



**018530 - SWITCH**

**Sustainable Water Management in the City of the Future**

Integrated Project  
Global Change and Ecosystems

**Deliverable D1.4.5 (Replaces D1.4.9 from original DoW)**

**The City Water Information System (CWIS) - Training package**

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<b>PU</b>	Public	X
<b>PP</b>	Restricted to other programme participants (including the Commission Services)	
<b>RE</b>	Restricted to a group specified by the consortium (including the Commission Services)	
<b>CO</b>	Confidential, only for members of the consortium (including the Commission Services)	



## SWITCH Deliverable Briefing Note

<b>SWITCH Document:</b> The City Water Information System training package
<b>Deliverable reference:</b> D1.4.5 (Replaces D1.4.9 from the original DOW)
<b>Author(s) and Institution(s):</b> Colin Schenk, Bastien Roquier, Marc Soutter / EPFL
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<b>Audience</b> This deliverable is targeted to persons wishing to understand the City Water Information System by practice.
<b>Purpose</b> To train the various aspects of the City Water Information System and thus to get an in depth understanding of what that tool actually does.
<b>Background</b> Sharing information and knowledge is a very basic first step in the multi-thematic and multi-stakeholder global and integrated approaches that have long been recognized as necessary step towards a more sustainable practice of natural resources management. The City Water suite of tools and, more specifically, the City Water information System, have been designed to address complex strategic planning issues that are a major characteristic of urban water management challenges for the cities of the future.
<b>Potential Impact</b> With its modular structure, including three complementary data viewing tools (reporting, geographic and systemic), its system-based database and its ability to handle scenario/situation data, the City Water Information System offers a unique tool to address complex, multi-thematic and multi-stakeholder issues in a global and integrated framework. Due to its generic layout, based on ontologies, this novel, if not revolutionary, Web-based information system is not restricted to integrated urban water management but has a very broad range of potential fields of application.
<b>Recommendations</b> Try out the online demo version



# **City Water Information System**

## **Training tutorials**



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# **Part A**

## **Training the general application infrastructure**



## Access to a predefined workspace

### Task1. Open the SWITCH Workspace from the Dashboard.

- ✓ Open a Web browser,
- ✓ Type your Web server address to launch the application (in the example below, the Web server is hosted on local machine – localhost; the demo Web server is currently located at: <http://home.ipogee.ch/DemoBmap/Bmap.html>)



fig 1

- ✓ Navigate to the “SWITCH” dashboard item, and click on **Go** button. This will open the workspace show here below, with a system view on the right side, showing the structure of the SWITCH project and an Active Reporting Tool (ART) view on the right presenting a report on the city of Alexandria.





- ✓ Reload the Web page ,

- ✓ Click on the **open a blank workspace** button (see fig.1)





- ✓ Collapse and expand again the Data Space section, hide and show the left panel by (i) hovering the mouse over the upper bean-like button and (ii) by clicking this button,
- ✓ Click on the Workspace tab (WS) to activate it and scroll down and click to select the Egypt workspace,

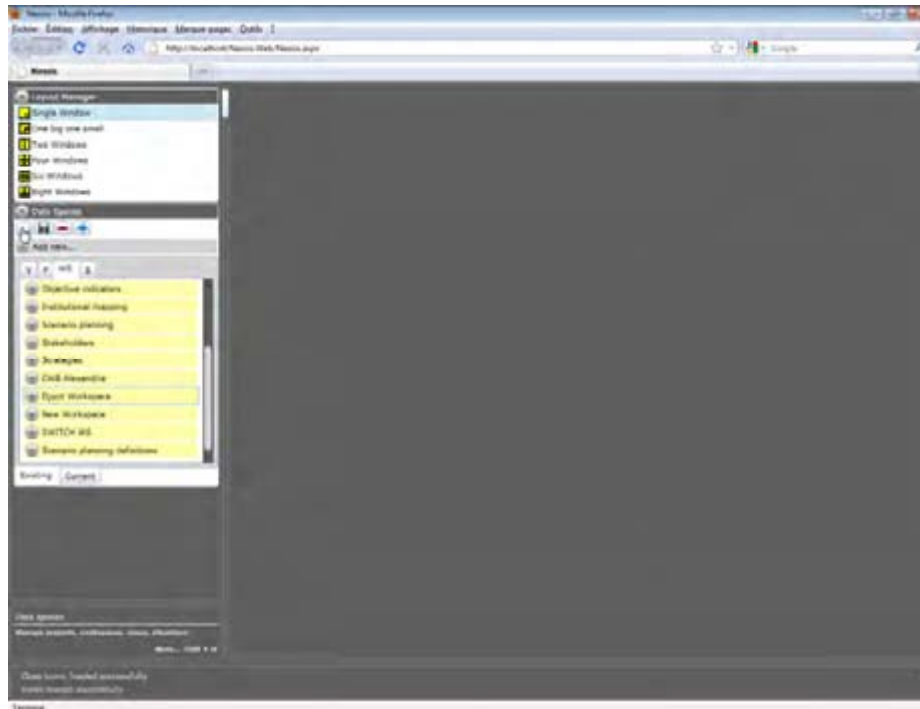


fig 4

- ✓ Click on the open button  to load and display the workspace.

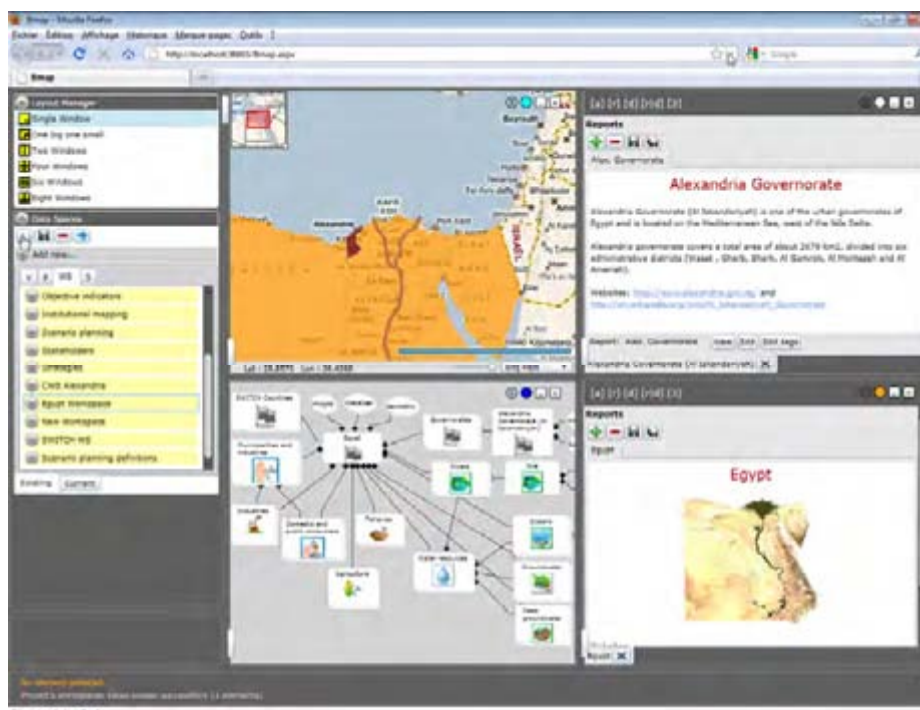


fig 5



## Display views, explore projects

### Task3. Open a Geo view from the View list

- ✓ Reload the application (i.e. reload the Web page) and click on open a blank workspace,
- ✓ In the Data Space expander, activate the View (V) tab,
- ✓ Scroll down to the geo view named Alexandria\_Gis (if needed resize the left banner by dragging the splitter to the right to bring the scroll in view) and position the mouse on this item,

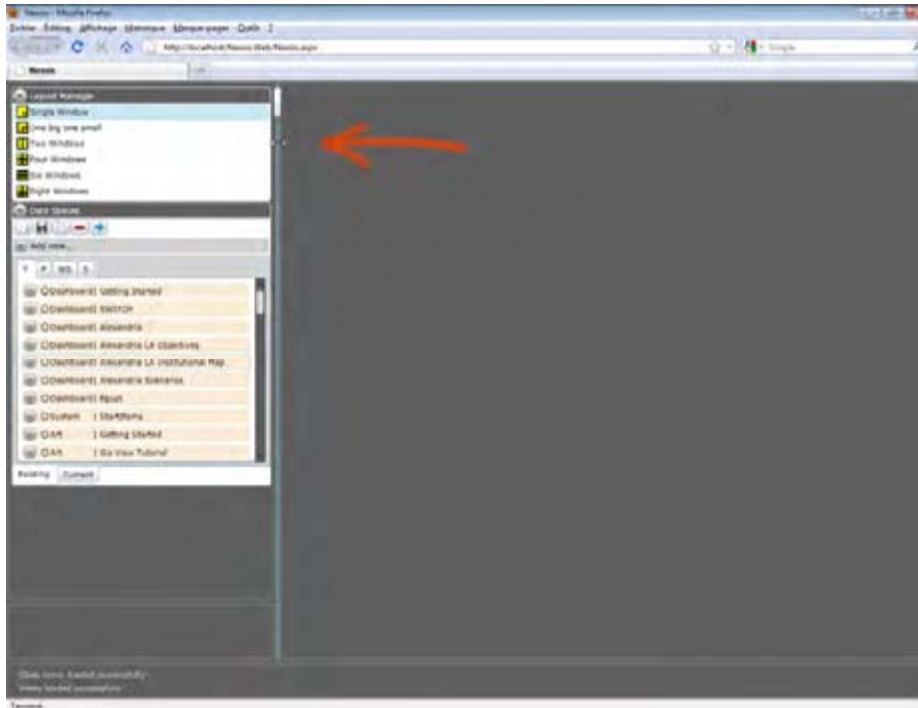


fig 6

- ✓ Press the Ctrl-Key and, while keeping this key pressed, press the right mouse button, move the mouse into the main area and release the mouse button and the Ctrl-key.

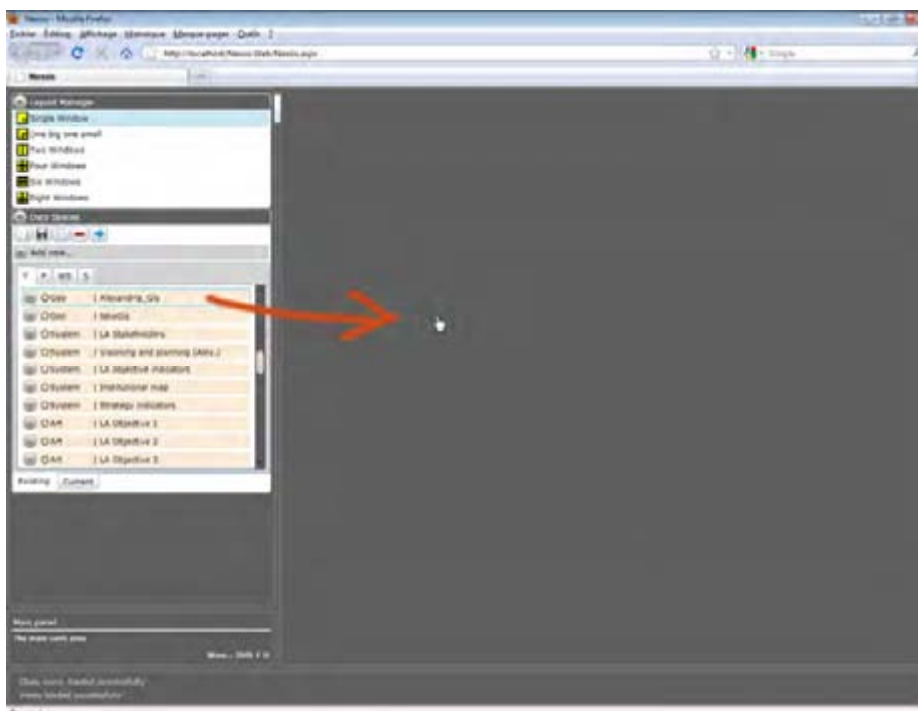


fig 7





fig 8

#### Task4. Open a system view from the Alexandria Project

- ✓ In the Data Space expander, activate the Project (P) tab,
- ✓ Scroll down to the Alexandria project and expand it to see its content,
- ✓ Expand the group of system views and position the mouse on the Mariout Lake Flows view,

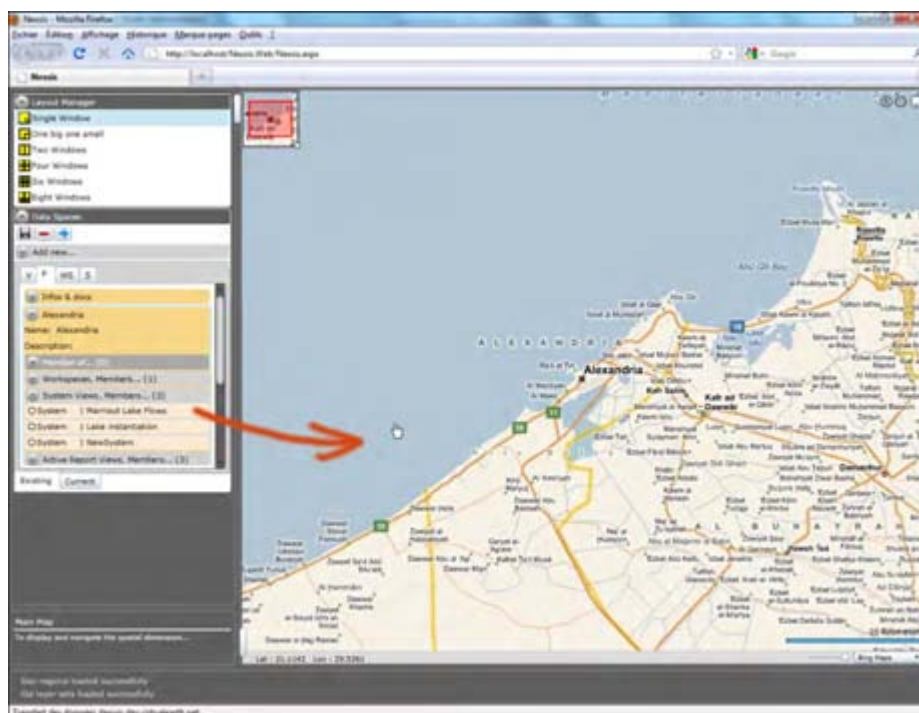


fig 9

- ✓ Press the Ctrl-Key and, while keeping this key pressed, press the right mouse button, move the mouse into the main area and release the mouse button and the Ctrl-key.
- ✓ The selected system view replaces the previously displayed Geo view.



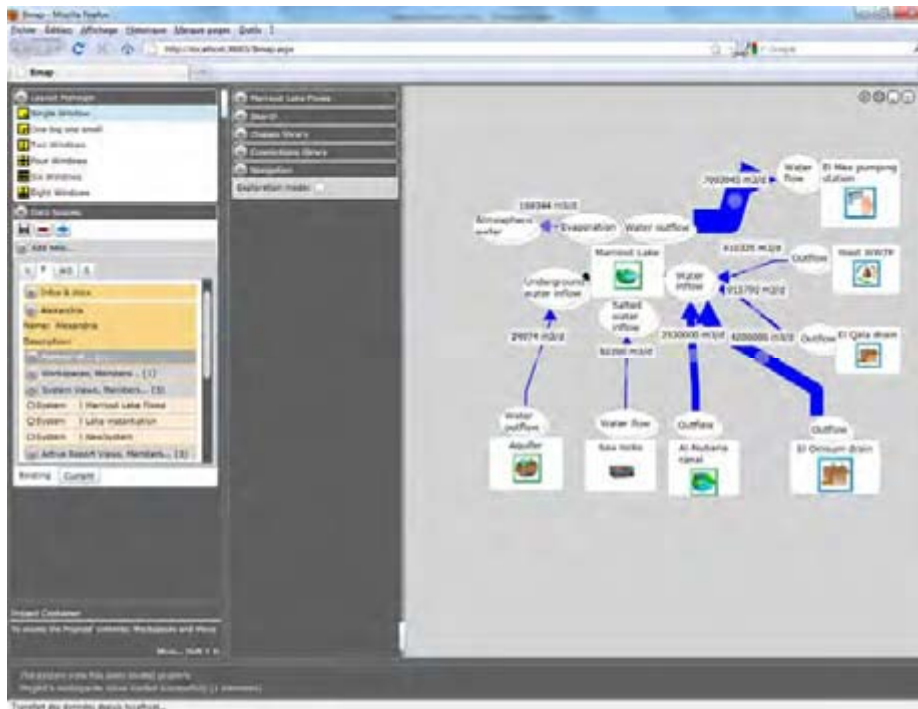



fig 10

**Task5. Add an ART view from the Alexandria Project to the current views and display it**

- ✓ In the Data Space expander, activate the View (V) tab,
- ✓ Scroll down to and click on the Lake Mariout Report to select it,
- ✓ Add this report to the current views subset by pressing the  button,

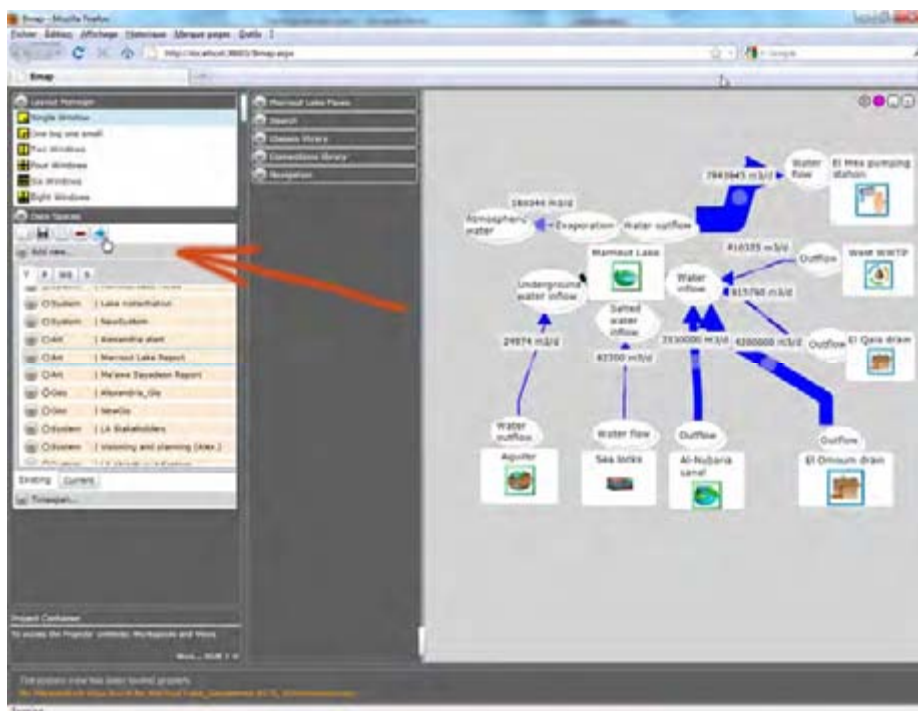


fig 11



- ✓ Add also the **Alexandria\_Gis** view,
- ✓ Activate the **Current** tab to display the subset of currently selected items and position the mouse in the **Lake Mariout Report** item,

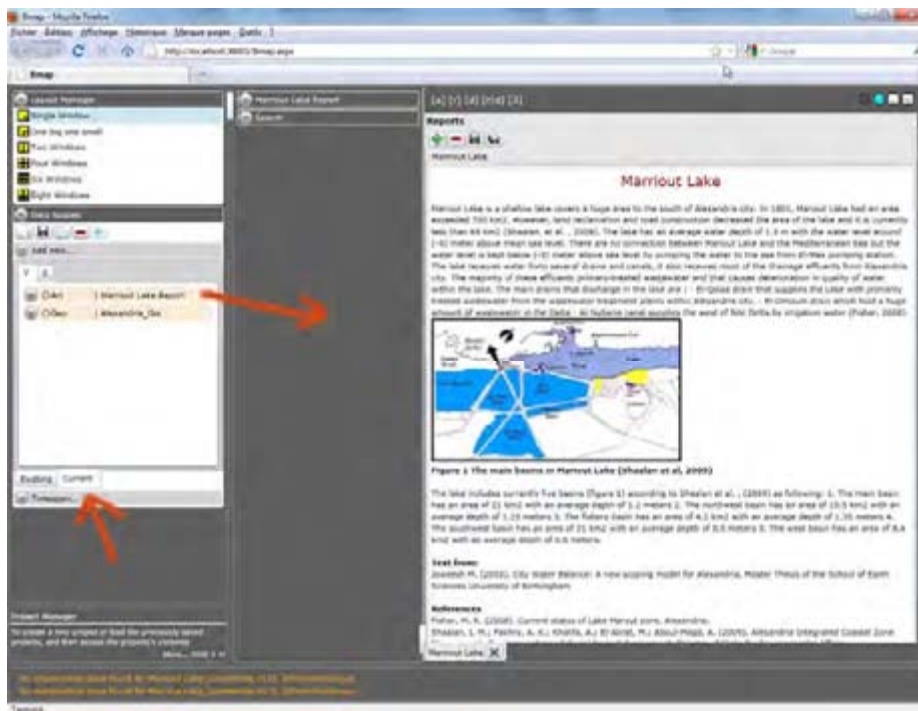



fig 12

- ✓ Press the Ctrl-Key and, while keeping this key pressed, press the right mouse button, move the mouse into the main area and release the mouse button and the Ctrl-key.
- ✓ The selected art view replaces the previously displayed System view.

## Create a new project with a view and a workspace, and save it

### Task6. Create a new project and name it

- ✓ Press the right most button  in the group of three button located on the top left part of the view: this will close the view's display,
- ✓ In the Data Space expander, activate the **Project** tab (P),
- ✓ Open the **Add New...** expander, and position the mouse on the project element,
- ✓ Press the Ctrl-Key and, while keeping this key pressed, press the right mouse button, move the mouse into the Project tab and release the mouse button and the Ctrl-key,
- ✓ A new project, named New Project has been added to the list,
- ✓ Open the New Project expander, click in the name field to edit its content and change the project name to "My Project" for example,







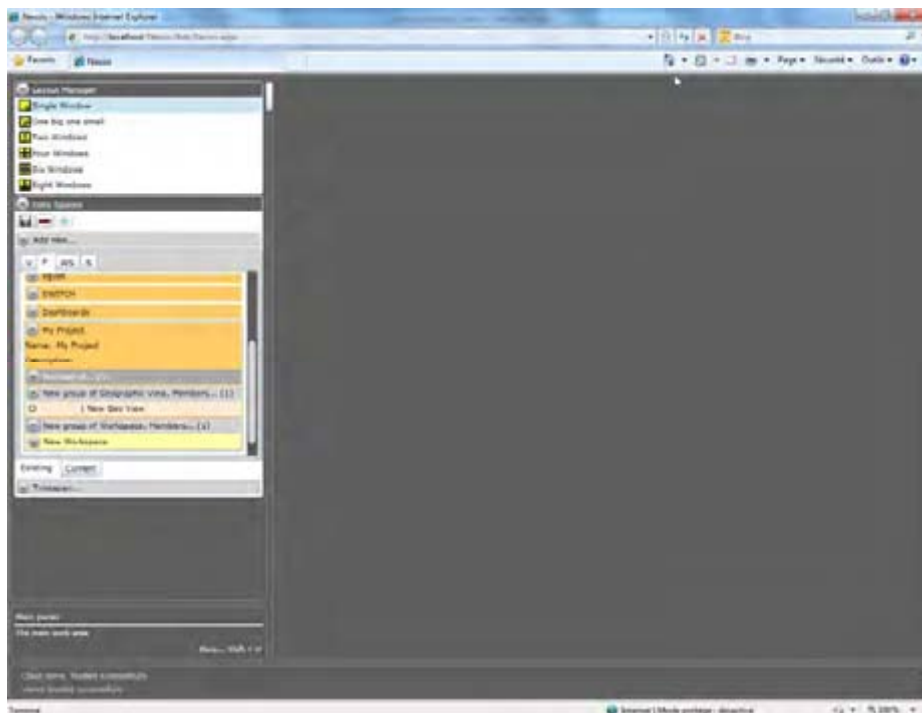


fig 14

- ✓ Ctrl-Drag the new Geo View and drop it in the display area,
- ✓ Zoom in, towards the city of Yverdon-les-Bains in western Switzerland,

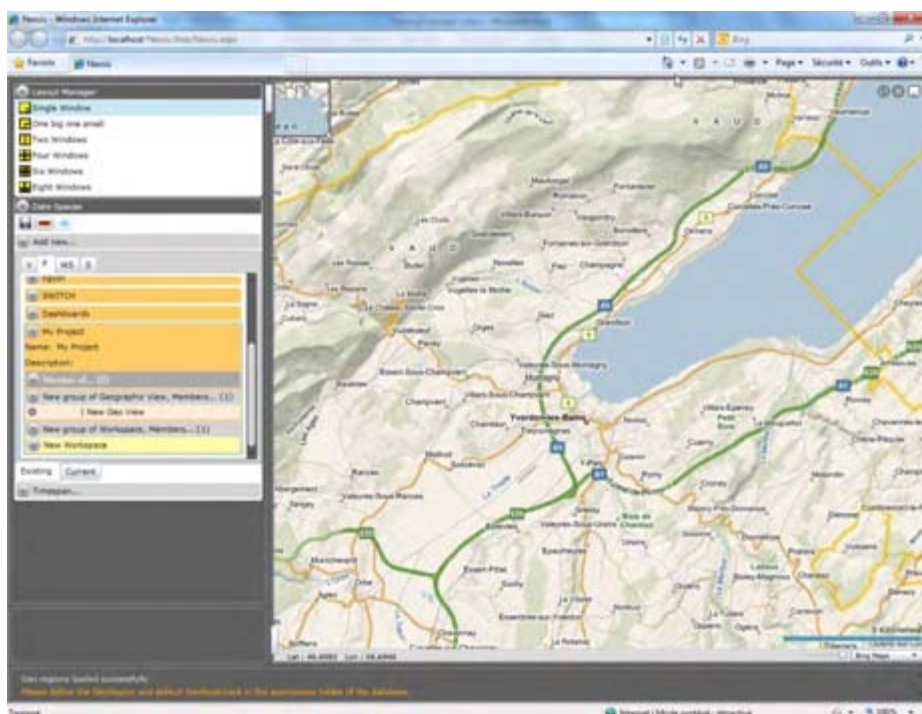


fig 15



## Task9. Save these changes

- ✓ Activate the View tab, select the new Geo View and click the save button,

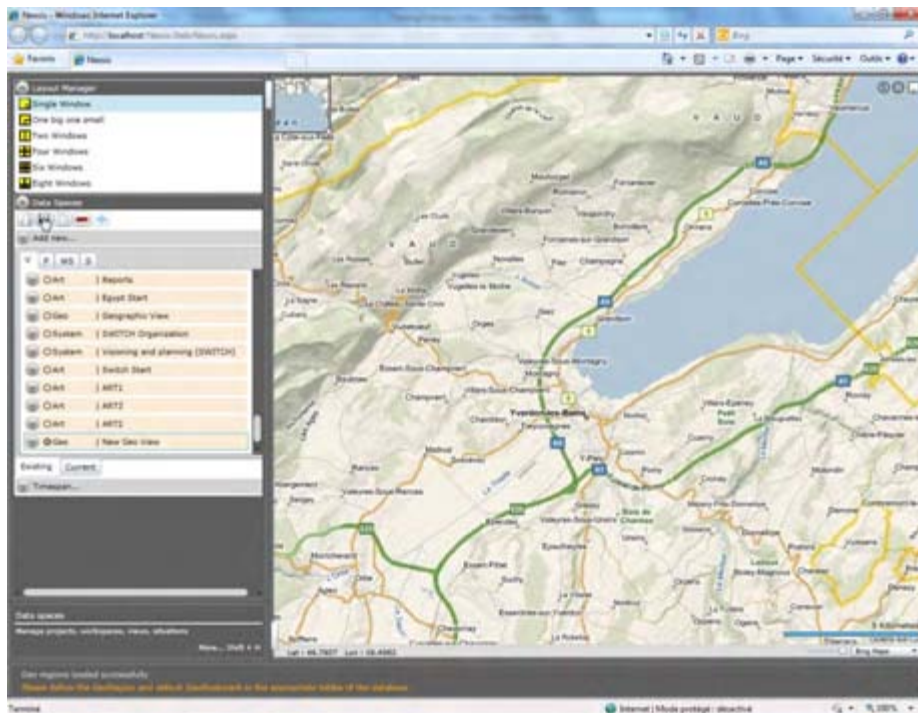


fig 16

- ✓ Activate the Workspace tab, select the new Workspace and click the save button, this workspace will store the actual view and layout pretty much as a screenshot,

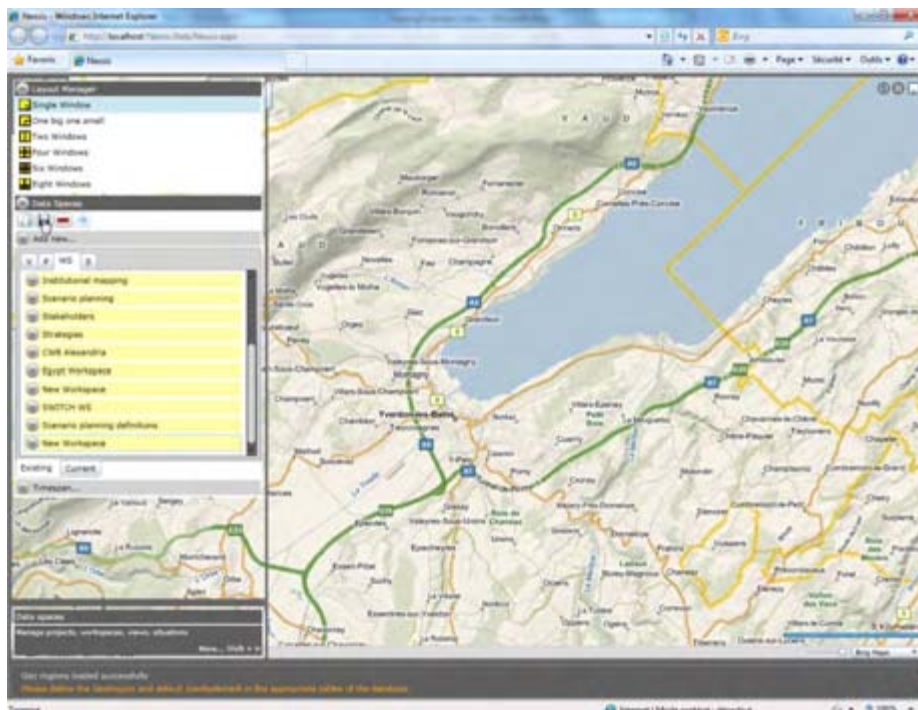


fig 17

- ✓ Activate the Project tab, select My Project and click the save button,



## Explore and manipulate the layout, switch views

### Task10. Watch the “Help” window while moving onto different elements of the layout

- ✓ Reload the application and click on **open a blank workspace**,
- ✓ Position the mouse successively in various parts the screen and have a look at the help messages displayed in the “Help window” located at the bottom of the application’s general left banner,

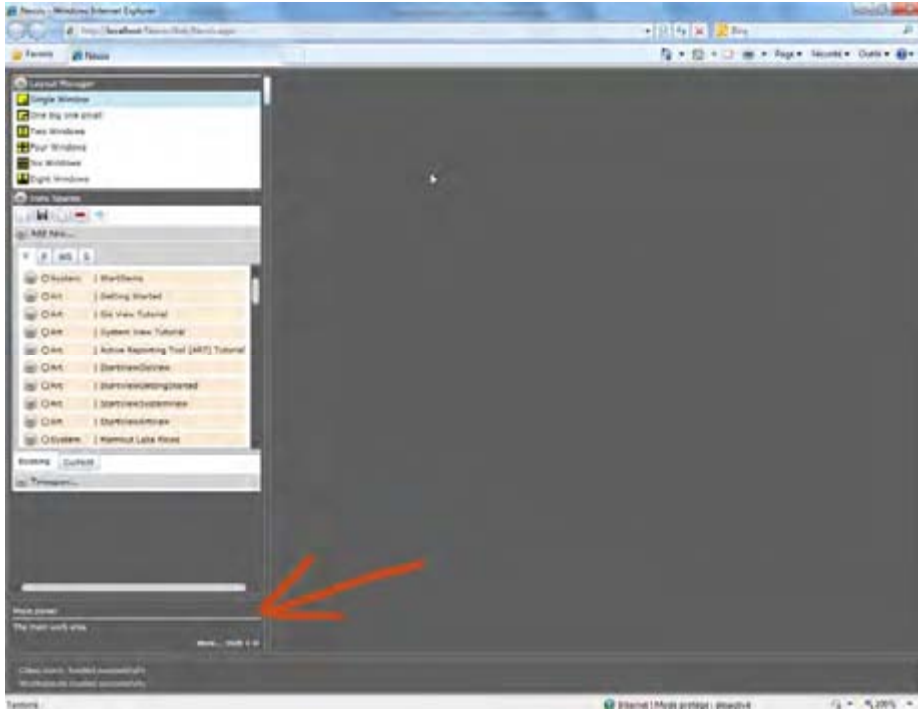


fig 18

### Task11. Split the layout, switch views,

- ✓ In the Layout Manager Expander, click on the Two-Window button,
- ✓ Open the Data Space View tab and, as described previously (with the ctrl-key pressed), drag the Alexandria\_Gis view and drop it in the left window and then drag the Lake Instantiation view and drop it in the right window,



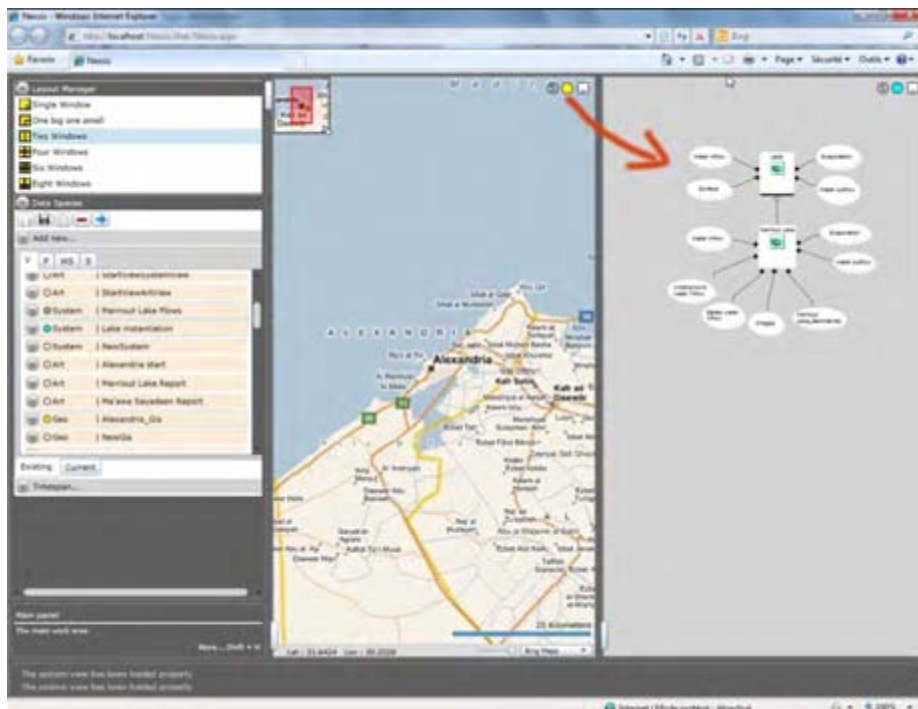


fig 19

- ✓ Notice that each of these views does have a colored tag as the central button of the group of three buttons located on the top left part of the view, and that the same colored tag is also to be found in the list of views for the corresponding item,
- ✓ As should have now become familiar, Ctrl-drag the colored tag of the **Alexandria\_Gis** view and drop it on the **Lake Instantiation** view: the two views have been switched in the display,

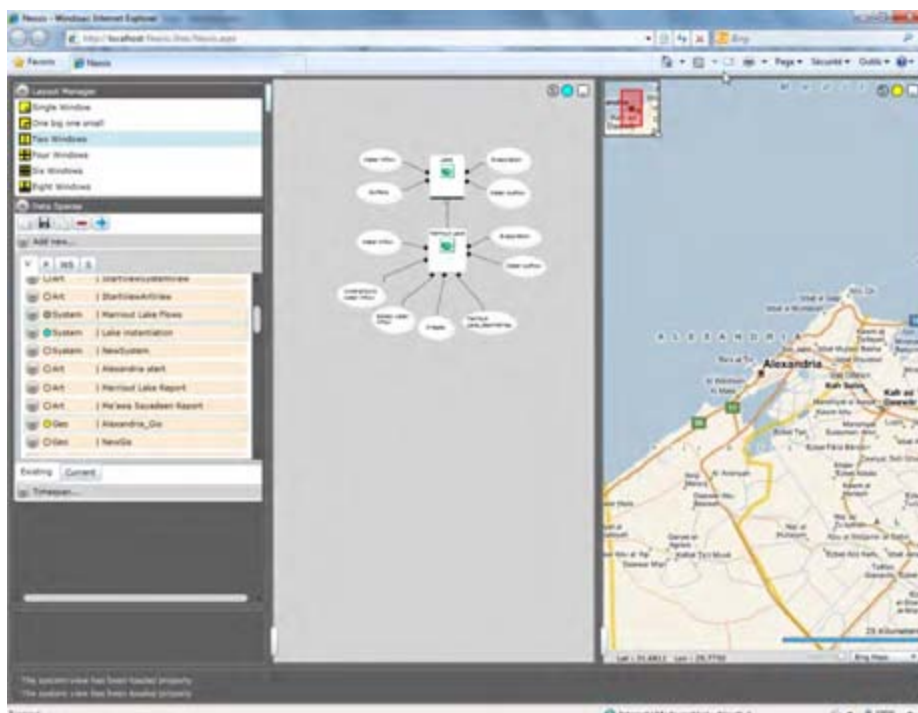


fig 20



### Task12. Resize parts of the display.

- ✓ Click on the right most button of the group of three buttons located on the top left part of the Lake Instantiation view: this will close the display of that view,
- ✓ Ctrl-drag the colored tag of the **Alexandria\_Gis** view and drop it on the left, now empty, window: The **Alexandria\_Gis** view is moved back to the left most display area,
- ✓ Click on the separation between the two available display areas and, keeping the mouse button pressed, move the mouse to the right to increase the size of the left display area.

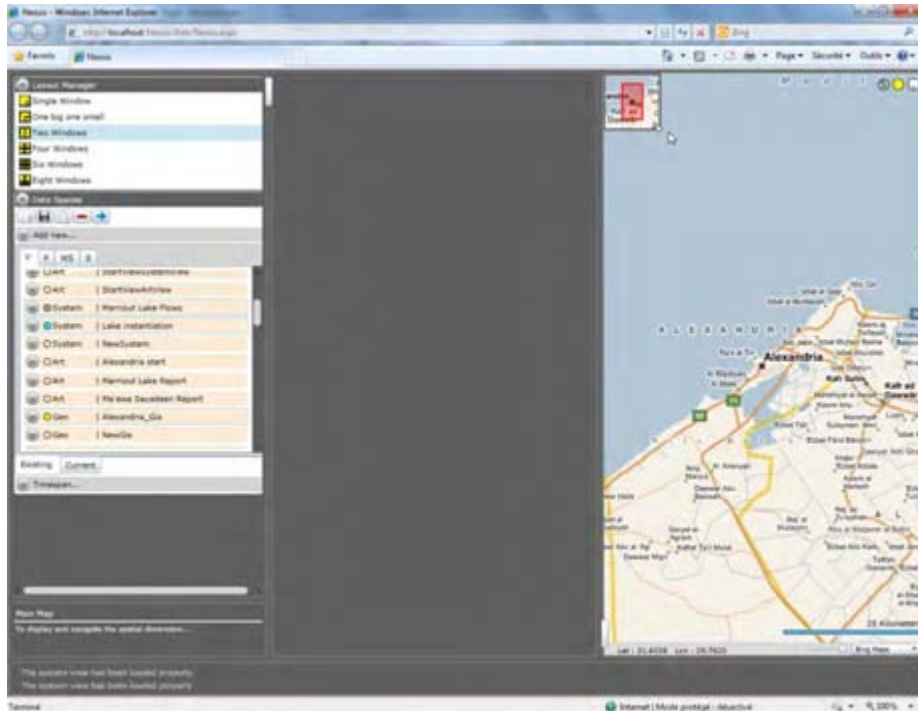


fig 21

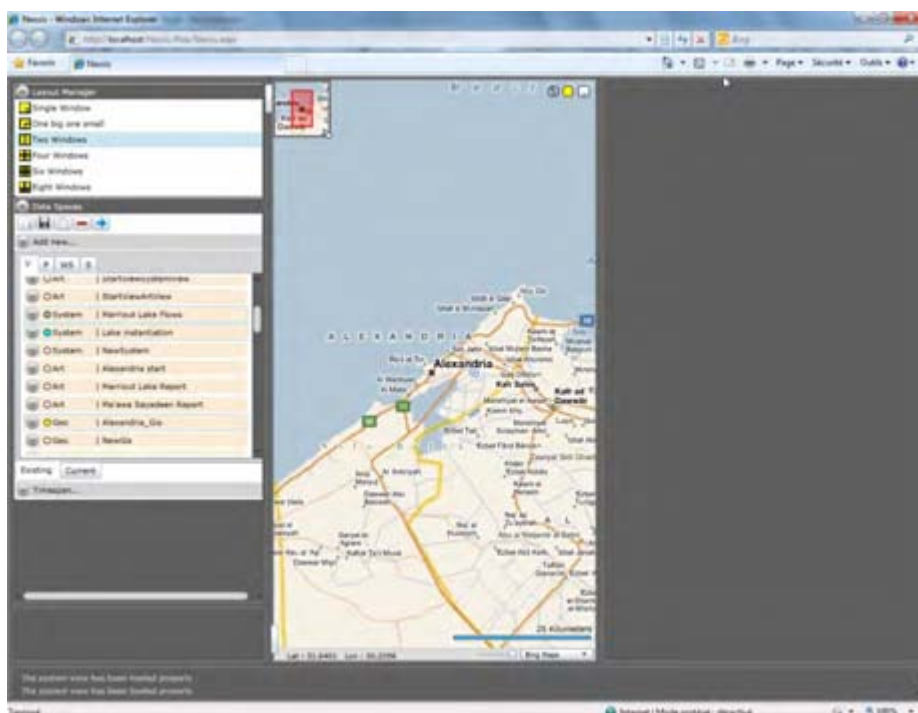


fig 22







## **Part B**

# **Training the geographic module (GEO)**



## Manipulate a GEO view

### Task1. Panning and zooming, using the mini map.

- ✓ Open the Alexandria\_Gis Geo view, hide the main left banner and show the Geo View's left banner,
- ✓ Enlarge the mini map area by dragging its bottom right button,
- ✓ Move the map (or the mini map) around with the left mouse button pressed, the red area in the mini map matches the area covered by the main map,
- ✓ In the mini map, move the red square around with the left mouse button pressed: the area shown in the main map is updated accordingly,
- ✓ Use the mouse scroll button to zoom in and out, on the main map or on the mini map,
- ✓ Double-click on the mini map drag button, to hide the mini map and show it again,
- ✓ Show and hide the Geo view's left panel by (i) hovering the mouse over the lower bean-like button and (ii) by clicking this button,
- ✓ Expand the name expander in the geo view's left banner to change the view's name and provide a short description

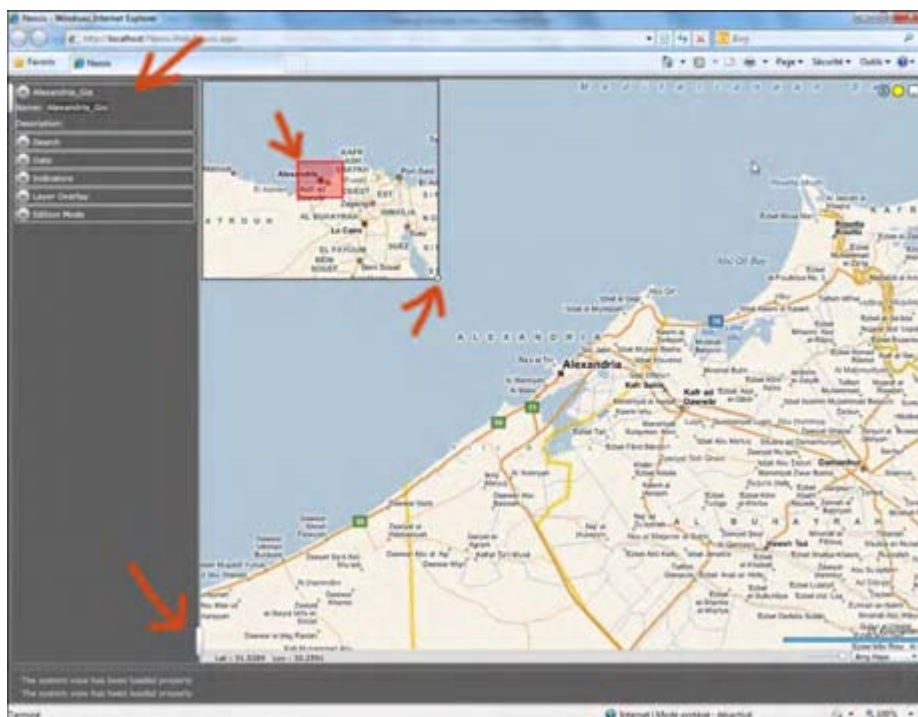


fig 24

### Task2. Change the background layer, modify its transparency

- ✓ Change the background map using the bottom right list: explore various type of maps, terrains, or satellite imagery, including Bing's Bird's eye and Street Side (currently mostly efficient over the US),
- ✓ Right-Click on the mini map to change its background map type,
- ✓ Learn to change the background map's transparency using the bottom right slider.



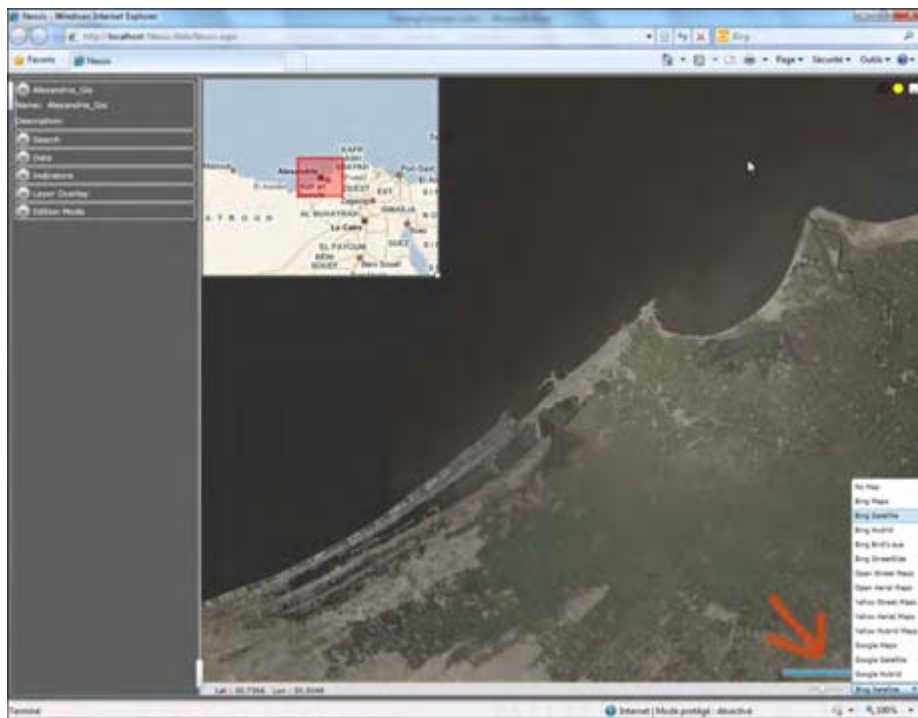


fig 25

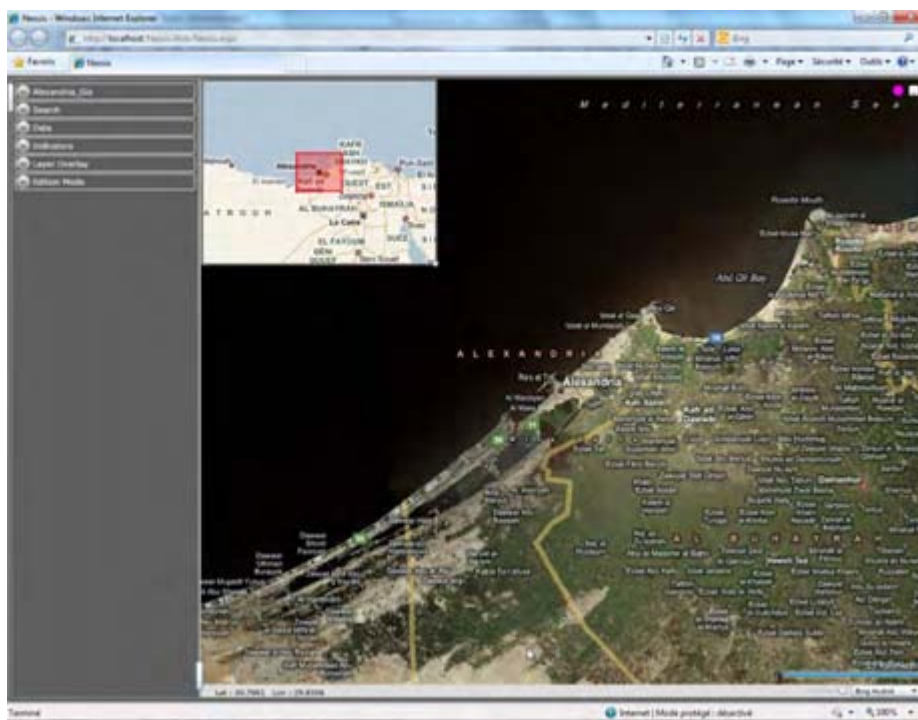


fig 26



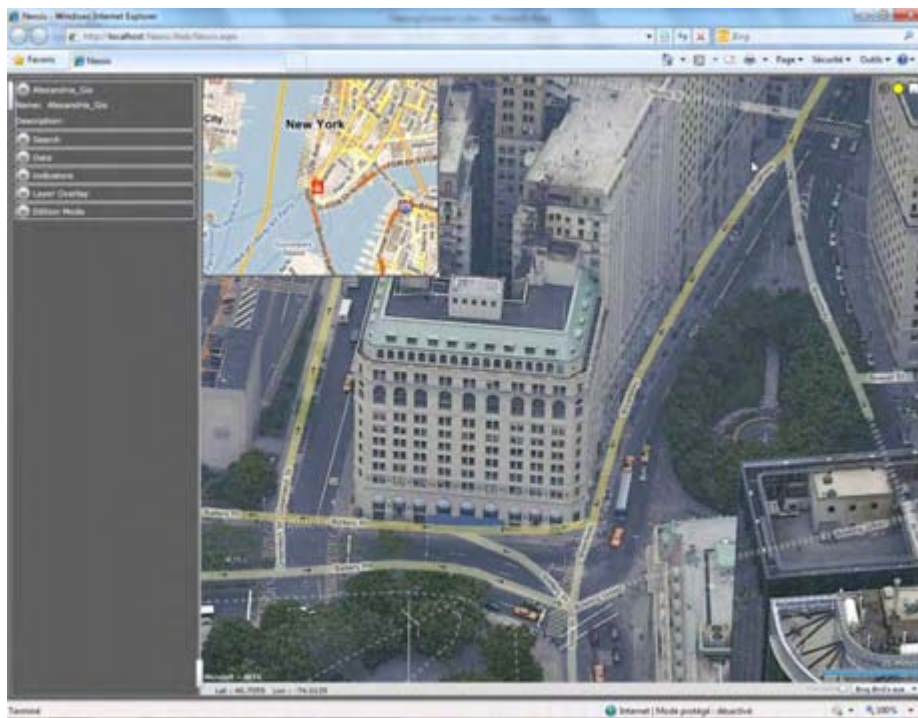


fig 27

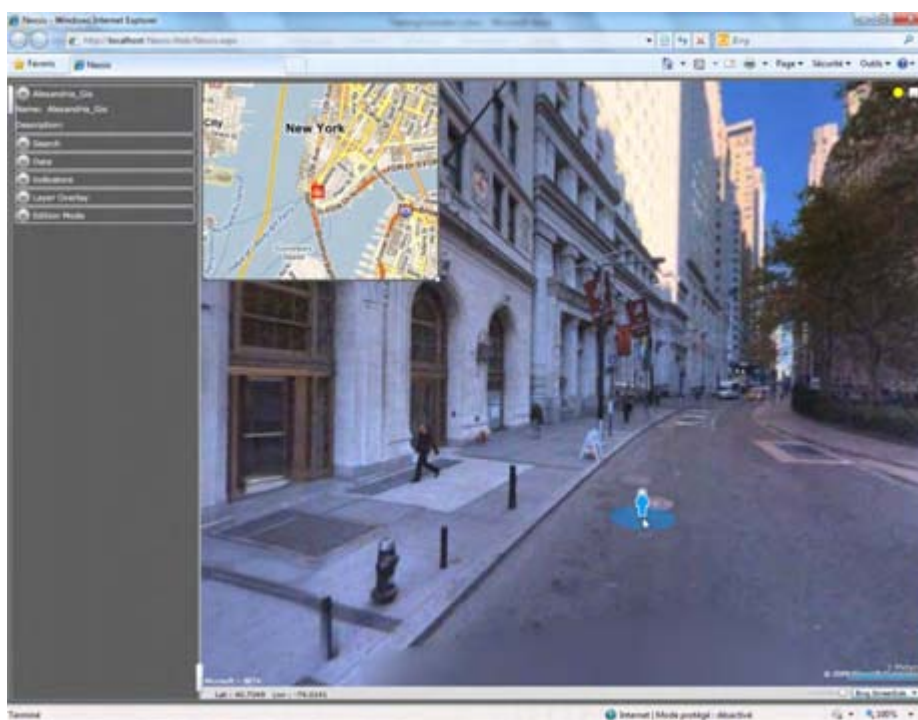


fig 28



## Show and configure data layers, layer overlay order

### Task3. Display a data layer

- ✓ Open the Alexandria\_Gis Geo view, hide the main left banner and show the Geo View's left banner,
- ✓ In the left banner, expand the Data Layer section,
- ✓ Click on the check boxes of the Alexandria Governorate and the Nile river to display these layers on the map,

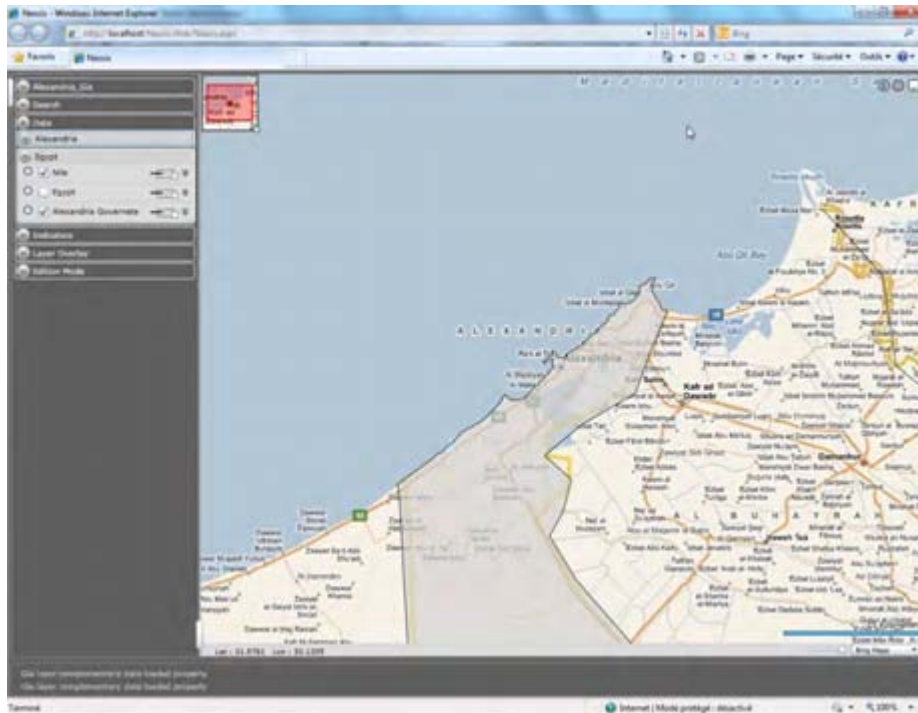


fig 29

### Task4. Configure a data layer

- ✓ Click to expand the Alexandria Governorate layer item to gain access to its fill and stroke settings,
- ✓ Change the polygon's background color to orange and decrease its opacity,
- ✓ Click to expand the Nile river layer item to gain access to its fill and stroke settings,
- ✓ Change the polygon's border color to blue and increase its thickness.





fig 30

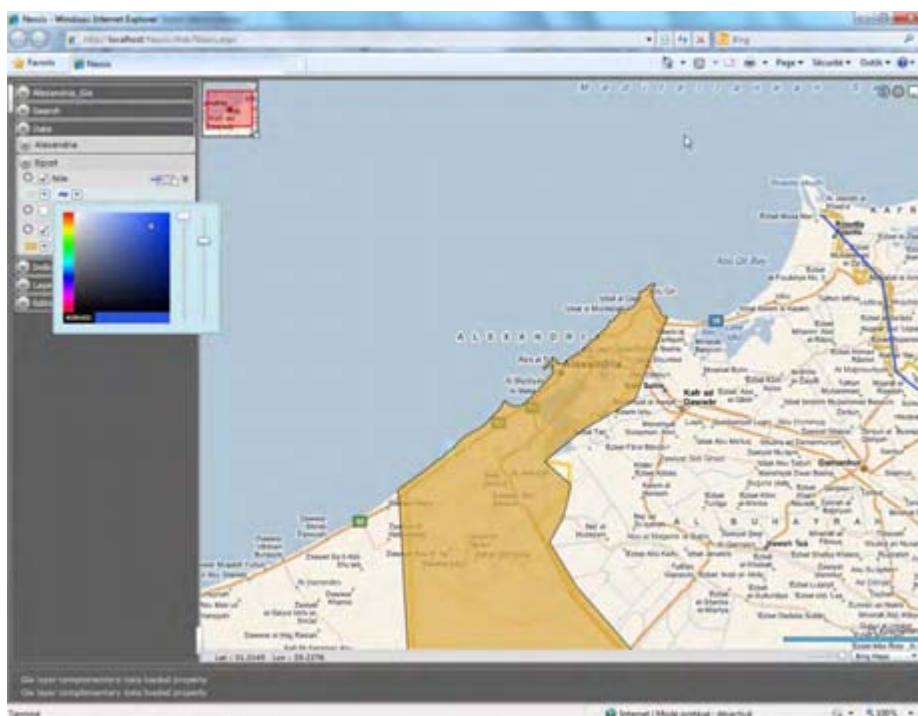


fig 31

### Task5. Modify overlay order

- ✓ Click on the check box of the Canals and the Mini-Clusters layers to add them to the map: note that the layers are added on top of the map,



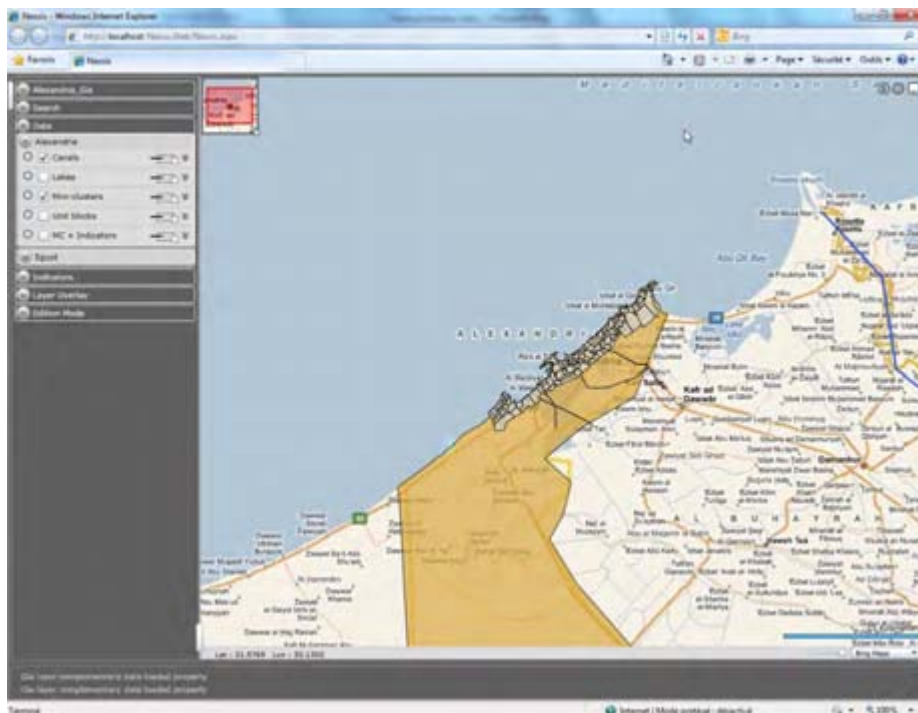


fig 32

- ✓ In the left banner, expand the Layer Overlay section,
- ✓ Select the Alexandria Governorate layer, use the buttons to bring it on top of the map,

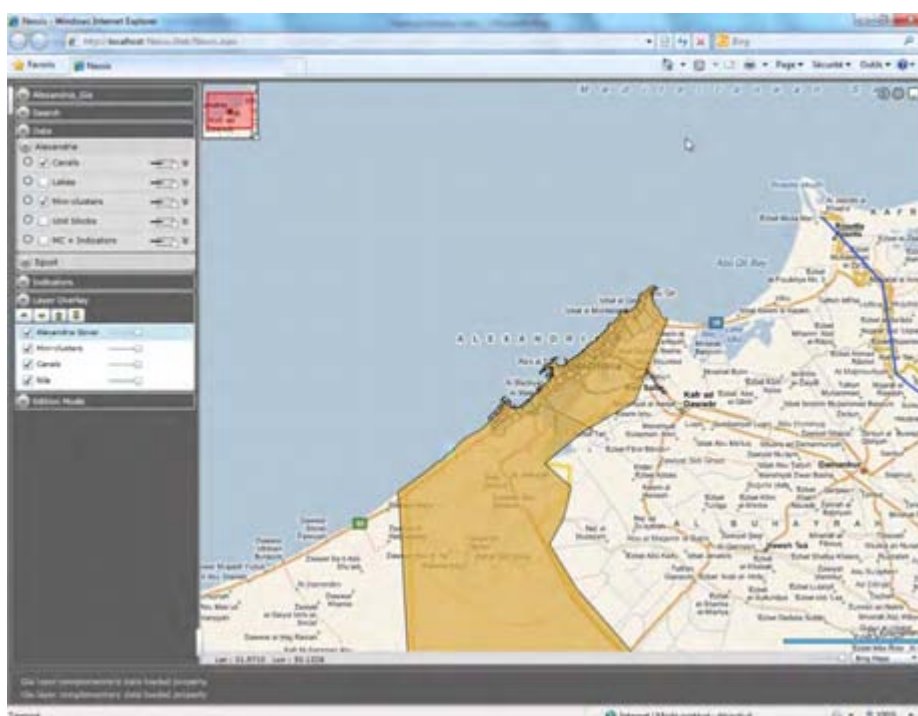


fig 33

- ✓ Use the buttons to set a correct overlay order and change the overall transparency of the Alexandria Governorate layer, hide the Nile river layer.



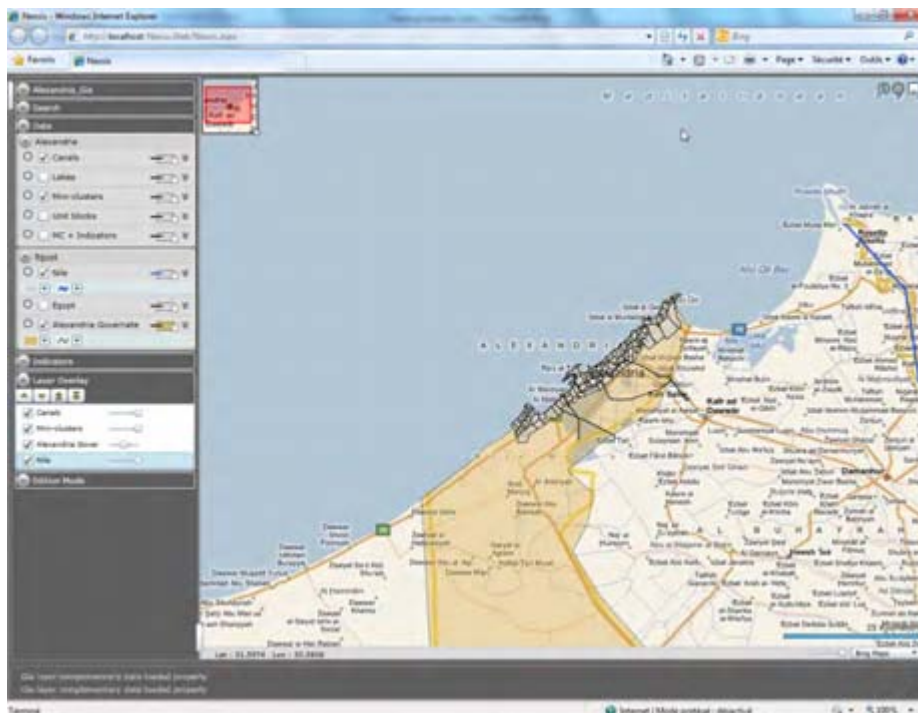


fig 34

## Create and configure an indicator layer

### Task6. Create an indicator layer

- ✓ In the left banner, expand the indicator section,
- ✓ Display the MC + indicators layer and wait until the “Geo layer complementary data loaded properly” message is displayed in the message bar,
- ✓ Ctrl-Drag the MC + Indicators data layer and drop it in the indicator section: a new indicator layer is created,



fig 35



- ✓ Change the layer name to “Indicator Test”, zoom slightly in, and decrease the background map’s opacity

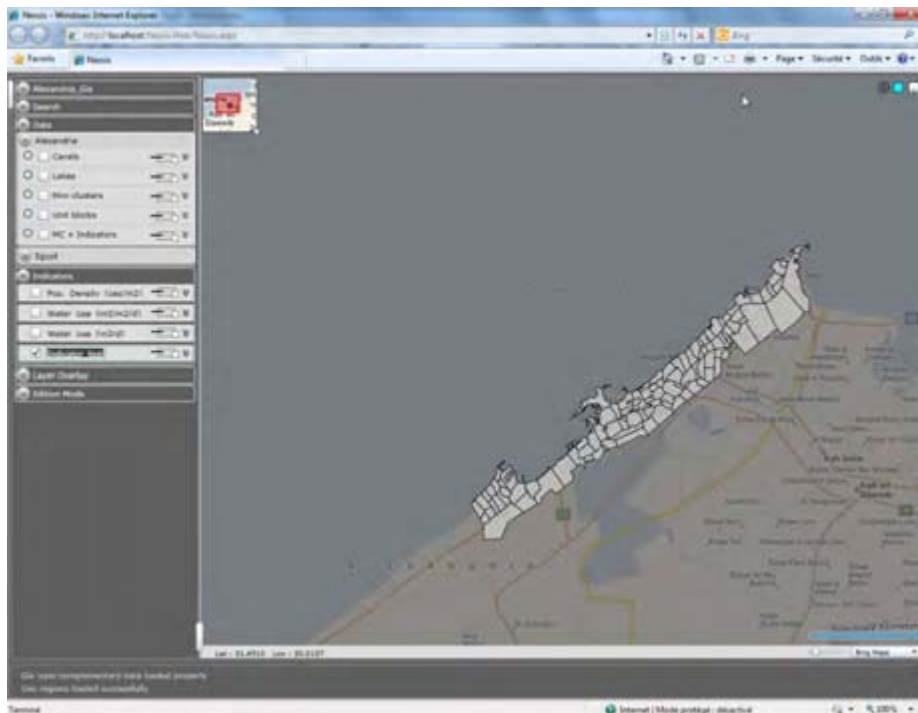


fig 36

### Task7. Configure indicator layer

- ✓ Click on the layer to open its configuration panel,
- ✓ Select the indicator to display,

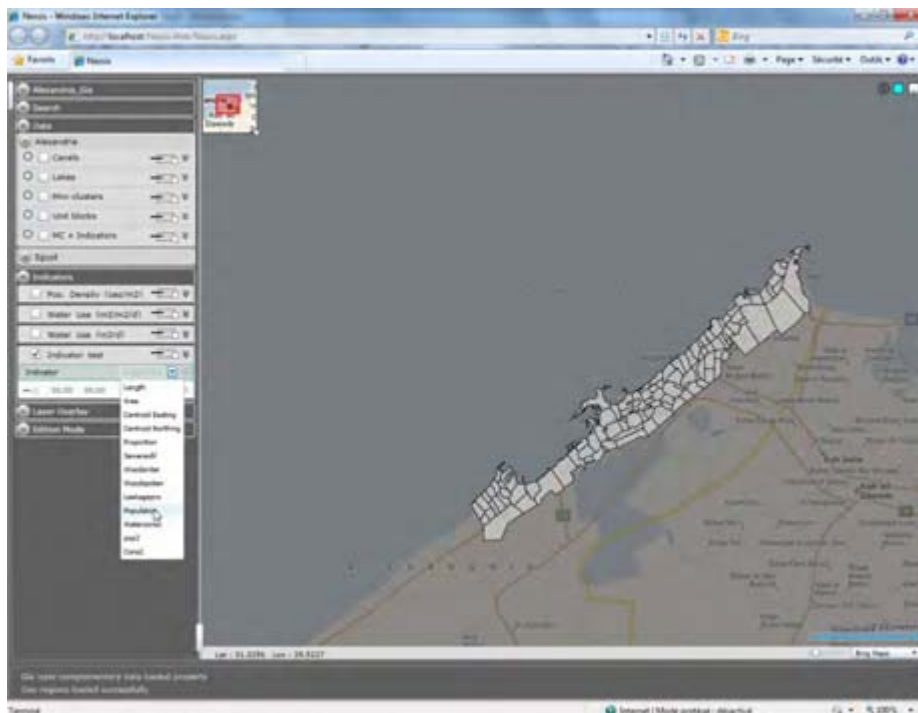


fig 37



- ✓ Click on the layer to open its configuration panel,
- ✓ Change the rounding level to 2 and observe the effect it has on the map and the class limits

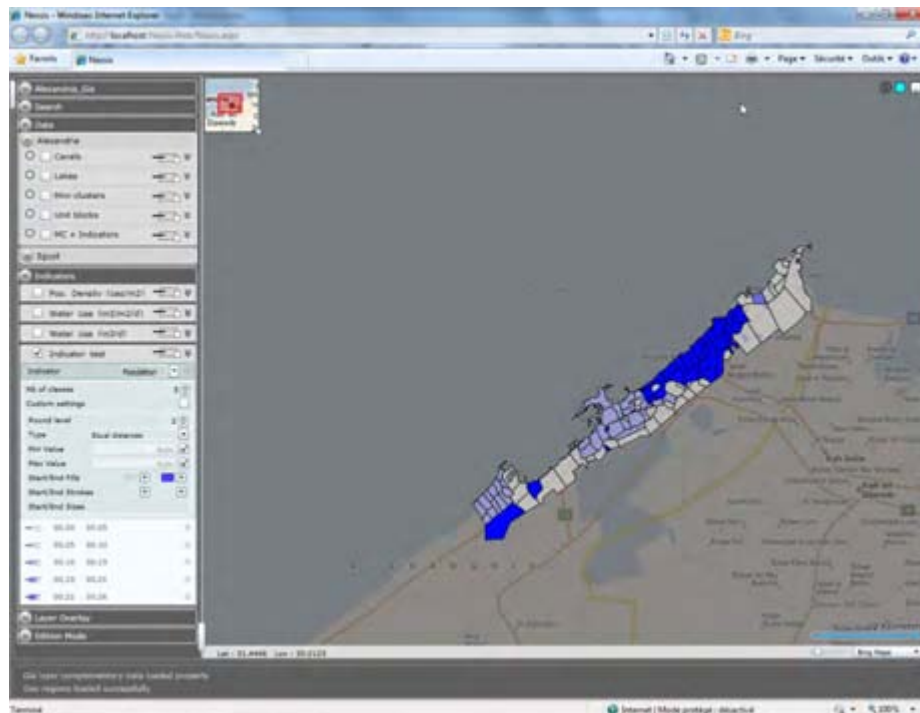


fig 38

- ✓ Switch the distribution type to “equal counts” and change the start color of the color ramp to orange.

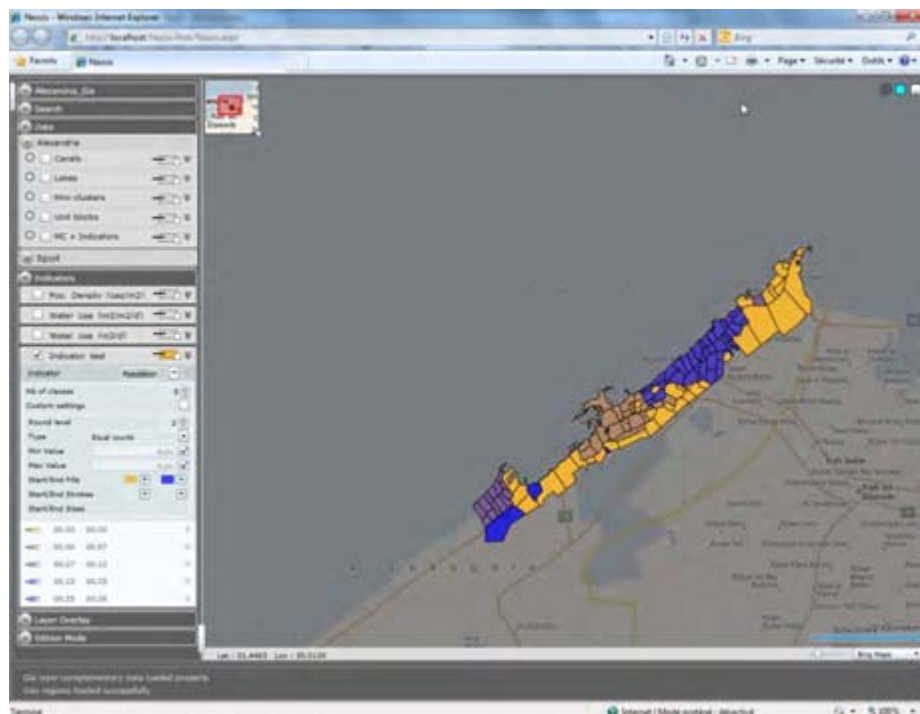


fig 39



## Edit the geometries

### Task8. Select/Edit a shape

- ✓ Display the **Lakes** layer and hide the other layers ,
- ✓ Right-Click on a shape to access to its contextual menu and choose the **Select Shape** menu item,



fig 40

- ✓ The selected shape appears highlighted. Right-click on the selected shape and choose the **Unselect Shape** menu item,

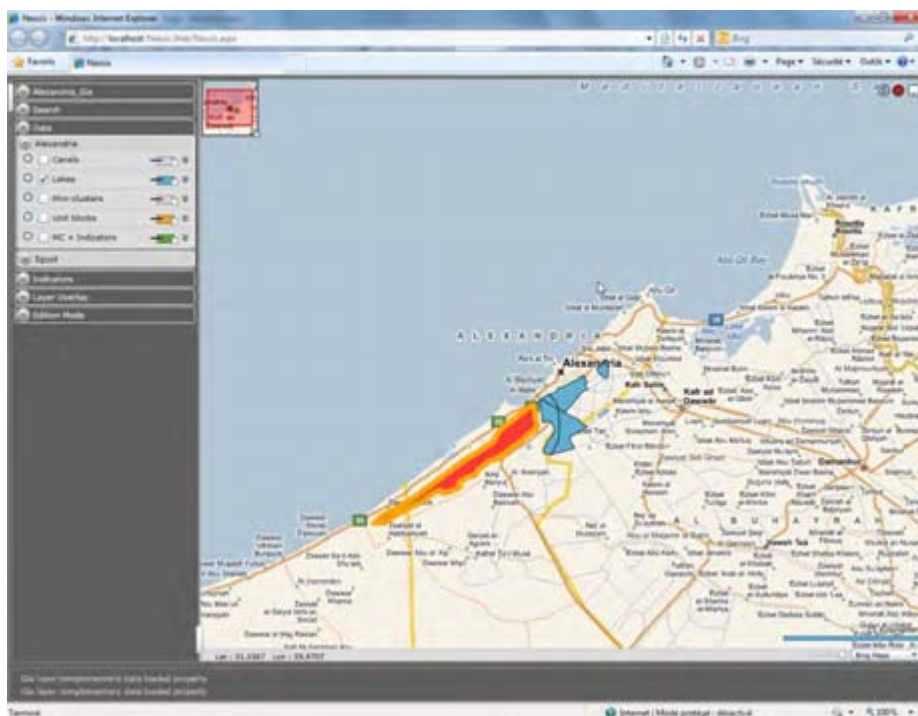


fig 41



- ✓ Edit the shape geometry by a Right-Clicking and choosing the **Start Editing Shape** contextual menu item,



fig 42

- ✓ The vertices of the shape are displayed.



fig 43



- ✓ Zoom in, position the mouse on the edge of the shape, and Right-Click again: in the contextual menu choose **Add Vertex** to add a new point to the shape,

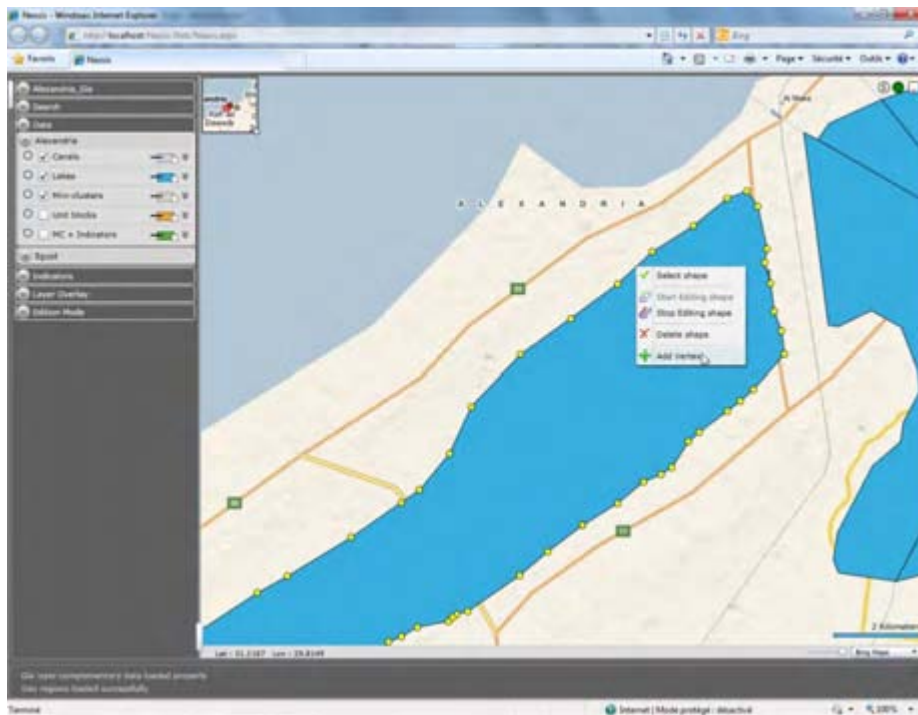


fig 44

- ✓ Place the mouse on this new vertex and, with the left button pressed, move the new point to another location,

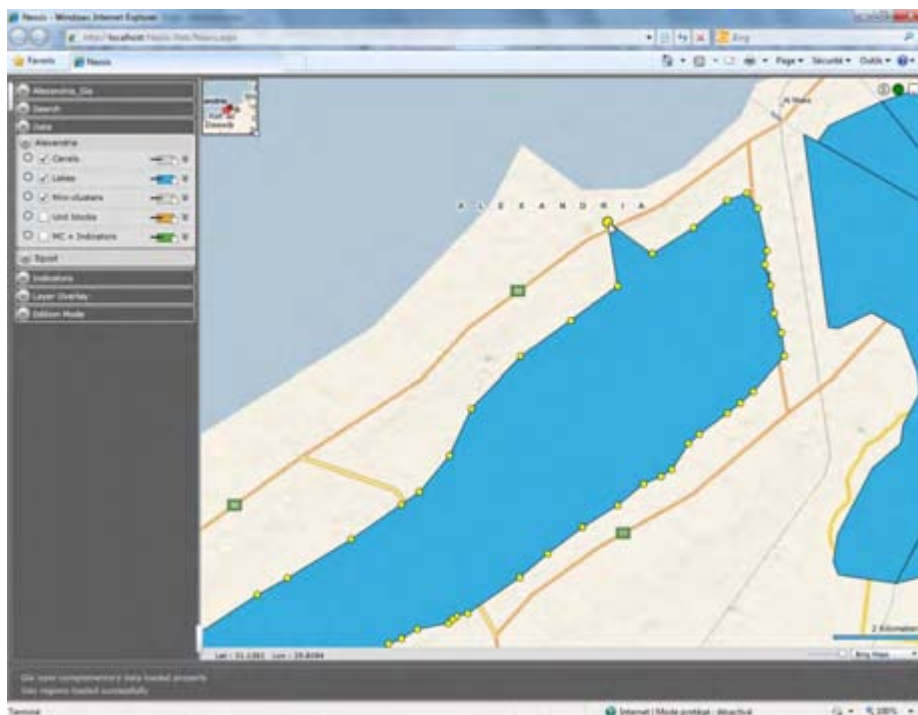


fig 45



- ✓ To remove a vertex, Right-Click on it and select **Delete Vertex**,

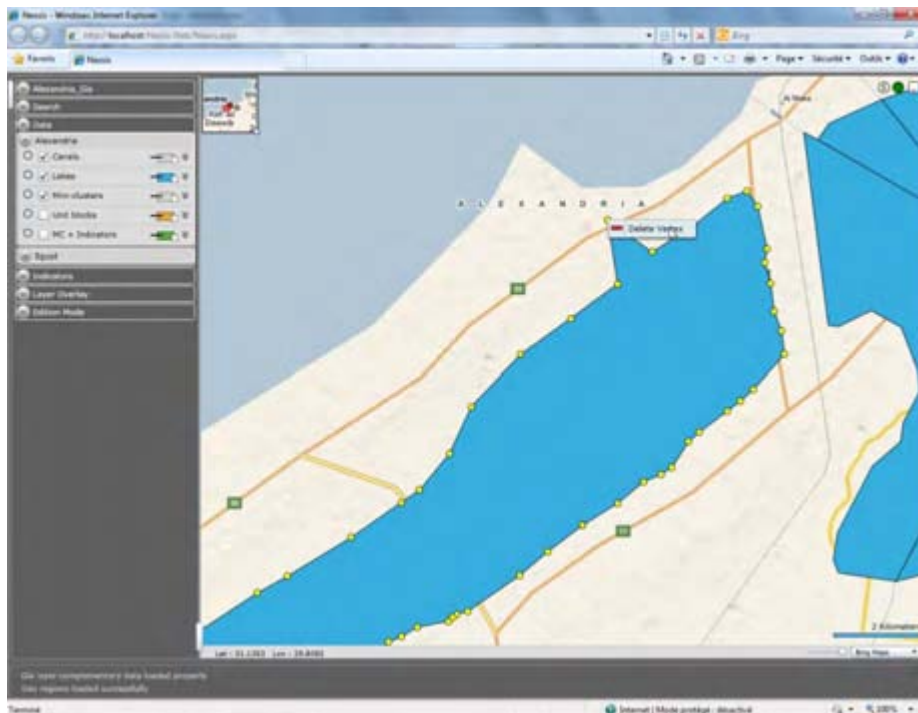


fig 46

- ✓ Once the changes are made, quit the edition mode by Right-Clicking on the edit shape and choosing **Stop Editing Shape**,

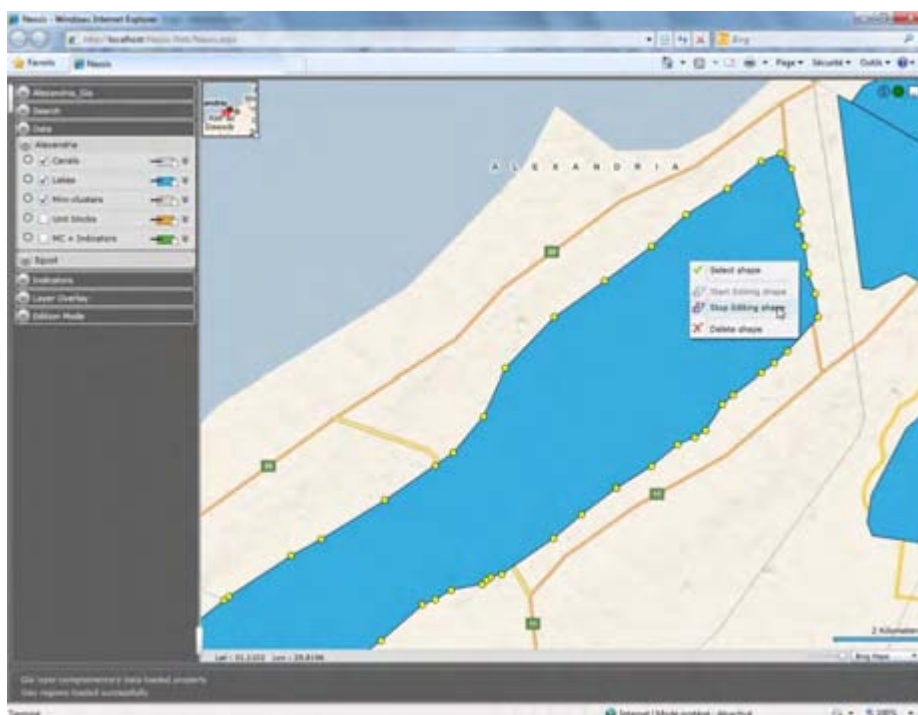


fig 47



### Task9. Add/delete shapes

- ✓ In the left banner, expand the **Edition Mode** section, select the layer to be edited (Lakes in our example) and choose the type of element to add (point, polyline or polygon),
- ✓ With the **Add Point** mode selected, each click on the map will add a new point,



fig 48

- ✓ With the **Add Polyline** mode selected, each click on the map will add a point to a new polyline. Double-click on the last vertex to quit the point addition mode,



fig 49



- ✓ With the **Add Polygon** mode selected, each click on the map will add a point to a new polygon. Double-click on the last vertex to quit the point addition mode,

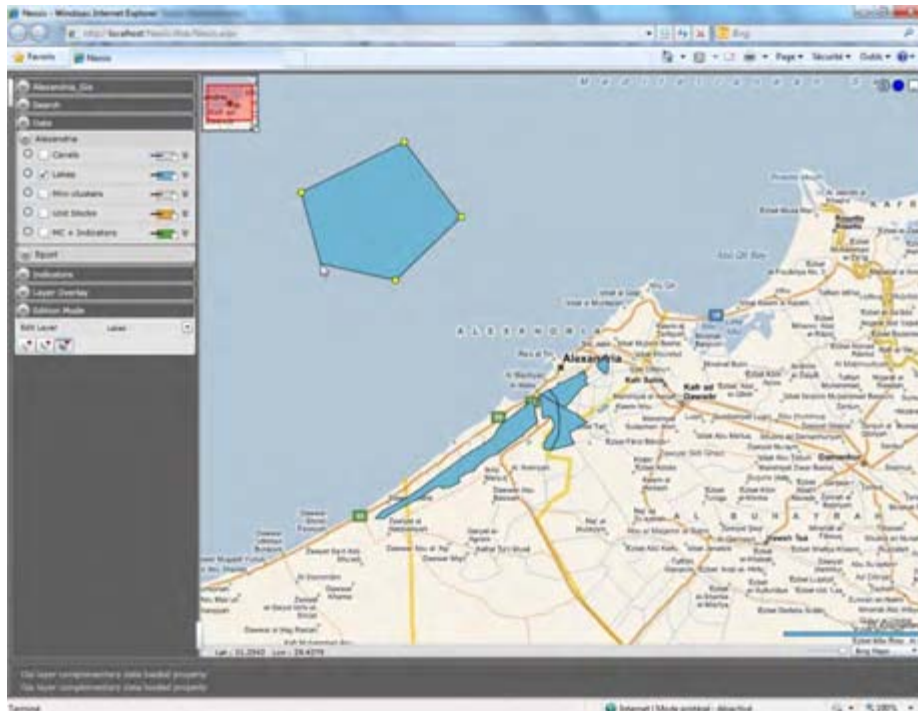


fig 50

- ✓ All these shapes may be deleted with the appropriate contextual menu item: Right-Click on the shape and select the **Delete Shape** menu item.

## Managing Situations in a Geo View

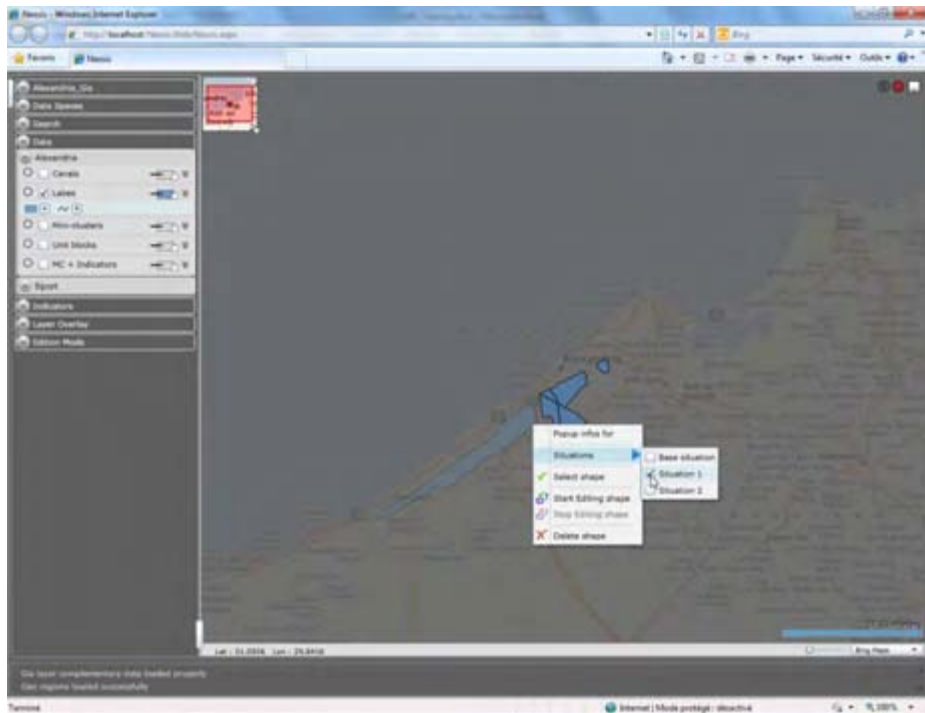
### Task10. Create a new situation

- ✓ Activate the general left banner, open the **Project manager and Data Spaces** section, activate the **Situation** tab (S). If the base situation is the only situation listed, expand the **Add New...** section, Ctrl-Drag the Situation item and drop it in the Situation tab to create a new situation,
- ✓ Add the existing alternative Situations or the new Situation among the Current items: select them and press the blue arrow button,

### Task11. Assign a shape to an alternative situation

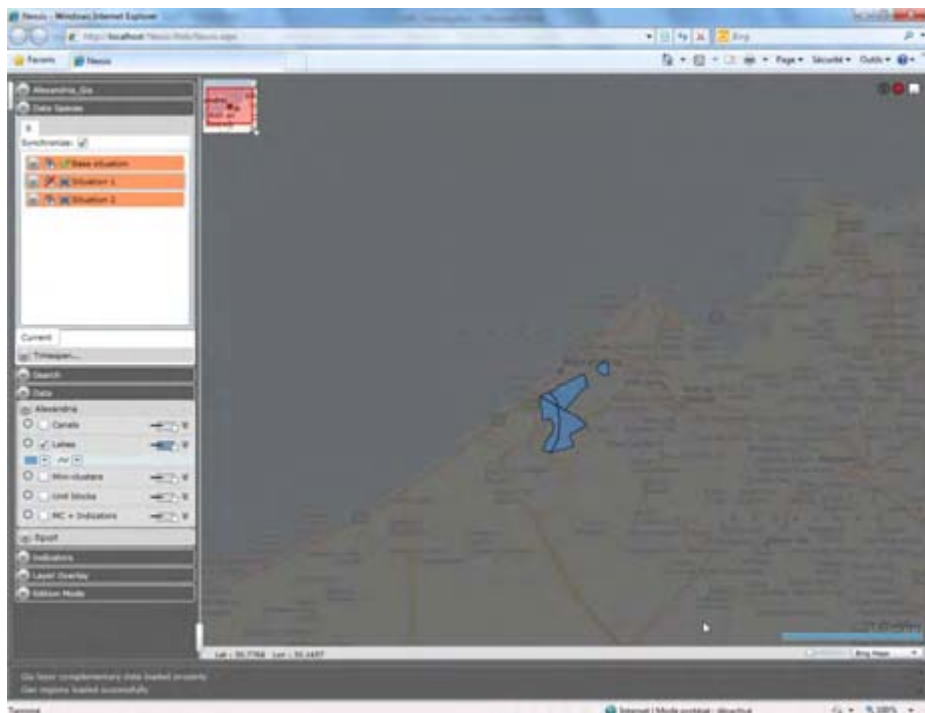
- ✓ Back in the Geo Viewer, display the Lake layer,
- ✓ Right-Click on a shape in this layer to access its contextual menu and modify the shape's situation memberships: remove it from the base situation and add it to an alternative situation (Situation 1 in our example). This shape appears dimmed since its no more part of the active Situation but belongs to the visible but not active Situation1.





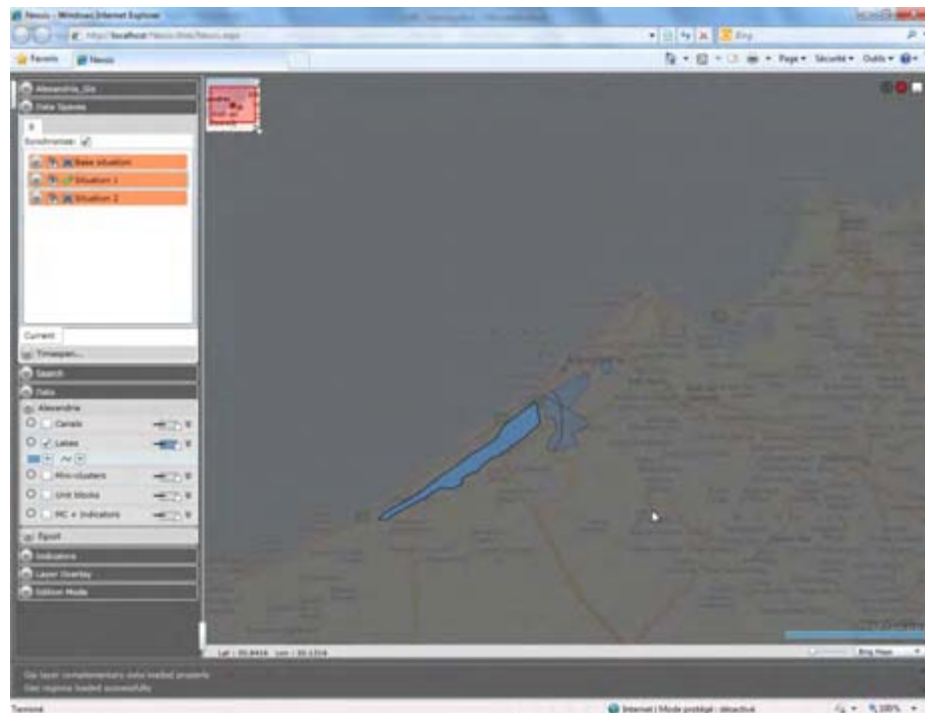
## Task12. Explore the principles of situation management in the Geographic view

- ✓ In the situation manager, set Situation1 as invisible: all items that do not belong to a visible situation are hidden,

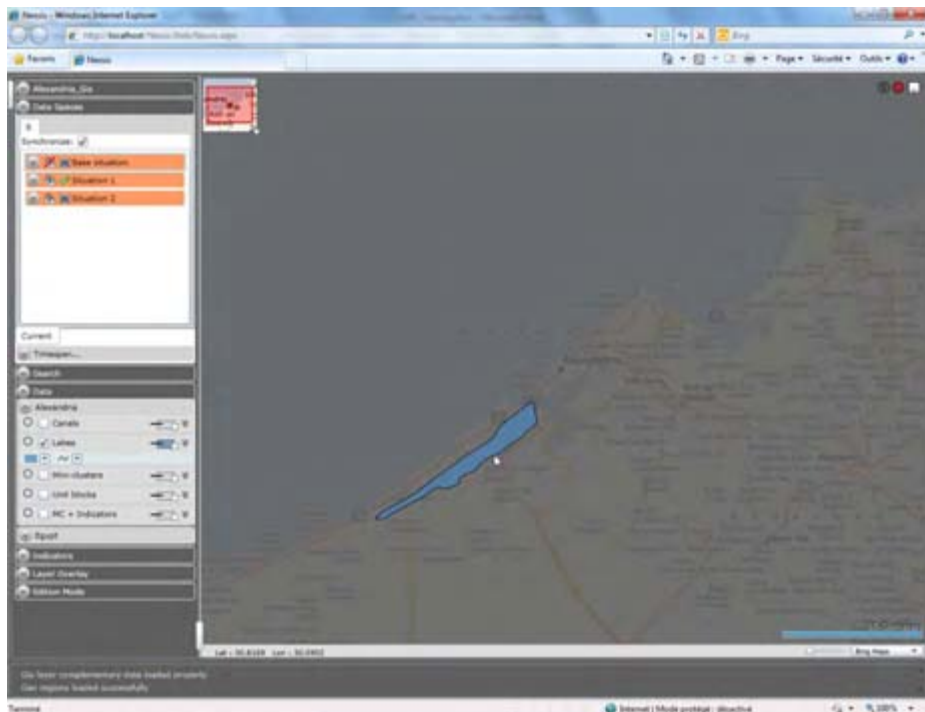




- ✓ In the situation manager, set Situation1 back as visible and active: the shapes that belong to the Base Situation are still visible but dimmed,



- ✓ In the situation manager, set the Base Situation as invisible: the shapes that belong to the base situation are hidden,





## **Part C**

# **Training the Active Reporting Tool (ART)**



## Search for a system element and display its data and reports

### Task1. Search for a system element and display its data and report

- ✓ Launch the application and open a blank workspace,
- ✓ Expand the Data Space and the Add New... section,
- ✓ Ctrl-Drag an Active Report view and drop it in the display area.

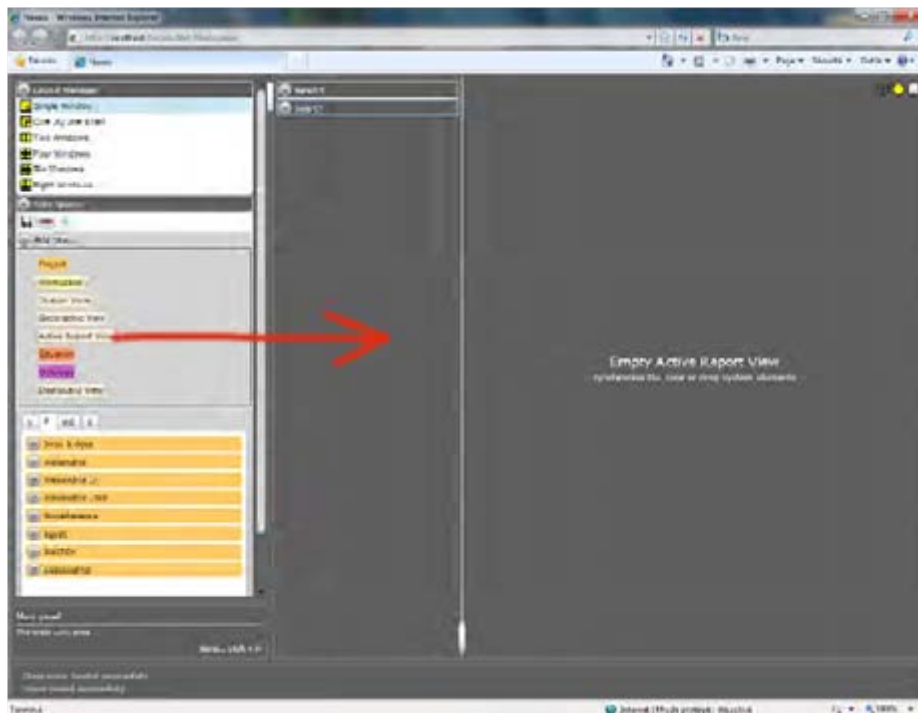


fig 51

- ✓ Open the search tool, the By Name search is active, type “Alexandria” as the Element Name to look for, validate the request to launch the search,

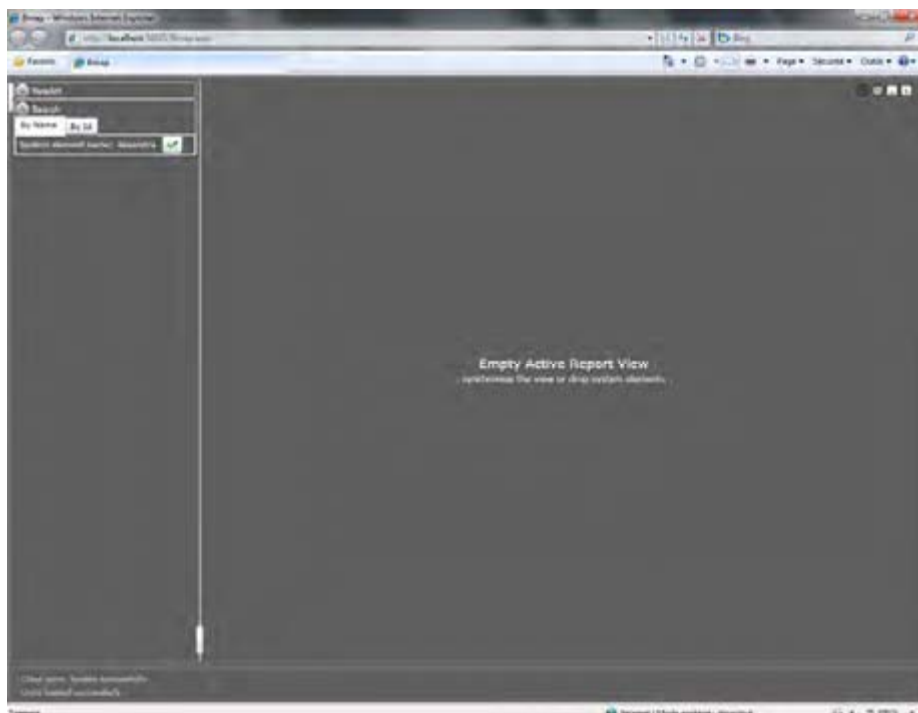


fig 52



- ✓ Among the obtained results, Ctrl-Drag the **Alexandria Learning Alliance** item and drop it in the display area,

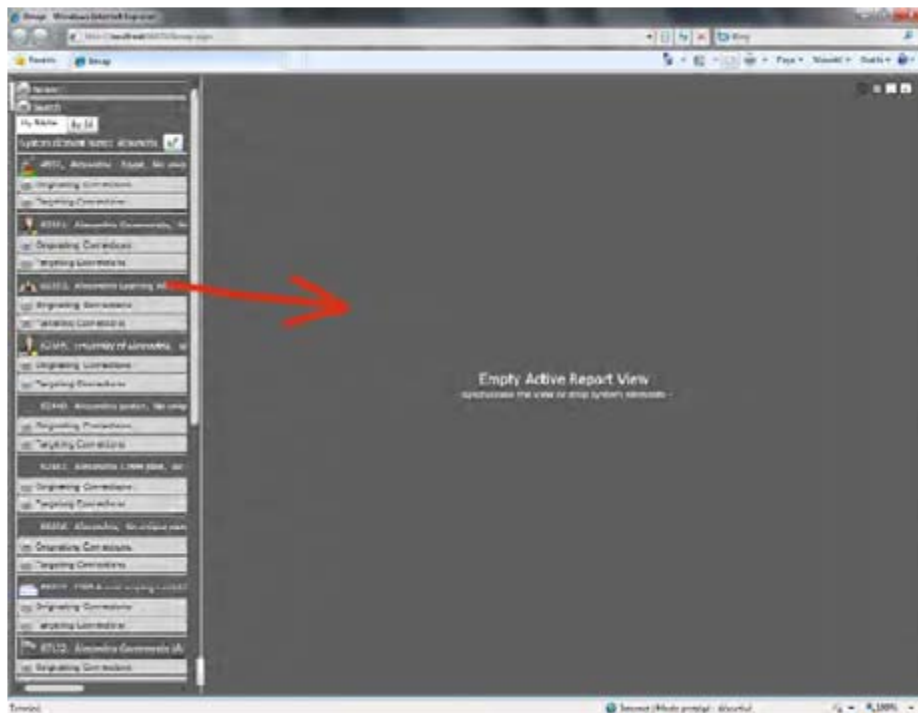


fig 53

- ✓ The following report sheet will open:



fig 54



## Task2. Explore the three data panels

- ✓ On the top left side of the display area, there is a group of commands allowing to switch between several viewing modes of the three components of an Active Report View, i.e. to see the attributes section alone [a], the report section alone [r], the data section alone [d], the report section along with the data section [r|d]. To see all of them together click on the item marked as [3],

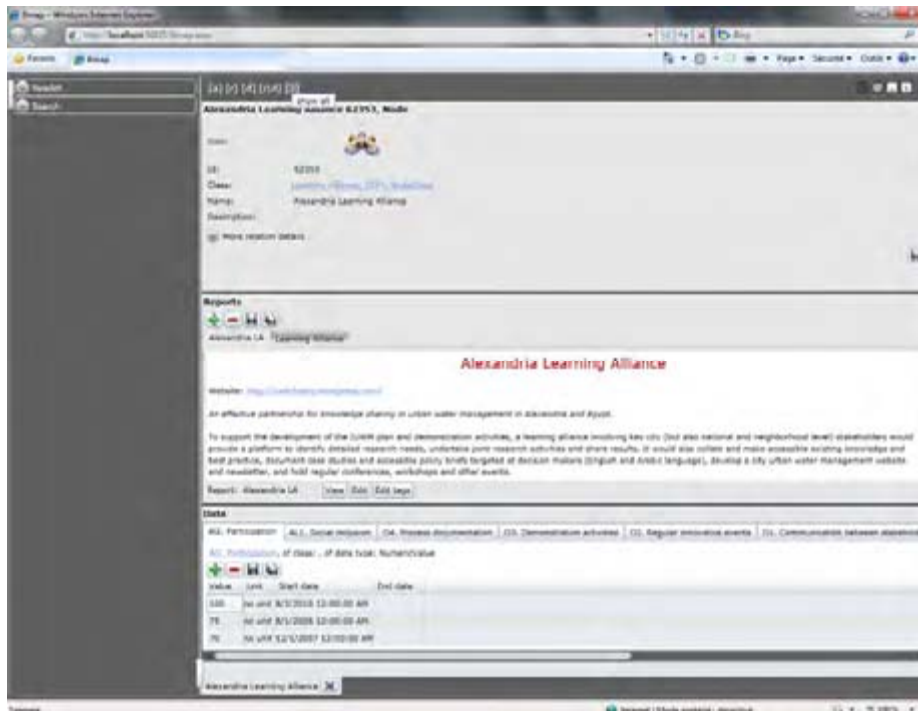


fig 55

- ✓ Click on [r] to get back the report alone. The report area may contain several report sheets. In our example, there is one report specific for Alexandria and a second report sheet that describes the SWITCH learning alliances in general and is actually inherited by all “children” of the “Learning Alliance Class” (see Part D and Part E). Click on the Learning Alliance tab to see this report,



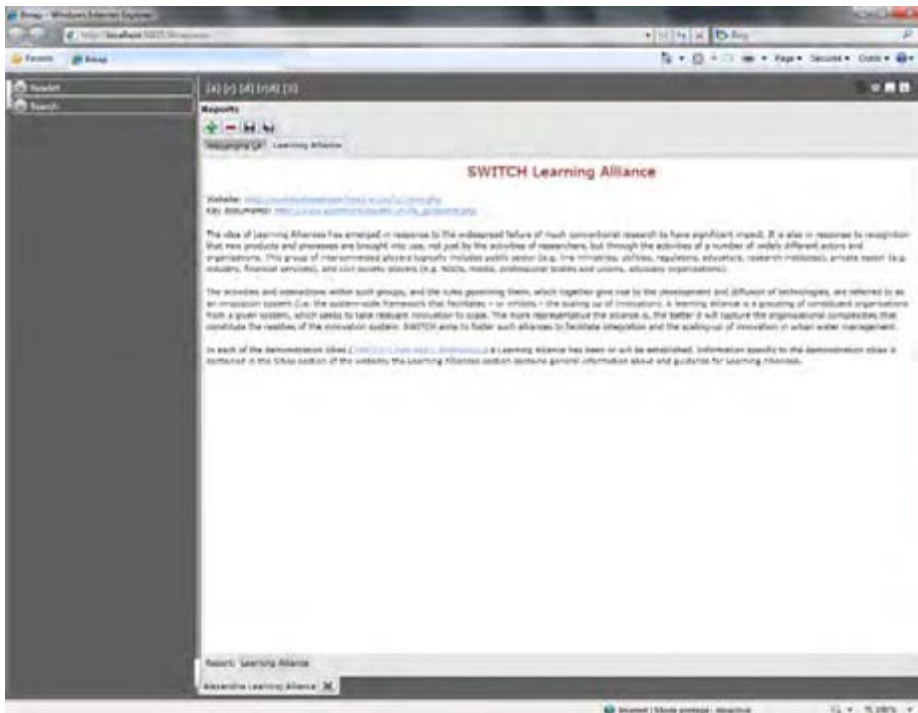


fig 56

### Task3. Navigate using hyperlinks

- ✓ This report contains two links to external websites and one internal hyperlink, directed to an element described as **SWITCH Cities**, Click on that link to open that other report,

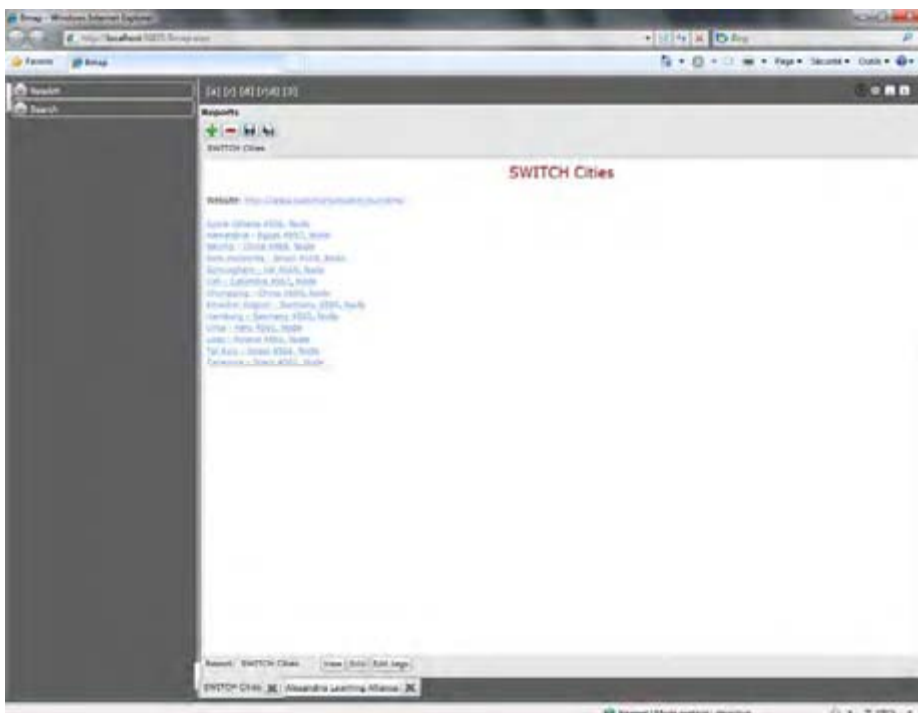


fig 57

- ✓ As can be seen above, the report view can host the reports related to different elements, each of them hosting possible several reports,
- ✓ Click on the internal link to Alexandria to add the corresponding report to the current collection displayed in the Active Report view,





fig 58

- ✓ Click on the Web link displayed in the Alexandria report to access to the related Web site,



fig 59



## Add and edit data

### Task4. Add an image

- ✓ Activate the application's left banner to access the project section, and, from the **Alexandria project**, Ctrl-Drag the **Marriout Lake report** and drop it in the display area,

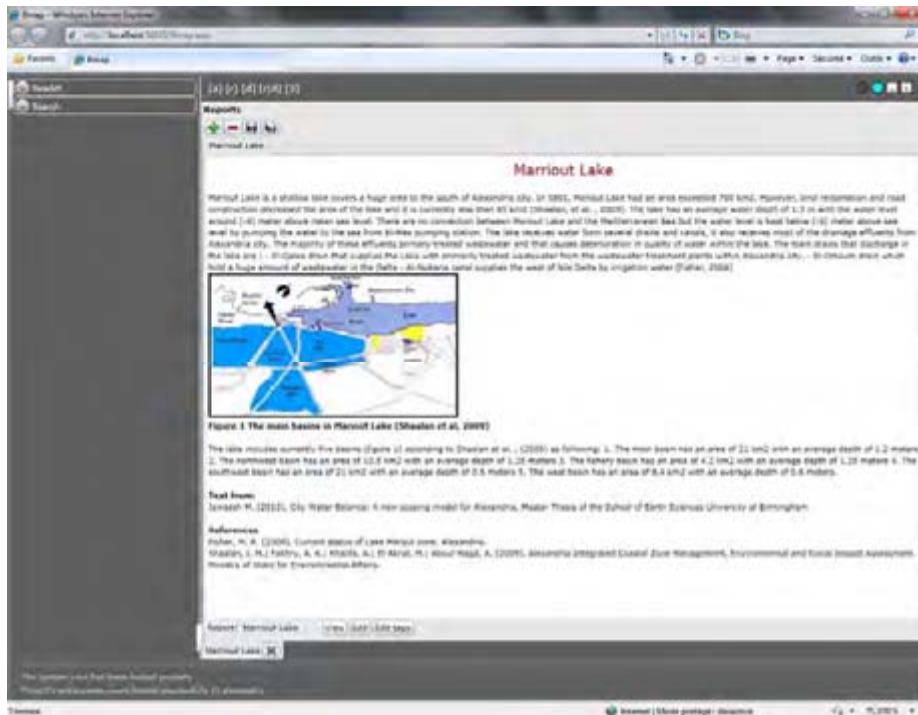


fig 60

- ✓ Press the [d] button to look at the data section alone,

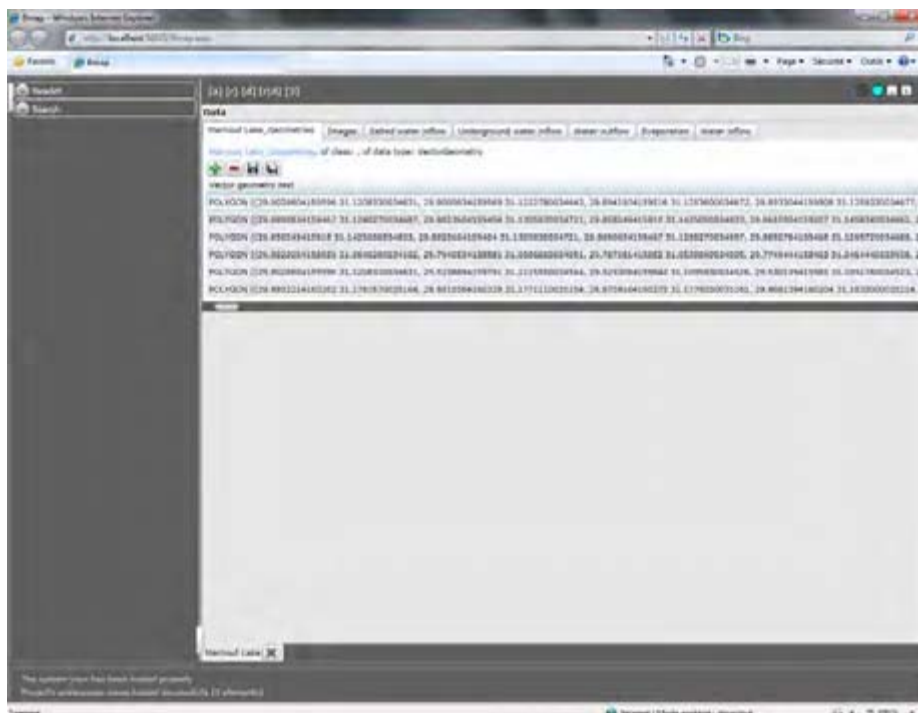


fig 61



- ✓ Select the Salted Water Inflow tab, and press the Add button to enter a new value, with appropriate units and validity start,

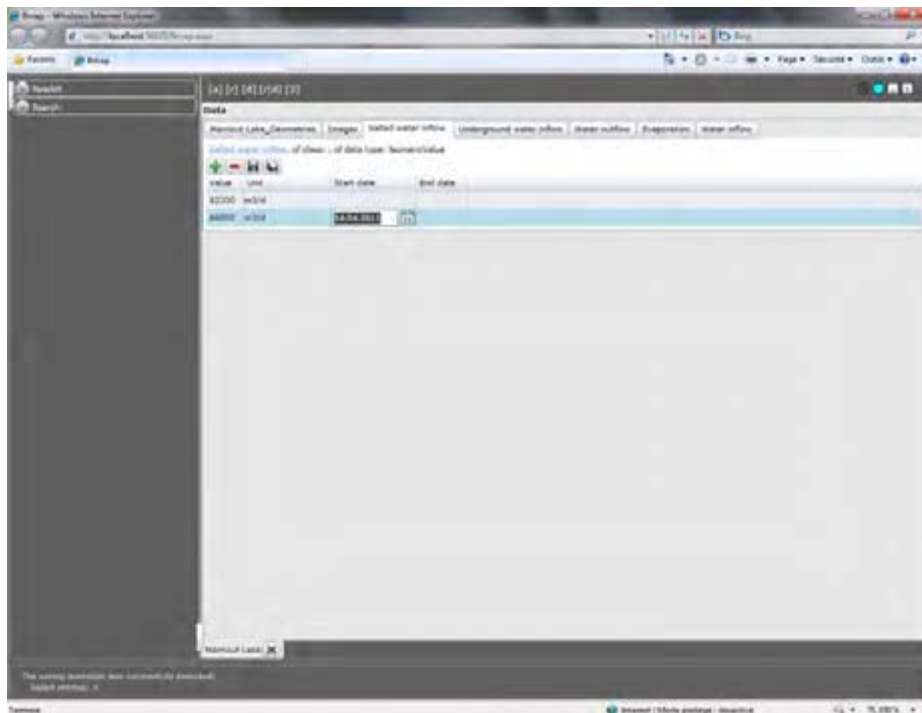


fig 62

#### Task5. Add a new image

- ✓ Switch to the Images tab, and press the Add button, this adds a new image item with no data,

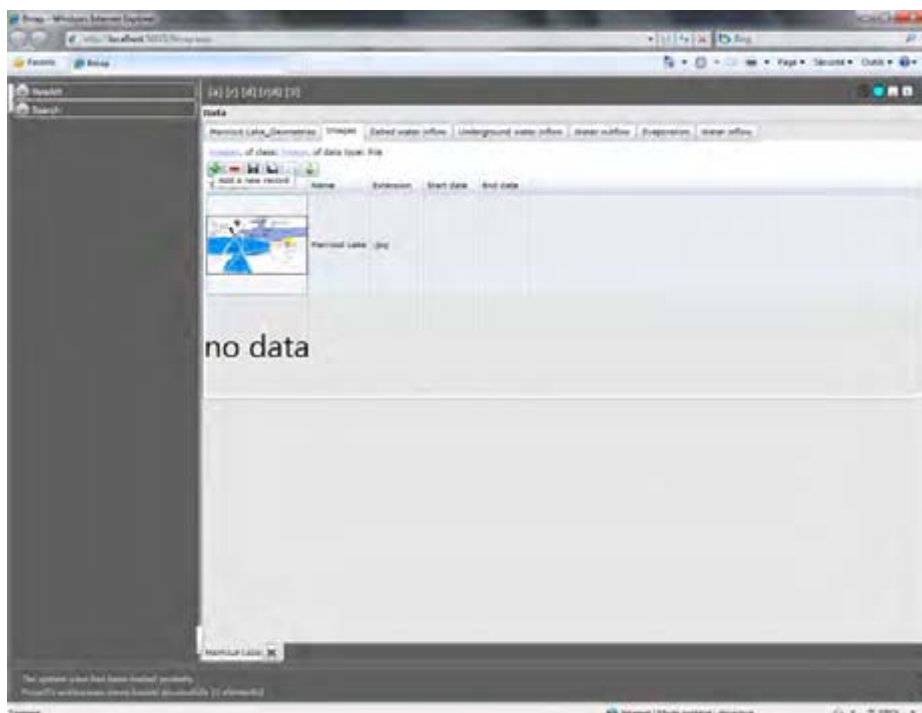


fig 63







- ✓ The selected image is now ready for use (see next section)

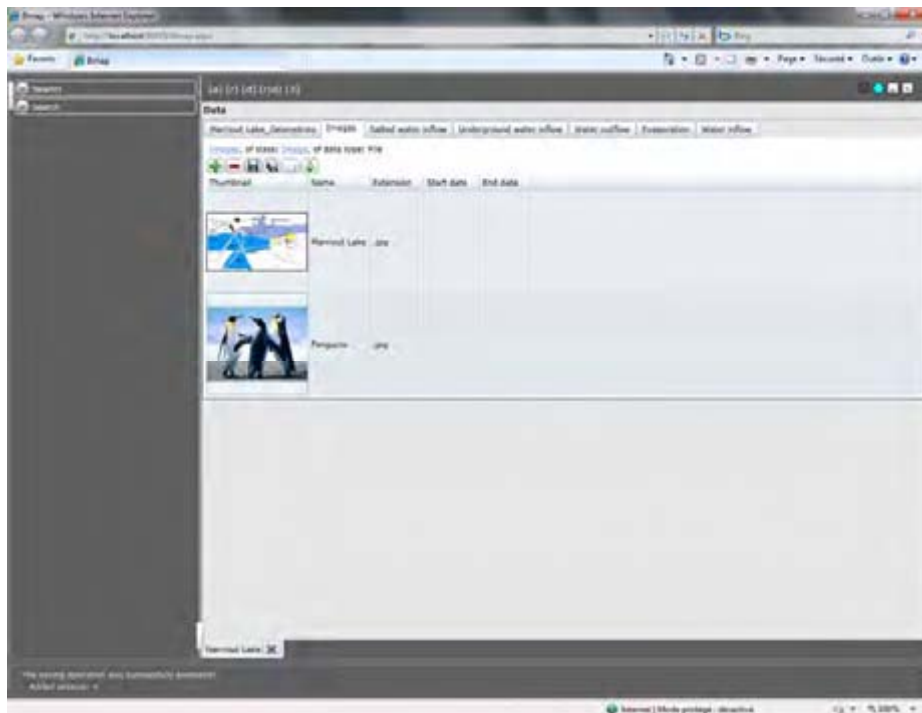


fig 66

#### Task6. Edit and modify the URL address of a Web Site

- ✓ The Lake Mariout element doesn't have an information group (or attribute) designed to host a Web Site address. The way in which such an item can be added will be trained in section E, for the time being let's just switch to another report sheet that hosts a Web link: use the search toll to find and display the Alexandria report,

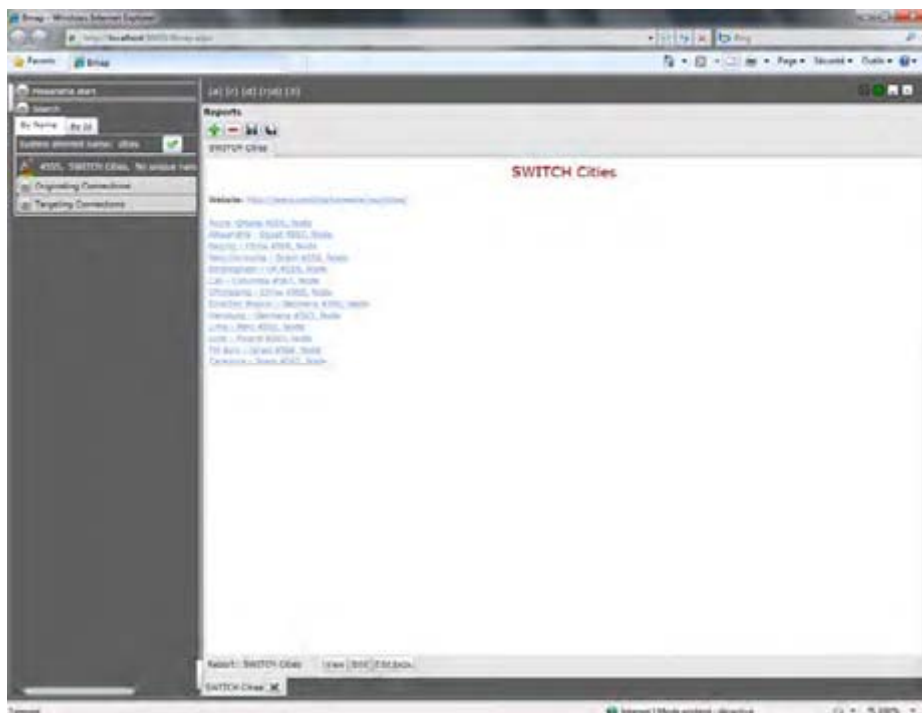


fig 67



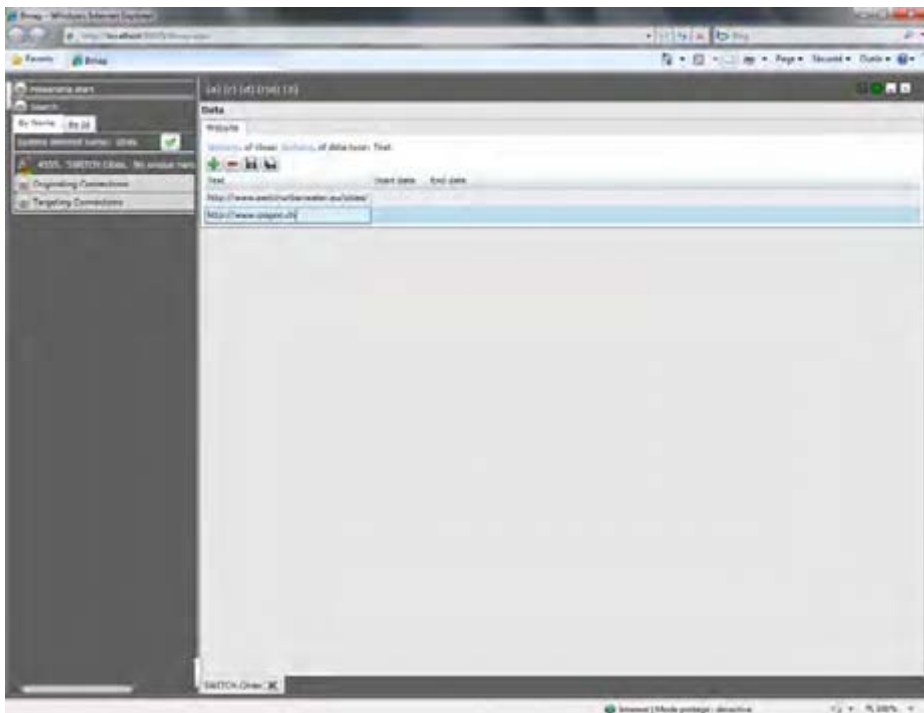
- 
- The screenshot shows a web browser window with the following details:
- Address Bar:** <http://localhost:8080/switch-cities>
  - Page Title:** SWITCH Cities
  - Left Sidebar:**
    - Home
    - About
    - Contact
    - Help
  - Main Content Area:**

**SWITCH Cities**

Website: <http://localhost:8080/switch-cities/>

New York - 192.168.1.1  
 London - 192.168.1.2  
 Paris - 192.168.1.3  
 Berlin - 192.168.1.4  
 Rome - 192.168.1.5  
 Moscow - 192.168.1.6  
 Tokyo - 192.168.1.7  
 Sydney - 192.168.1.8  
 Melbourne - 192.168.1.9  
 Auckland - 192.168.1.10  
 Wellington - 192.168.1.11  
 Christchurch - 192.168.1.12  
 Dunedin - 192.168.1.13  
 Invercargill - 192.168.1.14  
 Tairāhema - 192.168.1.15  
 Whangarei - 192.168.1.16  
 Auckland - 192.168.1.17  
 Hamilton - 192.168.1.18  
 Tauranga - 192.168.1.19  
 Napier - 192.168.1.20  
 Palmerston North - 192.168.1.21  
 Hastings - 192.168.1.22  
 Gisborne - 192.168.1.23  
 Taranaki - 192.168.1.24  
 Manawatu - 192.168.1.25  
 Bay of Plenty - 192.168.1.26  
 Waikato - 192.168.1.27  
 Otago - 192.168.1.28  
 Southland - 192.168.1.29  
 Northland - 192.168.1.30  
 Aotearoa - 192.168.1.31  
 New Zealand - 192.168.1.32  
 Oceania - 192.168.1.33  
 Asia - 192.168.1.34  
 Europe - 192.168.1.35  
 Africa - 192.168.1.36  
 Australia - 192.168.1.37  
 Oceania - 192.168.1.38  
 Asia - 192.168.1.39  
 Europe - 192.168.1.40  
 Africa - 192.168.1.41  
 Australia - 192.168.1.42  
 Oceania - 192.168.1.43  
 Asia - 192.168.1.44  
 Europe - 192.168.1.45  
 Africa - 192.168.1.46  
 Australia - 192.168.1.47  
 Oceania - 192.168.1.48  
 Asia - 192.168.1.49  
 Europe - 192.168.1.50  
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 Australia - 192.168.1.67  
 Oceania - 192.168.1.68  
 Asia - 192.168.1.69  
 Europe - 192.168.1.70  
 Africa - 192.168.1.71  
 Australia - 192.168.1.72  
 Oceania - 192.168.1.73  
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 Europe - 192.168.1.75  
 Africa - 192.168.1.76  
 Australia - 192.168.1.77  
 Oceania - 192.168.1.78  
 Asia - 192.168.1.79  
 Europe - 192.168.1.80  
 Africa - 192.168.1.81  
 Australia - 192.168.1.82  
 Oceania - 192.168.1.83  
 Asia - 192.168.1.84  
 Europe - 192.168.1.85  
 Africa - 192.168.1.86  
 Australia - 192.168.1.87  
 Oceania - 192.168.1.88  
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 Australia - 192.168.1.97  
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 Europe - 192.168.1.100  
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 Australia - 192.168.1.102  
 Oceania - 192.168.1.103  
 Asia - 192.168.1.104  
 Europe - 192.168.1.105  
 Africa - 192.168.1.106  
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 Oceania - 192.168.1.108  
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 Europe - 192.168.1.110  
 Africa - 192.168.1.111  
 Australia - 192.168.1.112  
 Oceania - 192.168.1.113  
 Asia - 192.168.1.114  
 Europe - 192.168.1.115  
 Africa - 192.168.1.116  
 Australia - 192.168.1.117  
 Oceania - 192.168.1.118  
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 Europe - 192.168.1.120  
 Africa - 192.168.1.121  
 Australia - 192.168.1.122  
 Oceania - 192.168.1.123  
 Asia - 192.168.1.124  
 Europe - 192.168.1.125  
 Africa - 192.168.1.126  
 Australia - 192.168.1.127  
 Oceania - 192.168.1.128  
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 Europe - 192.168.1.130  
 Africa - 192.168.1.131  
 Australia - 192.168.1.132  
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 Australia - 192.168.1.162  
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 Europe - 192.168.1.165  
 Africa - 192.168.1.166  
 Australia - 192.168.1.167  
 Oceania - 192.168.1.168  
 Asia - 192.168.1.169  
 Europe - 192.168.1.170  
 Africa - 192.168.1.171  
 Australia - 192.168.1.172  
 Oceania - 192.168.1.173  
 Asia - 192.168.1.174  
 Europe - 192.168.1.175  
 Africa - 192.168.1.176  
 Australia - 192.168.1.177  
 Oceania - 192.168.1.178  
 Asia - 192.168.1.179  
 Europe - 192.168.1.180  
 Africa - 192.168.1.181  
 Australia - 192.168.1.182  
 Oceania - 192.168.1.183  
 Asia - 192.168.1.184  
 Europe - 192.168.1.185  
 Africa - 192.168.1.186  
 Australia - 192.168.1.187  
 Oceania - 192.168.1.188  
 Asia - 192.168.1.189  
 Europe - 192.168.1.190  
 Africa - 192.168.1

- ✓ Switching to the data section gives access to the Web Site group where a new web site can be added



---

48



## Create a new report

### Task7. Add a new report sheet

- ✓ Display the Mariout lake report again,

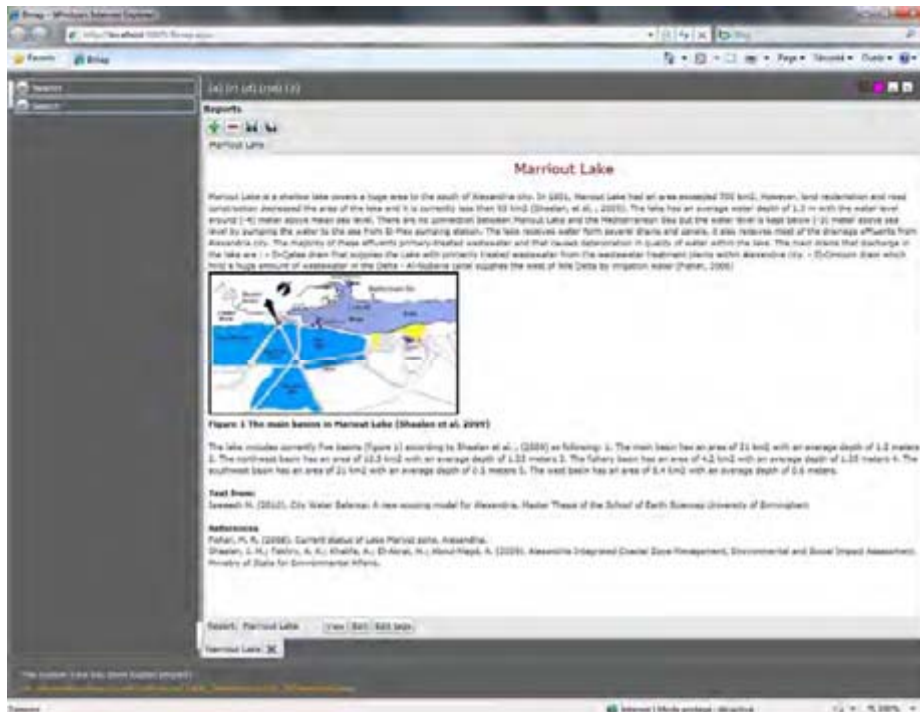


fig 70

- ✓ Click on the Add button to add a new empty report sheet,

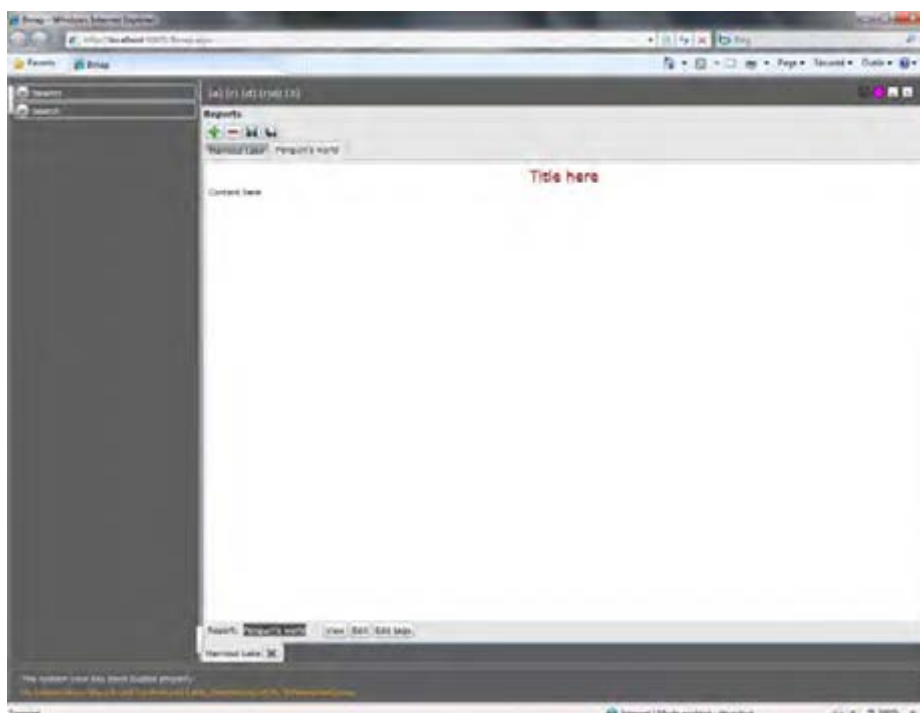


fig 71



### Task8. Add a title and some text

- ✓ Change the report name in the report's name area, click on the Edit button to switch to the edition mode (signalled by a red border), type a new title,

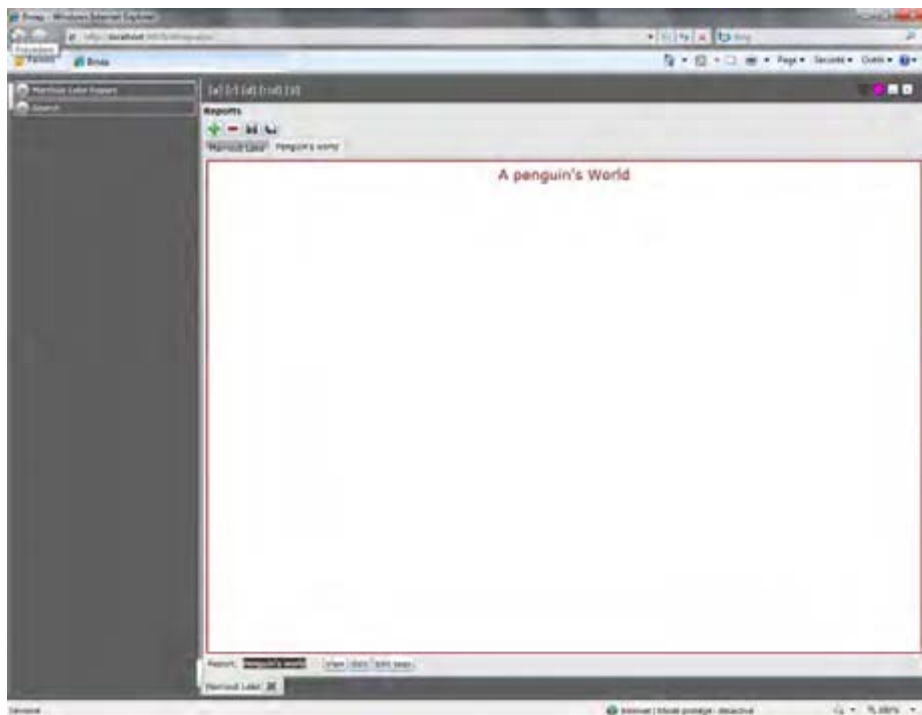


fig 72

- ✓ Get some descriptive information,

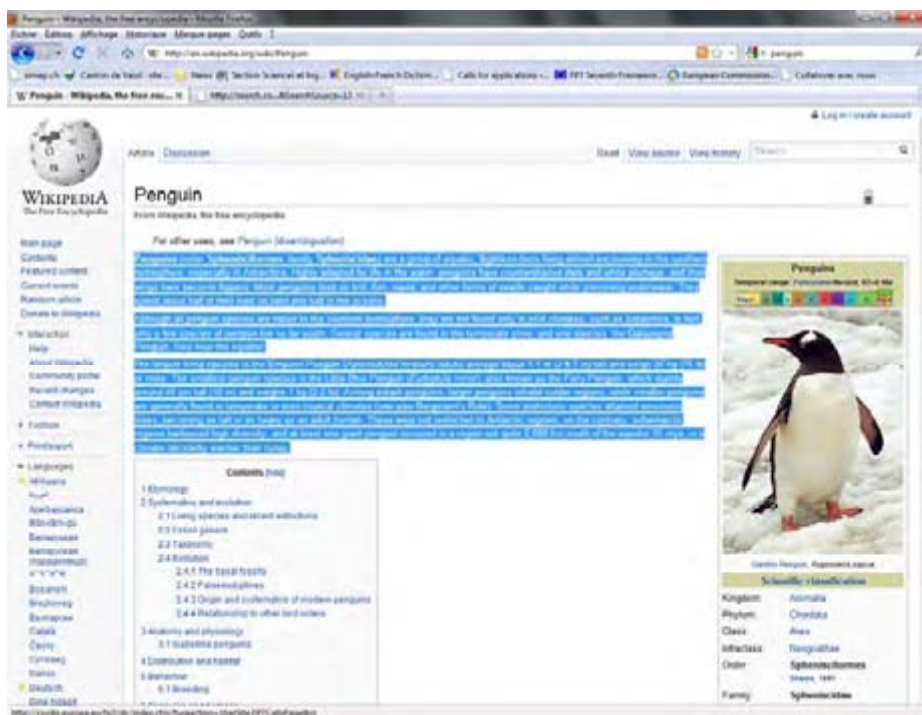


fig 73



- ✓ Copy and paste the selected text,



fig 74

### Task9. Add an image

- ✓ Click on the **[r|d]** button to activate both the report and the data section, select the **Images** tab and Ctrl-Drag the penguin image to drop it in the report,

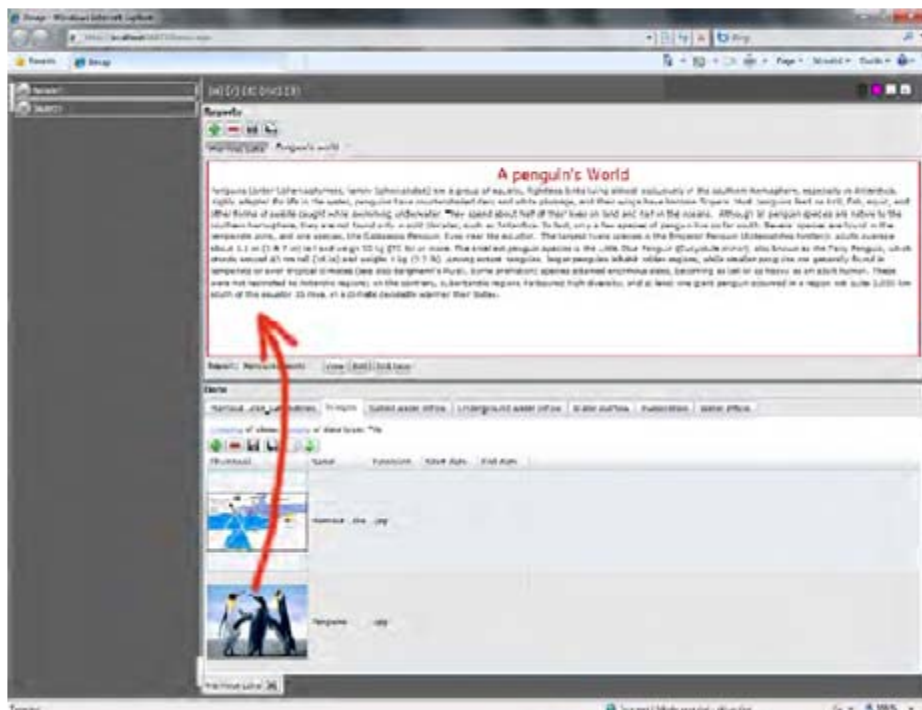


fig 75



- ✓ To handle layout issues such as the image size, one has to edit the report sheet background tags, so Click on the **Edit Tags** button



fig 76

- ✓ Click on the **Left to Right Arrow** to update the tags from the report, change the image Height property to 200 (see htt) and click the **Right to Left Arrow** to update the report from the tags.

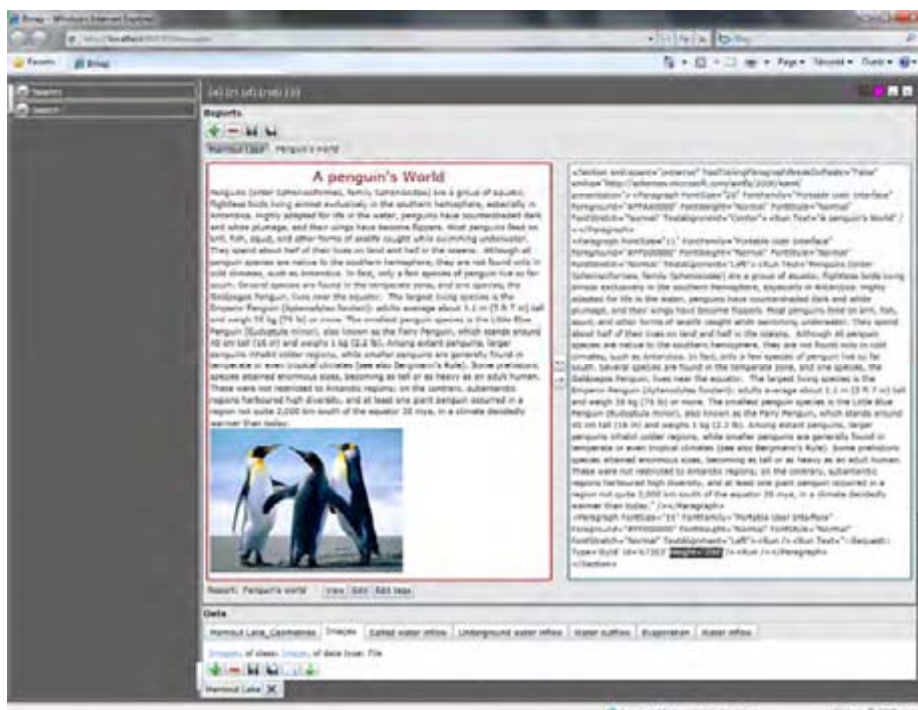


fig 77



### Task10. Add some numeric data as a static or dynamic element

- ✓ To add a numeric value in the report, repeat the same procedure, i.e. Ctrl-Drag the numerical item into the report sheet,

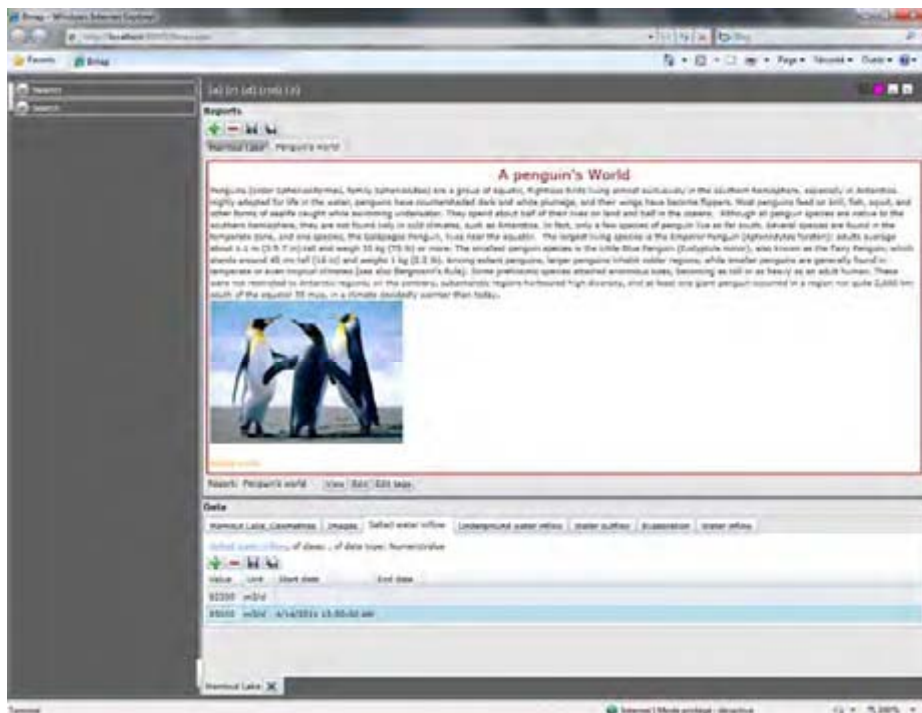


fig 78

- ✓ As can be seen by changing the numerical value in the data section, the report is automatically updated,



fig 79



# **Part D**

## **Training the System module**



## Adding elements from the element libraries - Nodes

### Task1. Add a new watershed

- ✓ Launch the application and open a blank workspace,
- ✓ Expand the Data Space and the Add New... section,
- ✓ Ctrl-Drag an Active Report view and drop it in the display area.

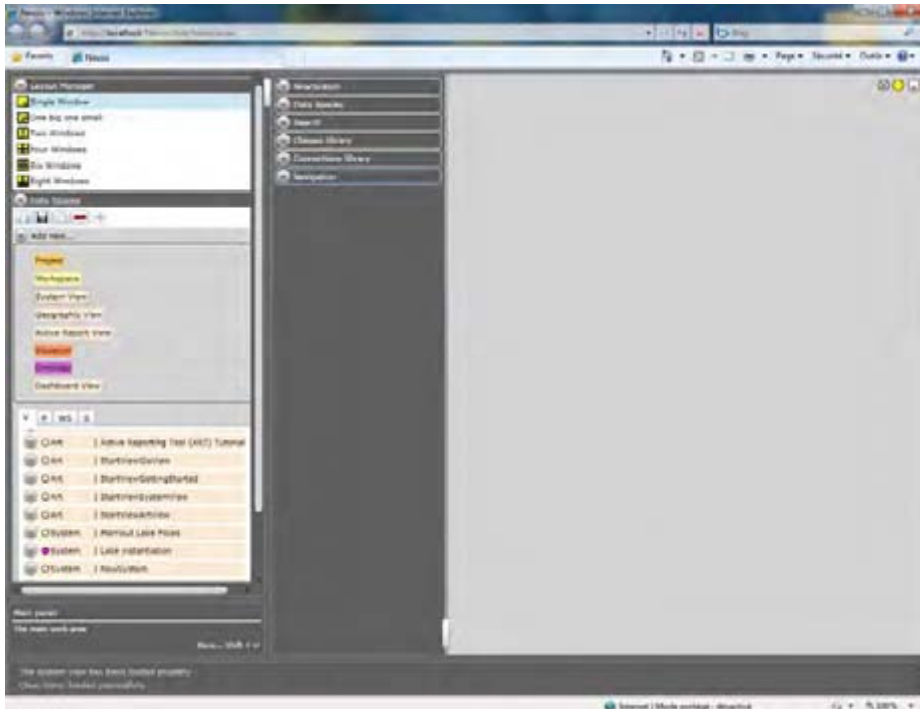


fig 80

- ✓ Expand the Node section of the Classes library,
- ✓ Ctrl-Drag a Watershed Node and drop it in the display area,
- ✓ Double-Click its name to edit and change it,

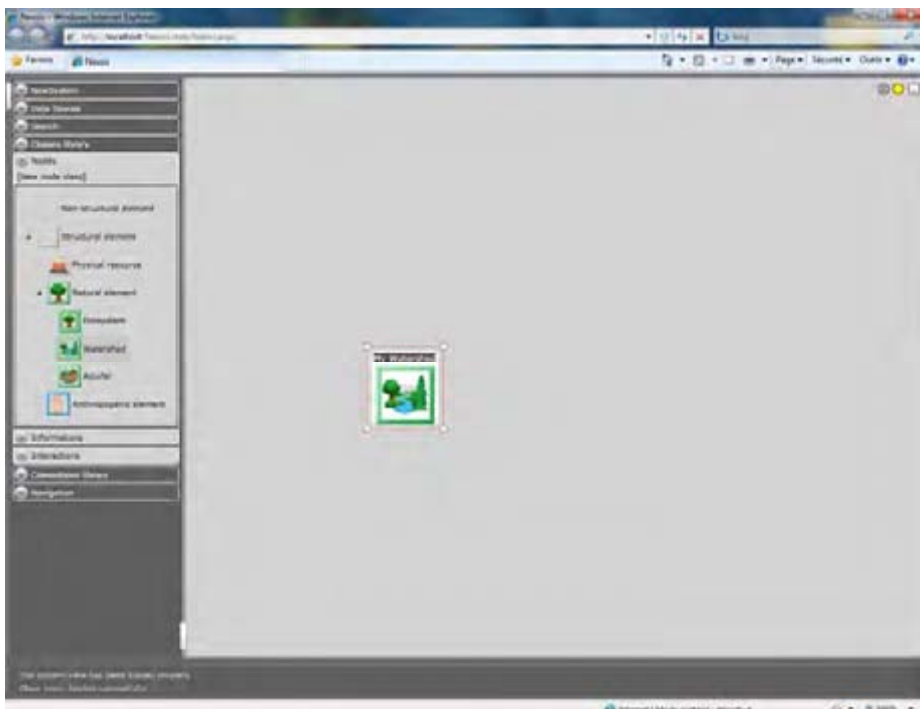


fig 81



### Task2. Add a new group of watershed

- ✓ Ctrl-Drag a Watershed Node and drop it in the display area with the Shift-key also pressed to add a group of watersheds,



fig 82

### Task3. Connect the watershed as a member of the watershed group

- ✓ Expand the Connections Library, Ctrl-Drag and Drop a Group Member connection,



fig 83



- ✓ Select the connection (drawing a selection square might be easier than clicking on the object) and connect its extremities to the Group and Group member,



fig 84

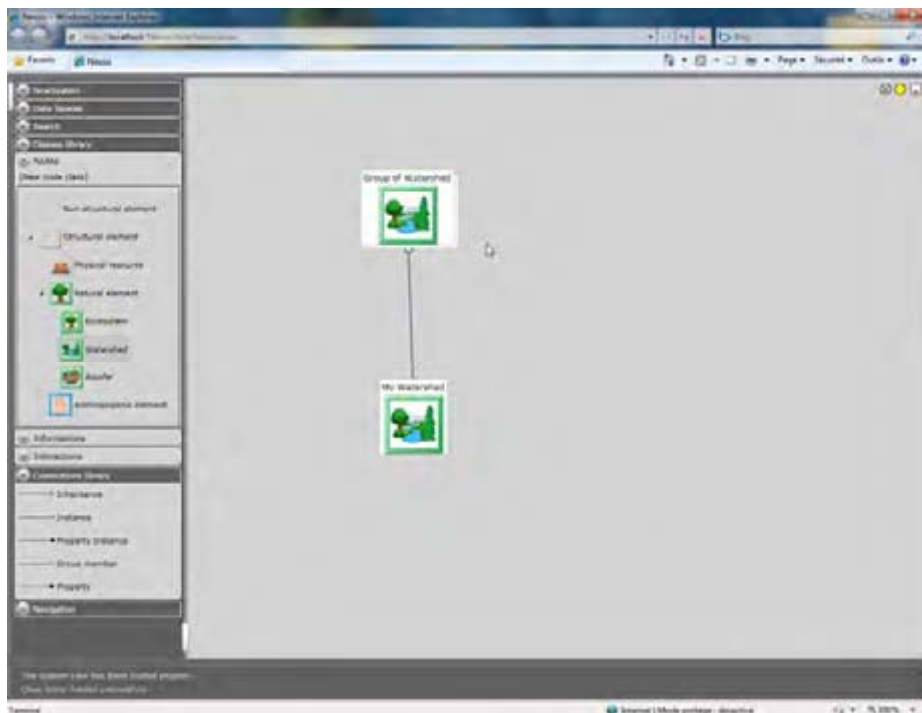


fig 85



#### Task4. Add the parent class and the appropriate instantiation connections

- ✓ Ctrl-Drag a Watershed Node and drop it in the display area with the Alt-key also pressed to add the Watershed class, which is the abstract “parent” of both the watershed Node and NodeGroup,

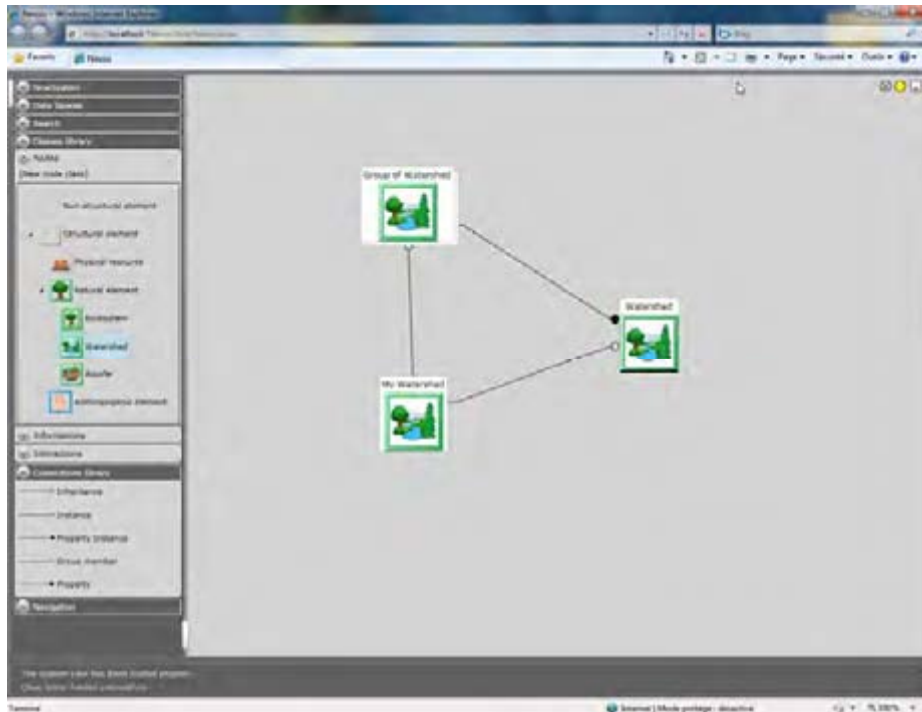


fig 86

- ✓ As maybe noticed the instantiation connections are automatically added,



## Adding elements from the element libraries - Information

### Task5. Add a new property to the watershed

- ✓ Expand the Information section of the Classes Library, Ctrl-Drag and Drop a Inhabitants item. This will add a group of information designed to host data on the number of inhabitants in the watershed ,

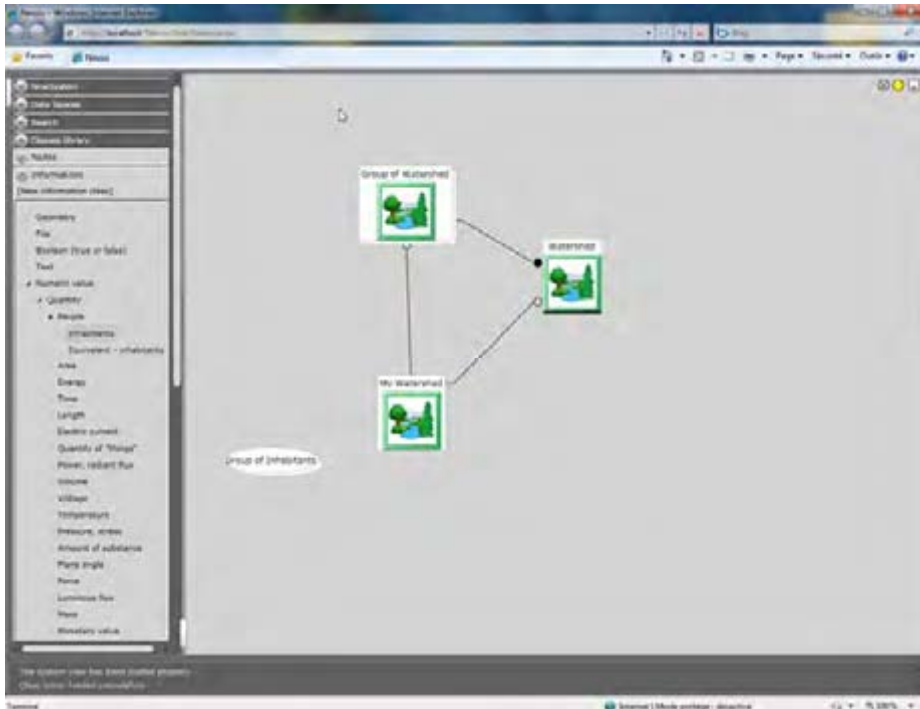


fig 87

- ✓ Expand the Connections Library and Ctrl-Drag and Drop a Property connection,

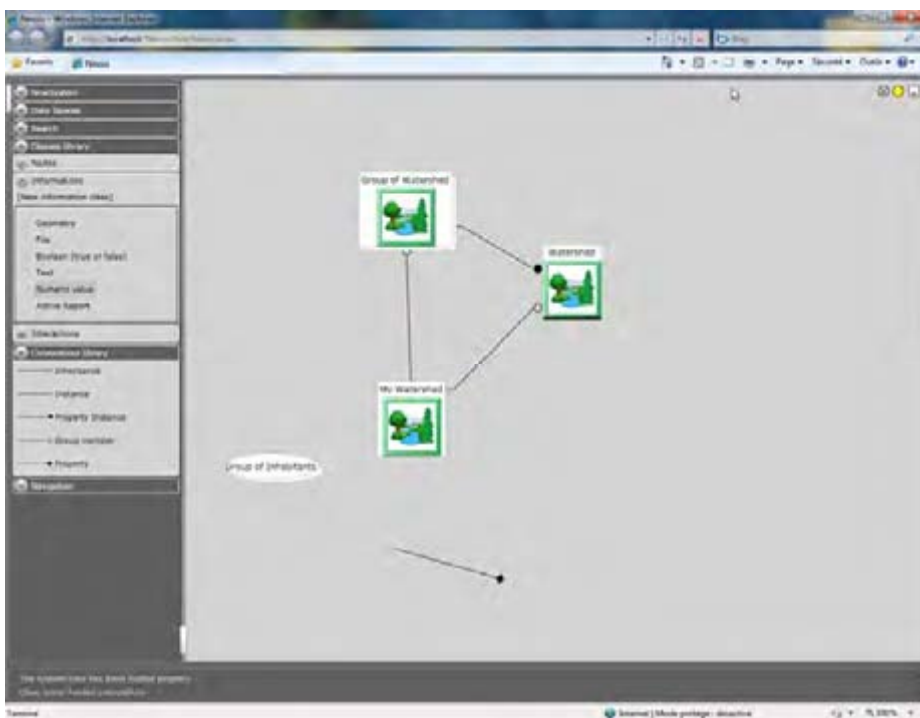


fig 88



- ✓ Using this Property connection, connect the inhabitants information group as a property of the watershed,

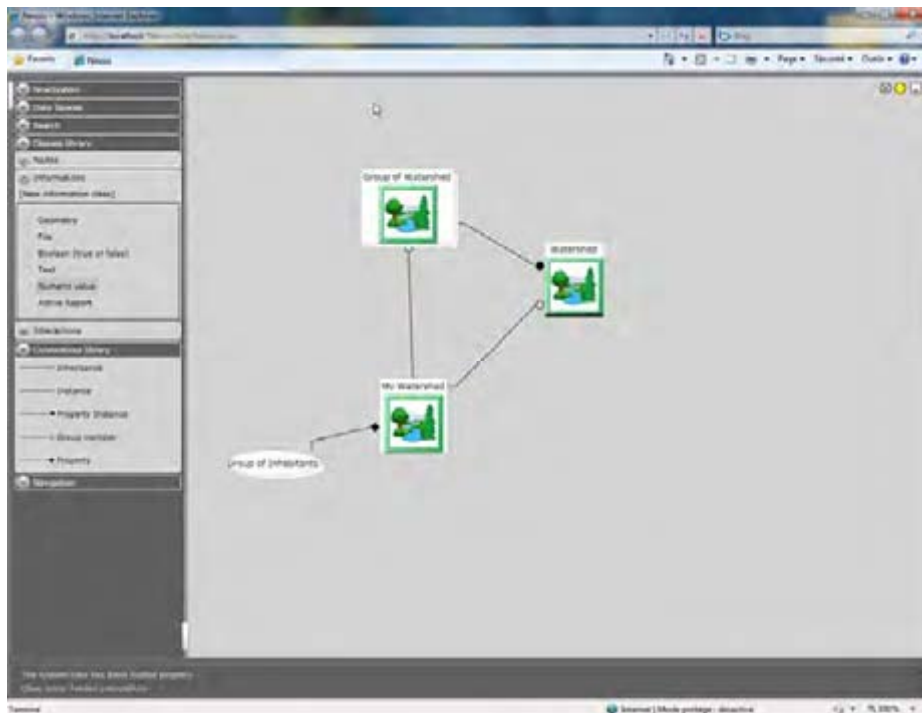


fig 89

#### Task6. Add the information parent class and the appropriate instantiation connection

- ✓ Ctrl-Drag an Inhabitants information class and drop it in the display area with the Alt-key also pressed to add this parent class to the display,

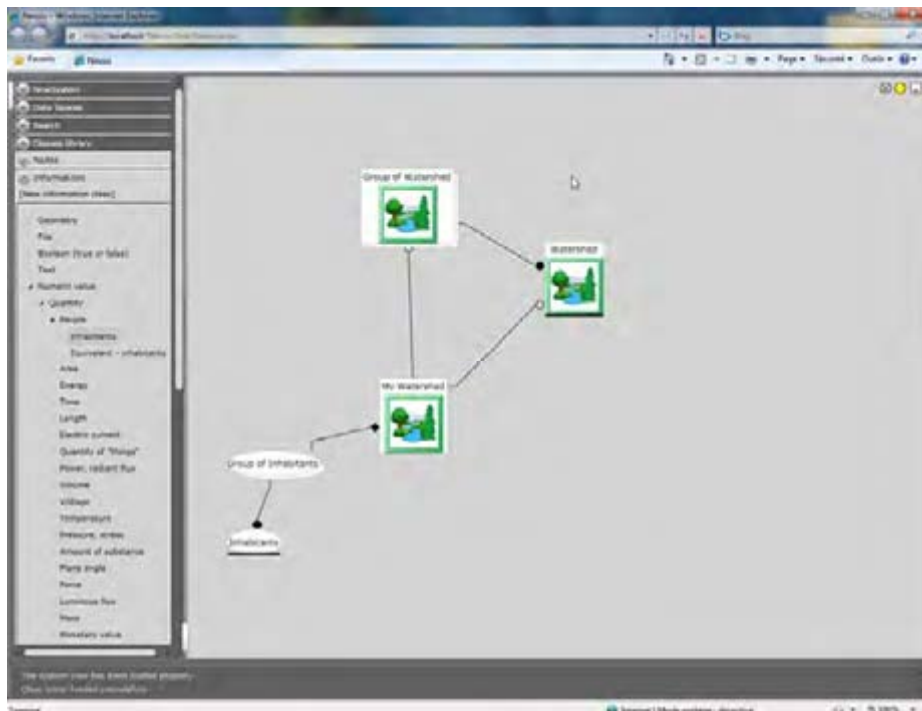


fig 90



## Adding elements from the element libraries - Interactions

### Task7. Add a water flux between the two watersheds

- ✓ Add a second watershed and rename it, and add a Group member connection (same procedure as for the first watershed),

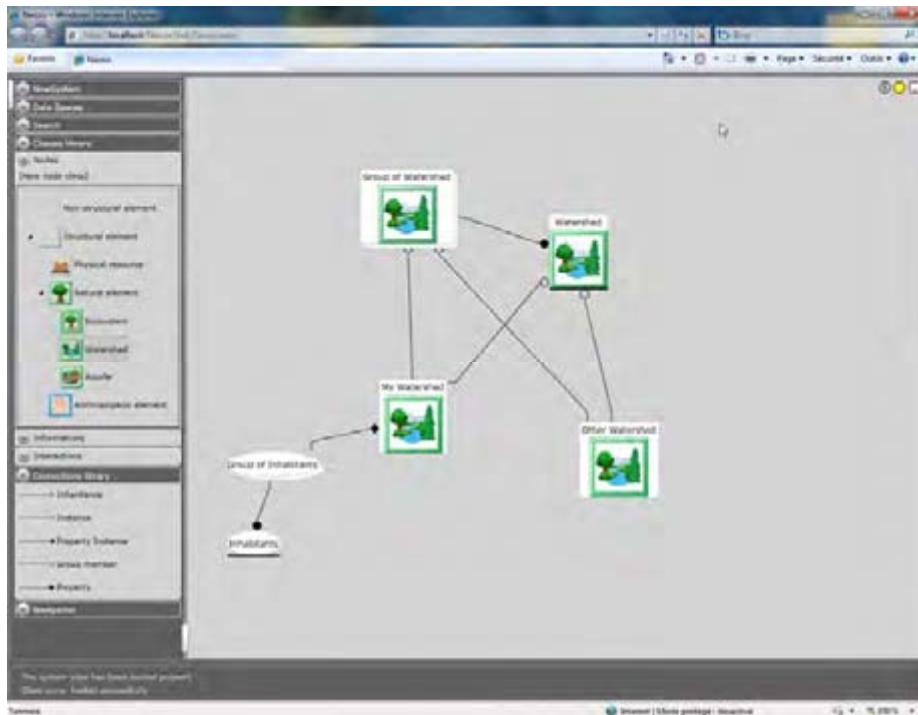


fig 91

- ✓ Expand the **Interaction** section of the **Class Library**, Ctrl-Drag and Drop a **Water Flux** interaction,

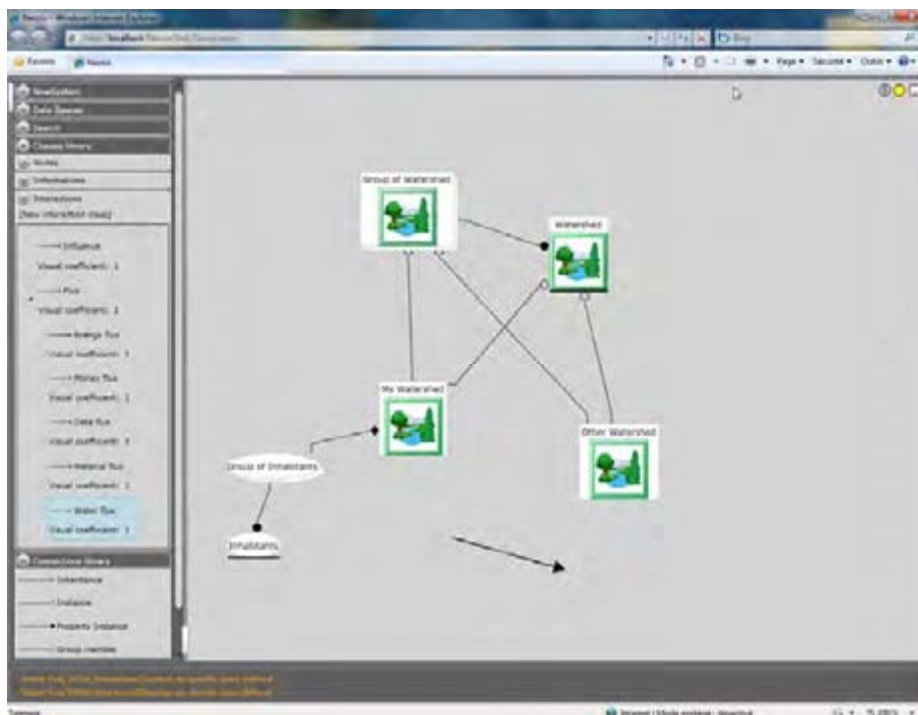


fig 92



- ✓ To link the two watersheds in terms of water flux leaving one to enter the other, one has to add the appropriate information groups as showed below,

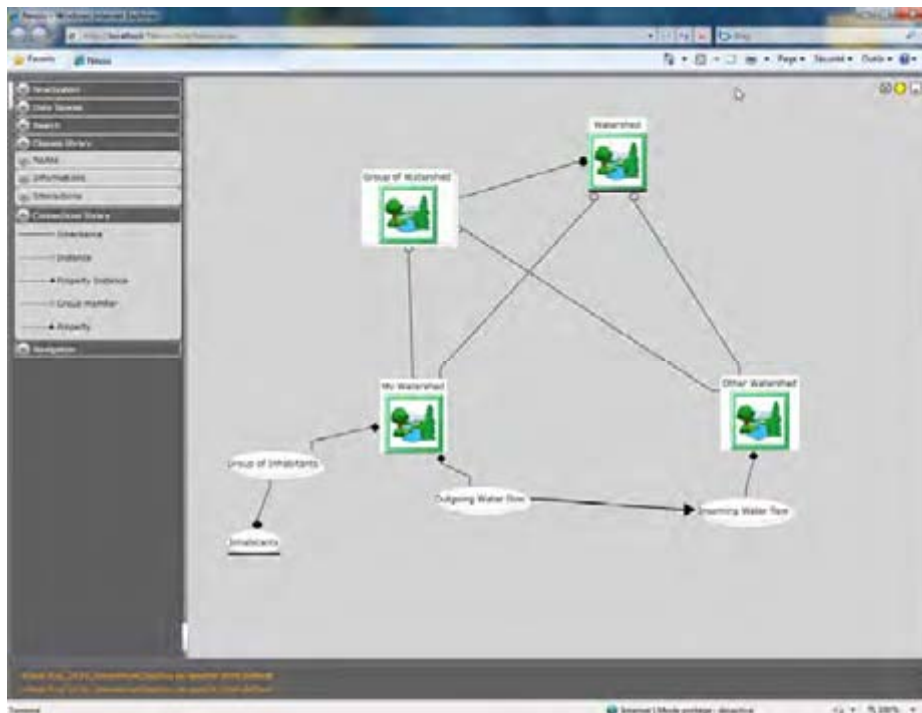


fig 93

- ✓ In that case again, the display can be completed by adding the interaction's parent class,

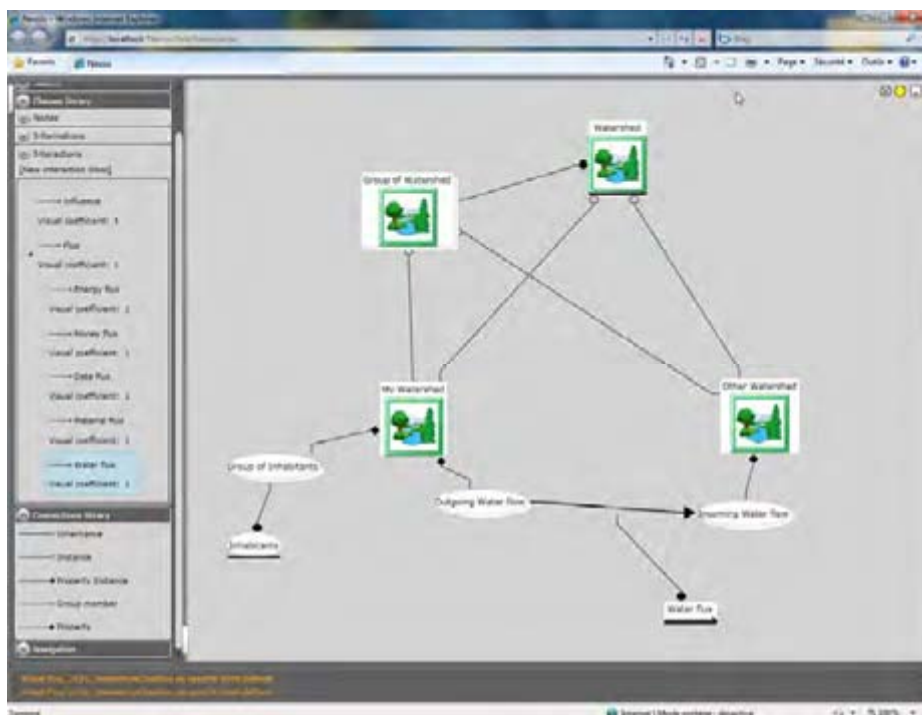


fig 94

- ✓ Ctrl-Drag an Inhabitants information class and drop it in the display area with the Alt-key also pressed to add this parent class to the display,



## Adding data to document these new elements

### Task8. Add the parent classes and the appropriate instantiation connections

- ✓ Split the display into two windows and add a new report view in the right display area, Ctrl-Drag the **My Watershed** item from the System view (left part of the display) to the Report view (right part of the display),

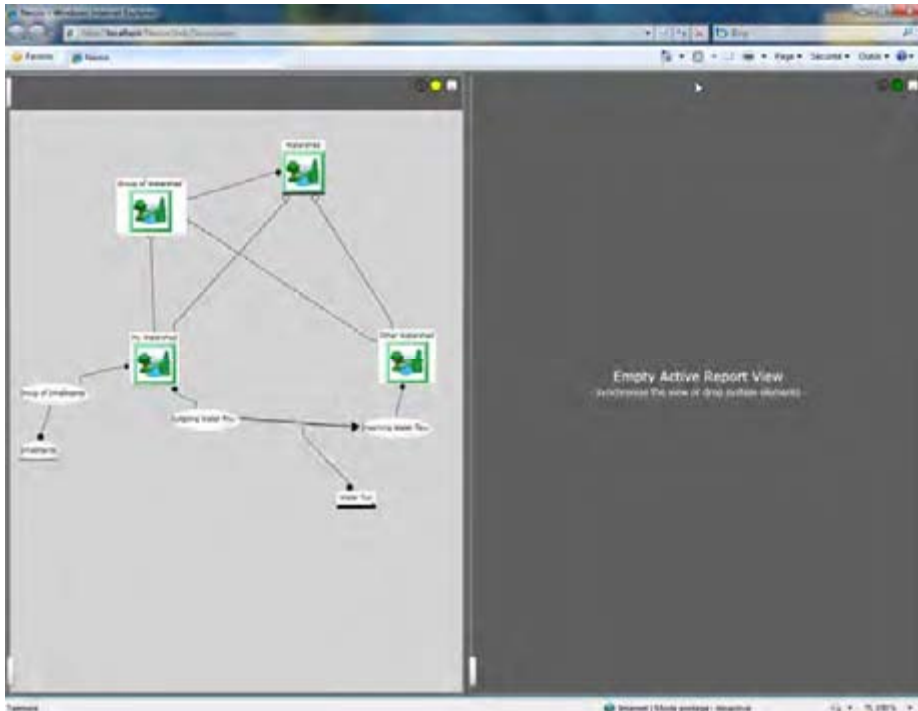


fig 95

- ✓ As can be seen the data section has two tabs, respectively for the inhabitants and outgoing water fluxes. Remembering the case of **Lake Marriout Report** where no information group was designed to host Web site information, it appears that exposing this item in a system view allows adding the required information group.



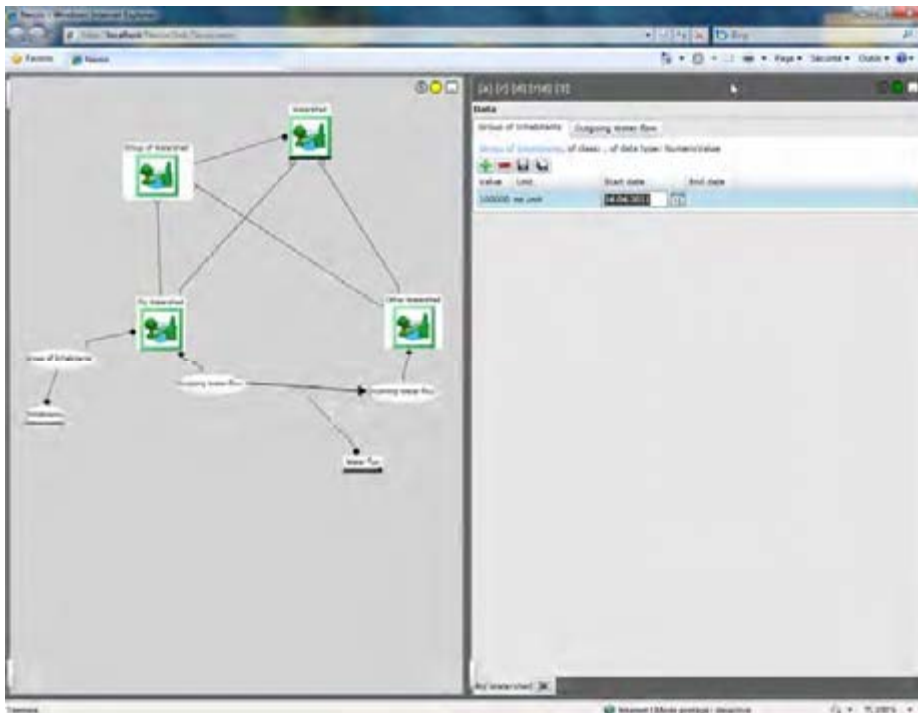


fig 96

## Create a diagram using the exploration mode

### Task9. Explore the data according to the systems logic

- ✓ Start from a new empty system view,
- ✓ Use the search tool to find the SWITCH project,
- ✓ Ctrl-Drag and Drop it from the search results list and drop it in the display area, if needed resize the icon to something reasonable,

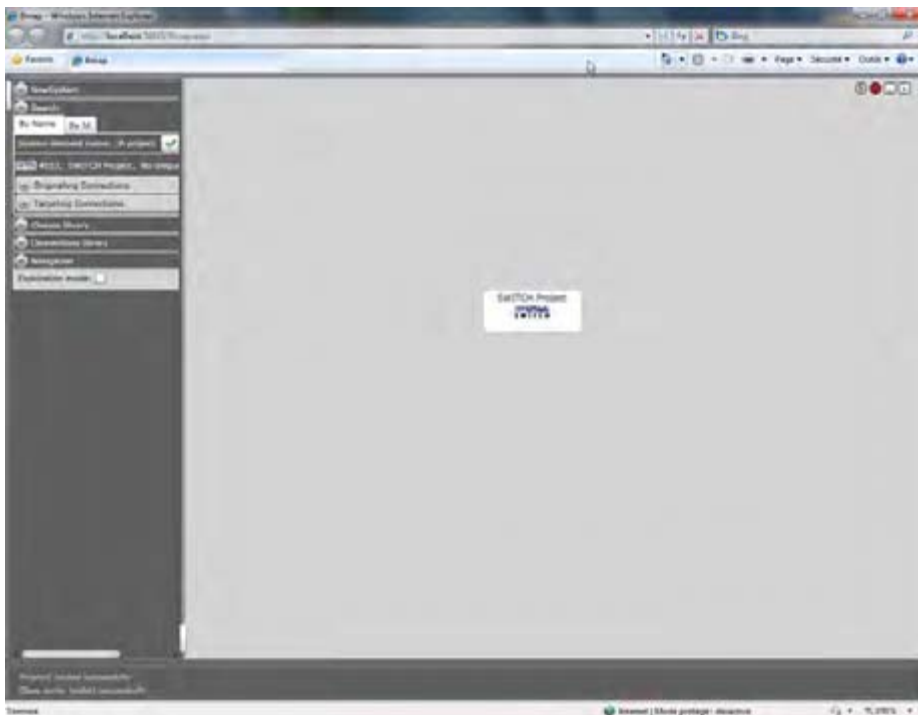


fig 97



- ✓ Activate the exploration mode in the navigation section of the left banner: the existing SWITCH project item gets dimmed, while the connect elements are displayed,

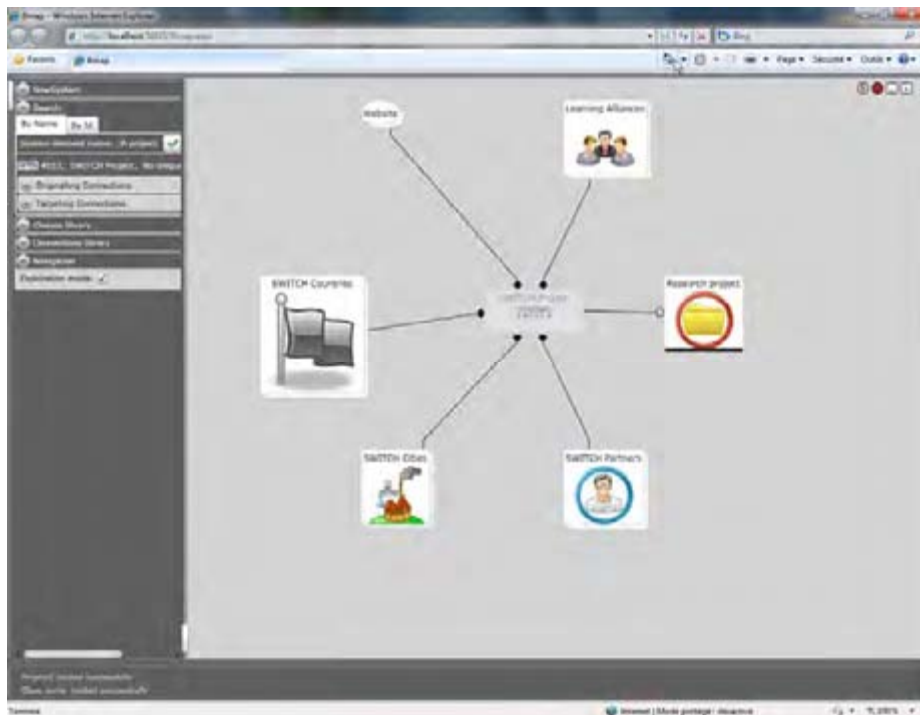


fig 98

- ✓ Right-Click on the items you wish to add to the system view, here the Learning Alliances group, the SWITCH Cities group and the SWITCH Partners group,

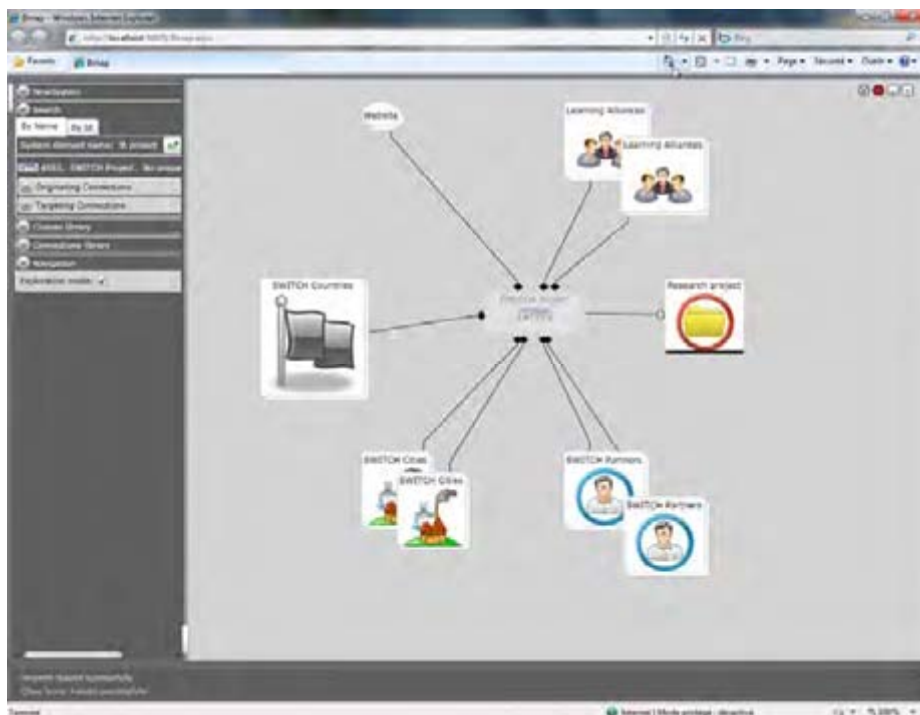


fig 99



- ✓ Deactivate the exploration mode, the new current system layout is displayed,

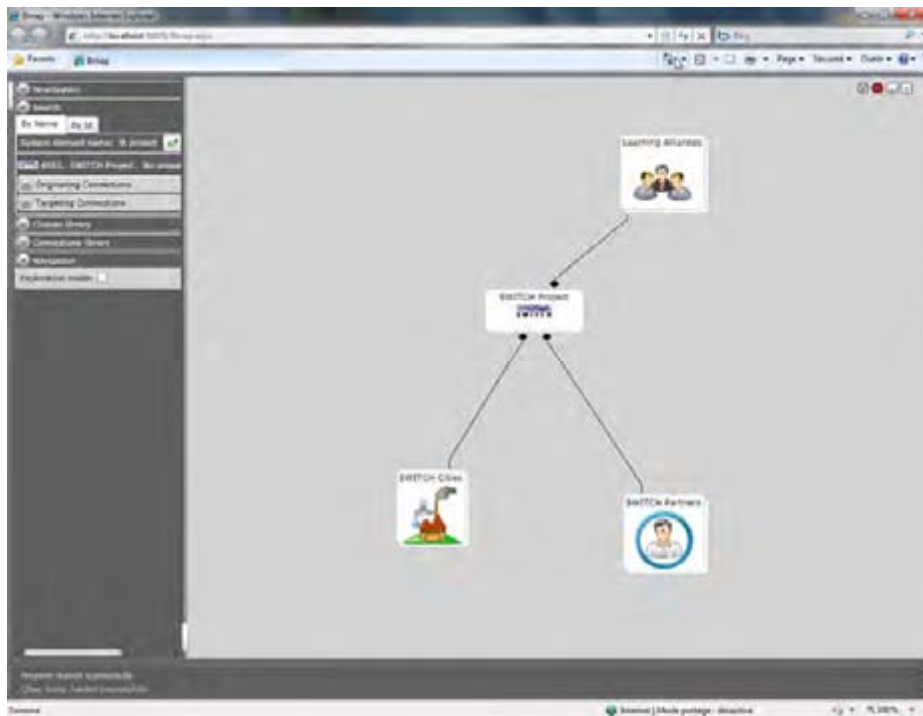


fig 100

- ✓ Same procedure to explore the SWITCH Cities and add the City of Alexandria to the display, exploring the connected elements,

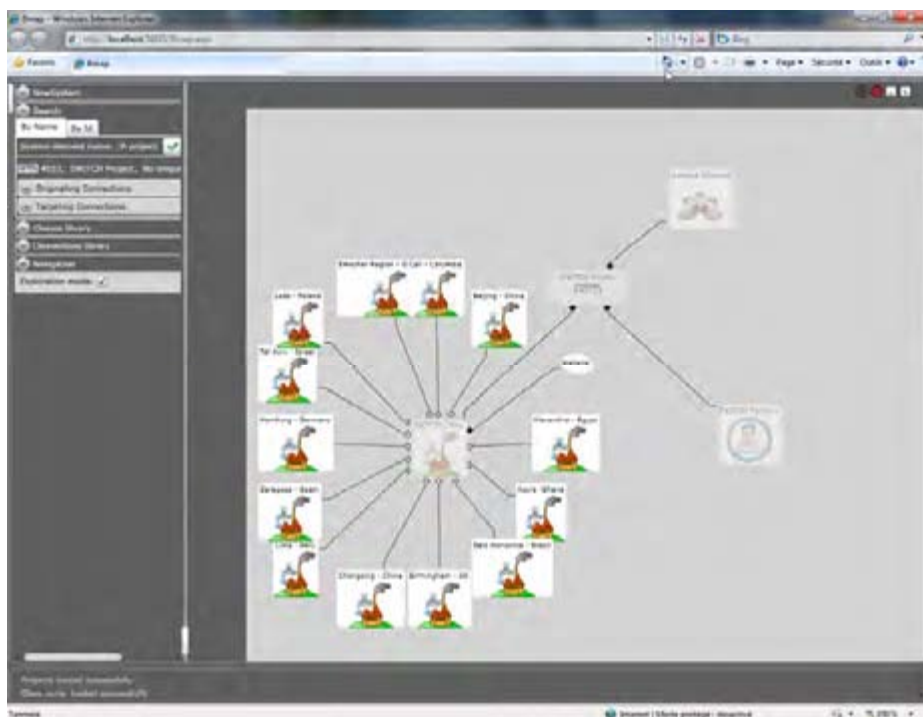


fig 101



- ✓ “Materializing” the Alexandria element,

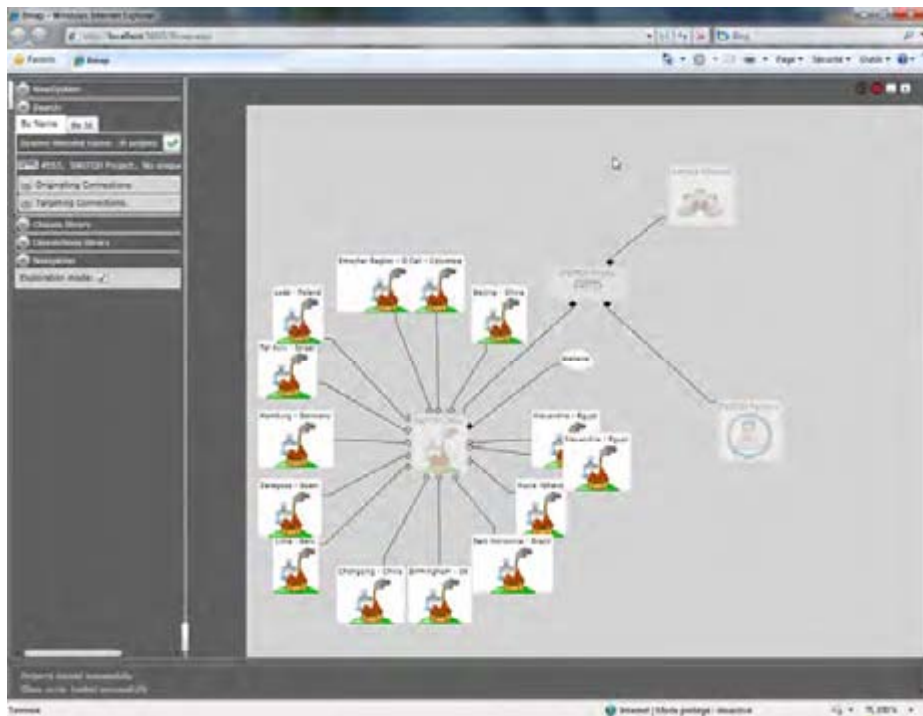


fig 102

- ✓ Deactivating the exploration mode,

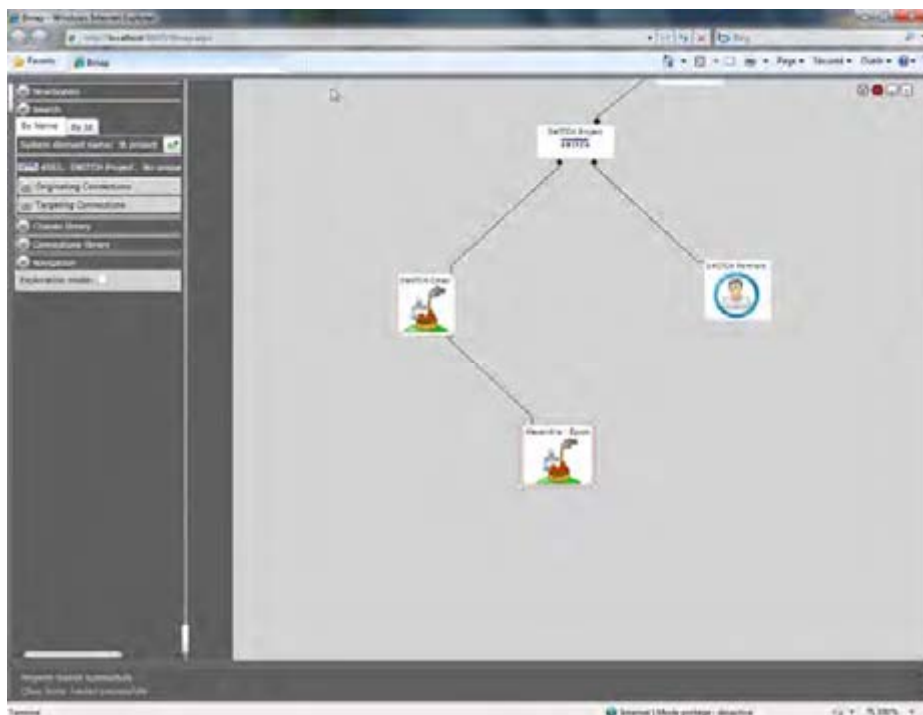


fig 103



- ✓ Same procedure to explore the Alexandria element,

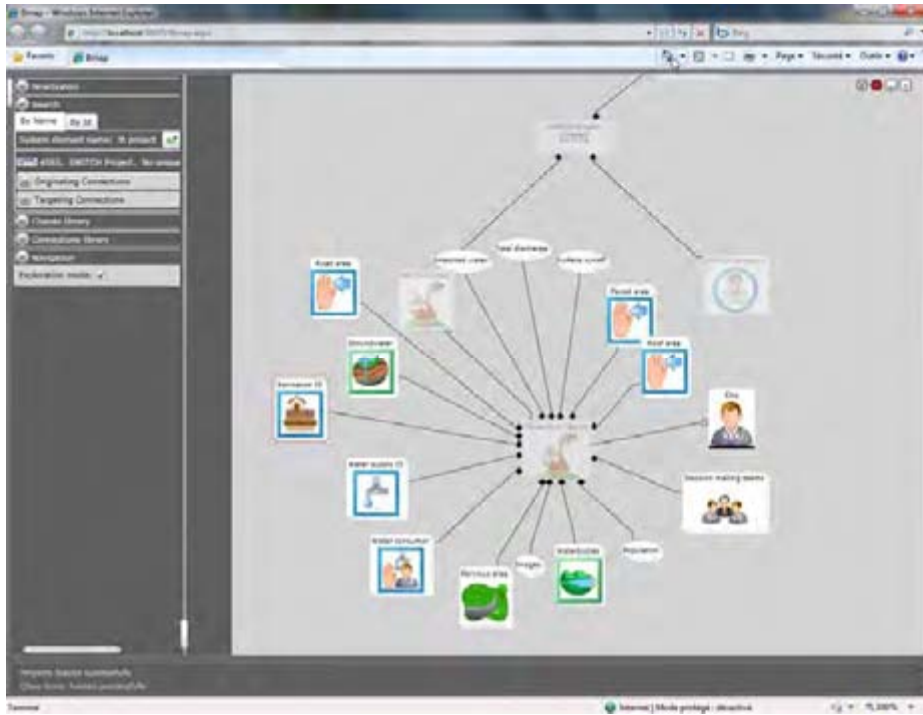


fig 104

- ✓ Adding the group of **Decision Making Teams** and the **Waterbodies**,

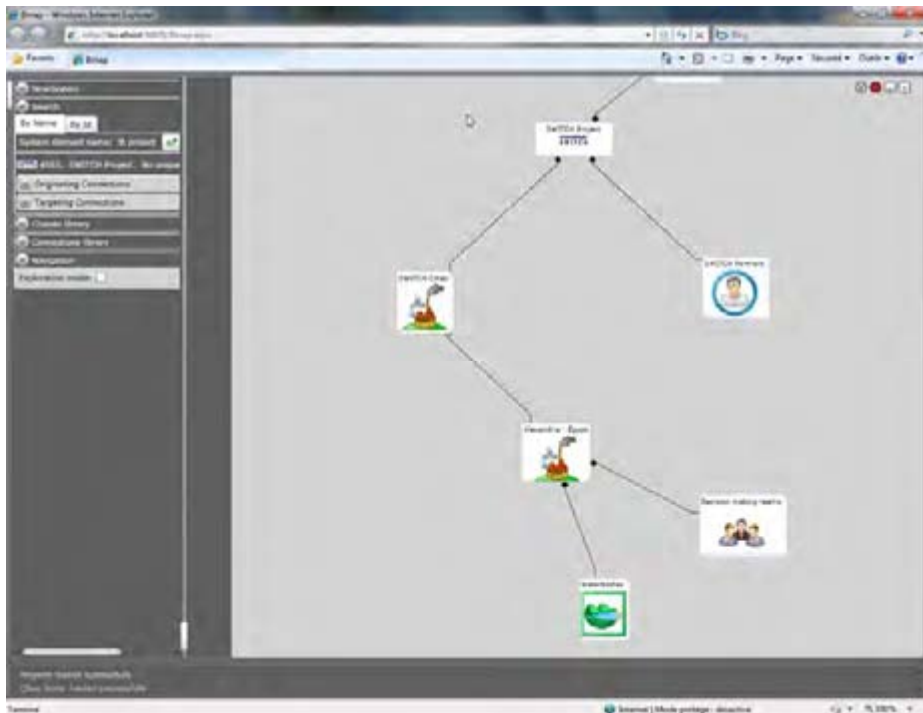


fig 105



- ✓ To see that the **Alexandria Learning Alliance** belongs to the **Decision Making Teams** in **Alexandria** and at also to the group of **Learning Alliances** that are a property of the **SWITCH** project,

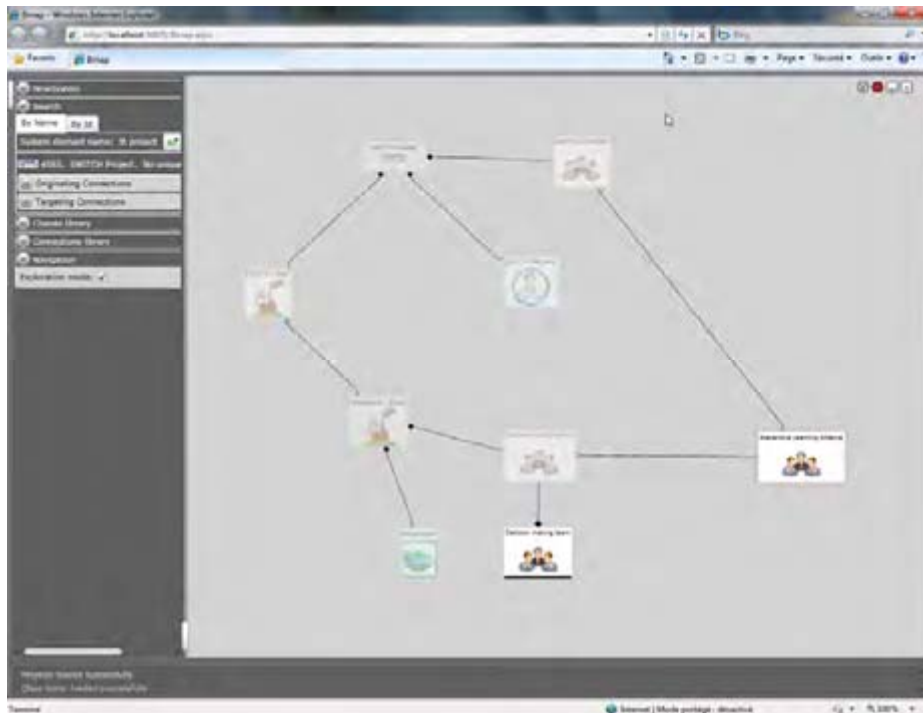


fig 106

- ✓ Finally one might add some elements linked to the Alexandria Learning Alliance Activities, and so on...

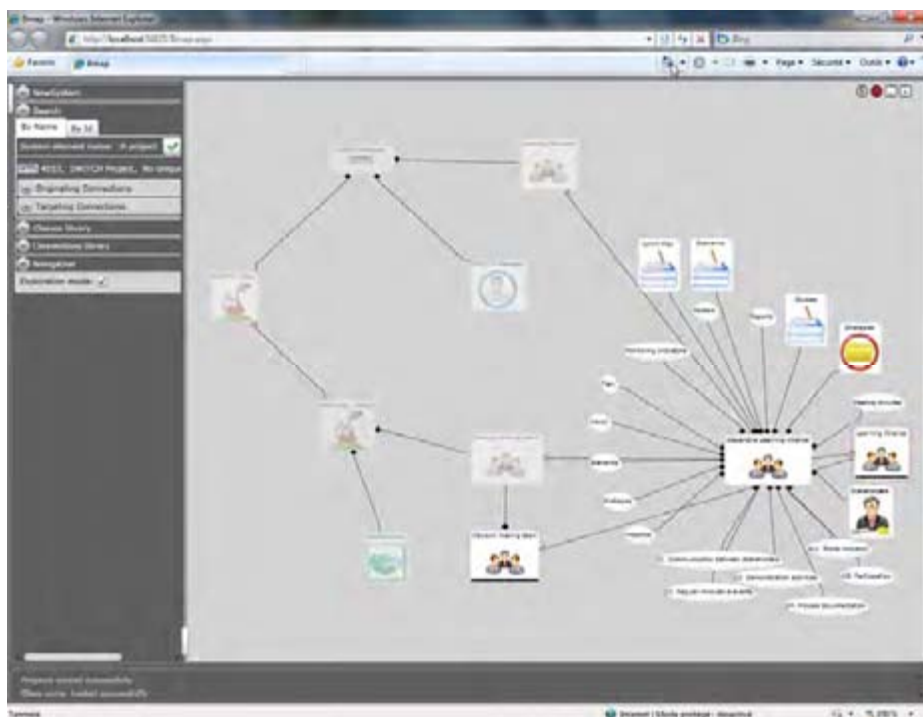


fig 107



## Managing Situations in a System View

### Task10. Create a new situation

- ✓ Activate the general left banner, open the **Project manager and Data Spaces** section, and activate the **Situation** tab (S). If the base situation is the only situation listed, expand the **Add New...** section, Ctrl-Drag the Situation item and drop it in the Situation tab to create a new situation,
- ✓ Add the existing alternative Situations or the new Situation among the Current items: select them and press the blue arrow button,

### Task11. Assign a system element to an alternative situation

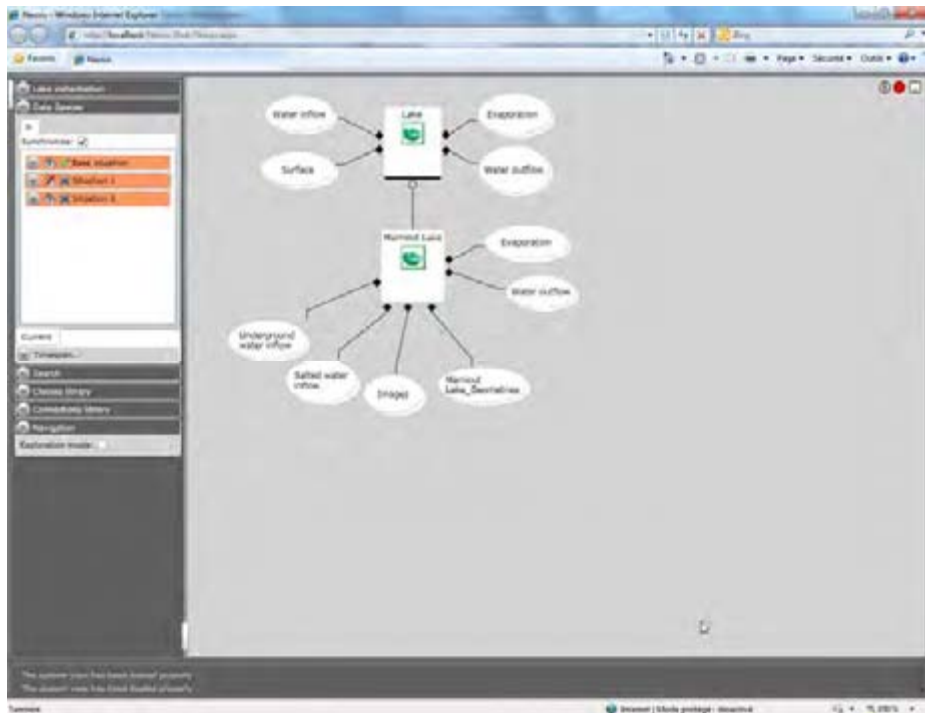
- ✓ Back in the System Viewer, display the Lake Instantiation View,
- ✓ Right-Click on a group of information to access its contextual menu and modify the it's situation memberships: remove it from the base situation and add it to an alternative situation (Situation 1 in our example). This element appears dimmed since its no more part of the active Situation but belongs to the visible but not active Situation1.



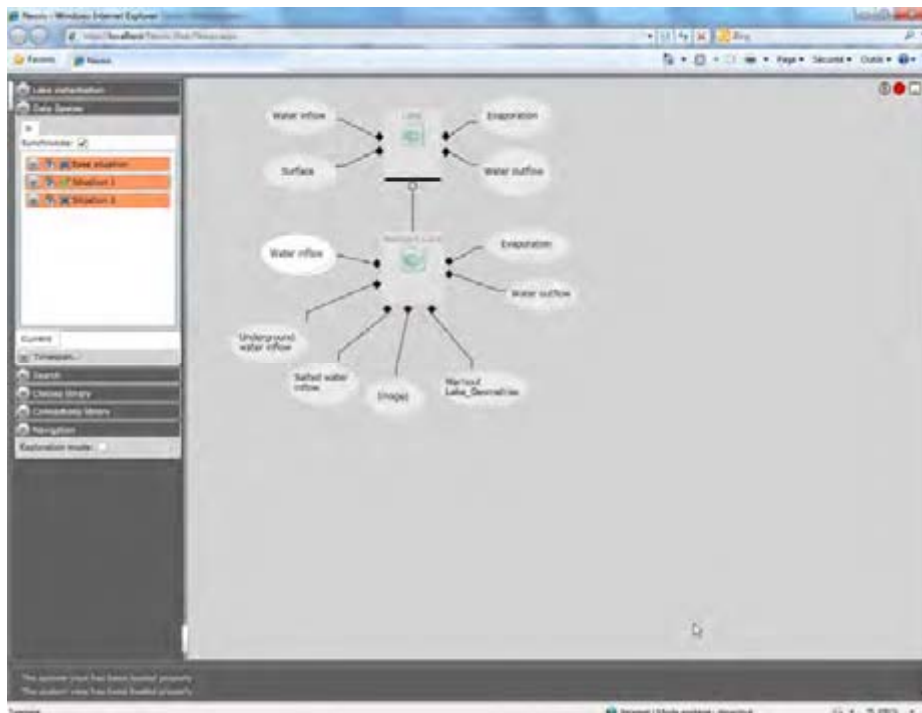
### Task12. Explore the principles of situation management in the System view

- ✓ In the situation manager, set Situation1 as invisible: all items that do not belong to a visible situation are hidden,



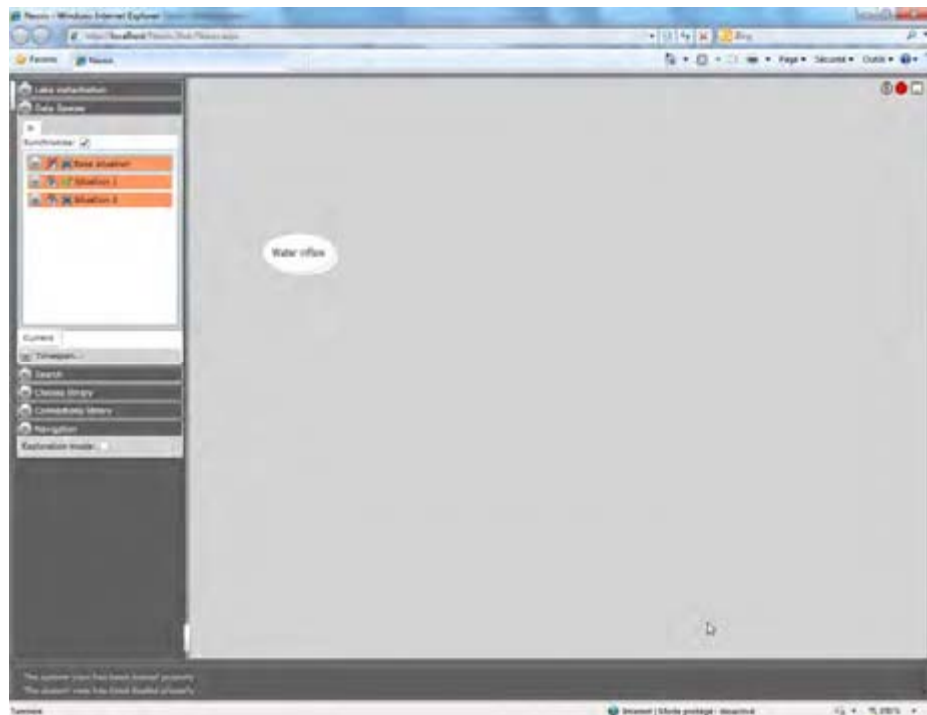


- ✓ In the situation manager, set Situation1 back as visible and active: the items that belong to the Base Situation are still visible but dimmed,





- ✓ In the situation manager, set the Base Situation as invisible: the items that belong to the base situation are hidden,





# **Part E**

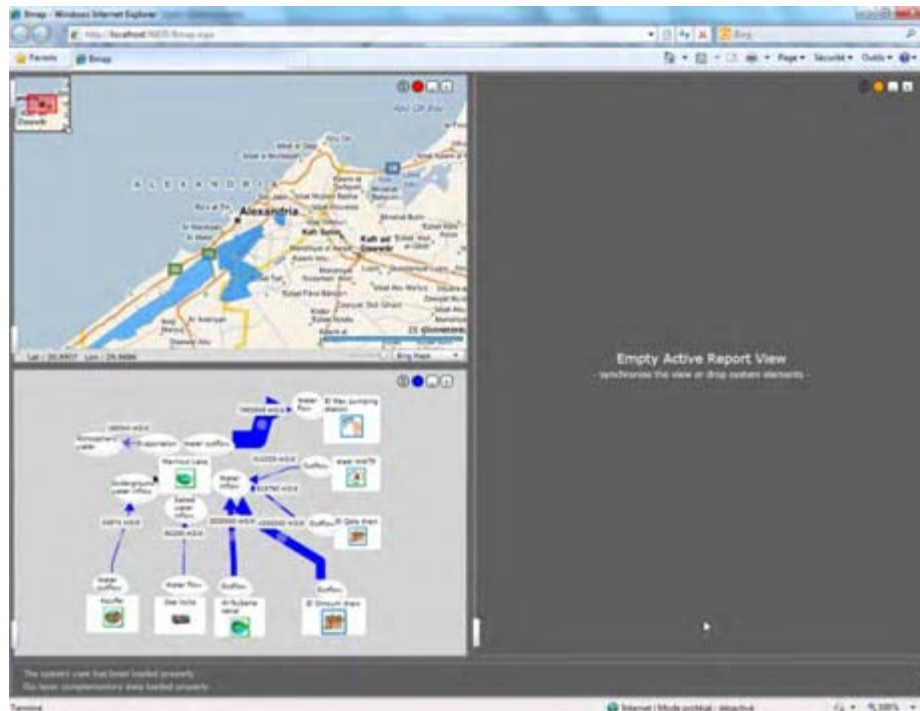
## **Combined exercises**



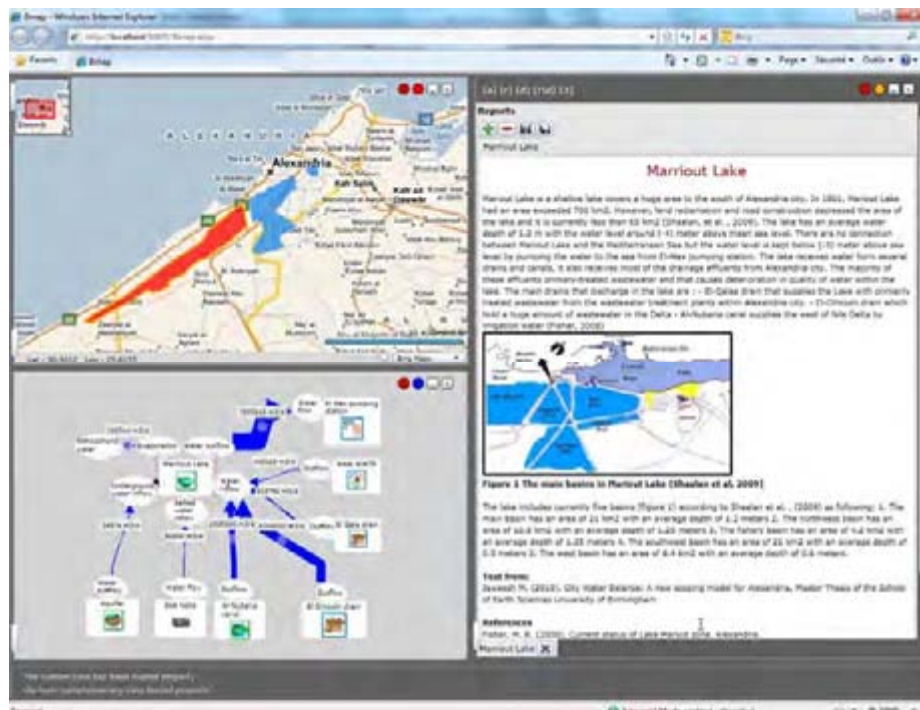
## Using the view synchronisation

### Task1. Synchronise three views

- ✓ Split the layout in four region and resize the Top-Right area down to the bottom of the display area. Add the Alexandria\_Gis Geo view, the Lake Marriout Flows System View and a new ART view.



- ✓ Synchronize the three views by a Ctrl-Drag of the S button (left most button of the view's top right toolbar) from one view to the others. When synchronised, the three views display the same color tag in their S button.





- ✓ Alternatively select and deselect Lake Marriout in the System view, and in the Geo View. Search for Lake Marriout in the ART view's search tool and drop it into the view's display area. You may see that in each of these situations the selections are automatically updated in the two other views.

## Using the drag/drop between views

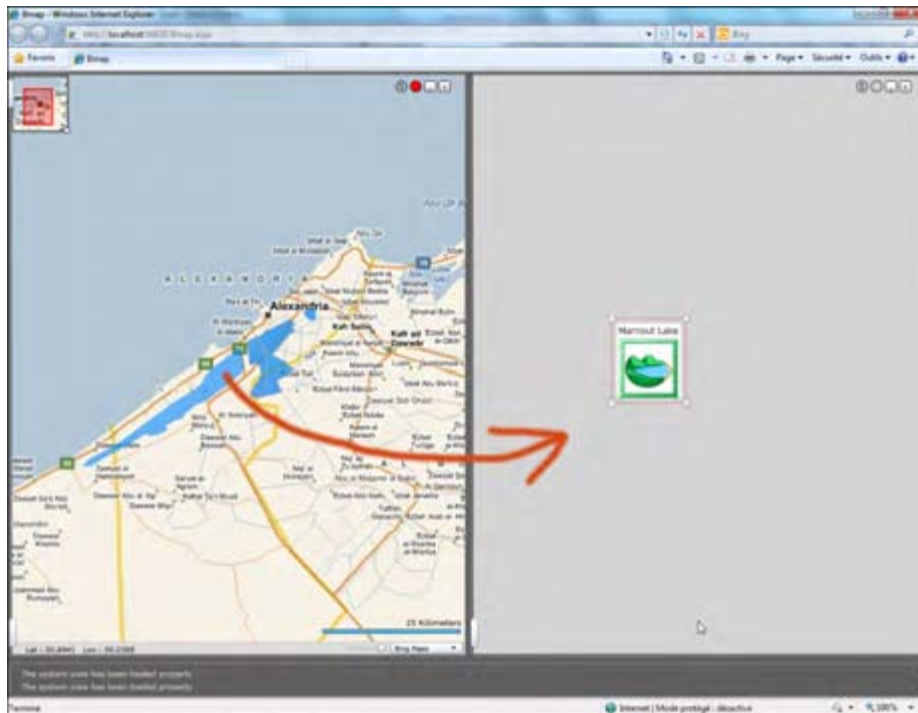
### Task2. Drag System elements from one view to drop them into another view

- ✓ Split the layout in two regions, and add the Alexandria\_Gis Geo view and a new ART view.
- ✓ Ctrl-Drag and Drop Lake Marriout from the Geo View in to the Art view



- ✓ Do the same operation with a new System View instead of the ART View. The same drag and drop operation may also be used between a System View and an ART View.



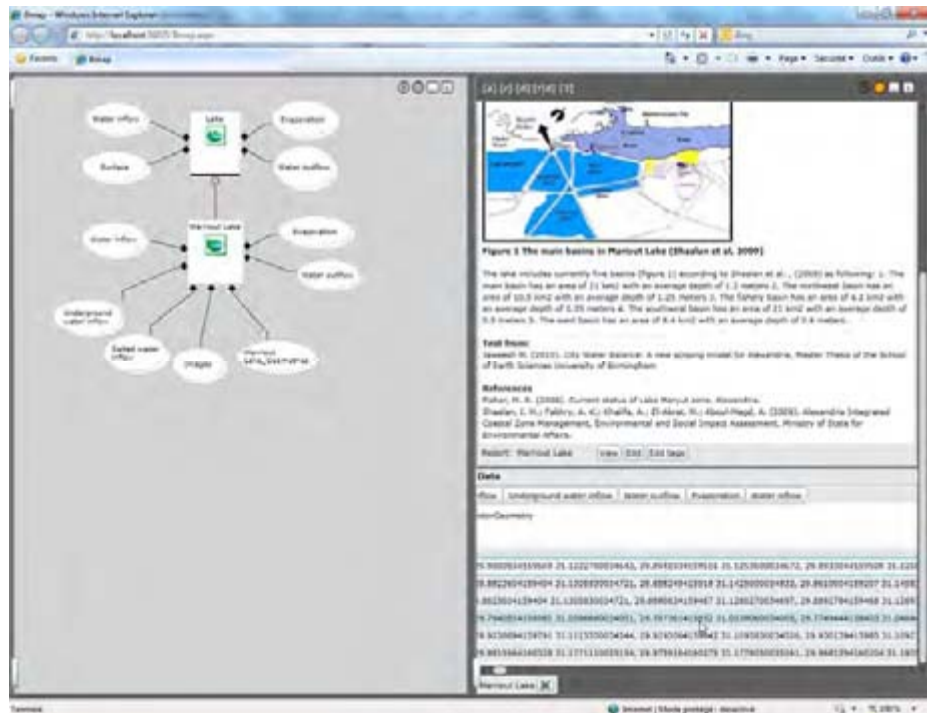


## Using the system view to add new properties

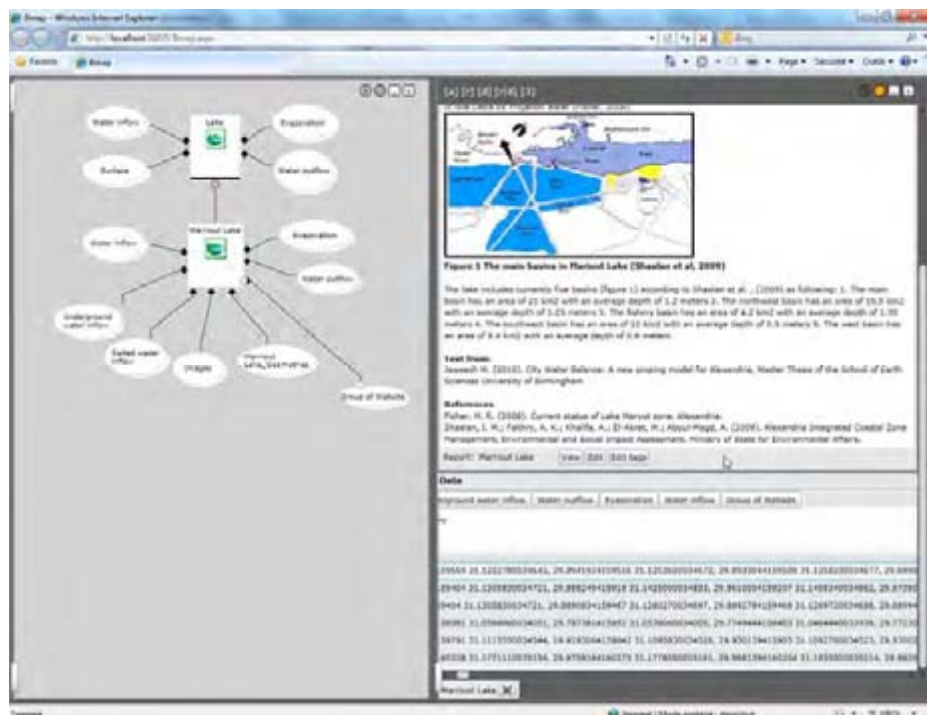
### Task3. Drag System elements from one view to drop them into another view

- ✓ It can be remembered that, while editing data for Lake Marriout, it was not possible to add a web site address because there was no such information group available (Task6 of section B). Actually one may use a System View to modify the Lake Marriout's related data structure to add the required information group. Do the following:
  - ✓ Split the layout in two regions, and add a new System View and a new ART view,
  - ✓ In the System View search for Lake Marriout and add this item to the View,
  - ✓ Ctrl-Drag Lake Marriout's system element and drop it into the ART View, and there activate the data section,
  - ✓ Use the exploration mode to see Lake Marriout's the related information groups and add them to the display,





- ✓ In the System View, add a new information group of the WebSite type and connect it to Lake Marriout,





- ✓ In the ART View you can now add an URL address in the Data section.

The screenshot shows a web browser window displaying the ART View interface. The left panel contains a conceptual diagram of a water body model. The central node is 'Water body', which is connected to several input and output nodes: 'Water inflow', 'Surface', 'Evaporation', 'Water outflow', 'Water inflow', 'Evaporation', 'Water outflow', 'Underground water inflow', 'Lateral water inflow', 'Images', 'Integrated water body', and 'Group of water bodies'. The right panel displays a text description of the water body, including a map and a table of data. The bottom panel contains a data entry section with a table for 'Data'.

**Figure 1 The main basins in Marout Lake (Shaban et al., 2009)**

The lake includes currently five basins (figure 1) according to Shaban et al., (2009) as following: 1. The main basin has an area of 85 km<sup>2</sup> with an average depth of 1.8 meters 2. The northwest basin has an area of 18.8 km<sup>2</sup> with an average depth of 1.23 meters 3. The fishery basin has an area of 4.2 km<sup>2</sup> with an average depth of 1.35 meters 4. The southwest basin has an area of 21 km<sup>2</sup> with an average depth of 0.5 meters 5. The east basin has an area of 8.4 km<sup>2</sup> with an average depth of 0.8 meters.

**Data**

Water body	Images	Water body	Underground water inflow	Water outflow	Evaporation
Marout Lake	Images	Water body	Underground water inflow	Water outflow	Evaporation

Group of water bodies: of data type: Text

Text: Start date: End date

Marout Lake