Process Cubes User Documentation

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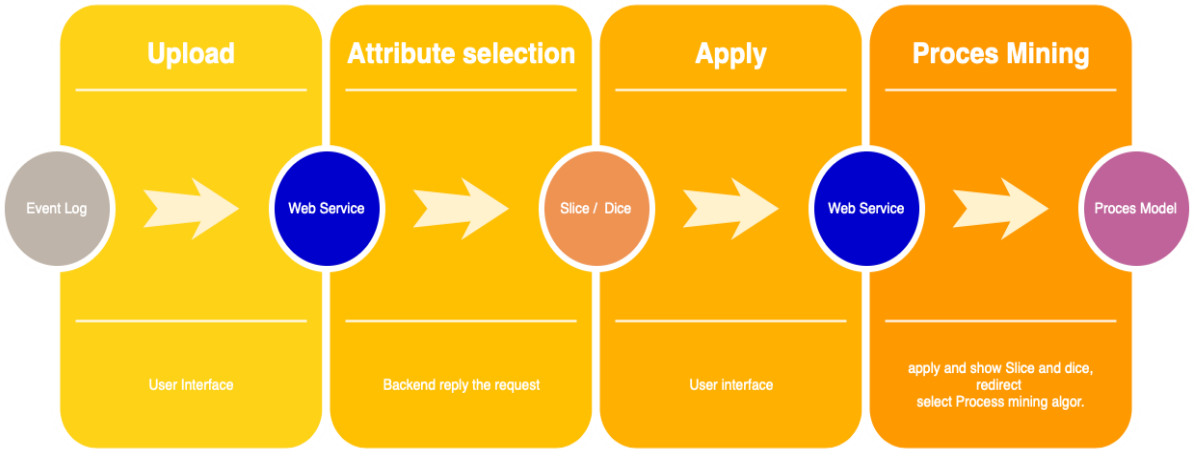
General overview

Before reading the manual, let zoom out and look a big picture about process cube, we provide the reader a small figure below. It describes refinement of process cube, in which processes goes from one point to another. As example you are at home and want to upload your event log file to the point editing event log data by applying slice or dice on cubes, into generating petri-nets model at the end.



Introduction

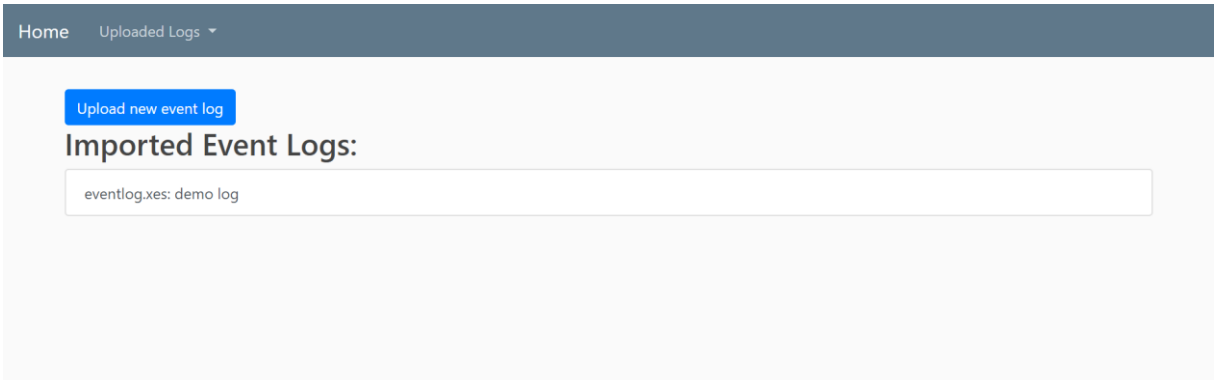
This document will help the user to use the webservice. It will give a short but precise description of each page and will explain its functionalities.

General

Every page has a navigation bar which shows, depending on the current site, the currently selected event log and the current process cube on right side. Furthermore, it lists all uploaded event logs under “Uploaded Logs” and all process cubes that where created for the current event log under “Process Cubes”.

Clicking on **Home** will redirect to the “*Home*” page.

Home



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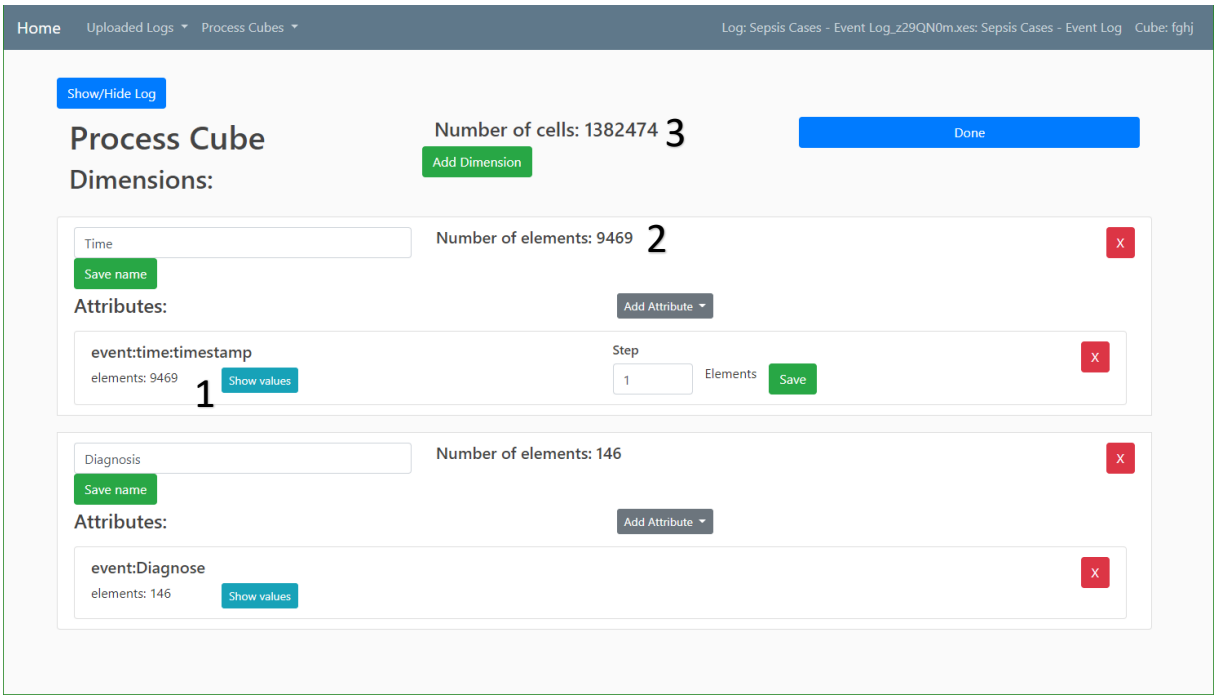
On the landing page, the *Home* page, the user can see all uploaded event logs. Furthermore, it allows to upload a new event log by clicking on "**Upload new event log**" button. This will redirect to the *Upload* page.

Upload

This page allows to upload a new event log. By clicking on the **Browse** button, a file chooser window will open which allows to select a XES file.

Dimensions



This page allows to create and edit the dimensions of the process cube. First, general information about this page are explained, then the process of creating dimension is explained step by step.

For each dimension and attribute, the number of possible values, i.e. the number elements of the attribute, is shown (1 and 2). The number of elements for an attribute is just the number of possible values the attributes takes in the event log. The elements/values of a dimension are a combination of all attributes. So, the number of elements for a dimension is the product of number of elements of an attribute.

On the top, the page shows the current number of cells the process cube consists of. It is computed by the product of number of elements for each dimension, in this example: $8 * 5 = 40$.

To view the event log to check which attributes you want to use click on the **"Show/Hide Log"** Button and the event log will appear in a table on top of the page.

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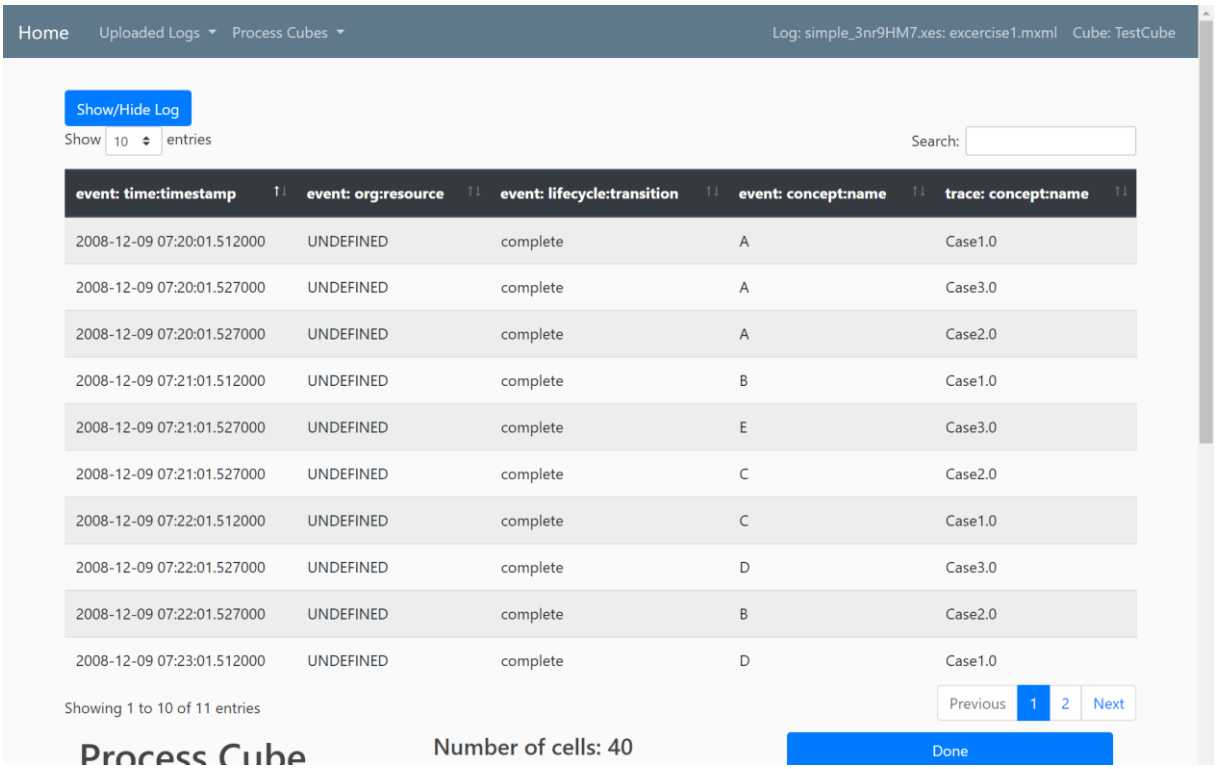
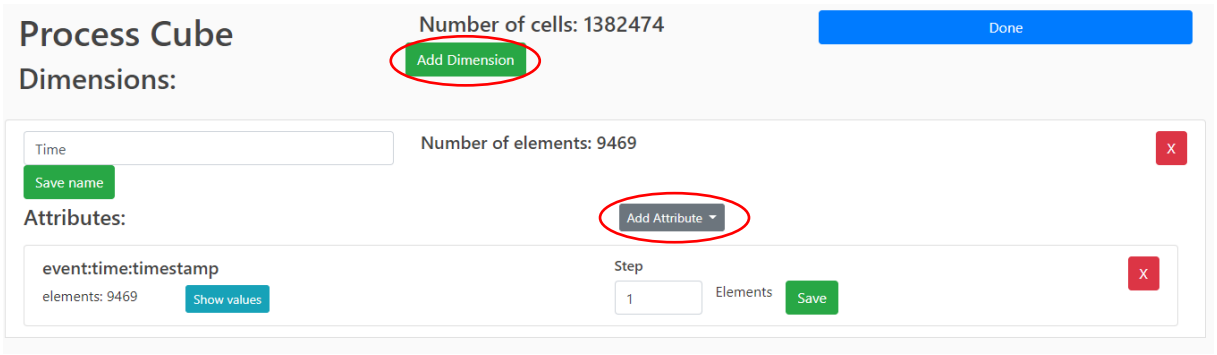
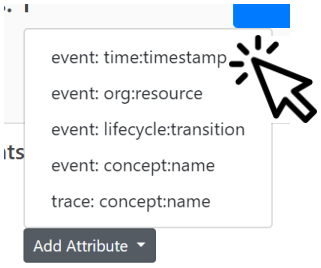


Now the steps to create a dimension are explained:

1. Add a Dimension: To do this click on **Add Dimension**. This will add a dimension to the process cube. It will be listed under Dimensions



2. At this moment the created dimension doesn't consist of any attributes. To add attributes to the dimension, click on **Add Attribute**. This will open a popup that lists all attributes, that don't belong to any dimensions yet.



Clicking on some attribute will add it to the dimension. It will then be listed under Attributes in the corresponding dimension list item. If you want to see what values an attribute can

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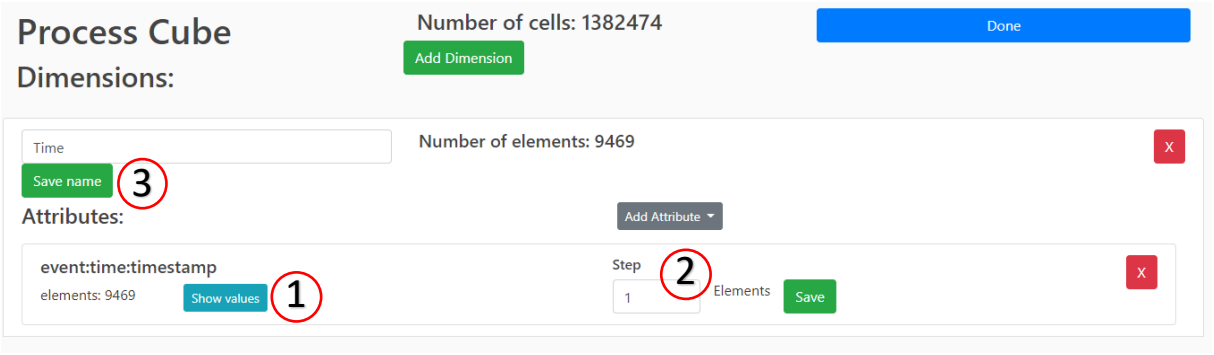
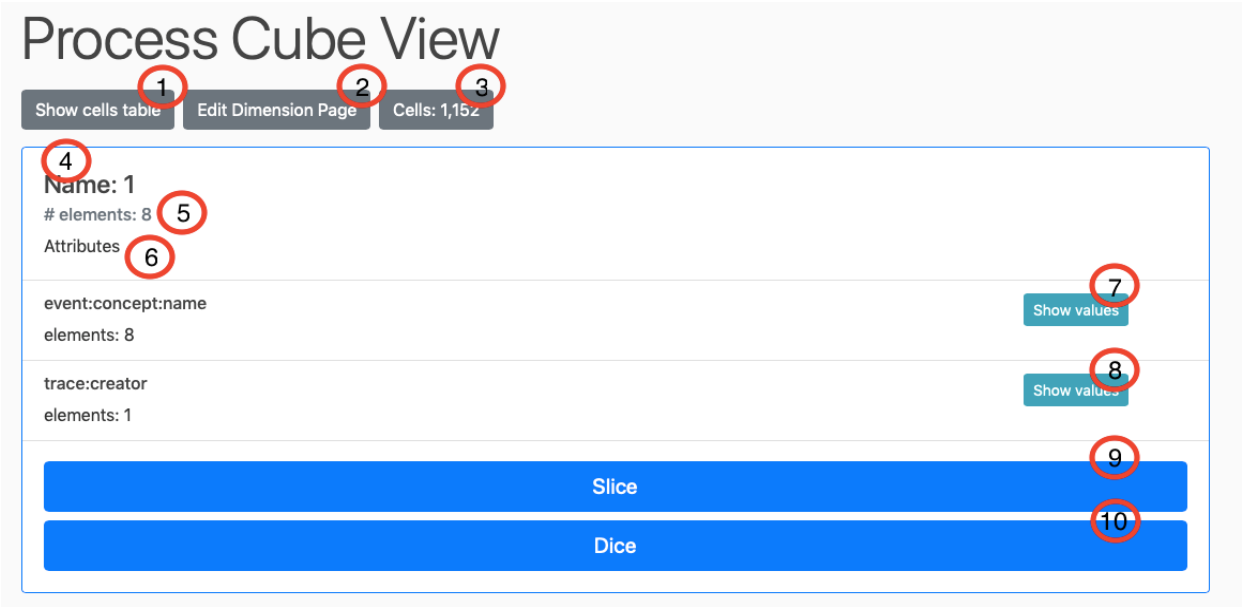
take, click on **Show Values** (1). This will open a popup that lists all possible values of this attribute.



3. Getting all events for exactly one timestamp does not make much sense. Thus, it is possible to set a "step-size" (2). Setting a step-size greater than one will combine multiple elements of the attribute to one element, i.e. the elements are now value ranges. This is possible for integer, float and timestamp values.
4. Finally, you can also give a name to the dimension. Just type it in the text field and click on save (3).

Process Cube View

On this page, we can check the process cube view with all the selected dimensions, its name and their attributes. Example below are taken from runningexamples.xes file



Let's look at the figure above that shows us an example of one-dimension of a process cube and start with:

- The **"Name"** of the dimension: 1, as denoted by (4)
- the total elements of each dimension provided **"# elements:"** (5)
- The dimension has 2 attributes. (6)
    - event:concept:name attribute that comprise of 8 elements
    - trace:creator attribute that comprise of 1 elements

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User can check the values of each attributes by clicking "**Show Values**" (7) and (8) button, this process cube has total "**Cells"** of 1,152 (3) and the total cells of process cube on the right corner of the process cube view page. After that for each dimension the user can perform "**Slice**" and "**Dice**" functionality by clicking their buttons (9) and (10).

In case the user desire to make a change and wants to alter their cubes. Let say the dimension is wrong or way off, then there is an "**Edit Dimension Page**" (2) button to take the user to the previous page. After the user is satisfied with their cube and want to model them with process discovery algorithms, one can process it further by clicking "**Show cell tables**" (1) button.

Furthermore, on the top of the page exactly on the right corner one can check if you are working on the right event log file and the name of your cubes. On the left of the page, one could switch to the home, inspect the uploaded log and check the created cubes.

Source

You can find the source on GitHub: https://github.com/Moo-State/PCubes-PADS2019. Feel free to contribute by opening issues or making pull request.

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