Stratmas Client User Manual V7.2

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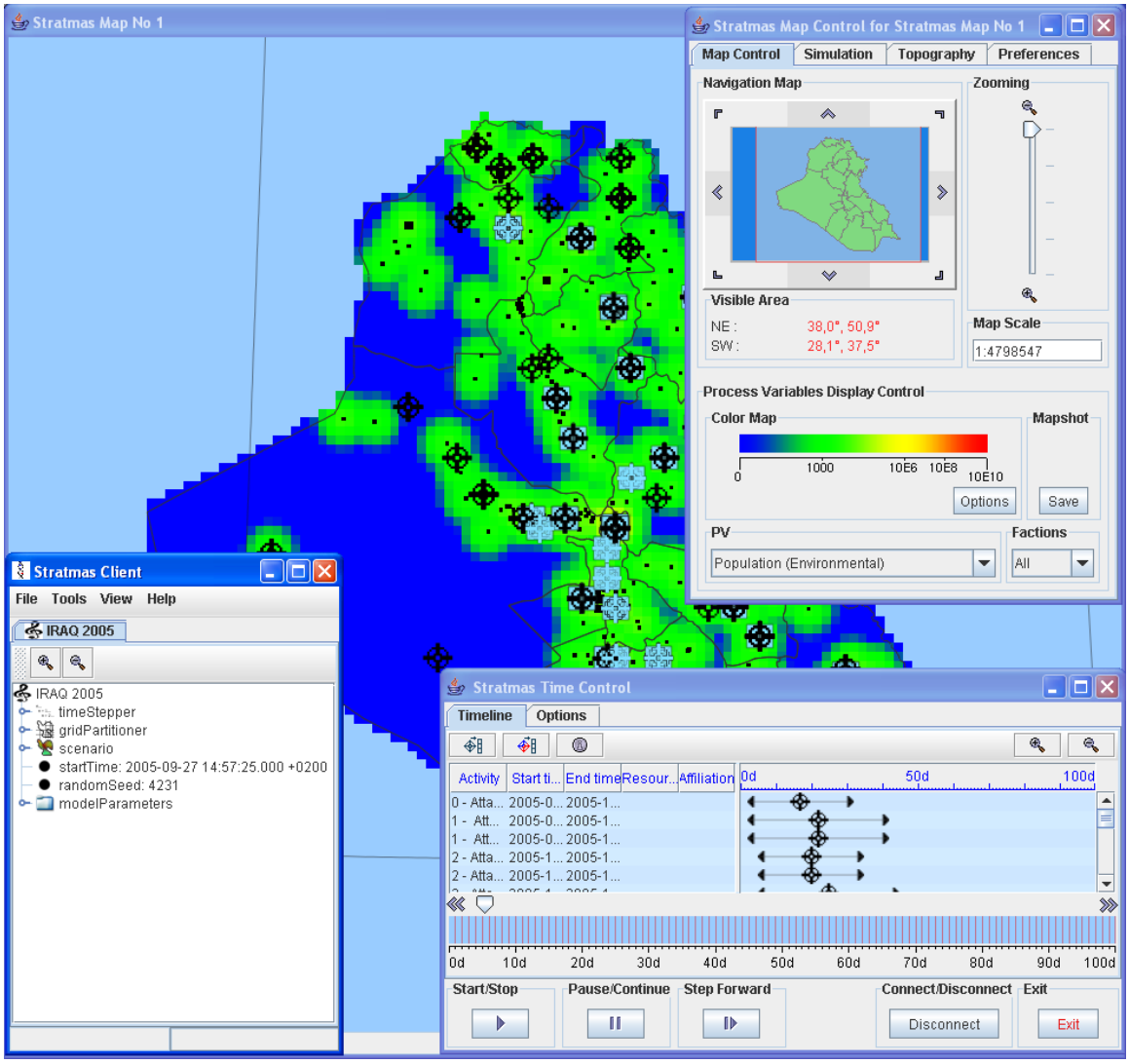


The Stratmas client user manual contains the description of the graphical user interface (GUI) components. Each GUI component will be described separately as well as the actions taken while acting on it. Finally, several use cases will be described in order to give the user “the flying start” when starting to use the simulator for the first time.

GUI Components Description

The following GUI components are used for control and manipulation of the simulator:
1. Stratmas Client Window
2. Stratmas Map
3. Stratmas Map Control
4. Stratmas TimeControl
5. Stratmas PV Table
6. Stratmas Graph
7 Stratmas Map Area Definition

The description of each GUI component is given below.

Stratmas Client

The Stratmas Client window has two basic functions

- To administer the different windows of the Stratmas Application.
- To provide menus that allows the user to open, save and close simulations (the File menu) and also to initiate activities like importing military units from Icon Factory or other files (the Tools menu).

Let’s start by exploring the window administration functionality. Most of the windows in the Stratmas Client can at any time exist in one of three modes:

- Shown as a separate window. This is the default mode, suitable to large, multiple virtual screen arrangements.
- Hidden - sometimes there may be just one window to many cluttering up the desktop. Hiding one or several uninteresting windows is one way to fix the situation.
- Tabbed - If one feels that hiding a window may be a bit drastic, one can let it appear the Stratmas Client window as a tab instead.

The modes of the windows are manipulated via the View-menu on the Client Window. To change if a window should be shown or hidden, choose View->Show->"The window". Similarly, if one wants to tab or untab a window select View->Tab->"The window". Note that to close, hide or show a tabbed window, one first has to untab it.

It is also possible to show/hide, tab/untab all or none of the windows by choosing View->Show->All, View->Show->None, View->Tab->All or View->Tab->None respectively. At the end of this document there are use cases describing how the things in the File and Tools menus work, please consult these use cases for a description.

Stratmas Map

The Stratmas map is used to

- Create a new scenario i.e., define a new region of interest and import and place military units inside it.
- Edit the existing scenario by changing the initial position of the military units.
- Display the results of the running simulation at each time step.

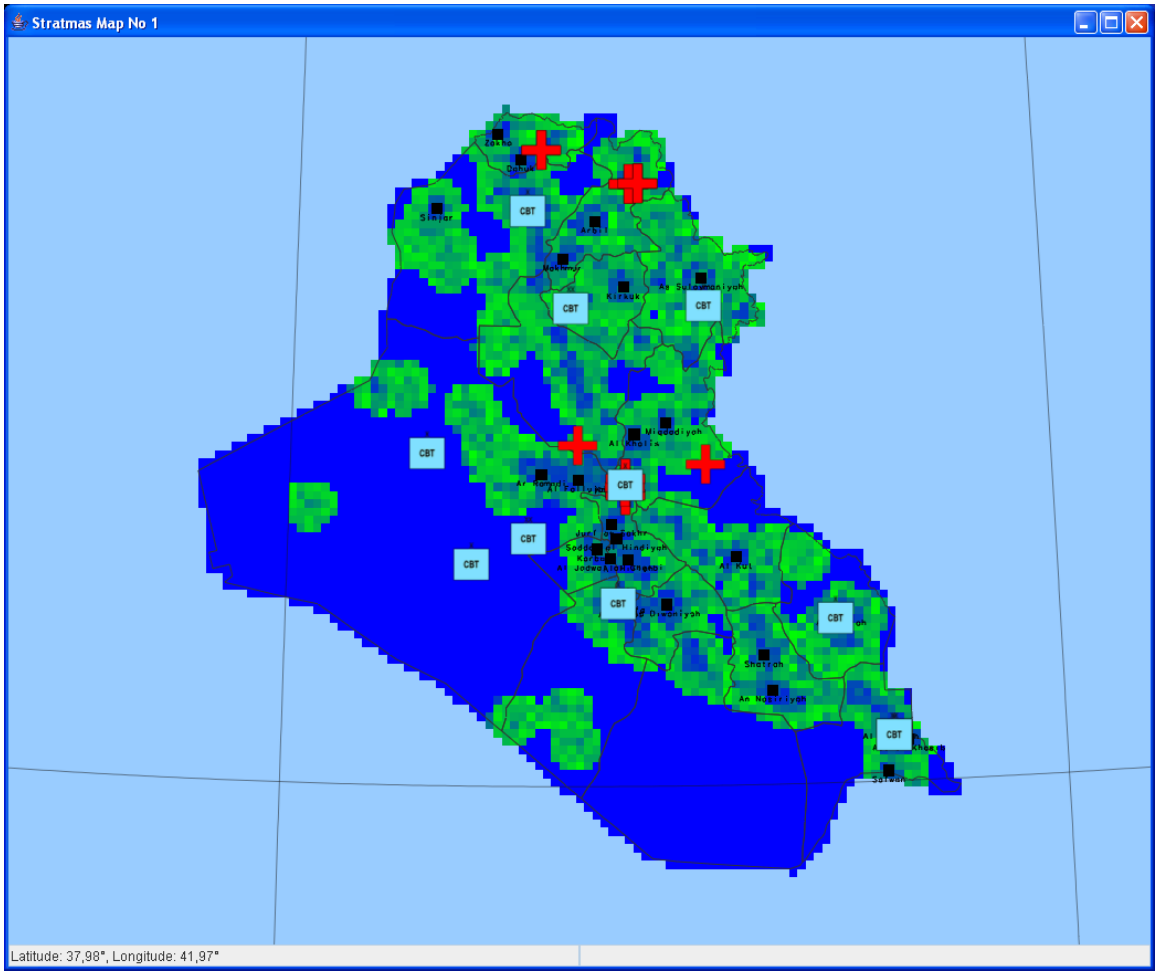
The following elements can be displayed in the map:

- Shapes of the regions.
- Graticule lines.
- Process variable distribution, both grid-based and region-based.
- Locations and names of the population centers.
- Icons of both military and civilian units where the military icons follow the APP 6A standard.
- Activities.
- Areas for military units, agency teams, population centers and activities.

The Stratmas map is highly interactive for the user. The following interactions are possible with the mouse:

- Location of each point in the map is displayed when pointing with a mouse pointer on it. It is presented by using the geodetic (longitude and latitude) or the military grid reference system (MGRS) coordinates.
- Name of the region is displayed when moving the mouse pointer above it.
- Icons of the military units, civilian units and activities with area can be moved by dragging an icon with the left mouse button and dropping it by releasing the button at the chosen location. If several displayed units/activities have the actual location, the dragging action opens a menu where all these units/activities are listed. In this case the user should drag a name from the menu which corresponds to the chosen unit/activity and drop it at the chosen location. Activities without area are treated separately; these activities can be dragged and dropped only if the client is not connected to the server. In this case a new area is created for the actual activity at the location where the icon is dropped.
- Dropping an activity, which is at the time not part of the simulation, on a unit transfers that activity to the unit (giving the activity as an order). If the activity had an area that area is preserved. Dropping an activity which is a part of the simulation only updates it's location as previously described.
- A shape can be dragged from the Stratmas client window and dropped on the map by releasing the mouse button. In this case the region displayed on the map will be increased with the additional shape.
- Clicking with the right mouse button on a military unit icon and selecting “Show subunits for:” and the name of the unit displays all subunits one level below the actual military unit. This is useful if “Top Units” is selected in the Simulation folder in the Map Control Window.
- Clicking with the right mouse button on an icon representing a military unit, an agency team, a population center or an activity and selecting “Show position for:”

and the name of the object opens a dialog with the position of the object.



Example of Stratmas map

- Clicking with the right mouse button on a military unit, an agency team, a population center or an activity and selecting “Define area for;” and the name of the object enters the area definition mode for the area in question.
- Clicking with the right mouse button on a military unit, an agency team, a population center or an activity and selecting “Select:” selects and highlights the object. Activities selected on the map are also selected on the timeline and vice versa. Selected object are always shown on the map independent of preferences in the map control window.
- Pointing with the mouse pointer over the displayed region and clicking the right mouse button may open a submenu with a list of all regions that contains the pointed location (including the actual cell). By choosing a region from the submenu a Stratmas PV info window opens where values for all process variables and factions are displayed. Notice that this feature exists if and only if the client is connected to the server.
- Pointing with the mouse on a military unit, an agency team, a population center or

an activity and left double-clicking opens an information window of that object. If several objects are located at the pointed location a submenu containing the names all these objects is opened. Choosing an object opens the information window for that object.

Interactions with the Stratmas map can also be obtained by using another GUI component that will be described later on.

Stratmas Map Control

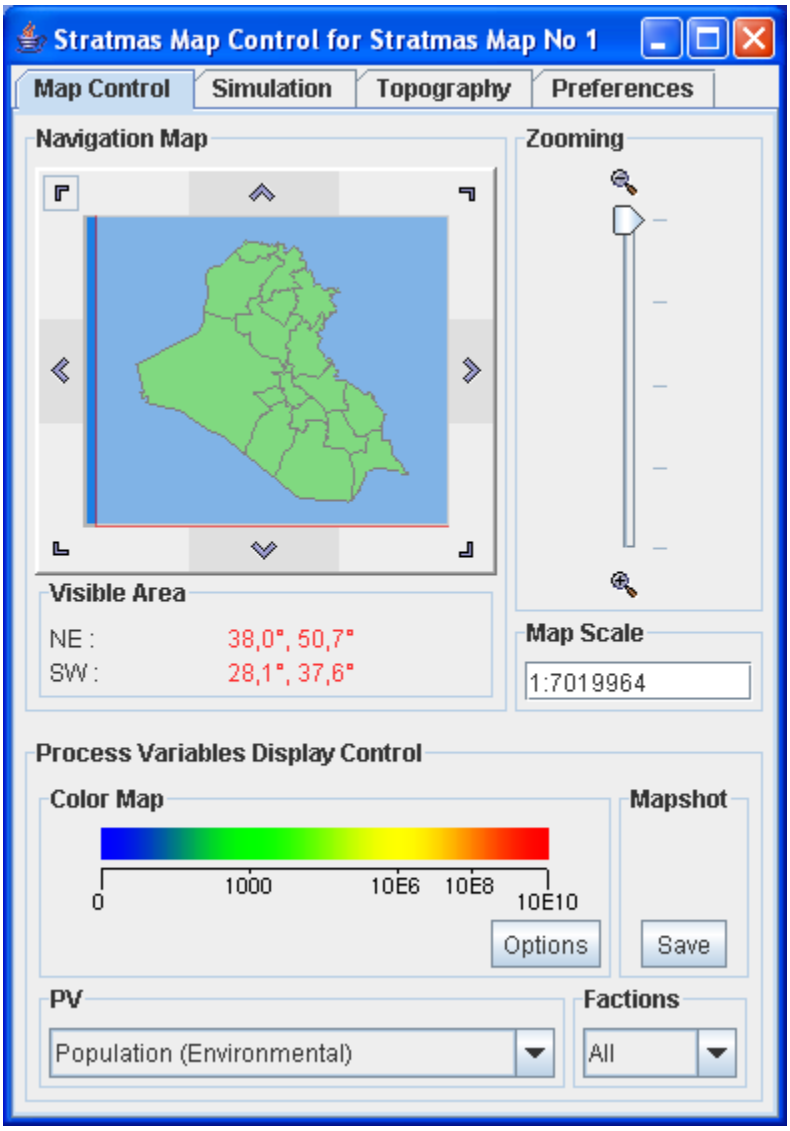
The Stratmas map control window is used to control and manipulate the Stratmas map as well as the objects displayed on the map. This control window contains four different panels:

- Map Control panel is used to control the view of the Stratmas map (zooming, panning) as well as to display the process variables.
- Simulation panel is used to control the display of the different Stratmas elements i.e. the military units, the agencies and the activities.
- Topography panel is used to control the display of the population centers, the region borders and the graticule lines.
- Preferences panel is used to control the display of the different symbols in the map.

The Map Control panel contains:

- Navigation Map – used to control the panning of the Stratmas map. The Stratmas map can be panned by:
  - Using panning buttons that moves the center of the Stratmas map view area in the chosen direction.
  - Using mouse left button that moves the center of the Stratmas map view area to the location pointed by the mouse pointer.
- Zooming – used for zooming of the Stratmas map.
- Map Scale – shows the current map scale.
- Process Variables Display Control - used to control the display of the process variables in the map. This panel contains the following subpanels:
  - Process Variables & Factions – used to choose the process variable and the faction that is to be displayed on the Stratmas map. It is important to notice that a delay exists between choosing a process variable and a faction and displaying the values on the Stratmas map. During the delay the chosen process variable and the faction are colored red. **This panel is displayed if and only if the client is connected to the server.**
  - Mapshot – used to save the current values of the process variable displayed in the map as an image.
  - Color Map – used to map the numerical values obtained from the simulator to the color values displayed on the Stratmas map. The color map can be adjusted with the following options:
    - Linear or logarithmic scale can be used.

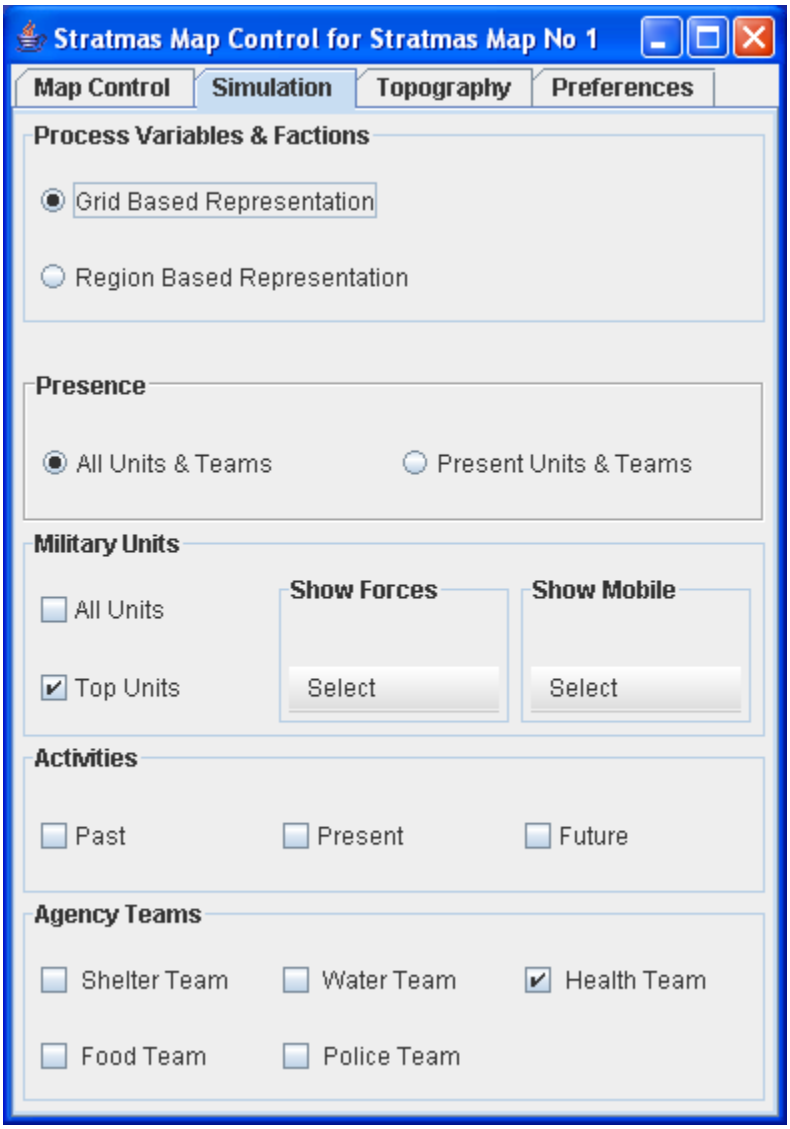
- The bounds of the map scale can be changed.
- Different color combinations can be chosen



The Map Control panel

The Simulation panel contains:

- Process Variables and Factions – used to choose the grid based or the region based representation of the process variables.
- Presence – used to choose if only "present" elements will be displayed on the Stratmas map or all the elements.

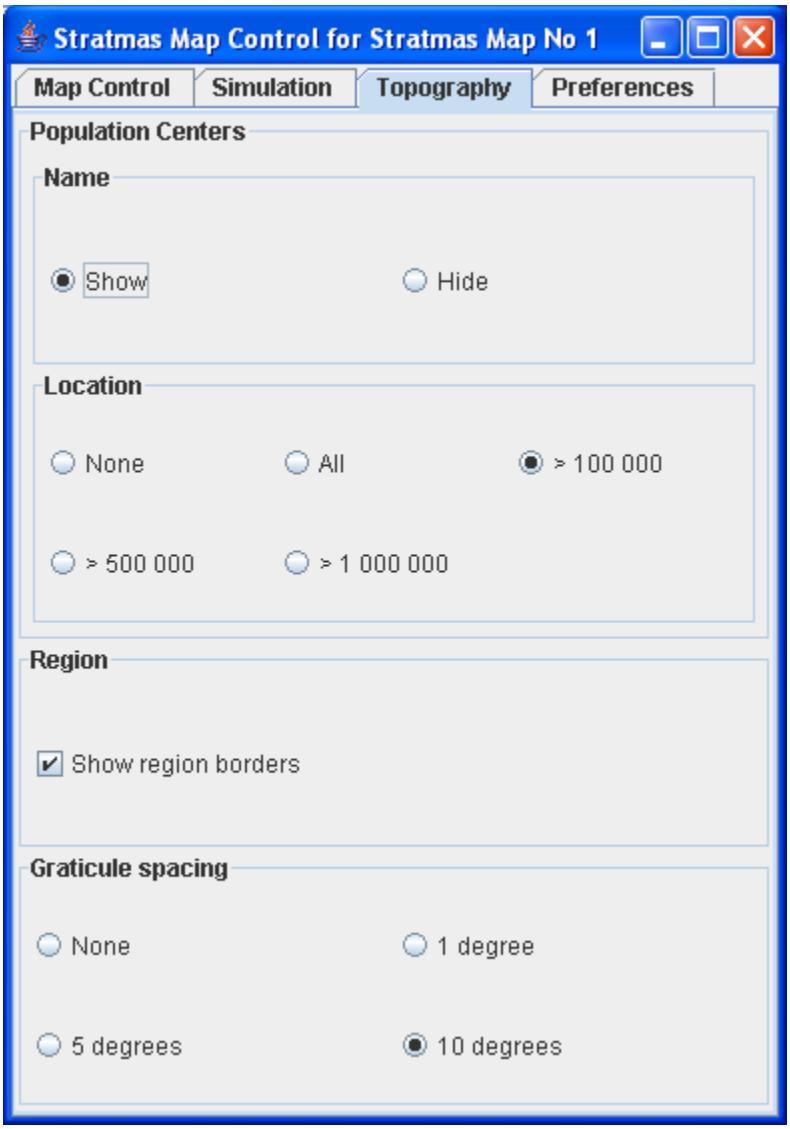


The Simulation panel.

- Military Units – used to select the units to be displayed on the map. The units can be selected with respect to their force and mobility.
- Activities – used to display the activities depending on their active times i.e., the past activities, the currently active or the future activities.
- Agency Teams – used to select the civilian teams to be displayed on the map.

The Topography panel contains:

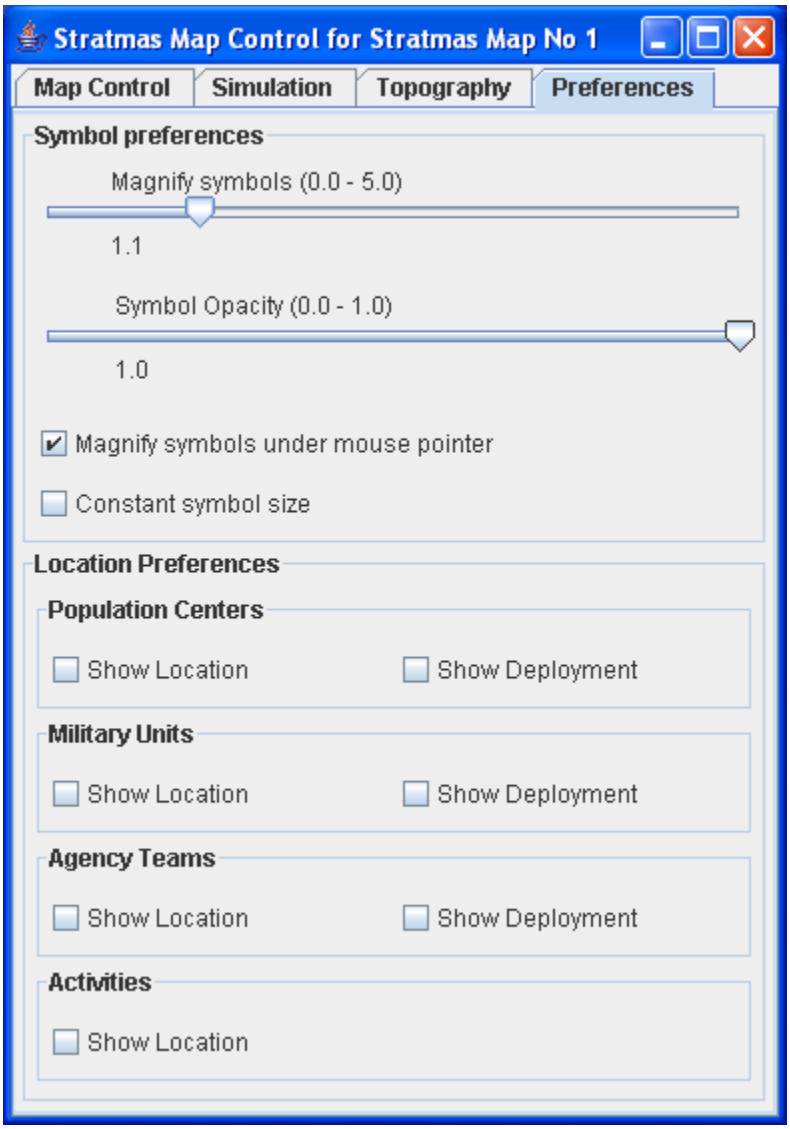
- Population centers – used to display names and locations of the population centers. The selection is done according to the population size.
- Region – used to either display the region borders or not.
- Graticule Spacing – used to define the spacing between the graticule lines.



The Topography panel.

The Preferences panel contains:

- Symbol preferences – used to change the display of the icons. The icons can be changed in size and transparency.
- Location preferences – used to display location and deployment for military units, agency teams and population centers. Only location can be displayed for activities.

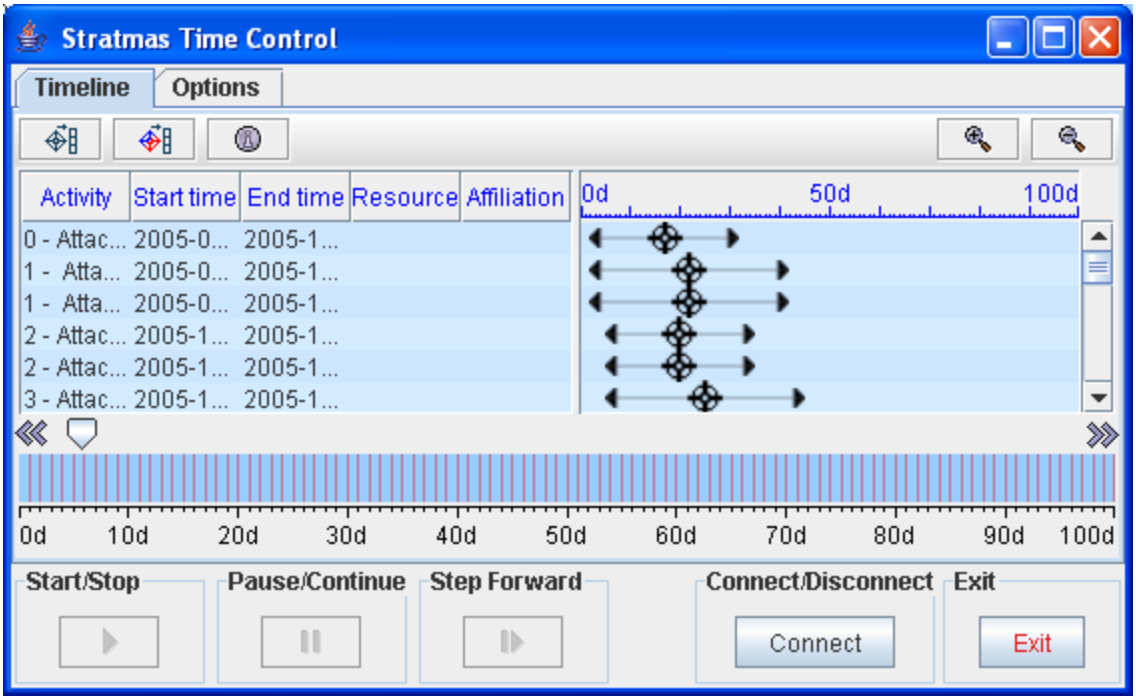


The Preferences panel.

Stratmas Time Control

The Stratmas Time Control window contains two panels:

- The Stratmas Simulation Control panel and
- The Stratmas Timeline panel.



The Stratmas Time Control window.

The Stratmas Simulation Control

The Stratmas simulation control window is used to connect to/disconnect from the server and to control the simulation with the start, stop, pause and step forward in time buttons. It is important to point out that the look of the window differs depending of the status of the simulation i.e., if the client is connected to the server or not, if the simulation is started or not etc.

The start button is used both to start the simulation and to stop it. The pause button is used to pause the simulation and to continue it. The step forward button is used to run the simulation one single time step. The connect button is used both to connect the client to the server and disconnect it from the server. The exit button is used to exit the simulation.

The Stratmas Timeline

The Stratmas timeline is used to select the times for which the simulation results will be displayed on the Stratmas map as well as display and update the activities. It is updated with the current simulation time continuously.

The Stratmas Timeline panel consists of two subpanels:

- The Timeline panel and
- The Options panel.

The Timeline panel contains:

- The timeline bar where the selected times are displayed. To select a time interval the user starts with pointing at the start time with the mouse cursor and then pressing the left mouse button. Moving the mouse pointer then colors the interval between the start time and the current pointing time. When the interval ending time is found, pointing with the mouse cursor on it and releasing the left mouse button completes the selection process. The complete interval between the start time and the end time is now selected and colored in the timeline. To select other time intervals the whole procedure has to be repeated. The times can be removed by following the similar procedure with the exception of pressing the right mouse button this time.
- The table of activities where the activities are displayed. The table contains the name, the start time, the end time, the resource and the affiliation of each activity displayed on the timeline. Further on, the symbol for each activity in the table is displayed together with the arrows at its start and end times. The symbol color is black for the actorless activities (events) while it depends of the affiliation of the resource for the orders. The table is highly interactive with the following features:
  - The start and end times of each activity can be modified by pressing the left arrow (for the start time) or right arrow (for the end time) with the left mouse button and then move the arrow to the new position.
  - The activities can be moved in the timeline with a drag'n'drop action.
  - The activities can be dragged and dropped from the map or the tree view to obtain the time values.
  - Clicking with the right mouse button on an activity and selecting "More information about" opens an information window for that activity.
  - Clicking with the right mouse button on a resource and selecting "More information about" opens an information window for that resource.
  - Clicking with the right mouse button on an activity and selecting "Remove" removes the activity.
  - Clicking with the left mouse button on a resource opens a list of all resources. Selecting a resource from the list sets the resource for the actual activity.
  - The table can be sorted with respect to the name of the activity, the start time, the end time, the name of the resource and the affiliation of the resource. The sorting is initialized with pressing the table header with the mouse button.

The time scale displayed on the timeline is the relative time starting from the current simulation start time. The displayed time units can be days, hours, minutes and seconds. This time unit can be changed by pressing the zooming buttons. Only times which are selected will be displayed during a simulation. The server will calculate all time steps but information only for selected time steps will be sent to the client.

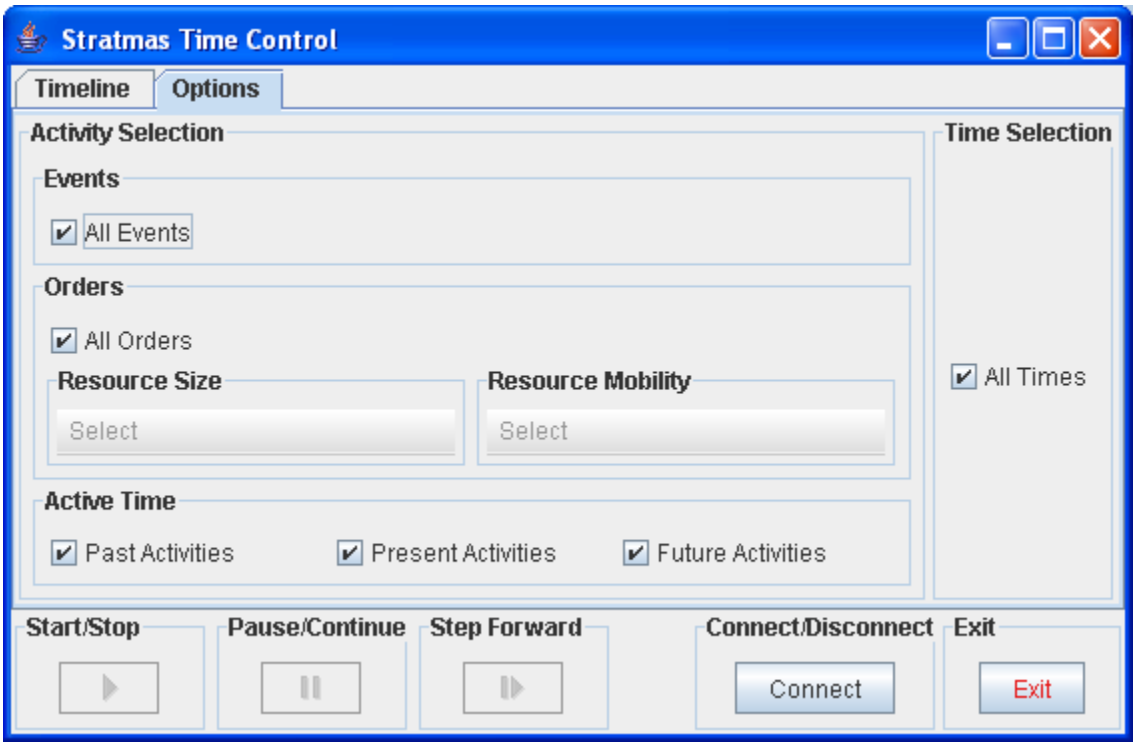
The buttons contained in the timeline panel are:

- Information button (info icon) – used to display the simulation start time, the simulation current time and the time step.
- The button for adding an actorless activity (event).
- The button for adding an order.
- Zooming buttons – used for zooming in and out.
- The buttons used to move the timeline view area forward and backward.

The slider in the timeline is also used to move the timeline view area forward and backward.

The Options panel contains:

- Selecting times in the timeline – all times are selected if the box is checked. Otherwise the times are selected manually.
- Selecting the actorless activities (events) – if selected all events will be displayed in the timeline.

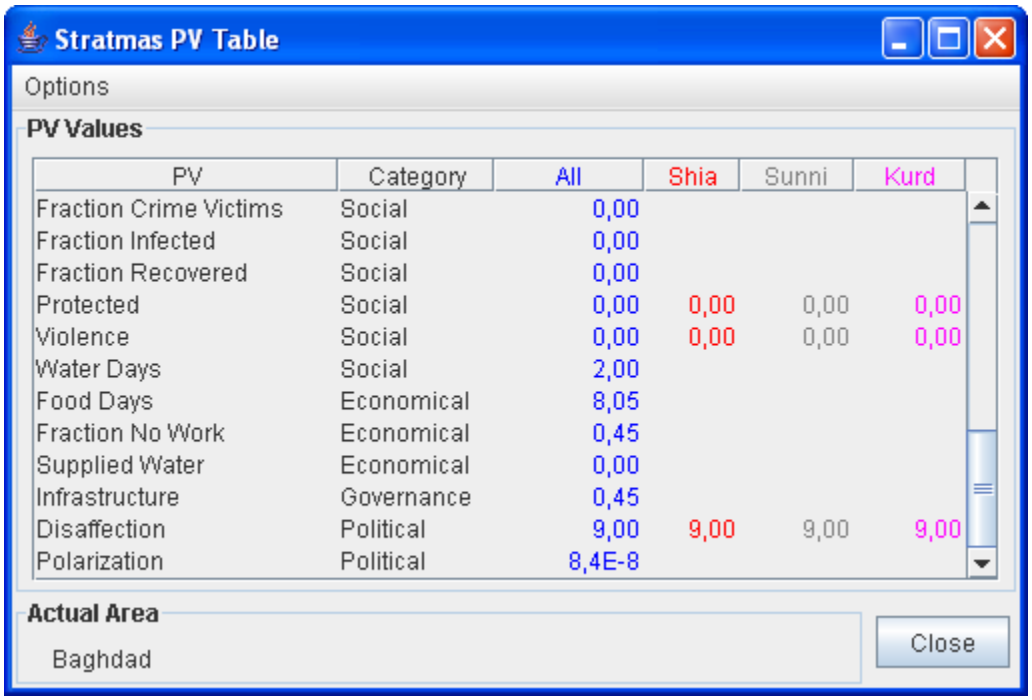


The Option panel.

- Selecting the orders – if selected all the orders will be displayed in the timeline. If not, the selection can be refined by choosing the military units which execute the orders. These units can be selected with respect to the size and mobility.
- Selecting the activities with respect to the active times – the activities active in the past, the currently active activities and the activities which will be active in the future can be selected. Only the selected activities will be displayed in the timeline.

Stratmas PV Table

The Stratmas PV table window is used to display values of all process variables and factions over a region of interest. This region is chosen by user interaction with the Stratmas map.



The Stratmas PV Table.

Each process variable is represented with a row in the table. The columns contain its name, category and a value for each faction. By pointing on a non-empty cell with the mouse pointer and double clicking with the left mouse button a user can open one or several graphs:

- If the cell contains a value, a graph for the selected process variable and faction is opened.
- If the cell contains the name of a process variable, a graph for the process variable showing values for all the factions will be opened.
- If the cell contains the category of a process variable, several graphs are opened – one for each process variable from the selected category. Each graph shows all the

factions of the actual process variable.
When a graph is opened it's initial location depends on the location of the table and the already opened graphs. The intension is to place the graphs rowwise such that as many graphs as possible will be initially visible. Each new graph is placed last in the actual row. If the screen is covered with graphs, a new opened graph is located near the middle of it.

The process variables in the table can be sorted with respect to the category. The main category can be selected from the Options->Main category menu.When the main category is selected, the process variables from the category are placed in the top of the table. Even more the graphs are reordered such that the graphs for the process variables from the main category are placed at the top of the "grid of graphs".

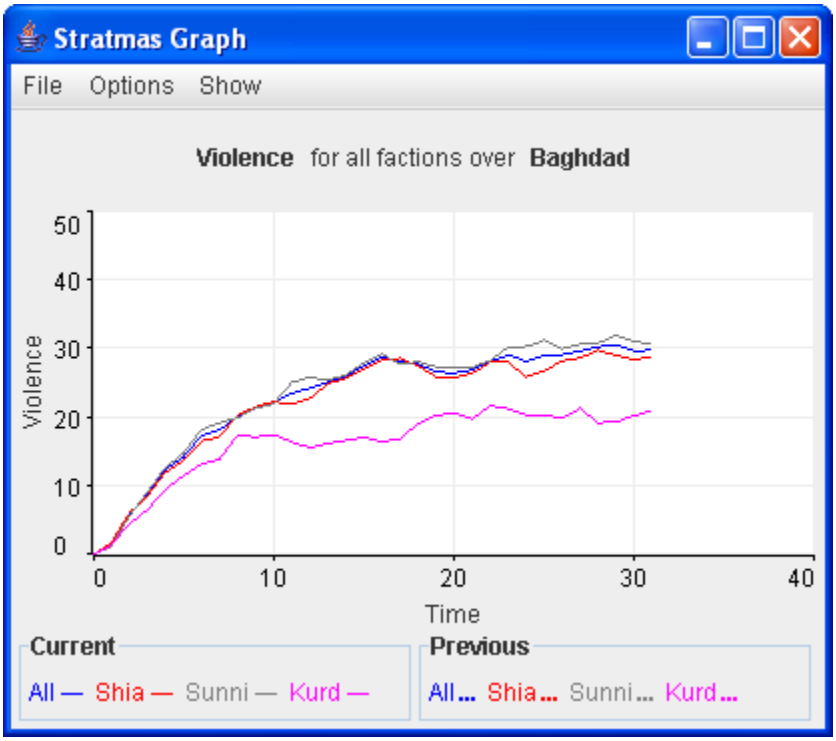
It should be noted that each opened graph is initially placed last in the "grid of graphs", no matter if it shows a process variable from the main category. In order to put these graphs in the top of the grid, all the graphs has to be sorted by selecting Options->Sort graphs->By category in the menu.

Stratmas Graph

The Stratmas graph is used to display values of one or all factions of the chosen process variable over a time interval. The following options are available on the graph:

- File → Save image as … saves the values displayed in the graph to a specified file. The values are saved as an image in jpeg or png format.
- File File → Export values as … saves the values displayed in the graph to a specified file. The values are saved in a semicolon separated list.
- File → Exit closes the graph window.
- Options → Scale → Linear selects the linear scale for the graph.
- Options → Scale → Logarithmic selects the logarithmic scale for the graph.
- Show → Results → Current Run displays the results of the current simulation run only.
- Show → Results → Current and Previous Run displays the results of both the current and the previous simulation run.
- Show → Legend shows the legend in the graph if selected.

An example of the Stratmas graph is displayed below.



The Stratmas Graph.

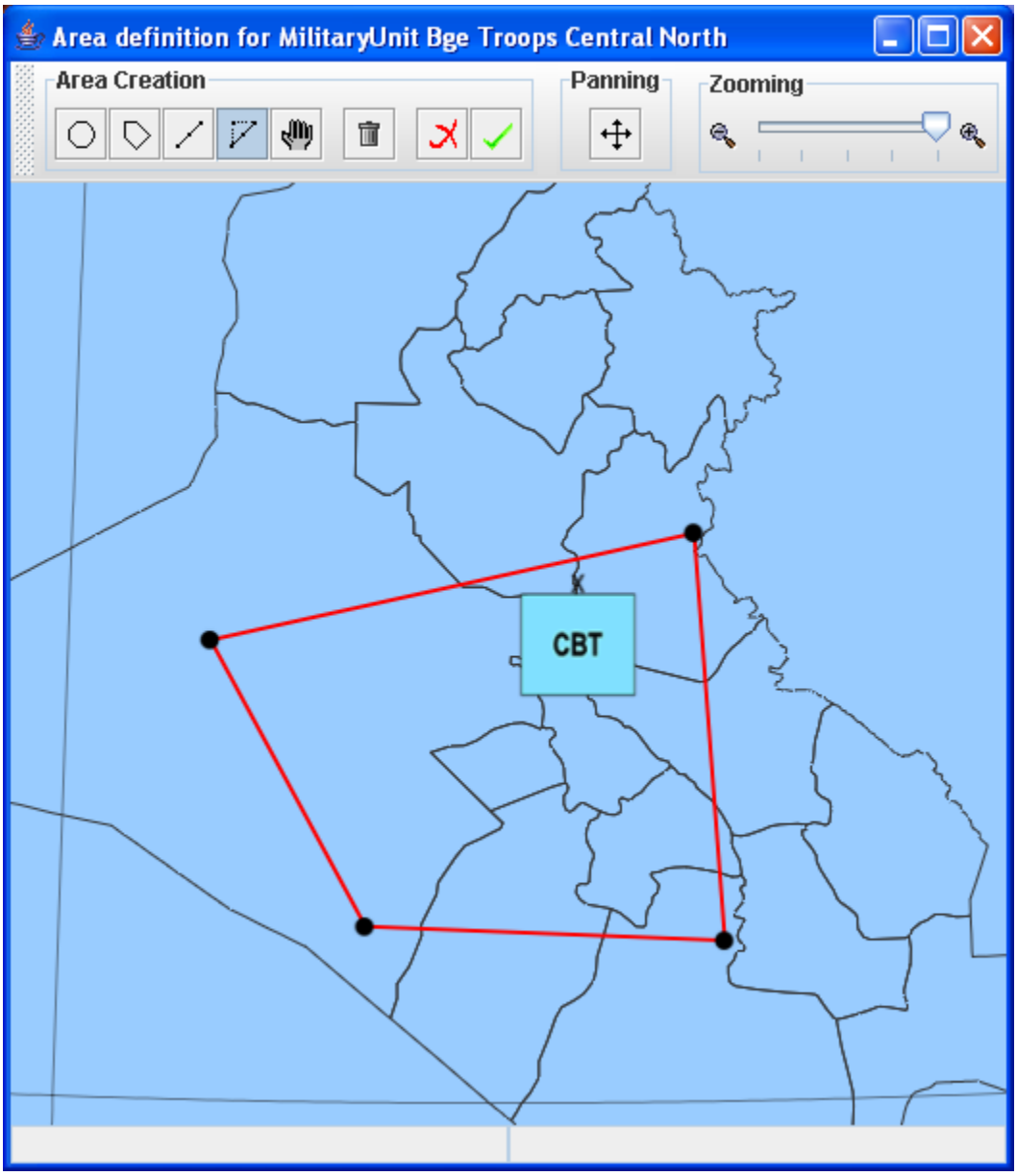
In the example above, all available factions for the process variable "Violence" will be displayed.

Stratmas Map Area Definition

When defining new area (location) for a military unit, an agency/team or an activity a new map window is created.

This window has the following functionality:

- Press the circle button to define circles. The center of the circle is placed in the same as the old position if such exist on the map or in the middle of the map. If the actual object is an activity without area then the center of the circle is placed in the position of the military unit which owns it. The radius of the circle is defined by pressing the left mouse button.
- Press the polygon button to define polygons. Click with the left mouse button for each of the points in the polygon. To close the polygon the right mouse button can be pressed.
- The line splitting button can be used to split the line between two points in a polygon into two lines with a point where the left mouse button is clicked.



An example of the window used as a tool for area definitions.

- The point moving button can be used to move points in existing polygons. Click with left mouse on a point and move it to the new position with the mouse button down.
- The move tool (hand) moves an existing circle or polygon into a new position on the map.
- The waste bin removes an area which already has been created in the circle and polygon mode and lets the user start from the beginning.
- The red cross exits the tool without saving the drawn area.
- The green check mark exits the tool and saves the drawn area.

The panning button is used to navigate the map. When the button is pressed the map can be dragged with the mouse button. The zooming slider is used to zoom the map.
It should be mentioned that only circles and simple polygons are accepted as valid area.

Use Cases

Importing Troop Hierarchies from IconFactory2

It is possible to import a troop hierarchy from IconFactory2 into a Stratmas simulation. This is done by choosing the Import from IF2 option in the Tools menu. After selecting an IconFactory2 file to import, a view of the chosen troop hierarchy is presented. Select the branches of the hierarchy that should be imported and drag them to the map. Notice that the top unit in the hierarchy must always be selected. When dropping the chosen units on the map, the top unit and its subunits will be added as a new force in the element list in the scenario. Dropped units will be grayed in the troop hierarchy window since they may not be added twice to the same simulation.

It should be noticed that the purpose of IconFactory2 is not to define the characteristics of troops but rather to create hierarchies of template troops. Thus, the troops imported will be given default values for all attributes that are not defined in IconFactory2.

Creating a new simulation

To create a new simulation, perform the following steps.

1. Start the program.
2. Choose *Create* from the *File* menu.
3. In the file dialog that opens - select an ESRI shape file defining the map for the new simulation.

A new simulation has now been created. This simulation does not contain anything but the most necessary objects that have been given default values. From here it is possible to do numerous things. Some of these are described below:

- The factions can be added by expanding the *scenario* element in the Stratmas client window, right clicking on the *faction* object and choosing *Add Ethnic Faction*. This will create a default faction object which can be edited by the user.
- The cities can be added by expanding the *scenario* element in the Stratmas Client window, right clicking on the *element* object and choosing *Add Population*. This will create a default population object which can be edited by the user.

Other elements can be created by following the similar procedure.

Running the simulation with existing scenario from the active client

1. Start the program.
2. Go to Stratmas Client -> Tools -> Preferences. Choose the coordinate system i.e., geodetic or MGRS.
3. Go to Stratmas Client -> File -> Open. Press the button. The list over existing scenarios (.scn files) is shown. Choose one scenario.
4. The following GUI components show up on the screen: the Stratmas client window, the Stratmas map, the Stratmas map control, the Stratmas simulation control and the Stratmas timeline. The simulation is loaded and shown in the Stratmas client window in a tree like form. The Stratmas map shows the borders of the actual region, location of the cities and the military units of the highest rank by default. Modify the Stratmas map according to your own needs with help of the Stratmas map control.
5. To connect to the server press "Connect" button in the Stratmas simulation control. Write the name of the server in the dialog that shows up. Press "OK" button. The connection process starts. This process can take several seconds and depends of the machines the simulator is running on as well as the connections between the machines. A good indicator that the connection and initialization of the server has been completed is that the initial values for the process variable "Population" and the faction "All" shows on the map.
6. Press the start button in the Stratmas simulation control. The simulator is running now.

The simulation results for the selected objects are displayed on the map at each time step. The simulation can be paused/continued by pressing the pause/continue button. Pressing the stop button stops the simulation and resets the simulator to its initial values. Pressing "Disconnect" button disconnects the client from the server. To exit the simulator press the "Exit" button.

Modifying an existing scenario

1. Start the program.
2. Go to Stratmas Client -> File -> Open. Press the button. The list over existing scenarios (.scn files) is shown. Choose one scenario.
3. The simulation is loaded and shown in the Stratmas client window in a tree like form. The elements of the simulation can be modified and in some cases added or/and deleted.
   - Example for element modification: Go to scenario -> disease -> infection rate and double click with the left mouse button. The value can now be changed.
   - Example for element addition: Go to scenario -> activity and click with the right mouse button. A menu is shown with several alternatives. Select "Add CustomPVModification". Fill the dialog that shows up with the necessary

values. Press “Create”. The new activity has been added to the simulation.

- Example for element deletion: Go to scenario-> map -> shape ->Anbar (or other arbitrary node) and click with the right mouse button. A menu is shown with several alternatives. Select “Delete”. The region has now been deleted from the simulation.

4. The Stratmas map shows the military units of the highest rank by default. To display other military units on the map do the selection in the Stratmas Map Control. The location of each military unit can be changed by dragging and dropping it on the map.
5. To connect to the server and run the simulation, proceed as in the previous case.

Adding military units and giving them orders from libraries in an existing scenario

1. Start the program.
2. Go to Stratmas Client -> File -> Open. Press the button. The list over existing scenarios (.scn files) is shown. Choose one scenario. All the GUI components are displayed.
3. Go to Stratmas Client -> Tools -> Import Military Units. Press the button. A list of unit library files is shown. Choose one and a window with the military units in the library is opened.
4. Drag and drop a unit on the map.
5. If appropriate define an area for the unit by clicking with the right mouse button on the unit and select “Define area for:” and the name of the unit.
6. A new window is created with an area drawing tool. Areas can be defined as circles or arbitrary polygons.
7. Exit the area drawing tool
8. Repeat placing units on the map
9. Go to Stratmas Client -> Tools -> Import Order Libraries. Press the button. A list of order library files (.oli) is shown. Choose one and a window with the orders is opened.
10. Drag and drop orders on units to give them orders. Some orders like “Goto” require an area. In this case the area drawing tool is opened automatically otherwise the areas drawing tool can be open manually by clicking with the right mouse button on the activity and select “Define area for:” and the name of the activity..
11. To connect to the server and run the simulation, proceed as in the previous case.

Connecting as a passive client to a running simulation

1. Start the program.
2. Choose Client -> File -> Passive mode
3. Type the name of the server to connect to in the dialog that appears.

The client will now fetch all current data from the simulation running on the specified server. It may take several seconds before the usual GUI components show up. As the server advances the simulation, the client will automatically fetch data from the latest available time step. Notice that the client may not be able to get data for all time steps that the server simulates due to delays in communication and client side data processing.