Substrate Editor User Manual V1.0

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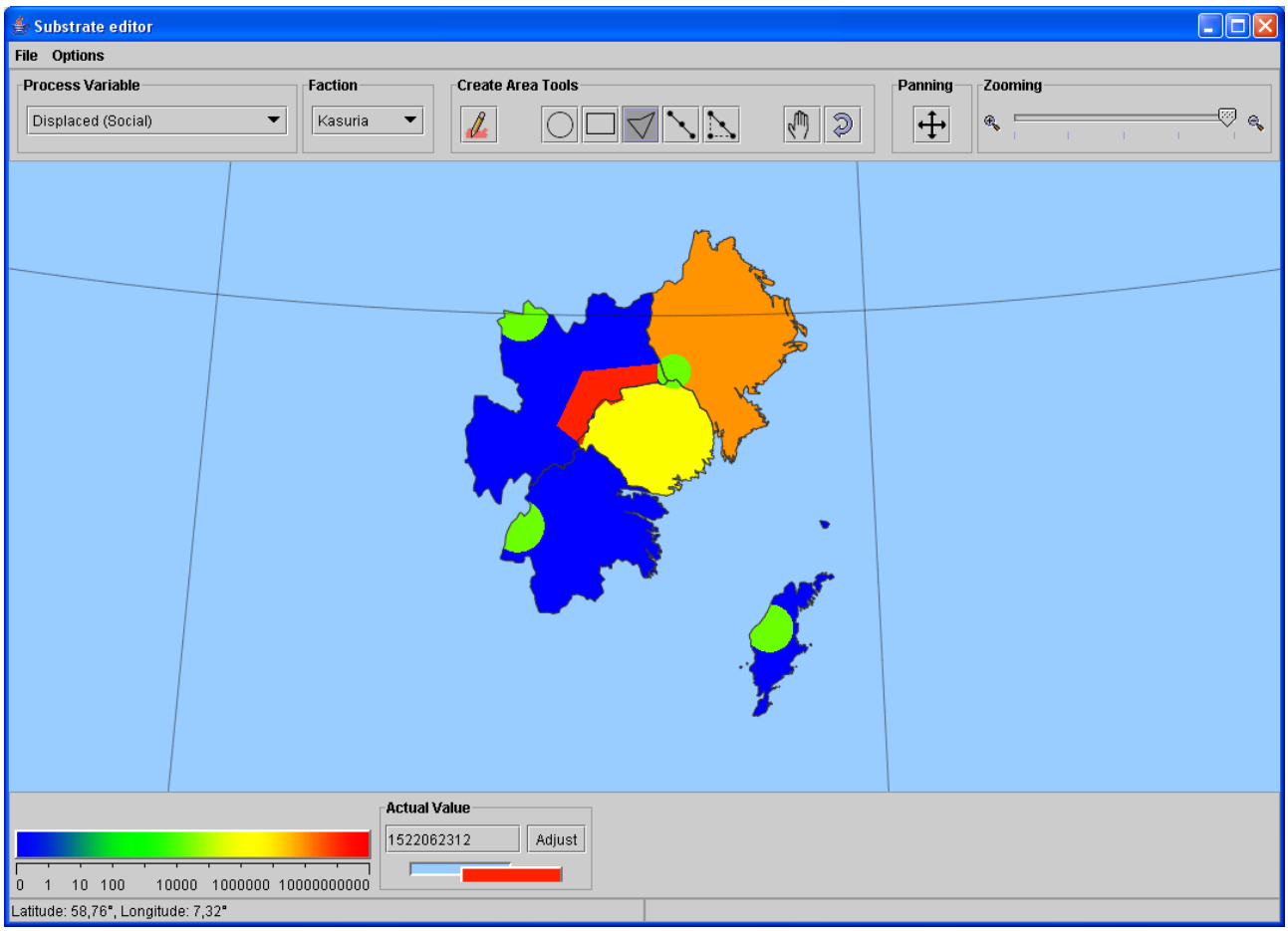

The substrate editor is used to initialize process variables and factions for the stratmas simulation. Each process variable – faction pair (or process variable alone if no factions are allowed) can be assigned values on different regions. These regions can be already defined regions in the input file or created areas with the substrate editor.

The use of the editor will be described in the following sections:

- Preparation phase,
- Assigning values to already defined or newly created areas,
- Loading and saving files and
- Proceeding to simulation.

Preparation phase

Before starting to assign values to process variables and factions the following steps has to be taken:

1. **The geographic region has to be defined**. This region is defined by the input file which can be scenario (.scn) file or shape (.shp) file.
2. **The process variables has to be defined**. The process variables can be obtained from a server or readed from a (.prv) file. The file with process variables is written in xml format and can be modified by the user. Example of a file with process variables is given at the end of this manual. In order to obtain process variables in the substrate editor select **File → Import Process Variables** menu.
3. **Factions has to be defined for certain process variables**. If a process variable contains factions, at least one faction have to be defined. In order to define factions in the substrate editor select **Options → Add/remove factions** menu.

Note that some sceanario files contain factions ie. no factions has to be explicitly defined if the input file is a scenario file and it contains factions.

If process variables are readed from a file, those have to have identical names with the process variables defined on the server. This means that only the process variables recognized by the server can be initialized. Other process variables will be ignored by the server.

Assigning values to already defined or newly created areas

After the preparation phase has finished, values can be assigned to the process variables. A process variable has to be selected. If the process variable has factions, a faction has to be selected as well. Instead of a faction the item ”**Each**” can be selected which means that each faction will be assigned same value.

The actual value is selected by using the color map. Each value is represented by a color on the map. The colors in the color map, the minimum and maximum values as well as the map scale (logarithmic or linear) can be changed in the color map dialog. Select **Options → Color Map Options** to open the dialog.

In order to select the actual value move the mouse cursor over the color map. While moving the cursor over the color map different values are displayed in the label above the map. Pick a value by clicking with the left mouse button. If the selected value has to be adjusted, enter new value and

press ”**Adjust**” button. The displayed value is the actual value and the displayed color is the actual color.

Values can be assigned to

- already defined regions and
- newly created areas.

Assigning values to already defined regions

In order to assign values to already defined regions,  button has to be pressed. Move the mouse cursor over the map. The region under the mouse cursor will be highlighted. Click with the left mouse button to assign the actual value to the pointed region. Repeat the procedure for other regions.

If several regions are parts of a larger region, all the regions can be assigned the actual value by first clicking the right mouse button and then clicking the left mouse button. Note that only highlighted regions will be assigned the actual value.

Assigning values to newly created areas

Circular, rectangular and polygonial areas can be created and assigned the actual value in the substrate editor. In order to create new area press the respective button. The following buttons are used to create areas:

 This button is pressed to create circular area.

 This button is pressed to create rectangular area.

 This button is pressed to create polygonial area.

 This button is used to insert new point in a polygonial.

 This button is used to move a polygonial point.

 This button is used to move circular, rectangular or polygonial area.

 This button is used to remove last added area from the substrate editor.

Loading and saving files

All the work done in the substrate editor can be saved to files with extension (.ini). These files can be loaded to the editor to continue the work in some later occasion.

Select **File → Load ...** to load a file with initial values.

Select **File → Save** to save the values from the substrate editor to a file.

Select **File → Save as ...** to save the values from the substrate editor to a file.

Proceeding to simulation

After the process variables are assigned values, those can be either saved to a file or used as initial values for process variables in a simulation. Select **File → Simulation** to continue to the simulation. At this moment the work with the substrate editor is done. Proceed with the simulation as described in Stratmas Client User Manual. Once the client is connected to the server, the process variables in the server are initialized with the values obtained from the substrate editor.

Example for process variables (.prv) file

```
<?xml version="1.0"?>
<processvariables xmlns:sp="http://pdc.kth.se/stratmasNamespace"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:xi="http://www.w3.org/2001/XInclude"
    xsi:type="sp:ProcessVariableDescriptionSet">
  <pv xsi:type="sp:ProcessVariableDescription">
    <name>Population</name>
    <category>Environmental</category>
    <factions>false</factions>
    <range xsi:type="sp:DoubleRange">
        <min>0</min>
        <max>10000000000</max>
    </range>
  </pv>
  <pv xsi:type="sp:ProcessVariableDescription">
    <name>Disaffection</name>
    <category>Political</category>
    <factions>true</factions>
    <range xsi:type="sp:DoubleRange">
        <min>0</min>
        <max>100</max>
    </range>
  </pv>
</processvariables>
```