the description that the point represents and the value of the point for each vertex is shown.

18.3. Usage

18.3.1. Loading the Module

1. In the menu **Tools**, choose **MultiDescription Classification**;
2. The **MultiDescription Classification** window will appear.

18.3.2. Executing a Classification Method on a Description Set

With the MultiDescription Classification module opened, do the following steps:

Set the visual features of the points to be plotted, like the fill color, border color and point icon;

1. Select a query using the **Load Query** button;
2. Add more groups by clicking on the **Add New Group** button and repeating the steps 1 and 2. Use diferent queries, wich loads other descriptions;
3. Select the **Folk Present** classification method;
4. Click on **Classify**, in **Classification Method** panel.

A window will be opened in right side of the interface, showing the groups of descriptions with their respective visual features.

19. Stageledge

The system provides two operation modes for the electromechanical stage (offered separately).

19.1. Free Mode

This mode provides an interface for stage movement, but it does not record the log of movements.

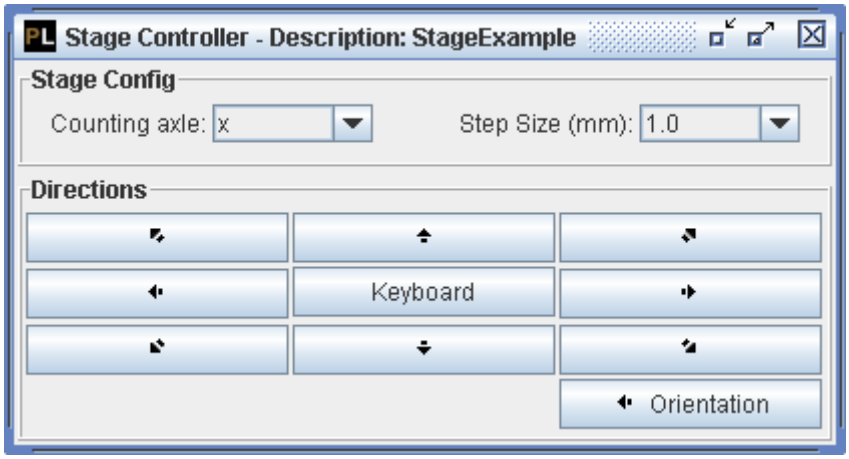


Figure 18.1. Stage Controller – Free Mode

This interface presents the following elements:

- a multiple choice field, called **Counting axle**, to configure the axle along which point-counting will take place and a multiple choice field to enter the working **step size** ;
- **movement buttons** for eight directions (N, S, E, W, NE, NW, SE, SW) indicated by arrows;
- button to enable moving the stage using the keyboard, represented by **Keyboard**;
- button to define the stage's movement orientation, represented by **Orientation**. The arrow shown in the button represents the orientation in which the stage is moving.

Besides controlling the stage movement using the buttons in the interface, you can use the numerical keyboard. In the keyboard, movements to N, S, E, W, NE, NW, SE, SW are done respectively using the 8, 2, 6, 4, 9, 7, 3, 1 keys. Press the **Keyboard** button to control the stage using the keyboard.

19.2. Advanced Mode

This mode provides a lot of functionalities related to the log movements during point-counting, like the navigation through the points already analysed, point exhibition configuration, inclusion of additional information, free movement over the stage and return to the analysis point with precision.

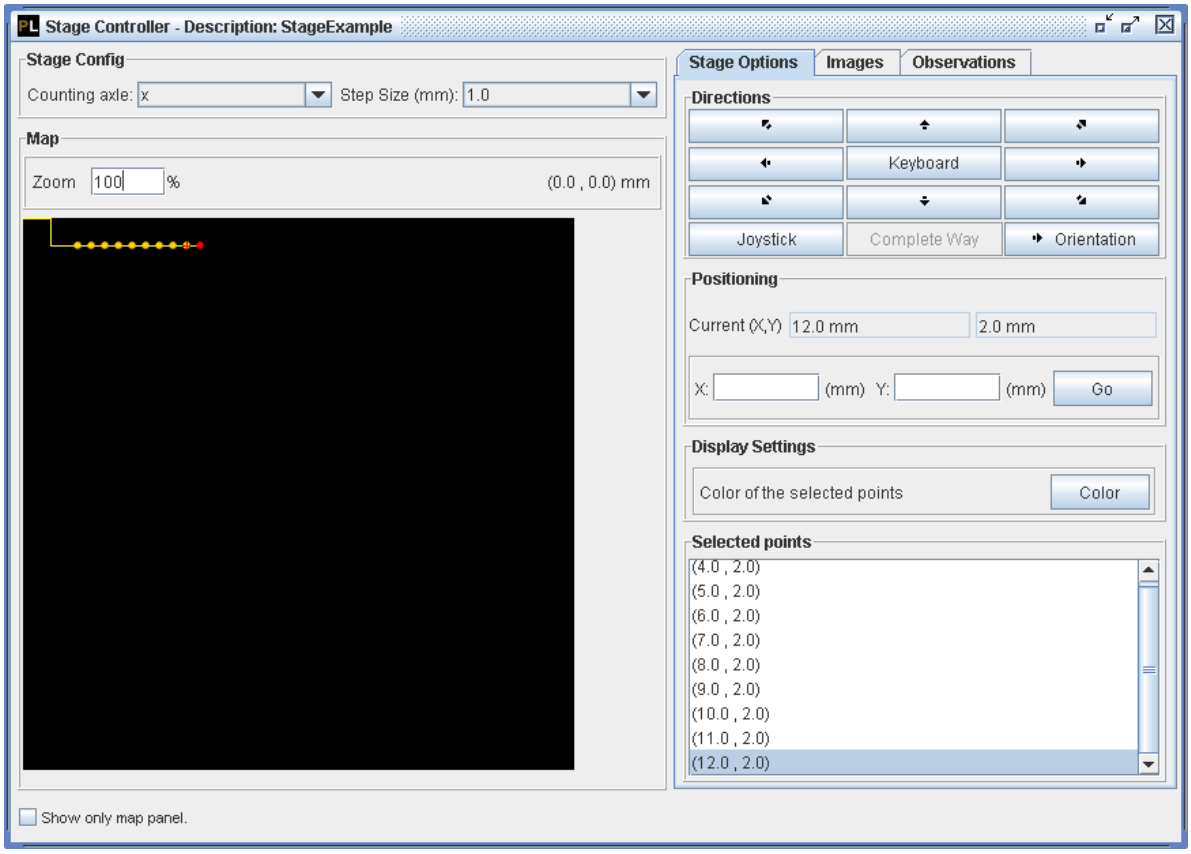


Figure 18.2. Stage Controller – Advanced Mode

This interface presents the following elements:

- a multiple choice field, called **Counting axle**, to configure the axle along which point-counting will take place and a multiple choice field to enter the working **step size** ;
- **movement buttons** for eight directions (N, S, E, W, NE, NW, SE, SW) indicated by arrows;
- point map's zoom level configuration;
- button to enable movement using the stage joystick, indicated by **Joystick**. When the joystick is enabled, the stage controller shows a green light. When it is disabled, an orange light is shown.
- button to move the stage using the keyboard, indicated by **Keyboard**;

- button to position to the last point analyzed to resume work, the electromechanical moves along the path directly to the last point or step-by-step, by pressing the **Complete Way** button;
- current point location, shown at the **Positioning** panel;
- specification of the exact point to where the stage have to move when the button **Go** is pressed;
- color configuration for the points of the constituent selected on the composition list. Available on the panel **Display Settings**;
- list of the coordinates of the points quantified for the constituent selected in the composition. It is possible to select the points using this list;
- possibility to add images and observations to a specific point. These features are available at **Image Options** and **Observations** tabs.

Besides controlling the stage movement using the buttons in the interface, you can use the numerical keyboard. In the keyboard, movements to N, S, E, W, NE, NW, SE, SW are done respectively using the 8, 2, 6, 4, 9, 7, 3, 1 keys. Press the **Keyboard** button to control the stage using the keyboard.

To help the map visualization during the composition descriptions, it is suggested to check the option **Show only map panel**. This way, you can arrange your screen to show the composition interface and the map interface.

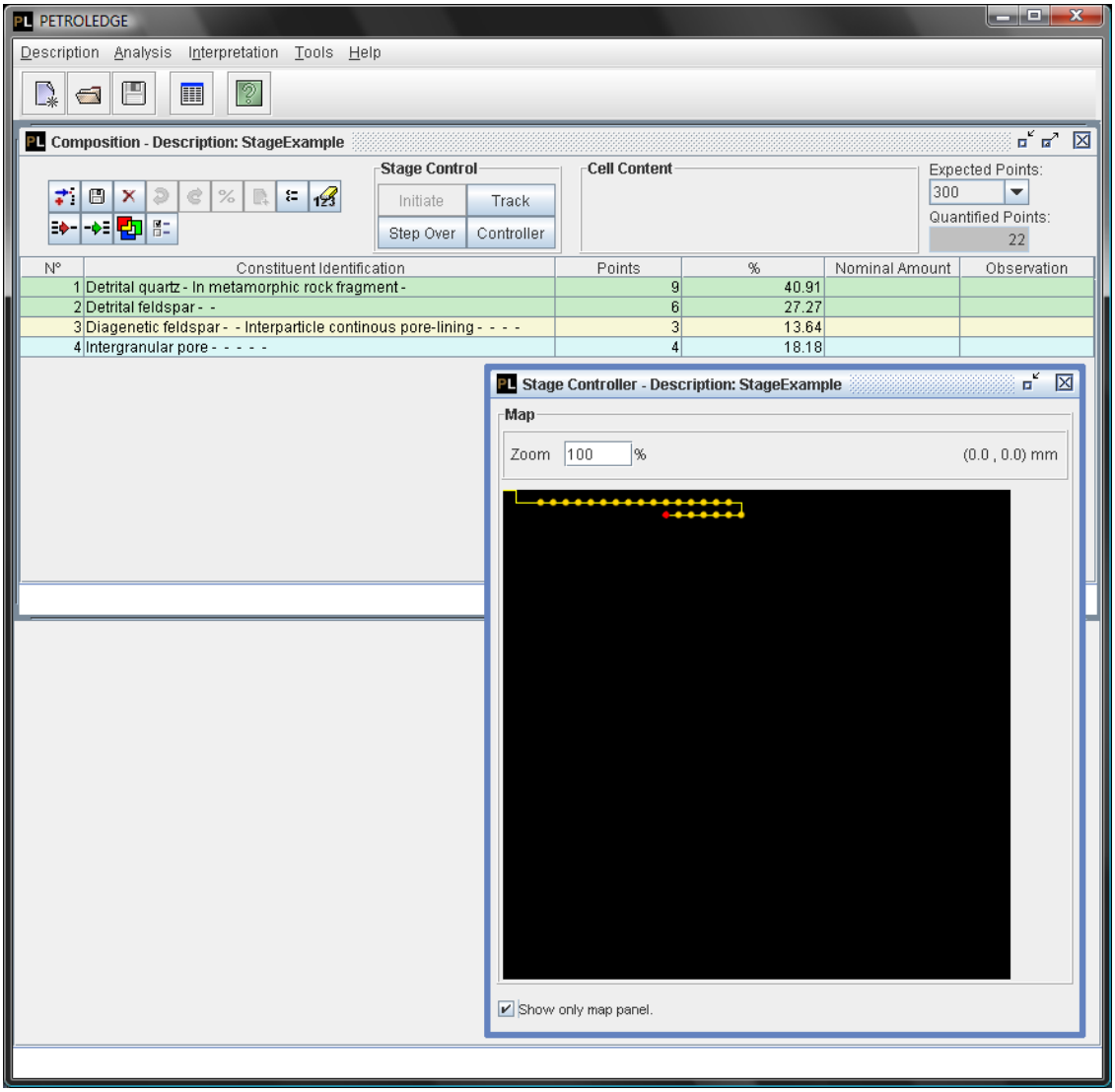


Figure 18.3. Stage Controller: Only map panel

20. HTML Generator

This tool can export the descriptions that were entered in PETROLEDGE to HTML files (it also creates XML files used as intermediate data).

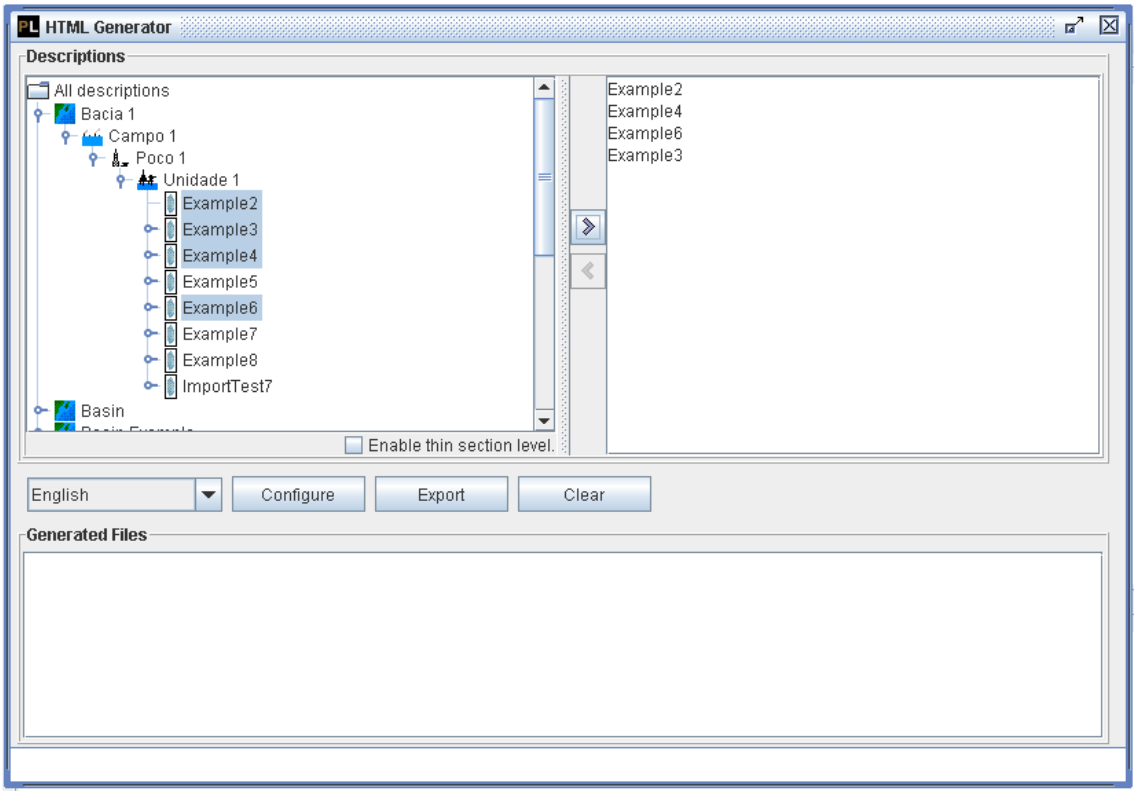


Figure 19.1. HTML Generator

The **Descriptions** list presents all names of descriptions available in the PETROLEDGE system. You must select some to export. The **HTML Files** list presents the location of HTML files that contain exported descriptions. It is filled after exporting the descriptions. To export the selected descriptions just click the button Export.

The button Export generates HTML files from the descriptions that were selected in the **Description** list. After clicking, a dialog to select the directory where the HTML files will be written, will be presented, as show in the image bellow:

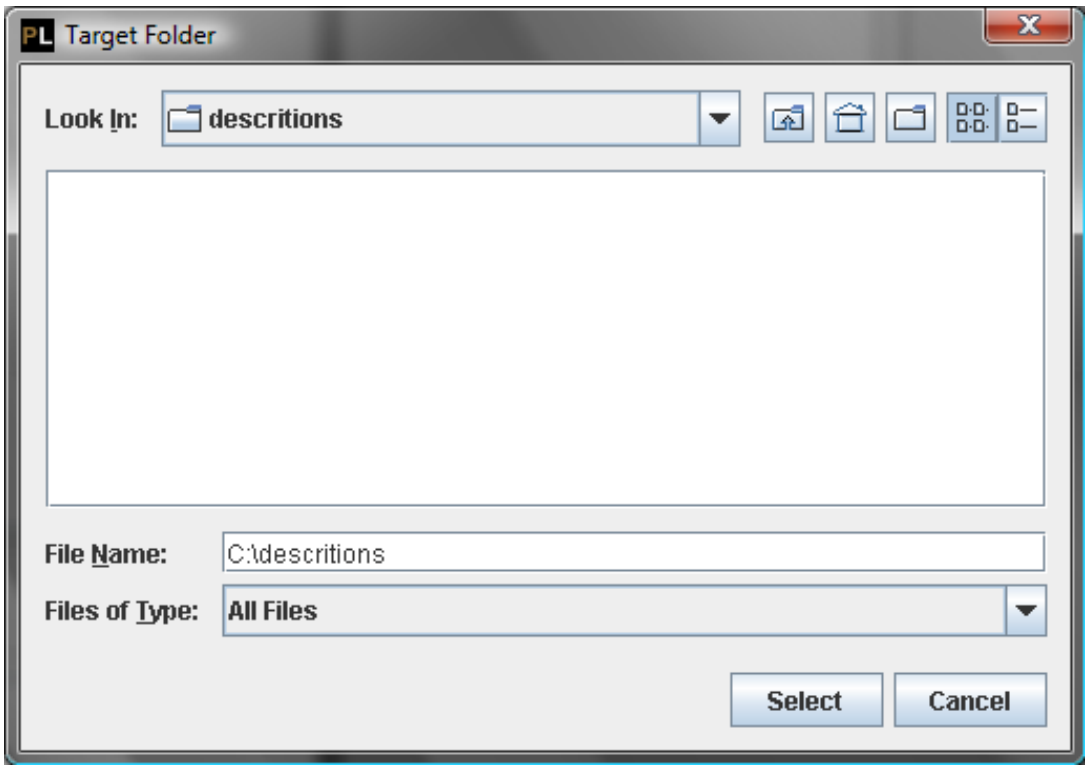


Figure 19.2. Dialog Box to Export HTML

After locating the directory, just click in **Select** to generate the files.

21. XML Generator

This tool can export the descriptions that were entered in PETROLEDGE to XML files.

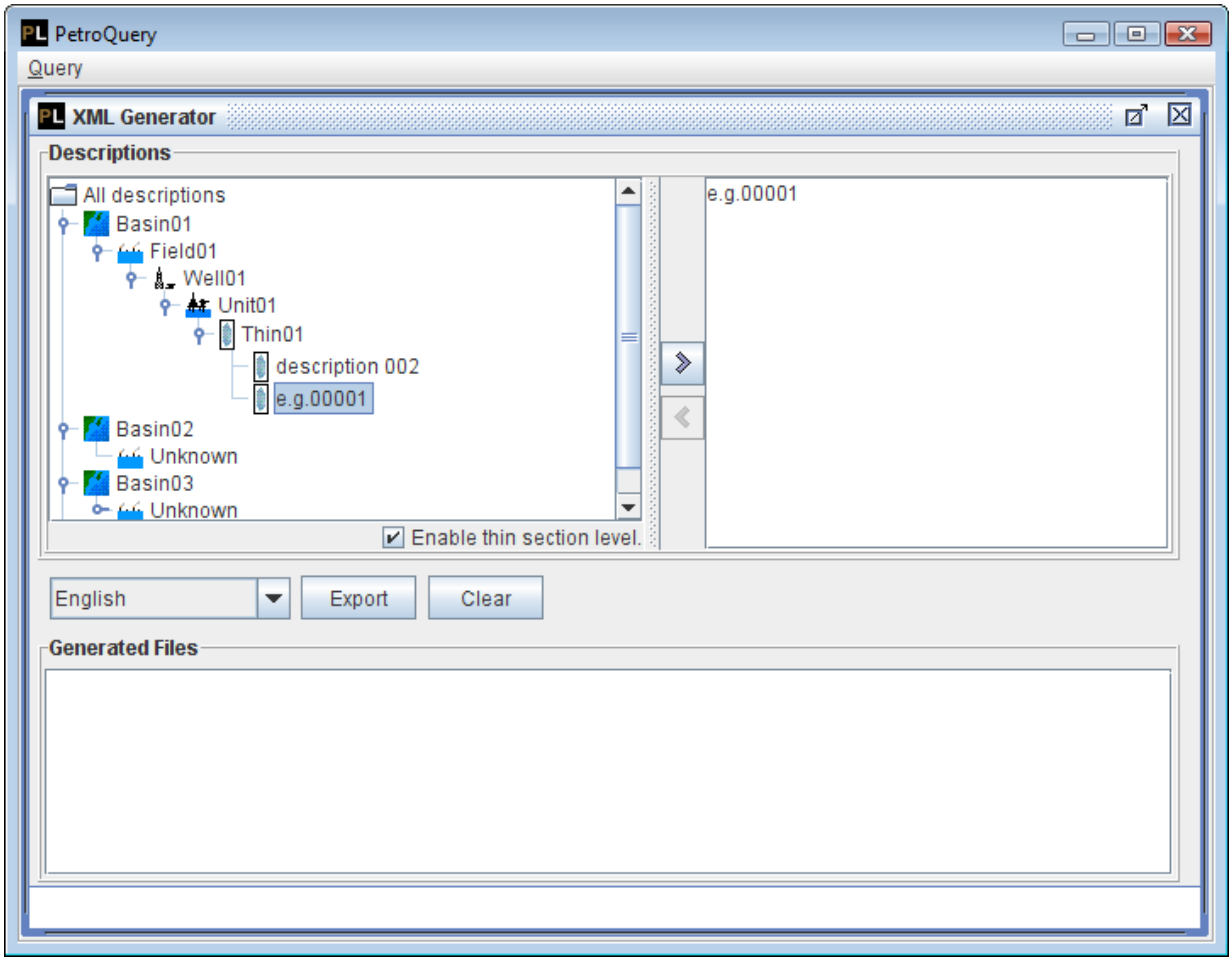


Figure 20.1. XML Generator

The **Descriptions** list presents all names of descriptions available in the PETROLEDGE system. You must select some to export. The **XML Files** list presents the location of XML files that contain exported descriptions. It is filled after exporting the descriptions. To export the selected descriptions just click the button Export.

The button Export generates XML files from the descriptions that were selected in the **Descriptions** list. After clicking, a dialog to select the directory where the XML files will be written, will be presented, as show in the image bellow:

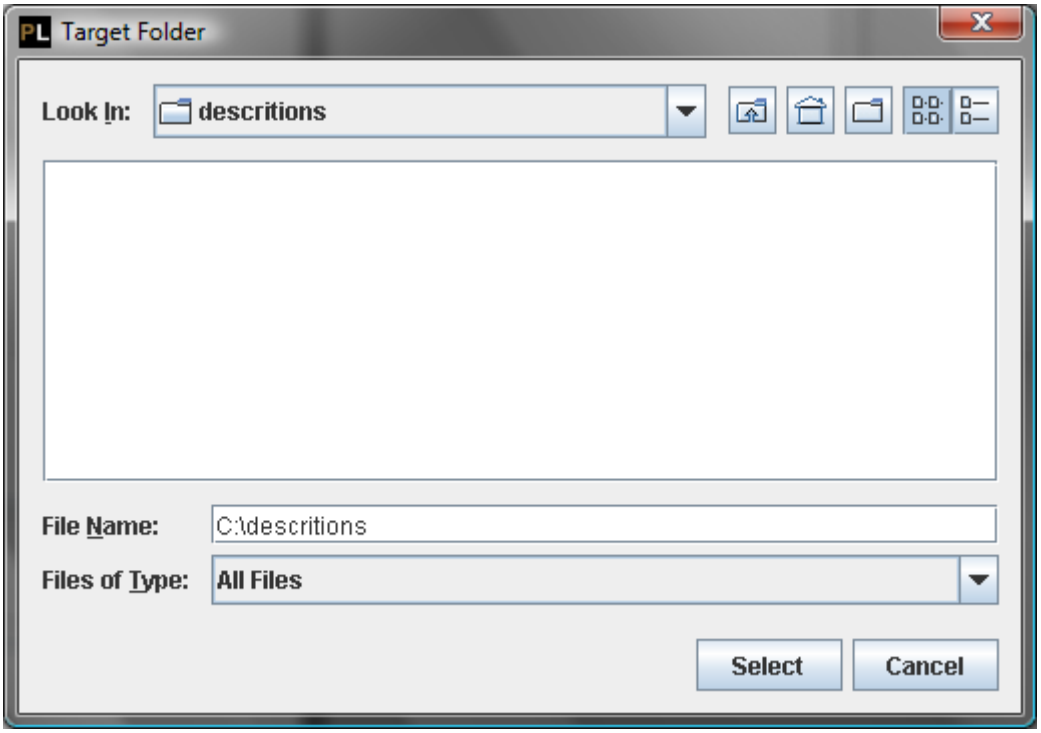


Figure 20.2. Dialog Box to Export XML

After locating the directory, just click in **Select** to generate the files.

22. XML Files Importer*

The XML importer interface (Figure 21.1) allows inserting in the system a description previously exported by using the Petroledge.

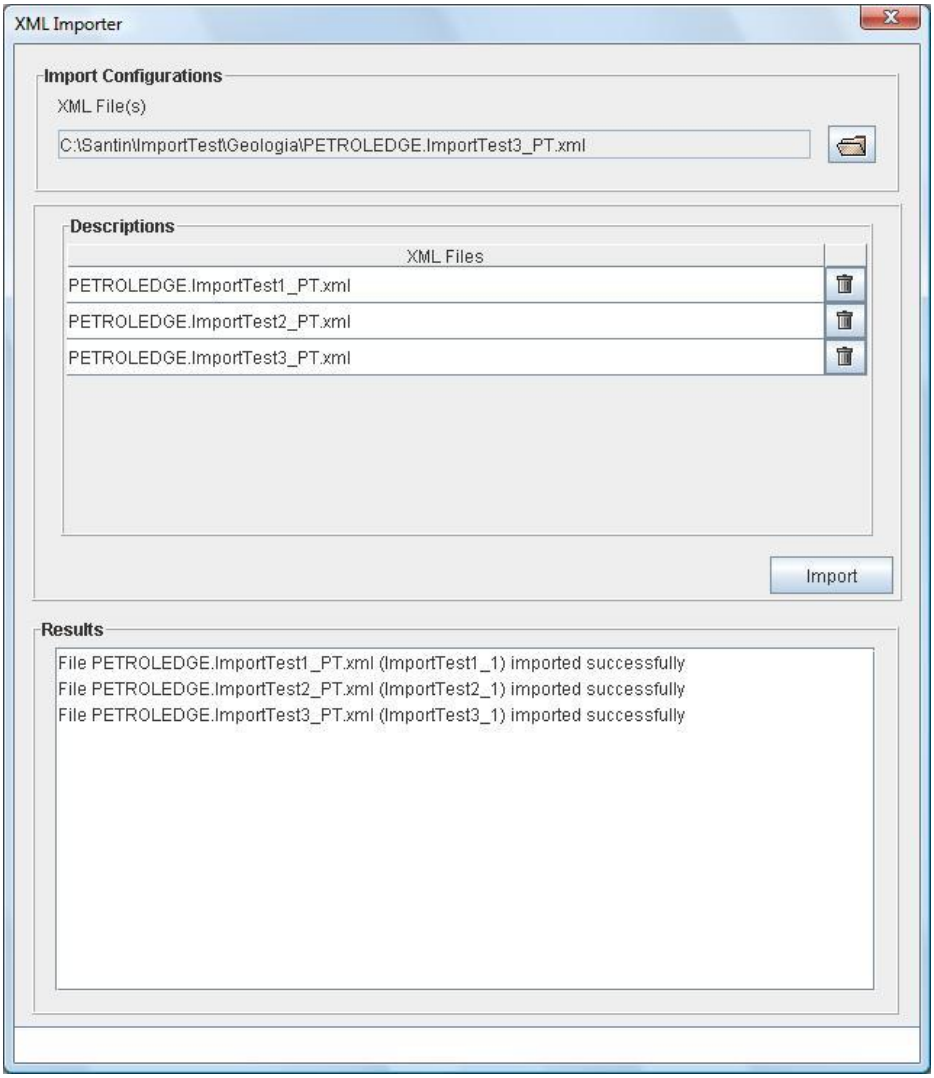


Figure 21.1. XML Files Importer

The importer access is done by choosing the menu **Description > Import Description...**

The **Import Configurations** area allows the selection of individual files or folders to be imported. To perform this task, is necessary to click on the button. The selected files or folders are added to the **Descriptions** area, where are showed the file

* Not available for all versions of the system

names to be imported and an option to remove them from the import list, this action is done by clicking on the button.

The import task is just performed if there is at least one selected file, otherwise a message is showed to the user.

To import the selected files, click on the **Import** button. The import results are showed at the **Results** area. If the import files is successfully performed, it will appear at the result area the imported file name, the identifier assigned to the description and a success message.

If it is being imported a description whose identifier already exists in the system, it is required to the user to assign a new identifier to the description (Figure 21.2).

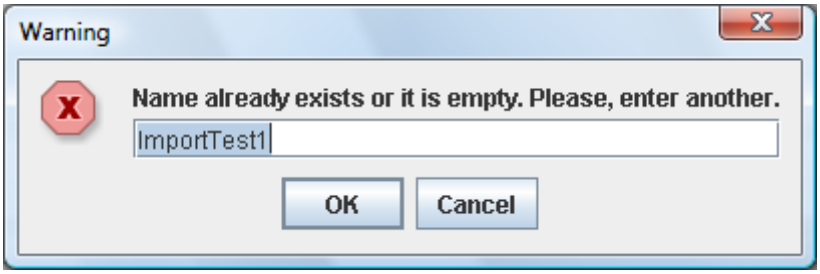


Figure 21.2. Description identifier already exists.

In some versions of the system is necessary to select the thin section that will be associated with the imported description (Figure 21.3). In these versions, the user must click on the button. After this operation, a window to select a thin section will be showed (Figure 21.4).

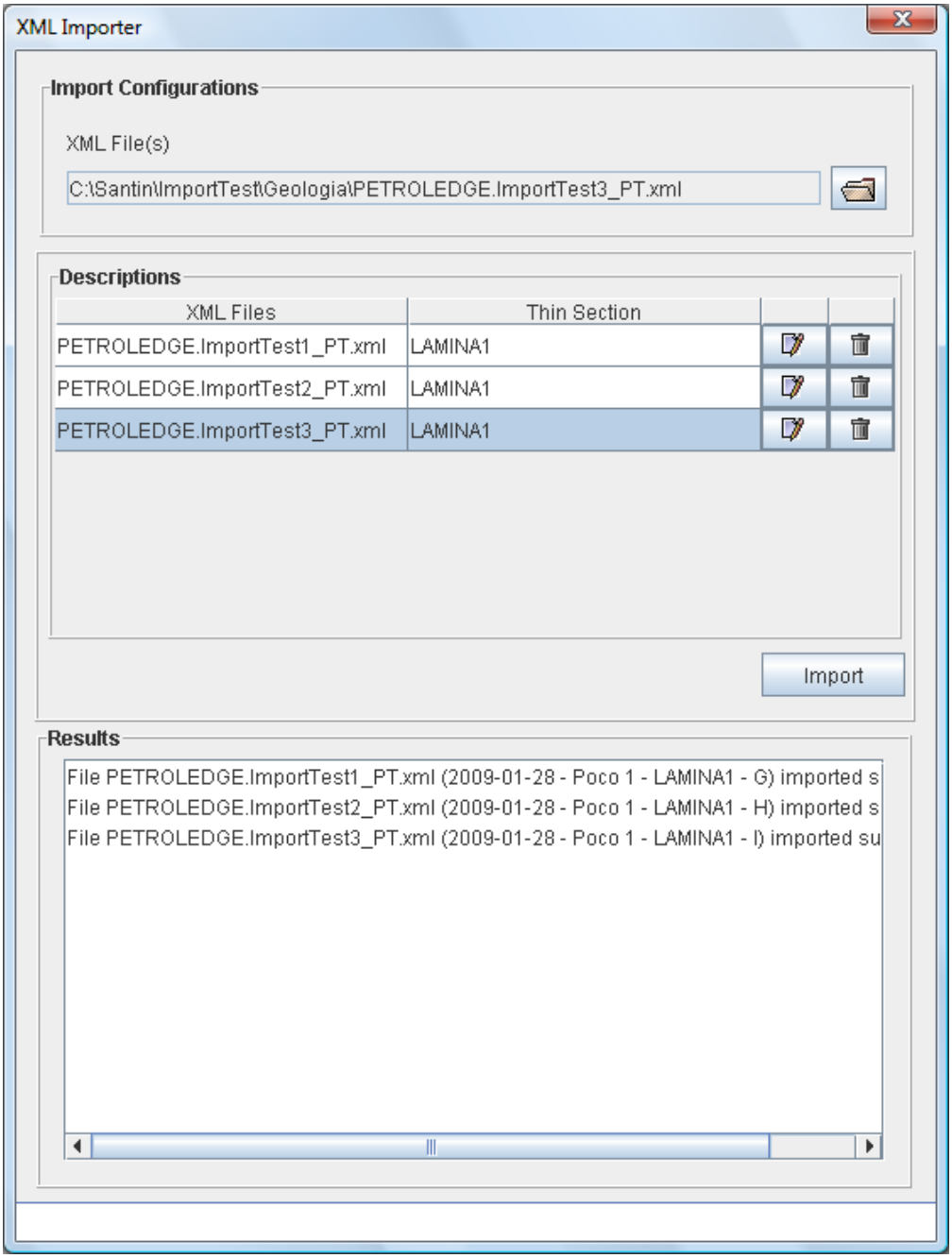


Figure 21.3 XML Files Importer with thin section selection

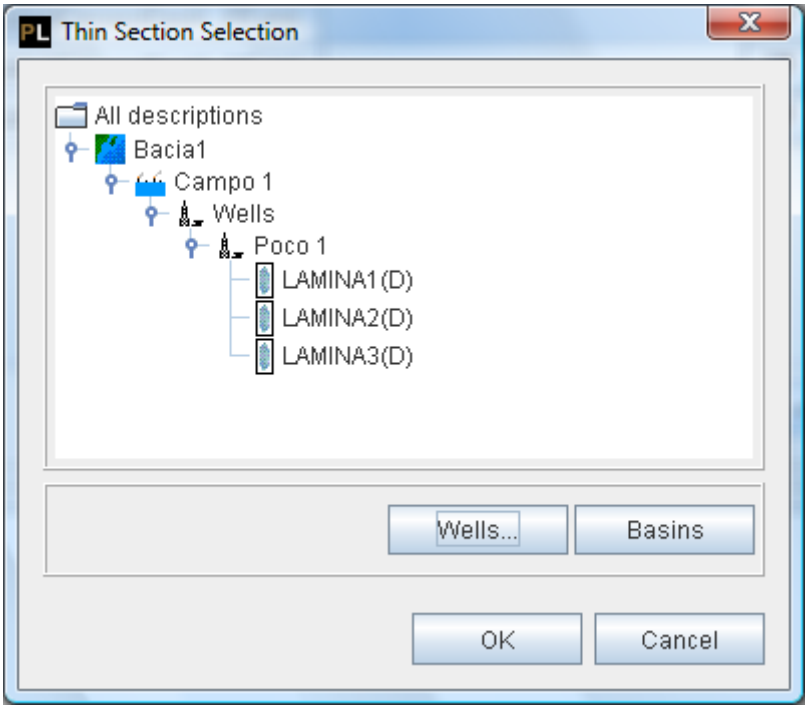
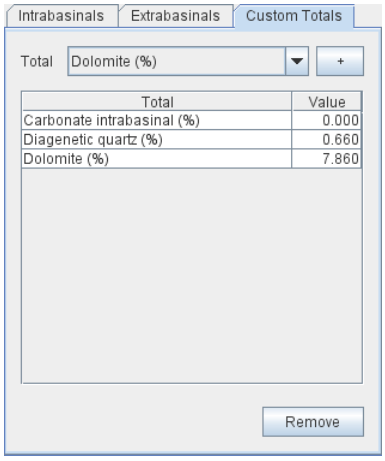


Figure 21.4 Thin section selection during XML file import.

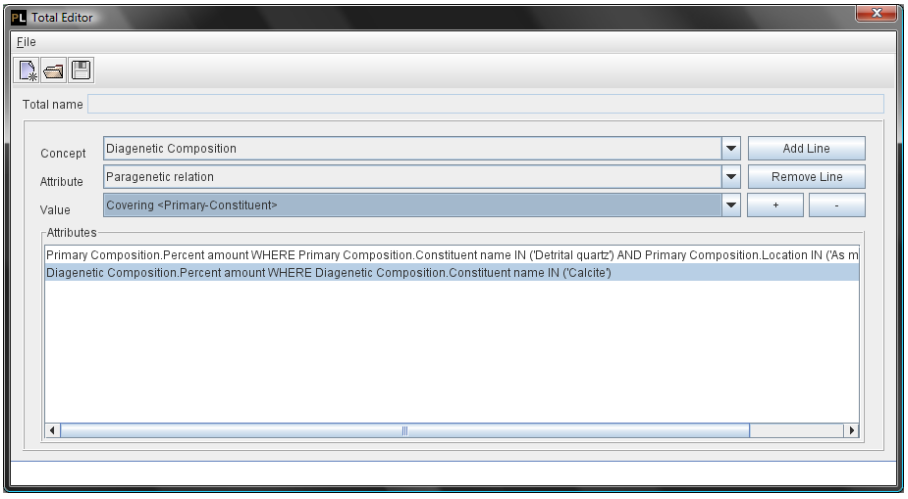
23. Custom Totals

Besides the totals already found in PETROLEDGE, you can create your own totals† using the **Total Editor** and associate them to the description in the **Classification** screen. The customized totals associated to a description are also shown on the reports.



Total Editor

The **Total Editor** allows the creation of combinations of numeric values present in PETROLEDGE. These combinations are used the same way as the built-in totals.



There are some operations available for the creation of custom totals:

- **Add Line**: includes a new numeric attribute to the sum of values. Each attribute is shown as a new row on the **Attributes** list;

† Not available for all versions of the system

- **Remove Line** : removes the attribute selected on the **Attributes** list from the sum of values;
- **"+"**: adds a value restriction to an attribute from the **Attributes** list;
- **"-"**: removes the last value restriction from the attribute selected on the **Attributes** list.

24. Plug-in Manager

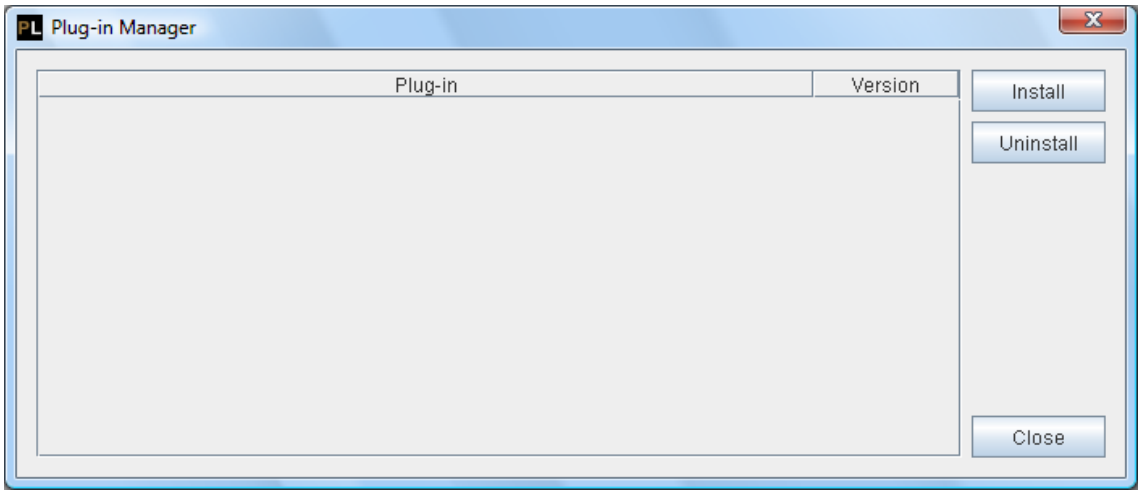


Figure 22.1. Plug-in Manager

This tool allows the installation of plug-ins to add new features to PETROLEDEGE. The installed plug-ins can be accessed in the menu **Tools > Plug-ins**.

To install a plug-in, press the **Install** button and choose the plug-in JAR file. The plug-in's name and version will be visible in the list to the left. The new plug-in is now available in the plug-ins menu.

To uninstall a plug-in, select it in the installed plug-ins list and press the **Uninstall** button.

25. System Updater

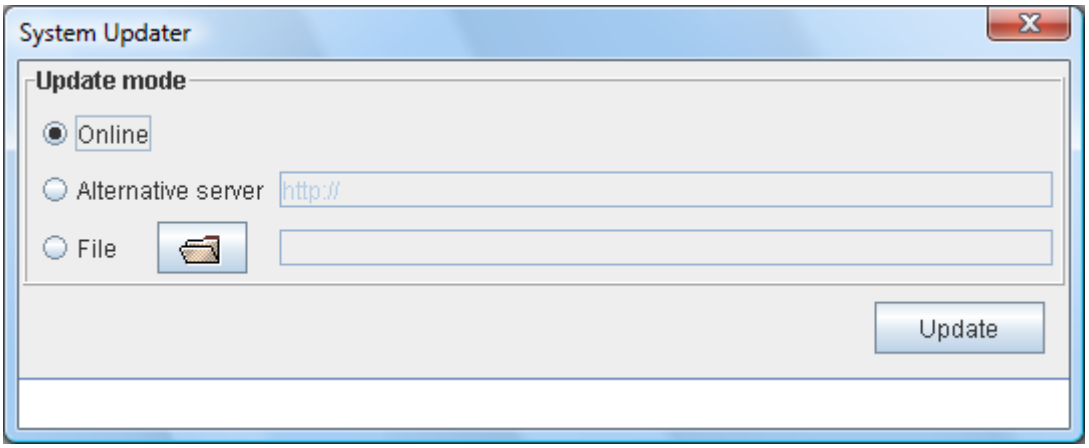


Figure 23.1. System Updater

This tool allows the installation of system updates, adding features and fixing problems.

To install new system updates, select the update mode and press the **Update** button.

There are 3 update modes:

- **Online:** downloads new updates from the Internet.
- **Alternative server:** allows to inform a Web address, where the updates are, to the case when the default server cannot be accessed.
- **File:** used to install updates from a file.

After pressing the **Update** button, a dialog window will be shown, asking if you want to restart the system to finalize the installation process. The updates will then be installed and the system will restart, already in the new version.

26. Pore System

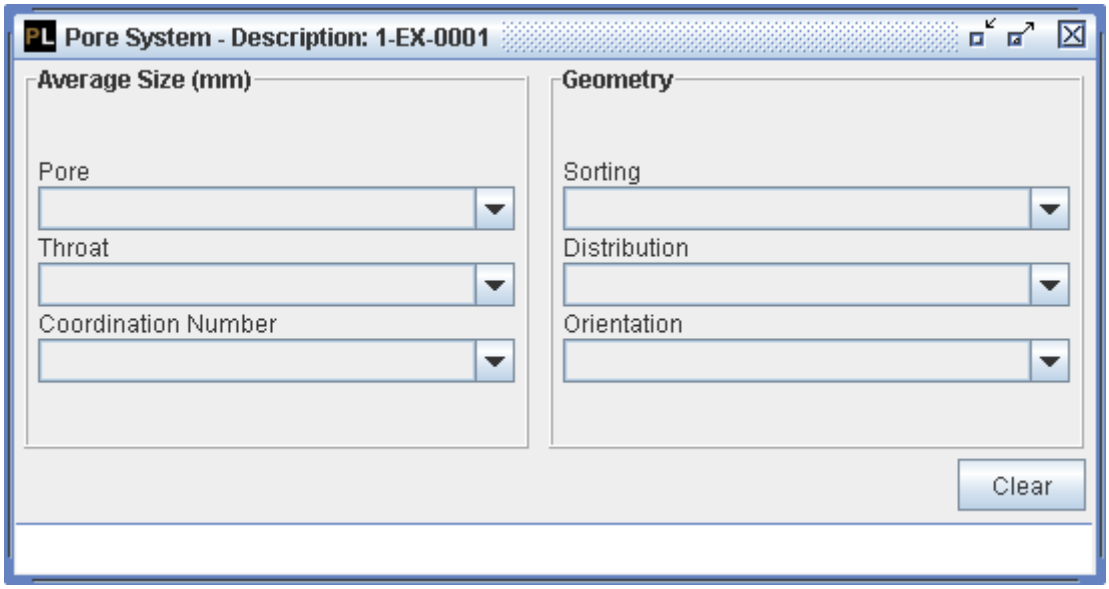


Figure 24.1. Pore System

It is used to describe the pore system's information.

27. Update Profile

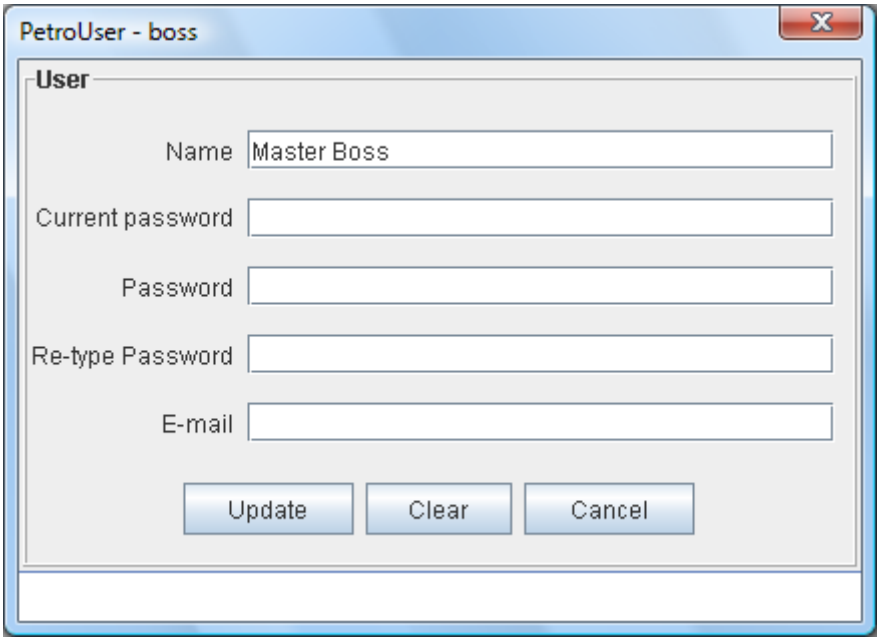


Figure 25.1. Update Profile

With this tool it is possible to change your user profile settings. Note that the **login**, shown on the window title, cannot be changed.

28. Knowledge Base Tools

- Tools to edit the PETROLEDGE knowledge base (nomenclature and associated proprieties used for consistence). These tools allow to expand the PETROLEDGE knowledge base.

28.1. Attribute Editors

There are 3 kinds of attribute editors:

- Editor for attributes that do not need consistence, in this group you can alter just the values of these attributes (to access the editor showed in the figure, choose "Edit" in the **Most Visible** combo box from the Macroscopic Analysis Interface).
- Editor for attributes that have consistence, you can alter attribute values and define a interval for consistence (to access the editor showed in the figure, choose "Edit" in the **Main/single size mode** combo box from the Microscopic Analysis Interface).
- Knowledge editor used in the Composition Interface (use the **Knowledge Edit** button to access). This last knowledge editor presents more options, see the section Composition knowledge editor.

All editors have common buttons that work in the same way. When closing a editor, you can confirm or cancel the changes made. To confirm select "Yes", to cancel select "No".

Values and messages are presented in english and portuguese. This allows, for example, generating reports in any of these languages.

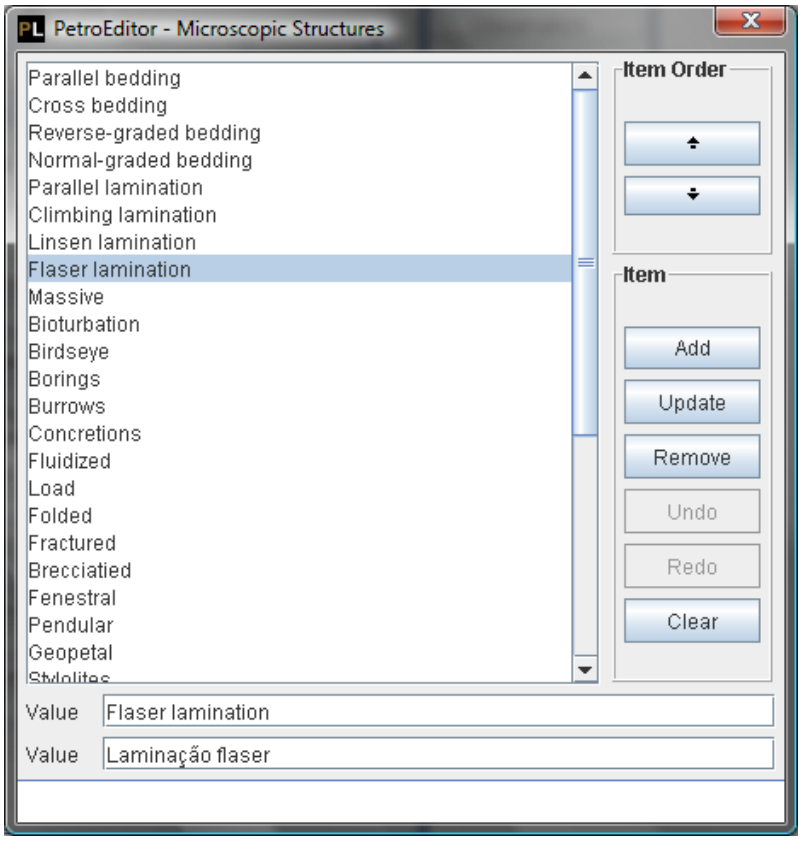


Figure 26.1. Editor for Attributes without Consistence

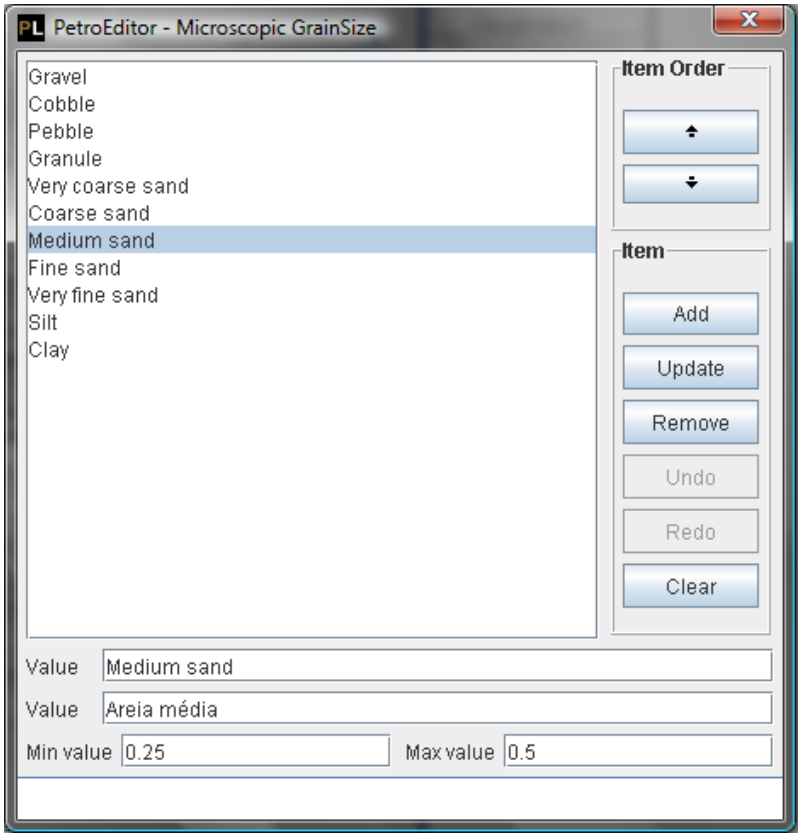


Figure 26.2. Editor for Attributes with Consistence

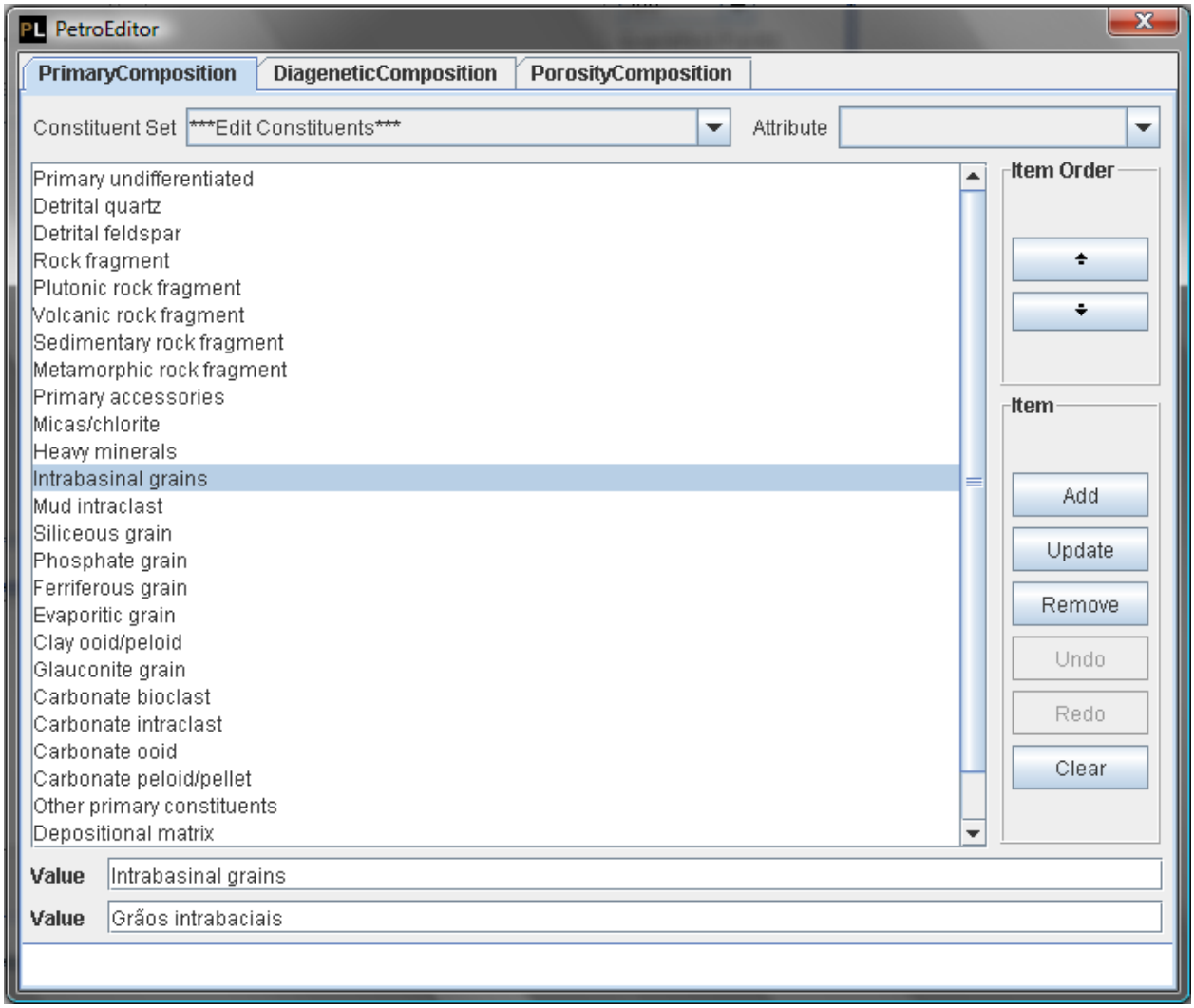


Figure 26.3. Knowledge Editor Used in Composition

28.2. Common Buttons

All buttons work in the same way in the 3 editors, including the following actions:

- In **Item Order** section you can define the order of a value. Just select the value and click in the button or in the button .
- **Add** button is used to add a new value to the attribute. To do this, just insert a new value in field beside and click in **Add**.
- **Update** button is used to update the name of a value. To update a name, select a value and enter enter a new name in field **Value**, then just click in **Update**.
- **Remove** button is used to remove a value. Just select a value and click in **Remove**, a confirmation dialog will be presented.
- **Undo** button is used to undo a user operation. Just click in the button to undo. It records all operations since the opening of this interface.
- **Clear** button is used to clear all fields.

28.3. Composition Knowledge Editor

How to edit:

- Select a constituent group to alter. One of these options: **Primary Composition**, **Diagenetic Composition** or **Porosity**;
- If you want to alter knowledge attribute from constituent group, just select the attribute in the list **Attribute**;
- To edit **Constituent Set**, just select the option "***Edit Constituents***" in the list.

29. User´s Guide

The user´s Guide is available on PETROLEDGE system.

Click in the icon to see the digital User´s Guide.

PETROLEDGE User´s Guide – ENDEEPER – Brazil

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