



# **TatukGIS Editor/Viewer**

**Editor 2.8.0**

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# TatukGIS Editor/Viewer

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Printed: 9/3/2010.

# Table of Contents

<b>Part I Introduction</b>	<b>1</b>
<b>Part II User Interface</b>	<b>3</b>
<b>Part III Menu</b>	<b>4</b>
<b>1 File</b>	<b>4</b>
Welcome Page .....	4
New Project .....	5
Open .....	5
Open from server .....	5
Save .....	6
Save Project As .....	7
Save All .....	7
Print .....	8
Export to image .....	10
Internet Server Wizard .....	12
Coordinate Systems .....	12
Scale Units .....	15
Hierarchy .....	16
Add main group.....	16
Add subgroup.....	16
Delete group.....	17
Delete all subgroups.....	17
Add layer.....	18
Add unused layers.....	18
Remove layer .....	18
Recent Files .....	19
Clear list .....	19
Favorites .....	19
Add active layer.....	20
Add current project.....	20
Organize Favorites.....	20
Exit .....	21
<b>2 Edit</b>	<b>21</b>
Undo .....	21
Redo .....	22
Cut .....	22
Copy .....	23
Copy Special .....	24
Paste .....	26
Clear Clipboard .....	26
Save Clipboard .....	26
Load Clipboard .....	27
<b>3 View</b>	<b>27</b>
Toolbars .....	27
Standard.....	27
Panels .....	27
Scale .....	28
Selected .....	28
Legend .....	28

MiniMap .....	28
Data .....	28
Default .....	28
<b>MiniMap .....</b>	<b>28</b>
Draw MiniMap.....	29
Clear .....	29
Export To Web Image.....	29
<b>Full Extent .....</b>	<b>30</b>
<b>Layer Extent .....</b>	<b>30</b>
<b>Selected Extent .....</b>	<b>30</b>
<b>Previous Extent .....</b>	<b>31</b>
<b>Refresh map .....</b>	<b>31</b>
<b>Zoom mode .....</b>	<b>32</b>
<b>Zoom extended mode .....</b>	<b>32</b>
<b>Drag mode .....</b>	<b>33</b>
<b>Map hint .....</b>	<b>33</b>
<b>Map hotlinks .....</b>	<b>34</b>
<b>Auto center .....</b>	<b>34</b>
<b>Auto locate record .....</b>	<b>34</b>
<b>Full Screen .....</b>	<b>34</b>
<b>4 Select .....</b>	<b>35</b>
<b>Localize .....</b>	<b>35</b>
<b>Select by Point .....</b>	<b>36</b>
<b>Select by Line .....</b>	<b>36</b>
<b>Select by Polygon .....</b>	<b>37</b>
<b>Select by Circle .....</b>	<b>38</b>
<b>Select by Rectangle .....</b>	<b>39</b>
<b>Select by Clipboard .....</b>	<b>40</b>
<b>Clear Selection .....</b>	<b>41</b>
<b>Select type .....</b>	<b>41</b>
Equality .....	42
Disjoint .....	42
Intersect (interior-interior).....	43
Intersect (interior-boundary).....	44
Intersect (boundary-interior).....	44
Intersect (boundary-boundary).....	45
Touch (boundary-interior).....	45
Touch (boundary-boundary).....	46
Cross .....	46
Cross (lines only).....	47
Within .....	47
Contains.....	48
Overlap .....	49
Overlap (lines only).....	49
<b>Select by Query .....</b>	<b>50</b>
<b>Select All .....</b>	<b>52</b>
<b>Invert Selection .....</b>	<b>52</b>
<b>Deselect all .....</b>	<b>52</b>
<b>Show Selected .....</b>	<b>53</b>
<b>Hide Selected .....</b>	<b>53</b>
<b>Show all .....</b>	<b>54</b>
<b>Hide all .....</b>	<b>54</b>
<b>Locate record .....</b>	<b>54</b>
<b>5 Layer .....</b>	<b>54</b>
<b>New .....</b>	<b>55</b>
<b>Add .....</b>	<b>56</b>
<b>Add SQL layer .....</b>	<b>57</b>
<b>Add from server .....</b>	<b>59</b>

<b>Remove</b> .....	<b>59</b>
<b>Import</b> .....	<b>60</b>
<b>Export</b> .....	<b>62</b>
<b>Restructure</b> .....	<b>65</b>
<b>Save layer properties</b> .....	<b>66</b>
<b>Load layer properties</b> .....	<b>67</b>
<b>Properties</b> .....	<b>67</b>
Vector dialog box.....	70
Layer .....	71
Section .....	72
Renderer .....	73
Line .....	74
Area .....	75
Marker .....	76
Label .....	77
Value label formatting.....	78
Chart .....	84
Raster dialog box.....	85
Layer .....	85
Section .....	86
Pixel .....	87
Grid .....	88
<b>Move up</b> .....	<b>88</b>
<b>Move down</b> .....	<b>89</b>
<b>Show attributes table</b> .....	<b>89</b>
<b>Visible</b> .....	<b>89</b>
<b>Recalculate extent</b> .....	<b>90</b>
<b>6 Shape</b> .....	<b>90</b>
<b>Edit shape</b> .....	<b>90</b>
<b>New shape</b> .....	<b>93</b>
Point .....	93
Multipoint.....	94
Line .....	94
Line 90° .....	95
Line free .....	96
Close line.....	96
Close line 90° .....	97
Rectangle [line].....	98
Rectangle rotated [line].....	99
Circle [line].....	99
Circle 3point base [line].....	100
Polygon.....	101
Polygon 90° .....	101
Rectangle [polygon].....	102
Rectangle rotated [polygon].....	103
Circle [polygon].....	103
Circle 3point base [polygon].....	104
<b>Edit snap type</b> .....	<b>105</b>
Snap to point.....	105
Snap to line.....	105
<b>Edit mode</b> .....	<b>106</b>
Nearest point.....	106
After active point.....	106
<b>Add part</b> .....	<b>107</b>
<b>Delete part</b> .....	<b>107</b>
<b>Delete shape</b> .....	<b>108</b>
<b>Revert shape</b> .....	<b>108</b>
<b>Change winding</b> .....	<b>108</b>

<b>Split shapes</b> .....	<b>109</b>
<b>Union shapes</b> .....	<b>110</b>
<b>Split parts</b> .....	<b>111</b>
<b>Clipboard buffer</b> .....	<b>111</b>
<b>Clipboard convex hull</b> .....	<b>111</b>
<b>Import points</b> .....	<b>112</b>
File .....	112
WKT .....	112
Clipboard .....	113
Degrees:Minutes:Seconds (DMS).....	113
Decimal Degrees (DD).....	114
Map Units .....	114
<b>Export points</b> .....	<b>114</b>
File .....	114
WKT .....	115
Clipboard .....	116
Degrees:Minutes:Seconds (DMS).....	116
Decimal Degrees (DD).....	116
Map Units .....	116
<b>Smooth shape</b> .....	<b>117</b>
<b>Simplify shape</b> .....	<b>117</b>
<b>7 Data</b> .....	<b>118</b>
<b>Export data</b> .....	<b>118</b>
<b>Import data</b> .....	<b>118</b>
<b>Join Database</b> .....	<b>121</b>
<b>Set column value</b> .....	<b>124</b>
<b>8 Measure</b> .....	<b>124</b>
<b>Line</b> .....	<b>124</b>
<b>Polygon</b> .....	<b>125</b>
<b>Rectangle</b> .....	<b>126</b>
<b>Rectangle rotated</b> .....	<b>126</b>
<b>Circle</b> .....	<b>127</b>
<b>9 Tools</b> .....	<b>128</b>
<b>Topology</b> .....	<b>128</b>
Topology.....	128
Show polygons correct.....	131
Show polygons holes.....	131
Show polygons overlaps.....	131
Show lines 0 connected.....	132
Show lines 1 connected.....	132
Show lines 2 connected.....	132
<b>Tools Manager</b> .....	<b>132</b>
<b>Desktops</b> .....	<b>134</b>
Save Desktop.....	134
Load Desktop .....	134
Default .....	134
<b>Language</b> .....	<b>135</b>
Edit Language .....	135
<b>GUI Style</b> .....	<b>136</b>
<b>Options</b> .....	<b>136</b>
General.....	137
Map .....	137
Editor .....	138
Selection.....	139
Data panel.....	139
Files .....	140
<b>10 Scripts</b> .....	<b>140</b>

Run .....	141
Open .....	141
Clear list.....	142
<b>Scripter Studio</b> .....	<b>142</b>
New project (Pascal).....	142
New project (Basic).....	142
Open .....	143
Clear list.....	143
<b>Scripts Manager</b> .....	<b>143</b>
Reset Interface .....	144
<b>11 Help</b> .....	<b>144</b>
Help .....	144
Tutorials .....	145
Check for updates .....	145
About .....	145
<b>Part IV Map area</b> .....	<b>145</b>
<b>1 Context menu</b> .....	<b>146</b>
Copy coordinates to clipboard .....	147
Degrees:Minutes:Seconds (DMS).....	147
Decimal Degrees (DD).....	147
Map Units.....	147
End editing .....	148
<b>Part V Panels</b> .....	<b>148</b>
<b>1 Scale</b> .....	<b>148</b>
<b>2 Selected</b> .....	<b>149</b>
Attributes .....	149
Stats .....	150
Points .....	150
COGO-360 .....	151
<b>3 Legend</b> .....	<b>151</b>
Context menu .....	151
Layers .....	152
Hierarchy .....	152
<b>4 MiniMap</b> .....	<b>153</b>
Map .....	153
World .....	154
<b>5 Data</b> .....	<b>155</b>
[+] .....	155
<b>Operations and Context menu</b> .....	<b>156</b>
Flash current shape.....	156
Zoom to current shape.....	156
Copy selected row(s) to clipboard.....	156
Auto zoom.....	156
Select group and zoom to.....	157
Selections.....	157
Select group .....	157
Deselect group.....	157
Select all.....	158
Invert Selection.....	158
Deselect all.....	158
Show only current group.....	158
Show/Hide.....	158
Show selected.....	158

Hide selected.....	158
Show group.....	159
Hide group.....	159
Show all.....	159
Hide all .....	159
Set column value.....	159
Cached mode.....	159
<b>Grouping .....</b>	<b>160</b>
<b>Toolbar .....</b>	<b>160</b>
Query builder.....	160

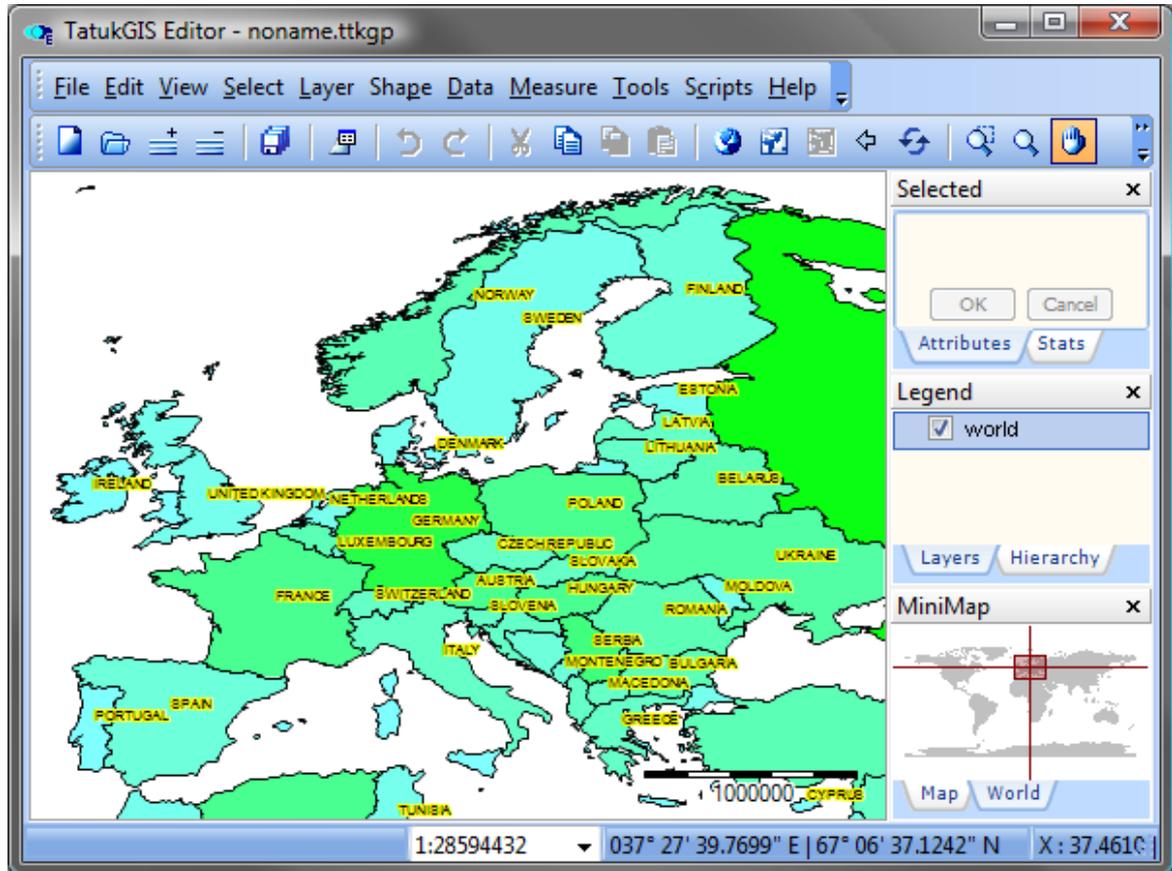
## Part VI Scripter Studio 162

<b>1 Languages .....</b>	<b>163</b>
<b>Pascal syntax .....</b>	<b>163</b>
Overview.....	163
Script structure.....	163
Identifiers.....	164
Assign statements.....	164
Character strings.....	164
Comments.....	164
Variables.....	165
Indexes.....	165
Arrays .....	165
If statements.....	166
while statements.....	166
repeat statements.....	166
for statements.....	167
case statements.....	167
function and procedure declaration.....	167
<b>Basic syntax .....</b>	<b>168</b>
Overview.....	168
Script structure.....	168
Identifiers.....	169
Assign statements.....	169
New statement.....	169
Character strings.....	170
Comments.....	170
Variables.....	170
Indexes.....	171
Arrays .....	171
If statements.....	171
while statements.....	171
loop statements.....	172
for statements.....	172
select case statements.....	173
function and sub declaration.....	173
<b>Calling dll functions .....</b>	<b>174</b>
Overview.....	174
Pascal syntax .....	174
Basic syntax .....	175
Supported types.....	175
<b>2 Edit area .....</b>	<b>176</b>
<b>Code tab .....</b>	<b>176</b>
Context menu .....	177
<b>Design tab .....</b>	<b>177</b>
<b>3 Menu .....</b>	<b>177</b>
<b>File .....</b>	<b>178</b>

New Unit.....	178
New Form.....	178
New project.....	179
Open project.....	179
Open (add to project).....	180
Remove from project.....	180
Save .....	180
Save as.....	181
Save project as.....	181
Save all.....	182
Close file.....	182
Close all.....	182
Exit .....	183
<b>Edit .....</b>	<b>183</b>
Undo .....	183
Redo .....	183
Cut .....	184
Copy .....	184
Paste .....	185
Delete .....	185
Select All.....	186
Find .....	186
Replace.....	186
Search again.....	187
Align to Grid.....	187
Bring to Front.....	187
Send to Back.....	188
Align .....	188
Size .....	188
Tab Order.....	189
Lock controls.....	190
<b>View .....</b>	<b>190</b>
Object Inspector.....	190
Tool Palette.....	190
Watches.....	190
Toggle Form/Unit.....	190
<b>Run .....</b>	<b>191</b>
Run .....	191
Compile.....	191
Make package.....	191
Step over.....	193
Trace into.....	193
Run to cursor.....	193
Run until return.....	194
Pause .....	194
Script reset.....	194
Add watch.....	194
Toggle breakpoint.....	195
<b>Project .....</b>	<b>195</b>
Select Main Unit.....	195
<b>Tools .....</b>	<b>196</b>
Designer Options.....	196
<b>Help .....</b>	<b>196</b>
Scripter Studio help.....	196
Developer Kernel help.....	197
<b>4 Toolbars .....</b>	<b>197</b>
<b>Project .....</b>	<b>197</b>
<b>File .....</b>	<b>197</b>

Edit .....	197
Run .....	198
<b>5 Panels .....</b>	<b>198</b>
Object Inspector .....	198
Tool Palette .....	200
Watches .....	200
<b>Part VII Standard toolbar</b>	<b>201</b>
<b>Part VIII Command Line parameters</b>	<b>202</b>
<b>Index</b>	<b>203</b>

# 1 Introduction



Editor window.

## Introduction to the *TatukGIS Editor* and free *Viewer* products

The *TatukGIS Editor* is programmable, general purpose GIS desktop mapping and data editing application with advanced functionality. The free *TatukGIS Viewer* is the same as *Editor* with regard to GIS viewing features, i.e., opening and viewing GIS files and projects, on-the-fly layer reprojection between coordinate systems, spatial and attribute queries, saving projects, and much more. Unlike the *Editor*, the free *Viewer* omits all features (and menu items) relating to editing, creating, or exporting data and the *Viewer* is not programmable, i.e., it cannot be customized or extended with the use of scripts.

Because the *Editor* and *Viewer* products are so similar, the same documentation is provided for both products. Each use of the term *Editor* in the documentation can be regarded to mean both the *Editor* and *Viewer* products, except for the features that are omitted from the *Viewer*.

## Viewing data

The *Editor* and *Viewer* open most GIS/CAD vector map files, raster maps, aerial images, grid data, and SQL database layers such as Oracle Spatial or PostGIS coverages. Both products can open *TatukGIS* projects and most *ESRI ArcView v.3* or *MapInfo Professional* projects and projects exported from *ESRI ArcGIS/ArcMap* using the free *Arc2TatukGIS* plug-in. Each data type is supported “natively”, so there is no need to import data into any internal format. Comprehensive visual layer property and legend controls provide for deep customization of the appearance of each map layer, thematic mapping, layer hierarchies, legend presentation, scale ... The *Editor* and *Viewer* support advanced selection and query features, including *SQL Query Builder*.

## Coordinate systems

The *Editor* and *Viewer* support nearly 3,000 pre-defined map coordinate systems in use around the world (including all the U.S. State Planes), user-defined coordinate systems based on 120

supported projections, automatic layer coordinate system recognition and on-the-fly conversion of vector and raster layers from multiple coordinate systems for display as a single map. The support reflects EPSG codes and OpenGIS WKT coordinate system definition. The Editor can export map data to any selected coordinate system.

### Editing data

The *Editor* contains features to create, edit, save, and import/export GIS map files and import/export attribute data between vector map layers and external databases. The *Editor* can be used as a conversion tool to translate map layers between supported file types and/or coordinate systems. Special tools include the topology builder/corrector to systematically clear geometry related errors (overlapping polygons, holes between polygons, missed line intersections, dangling nodes, etc.) from vector line or polygon layers.

### Scripting

The *Editor* is a fully scriptable IDE for writing and debugging code. Using *Basic* or *Pascal* scripts, the Editor functionality can be enhanced or modified, including full menu redesign, custom dialog boxes, etc., for end-user custom applications. The scripting engine exposes (inside the Editor) the full power of the *TatukGIS Developer Kernel*, with its hundreds of classes and thousands of methods, to fulfill the requirements of any kind of GIS application. Dozens of example scripts are provided, e.g., to perform Google or Bing maps integration, GPS tracking on a projected map, batch (command line) conversions between coordinate systems, and various tutorial examples. The special features or customizations can be distributed (deployed) to other *Editor* licensed users just by sharing the scripts.

### Databases

The *Editor* is compatible with leading database engines, e.g., MSSQL Server, MSJET, Oracle, DB2, Interbase, PostgreSQL... and most 3rd party SQL database map layer formats, e.g., MSSQL 2008 Spatial, ESRI ArcSDE, ESRI ArcSDE Raster, ESRI Personal Geodatabase, MapInfo SpatialWare, Oracle Spatial/Locator, Oracle GeoRaster, Geomedia SQL Server, PostGIS, OpenGIS Simple Features .... The *Editor* supports live joins of vector map layers to external database tables, as well as data import/export with external databases.

### Documentation and Help Material

Documentation and help material for the *Editor* product are available from the following places:

- The Help system provides a brief description of the feature or functionality called by each menu item of the *Editor's* user interface, along with instructions how to use the feature. The Help files are found under the *Help/Help* menu.
- A number of *Editor/Viewer* version 2.x tutorials are available on-line at the link: <http://www.tatukgis.com/Landing/EDT/Tutorials>. Additional tutorials will be added to this on-line resource over time.
- *Editor/Viewer* related FAQ items are available in the searchable FAQ material on the [www.tatukgis.com](http://www.tatukgis.com) web site.
- Registered licensed users have read/write access to the *Editor* licensed user forum, which is located on the *Forums* page of the [www.tatukgis.com](http://www.tatukgis.com) web site.

### Check for Updates

The *Editor* is updated from time to time with improvements, new features, and bug fixes. Product updates may be downloaded via the internet directly from the *TatukGIS* web site. Information about availability of a new version are presented on a *Welcome Page*. When in regular use, the program automatically checks for the availability of an update once per week. (The automatic check for update feature can be deactivated by unchecking the *Autocheck* feature under the *Help/Check for updates* menu item.).

### Bug Reporting Feature

The *Editor* includes the bug/error reporting tool. If an error is encountered with the use of the program, the Editor will attempt to send an e-mail documenting the problem to *TatukGIS* using the default e-mail client on the user's computer. Please allow any such error reporting e-mails to be sent. This is much more effective than attempting to manually explain a problem to *TatukGIS*. Typically the sending of an error reporting e-mail results in *TatukGIS* having the problem fixed in

the next product update.

### Best performance with large data sets

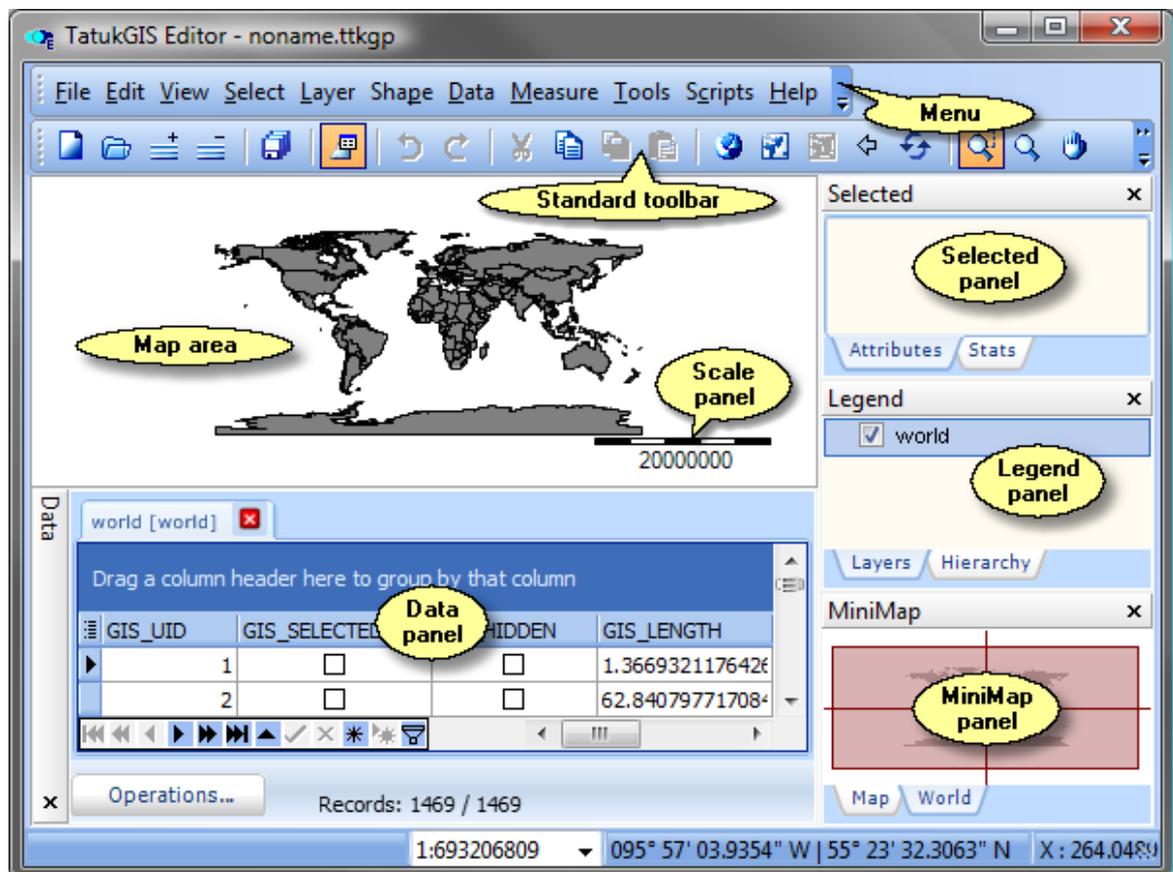
As long as a few settings are properly optimized, the *Editor* is very fast handling even with the largest data sets and projects. Performance optimization tips with large data sets can be found in item [Q10716/KBQ10716](#) in the *FAQ* material on the [www.tatukgis.com](http://www.tatukgis.com) web site.

### License

Use of the *TatukGIS Editor* requires the purchase of one license per each computer. The *TatukGIS Viewer* is a free product which may be used without the purchase of a license. The *TatukGIS Editor* and *Viewer* products are owned by the company *TatukGIS*. The terms of use of these products are governed by the *TatukGIS* license agreement.

## 2 User Interface

The screenshot below presents the standard locations of the *Editor* user interface elements as well as their names used further in this help system.



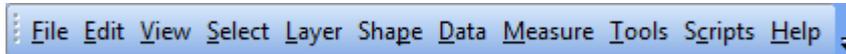
For detailed information refer to the following help topics and their subtopics:

- [Menu](#),
- [Standard toolbar](#),
- [Map area](#),
- [Scale panel](#),
- [Selected panel](#),
- [Legend panel](#),
- [MiniMap panel](#),
- [Data panel](#).

## 3 Menu

### Description

The *Editor* menu is used to invoke any of the *Editor* features.



### 3.1 File

#### Description

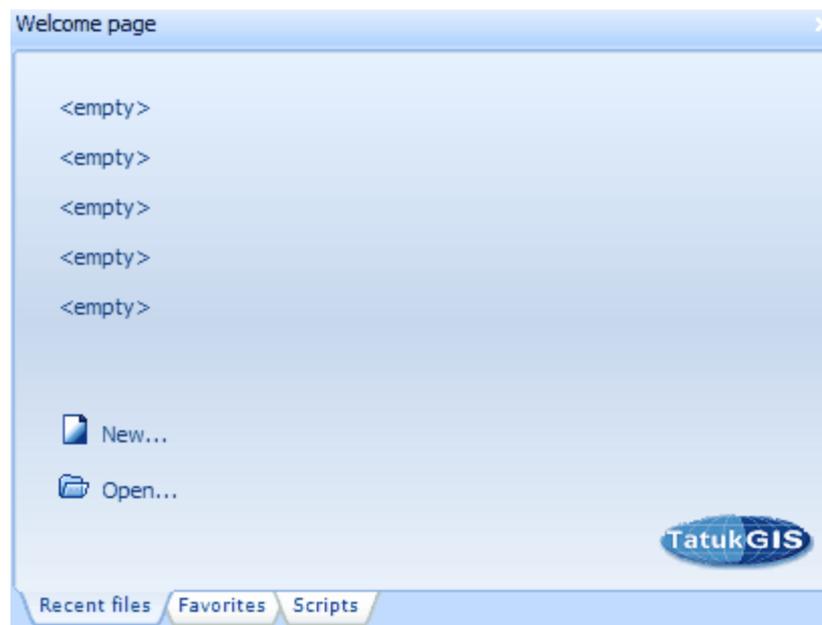
The *File* menu group contains basic options used to manage layer and project files, image exporting, printing, etc.

#### 3.1.1 Welcome Page

##### Description

Clicking on the *File/Welcome Page* menu item invokes the *Welcome Page*. The *Welcome Page* is a panel that allows quick access:

- to recently opened files - *Recent files* tab,
- to favorite files - *Favorites* tab; those can be managed via [Organize favorites](#) feature,
- to recently used scripts - *Scripts* tab.



*Welcome Page.*

Each tab provides a list of files corresponding to its name. To switch to another tab, click on the label displaying its name at the bottom of the *Welcome page*. To open a file which name is present on any of the tabs, click on it.

At the level of the *Welcome page*, the user can also:

- create a new project by clicking on the *New* label beside the  icon (see [here](#)),
- open an existing project or layer file not present on any of the tabs by clicking on the *Open* label beside the  icon (see [here](#)).

#### Key shortcut

This function can be initiated by pressing the *F10* key.

#### Note

- The *Recent files* tab and *Scripts* tab automatically keep lists of the five most recently opened files of each kind.

### 3.1.2 New Project

#### Description

Clicking on the *File/New Project* menu item prepares the *Editor* for a new project. It closes all open layers and resets the project file settings.

**To create a new project**, click on the *File/New Project* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#) or by clicking on the *New* label on the *Recent files* tab of the [Welcome Page](#).

#### Associated functions

To add an existing vector or raster file as a layer to the current project, use the [Add](#) feature.

#### Note

- If the *New Project* function is initiated while some layers are open, the *Editor* will prompt for saving any changes made to open layers before closing them.

### 3.1.3 Open

#### Description

Clicking on the *File/Open* menu item provides for opening of a project file or an individual vector or raster file as a layer. Because a project file typically contains multiple layers, the opening of a project file opens all the layers contained by the project, along with all the visual properties settings for each layer, in a single step.

#### To open a layer or project file

1. Click on the *File/Open* menu item - this invokes the *Open* dialog box.
2. Within the *Open* dialog box select the appropriate drive from the *Look in* list.
3. Locate the project file by entering the directory that contains this file.
4. Double-click on the file name.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#).

#### Similar functions

To add an existing vector or raster file as a layer to the current project, use the [Add](#) feature.

To open a project file or an individual vector or raster layer file stored on a remote server, use the [Open from server](#) feature.

#### Key shortcut

This function can be initiated by pressing the *Ctrl+O* key combination.

#### Note

- By default the *Open* dialog box displays files of commonly used *GIS* file formats, but not all formats supported by the *Editor*. This can be altered by choosing a different filter from the *Files of type* list in the *Open* dialog box.

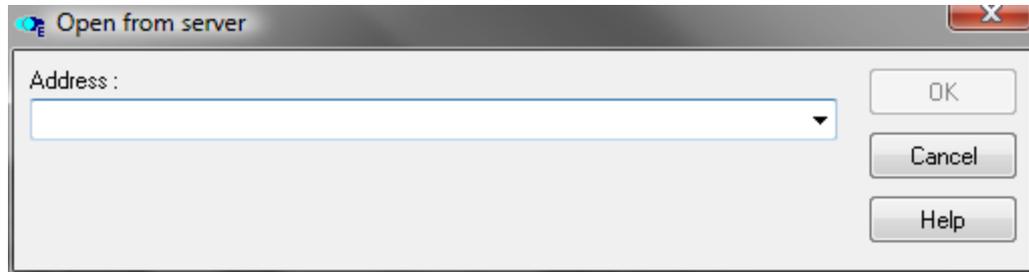
### 3.1.4 Open from server

#### Description

Clicking on the *File/Open from server* menu item provides for opening a project or layer file stored on a remote server. The opening of a file from a server requires that the user provide the exact path to the file on the remote server with the server's network address.

**To open a file stored on a remote server**

1. Click on the *File/Open from server* menu item - this invokes the *Open from server* dialog box.
2. Within the *Open from server* dialog box, enter the exact path to the file or select the path using the *Address* list.
3. Click on the *OK* button.



*Open from server* dialog box.

**Similar functions**

To open a project file or an individual vector or image layer file stored on a local storage medium, use the [Open](#) feature.

**Note**

- The *Open from server* feature supports the *WMS* protocol as defined by the *OGC/OpenGIS* organization (<http://www.opengeospatial.org/>) and the *ECWP* protocol as defined by the *ER Mapper* company (<http://www.ermapper.com/>). The *ECWP* protocol supports opening of an *ECW* or *JPEG2000* format map image from a server.
- The *Open from server* feature is unrelated to the support for *SQL* server database map layers.

### 3.1.5 Save

**Description**

Clicking on the *File/Save* menu item provides for saving the current state of the active layer to the file to which it was previously saved. This overwrites the existing file destroying the previous state of the layer.

**To save the current state of a layer**

1. Activate (highlight) the layer that you want to save by clicking on its name in the [Legend panel](#).
2. Click on the *File/Save* menu item.

**Similar functions**

To save a project, use the [Save Project As](#) feature.

To save all open layers and the project in one step, use the [Save All](#) feature.

To save a vector layer to a file of a different format than it was opened from, use the [Export](#) feature.

**Key shortcut**

This function can be initiated by pressing the *Ctrl+S* key combination.

**Note**

- If no changes have been made to the active layer since last saving, the *File/Save* menu entry will be inactive.
- The *Save* feature saves only changes made to the active layer, and not the changes to any other open layer.
- Saving is always performed in the same file format from which the layer was opened.

### 3.1.6 Save Project As

#### Description

Clicking on the *File/Save Project As* menu item provides for saving the open project as a *Editor* project file. The project file contains all the information (set-up configuration) required to pull the project together. This includes the list of layers which compose the project, the paths to the files containing each layer, the visual properties of each layer, label presentations, thematic rendering, fonts, etc.

#### To save a new project

1. Click on the *File/Save Project As* menu item - this invokes the *Save As* dialog box.
2. Within the *Save As* dialog box, select the appropriate drive from the *Save in* list.
3. Locate the folder where you would like to store the project file. A new folder can be created by clicking on the  icon at the top-right corner of the *Save As* dialog box, entering its name, and pressing the *Enter* key.
4. Enter a name for the project file in the *File name* list.
5. Click on the *Save* button.

#### To overwrite an existing project

1. Click on the *File/Save Project As* menu item - this invokes the *Save As* dialog box.
2. Within the *Save As* dialog box, select the appropriate drive from the *Save in* list.
3. Locate the folder from which the project was opened.
4. Double-click on the project file name. A message box will appear asking for confirmation of the overwrite operation - click on the *OK* button.

#### Associated functions

To add an existing vector or raster layer file to the currently open project, use the [Add](#) feature.  
To remove a layer from the current project, use the [Remove](#) feature.

#### Similar functions

To save the current state of the active layer, use the [Save](#) feature.  
To save the current state of all the layers and the project file in a single step, use the [Save All](#) feature.

### 3.1.7 Save All

#### Description

Clicking on the *File/Save All* menu item provides for saving both the changes to all the open layers since the last save operation and the project file, in one step.

**To save the current state of all open layers and project file**, click on the *File/Save All* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#).

#### Similar functions

To save the current state of the active layer, use the [Save](#) feature.  
To save the current state of the project to the project file, use the [Save Project As](#) feature.

#### Key shortcut

This function can be initiated by pressing the *Shift+Ctrl+S* key combination.

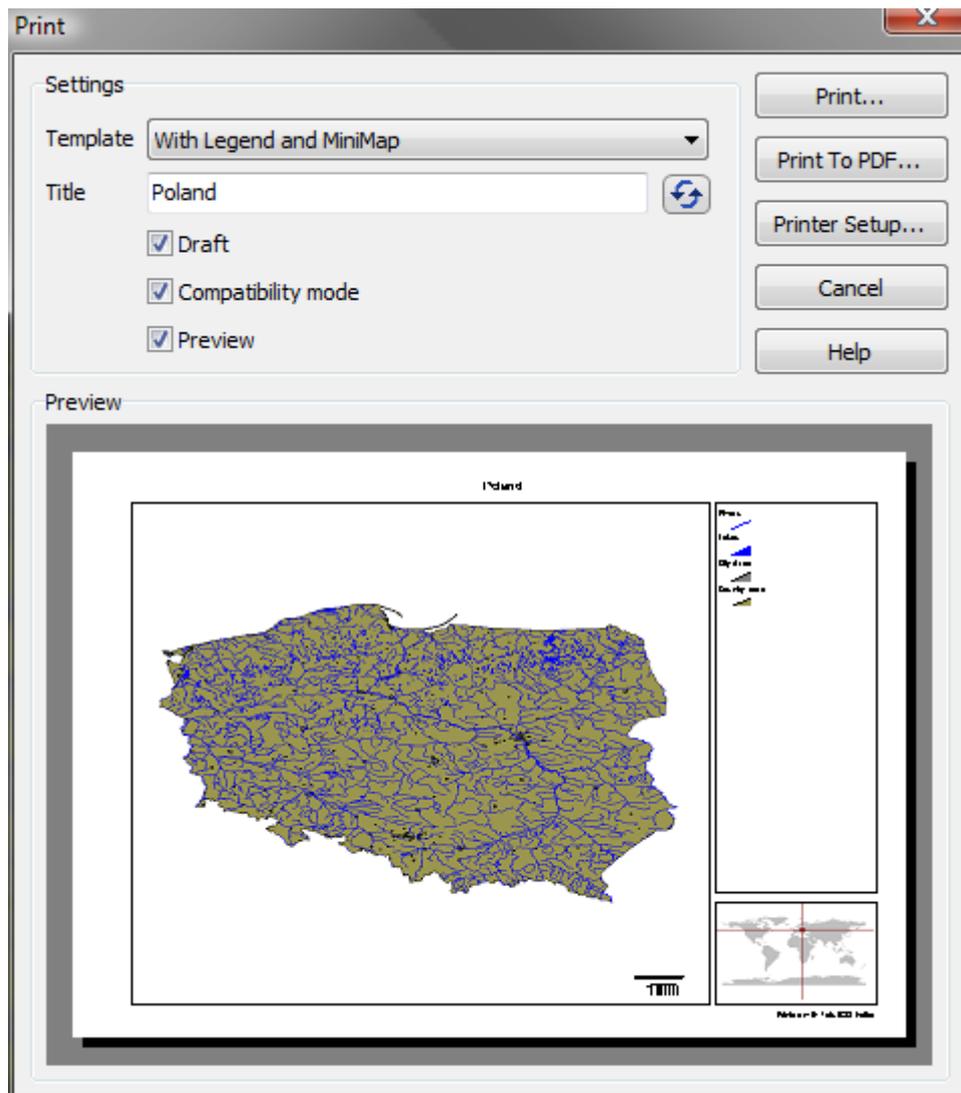
#### Note

- If the project file does not already exist, then the *Save As* dialog box is invoked to allow the user to set the project file name and the saving path.

### 3.1.8 Print

#### Description

Clicking on the *File/Print* menu item provides the means to print or export to a *PDF (Portable Document Format)* file the data currently open in the *Editor*, that is, the contents of the [Map area](#), [Legend panel](#) and [MiniMap panel](#). The printout layout is managed through the *Editor* print templates. The print templates are stored in files in the *PrintTemplates* subdirectory of the *Editor* installation folder. The *Editor* comes with three standard print templates: *Simple (Map area only)*, *With Legend (Map area with Legend panel)*, *With Legend and MiniMap (Map area, Legend panel and MiniMap panel)*. The standard templates are always listed in the *Print* dialog *Template* list. An example of a more advanced template, including images and multi coloring, is provided in the *TatukGISCustom.tpl* file.

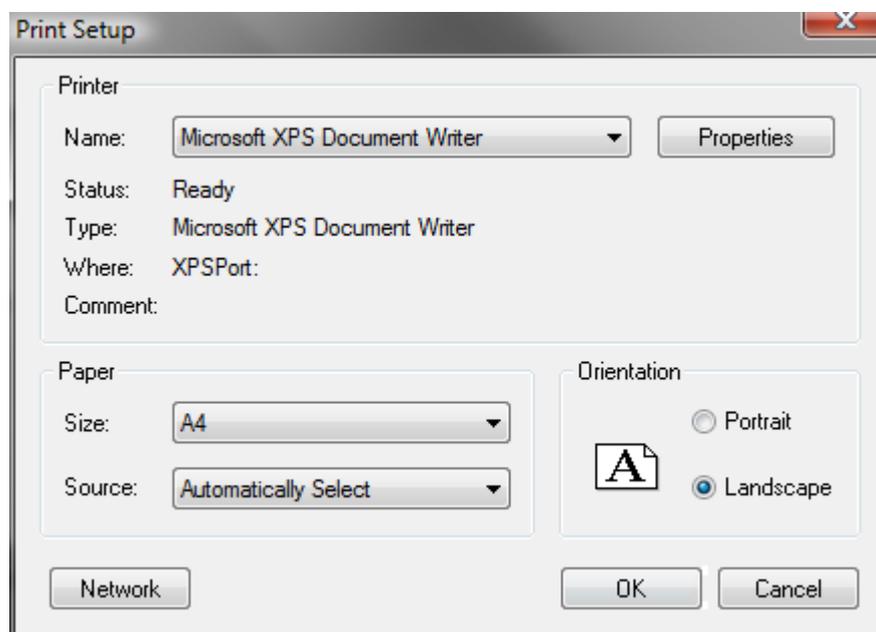


Print dialog box displaying sample printout setup.

#### To print the data open in the *Editor*

1. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) such that it displays the area to be printed.
2. [OPTIONAL] Prepare the appearance of the [MiniMap panel](#) if it is to be included in the printout.
3. Click on the *File/Print* menu item - this invokes the *Print* dialog.
4. [OPTIONAL] To display the preview of the printout, check the *Preview* checkbox by clicking on it.
5. Within the *Print* dialog, choose a print template from the *Template* list. If the desired template is not listed in the *Template* list then choose the *From file...* item - this invokes the *Open* dialog

- box. Within the Open dialog box, select the appropriate drive from the *Look in* list, locate the template file by entering the directory that contains this file, and double-click on the file name.
6. Enter the printout title in the *Title* text box. [OPTIONAL] To refresh the preview with the new title, press the *Enter* key or click on the  button.
7. [OPTIONAL] To customize the print settings such as the printer used to generate the printout or the printout orientation, click on the *Print Setup* button - this invokes the *Print Settings* dialog box.
8. [OPTIONAL] To generate the printout in draft quality, check the *Draft* checkbox. This option is useful for speeding up the printing procedure but significantly lowers the quality of the printout.
9. [OPTIONAL] To generate the printout in high compatibility mode, check the *Compatibility mode* checkbox. This option may have a significant impact on the printout quality and is meant to be used only when the printer is not capable of printing in normal mode or the generated printout contains errors.
10. Click on the *Print* button - this invokes the system *Print* dialog box.
11. Within the system *Print* dialog box, set the number of printout copies in the *Number of copies* box.
12. Click on the *OK* button.



System *Print* dialog box.

**To generate a PDF file of the data open in the Editor**

1. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) such that it displays the area to be printed.
2. [OPTIONAL] Prepare the appearance of the [MiniMap panel](#) if it is to be included in the printout.
3. Click on the *File/Print* menu item - this invokes the *Print* dialog.
4. [OPTIONAL] To display the preview of the printout, check the *Preview* checkbox by clicking on it.
5. Within the Print dialog, choose a print template from the *Template* list. If the desired template is not listed in the *Template* list then choose the *From file...* item - this invokes the *Open* dialog box. Within the Open dialog box, select the appropriate drive from the *Look in* list, locate the template file by entering the directory that contains this file, and double-click on the file name.
6. Enter the printout title in the *Title* text box. [OPTIONAL] To refresh the preview with the new title, press the *Enter* key or click on the  button.
7. [OPTIONAL] To change the printout orientation, click on the *Print Setup* button - this invokes the *Print Settings* dialog box. Within the *Print Settings* dialog box, choose one option from the *Orientation* list.
8. [OPTIONAL] To generate the printout in draft quality, check the *Draft* checkbox. This option is useful for speeding up the PDF creation procedure but significantly lowers the quality of the document.

9. [OPTIONAL] To generate the printout in high compatibility mode, check the *Compatibility mode* checkbox. This option may have a significant impact on the document quality but ensures compatibility with almost any printer when the *PDF* file is meant to be printed later.
10. Click on the *Print* button - this invokes the *Save As* dialog box.
11. Within the *Save As* dialog box, select the appropriate drive from the *Save in* list.
12. Locate the folder where you would like to store the project file. A new folder can be created by clicking on the  icon at the top-right corner of the *Save As* dialog box, entering its name and pressing the *Enter* key.
13. Enter a name for the *PDF* file in the *File name* list.
14. Click on the *Save* button.

#### Key shortcut

This function can be initiated by pressing the *Ctrl+P* key combination.

#### Note

- The process of installing and configuring a printing device is controlled by the *Windows* operating system. Each type of printing device has its own properties. Detailed information about installing and configuring a printer can be found in the manual supplied by the printer manufacturer and in the *Windows* help system.
- Checking the *Compatibility mode* option causes the data to be converted to an image representation before proceeding with the printing/*PDF* exporting procedure. This especially affects the quality of a *PDF* document (which natively supports vectorial graphics) while exporting vector type layers.

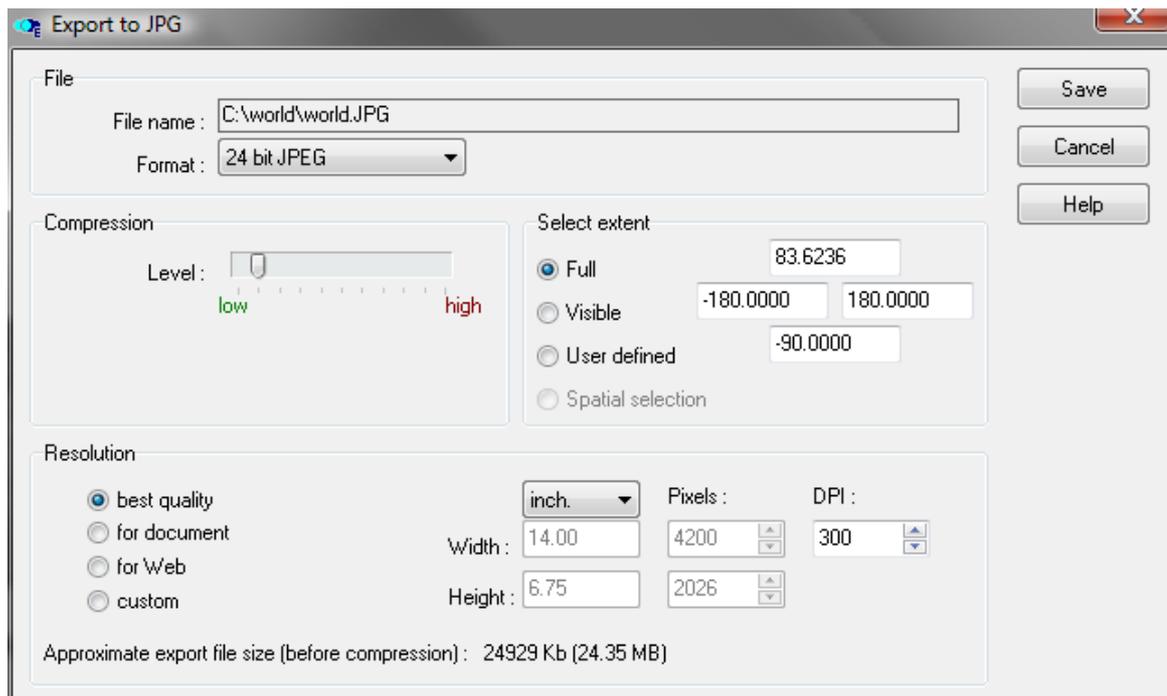
### 3.1.9 Export to image

#### Description

Clicking on the *File/Export to image* menu item provides for exporting any extent of the current project map as a georeferenced image (raster) file. The *Editor* supports exporting to a number of image file formats.

#### To export any extent of the current project as an image file

1. [OPTIONAL] The *Export to image* feature gives a possibility to export the extent visible within the [Map area](#) by choosing the *Select extent/Visible* option further in this procedure. To take the advantage of this option adjust the extent visible within the [Map area](#) using the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) features.
2. Click on the *File/Export to image* menu item - this invokes the *Save As* dialog box.
3. Within the *Save As* dialog box, select the appropriate drive from the *Save in* list.
4. Locate the folder where you would like to store the image file. A new folder can be created by clicking on the  icon at the top-right corner of the *Save As* dialog box, entering its name and pressing the *Enter* key.
5. Enter a name for the image file in the *File name* list.
6. Choose the image file format from the *Save as type* list.
7. Click on the *Save* button - this invokes the *Export to [chosen format]* dialog box, where the *chosen format* is the format selected in the *Save as type* list in previous step.
8. The *Export to [chosen format]* dialog box allows to adjust the image parameters: level of compression (*Compression* box), resolution (*Resolution* box) and extent to export (*Select extent* box).
9. Click on the *Save* button.



*Export to JPG dialog box saving world.JPG file.*

#### **Export to [chosen format] dialog box settings**

- The *Compression* box together with the *Resolution* box provide the quality vs. file size settings. While the resolution setting affects the physical size of the image the level of compression defines the precision in which the image reflects the actual data. The higher the compression level the smaller the exported file is with the cost of the quality drop.
- The *Resolution* option within the *Export to [chosen format]* dialog box (which influences the export file size) may be selected from three predefined resolutions by choosing one of the following options: *best quality* - 4 000 pixels in the width if source data is vector only, *for document* - 300 DPI with a width of 14 cm, *for web* - 600 pixels in the width. The *custom* option allows the user to set the custom width, height, and DPI (dots per inch) of the exported image.
- The *Select extent* option within the *Export to [chosen format]* dialog box allows the user to specify whether the export image is to be generated from the entire project extent (the *Full* option) or only from of the portion of the project currently visible in the [Map area](#) (the *Visible* option). The *User defined* option uses (x,y) coordinates to define the top, bottom, right, and left limits of the extent area. The *Spatial selection* option is active only if a selection of shapes has been done using any of the spatial selection tools before using the *Export to image* feature. The spatial selection tools are: [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#).

#### **Note**

- Because of the *JPEG* and *PNG* formats inherent size limitations, exporting to this formats is generally recommended only when the exported image does not exceed approximately 25 MB. The export of more data to the *JPEG* or *PNG* file format can result in files that are unstable and may not open or work properly in other programs.
- To make the exported image as compatible as possible with other software, the export operation also generates a complimentary *World File* and *TAB* registration file which contain the georeferencing information for the exported image. Export to the *TIFF* format generates a *GeoTIFF* image with the georeferencing information embedded.
- The program presents an estimation of the size of the image file being exported, after considering the extent, resolution, number of colors (bit depth) the export is generated to, and other factors. The estimation does not consider the compression which may be applied during the export procedure (i.e. the exported image file will be not bigger than the estimation). The size estimation is displayed at the bottom of the *Export to [chosen format]* dialog box.

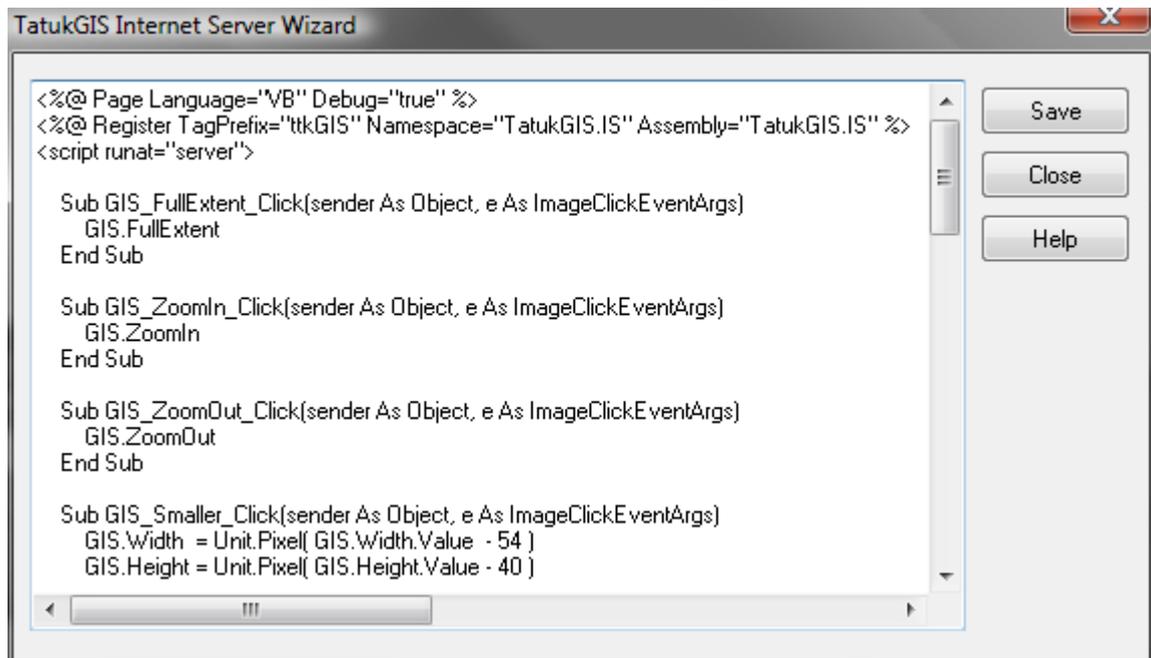
### 3.1.10 Internet Server Wizard

#### Description

Clicking on the *File/Internet Server Wizard* menu item invokes a procedure to generate an *ASP.NET* web server project from the current *Editor* project file. The exported *ASP.NET* project can then be web published using *TatukGIS Internet Server* product (or the *Internet Server LITE* edition).

#### To generate an *ASP.NET* project for web publishing

1. Click on the *File/Internet Server Wizard* menu item - this invokes the *TatukGIS Internet Server Wizard* dialog box.
2. Within the *TatukGIS Internet Server Wizard* dialog box, the automatically generated *ASP.NET* project code is displayed. If necessary, this code can be edited at this point within the text area.
3. When the project code seems satisfactory, click on the *Save* button - this invokes the *Save As* dialog box.
4. Within the *Save As* dialog box, select the appropriate drive from the *Save in* list.
5. Locate the folder where you would like to store the project file. A new folder can be created by clicking on the  icon at the top-right corner of the *Save As* dialog box, entering its name, and pressing the *Enter* key.
6. Enter a name for the *ASP.NET* project file in the *File name* list.
7. Click on the *Save* button.



*TatukGIS Internet Server Wizard* dialog box with the sample *ASP.NET* project code.

#### Note

- Using this feature to export the project from the *Editor* as an *ASP.NET* project can save time and effort. The default *ASP.NET* project set-up can be further customized within the *TatukGIS Internet Server* or *Internet Server LITE* products.

### 3.1.11 Coordinate Systems

#### Description

Clicking on the *File/Coordinate Systems* menu item provides for selecting or defining the map coordinate system, i.e. the coordinate system in which the entirety of the vector/raster data (all open layers) is displayed on the [Map area](#). All layers currently open in the *Editor* are automatically reprojected to the map coordinate system. The user may specify the map coordinate system by selecting from approximately 2900 pre-defined coordinate systems or by defining a custom coordinate system using 120 supported projections and 350 supported datums.

**IMPORTANT**

The *Editor* automatically recognizes the coordinate system of each layer being opened as long as the layer contains information about the coordinate system. In order to set the map coordinate system each currently open layer must have its own coordinate system set. If a layer does not have the coordinate system information, the coordinate system can be manually set within the layer properties, see the [Properties](#) help topic for details.

**To choose a predefined projected coordinate system**

1. Click on the *File/Coordinate Systems* menu item - this invokes the *Coordinate System* dialog box.
2. Within the *Coordinate System* dialog box click on the *Projected system:* option.
3. Pick the geographic system form the *Projected system:* list.
4. Click on the *OK* button.

**To define a custom projected coordinate system**

1. Click on the *File/Coordinate Systems* menu item - this invokes the *Coordinate System* dialog box.
2. Within the *Coordinate System* dialog box click on the *Projected system:* option.
3. Click on the [...] button on the right hand side of the *Projected system:* option - this invokes the *Coordinate System Setup* dialog box.
4. Within the *Geographic System* tab of the *Coordinate System Setup* dialog box define the geographic system.
5. Within the *Projection System* tab of the *Coordinate System Setup* dialog box define the projection system.
6. Click on the *OK* button.

**To save a projected coordinate system to a file**

1. Click on the *File/Coordinate Systems* menu item - this invokes the *Coordinate System* dialog box.
2. Within the *Coordinate System* dialog box click on the *Projected system:* option.
3. Click on the [...] button on the right hand side of the *Projected system:* option - this invokes the *Coordinate System Setup* dialog box.
4. Within the *WKT* tab of the *Coordinate System Setup* dialog box click on the *Export...* button - this invokes the *Save As* dialog box.
5. Within the *Save As* dialog box select the appropriate drive from the *Save in* list.
6. Locate the folder where you would like to store the projection system file. A new folder can be created by clicking on the  icon at the top-right corner of the *Save As* dialog box, entering its name and pressing the *Enter* key.
7. Enter a name for the projection system file in the *File name* list.
8. Click on the *Save* button - this brings back the *Coordinate System* dialog box.
9. Within the *Coordinate System* dialog box click on the *OK* button.

**To load a projected coordinate system from a file**

1. Click on the *File/Coordinate Systems* menu item - this invokes the *Coordinate System* dialog box.
2. Within the *Coordinate System* dialog box click on the *Projected system:* option.
3. Click on the [...] button on the right hand side of the *Projected system:* option - this invokes the *Coordinate System Setup* dialog box.
4. Within the *WKT* tab of the *Coordinate System Setup* dialog box click on the *Import...* button - this invokes the *Open* dialog box.
5. Within the *Open* dialog box select the appropriate drive from the *Look in* list.
6. Locate the projected system file by entering the directory that contains this file.
7. Double-click on the file name - this brings back the *Coordinate System* dialog box.
8. Within the *Coordinate System* dialog box click on the *OK* button.

**To choose a predefined geographic coordinate system**

1. Click on the *File/Coordinate Systems* menu item - this invokes the *Coordinate System* dialog box.
2. Within the *Coordinate System* dialog box click on the *Geographic system:* option.

- Pick the geographic system form the *Geographic system:* list.

#### To define a custom geographic coordinate system

- Click on the *File/Coordinate Systems* menu item - this invokes the *Coordinate System* dialog box.
- Within the *Coordinate System* dialog box click on the *Geographic system:* option.
- Click on the [...] button on the right hand side of the *Geographic system:* option - this invokes the *Coordinate System Setup* dialog box.
- Within the *Geographic System* tab of the *Coordinate System Setup* dialog box define the geographic system.
- Click on the *OK* button.

#### To save a geographic coordinate system to a file

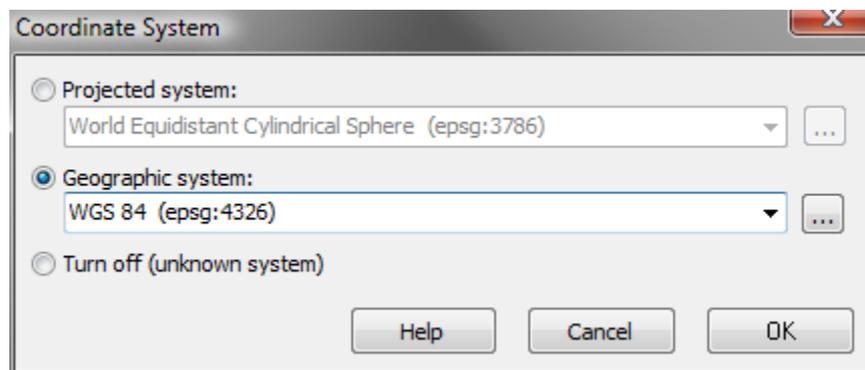
- Click on the *File/Coordinate Systems* menu item - this invokes the *Coordinate System* dialog box.
- Within the *Coordinate System* dialog box click on the *Geographic system:* option.
- Click on the [...] button on the right hand side of the *Geographic system:* option - this invokes the *Coordinate System Setup* dialog box.
- Within the *WKT* tab of the *Coordinate System Setup* dialog box click on the *Export...* button - this invokes the *Save As* dialog box.
- Within the *Save As* dialog box select the appropriate drive from the *Save in* list.
- Locate the folder where you would like to store the geographic system file. A new folder can be created by clicking on the  icon at the top-right corner of the *Save As* dialog box, entering its name and pressing the *Enter* key.
- Enter a name for the geographic system file in the *File name* list.
- Click on the *Save* button - this brings back the *Coordinate System* dialog box.
- Within the *Coordinate System* dialog box click on the *OK* button.

#### To load a geographic coordinate system from a file

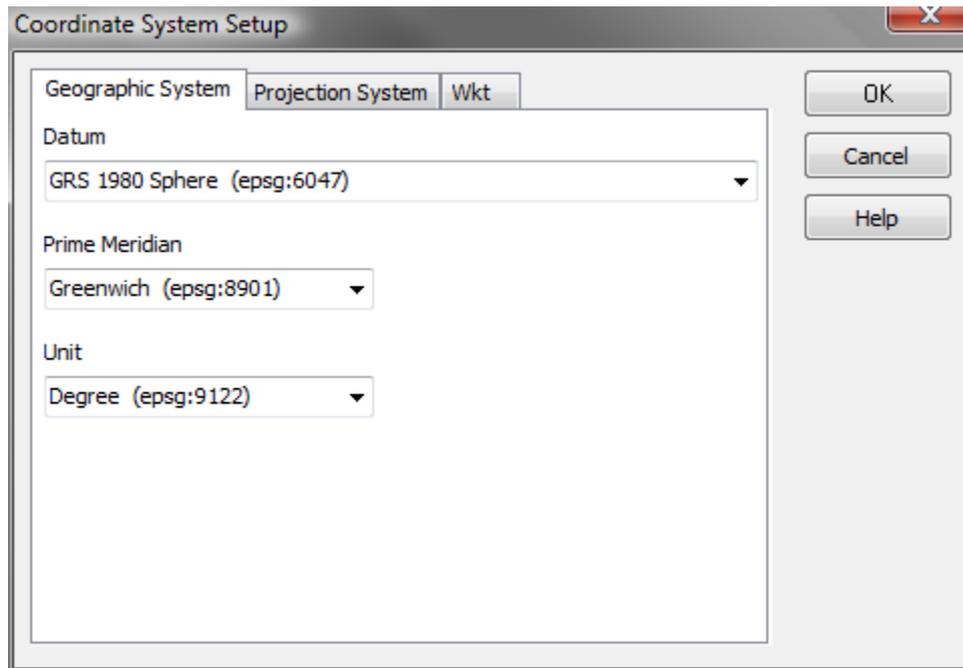
- Click on the *File/Coordinate Systems* menu item - this invokes the *Coordinate System* dialog box.
- Within the *Coordinate System* dialog box click on the *Geographic system:* option.
- Click on the [...] button on the right hand side of the *Geographic system:* option - this invokes the *Coordinate System Setup* dialog box.
- Within the *WKT* tab of the *Coordinate System Setup* dialog box click on the *Import...* button - this invokes the *Open* dialog box.
- Within the *Open* dialog box select the appropriate drive from the *Look in* list.
- Locate the geographic system file by entering the directory that contains this file.
- Double-click on the file name - this brings back the *Coordinate System* dialog box.
- Within the *Coordinate System* dialog box click on the *OK* button.

#### To turn off the map coordinate system

- Click on the *File/Coordinate Systems* menu item - this invokes the *Coordinate System* dialog box.
- Within the *Coordinate System* dialog box click on the *Turn off (unknown system)* option.



Coordinate System dialog box.



Coordinate System Setup dialog box.

#### Associated functions

To set or customize the coordinate system for an individual vector layer, use the [Properties](#) feature.

To convert a layer in to a different coordinate system, use the [Export](#) feature.

#### Note

- If the map coordinate system is turned off then each open layer is displayed in its own coordinate system. If the coordinate systems of the open layers are different then all the layers are misplaced with respect to each other.
- For top performance, best is if the coordinate systems of all the layers and the map coordinate system are the same. This avoids the requirement to perform on-the-fly reprojection, which is computationally demanding.

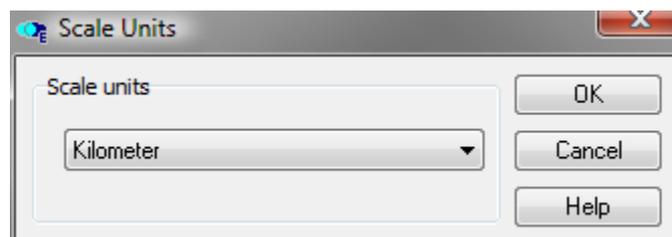
### 3.1.12 Scale Units

#### Description

Clicking on the *File/Scale units* menu item provides for setting the distance units used by the [Scale panel](#).

#### To set the distance units used by the *Scale panel*

1. Click on the *File/Scale units* menu item - this invokes the *Scale units* dialog box.
2. Within the *Scale units* dialog box select the desired unit from the *Scale units* list.
3. Click on the *OK* button.



Scale Units dialog box.

### 3.1.13 Hierarchy

#### Description

Clicking on the *File/Hierarchy* menu item displays the list of features used to manage the [Hierarchy tab](#) of the [Legend panel](#).

#### IMPORTANT

For basic information concerning the *Hierarchy tab* of the *Legend panel*, refer to [this](#) help topic.

**To display the list of features of the Legend panel Hierarchy tab**, click on the *File/Hierarchy* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the *Hierarchy* item in the [Legend panel](#) context menu.

#### 3.1.13.1 Add main group

##### Description

Clicking on the *File/Hierarchy/Add main group* menu item creates a main group in the [Hierarchy tab](#) of the [Legend panel](#). A main group is a group that resides at the lowest hierarchy level. At least one main group must exist in order to add subgroups and layers.

**To create a main group**, click on the *File/Hierarchy/Add main group* menu item.

##### Equivalent actions

The same function can be initiated by clicking on the *Hierarchy* item in the [Legend panel](#) context menu and then on the *Add main group* item on the drop down list.

##### Associated functions

To delete a group, use the [Delete group](#) feature.

To delete all subgroups from a group, use the [Delete all subgroups](#) feature.

To add a layer to a group, use the [Add layer](#) feature.

To remove a layer from a group, use the [Remove layer](#) feature.

##### Similar functions

To create a subgroup within a group, use the [Add subgroup](#) feature.

To create a main group containing all ungrouped layers, use the [Add unused layers](#) feature.

#### 3.1.13.2 Add subgroup

##### Description

Clicking on the *File/Hierarchy/Add subgroup* menu item creates a subgroup in the [Hierarchy tab](#) of the [Legend panel](#). The subgroup is a group that cannot exist at the lowest hierarchy level, i.e. it must belong to a main group or to another subgroup.

##### To create a subgroup within an existing group

1. Within the [Hierarchy tab](#) of the [Legend panel](#) click on the group within which a subgroup is to be created.
2. Click on the *File/Hierarchy/Add subgroup* menu item.

##### Equivalent actions

The same function can be initiated by clicking on the *Hierarchy* item in the [Legend panel](#) context menu and then on the *Add subgroup* item on the drop down list.

##### Associated functions

To delete a group, use the [Delete group](#) feature.

To delete all subgroups from a group, use the [Delete all subgroups](#) feature.

To add a layer to a group, use the [Add layer](#) feature.

To remove a layer from a group, use the [Remove layer](#) feature.

**Similar functions**

To create a main group, use the [Add main group](#) feature.

To create a main group containing all ungrouped layers, use the [Add unused layers](#) feature.

**3.1.13.3 Delete group****Description**

Clicking on the *File/Hierarchy/Delete group* menu item deletes a group from the [Hierarchy tab](#) of the [Legend panel](#). All layers belonging to the part of the hierarchy tree held by the group being deleted are removed from that part.

**To delete a group**

1. Within the [Hierarchy tab](#) of the [Legend panel](#) click on the group to be deleted.
2. Click on the *File/Hierarchy/Delete group* menu item.

**Equivalent actions**

The same function can be initiated by clicking on the *Hierarchy* item in the [Legend panel](#) context menu and then on the *Delete group* item on the drop down list.

**Associated functions**

To create a main group, use the [Add main group](#) feature.

To create a subgroup within a group, use the [Add subgroup](#) feature.

To create a main group containing all ungrouped layers, use the [Add unused layers](#) feature.

To add a layer to a group, use the [Add layer](#) feature.

To remove a layer from a group, use the [Remove layer](#) feature.

**Similar functions**

To delete all subgroups from a group, use the [Delete all subgroups](#) feature.

**3.1.13.4 Delete all subgroups****Description**

Clicking on the *File/Hierarchy/Delete all subgroups* menu item deletes all subgroups of a group in the [Hierarchy tab](#) of the [Legend panel](#). All layers belonging to the part of the hierarchy tree held by the subgroups being deleted are removed from that part.

**To delete all subgroups of a group**

1. Within the [Hierarchy tab](#) of the [Legend panel](#) click on the group from which all subgroups are to be deleted.
2. Click on the *File/Hierarchy/Delete all subgroups* menu item.

**Equivalent actions**

The same function can be initiated by clicking on the *Hierarchy* item in the [Legend panel](#) context menu and then on the *Delete all subgroups* item on the drop down list.

**Associated functions**

To create a main group, use the [Add main group](#) feature.

To create a subgroup within a group, use the [Add subgroup](#) feature.

To create a main group containing all ungrouped layers, use the [Add unused layers](#) feature.

To add a layer to a group, use the [Add layer](#) feature.

To remove a layer from a group, use the [Remove layer](#) feature.

**Similar functions**

To delete a group, use the [Delete group](#) feature.

### 3.1.13.5 Add layer

#### Description

Clicking on the *File/Hierarchy/Add layer* menu item displays the list of all layers currently open in the *Editor*. Clicking on a layer name on this list adds the layer to a group in the [Hierarchy tab](#) of the [Legend panel](#).

#### To add a layer to a group

1. Within the [Hierarchy tab](#) of the [Legend panel](#) click on the group to which the layer is to be added.
2. Click on the *File/Hierarchy/Add layer* menu item - a drop down list will appear.
3. Within the list click on the desired layer name.

#### Equivalent actions

The same function can be initiated by clicking on the *Hierarchy* item in the [Legend panel](#) context menu and then on the *Add main group* item on the drop down list.

#### Associated functions

To create a main group, use the [Add main group](#) feature.

To create a subgroup within a group, use the [Add subgroup](#) feature.

To delete a group, use the [Delete group](#) feature.

To delete all subgroups from a group, use the [Delete all subgroups](#) feature.

To remove a layer from a group, use the [Remove layer](#) feature.

#### Similar functions

To create a main group containing all ungrouped layers, use the [Add unused layers](#) feature.

### 3.1.13.6 Add unused layers

#### Description

Clicking on the *File/Hierarchy/Add unused layers* menu item creates a main group named "Other" in the [Hierarchy tab](#) of the [Legend panel](#) and adds to it all layers that are not associated with any group. The main group is a group that resides at the lowest hierarchy level, i.e. at least one main group must exist in order to add subgroups and layers.

**To create a main group containing all unassociated layers**, click on the *File/Hierarchy/Add unused layers* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the *Hierarchy* item in the [Legend panel](#) context menu and then on the *Add unused layers* item on the drop down list.

#### Associated functions

To delete a group, use the [Delete group](#) feature.

To delete all subgroups from a group, use the [Delete all subgroups](#) feature.

To add a layer to a group, use the [Add layer](#) feature.

To remove a layer from a group, use the [Remove layer](#) feature.

#### Similar functions

To create a main group, use the [Add main group](#) feature.

To create a subgroup within a group, use the [Add subgroup](#) feature.

### 3.1.13.7 Remove layer

#### Description

Clicking on the *File/Hierarchy/Remove layer* menu item removes a layer from selected location in the [Hierarchy tab](#) of the [Legend panel](#).

#### To remove a layer from some location in the hierarchy tree

1. Within the [Hierarchy tab](#) of the [Legend panel](#) click on the layer name in the group from which it is to be removed.

2. Click on the *File/Hierarchy/Remove layer* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the *Hierarchy* item in the [Legend panel](#) context menu and then on the *Add main group* item on the drop down list.

#### Associated functions

To create a main group, use the [Add main group](#) feature.

To create a subgroup within a group, use the [Add subgroup](#) feature.

To create a main group containing all ungrouped layers, use the [Add unused layers](#) feature.

To delete a group, use the [Delete group](#) feature.

To delete all subgroups from a group, use the [Delete all subgroups](#) feature.

To add a layer to a group, use the [Add layer](#) feature.

To remove a layer from a group, use the [Remove layer](#) feature.

### 3.1.14 Recent Files

#### Description

Clicking on the *File/Recent files* menu item presents a list of the 16 most recently opened files.

#### To open a recently opened file

1. Click on the *File/Recent Files* menu item - a list of the 16 most recently opened files will appear.
2. Search for the desired file in the list - if the file is not present in the list, this means that the file has never been opened or at least 16 other files have been opened since this file was last opened.
3. Click on the file name.

#### Similar functions

The *Recent files* tab on the [Welcome page](#) displays a list of the 5 most recently opened files.

#### 3.1.14.1 Clear list

##### Description

Clicking on the *File/Recent Files/Clear list* menu item clears the list of recently opened files available under the *File/Recent Files* menu item (see [here](#)).

##### To clear the list of recently opened files available under the *File/Recent Files* menu item

1. Click on the *File/Recent Files/Clear list* menu item - a message box will appear asking for confirmation.
2. Click on the *OK* button.

### 3.1.15 Favorites

#### Description

Clicking on the *File/Favorites* menu item displays a list of favorite layer and project files.

#### To open a file present on the *Favorites* list

1. Click on the *File/Favorites* menu item - a list of favorite files will appear.
2. Search for the desired file name on the list.
3. Click on the file name.

or

1. Click on the *File/Favorites/Organize favorites* menu item - this invokes the [Organize favorites](#) dialog box.
2. Search for the desired file path on the list in the [Organize favorites](#) dialog box.
3. Click on the desired file path/name.
4. Click on the *Open* button.

#### Associated functions

To manage the *Favorites* list, use the [Organize favorites](#) feature.

### 3.1.15.1 Add active layer

#### Description

Clicking on the *File/Favorites/Add active layer* menu item adds the currently active layer file to the [Favorites](#) list.

#### To add a layer file to the *Favorites* list

1. Activate (highlight) the layer that you want to add to [Favorites](#) list by clicking on its name in the [Legend panel](#).
1. Click on the *File/Favorites/Add active layer* menu item.

### 3.1.15.2 Add current project

#### Description

Clicking on the *File/Favorites/Add current project* menu item adds the currently open project file to the [Favorites](#) list.

**To add the currently open project file to the *Favorites* list**, click on the *File/Favorites/Add current project* menu item.

### 3.1.15.3 Organize Favorites

#### Description

Clicking on the *File/Favorites/Organize favorites* menu item provides for organizing the [Favorites](#) list.

#### To open a file present on the *Favorites* list

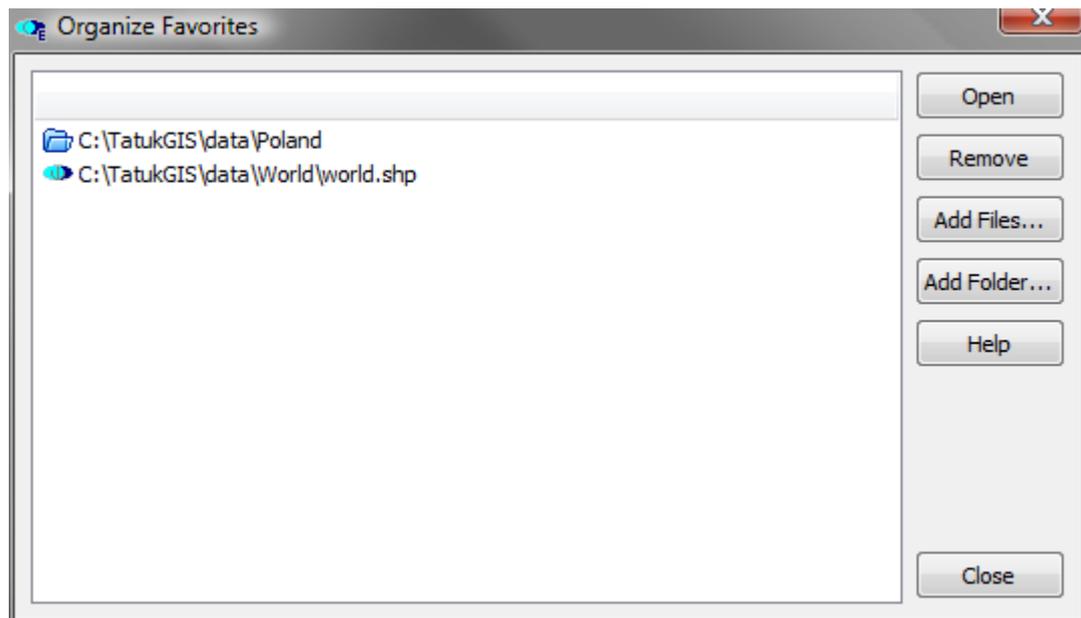
1. Click on the *File/Favorites* menu item - a list of favorite files will appear.
  2. Search for the desired file on the list.
  3. Click on the file name.
- or
1. Click on the *File/Favorites/Organize favorites* menu item - this invokes the *Organize favorites* dialog box.
  2. Within the *Organize favorites* dialog box, search for the desired file on the list.
  3. Click on the file path\name.
  4. Click on the *Open* button.

#### To add a file to the *Favorites* list

1. Click on the *File/Favorites/Organize favorites* menu item - this invokes the *Organize favorites* dialog box.
2. Within the *Organize favorites* dialog, box click on the *Add Files* button - this invokes the *Open* dialog box.
3. Within the *Open* dialog box, select the appropriate drive from the *Look in* list.
4. Locate the file by entering the directory that contains this file.
5. Double-click on the file name - this brings back the *Organize favorites* dialog box.
6. Click on the *Close* button.

#### To remove a file from the *Favorites* list

1. Click on the *File/Favorites/Organize favorites* menu item - this invokes the *Organize favorites* dialog box.
2. Within the *Organize favorites* dialog box, search for the desired file on the list.
3. Click on the file path\name.
4. Click on the *Remove* button.
5. Click on the *Close* button.



Organize favorites dialog box with one favorite folder and one favorite file.

### 3.1.16 Exit

#### Description

Clicking on the *File/Exit* menu item terminates the program in the proper way.

**To quit the program**, click on the *File/Exit* menu item.

#### Note

- If the program detects unsaved changes in any of the open layers, it will prompt the user to save the changes before exiting.
- If any layer is open, the program will ask if the user would like to save the project file.

## 3.2 Edit

#### Description

The *Edit* menu group contains standard editing features using the *Windows* operating system clipboard and the *Editor* temporary clipboard layer.

### 3.2.1 Undo

#### Description

Clicking on the *Edit/Undo* menu item cancels the most recently performed edit operation. The *Undo* feature must be used before leaving the edit mode.

**To undo the most recent edit operation**, click on the *Edit/Undo* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#).

#### Associated functions

To activate the edit mode, use the [Edit object](#) feature.  
To cancel the *Undo* operation, use the [Redo](#) feature.

#### Similar functions

The *Undo* feature works only for the most recent edit operation. If the most recent operation concerns an entire shape or a part within it, such as accidental deletion of a shape, use the [Revert](#)

[Shape](#) feature to restore the previous state of the shape.

#### Key shortcut

This function can be initiated by pressing the *Ctrl+Z* key combination.

#### Note

- If the context of the situation is such that it is impossible to *Undo* the most recent edit operation, the *Edit/Undo* menu item will be inactive.

### 3.2.2 Redo

#### Description

Clicking on the *Edit/Redo* menu item restores the state before the [Undo](#) operation was performed. The *Redo* feature must be used before leaving the edit mode.

**To cancel the *Undo* operation,** click on the *Edit/Redo* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#).

#### Associated functions

To activate the edit mode, use the [Edit object](#) feature.

#### Key shortcut

This function can be initiated by pressing the *Ctrl+Y* key combination.

#### Note

- If the context of the situation is such that it is impossible to *Redo* the most recent *Undo* operation, the *Edit/Redo* menu entry will be inactive.

### 3.2.3 Cut

#### Description

Clicking on the *Edit/Cut* menu item provides the means to transfer a shape or a group of shapes to the temporary clipboard layer. This operation removes the shapes from the source layer.

#### To cut shapes from a vector layer and store them in the temporary clipboard layer

1. Activate (highlight) the layer from which shapes are to be cut. Do this by clicking on its name in the [Legend panel](#).
2. Use any of the following selection methods to select the shapes: [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).
3. Click on the *Edit/Cut* menu item.  
or
  1. Activate (highlight) the layer from which shapes are to be cut. Do this by clicking on its name in the [Legend panel](#).
  2. Expand the context menu by clicking with the right mouse button on the layer name in the [Legend panel](#) and click on the *Open layer data* item - the [Data panel](#) will appear at the bottom of the *Editor* window.
  3. In the [Data panel](#), click on the *GIS\_SELECTED* property checkboxes of the desired shapes - this operation selects these shapes.
  4. Click on the *Edit/Cut* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#).

#### Associated functions

To transfer all the shapes from the temporary clipboard layer to a vector layer, use the [Paste](#) feature.

To save all the shapes stored in the temporary clipboard layer to a new vector layer file, use the [Save Clipboard](#) feature.

### Similar functions

To transfer the shapes to the temporary clipboard layer without removing them from the source layer, use the [Copy](#) feature.

### Key shortcut

This function can be initiated by pressing the *Ctrl+X* key combination.

### Note

- The temporary clipboard layer is a virtual object (stored in memory) automatically created by the *Cut* feature and is not file type specific.
- The *Cut* operation erases any previous content from the temporary clipboard layer.
- The *Cut* operation copies all the selected shapes to the temporary clipboard layer as a single shape, i.e. all the cut shapes are fused into a single shape.
- The *Cut* operation concerns only the shapes geometry, and not the attributes.

## 3.2.4 Copy

### Description

Clicking on the *Edit/Copy* menu item provides the means to transfer a shape or a group of shapes to the temporary clipboard layer. This operation does not remove the shapes from the source layer. This feature can be also used to store an image (raster) representation of the extent currently visible on the [Map area](#) in the operating system's clipboard.

### To copy shapes to the temporary clipboard layer

1. Activate (highlight) the layer from which the shapes are to be copied. Do this by clicking on its name in the [Legend panel](#).
2. Use any of the following selection methods to select the shapes: [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).
3. Click on the *Edit/Copy* menu item.  
or
1. Activate (highlight) the layer from which the shapes are to be copied. Do this by clicking on its name in the [Legend panel](#).
2. Expand the context menu by clicking with the right mouse button on the layer name in the [Legend panel](#) and click on the *Open layer data* item - the [Data panel](#) will appear at the bottom of the *Editor* window.
3. In the [Data panel](#), click on the *GIS\_SELECTED* property checkboxes of the desired shapes - this operation selects these shapes.
4. Click on the *Edit/Copy* menu item.

### To copy the extent currently visible on the *Map area* into an image stored in the operating system's clipboard

1. Adjust the extent visible on the [Map area](#) to cover the desired area.
2. Ensure that no shapes are selected by clicking on the *Select/Deselect all* menu item or on the  icon on the [Standard toolbar](#). If no shapes are currently selected, these options will be inactive.
3. Click on the *Edit/Copy* menu item.

### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#) or on the *Copy* item in the [Map area](#) context menu.

### Associated functions

To transfer the shapes from the temporary clipboard layer to a vector layer, use the [Paste](#) feature.  
To save all the shapes stored in the temporary clipboard layer to a new vector layer file, use the [Save Clipboard](#) feature.

### Similar functions

To transfer all the shapes to the temporary clipboard layer and remove them from the source layer, use the [Cut](#) feature.

There is also a more advanced way of copying shapes to the temporary clipboard layer - the [Copy Special](#) feature.

### Key shortcut

This function can be initiated by pressing the *Ctrl+C* key combination.

### Note

- The temporary clipboard layer is a virtual object (stored in memory) automatically created by the *Copy* feature and is not file type specific.
- The *Copy* operation erases any previous content from the temporary clipboard layer.
- The *Copy* operation copies all the selected shapes to the temporary clipboard layer as a single shape, i.e. all the cut shapes are fused into a single shape.
- The *Copy* operation concerns only the shapes geometry, and not the attributes.

## 3.2.5 Copy Special

### Description

Clicking on the *Edit/Copy Special* menu item provides the means to copy shapes from a vector layer to the temporary clipboard layer in a custom (advanced) manor. This operation does not remove the shapes from the source layer.

### To copy shapes to the temporary clipboard layer in a custom way

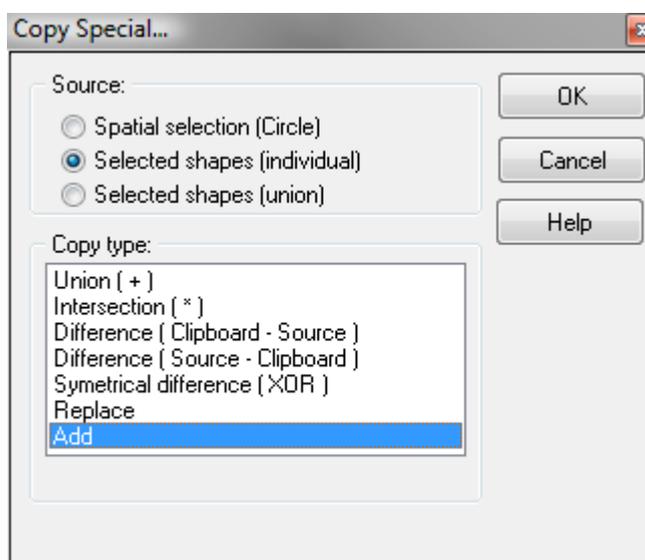
1. Activate (highlight) the layer from which the shapes are to be copied. Do this by clicking on its name in the [Legend panel](#).
  2. Use any of the following selection methods to select the shapes: [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).
  3. Click on the *Edit/Copy Special* menu item - this invokes the *Copy Special* dialog box.
  4. Within the *Copy Special* dialog box, choose one of the *Source* options to define how the selected shapes are copied from the source layer.
  5. Choose one of the *Copy type* options to define the way in which the copied shapes are stored to the temporary clipboard layer.
  6. Click on the *OK* button.
- or
1. Activate (highlight) the layer from which the shapes are to be copied. Do this by clicking on its name in the [Legend panel](#).
  2. Expand the context menu by clicking with the right mouse button on the layer name in the [Legend panel](#) and click on the *Open layer data* item - the [Data panel](#) will appear at the bottom of the *Editor* window.
  3. In the [Data panel](#), click on the *GIS\_SELECTED* property checkboxes of the desired shapes - this operation selects these shapes.
  4. Click on the *Edit/Copy Special* menu item - this invokes the *Copy Special* dialog box.
  5. Within the *Copy Special* dialog box, choose one of the *Source* options to define how the selected shapes are copied from the source layer.
  6. Choose one of the *Copy type* options to define the way in which the copied shapes are stored to the temporary clipboard layer.
  7. Click on the *OK* button.

### Source options

- *Selection* - copy only the spatial selection figure. This applies to the [Select by Line](#), [Select by Polygon](#), [Select by Circle](#) and [Select by Rectangle](#) selection methods. If none of these selection methods is used, this option will be inactive.
- *Selected shapes (individual)* - copy all selected shapes individually as separate objects (exactly as they were in the source layer).
- *Selected shapes (union)* - copy all selected shapes as a single fused object (as when using the regular [Copy](#) feature).

### Copy type options

- *Union ( + )* - unites the newly copied shapes to any objects that already exist in the temporary clipboard layer.
- *Intersection ( \* )* - places on the temporary clipboard layer the shapes that are common between the newly copied objects and the shapes that were already in the temporary clipboard layer.
- *Difference ( Clipboard - Source )* - leaves on the temporary clipboard layer the shapes that are not common with the newly copied shapes.
- *Difference ( Source - Clipboard )* - places on the temporary clipboard layer the part of the newly copied shapes that is not common with the shapes already present in the temporary clipboard layer.
- *Symmetrical difference ( XOR )* - places on the temporary clipboard layer the part of the newly copied shapes and the part of the shapes already present on the temporary clipboard layer that are not common.
- *Replace* - replace all shapes present on the temporary clipboard layer with the newly copied shapes.
- *Add* - adds selected shapes to the temporary clipboard layer.



Copy Special dialog box.

### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#) or on the [Copy Special](#) item in the [Map area](#) context menu.

### Associated functions

To transfer all the shapes from the temporary clipboard layer to a vector layer, use the [Paste](#) feature.

To save all the shapes stored in the temporary clipboard layer to a new vector layer file, use the [Save Clipboard](#) feature.

### Similar functions

There is also a more simple way of copying shapes, that is, the [Copy](#) feature.

### Note

- The temporary clipboard layer is a virtual object (stored in memory) automatically created by the [Copy Special](#) feature and is not file type specific.
- The [Copy Special](#) operation concerns only the shapes geometry, and not the attributes.

### 3.2.6 Paste

#### Description

Clicking on the *Edit/Paste* menu item provides for transferring all shapes from the temporary clipboard layer to the currently active vector layer.

#### To paste shapes from the temporary clipboard layer to a vector layer

1. Activate (highlight) the layer to which the shapes are to be pasted. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Edit/Paste* menu item.

#### Associated functions

To transfer shapes to the temporary clipboard layer, use one of the following features: [Cut](#), [Copy](#), [Copy Special](#), [Load Clipboard](#).

To load a vector layer file to the temporary clipboard layer, use the [Load Clipboard](#) feature.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#).

#### Key shortcut

This function can be initiated by pressing the *Ctrl+V* key combination.

#### Note

- The temporary clipboard layer is an automatically created virtual object (stored in memory) and is not file type specific.
- The *Paste* operation concerns only the shapes geometry, and not the attributes.

### 3.2.7 Clear Clipboard

#### Description

Clicking on the *Edit/Clear Clipboard* menu items provides for clearing the temporary clipboard layer of any shapes stored there.

To clear the temporary clipboard layer, click on the *Edit/Clear Clipboard* menu item.

#### Note

- The *Clear Clipboard* feature does not clear the Windows operating system clipboard.

### 3.2.8 Save Clipboard

#### Description

Clicking on the *Edit/Save Clipboard* menu item provides for saving all the shapes stored in the temporary clipboard layer in to a new vector layer file.

#### To save shapes stored in the temporary clipboard layer in to a vector layer file

1. Click on the *Edit/Save Clipboard* menu item - this invokes the *Create New Layer* dialog box.
2. Within the *Create New Layer* dialog box, select the appropriate drive from the *Save in* list.
3. Locate the folder where you would like to store the layer file. A new folder can be created by clicking on the  icon at the top-right corner of the *Create New Layer* dialog box, entering its name and pressing the *Enter* key.
4. Enter a name for the layer file in the *File name* list.
5. Choose the layer file format from the *Save as type* list.
6. Click on the *Save* button.

#### Associated functions

To transfer shapes to the temporary clipboard layer, use one of the following features: [Cut](#), [Copy](#), [Copy Special](#), [Load Clipboard](#).

#### Note

- If the temporary clipboard layer is empty, the *Save Clipboard* function is inactive.

### 3.2.9 Load Clipboard

#### Description

Clicking on the *Edit/Load Clipboard* menu item provides for loading a vector layer file directly to the temporary clipboard layer.

#### To load a vector layer file into the temporary clipboard layer

1. Click on the *Edit/Load Clipboard* menu item - this invokes the *Load Clipboard* dialog box.
2. Within the *Load Clipboard* dialog box, select the appropriate drive from the *Look in* list.
3. Locate the layer file by entering the directory that contains this file.
4. Double-click on the file name.

#### Associated functions

To transfer all the shapes from the temporary clipboard layer to a vector layer, use the [Paste](#) feature.

#### Note

- The *Load Clipboard* feature erases the previous content of the temporary clipboard layer.
- The *Load Clipboard* operation concerns only the shapes geometry, and not the attributes.

## 3.3 View

#### Description

The *View* menu group contains options used to manage the appearance of the *Editor*.

### 3.3.1 Toolbars

#### Description

Clicking on the *View/Toolbars* menu item displays the list of currently visible toolbars.

#### To show/hide any toolbar

1. Click on the *View/Toolbars* menu item - this displays the list of currently visible toolbars.
2. Check/uncheck desired toolbar name by clicking on it.

#### Note

- Each toolbar's visibility property is preserved until it is manually changed.

#### 3.3.1.1 Standard

#### Description

Clicking on the *View/Toolbars/Standard* menu item toggles visibility of the [Standard toolbar](#).

To toggle visibility of the **Standard toolbar**, click on the *View/Toolbars/Standard* menu item.

### 3.3.2 Panels

#### Description

Clicking on the *View/Panels* menu item displays the list of currently visible panels.

#### IMPORTANT

For more information concerning the panels refer to [this](#) help topic.

#### To show/hide any panel

1. Click on the *View/Panels* menu item - this displays the list of currently visible panels.
2. Check/uncheck the desired panel name by clicking on it.

**Associated functions**

To restore the default panels settings and arrangement, click on the *View/Panels/Default* menu item (see [here](#)).

**Note**

- Each panel's visibility property is preserved until it is manually changed.

**3.3.2.1 Scale****Description**

Clicking on the *View/Panels/Scale* menu item toggles the visibility of the [Scale panel](#).

**To toggle the visibility of the *Scale panel***, click on the *View/Panels/Scale* menu item.

**3.3.2.2 Selected****Description**

Clicking on the *View/Panels/Selected* menu item toggles the visibility of the [Selected panel](#).

**To toggle the visibility of the *Selected panel***, click on the *View/Panels/Selected* menu item.

**3.3.2.3 Legend****Description**

Clicking on the *View/Panels/Legend* menu item toggles the visibility of the [Legend panel](#).

**To toggle the visibility of the *Legend panel***, click on the *View/Panels/Legend* menu item.

**3.3.2.4 MiniMap****Description**

Clicking on the *View/Panels/MiniMap* menu item toggles the visibility of the [MiniMap panel](#).

**To toggle the visibility of the *MiniMap panel***, click on the *View/Panels/MiniMap* menu item.

**3.3.2.5 Data****Description**

Clicking on the *View/Panels/Data* menu item toggles the visibility of the [Data panel](#).

**To toggle the visibility of the *Data panel***, click on the *View/Panels/Data* menu item.

**3.3.2.6 Default****Description**

Clicking on the *View/Panels/Default* menu item restores the default settings and arrangement of all panels.

**To restore the default settings and arrangement of all panels**, click on the *View/Panels/Default* menu item.

**3.3.3 MiniMap****Description**

Clicking on the *View/MiniMap* menu item displays the list of basic options of the [MiniMap panel](#).

**IMPORTANT**

For more information concerning the *MiniMap panel* refer to [this](#) help topic.

**To display the list of basic options of the *MiniMap panel***, click on the *View/MiniMap* menu

item.

### 3.3.3.1 Draw MiniMap

#### Description

Clicking on the *View/MiniMap/Draw MiniMap* menu item transfers the extent currently visible in the [Map area](#) into the [Map tab](#) of the [MiniMap panel](#).

#### To transfer the extent visible on the *Map area* to the *Map tab* of the *MiniMap panel*

1. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#).
2. Click on the *View/MiniMap/Draw MiniMap* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the *Draw MiniMap* item in the [Map area](#) context menu or in the context menu of the [MiniMap panel Map tab](#).

### 3.3.3.2 Clear

#### Description

Clicking on the *View/MiniMap/Clear* menu item removes the vector layer from the [Layer tab](#) of the [MiniMap panel](#). This relates only to the [MiniMap panel](#), so if the same layer is listed in the [Legend panel](#) it will not be closed.

**To reset (clear) the *Layer tab* of the *MiniMap panel***, click on the *View/MiniMap/Clear* menu item.

#### Equivalent actions

The same function can be initiated by expanding the context menu on the [Layer tab](#) of the [MiniMap panel](#) (right mouse button click on the [Layer tab](#) of the [MiniMap panel](#)) and clicking on the *Clear* item.

#### Note

- If no layer is open in the [Layer tab](#) of the [MiniMap panel](#), the *View/MiniMap/Clear* menu item will be inactive.

### 3.3.3.3 Export To Web Image

#### Description

Clicking on the *View/MiniMap/Export To Web Image* menu item provides for exporting the current appearance of the [Layer tab](#) of the [MiniMap panel](#) to an image file in the *JPEG* format.

#### To export the current appearance of the *Layer tab* of the *MiniMap panel* to an image file in the *JPEG* format

1. Click on the *View/MiniMap/Export To Web Image* menu item - this invokes the *Export to image* dialog box.
2. Within the *Export to image* dialog box select the appropriate drive from the *Save in* list.
3. Locate the folder where you would like to store the image file. A new folder can be created by clicking on the  icon at the top-right corner of the *Export to image* dialog box, entering its name and pressing the *Enter* key.
4. Enter a name for the image file in the *File name* list.
5. Click on the *Save* button.

#### Equivalent actions

The same function can be initiated by expanding the context menu on the [Layer tab](#) of the [MiniMap panel](#) (right mouse button click on the [Layer tab](#) of the [MiniMap panel](#)) and clicking on the *Export To Web Image* item.

#### Similar functions

To export the extent currently visible within the [Map area](#) to an image file, use the [Export to image](#)

feature.

**Note**

- If no layer is open in the [Layer tab](#) of the [MiniMap panel](#), the *View/MiniMap/Export To Web Image* menu item will be inactive.

### 3.3.4 Full Extent

**Description**

Clicking on the *View/Full Extent* menu item sets the extent visible within the [Map area](#) to contain the entirety of all open layers.

**To set the extent visible within the *Map area* to contain the entirety of all open layers**, click on the *View/Full Extent* menu item.

**Equivalent actions**

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#).

**Similar functions**

See [Layer Extent](#), [Selected Extent](#), [Previous Extent](#).

**Key shortcut**

This function can be initiated by pressing the *F3* key.

### 3.3.5 Layer Extent

**Description**

Clicking on the *View/Layer Extent* menu item sets the extent visible within the [Map area](#) to contain the entirety of the currently active layer.

**To set the extent visible within the *Map area* to contain the entirety of the currently active layer**

1. Activate (highlight) the desired layer by clicking on its name in the [Legend panel](#).
2. Click on the *View/Layer Extent* menu item.

**Equivalent actions**

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#).

**Similar functions**

See [Full Extent](#), [Selected Extent](#), [Previous Extent](#).

**Key shortcut**

This function can be initiated by pressing the *Ctrl+F3* key combination.

### 3.3.6 Selected Extent

**Description**

Clicking on the *View/Selected Extent* menu item sets the extent visible within the [Map area](#) to contain all the currently selected shapes.

**To set the extent visible within the *Map area* to contain desired shapes**

1. Activate (highlight) the layer containing the desired shapes. Do this by clicking on its name in the [Legend panel](#).
  2. Use any of the following selection methods to select the shapes: [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#).
  3. Click on the *View/Selected Extent* menu item.
- or
1. Activate (highlight) the layer containing the desired shapes. Do this by clicking on its name in

- the [Legend panel](#).
- Expand the context menu by clicking with the right mouse button on the selected layer's name in the [Legend panel](#) and click on the *Open layer data* item - the [Data panel](#) will appear at the bottom of the *Editor* window.
  - In the [Data panel](#), click on the *GIS\_SELECTED* property check boxes of the desired shapes - this operation selects these shapes.
  - Click on the *View/Selected Extent* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#) or on the *Selected Extent* item in the [Map area](#) context menu.

#### Similar functions

See [Full Extent](#), [Layer Extent](#), [Previous Extent](#).

### 3.3.7 Previous Extent

#### Description

Clicking on the *View/Previous Extent* menu item sets the extent visible within the [Map area](#) to as it was prior to the last zooming or dragging event.

**To set the extent visible within the *Map area* to as it was prior to the last zooming or dragging event,** click on the *View/Previous Extent* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#) or on the *Previous extent* item in the [Map area](#) context menu.

#### Similar functions

See [Full Extent](#), [Layer Extent](#), [Selected Extent](#).

#### Key shortcut

This function can be initiated by pressing the *Alt+Backspace* key combination.

#### Note

- The Editor memorizes up to five recent extents. The first click returns to the most recent extent, the second click to the second most recent extent, etc.
- The *Previous Extent* feature works as a loop. On the fifth click the extent returns to as it was before the *Previous Extent* feature was used (i.e. before the first click).

### 3.3.8 Refresh map

#### Description

Clicking on the *View/Refresh map* menu item generates a fresh rendering of all the geometry visible within the [Map area](#).

**To refresh the *Map area*,** click on the *View/Refresh map* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#).

#### Key shortcut

This function can be initiated by pressing the *F5* key.

### 3.3.9 Zoom mode

#### Description

Clicking on the *View/Zoom mode* menu item activates the standard zoom mode for the [Map area](#).

#### To zoom in using the standard mode

1. Click on the *View/Zoom mode* menu item.
2. Within the [Map area](#) choose a rectangular area to which you would like to zoom in.
3. Move the mouse pointer to the top left corner of the area and press the left mouse button.
4. Move the mouse pointer to the bottom right corner of the area and release the left mouse button.

#### To zoom out using the standard mode

1. Click on the *View/Zoom mode* menu item.
2. Within the [Map area](#) decide how large should be the area containing the currently visible extent and where it should be located after zooming out.
3. Move the mouse pointer to the bottom right corner of this area and press the left mouse button.
4. Move the mouse pointer to the top left corner of this area and release the left mouse button.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#).

#### Similar functions

There is also a "smooth" zooming to point method provided by the [Zoom extended mode](#) feature.

#### Key shortcut

This function can be initiated by pressing the *Ctrl+M* key combination.

### 3.3.10 Zoom extended mode

#### Description

Clicking on the *View/Zoom extended mode* menu item activates the extended zoom mode for the [Map area](#).

#### To zoom in using the extended mode

1. Click on the *View/Zoom extended mode* menu item.
2. Within the [Map area](#) choose a rectangular area to which you would like to zoom in.
3. Move the mouse pointer to the center of the desired area and press the left mouse button.
4. Start moving the mouse pointer to the bottom of the screen until the desired zoom level is achieved.
5. Release the left mouse button.

#### To zoom out using the extended mode

1. Click on the *View/Zoom extended mode* menu item.
2. Within the [Map area](#) choose a point from which you would like to zoom out.
3. Move the mouse pointer to the point and press the left mouse button.
4. Start moving the mouse pointer to the top of the screen until the zoom level seems to meet your needs.
5. Release the left mouse button.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). This feature is available at any time using the mouse wheel (if present).

#### Similar functions

There is also a zooming to selection method provided by the [Zoom mode](#) feature.

### 3.3.11 Drag mode

#### Description

Clicking on the *View/Drag mode* menu item activates the drag mode for the [Map area](#).

#### To change the extent visible within the *Map area* to different location (at the same zoom level)

1. Click on the *View/Drag mode* menu item.
2. Press the left mouse button at any point on the [Map area](#) (preferably at its center).
3. Move the mouse pointer in any direction as far as needed.
4. Release the left mouse button.
5. Repeat the steps from 1 to 3 until the extent visible within the [Map area](#) is as desired.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). This feature is available at any time by pressing and holding the *Shift* key.

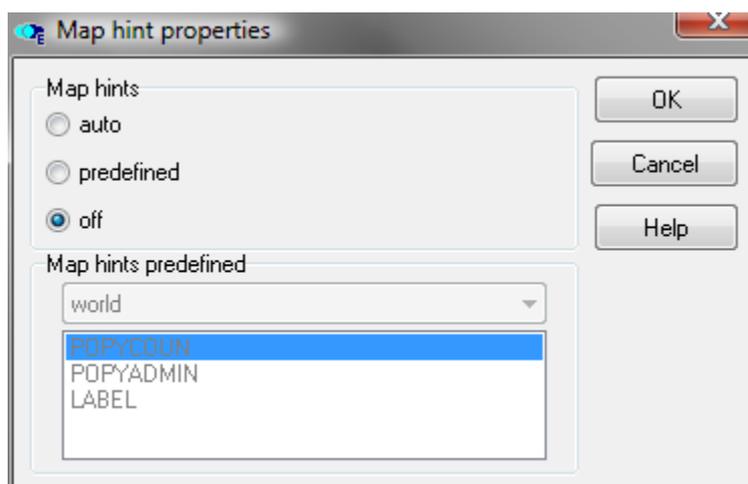
### 3.3.12 Map hint

#### Description

Clicking on the *View/Map hint* menu item provides for managing the hint feature for the [Map area](#). In the case of a vector layer the hint feature offers a possibility to display information about shape attributes whenever the mouse pointer is stopped over a particular shape. If a pixel or grid layer is being viewed, the hint feature automatically shows the data associated with a pixel under the mouse pointer.

#### To manage the hint feature

1. Activate (highlight) the layer for which the map hint feature is to be activated. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *View/Map hint* menu item - this invokes the *Map hint properties* dialog box.
3. Within the *Map hint properties* dialog box select one option from the *Map hints* list: *auto* - show complete information about the attributes, *predefined* - show information about only one attribute, *off* - turn off the hint feature.
4. If the *predefined* option was selected in the previous step then in the *Map hints predefined* box choose a layer and then pick an attribute from the list below.
5. Click on the *OK* button.



*Map hint properties* dialog box - map hint feature turned off for vector layer named *world*.

#### Note

- By default the map hint feature is disabled.
- The map hint settings are saved within the project file.

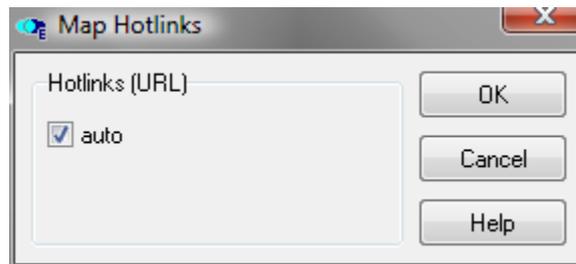
### 3.3.13 Map hotlinks

#### Description

Clicking on the *View/Map hotlinks* menu item provides for activating/deactivating the *Hotlinks (URL)* feature. When active, the *Hotlinks (URL)* feature attempts to connect to a *URL* link that might be specified in an attribute field whenever the user double-clicks within the *Map area* (with [Localize](#) or [Select by Point](#) selection features). The linkage can open a document or image file in appropriate program, navigate to a web site using a web browser, or even to automatically launch a pre-addressed e-mail via e-mail client application.

#### To turn on/off the *Hotlinks (URL)* feature

1. Click on the *View/Map hotlinks* menu item - this invokes the *Map Hotlinks* dialog box.
2. Within the *Map Hotlinks* dialog box check/uncheck the *auto* option.
3. Click on the *OK* button.



Map Hotlinks dialog box.

#### Note

- By default the *Hotlinks (URL)* feature is enabled.

### 3.3.14 Auto center

#### Description

Clicking on the *View/Auto center* menu item toggles between the two ways in which the [Localize](#) and [Select by Point](#) selecting features behave. If the *View/Auto center* menu item is checked then a selection event automatically centers the extent visible on the *Map area* on the recently selected shape, without changing the zoom level. Otherwise, a selection event affects neither the visible extent nor the zoom level.

To activate/deactivate the *Auto center* feature, click on the *View/Auto center* menu item.

### 3.3.15 Auto locate record

#### Description

Clicking on the *View/Auto locate record* menu item toggles between the two ways in which the [Localize](#) and [Select by Point](#) selecting features behave combined with the open [Data panel](#). If the *View/Auto locate record* menu item is checked then a selection event automatically makes a jump on the [Data panel](#) list to the record corresponding to the recently selected object. Otherwise, a selecting event does not affect the position on the [Data panel](#) list.

To activate/deactivate the *Auto locate record* feature, click on the *View/Auto locate record* menu item.

### 3.3.16 Full Screen

#### Description

Clicking on the *View/Full Screen* menu item provides for the possibility to switch to the full screen mode, i.e. make the *Editor* use the whole computer screen only for the menus, toolbars and the [Map area](#). The same menu entry is used to leave the full screen mode.

To switch on/off the full screen mode, click on the *View/Full Screen* menu item.

**Key shortcut**

This function can be initiated by pressing the *F11* key.

## 3.4 Select

**Description**

The *Select* menu group contains options relating to selection, deselection and visibility of shapes displayed within the [Map area](#).

### 3.4.1 Localize

**Description**

Clicking on the *Select/Localize* menu item activates the *Localize* selection method for the [Map area](#). The *Localize* selection method is used to select a shape or multiple shapes regardless of which vector layer is currently the active layer.

**To select a shape using the *Localize* selection method**

1. Click on the *Select/Localize* menu item.
2. Within the [Map area](#) move the mouse pointer over the desired shape and click.

**To select multiple shapes using the *Localize* selection method**

1. Click on the *Select/Localize* menu item.
2. Press and hold down the *Ctrl* key.
3. Within the [Map area](#) move the mouse pointer over a shape and click. Repeat this step until all desired shapes are selected.
4. Release the *Ctrl* key.

**Equivalent actions**

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If this icon is not currently visible then click on the leftmost  icon on the same toolbar and then on the *Localize* item on the drop down list.

**Associated functions**

To transfer the selected shapes to the temporary clipboard layer, use one of the following functions: [Cut](#), [Copy](#), [Copy Special](#), [Load Clipboard](#).

To remove the selected shapes from the layer, use the [Delete Shape](#) feature.

To cancel all previously made selections, use the [Deselect all](#) feature.

To invert the current selection, i.e. select all not selected shapes and deselect all selected shapes in the active layer, use the [Invert Selection](#) feature.

**Similar functions**

See [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).

**Note**

- All currently selected shapes are highlighted on the [Map area](#).
- Values (or averages, maximal and minimal numeric values) of attributes of the selected shape (or shapes) are displayed in the *Attributes* tab of the [Selected panel](#).
- Shapes located in layers cannot be selected at the same time.
- The layer containing the last selected shape will be automatically activated (highlighted on the [Legend panel](#)).

### 3.4.2 Select by Point

#### Description

Clicking on the *Select/Select by Point* menu item activates the *Select by Point* selection method for the [Map area](#). The *Localize* selection method is used to select a shape or multiple shapes contained in the currently active vector layer (the one highlighted in the [Legend panel](#)).

#### To select a shape using the *Select by Point* selection method

1. Activate (highlight) the vector layer on which the selection is to be performed. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Select/Select by Point* menu item.
3. Within the [Map area](#) move the mouse pointer over the shape and click.

#### To select multiple shapes using the *Select by Point* selection method

1. Activate (highlight) the vector layer from which the selection is to be made. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Select/Select by Point* menu item.
3. Press and hold down the *Ctrl* key.
4. Within the [Map area](#) move the mouse pointer over the shape and click. Repeat this step until all desired shapes are selected.
5. Release the *Ctrl* key.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If this icon is not currently visible then click on the leftmost  icon on the same toolbar and then on the *Select by Point* item on the drop down list.

#### Associated functions

To transfer the selected shapes to the temporary clipboard layer, use one of the following functions: [Cut](#), [Copy](#), [Copy Special](#), [Load Clipboard](#).

To remove the selected shapes from the layer, use the [Delete Shape](#) feature.

To cancel all previously made selections, use the [Deselect all](#) feature.

To invert the current selection, i.e. select all not selected shapes and deselect all selected shapes in the active layer, use the [Invert Selection](#) feature.

#### Similar functions

See [Localize](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).

#### Note

- All currently selected shapes are highlighted on the [Map area](#).
- Values (or averages, maximal and minimal numeric values) of attributes of the selected shape (or shapes) are displayed in the *Attributes* tab of the [Selected panel](#).

### 3.4.3 Select by Line

#### Description

Clicking on the *Select/Select by Line* menu item activates the *Select by Line* selection method for the [Map area](#). The *Localize* selection method is used to select a shape or multiple shapes contained in the currently active vector layer (the one highlighted in the [Legend panel](#)) that are in a predefined spatial relation with the user drawn lines. The spatial relation model can be selected from the [Select type](#) list.

#### To select a shape or multiple shapes using the *Select by Line* selection method

1. Activate (highlight) the vector layer on which the selection is to be performed. Do this by clicking on its name in the [Legend panel](#).
2. Choose a spatial relation model from the [Select type](#) list available under the *Select/Select type* menu item.
3. Click on the *Select/Select by Line* menu item.
4. Within the [Map area](#) click on a point appropriate to the selection model and location of the

- desired shapes - this fixes the starting vertex of the first segment of the line.
5. Draw the line by moving the mouse pointer in any direction. [OPTIONAL] A single click within the [Map area](#) fixes an intermediate vertex and starts drawing another segment of the line.
  6. To fix the final vertex of the line, double-click on any point within the [Map area](#).

#### To make a multiple selections using the *Select by Line* selection method

1. Activate (highlight) the vector layer on which the selection is to be performed. Do this by clicking on its name in the [Legend panel](#).
2. Choose a spatial relation model from the [Select type](#) list available under the *Select/Select type* menu item.
3. Click on the *Select/Select by Line* menu item.
4. Press and hold down the *Ctrl* key.
5. Within the [Map area](#) click on a point appropriate to the selection model and location of the desired shapes - this fixes the starting vertex of the first segment of the line.
6. Draw the line by moving the mouse pointer in any direction. [OPTIONAL] A single click within the [Map area](#) fixes an intermediate vertex and starts drawing another segment of the line.
7. To fix the final vertex of the line, double-click on any point within the [Map area](#).
8. Repeat the steps from 5 to 7 as many times as needed.
9. Release the *Ctrl* key.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If this icon is not currently visible then click on the leftmost  icon on the same toolbar and then on the *Select by Line* item on the drop down list.

#### Associated functions

To transfer the selected shapes to the temporary clipboard layer, use one of the following functions: [Cut](#), [Copy](#), [Copy Special](#), [Load Clipboard](#).

To remove the selected shapes from the layer, use the [Delete Shape](#) feature.

To cancel all previously made selections, use the [Deselect all](#) feature.

To invert the current selection, i.e. select all not selected shapes and deselect all selected shapes in the active layer, use the [Invert Selection](#) feature.

To remove the selection figure, use the [Clear Selection](#) feature.

#### Similar functions

See [Localize](#), [Select by Point](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).

#### Note

- All currently selected shapes are highlighted on the [Map area](#).
- Values (or averages, maximal and minimal numeric values) of attributes of the selected shape (or shapes) are displayed in the *Attributes* tab of the [Selected panel](#).

### 3.4.4 Select by Polygon

#### Description

Clicking on the *Select/Select by Polygon* menu item activates the *Select by Polygon* selection method for the [Map area](#). The *Localize* selection method is used to select a shape or multiple shapes contained in the currently active vector layer (the one highlighted in the [Legend panel](#)) that are in a predefined spatial relation with the user drawn polygons. The spatial relation model can be selected from the [Select type](#) list.

#### To select a shape or multiple shapes using the *Select by Polygon* selection method

1. Activate (highlight) the vector layer on which the selection is to be performed. Do this by clicking on its name in the [Legend panel](#).
2. Choose a spatial relation model from the [Select type](#) list available under the *Select/Select type* menu item.
3. Click on the *Select/Select by Polygon* menu item.
4. Within the [Map area](#) click on a point appropriate to the selection model and location of the

desired shapes - this fixes the starting vertex of the first face of the polygon.

5. Draw the face by moving the mouse pointer in any direction. [OPTIONAL] A single click within the [Map area](#) fixes an intermediate vertex and starts drawing another face of the polygon.
6. To fix the final vertex of the polygon double-click on any point within the [Map area](#). If the first and the last vertex do not equal then the *Editor* will complete the polygon by adding the face connecting this vertices.

#### To make a multiple selections using the *Select by Polygon* selection method

1. Activate (highlight) the vector layer on which the selection is to be performed. Do this by clicking on its name in the [Legend panel](#).
2. Choose a spatial relation model from the [Select type](#) list available under the *Select/Select type* menu item.
3. Click on the *Select/Select by Polygon* menu item.
4. Press and hold down the *Ctrl* key.
5. Within the [Map area](#) click on a point appropriate to the selection model and location of the desired shapes - this fixes the starting vertex of the first face of the polygon.
6. Draw the face by moving the mouse pointer in any direction. [OPTIONAL] A single click within the [Map area](#) fixes an intermediate vertex and starts drawing another face of the polygon.
7. To fix the final vertex of the polygon double-click on any point within the [Map area](#). If the first and the last vertex do not equal then the *Editor* will complete the polygon by adding the face connecting this vertices.
8. Repeat the steps from 5 to 7 as many times as needed.
9. Release the *Ctrl* key.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If this icon is not currently visible then click on the leftmost  icon on the same toolbar and then on the *Select by Polygon* item on the drop down list.

#### Associated functions

To transfer the selected shapes to the temporary clipboard layer, use one of the following functions: [Cut](#), [Copy](#), [Copy Special](#), [Load Clipboard](#).

To remove the selected shapes from the layer, use the [Delete Shape](#) feature.

To cancel all previously made selections, use the [Deselect all](#) feature.

To invert the current selection, i.e. select all not selected shapes and deselect all selected shapes in the active layer, use the [Invert Selection](#) feature.

To remove the selection figure, use the [Clear Selection](#) feature.

#### Similar functions

See [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).

#### Note

- All currently selected shapes are highlighted on the [Map area](#).
- Values (or averages, maximal and minimal numeric values) of attributes of the selected shape (or shapes) are displayed in the *Attributes* tab of the [Selected panel](#).

### 3.4.5 Select by Circle

#### Description

Clicking on the *Select/Select by Circle* menu item activates the *Select by Circle* selection method for the [Map area](#). The *Localize* selection method is used to select a shape or multiple shapes contained in the currently active vector layer (the one highlighted in the [Legend panel](#)) that are in a predefined spatial relation with the user drawn circles. The spatial relation model can be selected from the [Select type](#) list.

#### To select a shape or multiple shapes using the *Select by Circle* selection method

1. Activate (highlight) the vector layer on which the selection is to be performed. Do this by clicking on its name in the [Legend panel](#).
2. Choose a spatial relation model from the [Select type](#) list available under the *Select/Select type*

menu item.

3. Click on the *Select/Select by Circle* menu item.
4. Within the [Map area](#) click on a point appropriate to the selection model and location of the desired shapes - this fixes the center vertex of the circle.
5. Adjust the length of the radius by moving the mouse pointer in any direction.
6. Click again to finish drawing the circle.

#### To make a multiple selections using the *Select by Circle* selection method

1. Activate (highlight) the vector layer on which the selection is to be performed. Do this by clicking on its name in the [Legend panel](#).
2. Choose a spatial relation model from the [Select type](#) list available under the *Select/Select type* menu item.
3. Click on the *Select/Select by Circle* menu item.
4. Press and hold down the *Ctrl* key.
5. Within the [Map area](#) click on a point appropriate to the selection model and location of the desired shapes - this fixes the center vertex of the circle.
6. Adjust the length of the radius by moving the mouse pointer in any direction.
7. Click again to finish drawing the circle.
8. Repeat the steps from 5 to 7 as many times as needed.
9. Release the *Ctrl* key.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If this icon is not currently visible then click on the leftmost  icon on the same toolbar and then on the *Select by Circle* item on the drop down list.

#### Associated functions

To transfer the selected shapes to the temporary clipboard layer, use one of the following functions: [Cut](#), [Copy](#), [Copy Special](#), [Load Clipboard](#).

To remove the selected shapes from the layer, use the [Delete Shape](#) feature.

To cancel all previously made selections, use the [Deselect all](#) feature.

To invert the current selection, i.e. select all not selected shapes and deselect all selected shapes in the active layer, use the [Invert Selection](#) feature.

To remove the selection figure, use the [Clear Selection](#) feature.

#### Similar functions

See [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).

#### Note

- All currently selected shapes are highlighted on the [Map area](#).
- Values (or averages, maximal and minimal numeric values) of attributes of the selected shape (or shapes) are displayed in the *Attributes* tab of the [Selected panel](#).

### 3.4.6 Select by Rectangle

#### Description

Clicking on the *Select/Select by Rectangle* menu item activates the *Select by Rectangle* selection method for the [Map area](#). The *Localize* selection method is used to select a shape or multiple shapes contained in the currently active vector layer (the one highlighted in the [Legend panel](#)) that are in a predefined spatial relation with the user drawn rectangles. The spatial relation model can be selected from the [Select type](#) list.

#### To select a shape or multiple shapes using the *Select by Rectangle* selection method

1. Activate (highlight) the vector layer on which the selection is to be performed. Do this by clicking on its name in the [Legend panel](#).
2. Choose a spatial relation model from the [Select type](#) list available under the *Select/Select type* menu item.
3. Click on the *Select/Select by Rectangle* menu item.
4. Within the [Map area](#) click on a point appropriate to the selection model and location of the

- desired shapes - this fixes the starting vertex of the rectangle diagonal.
- Adjust the length of the diagonal by moving the mouse pointer in any direction.
  - Click again to finish drawing the rectangle.

#### To make a multiple selections using the **Select by Rectangle** selection method

- Activate (highlight) the vector layer on which the selection is to be performed. Do this by clicking on its name in the [Legend panel](#).
- Choose a spatial relation model from the [Select type](#) list available under the *Select/Select type* menu item.
- Click on the *Select/Select by Rectangle* menu item.
- Press and hold down the *Ctrl* key.
- Within the [Map area](#) click on a point appropriate to the selection model and location of the desired shapes - this fixes the starting vertex of the rectangle diagonal.
- Adjust the length of the diagonal by moving the mouse pointer in any direction.
- Click again to finish drawing the rectangle.
- Repeat the steps from 5 to 7 as many times as needed.
- Release the *Ctrl* key.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If this icon is not currently visible then click on the leftmost  icon on the same toolbar and then on the *Select by Rectangle* item on the drop down list.

#### Associated functions

To transfer the selected shapes to the temporary clipboard layer, use one of the following functions: [Cut](#), [Copy](#), [Copy Special](#), [Load Clipboard](#).

To remove the selected shapes from the layer, use the [Delete Shape](#) feature.

To cancel all previously made selections, use the [Deselect all](#) feature.

To invert the current selection, i.e. select all not selected shapes and deselect all selected shapes in the active layer, use the [Invert Selection](#) feature.

To remove the selection figure, use the [Clear Selection](#) feature.

#### Similar functions

See [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).

#### Note

- All currently selected shapes are highlighted on the [Map area](#).
- Values (or averages, maximal and minimal numeric values) of attributes of the selected shape (or shapes) are displayed in the *Attributes* tab of the [Selected panel](#).

### 3.4.7 Select by Clipboard

#### Description

Clicking on the *Select/Select by Clipboard* menu item provides a selection method using the temporary clipboard layer. The *Localize* selection method is used to select a shape or multiple shapes contained in the currently active vector layer (the one highlighted in the [Legend panel](#)) that are in a predefined spatial relation with the geometric data stored in the temporary clipboard layer. The spatial relation model can be selected from the [Select type](#) list.

#### To select a shape or multiple shapes using the **Select by Clipboard** selection method

- Prepare the shapes that will be used as selection reference and put them in the temporary clipboard layer using one of the following functions: [Cut](#), [Copy](#), [Copy Special](#). The selection geometry can be also loaded from a vector layer file directly in to the temporary clipboard layer using the [Load Clipboard](#) feature.
- Activate (highlight) the vector layer on which the selection is to be performed. Do this by clicking on its name in the [Legend panel](#).
- Choose a spatial relation model from the [Select type](#) list available under the *Select/Select type* menu item.
- Click on the *Select/Select by Clipboard* menu item.

### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#) and then on the *Select by Clipboard* item on the appearing list.

### Associated functions

To transfer the selected shapes to the temporary clipboard layer, use one of the following functions: [Cut](#), [Copy](#), [Copy Special](#), [Load Clipboard](#).

To remove the selected shapes from the layer, use the [Delete Shape](#) feature.

To cancel all previously made selections, use the [Deselect all](#) feature.

To invert the current selection, i.e. select all not selected shapes and deselect all selected shapes in the active layer, use the [Invert Selection](#) feature.

To remove the selection figure, use the [Clear Selection](#) feature.

### Similar functions

See [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Query](#), [Select All](#).

### Note

- The temporary clipboard layer is an automatically created virtual object (stored in memory) and is not file type specific.
- All currently selected shapes are highlighted on the [Map area](#).
- Values (or averages, maximal and minimal numeric values) of attributes of the selected shape (or shapes) are displayed in the *Attributes* tab of the [Selected panel](#).

## 3.4.8 Clear Selection

### Description

Clicking on the *Select/Select by Clipboard* menu item removes a selection figure created by any of the following selection methods: [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#).

To remove a selection figure, click on the *Select/Select by Clipboard* menu item.

### Equivalent actions

The same function can be initiated by clicking on the leftmost  icon on the [Standard toolbar](#) and then on the *Clear Selection* item on the drop down list or on the *Clear Selection* item in the [Map area](#) context menu.

### Note

- All currently selected shapes are highlighted on the [Map area](#).
- The *Clear Selection* operation will not affect the selected shapes or their selection status.

## 3.4.9 Select type

### Description

Clicking on the *Select/Select type* menu item displays the list of predefined spatial relation models. Switching to a different spatial relation model affects the behaviour of the following selection methods: [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#). The spatial relation models define the geometric relationship on which the selection is performed.

### To switch to a different spatial relation model

1. Click on the *Select/Select type* menu item - a list of available spatial relation models will appear.
2. Within that list click on a name of the desired model.

### Elements of the shapes

The following table explains how the elements of the shapes are classified.

Object \ Group	Interior	Boundary	Exterior
Point	Point itself	Nothing	Everything except interior
Multipoint	Points themselves	Nothing	Everything except interior
Line	Line itself except the starting and ending points	Starting and ending points of the line	Everything except interior and boundary
Polygon	Area of the polygon	Outline of the polygon	Everything except interior and boundary

#### Equivalent actions

The same function can be initiated by clicking on the *Select type* item in the [Map area](#) context menu.

#### 3.4.9.1 Equality

##### Description

Clicking on the *Select/Select type/Equality* menu item activates the *Equality* spatial relation model, i.e. the selection takes place if the selection figure and the shape to be selected match exactly.

##### Relation table

A \ B	Interior	Boundary	Exterior
Interior	T	*	F
Boundary	*	*	*
Exterior	F	F	*

##### Table legend

- A - selection figure
- B - shape to be selected
- T
- 0 - true, intersection exists and is 0-dimensional (point)
- 1 - true, intersection exists and is 1-dimensional (line)
- 2 - true, intersection exists and is 2-dimensional (area)
- F
- \*

#### Equivalent actions

The same function can be initiated by clicking on the *Select type* item in the [Map area](#) context menu and then on the *Equality* item on the *Select type* list.

#### Associated functions

For general information about spatial relation models and the list of functions affected by activating this option refer to the [Select type](#) help section.

#### 3.4.9.2 Disjoint

##### Description

Clicking on the *Select/Select type/Disjoint* menu item activates the *Disjoint* spatial relation model, i.e. the selection takes place if there is no intersection of any kind between the selection figure and the shape to be selected.

##### Relation table

A \ B	Interior	Boundary	Exterior
Interior	F	F	*
Boundary	F	F	*

Exterior	*	*	*
----------	---	---	---

**Table legend**

- A** - selection figure
- B** - shape to be selected
- T** - true, intersection exists
- 0** - true, intersection exists and is 0-dimensional (point)
- 1** - true, intersection exists and is 1-dimensional (line)
- 2** - true, intersection exists and is 2-dimensional (area)
- F** - false, intersection does not exist
- \*** - irrelevant

**Equivalent actions**

The same function can be initiated by clicking on the *Select type* item in the [Map area](#) context menu and then on the *Disjoint* item on the *Select type* list.

**Associated functions**

For general information about spatial relation models and the list of functions affected by activating this option refer to the [Select type](#) help section.

**3.4.9.3 Intersect (interior-interior)****Description**

Clicking on the *Select/Select type/Intersect (interior-interior)* menu item activates the *Intersect (interior-interior)* spatial relation model, i.e. the selection takes place if there exists an intersection between the interior of the selection figure and the interior of the shape to be selected.

**Relation table**

A \ B	Interior	Boundary	Exterior
Interior	T	*	*
Boundary	*	*	*
Exterior	*	*	*

**Table legend**

- A** - selection figure
- B** - shape to be selected
- T** - true, intersection exists
- 0** - true, intersection exists and is 0-dimensional (point)
- 1** - true, intersection exists and is 1-dimensional (line)
- 2** - true, intersection exists and is 2-dimensional (area)
- F** - false, intersection does not exist
- \*** - irrelevant

**Equivalent actions**

The same function can be initiated by clicking on the *Select type* item in the [Map area](#) context menu and then on the *Intersect (interior-interior)* item on the *Select type* list.

**Associated functions**

For general information about spatial relation models and the list of functions affected by activating this option refer to the [Select type](#) help section.

**Note**

- This is the default spatial relation model.

### 3.4.9.4 Intersect (interior-boundary)

#### Description

Clicking on the *Select/Select type/Intersect (interior-boundary)* menu item activates the *Intersect (interior-boundary)* spatial relation model, i.e. the selection takes place if there exists an intersection between the interior of the selection figure and the boundary of the shape to be selected.

#### Relation table

A \ B	Interior	Boundary	Exterior
Interior	*	T	*
Boundary	*	*	*
Exterior	*	*	*

#### Table legend

- A - selection figure
- B - shape to be selected
- T - true, intersection exists
- 0 - true, intersection exists and is 0-dimensional (point)
- 1 - true, intersection exists and is 1-dimensional (line)
- 2 - true, intersection exists and is 2-dimensional (area)
- F - false, intersection does not exist
- \* - irrelevant

#### Equivalent actions

The same function can be initiated by clicking on the *Select type* item in the [Map area](#) context menu and then on the *Intersect (interior-boundary)* item on the *Select type* list.

#### Associated functions

For general information about spatial relation models and the list of functions affected by activating this option refer to the [Select type](#) help section.

### 3.4.9.5 Intersect (boundary-interior)

#### Description

Clicking on the *Select/Select type/Intersect (boundary-interior)* menu item activates the *Intersect (boundary-interior)* spatial relation model, i.e. the selection takes place if there exists an intersection between the boundary of the selection figure and the interior of the shape to be selected.

#### Relation table

A \ B	Interior	Boundary	Exterior
Interior	*	*	*
Boundary	T	*	*
Exterior	*	*	*

#### Table legend

- A - selection figure
- B - shape to be selected
- T - true, intersection exists
- 0 - true, intersection exists and is 0-dimensional (point)
- 1 - true, intersection exists and is 1-dimensional (line)
- 2 - true, intersection exists and is 2-dimensional (area)
- F - false, intersection does not exist
- \* - irrelevant

#### Equivalent actions

The same function can be initiated by clicking on the *Select type* item in the [Map area](#) context

menu and then on the *Intersect (boundary-interior)* item on the *Select type* list.

#### Associated functions

For general information about spatial relation models and the list of functions affected by activating this option refer to the [Select type](#) help section.

#### 3.4.9.6 Intersect (boundary-boundary)

##### Description

Clicking on the *Select/Select type/Intersect (boundary-boundary)* menu item activates the *Intersect (boundary-boundary)* spatial relation model, i.e. the selection takes place if there exists an intersection between the boundary of the selection figure and the boundary of the shape to be selected.

##### Relation table

A \ B	Interior	Boundary	Exterior
Interior	*	*	*
Boundary	*	T	*
Exterior	*	*	*

##### Table legend

- A - selection figure
- B - shape to be selected
- T - true, intersection exists
- 0 - true, intersection exists and is 0-dimensional (point)
- 1 - true, intersection exists and is 1-dimensional (line)
- 2 - true, intersection exists and is 2-dimensional (area)
- F - false, intersection does not exist
- \* - irrelevant

##### Equivalent actions

The same function can be initiated by clicking on the *Select type* item in the [Map area](#) context menu and then on the *Intersect (boundary-boundary)* item on the *Select type* list.

#### Associated functions

For general information about spatial relation models and the list of functions affected by activating this option refer to the [Select type](#) help section.

#### 3.4.9.7 Touch (boundary-interior)

##### Description

Clicking on the *Select/Select type/Touch (boundary-interior)* menu item activates the *Touch (boundary-interior)* spatial relation model, i.e. the selection takes place if there exists an intersection between the boundary of the selection figure and the interior of the shape to be selected and there is no intersection between the interior of the selection figure and the interior of the shape to be selected.

##### Relation table

A \ B	Interior	Boundary	Exterior
Interior	F	*	*
Boundary	T	*	*
Exterior	*	*	*

##### Table legend

- A - selection figure
- B - shape to be selected
- T - true, intersection exists
- 0 - true, intersection exists and is 0-dimensional (point)

- 1** - true, intersection exists and is 1-dimensional (line)
- 2** - true, intersection exists and is 2-dimensional (area)
- F** - false, intersection does not exist
- \* - irrelevant

#### Equivalent actions

The same function can be initiated by clicking on the *Select type* item in the [Map area](#) context menu and then on the *Touch (boundary-interior)* item on the *Select type* list.

#### Associated functions

For general information about spatial relation models and the list of functions affected by activating this option refer to the [Select type](#) help section.

### 3.4.9.8 Touch (boundary-boundary)

#### Description

Clicking on the *Select/Select type/Touch (boundary-boundary)* menu item activates the *Touch (boundary-boundary)* spatial relation model, i.e. the selection takes place if there exists an intersection between the boundary of the selection figure and the boundary of the shape to be selected and there is no intersection between the interior of the selection figure and the interior of the shape to be selected.

#### Relation table

A \ B	Interior	Boundary	Exterior
Interior	F	*	*
Boundary	*	T	*
Exterior	*	*	*

#### Table legend

- A** - selection figure
- B** - shape to be selected
- T** - true, intersection exists
- 0** - true, intersection exists and is 0-dimensional (point)
- 1** - true, intersection exists and is 1-dimensional (line)
- 2** - true, intersection exists and is 2-dimensional (area)
- F** - false, intersection does not exist
- \* - irrelevant

#### Equivalent actions

The same function can be initiated by clicking on the *Select type* item in the [Map area](#) context menu and then on the *Touch (boundary-interior)* item on the *Select type* list.

#### Associated functions

For general information about spatial relation models and the list of functions affected by activating this option refer to the [Select type](#) help section.

### 3.4.9.9 Cross

#### Description

Clicking on the *Select/Select type/Cross* menu item activates the *Cross* spatial relation model, i.e. the selection takes place if there exists an intersection between the interior of the selection figure and the interior of the shape to be selected and an intersection between the interior of the selection figure and the exterior of the shape to be selected.

#### Relation table

A \ B	Interior	Boundary	Exterior
Interior	T	*	T
Boundary	*	*	*

Exterior	*	*	*
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**Table legend**

- A** - selection figure
- B** - shape to be selected
- T** - true, intersection exists
- 0** - true, intersection exists and is 0-dimensional (point)
- 1** - true, intersection exists and is 1-dimensional (line)
- 2** - true, intersection exists and is 2-dimensional (area)
- F** - false, intersection does not exist
- \*** - irrelevant

**Equivalent actions**

The same function can be initiated by clicking on the *Select type* item in the [Map area](#) context menu and then on the *Cross* item on the *Select type* list.

**Associated functions**

For general information about spatial relation models and the list of functions affected by activating this option refer to the [Select type](#) help section.

**3.4.9.10 Cross (lines only)****Description**

Clicking on the *Select/Select type/Cross (lines only)* menu item activates the *Cross (lines only)* spatial relation model. This selection model can be used only if the currently active selection method is [Select by Line](#). With the active *Cross (lines only)* selection model the selection takes place if there exists a 0-dimensional (point) intersection between the interior of the selection line and the interior of the line to be selected.

**Relation table**

A \ B	Interior	Boundary	Exterior
Interior	<b>0</b>	*	*
Boundary	*	*	*
Exterior	*	*	*

**Table legend**

- A** - selection figure
- B** - shape to be selected
- T** - true, intersection exists
- 0** - true, intersection exists and is 0-dimensional (point)
- 1** - true, intersection exists and is 1-dimensional (line)
- 2** - true, intersection exists and is 2-dimensional (area)
- F** - false, intersection does not exist
- \*** - irrelevant

**Equivalent actions**

The same function can be initiated by clicking on the *Select type* item in the [Map area](#) context menu and then on the *Cross (lines only)* item on the *Select type* list.

**Associated functions**

For general information about spatial relation models refer to the [Select type](#) help section.

**3.4.9.11 Within****Description**

Clicking on the *Select/Select type/Within* menu item activates the *Within* spatial relation model, i.e. the selection takes place if the selection figure is entirely contained in the shape to be selected.

**Relation table**

A \ B	Interior	Boundary	Exterior
Interior	T	*	F
Boundary	*	*	F
Exterior	*	*	*

**Table legend**

- A - selection figure
- B - shape to be selected
- T
- 0 - true, intersection exists and is 0-dimensional (point)
- 1 - true, intersection exists and is 1-dimensional (line)
- 2 - true, intersection exists and is 2-dimensional (area)
- F
- \* - irrelevant

**Equivalent actions**

The same function can be initiated by clicking on the *Select type* item in the [Map area](#) context menu and then on the *Within* item on the *Select type* list.

**Associated functions**

For general information about spatial relation models and the list of functions affected by activating this option refer to the [Select type](#) help section.

**3.4.9.12 Contains****Description**

Clicking on the *Select/Select type/Contains* menu item activates the *Contains* spatial relation model, i.e. the selection takes place if the selection figure contains the entire shape to be selected.

**Relation table**

A \ B	Interior	Boundary	Exterior
Interior	T	*	*
Boundary	*	*	*
Exterior	F	F	*

**Table legend**

- A - selection figure
- B - shape to be selected
- T
- 0 - true, intersection exists and is 0-dimensional (point)
- 1 - true, intersection exists and is 1-dimensional (line)
- 2 - true, intersection exists and is 2-dimensional (area)
- F
- \* - irrelevant

**Equivalent actions**

The same function can be initiated by clicking on the *Select type* item in the [Map area](#) context menu and then on the *Contains* item on the *Select type* list.

**Associated functions**

For general information about spatial relation models and the list of functions affected by activating this option refer to the [Select type](#) help section.

### 3.4.9.13 Overlap

#### Description

Clicking on the *Select/Select type/Overlap* menu item activates the *Overlap* spatial relation model, i.e. the selection takes place if there exists an intersection between the selection figure and the shape to be selected but the selection figure and the shape to be selected cannot be equal or contain each other.

#### Relation table

A \ B	Interior	Boundary	Exterior
Interior	T	*	T
Boundary	*	*	*
Exterior	T	*	*

#### Table legend

- A - selection figure
- B - shape to be selected
- T - true, intersection exists
- 0 - true, intersection exists and is 0-dimensional (point)
- 1 - true, intersection exists and is 1-dimensional (line)
- 2 - true, intersection exists and is 2-dimensional (area)
- F - false, intersection does not exist
- \* - irrelevant

#### Equivalent actions

The same function can be initiated by clicking on the *Select type* item in the [Map area](#) context menu and then on the *Overlap* item on the *Select type* list.

#### Associated functions

For general information about spatial relation models and the list of functions affected by activating this option refer to the [Select type](#) help section.

### 3.4.9.14 Overlap (lines only)

#### Description

Clicking on the *Select/Select type/Overlap (lines only)* menu item activates the *Overlap (lines only)* spatial relation model. This selection model can be used only if the currently active selection method is [Select by Line](#). With the active *Overlap (lines only)* selection model the selection takes place if there exists an 1-dimensional (line) intersection between the selection line and the line to be selected but the selection line and the line to be selected cannot be equal or contain each other.

#### Relation table

A \ B	Interior	Boundary	Exterior
Interior	1	*	T
Boundary	*	*	*
Exterior	T	*	*

#### Table legend

- A - selection figure
- B - shape to be selected
- T - true, intersection exists
- 0 - true, intersection exists and is 0-dimensional (point)
- 1 - true, intersection exists and is 1-dimensional (line)
- 2 - true, intersection exists and is 2-dimensional (area)
- F - false, intersection does not exist
- \* - irrelevant

### Equivalent actions

The same function can be initiated by clicking on the *Select type* item in the [Map area](#) context menu and then on the *Overlap (lines only)* item on the *Select type* list.

### Associated functions

For general information about spatial relation models refer to the [Select type](#) help section.

## 3.4.10 Select by Query

### Description

Clicking on the *Select/Select by Query* menu item provides for selection of shapes based on the SQL type query performed on their attributes. A shape is said to satisfy the query if for the shape the logical value of the query is *True*.

### To perform a selection of shapes based on their attributes

1. Activate (highlight) the vector layer on which the selection is to be performed. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Select/Select by Query* menu item - this invokes the *Select by Query* dialog box.
3. Within the *Select by Query* dialog box construct the SQL type query - see **Constructing SQL type query** instructions below.
4. Choose the selection result form the drop down list beside the *Execute* button - see **Selection results** below.
5. Click on the *Execute* button - all shapes satisfying the current query will be selected.
6. [OPTIONAL] To perform a subquery or a different query repeat the steps from 2 to 4.
7. Click on the *Cancel* button.

### Selection results

- *Replace Selection* - a new selection is performed regardless of what is currently selected,
- *Add to Selection* - the recent selection is preserved and the shapes that satisfy the current query are selected,
- *Subtract from Selection* - from the set of recently selected shapes the shapes that do not satisfy the current query remain selected.
- *Narrow Selection* - from the set of recently selected shapes the shapes that satisfy the current query remain selected.

Select by Query dialog box.

### Constructing SQL type query

The SQL type query consists of comparison statements connected with logical operators in the following way:

*[comparison statement] [logical operator] [comparison statement] ... [logical operator] [comparison statement].*

Additionally, round brackets can be used to group/prioritize a sequence within the query. The left bracket '(' must always appear before a comparison statement and the right bracket ')' after a comparison statement. The logical operators *AND* and *OR* must appear before a comparison statement/left bracket or after a comparison statement/right bracket and not at the beginning or ending of the query. The negation operator *NOT* must appear after a logical operator/left bracket or at the beginning of the query. A comparison statement consists of a primary attribute, relation operator and value/secondary attribute in the following way:

*[primary attribute] [relation] [value] or [primary attribute] [relation] [secondary attribute].*

An attribute which name contains a space must be written inside the square brackets.

#### **To add a comparison statement to the query**

1. Within the *Comparison statement* box choose the primary attribute from the left *Attribute* drop down list.
2. To compare the primary attribute with a value click on the *Value* radio button in the same box. To compare the primary attribute with another attribute click on the *Attribute* radio button in the same box.
3. (A) If you have chosen *Value* in the previous step then a tool appropriate to the primary attribute type will appear below the *Value* radio button. If the primary attribute is of: *String*, *Number* or *Float* type then a text box will appear, *Boolean* type then a drop down list will appear, *Date* type then a date picker will appear. (B) If you have chosen *Attribute* in the previous step then a drop down list will appear below the *Attribute* radio button. The drop down list will contain all the attributes of the same type as the primary attribute except the primary attribute itself.
4. (A) Specify the value in the tool. (B) Pick the secondary attribute from the drop down list.
5. Choose a relation operator from the *Relation* drop down list.
6. Click on the *Add* button in the same box.

#### **To add a logical operator to the query**

1. Within the *Logical operator* box choose logical/negation operator from the drop down list.
2. Click on the *Add* button in the same box.

#### **To put brackets around a desired part of the query**

1. Within the query text box move the mouse pointer to the beginning/ending of the desired part.
2. Press and hold the left mouse button.
3. Move the mouse pointer to the ending/beginning of the desired part.
4. Release the left mouse button.
5. Click on the ( ) button.

**To blank the query**, click on the *Clear* button.

#### **Associated functions**

To review the attributes of a vector layer, use the [Show attributes table](#) feature.

#### **Similar functions**

See [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select All](#).

#### **Note**

- The default logical value of the *SQL* type query, i.e. the logical value of the empty query, is *True*.
- A summary of the most recent selection operation is displayed below the query text box.
- When the primary attribute is of *String* type and specifying a value for the *LIKE* comparison the '\_' character can be used as a single unspecified character and the '%' character as a sequence of unspecified characters.

### 3.4.11 Select All

#### Description

Clicking on the *Select/Select All* menu item selects all shapes in the active vector layer, i.e. the whole layer.

#### To select all shapes in a vector layer

1. Activate (highlight) the vector layer on which the selection is to be performed. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Select/Select All* menu item.

#### Associated functions

To transfer the selected shapes to the temporary clipboard layer, use one of the following functions: [Cut](#), [Copy](#), [Copy Special](#), [Load Clipboard](#).

To remove the selected shapes from the layer, use the [Delete Shape](#) feature.

To cancel all previously made selections, use the [Deselect all](#) feature.

#### Similar functions

See [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#).

#### Note

- All currently selected shapes are highlighted on the [Map area](#).
- Values (or averages, maximal and minimal numeric values) of attributes of the selected shape (or shapes) are displayed in the *Attributes* tab of the [Selected panel](#).

### 3.4.12 Invert Selection

#### Description

Clicking on the *Select/Invert Selection* menu item inverts the current selection, i.e. selects all not selected shapes and deselects all selected shapes in the currently active vector layer.

**To invert the current selection**, click on the *Select/Invert Selection* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the *Invert Selection item* in the [Map area](#) context menu.

#### Associated functions

To transfer the selected shapes to the temporary clipboard layer, use one of the following functions: [Cut](#), [Copy](#), [Copy Special](#), [Load Clipboard](#).

To remove the selected shapes from the layer, use the [Delete Shape](#) feature.

To cancel all previously made selections, use the [Deselect all](#) feature.

#### Note

- All currently selected shapes are highlighted on the [Map area](#).
- Values (or averages, maximal and minimal numeric values) of attributes of the selected shape (or shapes) are displayed in the *Attributes* tab of the [Selected panel](#).

### 3.4.13 Deselect all

#### Description

Clicking on the *Select/Deselect all* menu item cancels all previously made selections.

**To cancel all previously made selections**, click on the *Select/Deselect all* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the *Deselect all* item in the [Map area](#) context menu.

**Key shortcut**

This function can be initiated by pressing the *Ctrl+D* key combination.

**Note**

- All currently selected shapes are highlighted on the [Map area](#).
- Changing the active layer cancels all previously made selections.

### 3.4.14 Show Selected

**Description**

Clicking on the *Select/Show Selected* menu item makes the [Map area](#) display only the selected shapes. The visibility of layers other than the active vector layer is not affected in any way.

**To make the *Map area* display only the desired shapes**

1. Activate (highlight) the layer containing the desired shapes. Do this by clicking on its name in the [Legend panel](#).
2. Use any of the following selection methods to select the shapes: [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).
3. Click on the *Select/Show Selected* menu item.

**Equivalent actions**

The same function can be initiated by clicking on the *Show Selected* item in the [Map area](#) context menu.

**Associated functions**

See [Hide Selected](#), [Show all](#), [Hide all](#).

**Note**

- The *Show Selected* feature takes into account the current selection and not the successive ones.

### 3.4.15 Hide Selected

**Description**

Clicking on the *Select/Hide Selected* menu entry makes the [Map area](#) hide the selected shapes. The visibility of layers other than the active vector layer is not affected in any way.

**To make the *Map area* hide the desired shapes**

1. Activate (highlight) the layer containing the desired shapes. Do this by clicking on its name in the [Legend panel](#).
2. Use any of the following selection methods to select the shapes: [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).
3. Click on the *Select/Hide Selected* menu item.

**Equivalent actions**

The same function can be initiated by clicking on the *Hide Selected* item in the [Map area](#) context menu.

**Associated functions**

See [Show Selected](#), [Show all](#), [Hide all](#).

**Note**

- The *Hide Selected* feature takes in to account the current selection and not the successive ones.

### 3.4.16 Show all

#### Description

Clicking on the *Select/Show all* menu item makes the [Map area](#) display all shapes. The visibility of layers other than the active vector layer is not affected in any way.

**To make the *Map area* display all shapes from the currently active vector layer**, click on the *Select/Show all* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the *Show all* item in the [Map area](#) context menu.

#### Associated functions

See [Show Selected](#), [Hide Selected](#), [Hide all](#).

### 3.4.17 Hide all

#### Description

Clicking on the *Select/Hide all* menu item makes the [Map area](#) hide all shapes. The visibility of layers other than the active vector layer is not affected in any way.

**To make the *Map area* hide all shapes from the currently active vector layer**, click on the *Select/Hide all* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the *Hide all* item in the [Map area](#) context menu.

#### Associated functions

See [Show Selected](#), [Hide Selected](#), [Show all](#).

### 3.4.18 Locate record

#### Description

Clicking on the *Select/Locate record* menu item locates the record of a recently selected shape on the attributes list of the [Data panel](#) (if opened). This feature can be used only if the shapes are being selected with the [Localize](#) or [Select by Point](#) selecting features.

#### To locate the record of a desired shape on the attributes list of the *Data panel*

1. Activate (highlight) the vector layer containing the shape. Do this by clicking on its name in the [Legend panel](#).
2. Make a selection of the shape using the [Localize](#) or [Select by Point](#) selecting feature.
3. Expand the context menu by clicking with the right mouse button on the selected layer's name in the [Legend panel](#) and click on the *Open layer data* item - the [Data panel](#) will appear at the bottom of the *Editor* window.
4. Click on the *Select/Locate record* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the *Locate record* item in the [Map area](#) context menu.

## 3.5 Layer

#### Description

The *Layer* menu group contains options used to operate on whole layers and layer files.

### 3.5.1 New

#### Description

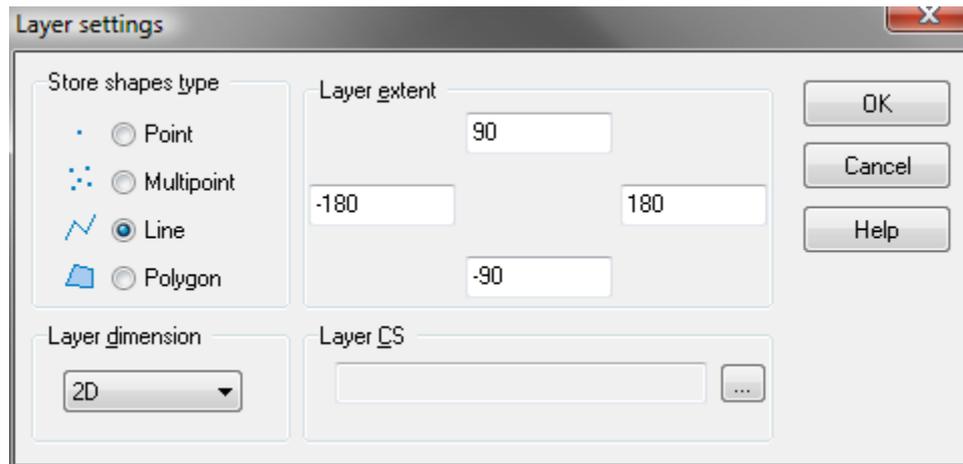
Clicking on the *Layer/New* menu item provides for creation of a new vector layer along with its file. A newly created layer is automatically added to the current project and displayed on the list of currently open layers on the [Legend panel](#). The most common reason to create a new vector layer is to convert an existing one in to a different layer format.

#### To create a new vector layer

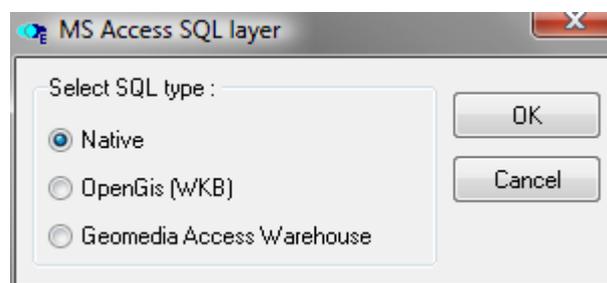
1. Click on the *Layer/New* menu item - this invokes the *Create New Layer* dialog box.
2. Within the *Create New Layer* dialog box select the appropriate drive from the *Save in* list.
3. Locate the folder where you would like to store the newly created layer file. A new folder can be created by clicking on the  icon at the top-right corner of the *Create New Layer* dialog box, entering its name and pressing the *Enter* key.
4. Enter a name for the layer file in the *File name* list.
5. Choose the file format from the *Save as type* list.
6. Click on the *Save* button - this invokes the *Layer settings* dialog box. [OPTIONAL] For SQL database layer formats, such as the *TatukGIS SQL Layer (TTKLS)*, the *MS Access SQL Layer* dialog box appears before the *Layer settings* dialog box. Within the *MS Access SQL Layer* dialog box choose the layer type from the *Select SQL type* list by clicking on the appropriate option. When finished click on the *OK* button - this invokes the *Layer settings* dialog box.
7. Within the *Layer settings* dialog box set the extent of the newly created layer in the *Layer extent* box.
8. Set the layer coordinate system - click on the [...] button in the *Layer CS* box and follow any of the procedures described in the [Coordinate systems](#) help topic starting from the step 2.
9. Choose the layer dimensionality from the *Layer dimension* list: *2D* - vertices are described by two parameters, that is, their planar coordinates, *Z* - vertices are described by the planar coordinates and altitude, *M* - vertices are described by the planar coordinates and a parameter of any meaning (e.g. height), *ZM* - vertices are described by the planar coordinates, altitude and a parameter of any meaning.
10. [OPTIONAL] If the chosen format of the newly created layer is the *ArcView Shape Files (SHP)*, select one option from the *Store shapes type* list. The *SHP* layer format can store only one type of shapes.
11. Click on the *OK* button.

#### To convert a vector layer file in to a different format

1. Complete the procedure of creating a new vector layer described above.
2. Ensure that the newly created layer is active - do it by clicking on its name in the [Legend panel](#).
3. Click on the *Layer/Import* menu item - this invokes the *Open* dialog box.
4. Within the *Open* dialog box select the appropriate drive from the *Look in* list.
5. Locate the layer file by entering the directory that contains this file.
6. Double-click on the layer file name.
7. If the importing procedure encounters no problem a message box will appear informing you about the success. Confirm it by clicking on the *OK* button.
8. Click on the *File/Save* menu item - now the newly created layer contains all the data from the imported layer file.



Layer settings dialog box.



MS Access SQL Layer dialog box.

#### Note

- One of the available vector layer file formats for the creation of a new layer is *TatukGIS SQL Layer (\*.ttkls)*, which means that the new layer will be a *SQL database* file. By default the layer is saved to the *Microsoft Access SQL database* file with the option to choose between the following three formats: *OpenGIS SQL Simple Features for SQL Implementation*, *The TatukGIS (native) binary SQL vector layers method*, *Geomedia Access Warehouse* or *Geomedia SQL Server*. Such file can be converted for the usage with different *SQL database* such as *MSSQL*, *Oracle*, *Interbase*, *DB2*, *MySQL*, *PostgreSQL*, etc. For more information visit *FAQ* section on the *TatukGIS* web page (<http://www.tatukgis.com/>) and search for the following *FAQ* number: *Q10765*.
- If creating a new vector layer as the *SQL database* layer file use a file name without spaces or any special characters. This will ensure that the file is compatible with various *SQL database* products.

### 3.5.2 Add

#### Description

Clicking on the *Layer/Add* menu item provides for opening an existing layer file. The newly opened layer is automatically added to the current project and displayed on the list of currently open layers on the *Legend panel*. The geometric data contained in the layer is rendered on the *Map area*. This operation does not affect other open layers in any way.

#### To open a layer file and add it to the current project

1. Click on the *Layer/Add* menu item - this invokes the *Open* dialog box.
2. Within the *Open* dialog box select the appropriate drive from the *Look in* list.
3. Locate the layer file by entering the directory that contains this file.
4. Double-click on the layer file name.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the *Standard toolbar* or on the *Add* item in the *Legend panel* context menu.

**Similar functions**

To add a layer file stored on a remote server, use the [Add from server](#) feature.

To add a layer stored in a database, use the [Add SQL layer](#) feature.

**Key shortcut**

This function can be initiated by pressing the *Ctrl+Ins* key combination.

**Note**

- By default the *Open* dialog box displays the files of all supported formats - *Common files (...)* selection in the *Files of type* list in the *Open* dialog box. This can be altered by selecting a different filter in the same list.
- The *Add* feature can be also used to import point data with attributes that is stored in the *Comma Separated Values (CSV)* point layer file format. The CSV file can be opened as a CSV layer type. Because some programs (such as *Microsoft Excel*) export CSV files with semicolon as value separator (instead of comma) and with comma as a digit separator (instead of dot) for numeric values, there can be some format deviations concerning CSV files. The *Editor* is designed to auto detect the arrangement of a CSV file and import it in a correct way. However, when saving to a CSV file the *Editor* always uses comma as value separator and dot as a digit separator. It also finds out if the values are integers, floating point numbers, or character strings. Others, such as dates, are treated as character strings.

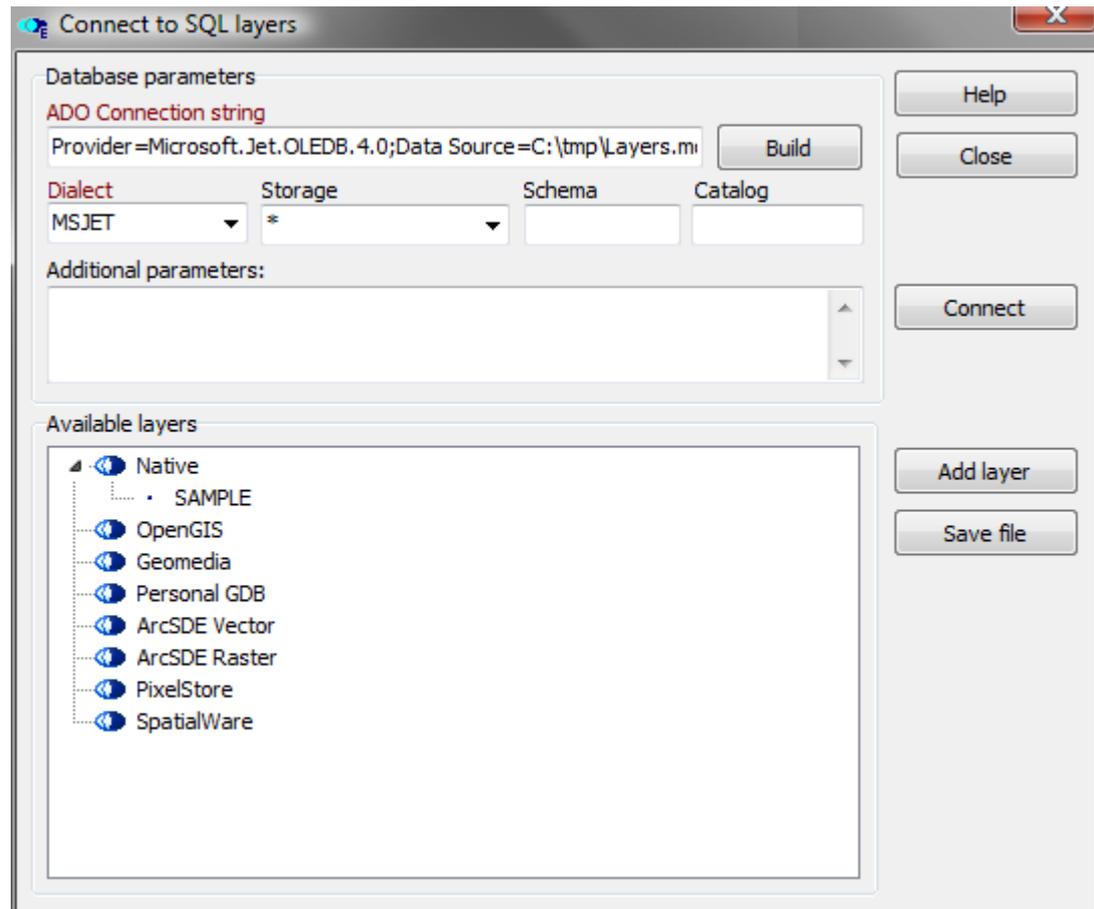
### 3.5.3 Add SQL layer

**Description**

Clicking on the *Layer/Add SQL layer* menu item invokes the *Connect to SQL layers* dialog box.

The *Connect to SQL layers* dialog box provides for opening a layer stored entirely in a database.

The newly opened layer is automatically added to the current project and displayed on the list of currently open layers on the [Legend panel](#). The geometric data contained in the layer is rendered on the [Map area](#). This operation does not affect other open layers in any way.



Connect to SQL layers dialog box.

#### To add a layer through a database connection

1. Click on the *Layer/Add SQL layer* menu item - this invokes the *Connect to SQL layers* dialog box.
2. Fill the required connection fields: *ADO Connection string* and *Dialect*. For the *ADO Connection string* an automated method can be used instead of simply typing the connection string. To use it click on the *Build...* button and the *frmJoinDatabase.ADOConnection ConnectionString* dialog box will appear.
3. Within the *frmJoinDatabase.ADOConnection ConnectionString* dialog box select one option on the *Source of Connection* list: if you would like to use connection parameters stored in a file, choose the *Use Data Link File* option and click on the *Browse...* button. If you would like to build a connection string from scratch, choose the *Use Connection String* option and click on the *Build...* button.
4. (A) If you have chosen the *Use Data Link File* option in the previous step, the *Select Data Link File* dialog box will appear. Within in select the appropriate drive from the *Look in* list, locate the data link file by entering the directory that contains this file, and double-click on the file name.  
(B) If you have chosen the *Use Connection String* option in the previous step, the *Data Link Properties* dialog box will appear. Within the four tabs of the *Data Link Properties* dialog box the user finds a number of options used to define the *ODBC* link parameters. Set up a connection with the *ODBC* interface appropriately to your computer environment configuration. When finished, click on the *OK* button.
5. When the step 4 is finished (regardless whether (A) or (B) was performed), the *frmJoinDatabase.ADOConnection ConnectionString* dialog box will appear again. Click on the *OK* button within this dialog box - this brings back the *Connect to SQL layers* dialog box.
6. [OPTIONAL] If required fill the additional connection fields: *Storage*, *Schema*, *Catalog* and *Additional parameters*.
7. Within the *Connect to SQL layers* dialog box click on the *Connect* button - if the connection parameters loaded from the file are correct the connection is established and the list of available layers is displayed within the *Available layers* box.

8. Select the desired layer in the the *Available layers* box.
9. Click on the *Add layer* button.
10. [OPTIONAL] To save the connection parameters of the selected layer for future use, click on the *Save file* button. Within the *Save* dialog box locate the folder where you would like to store the connection file, enter a name for the file in the *File name* list and click on the *Save* button.
11. Click on the *Close* button.

#### Similar functions

To add a layer file stored on a local drive, use the [Add](#) feature.

To add a layer file stored on a remote server, use the [Add from server](#) feature.

To import attribute tables from a database or data file, use the [Import data](#) feature.

To preview and use the attributes stored in a database, use the [Join Database](#) feature.

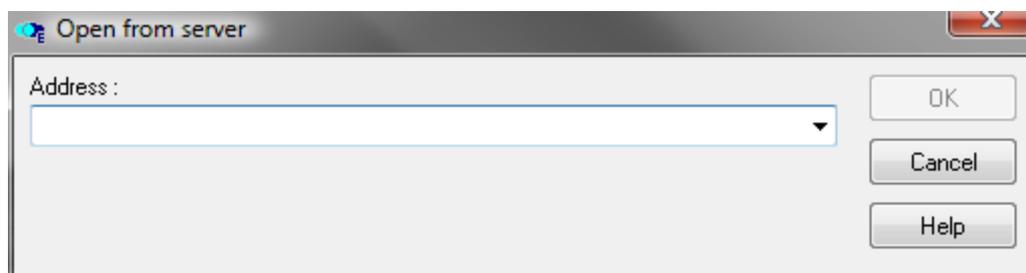
### 3.5.4 Add from server

#### Description

Clicking on the *Layer/Add from server* menu item provides for opening an existing layer file from a remote server. The newly opened layer is automatically added to the current project and displayed on the list of currently open layers on the [Legend panel](#). The geometric data contained in the layer is rendered on the [Map area](#). This operation does not affect other open layers in any way. The opening of a file or project from a server requires that the user provide the exact path to the file on the remote server and the server's network address.

#### To open a layer file stored on a remote server and add it to the current project

1. Click on the *Layer/Add from server* menu item - this invokes the *Open from server* dialog box.
2. Within the *Open from server* dialog box enter the exact path to the file or select it using the *Address* list.
3. Click on the *OK* button.



*Open from server* dialog box.

#### Similar functions

To add a layer stored in a database, use the [Add SQL layer](#) feature.

To add a layer file stored on a local drive, use the [Add](#) feature.

### 3.5.5 Remove

#### Description

Clicking on the *Layer/Remove* menu item removes the currently active layer from the current project and from the *Editor*. The layer is automatically removed from the list of currently open layers on the [Legend panel](#) and its geometry is removed from the [Map area](#). This operation does not affect other open layers in any way.

#### To remove a layer from the current project and from the *Editor*

1. Activate (highlight) the desired layer. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Layer/Remove* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#) or on the *Remove* entry in the [Legend panel](#) context menu.

**Key shortcut**

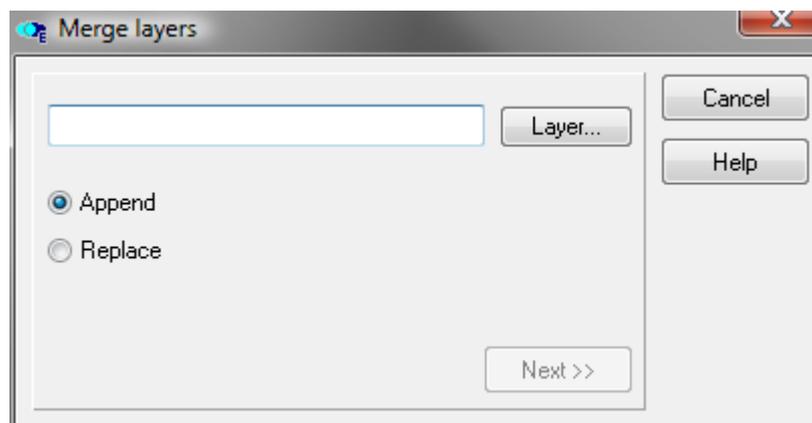
This function can be initiated by pressing the *Ctrl+Del* key combination.

**3.5.6 Import****Description**

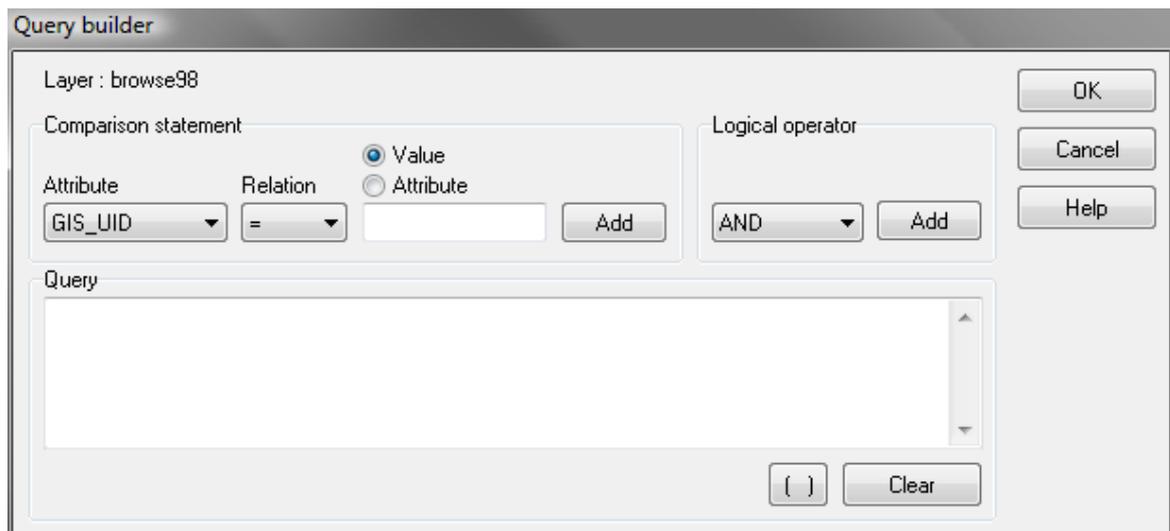
Clicking on the *Layer/Import* menu item provides for importing any vector layer file to a vector layer open in the *Editor*. The data from the file being imported can replace or be appended to the active layer. If the imported data comes from a different file format than the active layer then it is automatically converted in to an appropriate format.

**To import a vector layer and replace/append to the one already open in the Editor**

1. Activate (highlight) the layer to which the import is to be done. Do this by clicking on its name in the *Legend* panel.
2. Click on the *Layer/Import* menu entry - this invokes the *Merge layers* dialog box.
3. Within the *Import* dialog box click on the *Layer...* button - this invokes the *Open* dialog box.
4. Within the *Open* dialog box select the appropriate drive from the *Look in* list.
5. Locate the layer file by entering the directory that contains this file.
6. Double-click on the layer file name - this brings back the *Merge layers* dialog box.
7. If you would like to replace the open layer with the imported one click on the *Replace* option. If you would like to merge the open layer with the imported one click on the *Append* option.
8. Click on the *Next>>* button.
9. [OPTIONAL] If you would like to import just a part of the layer instead of its entirety click on the *Builder...* button - this invokes the *Query builder* dialog box. Within the *Query builder* dialog box construct a SQL-type query that has logical value *True* for all shapes that you would like to import. When finished, click on the *OK* button - this brings back the *Import* dialog box.
10. Choose the extent to be imported from the *Extent* list.
11. Click on the *Next>>* button.
12. Adjust the settings for attribute importing.
13. Click on the *Next>>* button - a progress bar will appear informing you about the progress of the import procedure.
14. When the progress bar reaches 100% the import procedure is completed. Click on the *OK* button.



*Merge layers* dialog box.



Query builder dialog box.

### **Constructing SQL type query**

The SQL type query consists of comparison statements connected with logical operators in the following way:

*[comparison statement] [logical operator] [comparison statement] ... [logical operator] [comparison statement].*

Additionally, round brackets can be used to group/prioritize a sequence within the query. The left bracket '(' must always appear before a comparison statement and the right bracket ')' after a comparison statement. The logical operators *AND* and *OR* must appear before a comparison statement/left bracket or after a comparison statement/right bracket and not at the beginning or ending of the query. The negation operator *NOT* must appear after a logical operator/left bracket or at the beginning of the query. A comparison statement consists of a primary attribute, relation operator and value/secondary attribute in the following way:

*[primary attribute] [relation] [value] or [primary attribute] [relation] [secondary attribute].*

An attribute which name contains a space must be written inside the square brackets.

#### **To add a comparison statement to the query**

1. Within the *Comparison statement* box choose the primary attribute from the left *Attribute* drop down list.
2. To compare the primary attribute with a value click on the *Value* radio button in the same box. To compare the primary attribute with another attribute click on the *Attribute* radio button in the same box.
3. (A) If you have chosen *Value* in the previous step then a tool appropriate to the primary attribute type will appear below the *Value* radio button. If the primary attribute is of: *String*, *Number* or *Float* type then a text box will appear, *Boolean* type then a drop down list will appear, *Date* type then a date picker will appear. (B) If you have chosen *Attribute* in the previous step then a drop down list will appear below the *Attribute* radio button. The drop down list will contain all the attributes of the same type as the primary attribute except the primary attribute itself.
4. (A) Specify the value in the tool. (B) Pick the secondary attribute from the drop down list.
5. Choose a relation operator form the *Relation* drop down list.
6. Click on the *Add* button in the same box.

#### **To add a logical operator to the query**

1. Within the *Logical operator* box choose logical/negation operator from the drop down list.
2. Click on the *Add* button in the same box.

#### **To put brackets around a desired part of the query**

1. Within the query text box move the mouse pointer to the beginning/ending of the desired part.

2. Press and hold the left mouse button.
3. Move the mouse pointer to the ending/beginning of the desired part.
4. Release the left mouse button.
5. Click on the ( ) button.

To blank the query, click on the *Clear* button.

#### Note

- If importing to a *ArcView Shape File (SHP)* layer file format, the shape type (point, multipoint, polyline, or polygon) of the file being imported must be of the same type as the layer to which it is being imported. Otherwise the procedure will result in an error message stating that the file types are not compatible.
- The default logical value of the *SQL* type query, i.e. the logical value of the empty query, is *True*.
- Concerning the *Query Builder* dialog box, when the primary attribute is of *String* type and specifying a value for the *LIKE* comparison the '\_' character can be used as a single unspecified character and the '%' character as a sequence of unspecified characters.

### 3.5.7 Export

#### Description

Clicking on the *Layer/Export* menu item provides for exporting a vector layer or its part in to a layer file of a chosen format.

#### To convert a vector layer file in to a different format

1. Activate (highlight) the desired layer. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Layer/Export* menu item - this invokes the *Export Layer* dialog box.
3. Within the *Export Layer* dialog box click on the *OK* button - this invokes the *Save As* dialog box.
4. Within the *Save As* dialog box select the appropriate drive from the *Save in* list.
5. Locate the folder where you would like to store the layer file. A new folder can be created by clicking on the  icon at the top-right corner of the *Save As* dialog box, entering its name and pressing the *Enter* key.
6. Enter a name for the layer file in the *File name* list.
7. Click on the *Save* button.

#### To export a part of a vector layer in to a separate layer file (manual selection)

1. Activate (highlight) the layer containing the desired shapes. Do this by clicking on its name in the [Legend panel](#).
2. Use any of the following selection methods to select the shapes: [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).
3. Click on the *Layer/Export* menu item - this invokes the *Export Layer* dialog box.
4. Within the *Export Layer* dialog box click on the *Selected objects* check box.
5. Adjust the extent used for the export procedure using the options from the *Select extent* list.
6. Click on the *OK* button - this invokes the *Save As* dialog box.
7. Within the *Save As* dialog box select the appropriate drive from the *Save in* list.
8. Locate the folder where you would like to store the layer file. A new folder can be created by clicking on the  icon at the top-right corner of the *Save As* dialog box, entering its name and pressing the *Enter* key.
9. Enter a name for the layer file in the *File name* list.
10. Click on the *Save* button.

#### To export a desired part of a vector layer in to a separate layer file (selection by SQL type query)

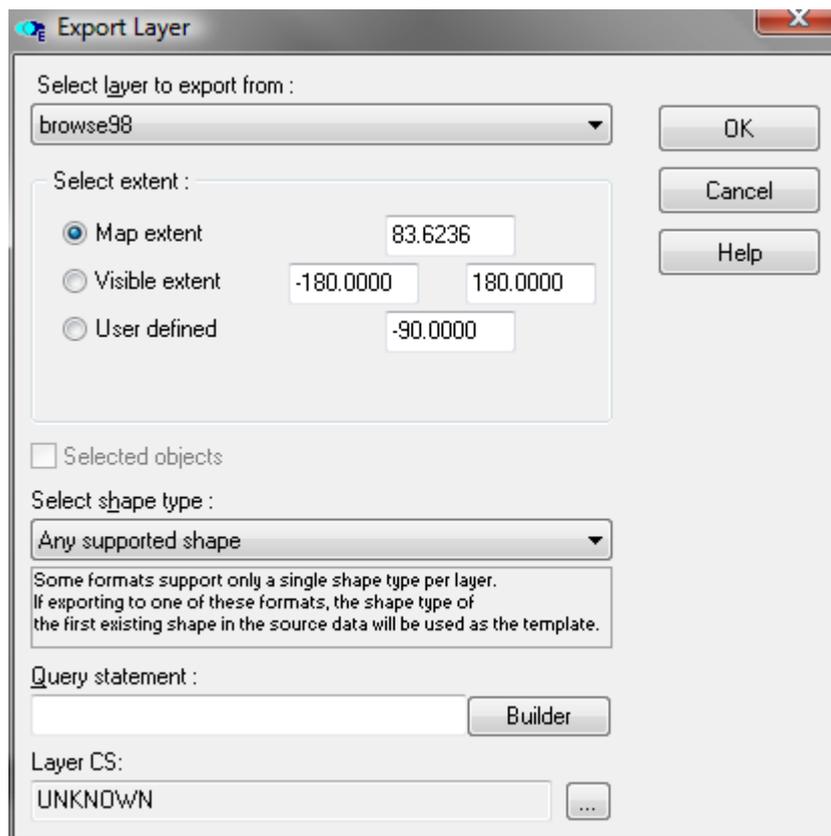
1. Activate (highlight) the layer containing the desired shapes. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Layer/Export* menu item - this invokes the *Export Layer* dialog box.
3. Click on the *Builder* button - this invokes the *Query Builder* dialog box.
4. Within the *Select by Query* dialog box construct the *SQL* type query - see **Constructing SQL type query** instructions below. When finished click on the *OK* button - all shapes from the

active layer for which the statement is satisfied will be selected and the *Export Layer* dialog box will be brought back.

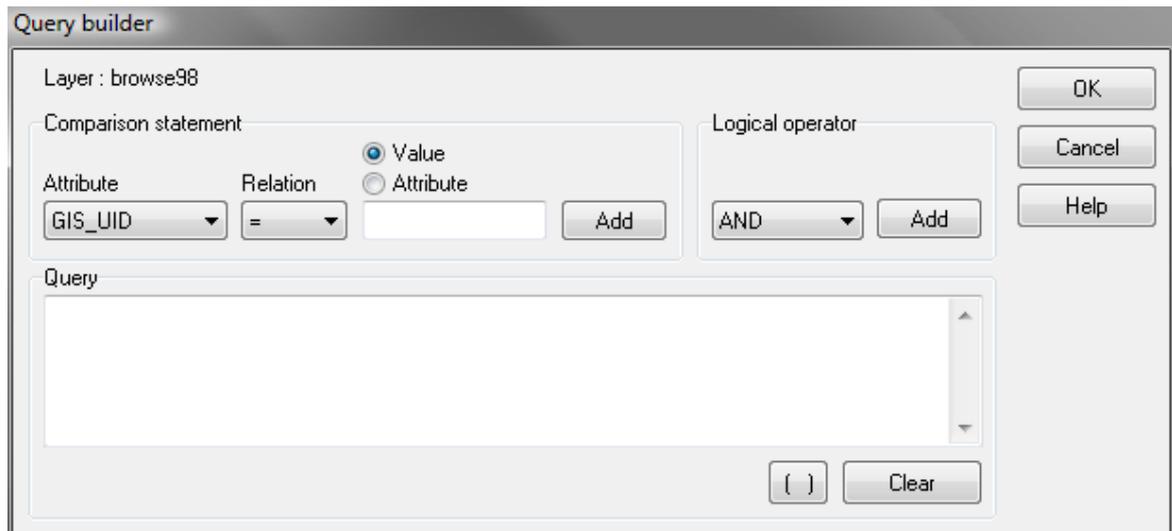
5. Within the *Export Layer* dialog box adjust the extent used for the export procedure using the options from the *Select extent* list.
6. [OPTIONAL] If you would like to export only one type of shapes (points, multipoints, lines or polygons) set the appropriate filter in the *Select shape type* list.
7. Click on the *OK* button - this invokes the *Save As* dialog box.
11. Within the *Save As* dialog box select the appropriate drive from the *Save in* list.
12. Locate the folder where you would like to store the layer file. A new folder can be created by clicking on the  icon at the top-right corner of the *Save As* dialog box, entering its name and pressing the *Enter* key.
8. Enter a name for the layer file in the *File name* list.
9. Click on the *Save* button.

### Select extent list options

- *Map extent* - export the extent covering entirety of the currently active layer,
- *Visible extent* - export the extent currently visible in the [Map area](#),
- *User defined* - export the extent that is manually defined by the user by entering horizontal coordinates of the right and left extent limits and vertical coordinates of the top and bottom extent limits.
- *Clipped by extent* (for *Visible extent* and *User defined*) - when checked, all shapes partially outside the defined extent will be clipped; otherwise shapes partially outside the defined extent will be exported whole.



*Export Layer* dialog box.



Query builder dialog box.

### **Constructing SQL type query**

The SQL type query consists of comparison statements connected with logical operators in the following way:

*[comparison statement] [logical operator] [comparison statement] ... [logical operator] [comparison statement].*

Additionally, round brackets can be used to group/prioritize a sequence within the query. The left bracket '(' must always appear before a comparison statement and the right bracket ')' after a comparison statement. The logical operators *AND* and *OR* must appear before a comparison statement/left bracket or after a comparison statement/right bracket and not at the beginning or ending of the query. The negation operator *NOT* must appear after a logical operator/left bracket or at the beginning of the query. A comparison statement consists of a primary attribute, relation operator and value/secondary attribute in the following way:

*[primary attribute] [relation] [value] or [primary attribute] [relation] [secondary attribute].*

An attribute which name contains a space must be written inside the square brackets.

#### **To add a comparison statement to the query**

1. Within the *Comparison statement* box choose the primary attribute from the left *Attribute* drop down list.
2. To compare the primary attribute with a value click on the *Value* radio button in the same box. To compare the primary attribute with another attribute click on the *Attribute* radio button in the same box.
3. (A) If you have chosen *Value* in the previous step then a tool appropriate to the primary attribute type will appear below the *Value* radio button. If the primary attribute is of: *String*, *Number* or *Float* type then a text box will appear, *Boolean* type then a drop down list will appear, *Date* type then a date picker will appear. (B) If you have chosen *Attribute* in the previous step then a drop down list will appear below the *Attribute* radio button. The drop down list will contain all the attributes of the same type as the primary attribute except the primary attribute itself.
4. (A) Specify the value in the tool. (B) Pick the secondary attribute from the drop down list.
5. Choose a relation operator form the *Relation* drop down list.
6. Click on the *Add* button in the same box.

#### **To add a logical operator to the query**

1. Within the *Logical operator* box choose logical/negation operator from the drop down list.
2. Click on the *Add* button in the same box.

#### **To put brackets around a desired part of the query**

1. Within the query text box move the mouse pointer to the beginning/ending of the desired part.

2. Press and hold the left mouse button.
3. Move the mouse pointer to the ending/beginning of the desired part.
4. Release the left mouse button.
5. Click on the ( ) button.

**To blank the query**, click on the *Clear* button.

#### Note

- If exporting from a layer containing multiple shape types to a *SHP* file format, only one shape type can be exported due to the specifications of this format. An attempt to export multiple shape types to a *SHP* file format will result in an error message.
- If creating a new vector layer as the *SQL database* layer file use a file name without spaces or any special characters. This will ensure that the file is compatible with various *SQL database* products.
- The default logical value of the *SQL* type query, i.e. the logical value of the empty query, is *True*.
- Concerning the *Query Builder* dialog box, when the primary attribute is of *String* type and specifying a value for the *LIKE* comparison the '\_' character can be used as a single unspecified character and the '%' character as a sequence of unspecified characters.

### 3.5.8 Restructure

#### Description

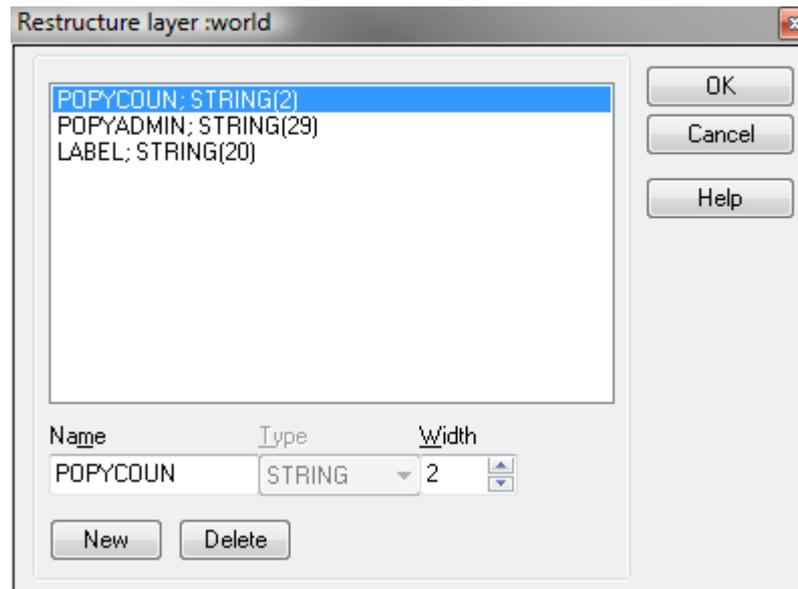
Clicking on the *Layer/Restructure* menu item provides for basic management of the attributes table of the currently active vector layer.

#### To add a new attribute to a vector layer

1. Activate (highlight) the desired layer. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Layer/Restructure* menu item - this invokes the *Restructure layer: [chosen layer name]* dialog box.
3. Within the *Restructure layer: [chosen layer name]* dialog box click on the *New* button.
4. In the *Name* text field set the name of the newly created attribute.
5. Choose the type of the new attribute from the *Type* list.
6. [OPTIONAL] If you have chosen the string type set the maximal number of characters in the *Width* text box. If you have chosen the number type set the total number of digits in the *Width* text box and the number of decimal digits in the *Decimal* text box.
7. Click on the *OK* button.

#### To delete an attribute from a vector layer

1. Activate (highlight) the desired layer. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Layer/Restructure* menu item - this invokes the *Restructure layer: [chosen layer name]* dialog box.
3. Within the *Restructure layer: [chosen layer name]* dialog box select the desired attribute by clicking on its entry in the attributes list.
4. Click on the *Delete* button.
5. Click on the *OK* button.



*Restructure layer dialog box opened for vector layer named world.*

#### Associated features

To set the value of some attribute for all shapes belonging to a vector layer, use the [Set column value](#) feature.

#### Note

- The type of an existing attribute cannot be changed.

### 3.5.9 Save layer properties

#### Description

Clicking on the *Layer/Save layer properties* menu item provides for saving properties of the currently active vector layer in to a separate configuration file (in *INI* format).

#### To save the properties of a vector vector layer in to a separate *INI* file

1. Activate (highlight) the desired layer. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Layer/Save layer properties* menu item - this invokes the *Save As* dialog box.
3. Within the *Save As* dialog box select the appropriate drive from the *Save in* list.
4. Locate the folder where you would like to store the *INI* file. You may also create a new folder by clicking on  icon at the top-right corner of the *Save As* dialog box, entering its name and pressing the *Enter* key.
5. [OPTIONAL] Enter a name for the *INI* file in the *File name* list.
6. Click on the *Save* button.

#### Equivalent actions

The same function can be initiated by clicking on the *Save layer properties* item in the [Legend panel](#) context menu.

#### Associated functions

To customize the properties of a vector layer, use the [Properties](#) feature.

To load the properties of a vector layer from a previously created *INI* file, use the [Load layer properties](#) feature.

#### Note

- If the *INI* file is stored in the same folder as the corresponding vector layer file and has the default name it will be automatically loaded whenever the corresponding layer file is being opened.

### 3.5.10 Load layer properties

#### Description

Clicking on the *Layer/Load layer properties* menu item provides for loading properties of the currently active vector layer from a separate configuration file (in *INI* format).

#### To load the properties of a vector layer from a separate *INI* file

1. Activate (highlight) the desired layer. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Layer/Load layer properties* menu item - this invokes the *Open* dialog box.
3. Within the *Open* dialog box select the appropriate drive from the *Look in* list.
4. Locate the *INI* file by entering the directory that contains this file.
5. Double-click on the *INI* file name.

#### Equivalent actions

The same function can be initiated by clicking on the *Load layer properties* item in the [Legend panel](#) context menu.

#### Associated functions

To customize the properties of a vector layer, use the [Properties](#) feature.

To save the properties of a vector layer in to an *INI* file, use the [Save layer properties](#) feature.

#### Note

- If the *INI* file is stored in the same folder as the corresponding vector layer file and has the default name it will be automatically loaded whenever the corresponding layer file is being opened.

### 3.5.11 Properties

#### Description

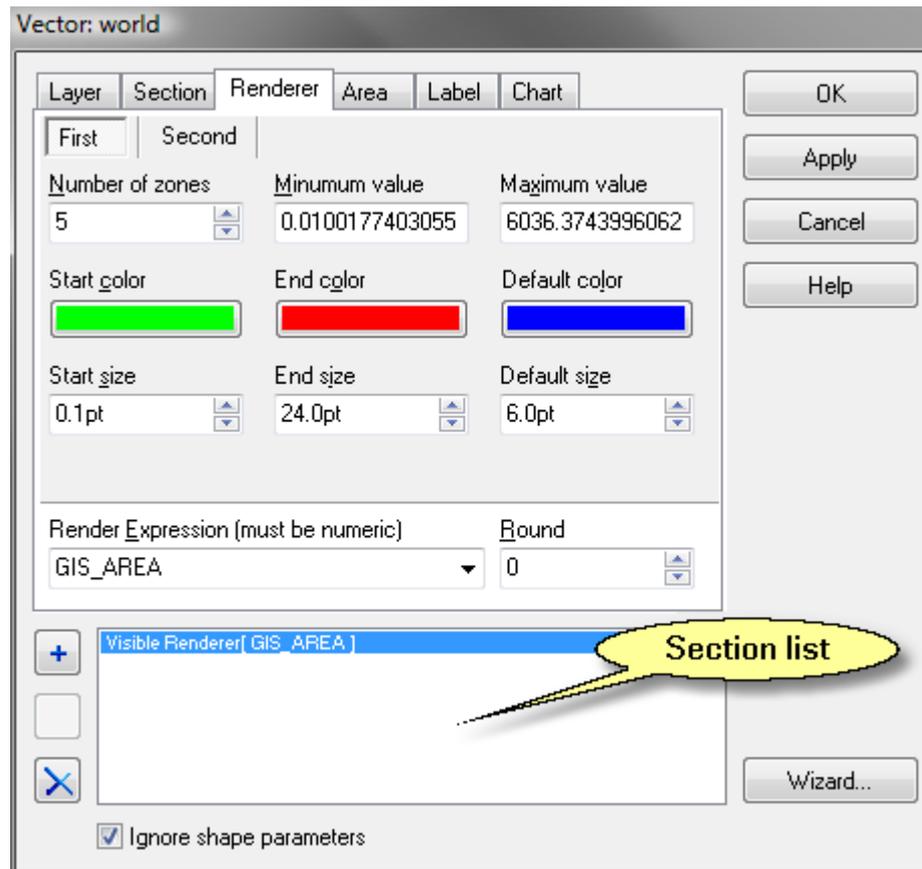
Clicking on the *Layer/Properties* menu item invokes the layer properties dialog box. The layer properties dialog box comes in two different forms (refer to subtopics for detailed information):

- [Vector dialog box](#) - properties dialog box for vector type layers,
- [Raster dialog box](#) - properties dialog box for raster raster type layers (images, grids).

The layer properties dialog box provides various layer displaying customization features as coloring, labeling, coordinate system adjustment, charts creation, etc. Consistent with *GIS* principles, and unlike with some more *CAD* oriented solutions, the *Editor* saves the layer visual properties to the project file or the layer properties file. Making changes to the layer properties do not alter the layer file in any way. Not saving the layer properties to the layer file itself allows for greater inter-operability, because the same layer file can be used in different ways in multiple projects or applications.

#### IMPORTANT

- All settings apply to the section currently selected in the *Section list*. A section is a set of visual properties defined for a range of zoom levels. The *Visible* section is the default section - visual properties defined for it are valid for any zoom level.
- To automatically customize the visual properties of a vector or grid layer, click on the *Wizard* button and follow the instructions. Two examples of using the *Wizard* feature can be found further in this topic in [Common scenarios](#) section: **To automatically color all shapes from a vector layer proportionally to the value of some numeric attribute** and **To automatically create and color optimal zones for a grid layer**.
- A number of units can be used to define each size/width setting: *px* - pixel, *m* - meter, *mm* - millimeter, *in* - inch, *pt* - point = 1/72 inch.
- Inserting an asterisk after the unit symbol makes the size of the objects for which the setting applies relative to the current [Map area](#) scale.



Vector dialog box displaying properties of a polygon type layer named *world*.  
*Section list* indicated.

### **Common scenarios**

#### **To add a new section to a layer**

1. Activate (highlight) the desired layer. Do this by clicking on its name in the [Legend panel](#).
2. Expand the [Legend panel](#) context menu over the layer name and click on the *Properties* item - this invokes the *Vector: [layer name]* dialog box for a vector layer and *Raster: [layer name]* dialog box for a raster layer.
3. Within the *Vector/Raster* dialog box switch to any tab on which the *Section list* is visible.
4. Click on the  button at the left hand side of the *Section list*.

#### **To delete a section from a layer**

1. Activate (highlight) the desired layer. Do this by clicking on its name in the [Legend panel](#).
2. Expand the [Legend panel](#) context menu over the layer name and click on the *Properties* item - this invokes the *Vector: [layer name]* dialog box for a vector layer and *Raster: [layer name]* dialog box for a raster layer.
3. Within the *Vector/Raster* dialog box switch to any tab on which the *Section list* is visible.
4. Within the *Section list* click on the routine to be deleted.
5. Click on the  button at the left hand side of the *Section list*.

#### **To delete all custom sections from a layer**

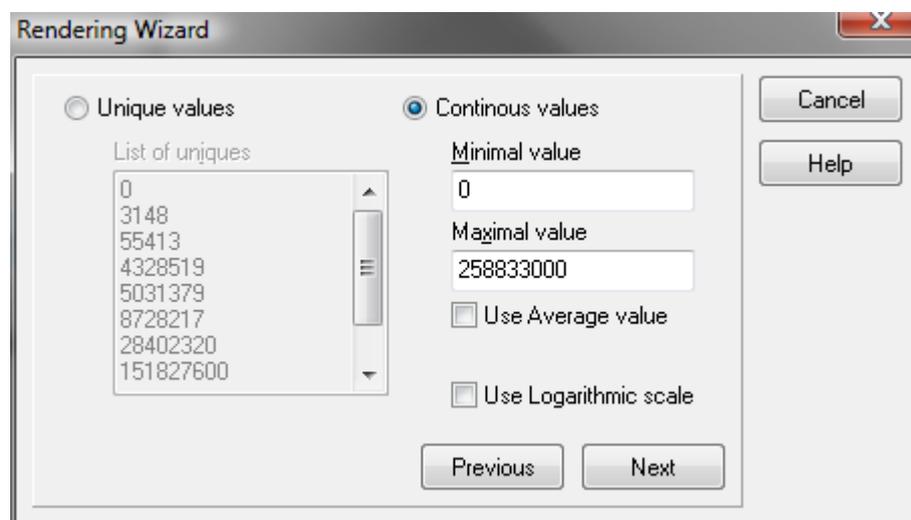
1. Activate (highlight) the desired layer. Do this by clicking on its name in the [Legend panel](#).
2. Expand the [Legend panel](#) context menu over the layer name and click on the *Properties* item - this invokes the *Vector: [layer name]* dialog box for a vector layer and *Raster: [layer name]* dialog box for a raster layer.
3. Within the *Vector/Raster* dialog box switch to any tab on which the *Section list* is visible.
6. Click on the  button at the left hand side of the *Section list*.

**To change/set/turn off the coordinate system for a layer**

1. Activate (highlight) the desired layer. Do this by clicking on its name in the [Legend panel](#).
2. Expand the [Legend panel](#) context menu over the layer name and click on the *Properties* item - this invokes the *Vector: [layer name]* dialog box for a vector layer and *Raster: [layer name]* dialog box for a raster layer.
3. Within the *Vector/Raster* dialog box switch to the *Layer* tab by clicking on its label at the top of the dialog box.
4. Within the *Layer* tab make sure that the *Parameters* subtab is active.
5. Click on the *Select* button - this invokes the *Coordinate System* dialog box.
6. Follow any procedure described in the [Coordinate Systems](#) help topic starting each from the step 2.
7. Within the *Vector/Raster* dialog box click on the *OK* button.

**To automatically color all shapes from a vector layer proportionally to the value of some numeric attribute**

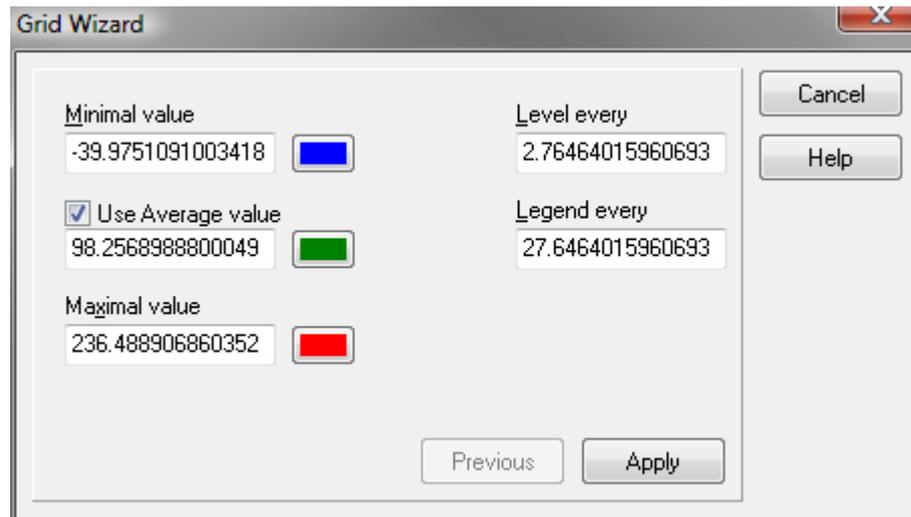
1. Activate (highlight) the desired layer. Do this by clicking on its name in the [Legend panel](#).
2. Expand the [Legend panel](#) context menu over the layer name and click on the *Properties* item - this invokes the *Vector: [layer name]* dialog box.
3. Within the *Vector* dialog box click on the *Wizard* button - this invokes the *Rendering Wizard* dialog box.
4. Within the *Rendering Wizard* dialog box select the desired attribute from the *Formula...* drop down list and click on the *Next* button.
5. Make sure that the *Continuous values* option is selected and that the *Minimal value* and the *Maximal value* text boxes display correct values. Click on the *Next* button.
6. Make sure that the *Color* option is selected in the *Render by* list. Click on the *Apply* button - this brings back the *Vector: [layer name]* dialog box.
7. Within the *Vector* dialog box click on the *OK* button.



Rendering Wizard dialog box.

**To automatically create and color optimal zones for a grid layer**

1. Activate (highlight) the desired layer. Do this by clicking on its name in the [Legend panel](#).
2. Expand the [Legend panel](#) context menu over the layer name and click on the *Properties* item - this invokes the *Raster: [layer name]* dialog box.
3. Within the *Raster* dialog box click on the *Wizard* button - this invokes the *Grid Wizard* dialog box.
4. If needed, adjust the colors using three color buttons (blue, green and red buttons on the screenshot below).
5. Click on the *Apply* button.



Grid Wizard dialog box.

### Associated functions

To save the layer properties to a file, use the [Save layer properties](#) feature.

To load the layer properties from a file, use the [Load layer properties](#) feature.

### Equivalent actions

The same function can be initiated by double clicking on the layer name in the [Legend panel](#) or on the *Properties* item in the [Legend panel](#) context menu.

#### 3.5.11.1 Vector dialog box

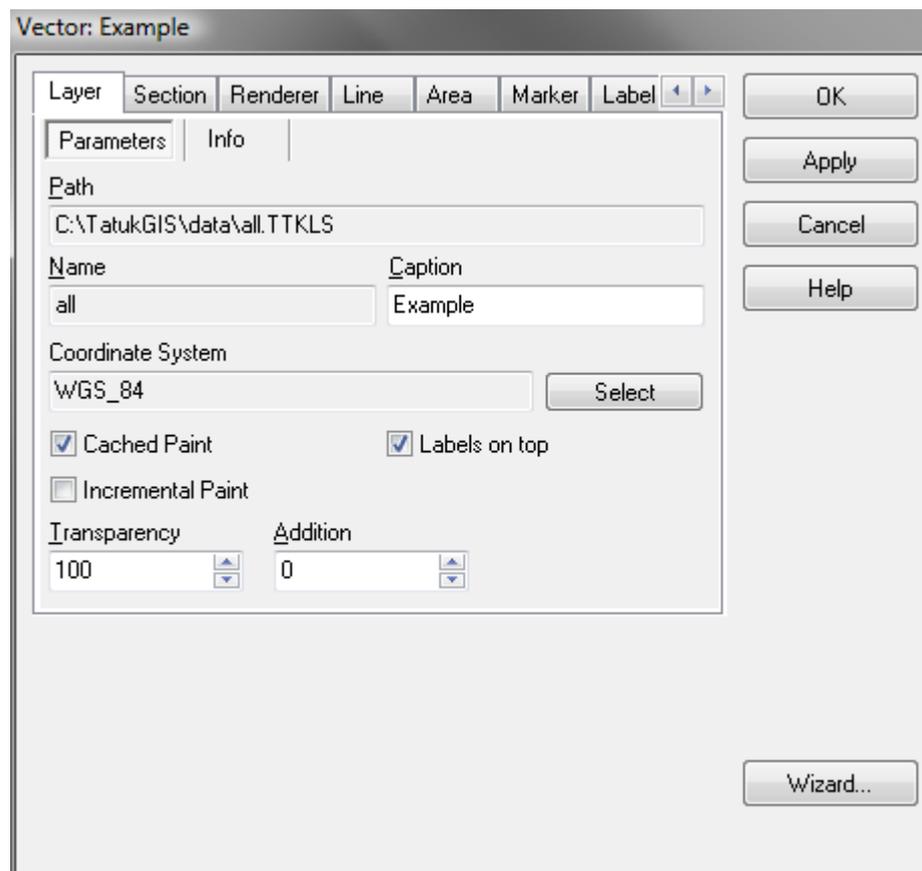
##### Description

The *Vector* dialog box is the layer property dialog box for the vector type layers. It consists of 6 up to 8 settings tabs (depending of the vector layer format):

- [Layer tab](#),
- [Section tab](#),
- [Renderer tab](#),
- [Line tab](#) - appears only if the layer supports line type shapes,
- [Area tab](#) - appears only if the layer supports polygon type shapes,
- [Marker tab](#) - appears only if the layer supports point or multipoint type shapes,
- [Label tab](#),
- [Chart tab](#).

For general information about layer properties and common usage scenarios refer to the [Properties](#) help topic.

## 3.5.11.1.1 Layer



Vector dialog box, Layer tab, Parameters subtab.

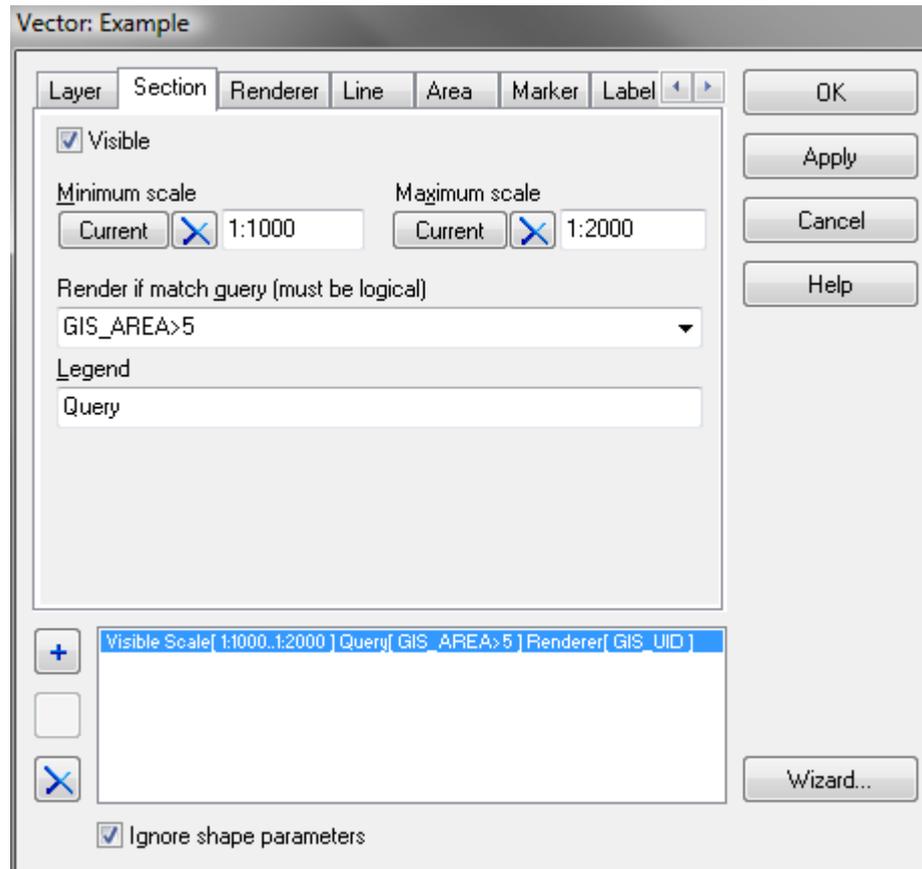
#### Parameters subtab

- *Path* - [READ ONLY] path to the file containing the layer.
- *Name* - [READ ONLY] name of the file containing the layer.
- *Caption* - identifier of the layer under which it appears in the [Legend panel](#).
- *Coordinate System* - coordinate system in which the layer is displayed.
- *Cached Paint* - if unchecked, the rendering is performed directly on the [Map area](#), which can dramatically improve performance with very large and complicated vector data sets but causes [Map area](#) flickering.
- *Labels on top* - if checked, labels are displayed on top of all layers in the project.
- *Incremental paint* - if checked, the rendering in [Drag mode](#) is performed only after the mouse button is released, which can dramatically improve performance with very large and complicated vector data sets.
- *Transparency* - factor defining the layer transparency; it must be greater or equal to 0 and lower or equal to 100, where 0 means invisible and 100 means opaque.
- *Addition* - factor determining the degree to which the background color of the layer is added to the color of the layer shapes; it must be greater or equal to 0 and lower or equal to 100, where 0 means shape color and 100 means layer background color; this feature applies only to anaglyph images.

#### Info subtab

- *File informations* - [READ ONLY] information about the file format.
- *User comments* - additional information provided by the user/file creator.
- *From Codepage* - codepage to be used for reading layer parameters.
- *To Codepage* - codepage to be used for processing/displaying layer parameters.

## 3.5.11.1.2 Section

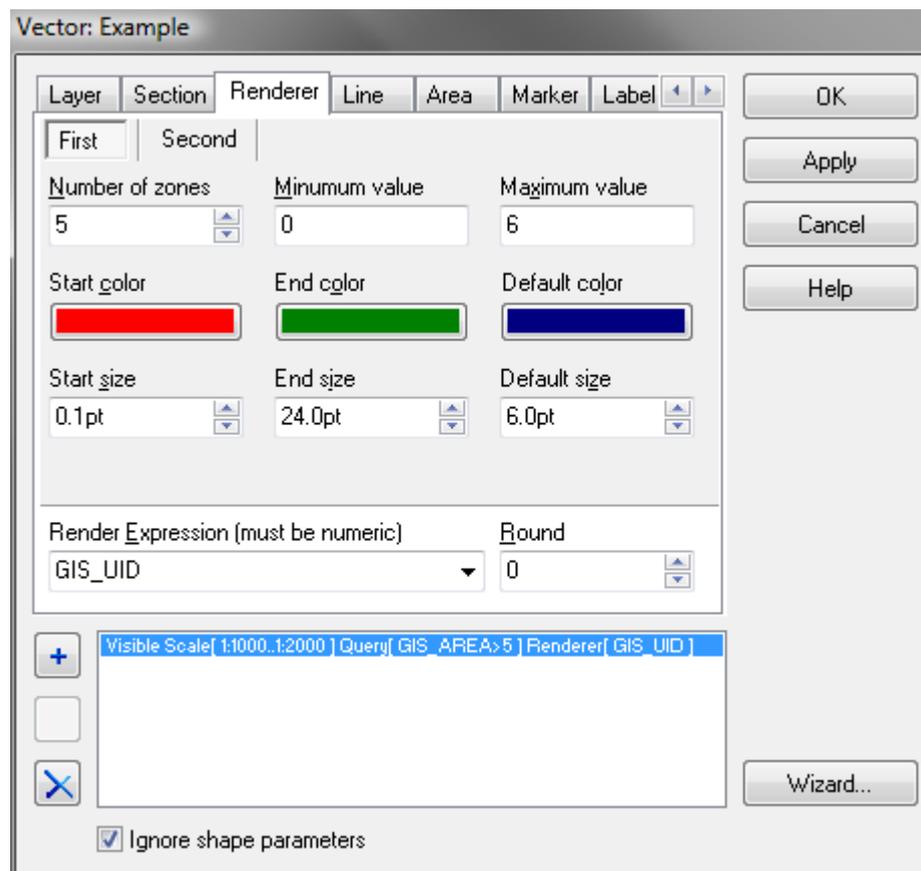


Vector dialog box, Section tab.

**Section tab**

- *Visible* - if unchecked, the layer remains hidden, it is not rendered within the [Map area](#).
- *Minimum scale* - minimum scale at which the current section will be rendered; click on the *Current* button to fill it with the scale at the current zoom level.
- *Maximum scale* - maximum scale at which the current section will be rendered; click on the *Current* button to fill it with the scale at the current zoom level.
- *Render if match query* - query statement based on layer attributes - the current section settings will apply only to the shapes for which the logical value of this statement is true; the default logical value of the query, i.e. the logical value of the empty query, is true.
- *Legend* - name of the current section that is displayed in the [Legend panel](#).

## 3.5.11.1.3 Renderer

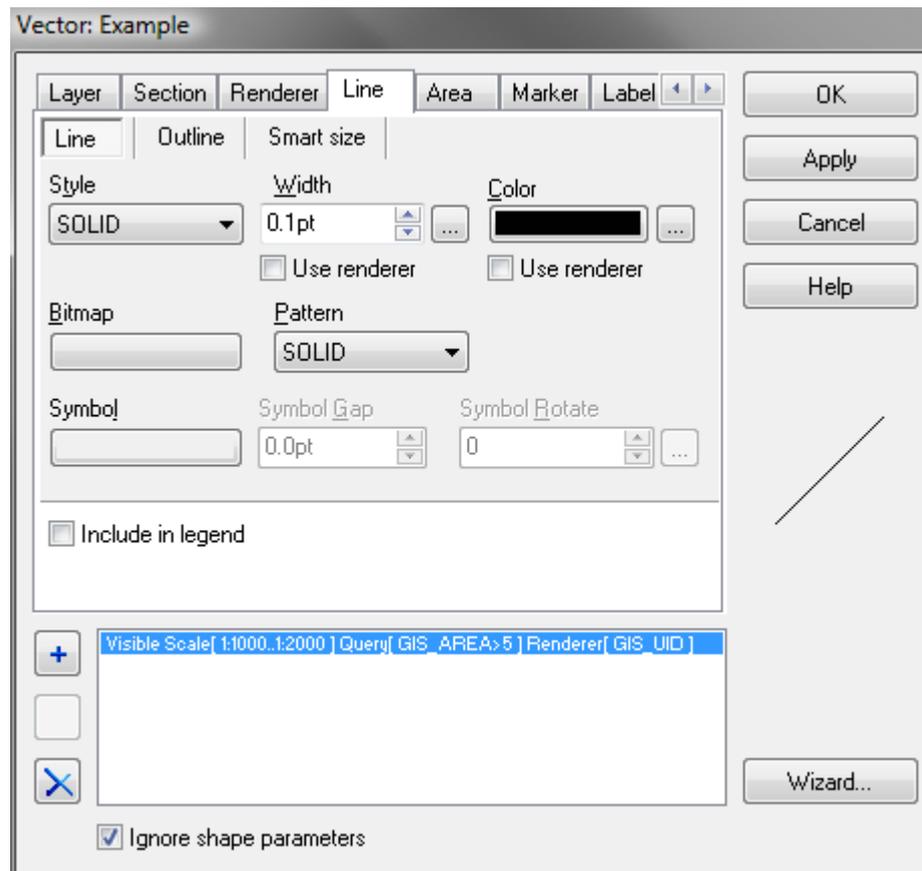


Vector dialog box, Renderer tab, First subtab.

**First/Second subtab**

- *Number of zones* - number of zones (ranges) into which the attribute values will be divided for the rendering purposes; if the number of zones is negative then logarithmic scale will be used.
- *Minimum value* - the lowest value of the lowest zone; a shape with the attribute value lower than *Minimum value* will be rendered in the *Default color*.
- *Maximum value* - the highest value of the highest zone; a shape with the attribute value higher than *Maximum value* will be rendered in the *Default color*.
- *Start color* - color in which the shapes belonging to the lowest zone will be rendered.
- *End color* - color in which the shapes belonging to the highest zone will be rendered.
- *Default color* - color in which the shapes with the attribute value outside the [*Minimum value*, *Maximum value*] zone will be rendered.
- *Start size* - size of point/width of line/width of polygon outline that will be rendered for the shapes belonging to the lowest zone.
- *End size* - size of point/width of line/width of polygon outline that will be rendered for the shapes belonging to the highest zone.
- *Default size* - size of point/width of line/width of polygon outline that will be rendered for the shapes outside the [*Minimum value*, *Maximum value*] zone.
- *Render expression* - query statement based on layer attributes - only the shapes for which the logical value of this statement is true will be rendered using the custom rendering routines; if it is empty or contains only attribute name all shapes will be rendered.
- *Round* - if positive, number of decimal digits of the fractional part of the numbers displayed in the [Legend panel](#); if negative, number of decimal digits cut from the integral part of the numbers displayed in the [Legend panel](#).

## 3.5.11.1.4 Line



Vector dialog box, Line tab, Line subtab.

**Line subtab**

- *Style* - style of the line.
- *Width* - width of the line; check *Use renderer* option below to use global renderer settings found on the *Renderer* tab.
- *Color* - color of the line; check *Use renderer* option below to use global renderer settings found on the *Renderer* tab.
- *Bitmap* - image file used for drawing line instead of color.
- *Pattern* - pattern of the line.
- *Symbol* - character/image used for drawing line instead of color.
- *Symbol Gap* - distance between subsequent symbols.
- *Symbol Rotate* - relative rotation of each symbol (in degrees).
- *Include in legend* - if checked, the currently selected section is displayed in the [Legend panel](#) as a subgroup of its layer.

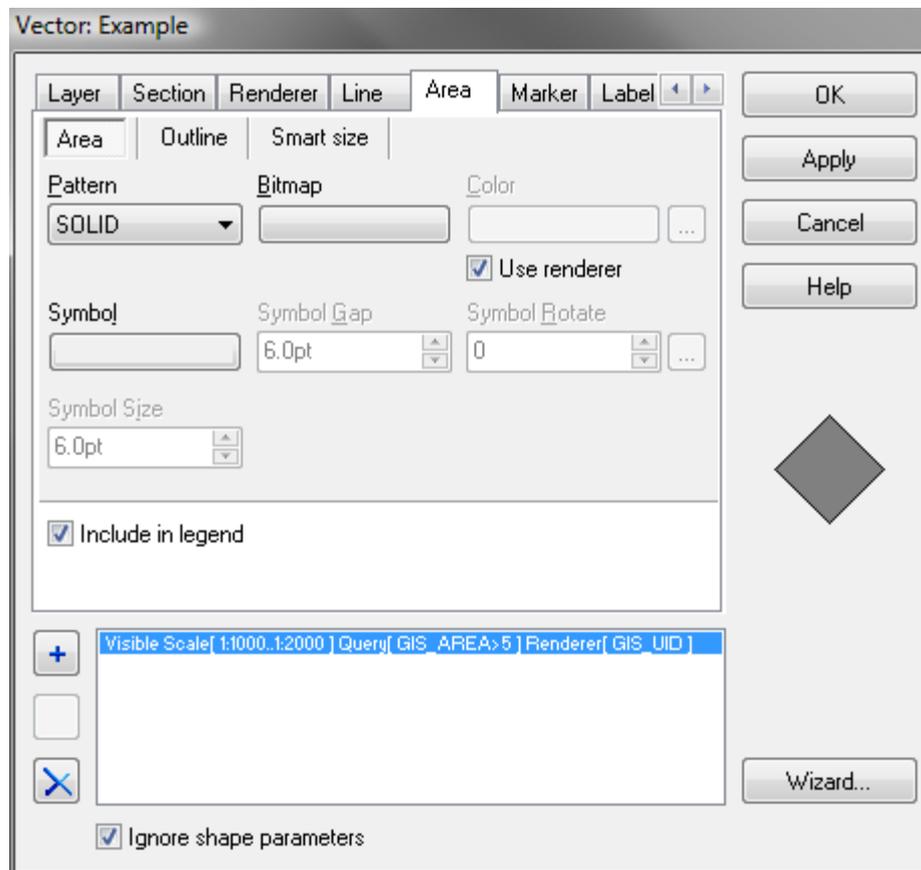
**Outline subtab**

- *Style* - style of the outline; check *Use renderer* option below to use global renderer settings found on the *Renderer* tab.
- *Width* - width of the outline; check *Use renderer* option below to use global renderer settings found on the *Renderer* tab.
- *Color* - color of the outline.
- *Bitmap* - image file used for drawing outline instead of color.
- *Pattern* - pattern of the outline.
- *Include in legend* - if checked, the currently selected section is displayed in the [Legend panel](#) as a subgroup of its layer.

**Smart size subtab**

- *Size* - factor defining how wide (at least) must be a line at the current scale to be rendered.
- *Field* - if the width of lines should be rendered on the basis of some attribute, use this list to choose appropriate one.
- *Include in legend* - if checked, the currently selected section is displayed in the [Legend panel](#) as a subgroup of its layer.

### 3.5.11.1.5 Area



Vector dialog box, Area tab, Area subtab.

#### Area subtab

- *Pattern* - pattern of the polygon area.
- *Bitmap* - image file used for filling area instead of color.
- *Color* - color of the polygon area; check *Use renderer* option below to use global renderer settings found on the *Renderer* tab.
- *Symbol* - character/image used for filling area instead of color.
- *Symbol Gap* - distance between subsequent symbols.
- *Symbol Rotate* - relative rotation of each symbol (in degrees).
- *Symbol Size* - size of each symbol.
- *Include in legend* - if checked, the currently selected section is displayed in the [Legend panel](#) as a subgroup of its layer.

#### Outline subtab

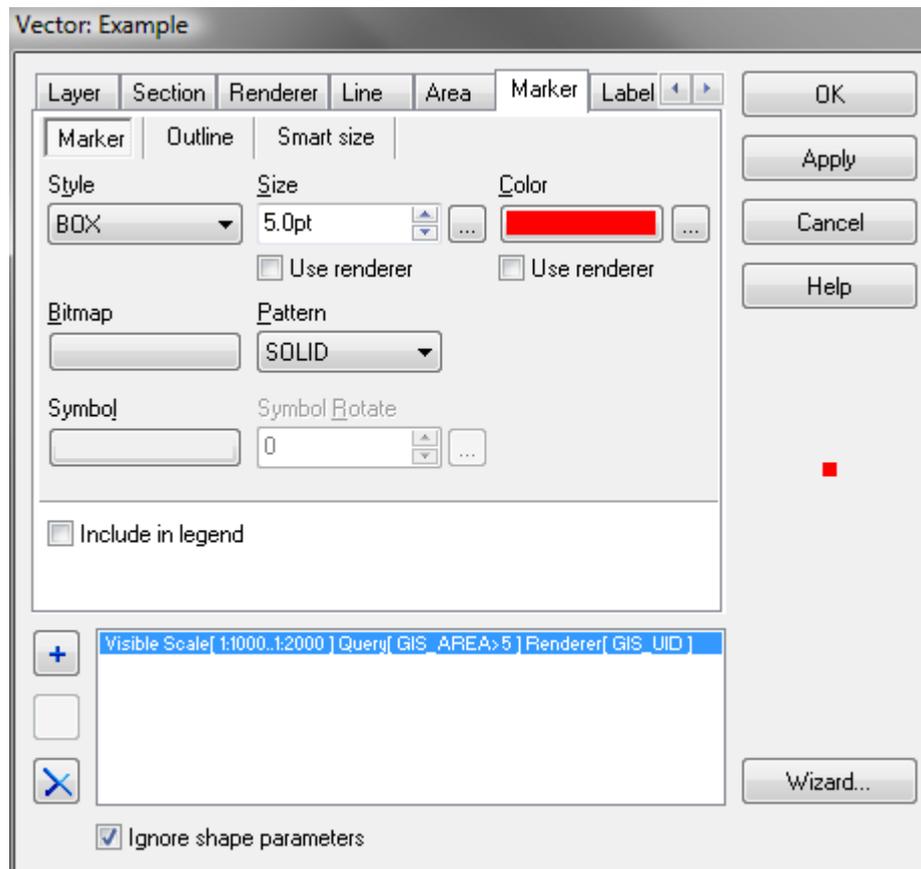
- *Style* - style of the outline.
- *Width* - width of the outline; check *Use renderer* option below to use global renderer settings found on the *Renderer* tab.
- *Color* - color of the outline; check *Use renderer* option below to use global renderer settings found on the *Renderer* tab.
- *Bitmap* - image file used for drawing outline instead of color.
- *Pattern* - pattern of the outline.

- *Symbol* - character/image used for drawing outline instead of color.
- *Symbol Gap* - distance between subsequent symbols.
- *Symbol Rotate* - relative rotation of each symbol (in degrees).
- *Include in legend* - if checked, the currently selected section is displayed in the [Legend panel](#) as a subgroup of its layer.

#### Smart size subtab

- *Size* - factor defining how big (at least) must be a polygon at the current scale to be rendered.
- *Field* - if the size of polygons should be rendered on the basis of some attribute, use this list to choose appropriate one.
- *Include in legend* - if checked, the currently selected section is displayed in the [Legend panel](#) as a subgroup of its layer.

#### 3.5.11.1.6 Marker



Vector dialog box, Marker tab, Marker subtab.

#### Marker subtab

- *Style* - style of the point marker.
- *Size* - size of the point marker; check *Use renderer* option below to use global renderer settings found on the *Renderer* tab.
- *Color* - color of the point marker; check *Use renderer* option below to use global renderer settings found on the *Renderer* tab.
- *Bitmap* - image file used for drawing point marker instead of color.
- *Pattern* - pattern of the point marker.
- *Symbol* - character/image used for drawing point marker instead of color.
- *Symbol Rotate* - relative rotation of each symbol (in degrees).
- *Include in legend* - if checked, the currently selected section is displayed in the [Legend panel](#) as a subgroup of its layer.

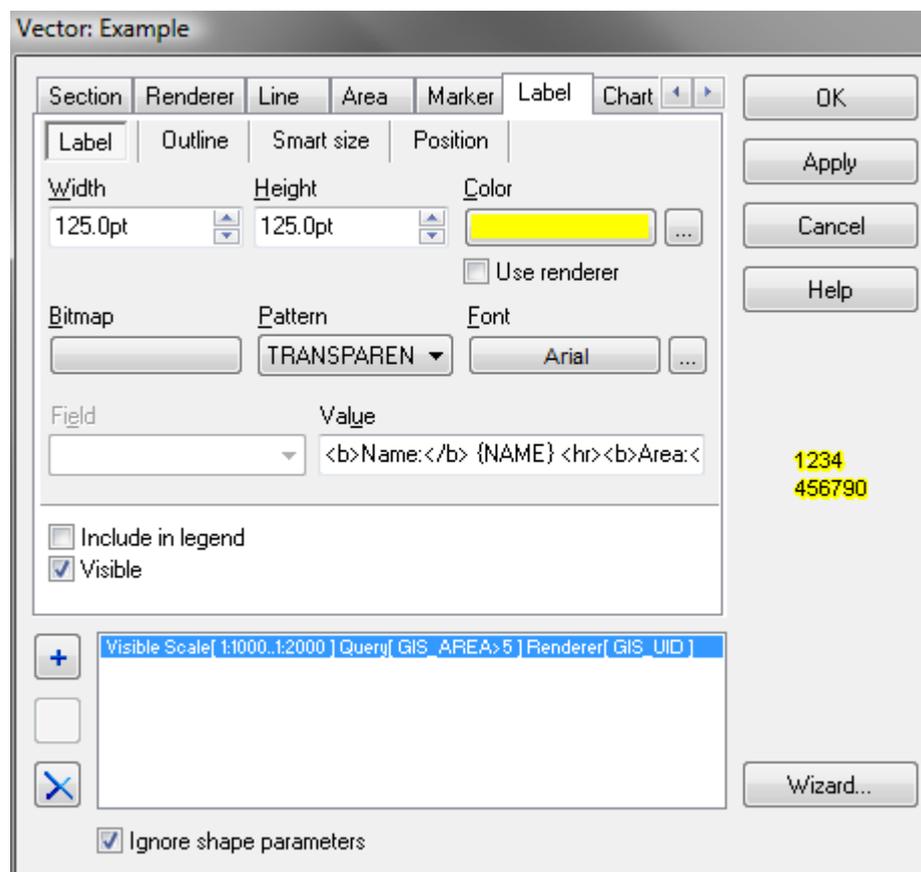
**Outline subtab**

- *Style* - style of the outline.
- *Width* - width of the outline; check *Use renderer* option below to use global renderer settings found on the *Renderer* tab.
- *Color* - color of the outline; check *Use renderer* option below to use global renderer settings found on the *Renderer* tab.
- *Bitmap* - an image file used for drawing outline instead of color.
- *Pattern* - pattern of the outline.
- *Include in legend* - if checked, the currently selected section is displayed in the [Legend panel](#) as a subgroup of its layer.

**Smart size subtab**

- *Size* - factor defining how big (at least) must be a point marker at the current scale to be rendered.
- *Field* - if the size of point markers should be rendered on the basis of some attribute, use this list to choose appropriate one.
- *Include in legend* - if checked, the currently selected section is displayed in the [Legend panel](#) as a subgroup of its layer.

## 3.5.11.1.7 Label



Vector dialog box, Label tab, Label subtab.

**Label subtab**

- *Width* - maximum label width.
- *Height* - maximum label height.
- *Color* - label background color; check *Use renderer* option below to use global renderer settings found on the *Renderer* tab.
- *Bitmap* - image file used for label background instead of color.
- *Pattern* - pattern of the label background.

- *Font* - label font.
- *Field* - attribute, which values are displayed as the labels.
- *Value* - if not blank, a formatted combination of strings and attributes that is displayed as a label instead of attribute defined in *Field*; **IMPORTANT** - see [Value label formatting](#) help topic for detailed information on label formatting.
- *Include in legend* - if checked, the label symbol of the currently selected section is displayed in the [Legend panel](#).
- *Visible* - if checked, the labels defined for the current section are visible within the [Map area](#).

#### Outline subtab

- *Style* - style of the outline.
- *Width* - width of the outline; check *Use renderer* option below to use global renderer settings found on the *Renderer* tab.
- *Color* - color of the outline; check *Use renderer* option below to use global renderer settings found on the *Renderer* tab.
- *Bitmap* - image file used for drawing outline instead of color.
- *Pattern* - pattern of the outline.
- *Include in legend* - if checked, the label symbol of the currently selected section is displayed in the [Legend panel](#).
- *Visible* - if checked, the labels defined for the current section are visible within the [Map area](#).

#### Smart size subtab

- *Size* - factor defining how big (at least) must be the shape at the current scale to render its label.
- *Field* - if the size of labels should be rendered on the basis of some attribute, use this list to choose appropriate one.
- *Include in legend* - if checked, the label symbol of the currently selected section is displayed in the [Legend panel](#).
- *Visible* - if checked, the labels defined for the current section are visible within the [Map area](#).

#### Position subtab

- *Position* - checkboxes indicate where does the *Editor* should try to put the label: 5 - [reference position] shape centroid or, if the centroid is outside the shape, the most optimal point, 1 - top-left position with respect to reference, 2 - over reference, 3 - top-right position with respect to reference, 4 - on the left hand side of reference, 6 - on the right hand side of reference, 7 - bottom-left position with respect to reference, 8 - under reference, 9 - bottom-right position with respect to reference; the order of checking decides about the position priority; when the *Editor* is unable to put the label in some position it tries the position with lower priority.
- *Flow* - if checked, the *Editor* always tries to position the label in the most optimal place.
- *Alignment* - defines alignment of the label within the label extent: *Single line* - only the first line of the label is displayed, *Left justify* - text is aligned to the left border of the label extent, *Center* - text is centered within the label extent, *Right justify* - text is aligned to the right border of the label extent, *Follow* - only the first line of the label is displayed in the most optimal place or, for line type shapes, along the line.
- *Avoid overlap* - if checked, the labels will never overlap each other.
- *Avoid duplicates* - if checked, if more than one shape has some value of attribute used in label definition then only the label of the shape with the lowest *GIS\_UID* value is displayed.
- *Label Rotate* - rotation of the label (in degrees).
- *Include in legend* - if checked, the label symbol of the currently selected section is displayed in the [Legend panel](#).
- *Visible* - if checked, the labels defined for the current section are visible within the [Map area](#).

#### 3.5.11.1.7.1 Value label formatting

##### Value label formatting

The *Editor* provides a simple markup language for custom label formatting.

##### Visual formatting

The *Editor* supports some of the standard HTML markers for visual formatting:

- **<B></B>** - text inside is displayed in bold font.
- **<BOL></BOL>** - equivalent of **<B></B>** supported for compatibility with other GIS products.
- **<I></I>** - text inside is displayed in italic font.
- **<U></U>** - text inside is underlined.
- **<HR>** - horizontal line.
- **<BR>** - line break.
- **<P></P>** - text inside is treated as a complete paragraph.
- **<STRONG></STRONG>** - text inside is displayed in extra bold font.
- **<FONT SIZE="S" NAME="F" COLOR="C"></FONT>** - text inside is displayed in the **F** font (e.g. ARIAL, TIMES, TAHOMA, etc) of the size **S** and the **C** color (where **C** can be one of the following: BLACK, BLUE, FUCHSIA, GRAY, GREEN, LIME, MAROON, NAVY, OLIVE, PURPLE, RED, SILVER, TEAL, WHITE, YELLOW); the **C** color can be also given in the RGB representation #RRGGBB, where RR, GG and BB are two digit hexadecimal number representations of the red, green and blue color intensities.
- **&amp;** - the & sign.
- **&nbsp;** - forced insertion of space.
- **&gt;** - the > sign.
- **&lt;** - the < sign.

*Example:* The code

```
<U><FONT NAME="ARIAL" COLOR=#FF0000><I>value1</I></FONT>&nbsp;<FONT NAME="ARIAL" COLOR=#0000FF><B>&lt;</B></FONT>&nbsp;<FONT NAME="ARIAL" COLOR=#00FF00><BOL>value2</BOL></FONT></U>
```

will result in the following label: *value1* < *value2* .

### Inserting attributes

The code {FIELD\_NAME:FORMAT} inserts the value of an attribute named **FIELD\_NAME** with formatting defined by the format string **FORMAT**. The format string is attribute type specific.

### Formatting of NUMBER and FLOAT type attributes

A) Automatic formatting

Format character	Format name	Description
C or c	Currency	Integer next to the character defines the number of most significant digits to be displayed.
D or d	Decimal	Integer next to the character defines the minimum number of digits to be displayed; number will be padded with zeroes if necessary; non integral value will be rounded first.
E or e	Scientific (exponential)	Integer next to the character defines the number of digits displayed after the decimal point (default is 2); number formatted as <i>Scientific</i> is always displayed in exponential form;
F or f	Fixed-point	Integer next to the character defines the number of digits displayed after the decimal point (default is 2).
G or g	General	The <i>Editor</i> tries to display the number in best suited form; Integer next to the character defines the number of significant digits.
N or n	Number	Integer next to the character defines the number of digits displayed after the decimal point (default is 2); inserts thousand separators accordingly to the system settings.
P or p	Percent	The number is multiplied by 100; i defines the number of digits displayed after the decimal point (default is 2).

R or r	Round-trip	Equivalent of <i>General</i> (for .NET compatibility only); Integer next to the character is ignored.
X or x	Hexadecimal	Integer next to the character defines the minimum number of hexadecimal digits to be displayed; number will be padded with zeroes if necessary; non integral value will be rounded first;

## B) Custom formatting

Format character	Name	Description
#	Digit placeholder	Defines optional position of a digit; if corresponding digit does not exist the digit placeholder is neglected.
0	Zero placeholder	Defines obligatory position of a digit; if corresponding digit does not exist the zero placeholder is replaced by '0'.
.	Decimal point	Defines the position of the decimal point.
[other]		Other characters are displayed without any change.

## Examples:

Code	Attribute value	Result string	Note
{FIELD_NAME:#####}	123.59	'123.59'	
{FIELD_NAME:#.000}	123.59	'123.590'	
{FIELD_NAME:#####0}	123.59	'123.59000'	
{FIELD_NAME:#####.###}	-123.59	'-123.59'	
{FIELD_NAME:00000.###}	123.59	'00123.59'	
{FIELD_NAME:0-0-0-0-0}	123.59	'0-0-1-2-4'	rounding
{FIELD_NAME:over #;below #;zero #}	123.59	'over 124'	rounding
{FIELD_NAME:over #;below #;zero #}	-123.59	'below 124'	rounding, no minus sign
{FIELD_NAME:over #;below #;zero #}	0	'zero '	no zero sign
{FIELD_NAME:over #;below #;zero 0}	0	'zero 0'	
{FIELD_NAME:;;below #;zero#}	123.59	"	empty string
{FIELD_NAME:over #;;zero#}	-123.59	"	empty string
{FIELD_NAME:over #;below #;}	0	"	empty string

## Formatting of BOOLEAN type attributes

## A) Automatic formatting

Code	Attribute value	Result string
{FIELD_NAME}	True	'True'
{FIELD_NAME}	False	'False'

## B) Custom formatting

## Examples:

Code	Attribute value	Result	Note
{FIELD_NAME:yes;no}	True	'yes'	
{FIELD_NAME:yes;no}	False	'no'	
{FIELD_NAME:yes}	True	'yes'	
{FIELD_NAME:yes}	False	"	empty string

{FIELD_NAME::no}	True	"	empty string
{FIELD_NAME:yes;}	False	"	empty string
{FIELD_NAME:yes;no1;no2}	False	'no1;no2'	

### Formatting of DATE type attributes

Note: character in brackets represents a string consisting of any number of this character.

Format string	Format name	Description
d	Day	Day as a number 1..31 (without trailing zero).
dd	Day	Day as a number 01..31 (with trailing zero).
ddd	Day	Day as an abbreviated name of the day of the week; depends on system regional settings.
dddd(d)	Day	Day as a full name of the day of the week; depends on system regional settings.
f	Second fraction	Most significant digit of the second fraction.
ff	Second fraction	Two most significant digits of the second fraction.
fff	Second fraction	Three most significant digits of the second fraction.
ffff	Second fraction	Four most significant digits of the second fraction.
fffff	Second fraction	Five most significant digits of the second fraction.
ffffff	Second fraction	Six most significant digits of the second fraction.
fffffff(f)	Second fraction	Seven most significant digits of the second fraction.
F	Second fraction	Most significant digit of the second fraction; if zero then nothing will be displayed.
FF	Second fraction	Two most significant digits of the second fraction; trailing zeros will be truncated.
FFF	Second fraction	Three most significant digits of the second fraction; trailing zeros will be truncated.
FFFF	Second fraction	Four most significant digits of the second fraction; trailing zeros will be truncated.
FFFFF	Second fraction	Five most significant digits of the second fraction; trailing zeros will be truncated.
FFFFFF	Second fraction	Six most significant digits of the second fraction; trailing zeros will be truncated.
FFFFFFF(F)	Second fraction	Seven most significant digits of the second fraction; trailing zeros will be truncated.
g(g)	Period or Era	<i>[not supported yet]</i>
h	Hour	Hour as a number 1..12 (without trailing zero).
hh(h)	Hour	Hour as a number 01..12 (with trailing zero).
H	Hour	Hour as a number 1..24 (without trailing zero).
HH(H)	Hour	Hour as a number 01..24 (with trailing zero).
m	Minute	Minute as a number 0..59 (without trailing zero).
mm(m)	Minute	Minute as a number 00..59 (with trailing zero).
M	Month	Month as a number 1..12 (without trailing zero).
MM	Month	Month as a number 01..12 (with trailing zero).
MMM	Month	Month as an abbreviated name of the month; depends on system regional settings.
MMMM(M)	Month	Month as a full name of the month; depends on system regional settings.
s	Seconds	Seconds as a number 0..59 (without trailing zero).
ss(s)	Seconds	Seconds as a number 00..59 (with trailing zero).
t	AM/PM	First character of the 'AM' or 'PM' string; depends on system

		regional settings.
tt(t)	AM/PM	'AM' or 'PM' string; depends on system regional settings.
y	Year	Year as a two digit number; if year has less than two digits then one digit number will be displayed.
yy	Year	Year as a two digit number; if year has less than two digits then result will be padded with zero.
yyy	Year	Year as a three digit number; if year has less than three digits then result will be padded with zeros.
yyyy	Year	Year as a four digit number; if year has less than four digits then result will be padded with zeros.
yyyy(y)	Year	Year as a five digit number; if year has less than five digits then result will be padded with zeros.
z(z)	GMT Offset	<i>[not supported yet]</i>
<i>[other]</i>		Other characters are displayed without any change.

*Examples:*

Code	Attribute value	Result string	Note
{FIELD_NAME:d}	3rd of June 2008: 17:09:03.650, US English	'3'	
{FIELD_NAME:dd}	3rd of June 2008: 17:09:03.650, US English	'03'	
{FIELD_NAME:ddd}	3rd of June 2008: 17:09:03.650, US English	'Tue'	
{FIELD_NAME:dddd}	3rd of June 2008: 17:09:03.650, US English	'Tuesday'	
{FIELD_NAME:M}	3rd of June 2008: 17:09:03.650, US English	'6'	
{FIELD_NAME:MM}	3rd of June 2008: 17:09:03.650, US English	'06'	
{FIELD_NAME:MMM}	3rd of June 2008: 17:09:03.650, US English	'Jun'	
{FIELD_NAME:MMMM}	3rd of June 2008: 17:09:03.650, US English	'June'	
{FIELD_NAME:y}	3rd of June 2008: 17:09:03.650, US English	'08'	
{FIELD_NAME:yy}	3rd of June 2008: 17:09:03.650, US English	'08'	
{FIELD_NAME:yyy}	3rd of June 2008: 17:09:03.650, US English	'008'	
{FIELD_NAME:yyyy}	3rd of June 2008: 17:09:03.650, US English	'2008'	
{FIELD_NAME:yyyyy}	3rd of June 2008: 17:09:03.650, US English	'02008'	

{FIELD_NAME:h}	3rd of June 2008: 17:09:03.650, US English	'5'	
{FIELD_NAME:hh}	3rd of June 2008: 17:09:03.650, US English	'05'	
{FIELD_NAME:H}	3rd of June 2008: 17:09:03.650, US English	'17'	
{FIELD_NAME:HH}	3rd of June 2008: 17:09:03.650, US English	'17'	
{FIELD_NAME:t}	3rd of June 2008: 17:09:03.650, US English	'P'	
{FIELD_NAME:tt}	3rd of June 2008: 17:09:03.650, US English	'PM'	
{FIELD_NAME:m}	3rd of June 2008: 17:09:03.650, US English	'9'	
{FIELD_NAME:mm}	3rd of June 2008: 17:09:03.650, US English	'09'	
{FIELD_NAME:mmm}	3rd of June 2008: 17:09:03.650, US English	'09'	ignored 3rd 'm' in format string
{FIELD_NAME:s}	3rd of June 2008: 17:09:03.650, US English	'3'	
{FIELD_NAME:ss}	3rd of June 2008: 17:09:03.650, US English	'03'	
{FIELD_NAME:f}	3rd of June 2008: 17:09:03.650, US English	'6'	
{FIELD_NAME:ffff}	3rd of June 2008: 17:09:03.650, US English	'6500'	
{FIELD_NAME:FFFF}	3rd of June 2008: 17:09:03.650, US English	'65'	
{FIELD_NAME:yyyy/MM/dd HH/mm/ss.ffff}	3rd of June 2008: 17:09:03.650, US English	'2008/06/03 17:09:03.6500'	

### Formatting of STRING type attributes

Note: *i* is a placeholder for an integer number.

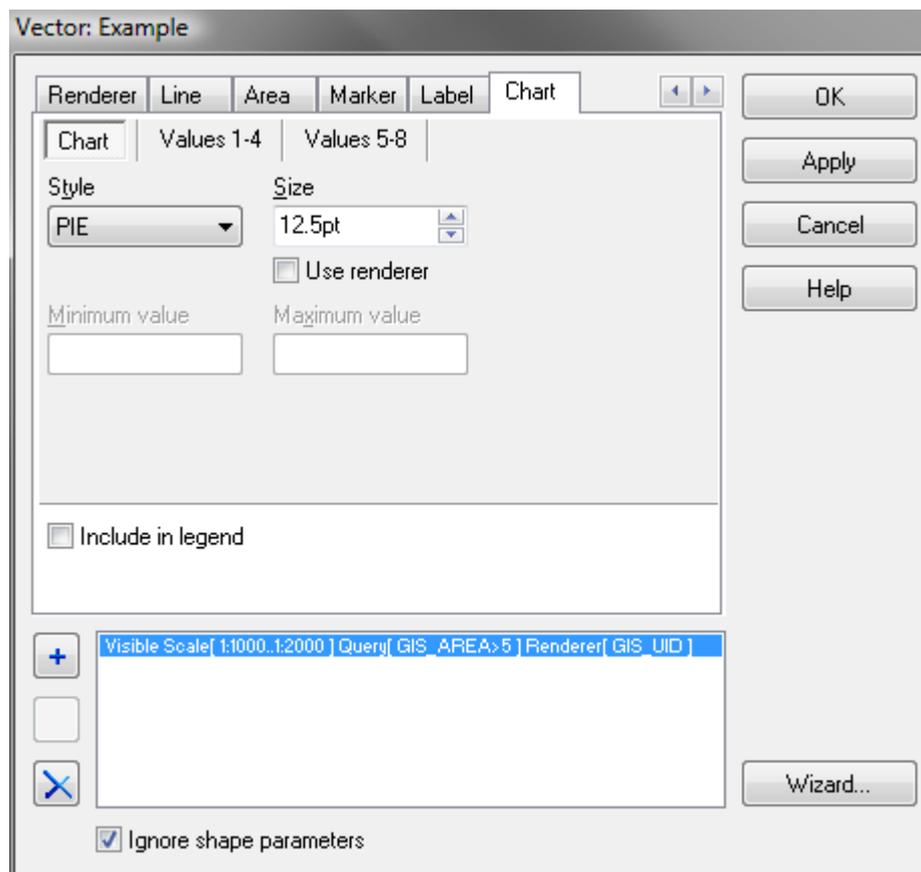
Format character	Name	Description
\$	normal text	Text displayed without any changes.
S	uppercase	Text displayed in uppercase.
s	lowercase	Text displayed in lowercase.
<i>i [at the beginning]</i>	first character	<i>i</i> >0 defines from which character (counting from the beginning of the string) should be the string displayed; if <i>i</i> <0 then the

		characters are counted from the end of the string.
<i>i</i> [at the end]	last character	<i>i</i> >0 defines up to which character (counting from the beginning of the string) should be the string displayed; if <i>i</i> <0 then the characters are counted from the end of the string.

Examples:

Code	Attribute value	Result string	Note
{FIELD_NAME:\$}	'Abcdefghij'	'Abcdefghij'	
{FIELD_NAME:S}	'Abcdefghij'	'ABCDEFGHJIJ'	
{FIELD_NAME:s}	'Abcdefghij'	'abcdefghij'	
{FIELD_NAME:1\$-1}	'Abcdefghij'	'Abcdefghij'	
{FIELD_NAME:1S3}	'Abcdefghij'	'ABC'	
{FIELD_NAME:1s3}	'Abcdefghij'	'abc'	
{FIELD_NAME:1\$-3}	'Abcdefghij'	'Abcdefgh'	
{FIELD_NAME:-3\$-1}	'Abcdefghij'	'hij'	
{FIELD_NAME:4\$-4}	'Abcdefghij'	'defg'	
{FIELD_NAME:8\$-8}	'Abcdefghij'	"	empty string

### 3.5.11.1.8 Chart



Vector dialog box, Chart tab, Chart subtab.

#### Chart subtab

- *Style* - style of the chart.
- *Size* - size of the chart; check *Use renderer* option below to use global renderer settings found on the *Renderer* tab.
- *Minimum value* - bottom value for the chart; applies to *BAR* style chart only.
- *Maximum value* - top value for the chart; applies to *BAR* style chart only.

- *Include in legend* - if checked, the chart symbol of the currently selected section is displayed in the [Legend panel](#).

#### Values 1-4/Values 5-8 subtab

- *Values* - the attributes used to build the chart for each shape.
- *Legends* - text that is displayed besides the chart symbol in the [Legend panel](#).
- *Include in legend* - if checked, the chart symbol of the currently selected section is displayed in the [Legend panel](#).

### 3.5.11.2 Raster dialog box

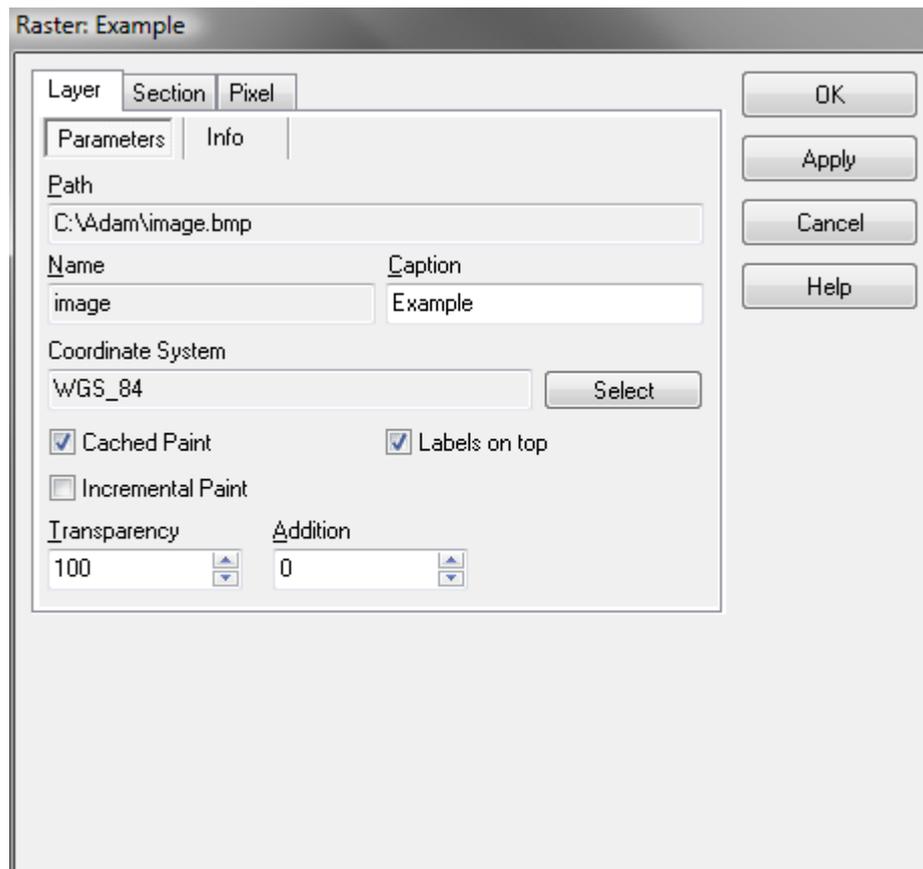
#### Description

The *Raster* dialog box is the layer property dialog box for the raster type layers (images, grids). It consists of 3 settings tabs :

- [Layer tab](#),
- [Section tab](#),
- [Pixel tab](#) - appears if the layer was not recognized as a grid layer,
- [Grid tab](#) - appears only when the layer was recognized as a grid layer.

For general information about layer properties and common usage scenarios refer to the [Properties](#) help topic.

#### 3.5.11.2.1 Layer



Raster dialog box, Layer tab, Parameters subtab.

#### Parameters subtab

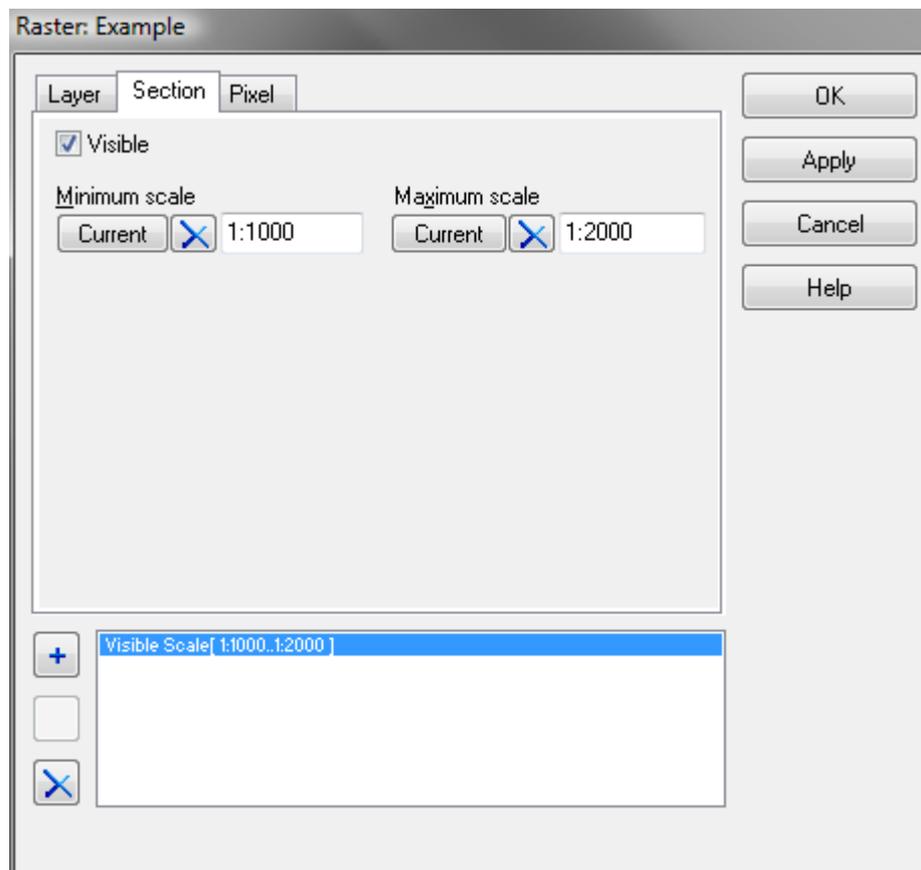
- *Path* - [READ ONLY] path to the file containing the layer.
- *Name* - [READ ONLY] name of the file containing the layer.
- *Caption* - identifier of the layer under which it appears in the [Legend panel](#).
- *Coordinate System* - coordinate system in which the layer is displayed.

- *Cached Paint* - if unchecked, the rendering is performed directly on the [Map area](#), which can dramatically improve performance with very large and complicated vector data sets.
- *Labels on top* - if checked, labels are displayed on top of all layers in the project.
- *Incremental paint* - if checked, the rendering in *Drag* mode is performed only when the mouse button is released, which can dramatically improve performance with very large and complicated vector data sets.
- *Transparency* - factor defining the layer transparency; it must be greater or equal to 0 and lower or equal to 100, where 0 means invisible and 100 means opaque.
- *Addition* - factor determining the degree to which the background color of the layer is added to the color of the layer shapes; it must be greater or equal to 0 and lower or equal to 100, where 0 means shape color and 100 means layer background color; this feature applies only to anaglyph images.

#### Info subtab

- *File informations* - [READ ONLY] information about the file format, resolution and bit depth.
- *User comments* - additional information provided by the user/file creator.
- *From Codepage* - codepage to be used for reading layer parameters.
- *To Codepage* - codepage to be used for processing/displaying layer parameters.

#### 3.5.11.2.2 Section

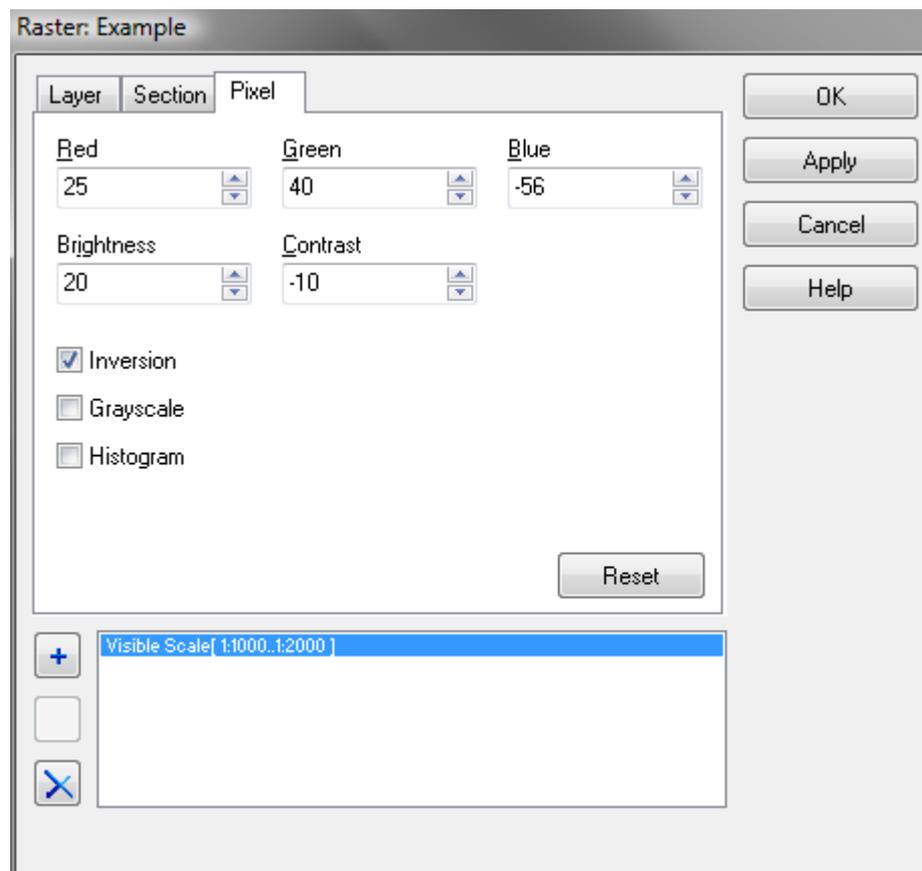


Raster dialog box, Section tab.

#### Section tab

- *Visible* - if unchecked, the layer remains hidden, it is not rendered within the [Map area](#).
- *Minimum scale* - minimum scale at which the current section will be rendered; click on the *Current* button to fill it with the scale at the current zoom level.
- *Maximum scale* - maximum scale at which the current section will be rendered; click on the *Current* button to fill it with the scale at the current zoom level.

## 3.5.11.2.3 Pixel

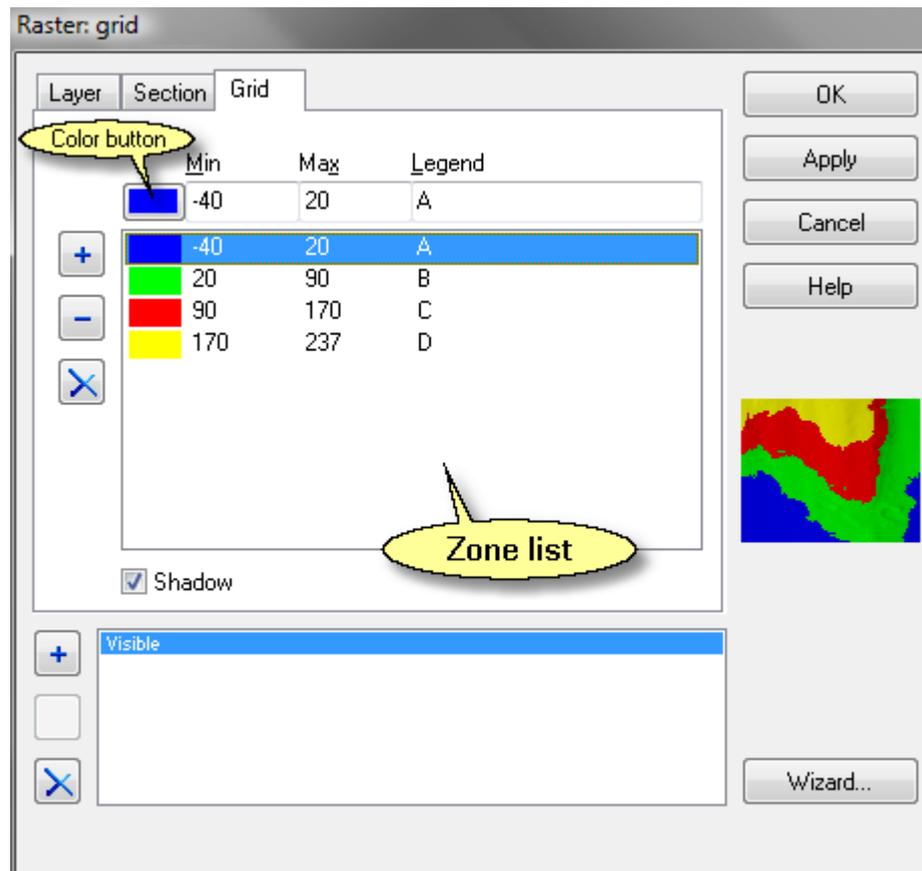


Raster dialog box, Pixel tab.

**Pixel tab**

- *Red* - defines how much the red color is reduced/amplified with respect to the original value for each pixel; can vary from -100 to 100, where -100 means that the red color is completely reduced and 100 that the red color is fully amplified.
- *Green* - defines how much the green color is reduced/amplified with respect to the original value for each pixel; can vary from -100 to 100, where -100 means that the green color is completely reduced and 100 that the green color is fully amplified.
- *Blue* - defines how much the blue color is reduced/amplified with respect to the original value for each pixel; can vary from -100 to 100, where -100 means that the blue color is completely reduced and 100 that the blue color is fully amplified.
- *Brightness* - defines how much all colors are reduced/amplified with respect to the original value for each pixel; can vary from -100 to 100, where -100 turns the layer black and 100 turns the layer white.
- *Contrast* - defines how much each color is reduced or amplified with respect to the original value for each pixel; for values from -100 to 0 the color is reduced if its original intensity is above the average and is amplified if its original intensity is below the average; for values from 0 to 100 the color is reduced if its original intensity is below the average and is amplified if its original intensity is above the average.
- *Inversion* - if checked, the layer is displayed in negative colors.
- *Grayscale* - if checked, the layer is displayed in grayscale colors.
- *Histogram* - if checked, the colors are amplified with the usage of histogram computed for the current layer.
- *Reset* button - restores the default settings on the *Pixel* tab.

## 3.5.11.2.4 Grid



Raster dialog box, Grid tab.

**Grid tab** - appears only if the layer is recognized as a grid layer

-  button - adds a new zone to the *Zone list*.
-  button - deletes the zone currently selected in the *Zone list*.
-  button - deletes all zones from the *Zone list*.
- Color button - invokes the *Color* dialog box in which the user can pick a color for the zone currently selected in the *Zone list*.
- *Min* - lower limit for the zone currently selected in the *Zone list*.
- *Max* - upper limit for the zone currently selected in the *Zone list*.
- *Legend* - name of the zone currently selected in the *Zone list* as it is displayed in the [Legend panel](#).
- *Shadow* - if checked, the grid layer is treated as an height map and an imitation of shadow is cast as if the light source was placed on the left hand side of the layer.

### 3.5.12 Move up

#### Description

Clicking on the *Layer/Move up* menu item shifts up the currently active layer on the priority list. The priority list (the list of all currently open layers) is displayed on the [Legend panel](#). Positions on the priority list affects the order of rendering on the [Map area](#). The layer topmost on the priority list has the highest priority and is rendered as the last one, i.e. on the top of other layers. The priority decreases downwards.

#### To increase the priority of a layer

1. Activate (highlight) the desired layer. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Layer/Move up* menu item.

**Equivalent actions**

The same function can be initiated by clicking on the *Move up* item in the [Legend](#) panel's context menu. The order on the priority list can be changed by dragging items on the [Legend panel](#) with the mouse pointer.

**Associated functions**

To decrease the priority of a layer, use the [Move down](#) feature.

### 3.5.13 Move down

**Description**

Clicking on the *Layer/Move down* menu item shifts down the currently active layer on the priority list. The priority list (the list of all currently open layers) is displayed on the [Legend panel](#). Positions on the priority list affects the order of rendering on the [Map area](#). The layer topmost on the priority list has the highest priority and is rendered as the last one, i.e. on the top of other layers. The priority decreases downwards.

**To decrease the priority of a layer**

1. Activate (highlight) the desired layer. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Layer/Move down* menu item.

**Equivalent actions**

The same function can be initiated by clicking on the *Move down* item in the [Legend](#) panel's context menu. The order on the priority list can be changed by dragging items on the [Legend panel](#) with the mouse pointer.

**Associated functions**

To increase the priority of a layer, use the [Move up](#) feature.

### 3.5.14 Show attributes table

**Description**

Clicking on the *Layer/Show attributes table* menu item shows the attributes table of the active vector layer in the [Data panel](#). If the [Data panel](#) is close at the moment of calling this function it will be opened first.

**To show the attributes table of a vector layer in the Data panel**

1. Activate (highlight) the desired layer. Do this by clicking on its name in the [Legend panel](#).
1. Click on the *Layer/Show attributes table* menu item.

**Equivalent actions**

The same function can be activated by clicking on the *Show attributes table* item in the [Legend panel](#) context menu.

### 3.5.15 Visible

**Description**

Clicking on the *Layer/Visible* menu item toggles visibility of the currently active layer on the [Map area](#). Even if a layer is invisible it still remains open.

**To toggle visibility of a desired layer**

1. Activate (highlight) the desired layer. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Layer/Visible* menu item.

**Equivalent actions**

The visibility of a layer can be also toggled by clicking on a square on the left side of its name on the [Legend panel](#).

### 3.5.16 Recalculate extent

#### Description

Clicking on the *Layer/Recalc extent* menu item causes recalculation of the total extent of a vector layer. This feature is especially useful while editing geometry of a vector layer. The geometry editing may affect a layer in such a way that the initial total extent does not contain all the geometry of the layer or it is too big and causes some operations to be performed ineffectively.

#### To recalculate the total extent of a layer

1. Activate (highlight) the desired layer. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Layer/Recalc extent* menu item.

#### Note

- If the active layer is not a vector type layer this feature remains inactive.

## 3.6 Shape

#### Description

The *Shape* menu group contains features used for editing individual shapes (objects) within a vector layer. The term "shape" is commonly used in GIS world to describe a single geometric object of a vector type. A shape can be one of the following four types: point, multi-point, line, polygon.

#### Object elements

The following table explains how the elements of the geometric objects are classified.

Object \ Class	Interior	Boundary	Exterior
Point	Point itself	Nothing	Everything except interior
Multipoint	Points themselves	Nothing	Everything except interior
Line	Line itself except the starting and ending points	Starting and ending points of the line	Everything except interior and boundary
Polygon	Area of the polygon	Outline of the polygon	Everything except interior and boundary

### 3.6.1 Edit shape

#### Description

Clicking on the *Shape/Edit shape* menu item activates the editing tool of a general purpose. The user can edit an existing shape of any type (point, multipoint, line and polygon) by interacting with it within the [Map area](#). All editing actions are performed on the vertices.

The way the vertices are being connected can be changed by choosing one of the edit modes - see [Edit mode](#), [Nearest point](#) and [After active point](#) topics for details.

The *Editor* can snap newly created vertices to the existing ones - see [Edit snap type](#), [Snap to point](#) and [Snap to line](#) topics for details.

The table below describes the placement of vertices for each shape type.

Shape type	Vertices
Point	Point itself
Multipoint	Points themselves
Line	Starting, final and intermediate points
Polygon	Intermediate points of the outline

### **Editing a point type shape**

#### **To move a point in to a different place**

1. Activate (highlight) the layer that contains the desired point. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) such that the desired point and its destination place are visible.
3. Click on the *Shape/Edit shape* menu item.
4. Move the mouse pointer over the desired point and click to make a selection.
5. Without moving the mouse pointer press the left mouse button.
6. Move the mouse pointer to the destination place. When finished release the left mouse button.
7. Click on the *Shape/Edit shape* menu item to confirm the change.

### **Editing a multipoint type shape**

#### **To deform a multipoint by moving its vertices to different places**

1. Activate (highlight) the layer that contains the desired multipoint. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) such that the multipoint and its intended post-edition form are visible.
3. Click on the *Shape/Edit shape* menu item.
4. Move the mouse pointer over any of the vertices belonging to the multipoint and click to make a selection - all vertices belonging to that multipoint will appear in green color.
5. Move the mouse pointer over a vertex that you would like to displace and press the left mouse button.
6. Move the mouse pointer to the destination place. When finished release the left mouse button.
7. [OPTIONAL] Repeat the steps 5 and 6 for as many times as needed.
8. Click on the *Shape/Edit shape* menu item to confirm the change.

#### **To remove vertices from a multipoint**

1. Activate (highlight) the layer that contains the desired multipoint. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) such that the multipoint is visible.
3. Click on the *Shape/Edit shape* menu item.
4. Move the mouse pointer over any of the vertices belonging to the multipoint and click to make a selection - all vertices belonging to that multipoint will appear in green color.
5. Move the mouse pointer over a vertex that you would like to remove and click.
6. After approximately one second click again without moving the mouse pointer.
7. [OPTIONAL] Repeat the steps 5 and 6 for as many times as needed.
8. Click on the *Shape/Edit shape* menu item to confirm the change.

### **Editing a line type shape**

#### **To deform a line by moving its vertices to different places**

1. Activate (highlight) the layer that contains the desired line. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) such that the line and its intended post-edition form are visible.
3. Click on the *Shape/Edit shape* menu item.
4. Move the mouse pointer over the line and click to make a selection - all vertices belonging to that line will appear in green color.
5. Move the mouse pointer over a vertex that you would like to displace and press the left mouse button.
6. Move the mouse pointer to the destination place. When finished release the left mouse button.
7. [OPTIONAL] Repeat the steps 5 and 6 for as many times as needed.
8. Click on the *Shape/Edit shape* menu item to confirm the change.

#### **To deform/expand a line by adding new vertices**

1. Activate (highlight) the layer that contains the desired line. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) such that the line and its intended post-edition form are visible.
3. Click on the *Shape/Edit shape* menu item.
4. Move the mouse pointer over the line and click to make a selection.
5. Move the mouse pointer over the place where you would like to create a new vertex and click.
6. [OPTIONAL] Repeat the step 5 as many times as needed.
7. Click on the *Shape/Edit shape* menu item to confirm the change.

#### **To remove vertices from a line**

1. Activate (highlight) the layer that contains the desired line. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) such that the line is visible.
3. Click on the *Shape/Edit shape* menu item.
4. Move the mouse pointer over the line and click to make a selection - all vertices belonging to that line will appear in green color.
5. Move the mouse pointer over a vertex that you would like remove and click.
6. After approximately one second click again without moving the mouse pointer.
7. [OPTIONAL] Repeat the steps 5 and 6 for as many times as needed.
8. Click on the *Shape/Edit shape* menu item to confirm the change.

#### **Editing a polygon type shape**

##### **To deform a polygon by moving its vertices to different places**

1. Activate (highlight) the layer that contains the desired polygon. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) such that the polygon and its intended post-edition form are visible.
3. Click on the *Shape/Edit shape* menu item.
4. Move the mouse pointer over the polygon and click to make a selection - all vertices belonging to that polygon will appear in green color.
5. Move the mouse pointer over a vertex that you would like to displace and press the left mouse button.
6. Move the mouse pointer to the destination place. When finished release the left mouse button.
7. [OPTIONAL] Repeat the steps 5 and 6 for as many times as needed.
8. Click on the *Shape/Edit shape* menu item to confirm the change.

##### **To deform/expand a polygon by adding new vertices**

1. Activate (highlight) the layer that contains the desired polygon. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) such that the polygon and its intended post-edition form are visible.
3. Click on the *Shape/Edit shape* menu item.
4. Move the mouse pointer over the desired polygon and click on it to make a selection.
5. Move the mouse pointer over a place where you would like to create a new vertex and click.
6. [OPTIONAL] Repeat the step 5 as many times as needed.
7. Click on the *Shape/Edit shape* menu item to confirm the change.

##### **To remove vertices from a polygon**

1. Activate (highlight) the layer that contains the desired polygon. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) such that the polygon is visible.
3. Click on the *Shape/Edit shape* menu item.
4. Move the mouse pointer over the polygon and click to make a selection - all vertices belonging to that polygon will appear in green color.
5. Move the mouse pointer over a vertex that you would like remove and click.
6. After approximately one second click again without moving the mouse pointer.
7. [OPTIONAL] Repeat the steps 5 and 6 for as many times as needed.

8. Click on the *Shape/Edit shape* menu item to confirm the change.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). Another way is to click on the *Edit shape* item in the [Map area](#) context menu.

#### Associated functions

To remove a shape from a vector layer, use the [Delete Shape](#) feature.

To restore the state of a shape as it was previously saved, use the [Revert Shape](#) feature.

### 3.6.2 New shape

#### Description

Clicking on the *Shape/Create new shape* menu item displays the list of tools used create a new shape within a vector layer. A newly created shape is built upon a basis formed of vertices in a way specific to its type: point, multipoint, line or polygon. The table below describes the placement of vertices for each shape type.

Shape type	Vertices
Point	Point itself
Multipoint	Points themselves
Line	Starting, final and intermediate points
Polygon	Intermediate points of the outline

#### Equivalent actions

The same function can be initiated by clicking on the rightmost  icon on the [Standard toolbar](#).

#### 3.6.2.1 Point

##### Description

Clicking on the *Shape/Create new shape/Point* menu item activates the editing feature used to create a shape of the point type within a vector layer. Each vertex created with the *Point* feature is treated individually, as a separate shape.

The *Editor* can snap newly created vertices to the existing ones - see [Edit snap type](#), [Snap to point](#) and [Snap to line](#) topics for details.

##### To create a point or a set of points within a vector layer

1. Activate (highlight) the layer in which the point is to be created. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to cover the area where you would like to create the point.
3. Click on the *Shape/Create new shape/Point* menu item.
4. Within the [Map area](#) move the mouse pointer over any point and click. [OPTIONAL] Repeat this step as many times as needed.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the rightmost  icon on the same toolbar and then on the *Point* item on the drop down list.

#### Similar functions

To create a set of points that is treated as a single shape (of the multipoint type), use the [Multipoint](#) feature.

#### Associated functions

To edit an existing shape, use the [Edit object](#) feature.

To remove a shape from a vector layer use, the [Delete Shape](#) feature.

#### Note

- If the edited layer is stored in the *ArcView Shape (SHP)* file format of the type different than point then this feature will be inactive.

### 3.6.2.2 Multipoint

#### Description

Clicking on the *Shape/Create new shape/Multipoint* menu item activates the editing feature used to create a shape of the multipoint type within a vector layer. A vertex created with the *Multipoint* feature can be treated as a separate shape or as a part of a multipoint type shape.

The *Editor* can snap newly created vertices to the existing ones - see [Edit snap type](#), [Snap to point](#) and [Snap to line](#) topics for details.

#### To create a multipoint within a vector layer

1. Activate (highlight) the layer in which the multipoint is to be created. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to cover the area where you would like to create the multipoint.
3. Click on the *Shape/Create new shape/Multipoint* menu item.
4. Within the [Map area](#) move the mouse pointer over any point and click - a new vertex will be created. [OPTIONAL] Repeat this step as many times as needed.
5. When the multipoint is completed click on the *Shape/Create new shape/Multipoint* menu item to confirm.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the rightmost  icon on the same toolbar and then on the *Multipoint* item on the drop down list.

#### Similar functions

To create a set of vertices that are treated as a separate shapes (of the point type), use the [Point](#) feature.

#### Associated functions

To edit an existing shape, use the [Edit object](#) feature.

To remove a shape from a vector layer, use the [Delete Shape](#) feature.

#### Note

- If the edited layer is stored in the *ArcView Shape (SHP)* file format of the type different than multipoint then this feature will be inactive.

### 3.6.2.3 Line

#### Description

Clicking on the *Shape/Create new shape/Line* menu item activates the editing feature used to create a broken line within a vector layer. This shape is of the line type. It is composed of two or more sequentially numbered vertices with straight line segments connecting them. Intermediate vertices are created manually.

The way the vertices are being connected can be changed by choosing one of the edit modes - see [Edit mode](#), [Nearest point](#) and [After active point](#) topics for details.

The *Editor* can snap newly created vertices to the existing ones - see [Edit snap type](#), [Snap to point](#) and [Snap to line](#) topics for details.

#### To create a broken line within a vector layer

1. Activate (highlight) the layer in which the broken line is to be created. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to cover the area where you would like to create the line.

3. Click on the *Shape/Create new shape/Line* menu item.
4. Within the [Map area](#) move the mouse pointer over any point and click - a starting vertex of the line will be fixed.
5. To create an intermediate vertex along with a line segment move the mouse pointer over a different point and click. [OPTIONAL] Repeat this step as many times as needed.
6. When the broken line is drawn click on the *Shape/Create new shape/Line* menu entry to confirm.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the rightmost  icon on the same toolbar and then on the *Line* item on the drop down list.

#### Similar functions

To create a different shape of a line type, use one of the following features: [Line 90°](#), [Line free](#), [Closed line](#), [Closed line 90°](#), [Rectangle \[linear\]](#), [Rectangle rotated \[linear\]](#), [Circle \[linear\]](#), [Circle 3point base \[linear\]](#).

#### Associated functions

To edit an existing shape, use the [Edit object](#) feature.

To remove a shape from a vector layer, use the [Delete Shape](#) feature.

#### Note

- If the edited layer is stored in the *ArcView Shape (SHP)* file format of the type different than line then this feature will be inactive.
- The last inserted vertex is marked with a red color.

### 3.6.2.4 Line 90°

#### Description

Clicking on the *Shape/Create new shape/Line 90°* menu item activates the editing feature used to create a special kind of a broken line within a vector layer. This shape is of the line type. It is composed of two or more sequentially numbered vertices with perpendicularly oriented straight line segments connecting them. Intermediate vertices are created manually.

#### To create a broken line with perpendicularly oriented segments within a vector layer

1. Activate (highlight) the layer in which the broken line is to be created. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to cover the area where you would like to create the line.
3. Click on the *Shape/Create new shape/Line 90°* menu item.
4. Within the [Map area](#) move the mouse pointer over any point and click - a starting vertex of the line will be fixed.
5. Move the mouse pointer in any direction and click to create the first line segment.
6. To create an intermediate vertex along with a line segment move the mouse pointer perpendicularly to the last segment and click. [OPTIONAL] Repeat this step as many times as needed.
7. When the broken line is drawn click on the *Shape/Create new shape/Line 90°* menu item to confirm.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the rightmost  icon on the same toolbar and then on the *Line 90°* item on the drop down list.

#### Similar functions

To create a different shape of a line type, use one of the following features: [Line](#), [Line free](#), [Closed line](#), [Closed line 90°](#), [Rectangle \[linear\]](#), [Rectangle rotated \[linear\]](#), [Circle \[linear\]](#), [Circle 3point base \[linear\]](#).

**Associated functions**

To edit an existing shape, use the [Edit object](#) feature.

To remove a shape from a vector layer, use the [Delete Shape](#) feature.

**Note**

- If the edited layer is stored in the *ArcView Shape (SHP)* file format of the type different than line then this feature will be inactive.

**3.6.2.5 Line free****Description**

Clicking on the *Shape/Create new shape/Line free* menu item activates the editing feature used to create a freely drawn line within a vector layer. This shape is of the line type. It is composed of two or more sequentially numbered vertices with straight line segments connecting them. Intermediate vertices are created automatically.

**To create a freely drawn line within a vector layer**

1. Activate (highlight) the layer in which the free line is to be created. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to cover the area where you would like to create the line.
3. Click on the *Shape/Create new shape/Line free* menu item.
4. Within the [Map area](#) move the mouse pointer over any point and press the left mouse button - a starting vertex of the line will be fixed.
5. Holding the left mouse button move the mouse cursor to draw the line. When finished release the left mouse button.
6. [OPTIONAL] Repeat the steps 4 and 5 as many times as needed.
7. When the free line is drawn click on the *Shape/Create new shape/Line free* menu item to confirm.

**Equivalent actions**

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the rightmost  icon on the same toolbar and then on the *Line free* item on the drop down list.

**Similar functions**

To create a different shape of a line type, use one of the following features: [Line](#), [Line 90°](#), [Closed line](#), [Closed line 90°](#), [Rectangle \[linear\]](#), [Rectangle rotated \[linear\]](#), [Circle \[linear\]](#), [Circle 3point base \[linear\]](#).

**Associated functions**

To edit an existing shape, use the [Edit object](#) feature.

To remove a shape from a vector layer, use the [Delete Shape](#) feature.

**Note**

- If the edited layer is stored in the *ArcView Shape (SHP)* file format of the type different than line then this feature will be inactive.

**3.6.2.6 Close line****Description**

Clicking on the *Shape/Create new shape/Closed line* menu item activates the editing feature used to create a closed broken line within a vector layer. This shape is of the line type. It is composed of two or more sequentially numbered vertices with straight line segments connecting them. Intermediate vertices are created manually. The first vertex is automatically connected with the last one.

The way the vertices are being connected can be changed by choosing one of the edit modes - see [Edit mode](#), [Nearest point](#) and [After active point](#) topics for details.

The *Editor* can snap newly created vertices to the existing ones - see [Edit snap type](#), [Snap to point](#)

and [Snap to line](#) topics for details.

#### To create a closed broken line within a vector layer

1. Select (highlight) the layer in which the closed broken line is to be created. Do it by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to cover the area where you would like to create the line.
3. Click on the *Shape/Create new shape/Closed line* menu item.
4. Within the [Map area](#) move the mouse pointer over any point and click - a starting vertex of the line will be fixed.
5. To create an intermediate vertex along with a line segment move the mouse pointer over a different point and click. [OPTIONAL] Repeat this step as many times as needed.
6. When the line is drawn click on the *Shape/Create new shape/Closed line* menu item to confirm - the first and the last vertex will be connected automatically.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the rightmost  icon on the same toolbar and then on the *Closed line* item on the drop down list.

#### Similar functions

To create a different shape of a line type, use one of the following features: [Line](#), [Line 90°](#), [Line free](#), [Closed line 90°](#), [Rectangle \[linear\]](#), [Rectangle rotated \[linear\]](#), [Circle \[linear\]](#), [Circle 3point base \[linear\]](#).

To create a polygon bounded by a closed line, use the [Polygon](#) feature.

#### Associated functions

To edit an existing shape, use the [Edit object](#) feature.

To remove a shape from a vector layer, use the [Delete Shape](#) feature.

#### Note

- If the edited layer is stored in the *ArcView Shape (SHP)* file format of the type different than line then this feature will be inactive.

### 3.6.2.7 Close line 90°

#### Description

Clicking on the *Shape/Create new shape/Closed line 90°* menu item activates the editing feature used to create a closed broken line with perpendicularly oriented segments within a vector layer. This shape is of the line type. It is composed of two or more sequentially numbered vertices with perpendicularly oriented straight line segments connecting them. Intermediate vertices are created manually. The first vertex is connected automatically with the last one.

#### To create a closed broken line with perpendicularly oriented segments within a vector layer

1. Activate (highlight) the layer in which the broken line is to be created. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to cover the area where you would like to create the line.
3. Click on the *Shape/Create new shape/Closed line 90°* menu item.
4. Within the [Map area](#) move the mouse pointer over any point and click - a starting vertex of the line will be fixed.
5. Move the mouse pointer in any direction and click to create the first line segment.
6. To create an intermediate vertex along with a line segment move the mouse pointer perpendicularly to the last segment and click. [OPTIONAL] Repeat this step as many times as needed.
7. When the line is drawn click on the *Shape/Create new shape/Closed line 90°* menu item to confirm - the first and the last vertex will be connected automatically.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not

present there then click on the rightmost  icon on the same toolbar and then on the *Closed line 90°* item on the drop down list.

#### Similar functions

To create a different shape of a line type, use one of the following features: [Line](#), [Line 90°](#), [Line free](#), [Closed line](#), [Rectangle \[linear\]](#), [Rectangle rotated \[linear\]](#), [Circle \[linear\]](#), [Circle 3point base \[linear\]](#).

To create a polygon bounded by a closed line with perpendicularly oriented segments, use the [Polygon 90°](#) feature.

#### Associated functions

To edit an existing shape, use the [Edit object](#) feature.

To remove a shape from a vector layer, use the [Delete Shape](#) feature.

#### Note

- If the edited layer is stored in the *ArcView Shape (SHP)* file format of the type different than line then this feature will be inactive.

### 3.6.2.8 Rectangle [line]

#### Description

Clicking on the upper *Shape/Create new shape/Rectangle* menu item activates the editing feature used to create a rectangle within a vector layer. This shape is of the line type. It is composed of four sequentially numbered vertices with four perpendicularly oriented straight line segments connecting them. The four faces are parallel to the borders of the [Map area](#).

#### To create a rectangle within a vector layer

1. Activate (highlight) the layer in which the rectangle is to be created. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to cover the area where you would like to create the rectangle.
3. Click on the upper *Shape/Create new shape/Rectangle* menu item.
4. Within the [Map area](#) move the mouse pointer over any point and click - a starting corner vertex of the rectangle will be fixed.
5. Adjust the size of the rectangle by moving the mouse pointer in any direction.
6. Click again to finish drawing the rectangle.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the rightmost  icon on the same toolbar and then on the upper *Rectangle* item on the drop down list.

#### Similar functions

To create a different shape of a line type, use one of the following features: [Line](#), [Line 90°](#), [Line free](#), [Closed line](#), [Closed line 90°](#), [Rectangle rotated \[linear\]](#), [Circle \[linear\]](#), [Circle 3point base \[linear\]](#).

To create a rotated rectangle, use the [Rectangle rotated \[linear\]](#) feature.

To create a rectangular polygon, use the [Rectangle \[polygonal\]](#) feature.

#### Associated functions

To edit an existing shape, use the [Edit object](#) feature.

To remove a shape from a vector layer, use the [Delete Shape](#) feature.

#### Note

- If the edited layer is stored in the *ArcView Shape (SHP)* file format of the type different than line then this feature will be inactive.

### 3.6.2.9 Rectangle rotated [line]

#### Description

Clicking on the upper *Shape/Create new shape/Rectangle rotated* menu item activates the editing feature used to create a rotated rectangle within a vector layer. This shape is of the line type. It is composed of four sequentially numbered vertices with four perpendicularly oriented straight line segments connecting them.

#### To create a rotated rectangle within a vector layer

1. Activate (highlight) the layer in which the rectangle is to be created. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to cover the area where you would like to create the rectangle.
3. Click on the upper *Shape/Create new shape/Rectangle rotated* menu item.
4. Within the [Map area](#) move the mouse pointer over any point and click - a starting corner vertex of the rectangle will be fixed.
5. Adjust the rotation of the rectangle and the length of the first face by moving the mouse pointer in any direction. Click when finished.
6. Adjust the size of the rectangle by moving the mouse pointer perpendicularly to the first face.
7. Click again to finish drawing the rectangle.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the rightmost  icon on the same toolbar and then on the upper *Rectangle rotated* item on the drop down list.

#### Similar functions

To create a different shape of a line type, use one of the following features: [Line](#), [Line 90°](#), [Line free](#), [Closed line](#), [Closed line 90°](#), [Rectangle \[linear\]](#), [Circle \[linear\]](#), [Circle 3point base \[linear\]](#).

To create a rectangle with faces parallel to the borders of the [Map area](#), use the [Rectangle \[linear\]](#) feature.

To create a rotated rectangular polygon, use the [Rectangle rotated \[polygonal\]](#) feature.

#### Associated functions

To edit an existing shape, use the [Edit object](#) feature.

To remove a shape from a vector layer, use the [Delete Shape](#) feature.

#### Note

- If the edited layer is stored in the *ArcView Shape (SHP)* file format of the type different than line then this feature will be inactive.

### 3.6.2.10 Circle [line]

#### Description

Clicking on the upper *Shape/Create new shape/Circle* menu item activates the editing feature used to create an approximation of a circle within a vector layer. This shape is of the line type. It is composed of 64 sequentially numbered vertices with 63 straight line segments connecting them.

#### To create a circle within a vector layer (based on the center point and the radius)

1. Activate (highlight) the layer in which the circle is to be created. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to cover the area where you would like to create the circle.
3. Click on the upper *Shape/Create new shape/Circle* menu item.
4. Within the [Map area](#) move the mouse pointer over any point and click - this fixes the center point of the circle.
5. Adjust the length of the radius by moving the mouse pointer in any direction.
6. Click again to finish drawing the circle.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the rightmost  icon on the same toolbar and then on the upper *Circle* item on the drop down list.

#### Similar functions

To create a different shape of a line type, use one of the following features: [Line](#), [Line 90°](#), [Line free](#), [Closed line](#), [Closed line 90°](#), [Rectangle \[linear\]](#), [Rectangle rotated \[linear\]](#), [Circle 3point base \[linear\]](#).

A different method of creating an approximation of a circle is available with the [Circle 3point base \[linear\]](#) feature.

To create a circular polygon, use the [Circle \[polygonal\]](#) or [Circle 3point base \[polygonal\]](#) feature.

#### Associated functions

To edit an existing shape, use the [Edit object](#) feature.

To remove a shape from a vector layer, use the [Delete Shape](#) feature.

#### Note

- If the edited layer is stored in the *ArcView Shape (SHP)* file format of the type different than line then this feature will be inactive.
- While adjusting the length of the radius the perimeter and the radius are dynamically illustrated on the [Map area](#).

### 3.6.2.11 Circle 3point base [line]

#### Description

Clicking on the upper *Shape/Create new shape/Circle 3point base* menu item activates the editing feature used to create an approximation of a circle within a vector layer. This shape is of the line type. It is composed of 64 sequentially numbered vertices with 63 straight line segments connecting them.

#### To create circle within a vector layer (based on any three vertices on the perimeter)

1. Activate (highlight) the layer in which the circle is to be created. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to cover the area where you would like to create the circle.
3. Click on the upper *Shape/Create new shape/Circle 3point base* menu item.
4. Within the [Map area](#) click on the three points through which the perimeter of the circle should pass - the approximation of a circle will be created.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the rightmost  icon on the same toolbar and then on the upper *Circle 3point base* item on the drop down list.

#### Similar functions

To create a different shape of a line type, use one of the following features: [Line](#), [Line 90°](#), [Line free](#), [Closed line](#), [Closed line 90°](#), [Rectangle \[linear\]](#), [Rectangle rotated \[linear\]](#), [Circle \[linear\]](#).

A different method of creating an approximation of a circle is available with the [Circle \[linear\]](#) feature.

To create a circular polygon, use the [Circle \[polygonal\]](#) or [Circle 3point base \[polygonal\]](#) feature.

#### Associated functions

To edit an existing shape, use the [Edit object](#) feature.

To remove a shape from a vector layer, use the [Delete Shape](#) feature.

#### Note

- If the edited layer is stored in the *ArcView Shape (SHP)* file format of the type different than line then this feature will be inactive.
- While moving the mouse pointer between addition of the second and the third point, the circle's

chord, radius, and perimeter are dynamically illustrated on the [Map area](#).

### 3.6.2.12 Polygon

#### Description

Clicking on the *Shape/Create new shape/Polygon* menu item activates the editing feature used to create a polygon bounded by a closed broken line within a vector layer. This shape is of the polygon type. Its outline is composed of three or more sequentially numbered vertices with straight line segments connecting them. Intermediate vertices are created manually. The first vertex is connected automatically with the last one.

The way the vertices are being connected can be changed by choosing one of the edit modes - see [Edit mode](#), [Nearest point](#) and [After active point](#) topics for details.

The *Editor* can snap newly created vertices to the existing ones - see [Edit snap type](#), [Snap to point](#) and [Snap to line](#) topics for details.

#### To create a polygon bounded by a closed broken line within a vector layer

1. Activate (highlight) the layer in which the polygon is to be created. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to cover the area where you would like to create the polygon.
3. Click on the *Shape/Create new shape/Polygon* menu item.
4. Within the [Map area](#) move the mouse pointer over any point and click - a starting vertex of the outline will be fixed.
5. To create an intermediate vertex along with an outline segment move the mouse pointer over any point and click. [OPTIONAL] Repeat this step as many times as needed.
6. When the outline is drawn click on the *Shape/Create new shape/Polygon* menu item to confirm - the first and the last vertex of the outline will be connected automatically and the polygon will appear.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the rightmost  icon on the same toolbar and then on the *Polygon* item on the drop down list.

#### Similar functions

To create a different shape of a polygon type, use one of the following features: [Polygon 90°](#), [Rectangle \[polygonal\]](#), [Rectangle rotated \[polygonal\]](#), [Circle \[polygonal\]](#), [Circle 3point base \[polygonal\]](#).

To create a closed broken line, use the [Closed line](#) feature.

#### Associated functions

To edit an existing shape, use the [Edit object](#) feature.

To remove a shape from a vector layer, use the [Delete Shape](#) feature.

#### Note

- If the edited layer is stored in the *ArcView Shape (SHP)* file format of the type different than polygon then this feature will be inactive.

### 3.6.2.13 Polygon 90°

#### Description

Clicking on the *Shape/Create new shape/Polygon 90°* menu item activates the editing feature used to create a polygon bounded by a closed broken line with perpendicularly oriented segments within a vector layer. This shape is of the line type. Its outline is composed of three or more sequentially numbered vertices with perpendicularly oriented straight line segments connecting them.

Intermediate vertices are created manually. The first vertex is connected automatically with the last one.

#### To create an area bounded by a closed broken line with perpendicularly oriented segments within a vector layer

1. Activate (highlight) the layer in which the polygon is to be created. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to cover the area where you would like to create the polygon.
3. Click on the *Shape/Create new shape/Polygon 90°* menu item.
4. Within the [Map area](#) move the mouse pointer over any point and click - a starting vertex of the outline will be fixed.
5. Move the mouse pointer in any direction and click to create the first outline segment.
6. To create an intermediate vertex along with an outline segment move the mouse pointer perpendicularly to the last segment and click. [OPTIONAL] Repeat this step as many times as needed.
7. When the outline is drawn click on the *Shape/Create new shape/Polygon 90°* menu item to confirm - the first and the last vertex will be connected automatically and the polygon will appear.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the rightmost  icon on the same toolbar and then on the *Polygon 90°* item on the drop down list.

#### Similar functions

To create a different shape of a polygon type, use one of the following features: [Polygon](#), [Rectangle \[polygonal\]](#), [Rectangle rotated \[polygonal\]](#), [Circle \[polygonal\]](#), [Circle 3point base \[polygonal\]](#).

To create a closed broken line with perpendicularly oriented segments, use the [Closed line 90°](#) feature.

#### Associated functions

To edit an existing shape, use the [Edit object](#) feature.

To remove a shape from a vector layer, use the [Delete Shape](#) feature.

#### Note

- If the edited layer is stored in the *ArcView Shape (SHP)* file format of the type different than polygon then this feature will be inactive.

### 3.6.2.14 Rectangle [polygon]

#### Description

Clicking on the lower *Shape/Create new shape/Rectangle* menu item activates an editing feature used to create a rectangular polygon within a vector layer. This shape is of the polygon type. Its outline is composed of four sequentially numbered vertices with four perpendicularly oriented straight line segments connecting them. The four faces are parallel to the borders of the [Map area](#).

#### To create a rectangular polygon within a vector layer

1. Activate (highlight) the layer in which the polygon is to be created. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to cover the area where you would like to create the polygon.
3. Click on the lower *Shape/Create new shape/Rectangle* menu item.
4. Within the [Map area](#) move the mouse pointer over any point and click - a starting corner vertex of the outline will be fixed.
5. Adjust the size of the polygon by moving the mouse pointer in any direction.
6. Click again to finish drawing the outline - the polygon will appear.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the rightmost  icon on the same toolbar and then on the lower *Rectangle* item on the drop down list.

#### Similar functions

To create a different shape of a polygon type, use one of the following features: [Polygon](#), [Polygon 90°](#), [Rectangle rotated \[polygonal\]](#), [Circle \[polygonal\]](#), [Circle 3point base \[polygonal\]](#).

To create a rotated rectangular polygon, use the [Rectangle rotated \[polygonal\]](#) feature.

To create a rectangle, use the [Rectangle \[linear\]](#) feature.

#### Associated functions

To edit an existing shape, use the [Edit object](#) feature.

To remove a shape from a vector layer, use the [Delete Shape](#) feature.

#### Note

- If the edited layer is stored in the *ArcView Shape (SHP)* file format of the type different than polygon then this feature will be inactive.

### 3.6.2.15 Rectangle rotated [polygon]

#### Description

Clicking on the lower *Shape/Create new shape/Rectangle rotated* menu item activates the editing feature used to create a rotated rectangular polygon within a vector layer. This shape is of the polygon type. Its outline is composed of four sequentially numbered vertices with four perpendicularly oriented straight line segments connecting them.

#### To create a rotated rectangular polygon within a vector layer

1. Activate (highlight) the layer in which the polygon is to be created. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to cover the area where you would like to create the polygon.
3. Click on the lower *Shape/Create new shape/Rectangle rotated* menu item.
4. Within the [Map area](#) move the mouse pointer over any point and click - a starting corner vertex of the outline will be fixed.
5. Adjust the rotation of the polygon and the length of the first face by moving the mouse pointer in any direction. Click when finished.
6. Adjust the size of the polygon by moving the mouse pointer perpendicularly to the first face.
7. Click again to finish drawing the outline - the area will appear.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the rightmost  icon on the same toolbar and then on the lower *Rectangle rotated* item on the drop down list.

#### Similar functions

To create a different shape of a polygon type, use one of the following features: [Polygon](#), [Polygon 90°](#), [Rectangle \[polygonal\]](#), [Circle \[polygonal\]](#), [Circle 3point base \[polygonal\]](#).

To create a rectangular polygon with faces parallel to the borders of the [Map area](#), use the [Rectangle \[polygonal\]](#) feature.

To create a rotated rectangle, use the [Rectangle rotated \[linear\]](#) feature.

#### Associated functions

To edit an existing shape, use the [Edit object](#) feature.

To remove a shape from a vector layer, use the [Delete Shape](#) feature.

#### Note

- If the edited layer is stored in the *ArcView Shape (SHP)* file format of the type different than polygon then this feature will be inactive.

### 3.6.2.16 Circle [polygon]

#### Description

Clicking on the lower *Shape/Create new shape/Circle* menu item activates the editing feature used to create a polygonal approximation of a circle within a vector layer. This shape is of the polygon type. Its outline is composed of 64 sequentially numbered vertices with 63 straight line segments

connecting them.

#### To create a circular polygon within a vector layer (based on the center point and the radius)

1. Activate (highlight) the layer in which the polygon is to be created. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to cover the area where you would like to create the polygon.
3. Click on the lower *Shape/Create new shape/Circle* menu item.
4. Within the [Map area](#) move the mouse pointer over any point and click - this fixes the center point of the circle.
5. Adjust the length of the radius by moving the mouse pointer in any direction.
6. Click again to finish drawing the outline - the polygon will appear.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the rightmost  icon on the same toolbar and then on the lower *Circle* item on the drop down list.

#### Similar functions

To create a different shape of a polygon type, use one of the following features: [Polygon](#), [Polygon 90°](#), [Rectangle \[polygonal\]](#), [Rectangle rotated \[polygonal\]](#), [Circle 3point base \[polygonal\]](#).

A different method of creating an approximation of a circular area is available with the [Circle 3point base \[polygonal\]](#) feature.

To create a circle, use the [Circle \[linear\]](#) or [Circle 3point base \[linear\]](#) feature.

#### Associated functions

To edit an existing shape, use the [Edit object](#) feature.

To remove a shape from a vector layer, use the [Delete Shape](#) feature.

#### Note

- If the edited layer is stored in the *ArcView Shape (SHP)* file format of the type different than polygon then this feature will be inactive.

### 3.6.2.17 Circle 3point base [polygon]

#### Description

Clicking on the lower *Shape/Create new shape/Circle 3point base* menu item activates the editing feature used to create a polygonal approximation of a circle within a vector layer. This shape is of the polygon type. It is composed of 64 sequentially numbered vertices with 63 straight line segments connecting them.

#### To create a circular polygon within a vector layer (based on any three vertices on the perimeter)

1. Activate (highlight) the layer in which the polygon is to be created. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to cover the area where you would like to create the polygon.
3. Click on the lower *Shape/Create new shape/Circle 3point base* menu item.
4. Within the [Map area](#) click on the three points through which the perimeter of the circle should pass - the approximation of a circle will be created and the polygon will appear.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the rightmost  icon on the same toolbar and then on the lower *Circle 3point base* item on the drop down list.

#### Similar functions

To create a different shape of a polygon type, use one of the following features: [Polygon](#), [Polygon 90°](#), [Rectangle \[polygonal\]](#), [Rectangle rotated \[polygonal\]](#), [Circle \[polygonal\]](#).

A different method of creating an approximation of a circular area is available with the [Circle \[polygonal\]](#) feature.

To create a circle, use the [Circle \[linear\]](#) or [Circle 3point base \[linear\]](#) feature.

#### Associated functions

To edit an existing shape, use the [Edit object](#) feature.

To remove a shape from a vector layer, use the [Delete Shape](#) feature.

#### Note

- If the edited layer is stored in the *ArcView Shape (SHP)* file format of the type different than polygon then this feature will be inactive.

### 3.6.3 Edit snap type

#### Description

Clicking on the *Shape/Edit snap type* menu item displays the list of available snap modes. While the snapping is inactive each created/moved vertex is placed exactly where the user places the mouse pointer. While the snapping is active the placement of a created/moved vertex may change if it is close enough to some shape, i.e. the vertex may be shifted to some position within the interior/boundary of the shape. The position to which the vertex will be shifted is defined by the snap mode. The shapes to which the vertices are snapped belong to a user indicated layer. The features affected by activating/deactivating the snapping and changing the snap mode: [Edit shape](#), [Point](#), [Multipoint](#), [Line](#), [Closed line](#), [Polygon](#).

To activate snapping, choose the layer used for snapping from the  list located on the [Standard toolbar](#).

#### 3.6.3.1 Snap to point

##### Description

Clicking on the *Shape/Edit snap type/Snap to point* menu item activates the *Snap to point* snap mode. When the snapping and the *Snap to point* snap mode is active a vertex created/moved close to a shape from the snapping layer is shifted to the closest vertex of the shape. For general information about snapping and snap modes refer to the [Edit snap type](#) help topic.

To activate the **Snap to point** snap mode, click on the *Shape/Edit snap type/Snap to point* menu item.

##### Associated functions

See [Edit shape](#), [Point](#), [Multipoint](#), [Line](#), [Closed line](#), [Polygon](#).

##### Similar functions

To make the *Editor* snap to lines, use the [Snap to line](#) feature.

#### 3.6.3.2 Snap to line

##### Description

Clicking on the *Shape/Edit snap type/Snap to line* menu item activates the *Snap to line* snap mode. When the snapping and the *Snap to line* snap mode is active a vertex created/moved close to a shape from the snapping layer is shifted to the point defined by the orthogonal projection on the closest shape line segment. For general information about snapping and snap modes refer to the [Edit snap type](#) help topic.

To activate the **Snap to line** snap mode, click on the *Shape/Edit snap type/Snap to line* menu item.

##### Associated functions

See [Edit shape](#), [Point](#), [Multipoint](#), [Line](#), [Closed line](#), [Polygon](#).

**Similar functions**

To make the *Editor* snap to vertices, use the [Snap to point](#) feature.

**3.6.4 Edit mode****Description**

Clicking on the *Shape/Edit mode* menu item displays the list of available edit modes. The edit mode defines the way in which the vertices are being connected while creating/editing a shape of line or polygon type. The features affected by changing the edit mode: [Edit shape](#), [Line](#), [Closed line](#), [Polygon](#).

**3.6.4.1 Nearest point****Description**

Clicking on the *Shape/Edit mode/Nearest point* menu item activates the *Nearest point* edit mode. While the *Nearest point* edit mode is active:

- line type shapes - if the closest vertex to a newly created vertex is the vertex at the beginning/end of the line and the new vertex is positioned at less than a 90° angle relatively to the direction of the first/last line segment then it will be connected only to the first/last vertex forming one new line segment. In any other case the newly created vertex will be connected to the two closest adjacent vertices forming two new line segments,
- polygon type shapes - the newly created vertex will be connected to the two closest adjacent vertices forming two new outline segments.

For general information about edit modes refer to the [Edit mode](#) help topic.

**Associated functions**

See [Edit shape](#), [Line](#), [Closed line](#), [Polygon](#).

**Similar functions**

While holding the *Ctrl* key the default edit mode is temporarily switched to the [After active point](#) edit mode.

**3.6.4.2 After active point****Description**

Clicking on the *Shape/Edit mode/After active point* menu item activates the *After active point* edit mode. While the *After active point* edit mode is active:

- line type shapes - if the active vertex is the one at the beginning/end of the line then the newly created vertex will be connected only to the first/last vertex forming one new line segment; if the active vertex is an intermediate vertex then the newly created vertex will be connected to the active vertex and to the vertex next to the active vertex (according to vertices numbering). This will result in forming two new line segments.
- polygon type shapes - the newly created vertex will be connected to the active vertex and to the vertex next to the active vertex (according to vertices numbering). This will result in forming two new outline segments. The vertex that is next to the vertex with the highest number is the first vertex.

For general information about edit modes refer to the [Edit mode](#) help topic.

**Associated functions**

See [Edit shape](#), [Line](#), [Closed line](#), [Polygon](#).

**Similar functions**

While holding the *Ctrl* key the default edit mode is temporarily switched to the [Nearest point](#) edit mode.

**Note**

- The active vertex is the one indicated by the red color.

### 3.6.5 Add part

#### Description

Clicking on the *Shape/Add part* menu item provides for adding a new element to an existing shape (point, multipoint, line or polygon). In general, a shape can consist of any number of parts.

#### To add a new part to an existing shape

1. Activate (highlight) the layer containing the shape to be modified. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Shape/Edit object* menu item or equivalently on the  icon on the [Standard toolbar](#).
3. Within the [Map area](#) move the mouse pointer over the shape and click to make a selection.
4. Click on the *Shape/Add part* menu item.
5. Create a shape that will be added as a part to the selected shape. Do this by adding vertices in the appropriate places. A vertex will be created on any click within the [Map area](#).
6. Click on the *Shape/Edit object* menu item.

#### Associated functions

For more information about creating a new shape, see the [Create new object](#) section of this help system and its subtopics.

To remove a part of an existing multipart shape, use the [Delete part](#) feature.

#### Similar functions

To join together any number of existing shapes, use the [Union Shapes](#) feature.

#### Key shortcut

This function can be initiated by pressing the *Shift+Ctrl+A* key combination.

#### Note

- In the case of polygonal shapes the *Add part* feature acts as a logical sum for their areal part, i.e. if the shape that is being added overlaps somehow the existing shape, the resulting object will not contain the common area.

### 3.6.6 Delete part

#### Description

Clicking on the *Shape/Delete part* menu item provides for removing a part of an existing multipart shape (point, multipoint, line or polygon). In general, a shape can consist of any number of parts.

#### To delete a part of an existing multipart shape

1. Activate (highlight) the layer containing the shape to be modified. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Shape/Edit object* menu item or equivalently on the  icon on the [Standard toolbar](#).
3. Within the [Map area](#) move the mouse pointer over the desired part of the shape and click to make a selection.
4. Click on the *Shape/Delete part* menu item.

#### Associated functions

To add a new element to an existing shape, use the [Add part](#) feature.

#### Similar functions

To remove a whole shape from a vector layer, use the [Delete Shape](#) feature.

#### Key shortcut

This function can be initiated by pressing the *Shift+Ctrl+D* key combination.

### 3.6.7 Delete shape

#### Description

Clicking on the *Shape/Delete Shape* menu item provides for removing a shape or a group of shapes, both single and multipart, from a vector layer.

#### To delete a shape or a group of shapes from a vector layer

1. Activate (highlight) the layer containing the shapes to be deleted. Do this by clicking on its name in the [Legend panel](#).
2. Use any of the following selection methods to select the shapes: [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).
3. Click on the *Shape/Delete Shape* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the *Delete Shape* item in the [Map area](#) context menu.

#### Similar functions

To remove a part of an existing multipart shape, use the [Delete part](#) feature.

#### Key shortcut

This function can be initiated by pressing the *Shift+Ctrl+Del* key combination.

### 3.6.8 Revert shape

#### Description

Clicking on the *Shape/Revert Shape* menu item restores the state of a selected shape as it is saved in the layer file, i.e. all editing events performed since last saving on a selected shape are cancelled.

#### To cancel all editing events performed on a shape

1. Activate (highlight) the layer containing the shape of interest. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Shape/Edit shape* menu entry or equivalently on the  icon on the [Standard toolbar](#).
3. Within the [Map area](#) move the mouse pointer over shape click to make a selection.
4. Click on the *Shape/Revert Shape* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). Another way is to click on the *Revert Shape* item in the [Map area](#) context menu.

#### Associated functions

For more information about the methods of selecting objects see the [Select](#) section of this help system and its subtopics.

#### Key shortcut

This function can be initiated by pressing the *Shift+Ctrl+R* key combination.

### 3.6.9 Change winding

#### Description

Clicking on the *Shape/Change Winding* menu item changes the direction in which the vertices of a selected shape are enumerated. The default numeration is clockwise. The table below describes the placement of vertices for each shape type.

Shape type	Vertices
------------	----------

<b>Point</b>	Point itself
<b>Multipoint</b>	Points themselves
<b>Line</b>	Starting, final and intermediate points
<b>Polygon</b>	Intermediate points of the outline

#### To change the direction in which the vertices of a shape are enumerated

1. Activate (highlight) the layer containing the shape to be modified. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Shape/Edit shape* menu entry or equivalently on the  icon on the [Standard toolbar](#).
3. Within the [Map area](#) move the mouse pointer over the shape and click to make a selection.
4. Click on the *Shape/Change Winding* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the *Change Winding* item in the [Map area](#) context menu.

### 3.6.10 Split shapes

#### Description

Clicking on the *Shape/Split Shapes* menu item provides for splitting a shape along a user drawn line. Each shape that arises as a consequence of splitting is a separate shape and not a part of a multipart shape.

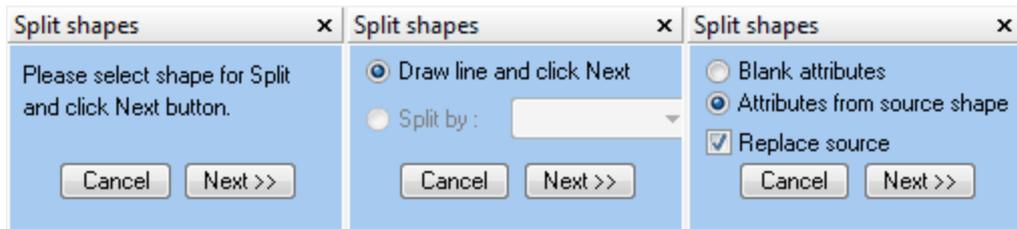
#### To split a shape or a group of shapes along a user drawn line

1. Activate (highlight) the layer containing the shapes to be splitted. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Shape/Split Shapes* menu item - a *Split Shapes panel* will appear over the [Selected panel](#).
3. Use any of the following selection methods to select the shapes: [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).
4. Within the *Split Shapes panel* click on the *Next>>* button - a splitting tool similar to the [Line](#) feature will be activated.
5. Within the [Map area](#) draw the line along which the selected shapes will be splitted.
6. Within the *Split Shapes panel* click on the *Next>>* button.
7. Choose one of the following options: *Blank Attributes* - the shapes created as a consequence of splitting will have no values assigned to their attributes, *Attributes from source* - the shapes created as a consequence of splitting will have the same values of the attributes as the shape they were created from. Check the *Replace source* option if you would like to replace the shapes being splitted by those created by splitting. If you would like to keep the shapes being splitted and the shapes created by splitting leave this option unchecked.
8. When finished click again on the *Next>>* button.

#### To split a shape or a group of shapes along the lines stored in a linear vector layer

1. Create a new layer using the [New](#) feature and within it create the lines that will be used for splitting. The lines can be added using the following features: [Line](#), [Line 90°](#), [Line free](#), [Closed line](#), [Closed line 90°](#), [Rectangle \[linear\]](#), [Rectangle rotated \[linear\]](#), [Circle \[linear\]](#), [Circle 3point base \[linear\]](#). Alternatively, an existing vector layer file can be opened but it must contain shapes of the line type only. To do it use the [Add](#) feature.
9. Activate (highlight) the layer containing the shapes to be splitted. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Shape/Split Shapes* menu item - a *Split Shapes panel* will appear over the [Selected panel](#).
3. Use any of the following selection methods to select the shape: [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).

4. Within the *Split Shapes panel* click on the *Next>>* button and then on the *Split by* option.
5. Choose name of the previously created or opened layer from the list beside the *Split by* option.
6. Within the *Split Shapes panel* click on the *Next>>* button.
7. Choose one of the following options: *Blank Attributes* - the shapes created as a consequence of splitting will have no values assigned to their attributes, *Attributes from source* - the shapes created as a consequence of splitting will have the same values of the attributes as the shape they were created from. Check the *Replace source* option if you would like to replace the shapes being splitted by those created by splitting. If you would like to keep the shapes being splitted and the shapes created by splitting leave this option unchecked.
8. When finished click again on the *Next>>* button.



*Split shapes panel* - three steps of the splitting procedure.

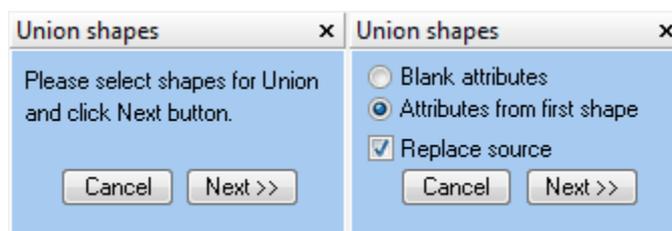
### 3.6.11 Union shapes

#### Description

Clicking on the *Shape/Union Shapes* menu item provides for merging a number of shapes of the same type to form one multipart shape. Merging shapes of different types is not possible except the point-multipoint case.

#### To merge a group of shapes to form one multipart shape

1. Activate (highlight) the layer containing the shapes to be merged. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Shape/Union Shapes* menu item - a *Union Shapes panel* will appear over the [Selected panel](#).
3. Use any of the following selection methods to select the shape: [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).
4. Within the *Union Shapes panel* click on the *Next>>* button.
5. Choose one of the following options: *Blank Attributes* - the shape created as a consequence of merging will have no values assigned to its attributes, *Attributes from first shape* - the shape created as a consequence of merging will have the same values of the attributes as the first selected shape. Check the *Replace source* option if you would like to replace the shapes being merged by the one created by merging. If you would like to keep the shapes being merged and the shape created by merging leave this option unchecked.
6. When finished click again on the *Next>>* button.



*Union Shapes panel* - two steps of the uniting procedure.

### 3.6.12 Split parts

#### Description

If the currently selected shape is a multipart shape then clicking on the *Shape/Split parts* menu item separates the parts and transforms them into individual shapes. Otherwise, no action is taken.

#### To separate the parts of a multipart shape and transform them into individual objects

1. Activate (highlight) the layer containing the desired multipart shape. Do this by clicking on its name in the [Legend](#) panel.
2. Use any of the following selection methods to select the shape: [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).
3. Click on the *Shape/Split parts* menu entry.

#### Note

- The shapes created as a result of splitting inherit the attributes from the splitted shape.

### 3.6.13 Clipboard buffer

#### Description

Clicking on the *Shape/Clipboard buffer* menu item creates a polygonal buffer on the basis of the selected shapes and stores it in the temporary clipboard layer. A polygonal buffer is defined as a total area within a specified distance from any given group of shapes.

#### To create a polygonal buffer on the basis of a group of shapes

1. Activate (highlight) the layer containing the shapes of interest. Do this by clicking on its name in the [Legend panel](#).
2. Use any of the following selection methods to select the shapes: [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).
3. Use the [Copy](#) or [Copy Special](#) feature to put the shapes into the temporary clipboard layer.
4. Click on the *Shape/Clipboard buffer* menu item.

#### Associated functions

To save a polygonal buffer stored in the temporary clipboard layer in to a vector layer file, use the [Save Clipboard](#) feature.

#### Note

- The temporary clipboard layer is a virtual object (stored in memory) automatically created by the *Clipboard buffer* feature and is not file type specific.
- A clipboard buffer is a shape of the polygon type.

### 3.6.14 Clipboard convex hull

#### Description

Clicking on the *Shape/Clipboard convex hull* menu item creates a convex hull on the basis of the selected shapes and stores it in the temporary clipboard layer.

#### To create a convex hull on the basis of a group of shapes

1. Activate (highlight) the layer containing the shapes of interest. Do this by clicking on its name in the [Legend panel](#).
2. Use any of the following selection methods to select the shape: [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).
3. Use the [Copy](#) or [Copy Special](#) feature to put the shapes into the temporary clipboard layer.
4. Click on the *Shape/Clipboard convex hull* menu item.

#### Associated functions

To save a convex hull stored in the temporary clipboard layer in to a vector layer file, use the [Save](#)

[Clipboard](#) feature.

#### Note

- The temporary clipboard layer is a virtual object (stored in memory) automatically created by the *Clipboard convex hull* feature and is not file type specific.
- A convex hull is a shape of the polygon type.

### 3.6.15 Import points

#### Description

Clicking on the *Shape/Import points* menu item displays the list of methods for replacing a shape by another one built on the basis of point type data stored in non-GIS representation.

#### Associated functions

To import a point type data from a file, use the [File](#) feature.

To import a point type data from a raw text, use the [WKT](#) feature.

#### Equivalent actions

The same function can be initiated by clicking on the *Import points* item in the *Points* tab of the [Selected panel](#) context menu.

#### 3.6.15.1 File

##### Description

Clicking on the *Shape/Import points/File* menu item provides for replacing a shape by another one built on the basis of point type data stored in files of non-GIS format. The following file formats are supported: *Comma Separated Values (CSV)*, *Microsoft Excel Spreadsheet (XLS)*.

##### To replace a shape by another one built on the basis of point type data stored in files of non-GIS format

1. Activate (highlight) the layer containing the shape to be replaced. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Shape/Edit shape* menu item or equivalently on the  icon on the [Standard toolbar](#).
3. Within the [Map area](#) move the mouse pointer over the shape and click to make a selection.
4. Click on the *Shape/Import points/File* menu item - this invokes the *Open* dialog box.
5. In the *Open* dialog box select the appropriate drive from the *Look in* list.
6. Locate the point data file by entering the directory that contains this file.
7. Double-click on the file name.

##### Equivalent actions

The same function can be initiated by clicking on the *Import points/File* item in the *Points* tab of the [Selected panel](#) context menu.

#### 3.6.15.2 WKT

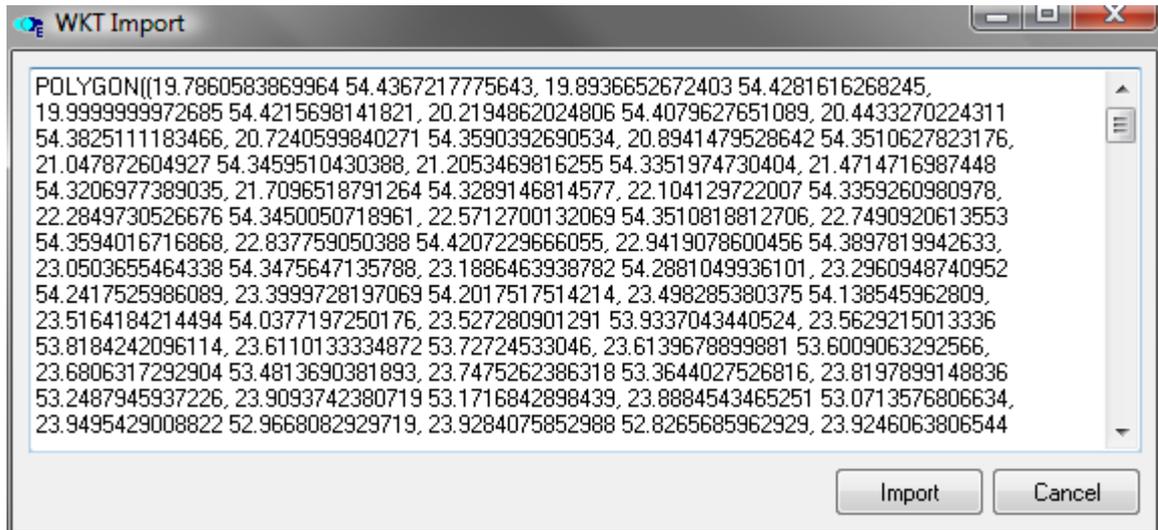
##### Description

Clicking on the *Shape/Import points/WKT* menu entry provides for replacing a shape by another one built on the basis of point type data given in the *Well Known Text (WKT)* representation.

##### To replace a shape by another one built on the basis of point type data given in the Well Known Text (WKT) representation

1. Activate (highlight) the layer containing the shape to be replaced. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Shape/Edit shape* menu item or equivalently on the  icon on the [Standard toolbar](#).
3. Within the [Map area](#) move the mouse pointer over the shape and click to make a selection.
4. Click on the *Shape/Import points/WKT* menu item - this invokes the *WKT Import* dialog box.
5. Enter the point type data in the WKT representation by hand or paste it from the clipboard.

6. Click on the *Import* button.



*WKT Import* dialog box.

#### Equivalent actions

The same function can be initiated by clicking on the *Import points/WKT* item in the *Points* tab of the [Selected panel](#) context menu.

### 3.6.15.3 Clipboard

#### Description

Clicking on the *Shape/Import points/Clipboard* menu item displays a list of methods for importing a shape stored in the system clipboard as a list of vertices coordinates.

#### 3.6.15.3.1 Degrees:Minutes:Seconds (DMS)

#### Description

Clicking on the *Shape/Import points/Clipboard/Degrees:Minutes:Seconds (DMS)* menu item replaces the selected shape with a shape stored in the system clipboard as a list of vertices coordinates in the *Degrees:Minutes:Seconds (DMS)* format, that is

DDD° MM' SS.SSSS"      DD° MM' SS.SSSS" ,

where D stands for degrees, M for minutes, S for seconds,      is the longitude symbol (E if east, W if west) and      is the latitude symbol (N if north, S if south). This feature requires the coordinate system of the open project to be defined. To define the coordinate system, use the [Coordinate Systems](#) feature.

#### To replace a shape with a shape stored in the system clipboard as a list of coordinates in the *DMS* format

1. Activate (highlight) the layer containing the shape to be replaced. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Shape/Edit shape* menu item or equivalently on the  icon on the [Standard toolbar](#).
3. Within the [Map area](#) move the mouse pointer over the shape and click to make a selection.
4. Click on the *Shape/Import points/Clipboard/Degrees:Minutes:Seconds (DMS)* menu item.

## 3.6.15.3.2 Decimal Degrees (DD)

**Description**

Clicking on the *Shape/Import points/Clipboard/Decimal Degrees (DD)* menu item replaces the selected shape with a shape stored in the system clipboard as a list of vertices coordinates. To use this feature the shape stored in the system clipboard must be defined in the *Decimal Degrees (DD)* format, that is

DDD.MMMM    DD.MMMM ,

where D stands for degrees and M for minutes. The first number is the longitude and the second is the latitude. Note, that in the *Decimal Degrees* format minutes are represented as decimal fraction, that is, 1' = 0.1666(6) . This feature requires the coordinate system of the open project to be defined. To define the coordinate system, use the [Coordinate Systems](#) feature.

**To replace a shape with a shape stored in the system clipboard as a list of coordinates in the DMS format**

1. Activate (highlight) the layer containing the shape to be replaced. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Shape/Edit shape* menu item or equivalently on the  icon on the [Standard toolbar](#).
3. Within the [Map area](#) move the mouse pointer over the shape and click to make a selection.
4. Click on the *Shape/Import points/Clipboard/Degrees:Minutes:Seconds (DMS)* menu item.

## 3.6.15.3.3 Map Units

**Description**

Clicking on the *Shape/Import points/Clipboard/Map Units* menu item replaces the selected shape with a shape stored in the system clipboard as a list of vertices coordinates defined in any units. This feature does not require the coordinate system of the open project to be defined.

**To replace a shape with a shape stored in the system clipboard as a list of coordinates**

1. Activate (highlight) the layer containing the shape to be replaced. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Shape/Edit shape* menu item or equivalently on the  icon on the [Standard toolbar](#).
3. Within the [Map area](#) move the mouse pointer over the shape and click to make a selection.
4. Click on the *Shape/Import points/Clipboard/Map Units* menu item.

**3.6.16 Export points****Description**

Clicking on the *Shape/Export points* menu item displays a list of methods for exporting a shape as a point type data in non-GIS representation.

**Associated functions**

To export a point type data to a file, use the [File](#) feature.

To export a point type data to a raw text, use the [WKT](#) feature.

**Equivalent actions**

The same function can be initiated by clicking on the *Export points* item in the *Points* tab of the [Selected panel](#) context menu.

**3.6.16.1 File****Description**

Clicking on the *Shape/Export points/File* menu item provides for exporting a shape as a point type data to file of non-GIS format. The following file formats are supported: *Comma Separated Values (CSV)*, *HyperText Markup Language (HTML)*, *ASCII Text (TXT)*, *Microsoft Excel Spreadsheet (XLS)*, *Extensible Markup Language (XML)*.

### To export a shape as a point type data to file of non-GIS format

1. Activate (highlight) the layer containing the shape to be exported. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Shape/Edit shape* menu item or equivalently on the  icon on the [Standard toolbar](#).
3. Within the [Map area](#) move the mouse pointer over the shape and click to make a selection.
4. Click on the *Shape/Export points/File* menu item - this invokes the *Save As* dialog box.
5. In the *Save As* dialog box select the appropriate drive from the *Save in* list.
6. Locate the folder where you would like to store the point type data file. A new folder can be created by clicking on the  icon at the top-right corner of the *Save As* dialog box, entering its name and pressing the *Enter* key.
7. Enter a name for the file in the *File name* list.
8. Click on the *Save* button.

### Equivalent actions

The same function can be initiated by clicking on the *Export points/File* item in the *Points* tab of the [Selected panel](#) context menu.

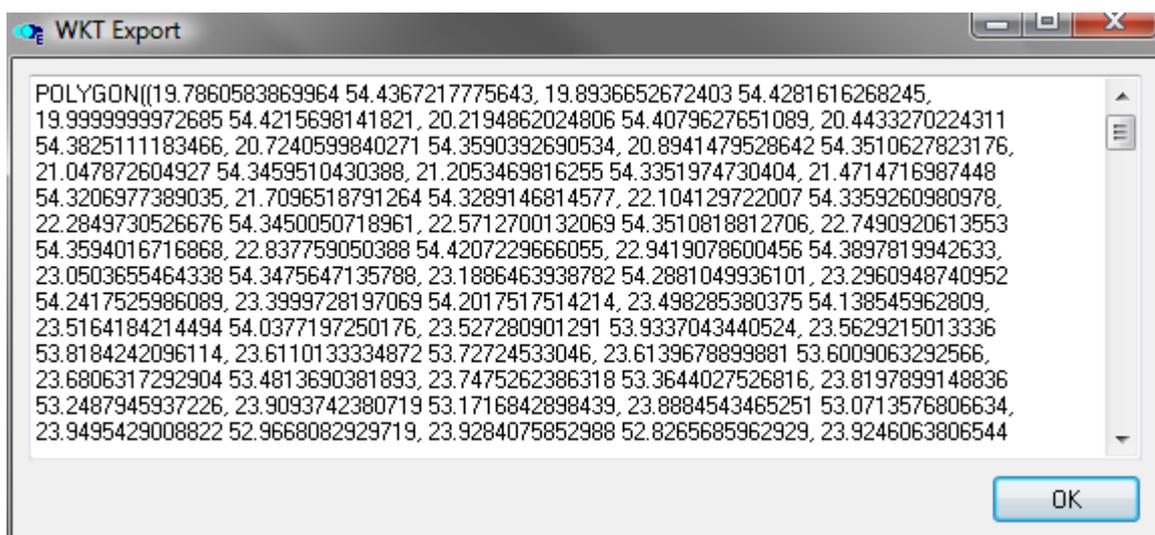
## 3.6.16.2 WKT

### Description

Clicking on the *Shape/Export points/WKT* menu item provides for exporting a shape as a point type data to the *Well Known Text (WKT)* representation.

### To export a shape as a point type data to the *Well Known Text (WKT)* representation

1. Activate (highlight) the layer containing the shape to be exported. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Shape/Edit shape* menu item or equivalently on the  icon on the [Standard toolbar](#).
3. Within the [Map area](#) move the mouse pointer over the shape and click to make a selection.
4. Click on the *Shape/Export points/WKT* menu item - this invokes the *WKT Export* dialog box.
5. Within the text area of the *WKT Export* dialog box the *WKT* representation of the selected shape is being displayed.



WKT Export dialog box.

### Equivalent actions

The same function can be initiated by clicking on the *Export points/WKT* item in the *Points* tab of the [Selected panel](#) context menu.

### 3.6.16.3 Clipboard

#### Description

Clicking on the *Shape/Export points/Clipboard* menu item displays a list of methods for transferring a shape to the system clipboard as a list of vertices coordinates.

#### 3.6.16.3.1 Degrees:Minutes:Seconds (DMS)

#### Description

Clicking on the *Shape/Export points/Clipboard/Degrees:Minutes:Seconds (DMS)* menu item copies the selected shape to the system clipboard as a list of vertices coordinates in the following format

DDD° MM' SS.SSSS"      DD° MM' SS.SSSS" ,

where D stands for degrees, M for minutes, S for seconds,      is the longitude symbol (E if east, W if west) and      is the latitude symbol (N if north, S if south). The coordinates depend on the coordinate system set for the open project. To set, change or adjust the coordinate system of the open project, use the [Coordinate Systems](#) feature.

#### To copy a shape to the system clipboard as a list of coordinates in the DMS format

1. Activate (highlight) the layer containing the shape to be copied. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Shape/Edit shape* menu item or equivalently on the  icon on the [Standard toolbar](#).
3. Within the [Map area](#) move the mouse pointer over the shape and click to make a selection.
4. Click on the *Shape/Export points/Clipboard/Degrees:Minutes:Seconds (DMS)* menu item.

#### 3.6.16.3.2 Decimal Degrees (DD)

#### Description

Clicking on the *Shape/Export points/Clipboard/Decimal Degrees (DD)* menu item copies the selected shape to the system clipboard as a list of vertices coordinates in the following format

DDD.MMMM      DD.MMMM ,

where D stands for degrees and M for minutes. The first number is the longitude and the second is the latitude. Note, that in the *Decimal Degrees* format minutes are represented as decimal fraction, that is, 1' = 0.1666(6) . The coordinates depend on the coordinate system set for the open project. To set, change or adjust the coordinate system of the open project, use the [Coordinate Systems](#) feature.

#### To copy a shape to the system clipboard as a list of coordinates in the DD format

1. Activate (highlight) the layer containing the shape to be copied. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Shape/Edit shape* menu item or equivalently on the  icon on the [Standard toolbar](#).
3. Within the [Map area](#) move the mouse pointer over the shape and click to make a selection.
4. Click on the *Shape/Export points/Clipboard/Decimal Degrees (DD)* menu item.

#### 3.6.16.3.3 Map Units

#### Description

Clicking on the *Shape/Export points/Clipboard/Map Units* context menu item copies the selected shape to the system clipboard as a list of vertices coordinates. The coordinates are represented in the internal project units defined by the layers it consists of. The units are always represented as a decimal number. The first number is the longitude and the second is the latitude. The coordinates depend on the coordinate system set for the open project. To set, change or adjust the coordinate system of the open project, use the [Coordinate Systems](#) feature.

#### To copy a shape to the system clipboard as a list of coordinates in the map units

1. Activate (highlight) the layer containing the shape to be copied. Do this by clicking on its name in

the [Legend panel](#).

2. Click on the *Shape/Edit shape* menu item or equivalently on the  icon on the [Standard toolbar](#).
3. Within the [Map area](#) move the mouse pointer over the shape and click to make a selection.
4. Click on the *Shape/Export points/Clipboard/Map Units* menu item.

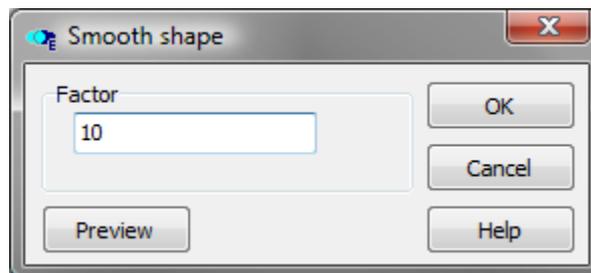
### 3.6.17 Smooth shape

#### Description

Clicking on the *Shape/Smooth Shape* menu item provides for smoothing a shape of line or polygon type. Lines and polygon outlines naturally tend to be less than fully smooth because they are composed of a series of straight line segments connecting a series of vertices. Smoothing is done by creating additional vertices using an appropriate interpolation rule.

#### To smoothen a desired shape

1. Activate (highlight) the layer containing the shape to be smoothened. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Shape/Edit shape* menu item or equivalently on the  icon on the [Standard toolbar](#).
3. Within the [Map area](#) move the mouse pointer over the shape and click to make a selection.
4. Click on the *Shape/Smooth Shape* menu item - the *Smooth shape* dialog box will appear.
5. Within the *Smooth shape* dialog box adjust the smoothening quality. Do it by increasing/decreasing the value in the *Factor* box for better/worse result. After each adjustment you can preview the result by clicking on the *Preview* button. Preview is displayed as a red line over the smoothened shape.
6. When finished click on the *Apply* button.



*Smooth shape* dialog box.

#### Associated functions

To simplify a shape, use the [Simplify shape](#) feature.

#### Key shortcut

This function can be initiated by pressing the *Shift+Ctrl+O* key combination.

### 3.6.18 Simplify shape

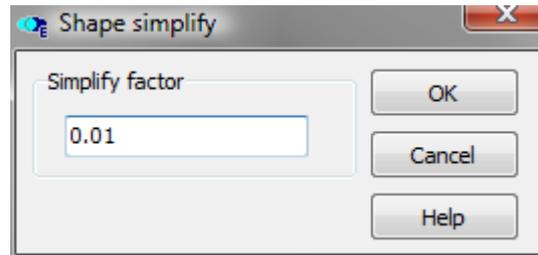
#### Description

Clicking on the *Shape/Simplify Shape* menu item provides for simplification of shape by reducing the number of its vertices. The reduction is performed on the basis of a user-given simplification factor.

#### To simplify a shape by reducing the number of its vertices

1. Activate (highlight) the layer containing the shape to be simplified. Do this by clicking on its name in the [Legend panel](#).
2. Use any of the following selection methods to select the shape: [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#).
3. Click on the *Shape/Simplify Shape* menu item - this invokes the *Shape simplify* dialog box.
4. Enter the simplification factor in the *Simplify factor* text box.

5. Click on the *OK* button.



*Shape simplify dialog box.*

#### Associated functions

To smoothen a shape, use the [Smooth shape](#) feature.

## 3.7 Data

### Description

The *Data* menu group contains features used to manipulate the attributes tables of the vector layers.

### 3.7.1 Export data

#### Description

Clicking on the *Data/Export data* menu item provides for exporting the attributes table of a vector layer in to a file of non-GIS format. The following file formats are supported: *HyperText Markup Language (HTML)*, *ASCII Text (TXT)*, *Microsoft Excel Spreadsheet (XLS)*, *Extensible Markup Language (XML)*.

#### To export the attributes table of a vector layer in to a file of non-GIS format

1. Activate (highlight) the layer of interest. Do this by clicking on its name in the [Legend panel](#).
2. Open the context menu over the layer name in the [Legend panel](#) and click on the *Open layer data* item.
3. Click on the *Data/Export data* menu item - this invokes the *Save As* dialog box.
4. In the *Save As* dialog box, select the appropriate drive from the *Save in* list.
5. Locate the folder where you would like to store the attributes file. A new folder can be created by clicking on the  icon at the top-right corner of the *Save As* dialog box, entering its name and pressing the *Enter* key.
6. Enter a name for the attributes file in the *File name* list.
7. Choose a file format from the *Save as type* list.
8. Click on the *Save* button.

#### Associated functions

To import attributes from a file of non-GIS format or *Open DataBase Connectivity (ODBC)* interface, use the [Import data](#) feature.

### 3.7.2 Import data

#### Description

Clicking on the *Data/Import data* menu item provides for importing additional attributes in to the attributes table of a vector layer. The attributes can be imported from the following sources:

- files of the following formats: *Microsoft Excel Spreadsheet (XLS)*, *Data Base File (DBF)*, *Microsoft Excel 2007 Spreadsheet (XLSX)*,
- databases by the *Open DataBase Connectivity (ODBC)* interface.

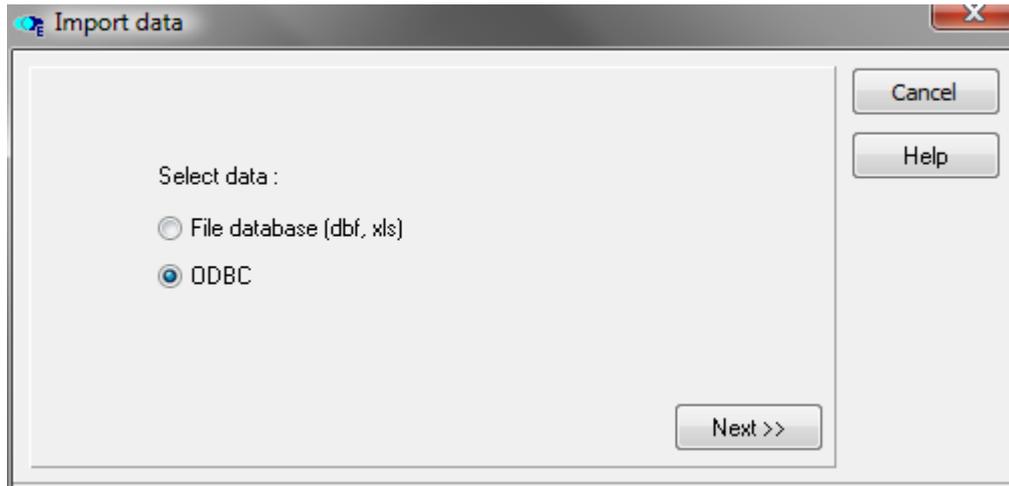
After the importing procedure is finished the imported attributes become a part of a layer and are displayed in the [Data panel](#) where they can be edited. When the user saves a layer the additional attributes are saved in the same file. The source from which the additional attributes were imported are not affected in any way.

**To import additional attributes from a file in to the attributes table of a vector layer**

1. Activate (highlight) the layer into which the attributes will be imported. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Data/Import data* menu item - this invokes the *Import data* dialog box.
3. Within the *Import data* dialog box, click on the *File database (dbf, xls)* option in the *Select data* list.
4. Click on the *Next>>* button - this invokes the *Open* dialog box.
5. Within the *Open* dialog box, select the appropriate drive from the *Look in* list.
6. Locate the attributes file by entering the directory that contains this file.
7. Double-click on the file name - this brings back the *Import data* dialog box.
8. Within the *Import data* dialog box use the *Select table* list to choose which database table will be imported. Then select one attribute from the open layer's table (*Layer ID* list) and one column from the table being imported (*Database ID* list) to define how the records will be assigned. When finished click on the *Next>>* button - the *Import data* dialog box will change its appearance.
9. Select which columns from the data table will be imported, set the attributes names to which the data is to be imported and choose if any of the data being imported should replace the values held by the existing attributes. When finished click on the *Next>>* button - the *Import data* dialog box will change its appearance.
10. A progress bar of the importing process will be shown. When the procedure is completed click on the *OK* button.

**To import additional attributes via the *Open DataBase Connectivity (ODBC)* interface into the attributes table of a vector layer**

1. Activate (highlight) the layer to which the attributes will be imported. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Data/Import data* menu item - this invokes the *Import data* dialog box.
3. Within the *Import data* dialog box click on the *ODBC* option in the *Select data* list.
4. Click on the *Next>>* button - this invokes the *Data Link Properties* dialog box.
5. Within the four tabs of the *Data Link Properties* dialog box you will find a number of options used to define the *ODBC* link parameters. Set up a connection with the *ODBC* interface appropriately to your computer environment configuration. When finished click on the *OK* button - this brings back the *Import data* dialog box.
6. Within the *Import data* dialog box use the *Select table* list to choose which database table will be imported. Then select one attribute from the open layer's table (*Layer ID* list) and one column from the table being imported (*Database ID* list) to define how the records will be assigned. When finished click on the *Next>>* button - the *Import data* dialog box will change its appearance.
7. Select which columns from the data table will be imported, set the attributes names to which the data is to be imported and choose if any of the data being imported should replace the values held by the existing attributes. When finished click on the *Next>>* button - the *Import data* dialog box will change its appearance.
8. A progress bar of the importing process will be shown. When the procedure is completed click on the *OK* button.



Initial (data source) appearance of the *Import data* dialog box.

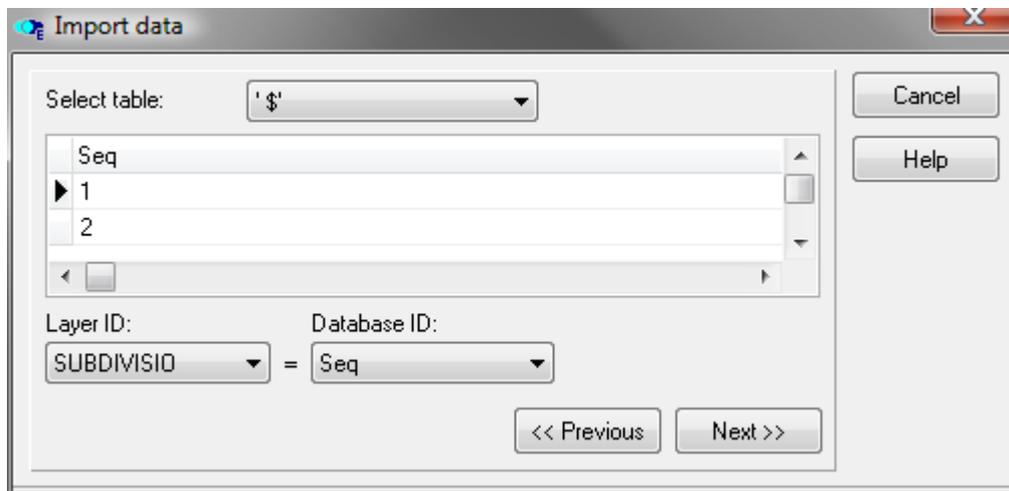
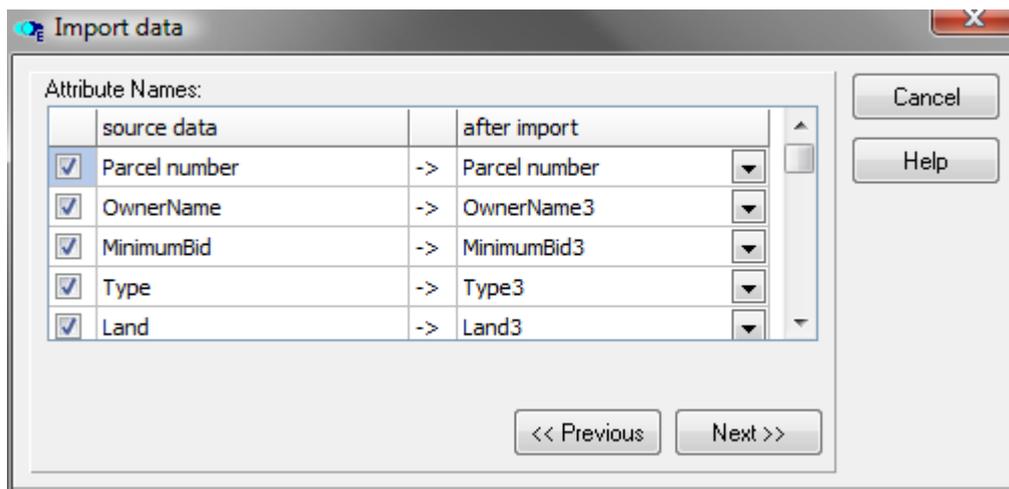
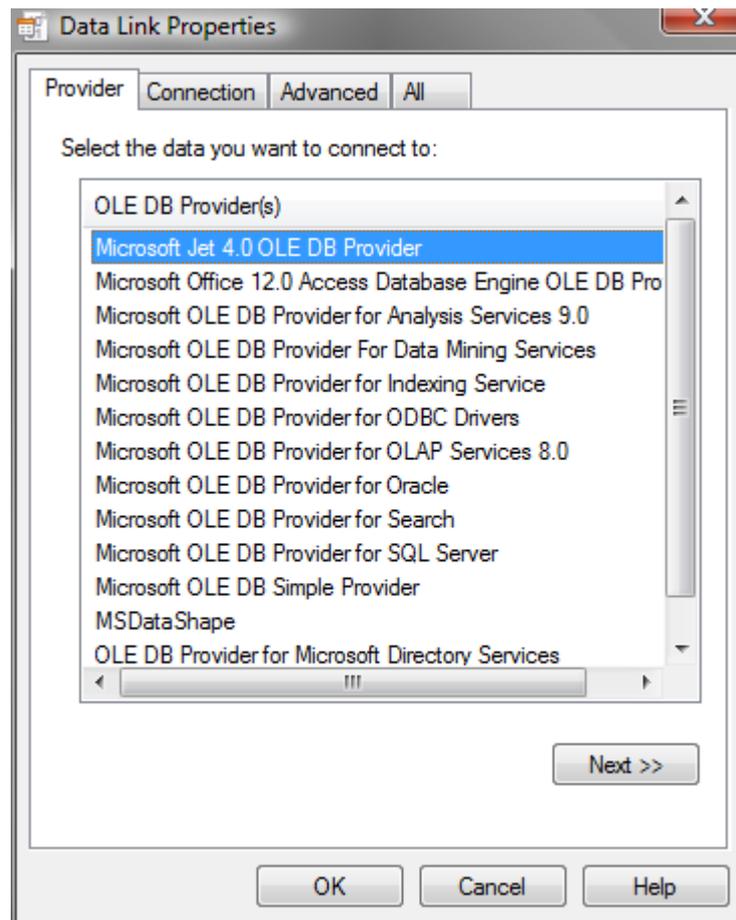


Table selection appearance of the *Import data* dialog box.



Attribute selection appearance of the *Import data* dialog box.



*Data Link Properties dialog box.*

#### Similar functions

To preview and use the attributes stored in a database, use the [Join Database](#) feature.  
To add a layer stored in a database, use the [Add SQL layer](#) feature.

#### Note

- The user can always go back to the previous settings by clicking on the <<Previous button.

### 3.7.3 Join Database

#### Description

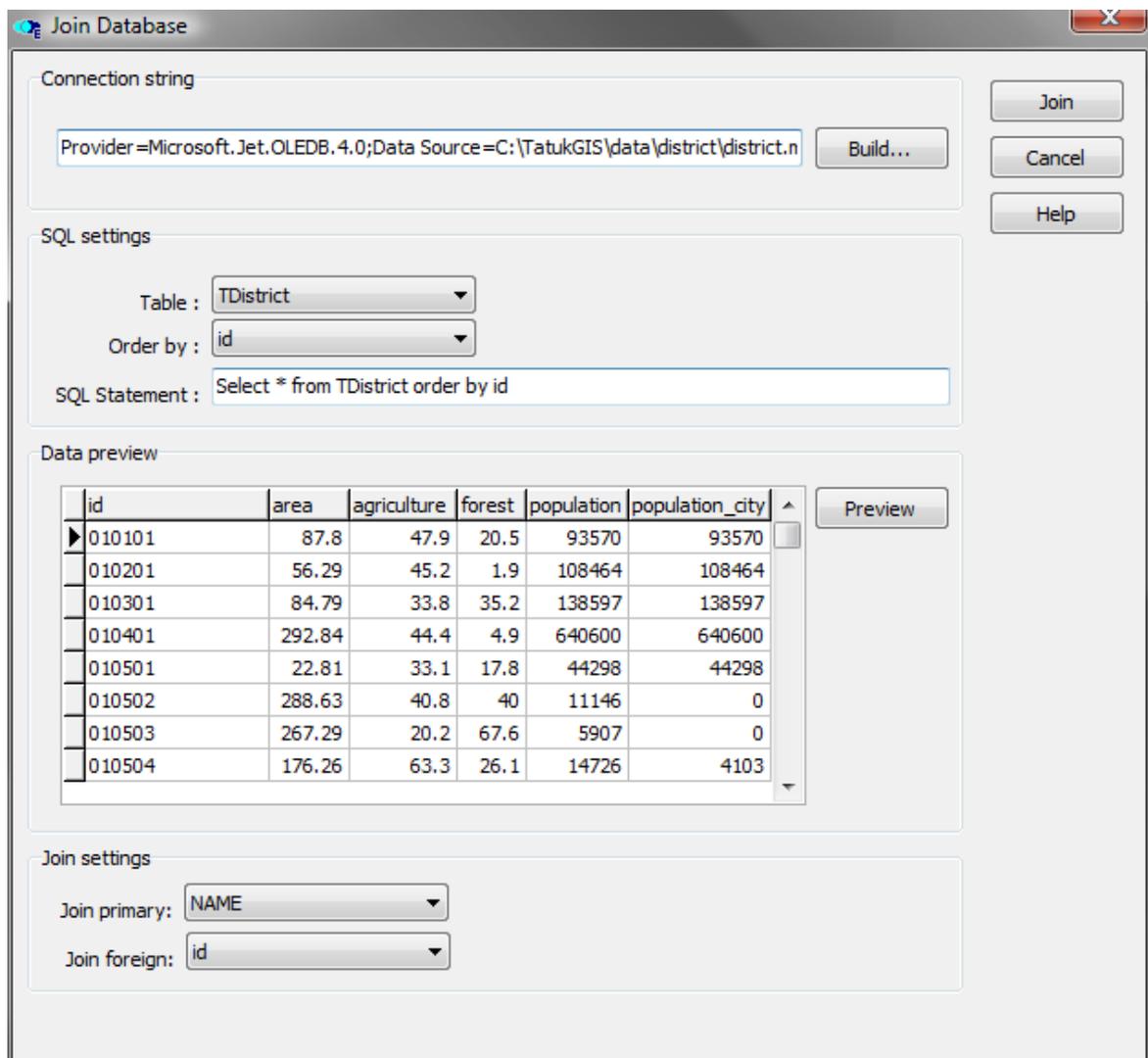
Clicking on the *Data/Join Database* menu item provides for setting up persistent linkage between a vector layer and a database table, without importing the table into the layer. When the connection is established the attributes from the database are displayed in the [Data panel](#) along with those loaded from the layer file. The attributes stored in the database are easily distinguishable by the *db.* prefix in the column names. The values coming from the database cannot be edited from the *Editor*, but they will dynamically update whenever the values are changed within the database.

#### To join a vector layer to a database

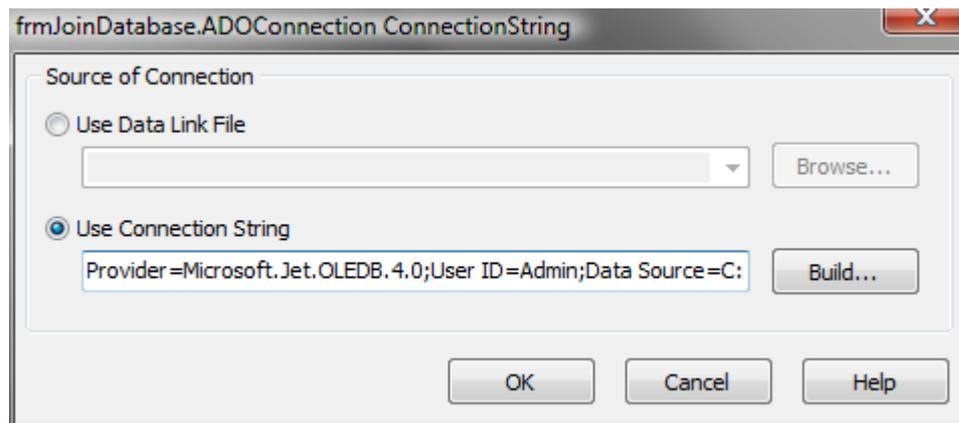
1. Activate (highlight) the layer of interest. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Data/Join Database* menu item - this invokes the *Join Database* dialog box.
3. Within the *Join Database* dialog box, type the connection string in the *Connection string* field or click on the *Build...* button to use an automated method. If you have chosen the second option the *frmJoinDatabase.ADOConnection ConnectionString* dialog box will appear.
4. Within the *frmJoinDatabase.ADOConnection ConnectionString* dialog box select one option on the *Source of Connection* list: if you would like to use connection parameters stored in a file, choose the *Use Data Link File* option and click on the *Browse...* button. If you would like to build a connection string from scratch, choose the *Use Connection String* option and click on the

*Build...* button.

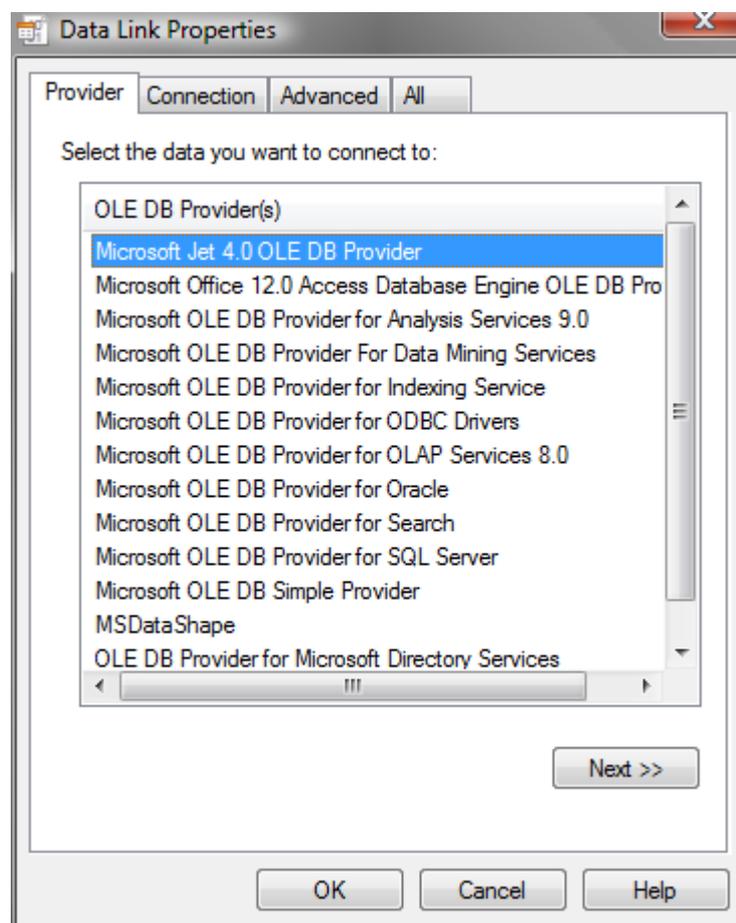
5. (A) If you have chosen the *Use Data Link File* option in the previous step, the *Select Data Link File* dialog box will appear. Within in select the appropriate drive from the *Look in* list, locate the data link file by entering the directory that contains this file, and double-click on the file name. (B) If you have chosen the *Use Connection String* option in the previous step, the *Data Link Properties* dialog box will appear. Within the four tabs of the *Data Link Properties* dialog box the user finds a number of options used to define the *ODBC* link parameters. Set up a connection with the *ODBC* interface appropriately to your computer environment configuration. When finished, click on the *OK* button.
6. When the step 5 is finished (regardless whether (A) or (B) was performed), the *frmJoinDatabase.ADOConnection ConnectionString* dialog box will appear again. Click on the *OK* button within this dialog box - this brings back the *Join Database* dialog box.
7. Now, when the connection with the database is established, the user can set which database table will be joined to the layer and how its records will be assigned to the attributes from the layer: (1) select desired database table from the *Table* list, (2) select from the *Order by* list the column to be used to sort the table, (3) select a column from the *Join primary* list - this column will be used for assignation on the layer's side, (4) select a column from the *Join foreign* list - this column will be used for assignation on the database's side.
8. If all settings seem to be correct, click on the *Join* button.



*Join Database* dialog box with sample connection set up.



*frmJoinDatabase.ADOConnection ConnectionString* dialog box with sample connection string.



*Data Link Properties* dialog box.

### Similar functions

To import attribute tables from a database or data file, use the [Import data](#) feature.  
To add a layer stored in a database, use the [Add SQL layer](#) feature.

### Note

- The user can always go back to the previous settings by clicking on the <<Previous button.
- At the level of the *Join Database* dialog box, the user can preview the data that will be loaded from a database. If any settings were changed a new preview can be generated by clicking on the *Preview* button.
- In step 7 of the procedure described above, it is possible for the user to manually edit the *Connection String* and *SQL Statement* text boxes. However, this requires expert knowledge.

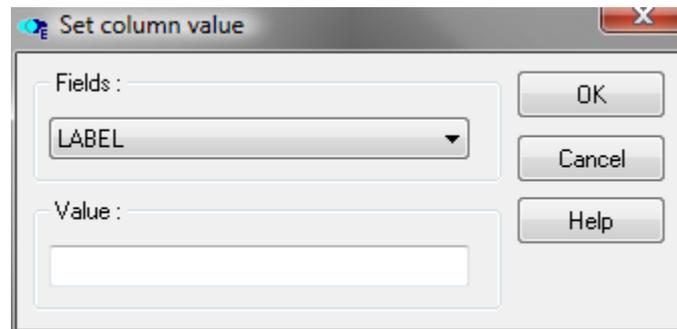
### 3.7.4 Set column value

#### Description

Clicking on the *Data/Set column value* menu item provides for assigning the same value to a chosen attribute for all shapes belonging to the active vector layer.

#### To assign the same value to an attribute for all shapes in a vector layer

1. Activate (highlight) the layer of interest. Do this by clicking on its name in the [Legend panel](#).
2. Open the context menu over the layer name in the [Legend panel](#) and click on the *Open layer data* item.
3. Click on the *Shape/Set column value* menu item - this invokes the *Set column value* dialog box.
4. Within the *Set column value* dialog box, select the attribute from the *Fields* list.
5. Set a value for the selected attribute in the *Value* text box.
6. Click on the *OK* button.



Set column value dialog box.

#### Associated functions

To add a new attribute to a vector layer, use the [Restructure](#) feature.

## 3.8 Measure

#### Description

The *Measure* menu group contains options used for measuring distance and area within the [Map area](#).

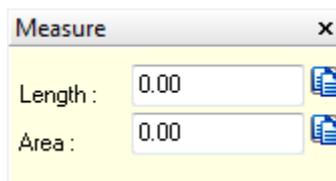
### 3.8.1 Line

#### Description

Clicking on the *Measure/Line* menu item activates the *Line* measurement tool. The *Line* measurement tool is used to measure the length of a user-drawn multi-segment line. The measurement result is presented in layer units.

#### To measure the length of a drawn line

1. Activate (highlight) the layer on which the measurement is to be performed. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to display the area where the measurement is to be performed.
3. Click on the *Measure/Line* menu item.
4. Within the [Map area](#), move the mouse pointer over any point and click - a starting vertex of the line will be fixed.
5. To create an intermediate vertex along with a line segment move the mouse pointer over a different point and click. [OPTIONAL] Repeat this step as many times as needed.
6. As each intermediate vertex is added, the length is calculated and displayed within the *Measure panel*.
7. To deactivate the measurement tool, click again on the *Measure/Line* menu item.



*Measure panel.*

### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the middle  icon on the same toolbar and then on the *Line* item in the drop down list.

### Similar functions

Other measurement tools: [Polygon](#), [Rectangle](#), [Rectangle rotated](#), [Circle](#).

### Note

- The default placement of the *Measure panel* is above the [Selected panel](#).

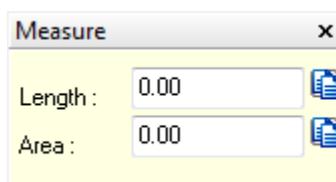
## 3.8.2 Polygon

### Description

Clicking on the *Measure/Polygon* menu item activates the *Polygon* measurement tool. The *Polygon* measurement tool is used to measure the perimeter length and the area of a user-drawn polygon. The measurement results are presented in layer units.

### To measure the perimeter length and the area of a drawn polygon

1. Activate (highlight) the layer on which the measurement is to be performed. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to display the area where the measurement is to be performed.
3. Click on the *Measure/Polygon* menu item.
4. Within the [Map area](#), move the mouse pointer over any point and click - a starting vertex of the polygon outline will be fixed.
5. To create an intermediate vertex along with an outline segment move the mouse pointer over different point and click. [OPTIONAL] Repeat this step as many times as needed.
6. As each intermediate vertex is added, the perimeter length and the area is are presented within the *Measure panel*.
7. To deactivate the measurement tool, click again on the *Measure/Line* menu item.



*Measure panel.*

### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the middle  icon on the same toolbar and then on the *Polygon* item on the drop down list.

### Similar functions

Other measurement tools: [Line](#), [Rectangle](#), [Rectangle rotated](#), [Circle](#).

### Note

- The default placement of the *Measure panel* is above the [Selected panel](#).

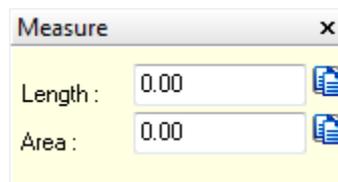
### 3.8.3 Rectangle

#### Description

Clicking on the *Measure/Rectangle* menu item activates the *Rectangle* measurement tool. The *Rectangle* measurement tool is used to measure the perimeter length and the area of a user-drawn rectangle. The measurement results are presented in layer units.

#### To measure the perimeter length and the area of a drawn rectangle

1. Activate (highlight) the layer on which the measurement is to be performed. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to display the area where the measurement is to be performed.
3. Click on the *Measure/Rectangle* menu item.
4. Within the [Map area](#), move the mouse pointer over any point and click - a starting corner vertex of the rectangle outline will be fixed.
5. Adjust the size of the rectangle by moving the mouse pointer in any direction. Click when finished.
6. The perimeter length and the area are presented within the *Measure panel*.
7. To deactivate the measurement tool, click again on the *Measure/Line* menu item.



*Measure panel.*

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the middle  icon on the same toolbar and then on the *Rectangle* item on the drop down list.

#### Similar functions

Other measurement tools: [Line](#), [Polygon](#), [Rectangle rotated](#), [Circle](#).

#### Note

- The default placement of the *Measure panel* is above the [Selected panel](#).

### 3.8.4 Rectangle rotated

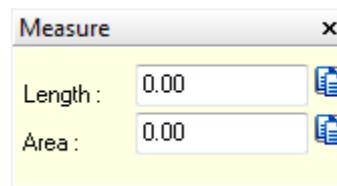
#### Description

Clicking on the *Measure/Rectangle rotated* menu item activates the *Rectangle rotated* measurement tool. The *Rectangle rotated* measurement tool is used to measure the perimeter and the area of an arbitrary rectangle rotated by an arbitrary angle. The measurement results are presented in layer units.

#### 1. To measure the perimeter length and the area of a drawn rotated rectangle

1. Activate (highlight) the layer on which the measurement is to be performed. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to display the area where the measurement is to be performed.
3. Click on the *Measure/Rectangle rotated* menu item.
4. Within the [Map area](#), move the mouse pointer over any point and click - a starting corner vertex of the rectangle will be fixed.
5. Adjust the rotation of the rectangle and the length of the first face by moving the mouse pointer in any direction. Click when finished.
6. Adjust the size of the rectangle by moving the mouse pointer perpendicularly to the first face. Click when finished.
7. The perimeter length and the area are presented within the *Measure panel*.

8. To deactivate the measurement tool, click again on the *Measure/Line* menu item.



*Measure panel.*

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the middle  icon on the same toolbar and then on the *Rectangle rotated* item on the drop down list.

#### Similar functions

Other measurement tools: [Line](#), [Polygon](#), [Rectangle](#), [Circle](#).

#### Note

- The default placement of the *Measure panel* is above the [Selected panel](#).

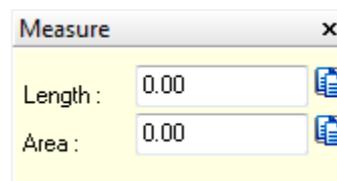
### 3.8.5 Circle

#### Description

Clicking on the *Measure/Circle* menu item activates the *Circle* measurement tool. The *Rectangle* measurement tool is used to measure the perimeter and the area of an arbitrary circle. The measurement results are presented in layer units.

#### To measure the perimeter length and the area of a drawn circle

1. Activate (highlight) the layer on which the measurement is to be performed. Do this by clicking on its name in the [Legend panel](#).
2. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the [Map area](#) to display the area where the measurement is to be performed.
3. Click on the *Measure/Circle* menu item.
4. Within the [Map area](#), move the mouse pointer over any point and then press and hold the left mouse button - this fixes the center point of the circle.
5. Adjust the length of the radius by moving the mouse pointer in any direction. Release the left mouse button when finished.
6. The perimeter length and the area are presented within the *Measure panel*.
7. To deactivate the measurement tool, click again on the *Measure/Line* menu item.



*Measure panel.*

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Standard toolbar](#). If it is not present there then click on the middle  icon on the same toolbar and then on the *Circle* item on the drop down list.

#### Similar functions

Other measurement tools: [Line](#), [Polygon](#), [Rectangle](#), [Rectangle rotated](#).

#### Note

- The default placement of the *Measure panel* is above the [Selected panel](#).

## 3.9 Tools

### Description

The *Tools* menu group contains features such as *Topology corrector*, measurement tools, general settings, etc.

### 3.9.1 Topology

#### Description

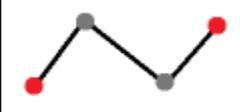
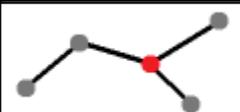
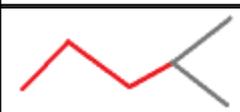
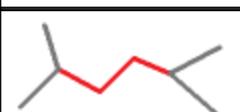
Clicking on the *Tools/Topology* menu item displays the list of features used for correcting the topology of vector layers.

#### 3.9.1.1 Topology

##### Description

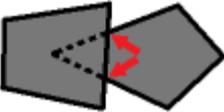
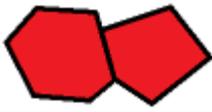
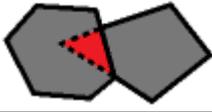
Clicking on the *Tools/Topology* menu item invokes the *Topology builder and corrector* dialog box used to set up the topology correction task. The *Topology builder and corrector* feature is capable of analyzing and correcting the topological properties of both the linear and polygonal vectorial data. As a result a topology project is created consisting of the corrected layer and, optionally, report layers each representing the result of different stage of the topology analysis. The *Topology builder and corrector* feature is capable of detecting the following types of topology elements or errors:

##### • Linear topology

Name	Example (red)	Description
intersection		A point, where the segments of two lines cross.
dangling node		Vertex connected with one line segment.
connecting node		Vertex connected with two line segments.
node with 3+ edges		Vertex connected with more than two line segments.
line 0 connected		Line containing two dangling nodes and any number of connecting nodes.
line 1 connected		Line containing one dangling node, one node with 3+ edges and any number of connecting nodes.
line 2 connected		Line containing two nodes with 3+ edges and any number of connecting nodes.

##### • Polygonal topology

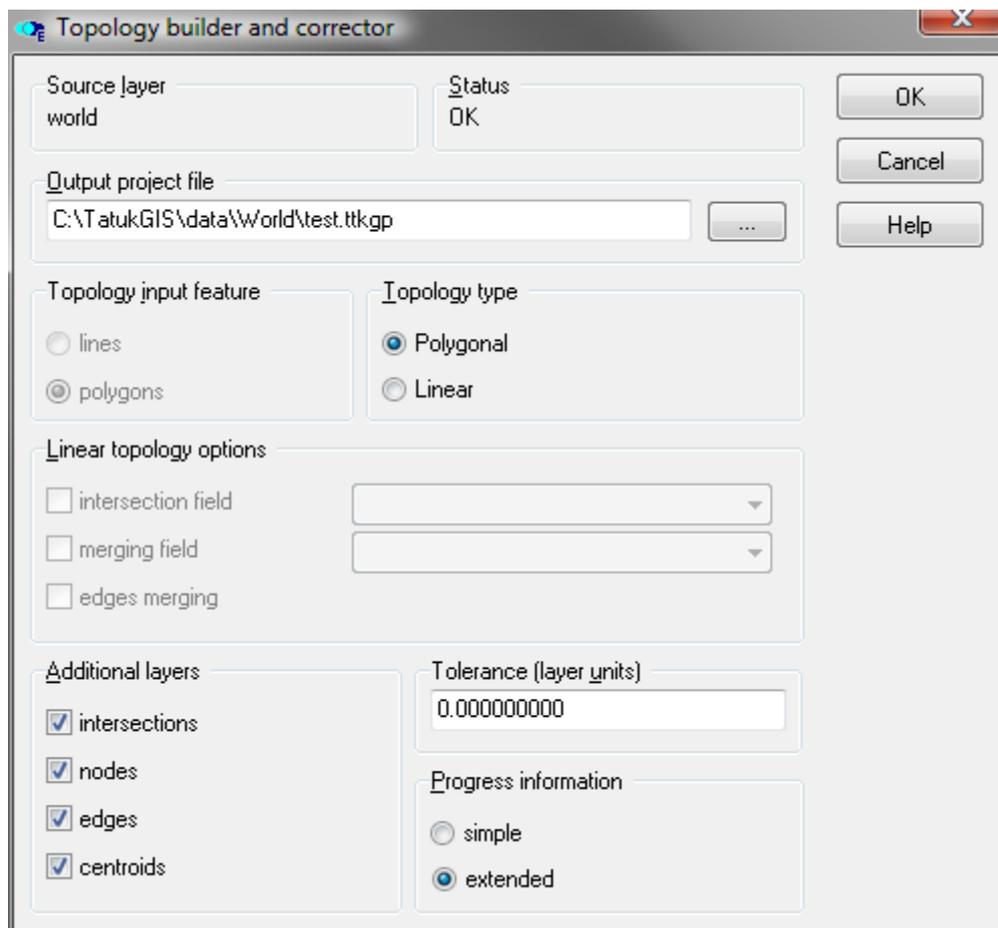
Name	Example (red)	Description
------	---------------	-------------

centroid		Center point of a polygon; a centroid is always forced to lay within its polygon.
intersection		A point where two segments of some polygons outlines cross.
correct polygon		A polygon that has no topology errors.
overlap		A polygon covering the area, where at least two polygons overlap.
hole		A polygon covering the area, where at least two touching polygons outlines branch off and touch again afterwards; also, a polygon internal hole.
edge		A polygon outline that is topologically correct.
dangling edge		An element of the polygon outline that gives no contribution to the polygon area.
external border		If all the polygons in a layer are touching forming one "island", the outline of that "island"; otherwise, the outline of the leftmost "island".

### To build a topology project for a vector layer

1. Activate (highlight) the vector layer that is to be analyzed. Do this by clicking on its name in the [Legend panel](#).
2. Click on the *Tools/Topology* menu item - this invokes the *Topology builder and corrector* dialog box.
3. Within the *Topology builder and corrector* dialog box set the name and path of the topology project. First, click on the [ ... ] button in the *Output project file* box - this invokes the *Save As* dialog box.
4. Within the *Save As* dialog box select the appropriate drive from the *Save in* list.
5. Locate the folder where you would like to store the project file. A new folder can be created by clicking on the  icon at the top-right corner of the *Save As* dialog box, entering its name and pressing the *Enter* key.
6. Enter a name for the project file in the *File name* list.
7. Click on the *Save* button - this brings back the *Topology builder and corrector* dialog box.
8. [OPTIONAL] The *Topology builder and corrector* feature can analyze only one type of shapes at a time. If the layer to be analyzed contains more than one type of shapes, e.g. lines and polygons, then select the appropriate shape type in the *Topology input feature*.
9. Within the *Topology builder and corrector* dialog box choose the type of topology to be analyzed in the *Topology type* box.
10. [OPTIONAL] If the *Topology input feature* is set to *lines* and the *Topology type* is set to *Linear*, the *Linear topology options* become available and can be used. For detailed information see **Linear topology options** below.
11. In the *Tolerance (layer units)* text box set the tolerance used for topology correction; if zero, the topology correction will not be performed.
12. In the *Additional layers* list choose which additional layers should be added to the topology

- project - see **Additional layers** below.
13. In the *Progress information* box choose the type of information reported during the topology analysis process.
  14. Click on the *OK* button - the *Progress...* message box will appear informing about the progress of the topology analysis.
  15. When the process of topology analysis completes without encountering any error a message box will appear informing about the success - confirm it by clicking on the *OK* button.
  16. Another message box will appear asking if the user would like to open the newly created topology project - click on the *OK* button to open the result of the topology analysis.



*Topology builder and corrector dialog box.*

### Linear topology options

- *intersection field* - if checked, a crossing of segments of two lines will be regarded as an intersection only if those lines have a different value of the attribute selected from the list.
- *edges merging* - if checked, if a dangling node of a line has the same coordinates (up to the *Tolerance*) as a dangling node of a different line, then those two lines will be merged to form a single shape.
- *merging field* - if checked, if a dangling node of a line has the same coordinates (up to the *Tolerance*) as a dangling node of a different line, then those two lines will be merged to form a single shape only if they have the same value of the attribute selected from the list.

### Additional layers

The following additional layers can be added to the topology project:

- *intersections* - point type layer indicating coordinates in which two lines or polygon outlines intersect,
- *nodes* - point type layer indicating coordinates of all vertices belonging to a line or a polygon outline,
- *edges* - line type layer containing all lines and polygon outlines,

- *centroids* - point type layer containing centroids of all the polygons.

**Notes**

- The topology project layers are generated to the *ArcView Shape Files (SHP)* file format. The attributes are stored in the *Data Base File (DBF)* type files.
- The correction tolerance is defined in layer units. If the layer has a coordinate system set, the layer units are assumed to be the units of the coordinate system. Therefore it is necessary to know something about the coordinate system of the corrected layer in order to set a reasonable tolerance.
- Note, that some of the coordinate systems are defined in angular units. However, defining the tolerance in angular units is not recommended because it is different in points of different latitude.

**3.9.1.2 Show polygons correct****Description**

When a polygonal topology project is open, clicking on the *Tools/Topology/Show polygons correct* menu item selects all the topologically correct polygons from the corrected layer. For detailed information about topology correction task refer to the [Topology](#) help topic.

**To select and highlight all the topologically correct polygons**

1. Use the [Topology](#) feature to create a topology project.
2. Click on the *Tools/Topology/Show polygons correct* menu item.

**Note**

- All the selected shapes are automatically highlighted within the [Map area](#).

**3.9.1.3 Show polygons holes****Description**

When a polygonal topology project is open, clicking on the *Tools/Topology/Show polygons holes* menu item selects all the polygons indicating polygon holes detected by the topology correction task. For detailed information about topology correction task refer to the [Topology](#) help topic.

**To select and highlight all the polygon holes**

1. Use the [Topology](#) feature to create a topology project.
2. Click on the *Tools/Topology/Show polygons holes* menu item.

**Note**

- All the selected shapes are automatically highlighted within the [Map area](#).

**3.9.1.4 Show polygons overlaps****Description**

When a polygonal topology project is open, clicking on the *Tools/Topology/Show polygons overlaps* menu item selects all the polygons indicating polygon overlaps detected by the topology correction task. For detailed information about topology correction task refer to the [Topology](#) help topic.

**To select and highlight all the polygon overlaps**

1. Use the [Topology](#) feature to create a topology project.
2. Click on the *Tools/Topology/Show polygons overlaps* menu item.

**Note**

- All the selected shapes are automatically highlighted within the [Map area](#).

### 3.9.1.5 Show lines 0 connected

#### Description

When a polygonal topology project is open, clicking on the *Tools/Topology/Show lines 0 connected* menu item selects all the zero-connected lines detected by the topology correction task. For detailed information about topology correction task refer to the [Topology](#) help topic.

#### To select and highlight all the zero-connected lines

1. Use the [Topology](#) feature to create a topology project.
2. Click on the *Tools/Topology/Show lines 0 connected* menu item.

#### Note

- All the selected shapes are automatically highlighted within the [Map area](#).

### 3.9.1.6 Show lines 1 connected

#### Description

When a polygonal topology project is open, clicking on the *Tools/Topology/Show lines 1 connected* menu item selects all the one-connected lines detected by the topology correction task. For detailed information about topology correction task refer to the [Topology](#) help topic.

#### To select and highlight all the one-connected lines

1. Use the [Topology](#) feature to create a topology project.
2. Click on the *Tools/Topology/Show lines 1 connected* menu item.

#### Note

- All the selected shapes are automatically highlighted within the [Map area](#).

### 3.9.1.7 Show lines 2 connected

#### Description

When a polygonal topology project is open, clicking on the *Tools/Topology/Show lines 2 connected* menu item selects all the two-connected lines detected by the topology correction task. For detailed information about topology correction task refer to the [Topology](#) help topic.

#### To select and highlight all the two-connected lines

1. Use the [Topology](#) feature to create a topology project.
2. Click on the *Tools/Topology/Show lines 2 connected* menu item.

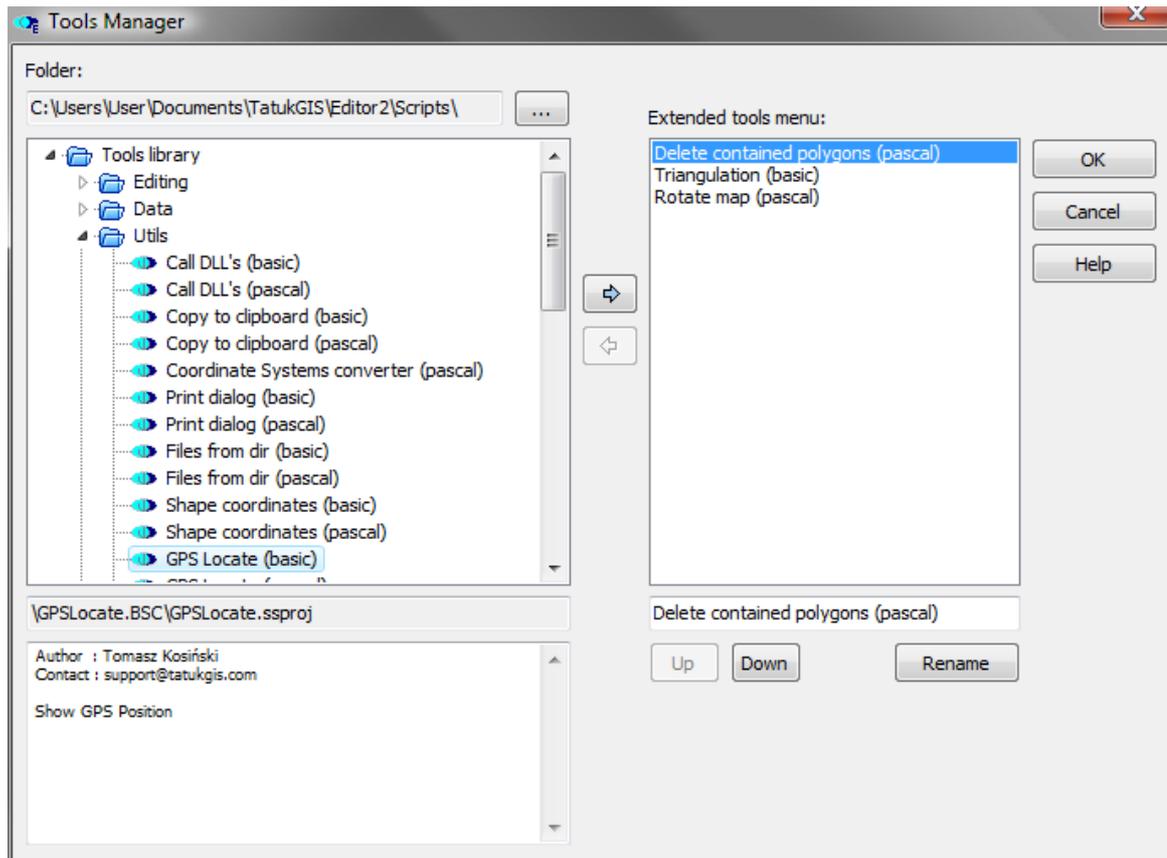
#### Note

- All the selected shapes are automatically highlighted within the [Map area](#).

## 3.9.2 Tools Manager

#### Description

Clicking on the *Tools/Tools Manager* menu item invokes the *Tools Manager* dialog box. The *Tools Manager* dialog box provides the means to permanently attach a script to the *Editor* menu so that it can be used at any time as a standard *Editor* feature. The attached scripts appear in the [Tools](#) menu beneath the *Tools Manager* menu item. The *Tools Manager* dialog box allows also to detach previously attached script, reorder attached scripts and change their menu items names. For more information about scripts for the *Editor* refer to the [Scripts](#) and [Scripter Studio](#) help topics.



*Tools Manager dialog box.*

#### **To change the default scripts folder**

1. Click on the *Tools/Tools Manager* menu item - this invokes the *Tools Manager* dialog box.
2. Within the *Tools Manager* dialog box click on the [ ... ] button - this invokes the *Browse For Folder* dialog box.
3. Within the *Browse For Folder* dialog box locate and select the desired folder.
4. Click on the *OK* button.
5. The *Tools library* list will be automatically updated with the list of scripts found in the new scripts root directory.

#### **To attach a script to the *Editor Tools* menu**

1. Click on the *Tools/Tools Manager* menu item - this invokes the *Tools Manager* dialog box.
2. Within the *Tools Manager* dialog box select the desired script in the *Tools library* list.
3. Click on the  button.
4. Click on the *OK* button.

#### **To detach a script from the *Editor Tools* menu**

1. Click on the *Tools/Tools Manager* menu item - this invokes the *Tools Manager* dialog box.
2. Within the *Tools Manager* dialog box select the desired script in the *Extended tools menu* list.
3. Click on the  button.
4. Click on the *OK* button.

#### **To change a script position in the *Editor Tools* menu**

1. Click on the *Tools/Tools Manager* menu item - this invokes the *Tools Manager* dialog box.
2. Within the *Tools Manager* dialog box select the desired script in the *Extended tools menu* list.
3. To move the script up click the *Up* button. To move the script down click the *Down* button. Repeat this step until the script is placed in the desired position.
4. Click on the *OK* button.

**To rename the menu item of an attached script**

1. Click on the *Tools/Tools Manager* menu item - this invokes the *Tools Manager* dialog box.
2. Within the *Tools Manager* dialog box select the desired script in the *Extended tools menu* list.
3. Enter a new name in the text box below the *Extended tools menu* list.
4. Click on the *Rename* button.
5. Click on the *OK* button.

**Note**

- A short information about a script selected in the *Tools library* list can be found below that list.

### 3.9.3 Desktops

**Description**

Clicking on the *Tools/Desktops* menu item displays the list of options for managing the *Editor's* layout settings files.

#### 3.9.3.1 Save Desktop

**Description**

Clicking on the *Tools/Desktops/Save Desktop* menu item provides for saving the current *Editor's* layout settings to a configuration file.

**To save the current *Editor's* layout settings to a configuration file**

1. Click on the *Tools/Desktops/Save Desktop* menu item - this invokes the *Save Desktop* dialog box.
2. Within the *Save Desktop* dialog box select the appropriate drive from the *Save in* list.
3. Locate the folder where you would like to store the configuration file. A new folder can be created by clicking on the  icon at the top-right corner of the *Export to image* dialog box, entering its name and pressing the *Enter* key.
4. Enter a name for the configuration file in the *File name* list.
5. Click on the *Save* button.

**Associated functions**

To load the previously saved configuration file of the *Editor's* layout settings, use the [Load Desktop](#) feature.

To load the default *Editor* layout settings, use the [Default](#) feature.

#### 3.9.3.2 Load Desktop

**Description**

Clicking on the *Tools/Desktops/Load Desktop* menu item provides for loading the *Editor's* layout settings from a configuration file.

**To load the *Editor's* layout settings from a configuration file**

1. Click on the *Tools/Desktops/Load Desktop* menu item - this invokes the *Load Desktop* dialog box.
2. Within the *Load Desktop* dialog box select the appropriate drive from the *Look in* list.
3. Locate the configuration file by entering the directory that contains this file.
4. Double-click on the file name.

**Associated functions**

To save the current *Editor* layout settings to a configuration file, use the [Save Desktop](#) feature.

To load the default *Editor* layout settings, use the [Default](#) feature.

#### 3.9.3.3 Default

**Description**

Clicking on the *Tools/Desktops/Default* menu item provides for loading the *Editor* default layout settings.

To load the *Editor* default layout settings, click on the *Tools/Desktops/Default* menu item.

### 3.9.4 Language

#### Description

Clicking on the *Tools/Language* menu item displays the list of available *Editor*'s localizations (user interface languages) and allows to switch between them.

#### To change the *Editor*'s interface language

1. Click on the *Tools/Language* menu item - this displays the list of available languages.
2. Click on a desired language name.

#### Associated functions

To edit the currently used *Editor* localization, use the [Edit Language](#) feature.

#### Note

- The language set in the *Language* list is preserved until it is manually changed.

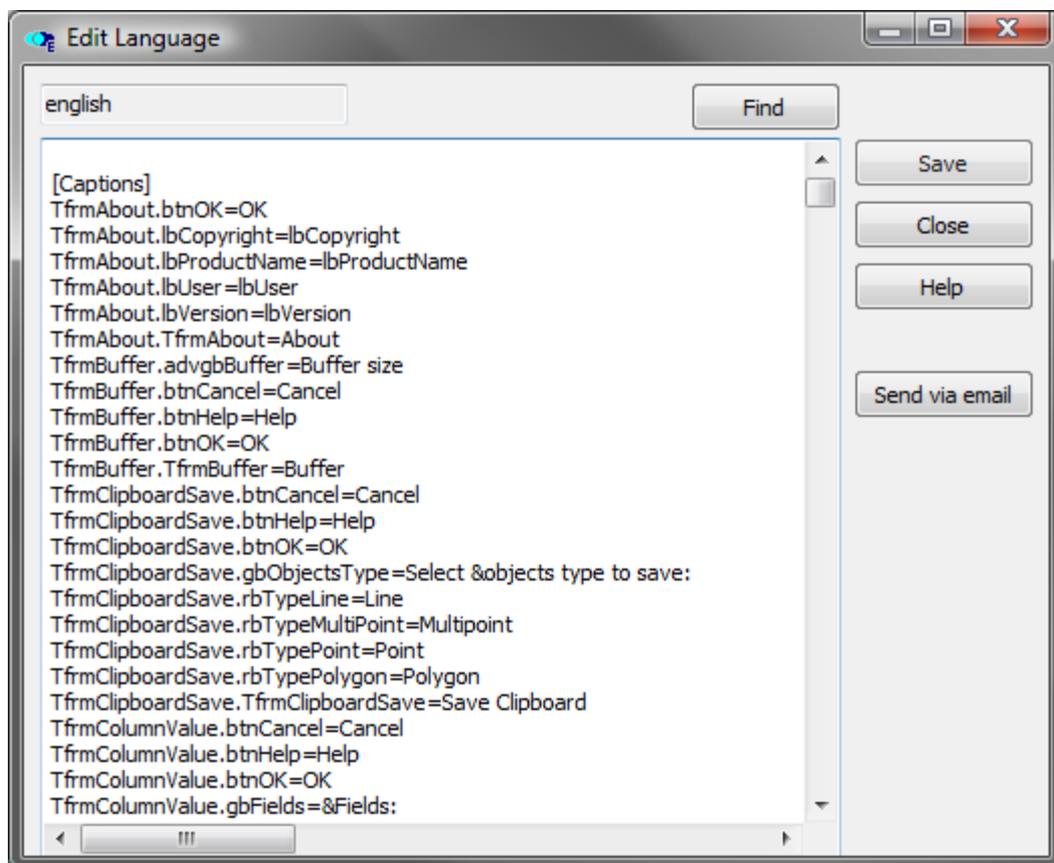
#### 3.9.4.1 Edit Language

#### Description

Clicking on the *Tools/Language/Edit Language* menu item invokes the *Edit Language* dialog box. The *Edit Language* dialog box is a tool that can be used to edit/adjust the currently used localization (interface language).

#### IMPORTANT

The *Edit Language* is an expert level feature. Use it with caution as it may severely affect the *Editor* usability.



The *Edit Language* dialog box displaying English localization script file.

**To make changes in the current *Editor* localization**

1. Click on the *Tools/Language/Edit Language* menu item - this invokes the *Edit Language* dialog box.
2. Within the *Edit Language* dialog box apply your changes in the text box displaying the localization script. To search for a specific phrase to be changed click on the *Find* button, type the phrase in the *Find* dialog box and click the *Find next* button.
3. Click on the *Save* button.
4. Click on the *Close* button.

**To send improved localization to *TatukGIS***

1. Activate the desired localization using the [Language](#) feature.
5. Click on the *Tools/Language/Edit Language* menu item - this invokes the *Edit Language* dialog box.
6. Within the *Edit Language* dialog box click on the *Send via e-mail* button - this invokes your default e-mail management application with a message ready to be send to *TatukGIS*.
7. [OPTIONAL] Include your remarks in the e-mail text.
8. Send the message using your e-mail management application.

**Associated functions**

To change the Editor localization, use the [Language](#) feature.

### 3.9.5 GUI Style

**Description**

Clicking on the *Tools/GUI Style* menu item displays the list of visual styles available in the *Editor*. Switching between the options in the *GUI Style* list affects the visual style (shape, color, etc.) of the toolbars and menus.

**To change the visual style of the *Editor***

1. Click on the *Tools/GUI Style* menu item - this displays the list of available visual styles.
2. Choose one of the styles by clicking on its name.

**Note**

- The style set in the *GUI Style* list is preserved until it is manually changed.

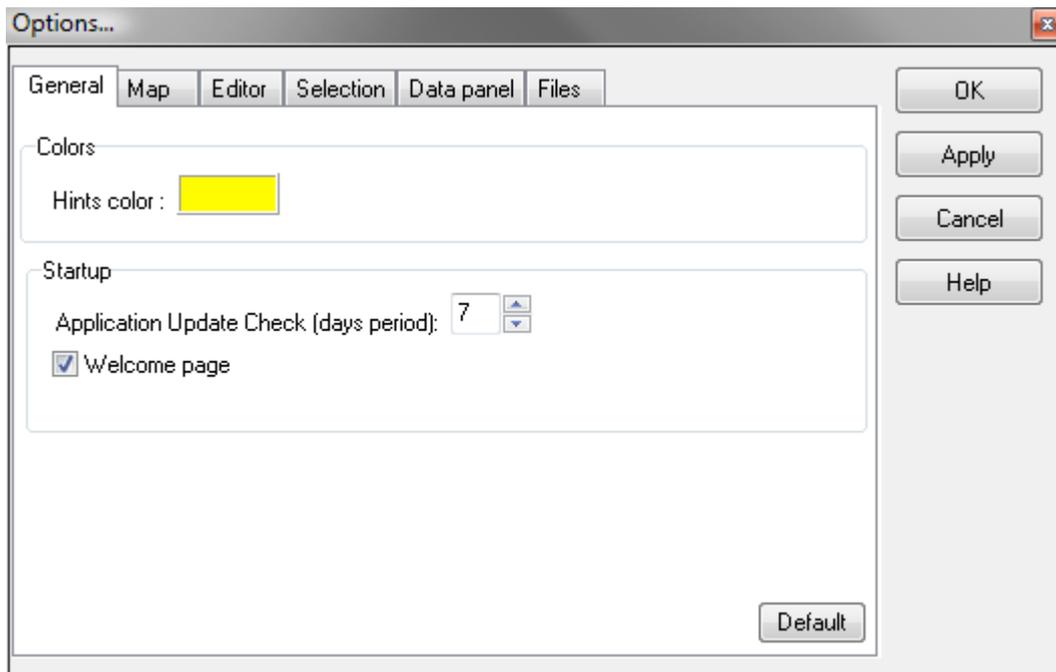
### 3.9.6 Options

**Description**

Clicking on the *Tools/Options* menu item invokes the *Options* dialog box. The *Options* dialog box is used to customize the *Editor* general settings as: file type associations, color theme, rendering quality and performance, etc. It consists of 6 tabs:

- [General tab](#),
- [Map tab](#),
- [Editor tab](#),
- [Selection tab](#),
- [Data panel tab](#),
- [Files tab](#).

### 3.9.6.1 General

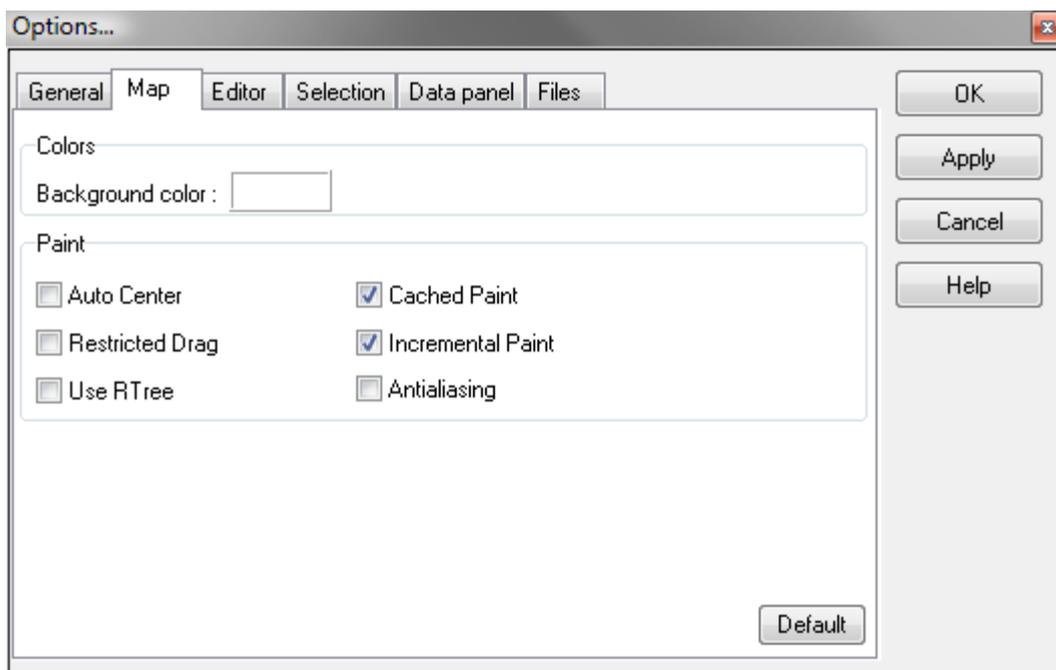


Options dialog box, General tab.

#### General tab

- *Hints color* - color of the [Map hint](#) balloons; to choose another color click on the colored rectangle.
- *Application Update Check (days period)* - number of days between which the *Editor* should automatically check if a new version is available for download.
- *Welcome page* - if checked, the [Welcome page](#) is displayed each time the *Editor* is started.
- *Default* button - restores the default settings on the *General* tab.

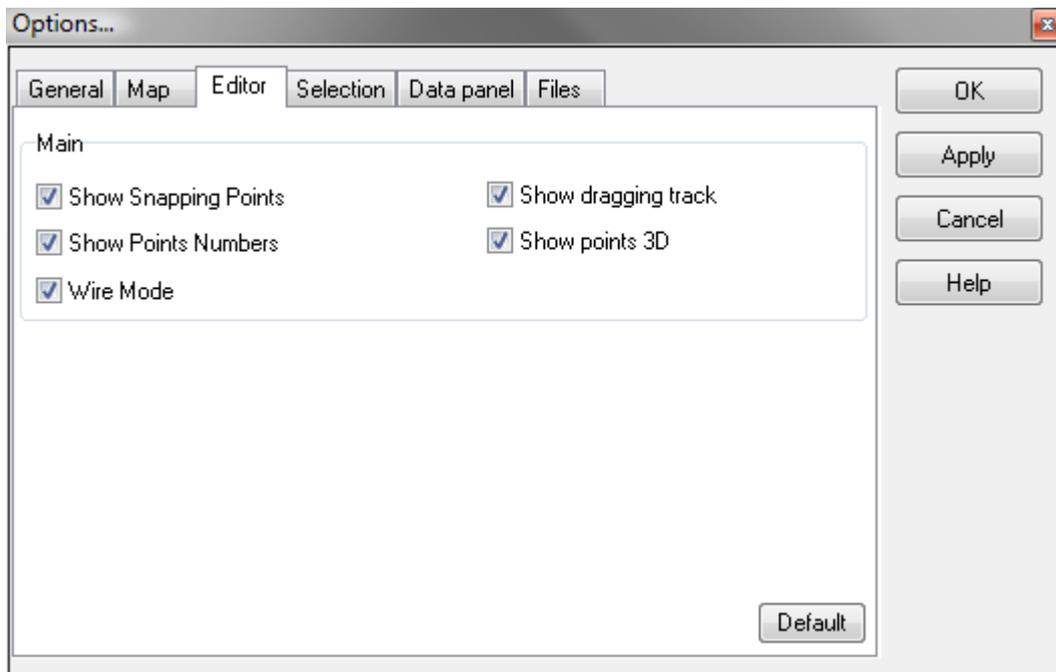
### 3.9.6.2 Map



Options dialog box, Map tab.

**Map tab**

- *Background color* - background color of the [Map area](#).
- *Auto center* - if checked, the extent visible in the [Map area](#) is automatically centered on the most recently selected shape when using the [Localize](#) or the [Select by Point](#) selection methods.
- *Cached paint* - if unchecked, the rendering is performed directly on the [Map area](#), which can dramatically improve performance with very large and complicated vector data sets but causes [Map area](#) flickering.
- *Restricted drag* - if checked, restricts the extent in which the user can drag in [Map area](#) to the current project extent.
- *Incremental paint* - if checked, the rendering in [Drag mode](#) is performed only after the mouse button is released, which can dramatically improve performance with very large and complicated vector data sets.
- *Use R Tree* - if checked, a spatial indexing tree is built for each layer, which can dramatically improve performance with very large and complicated vector data sets.
- *Antialiasing* - if checked, the vector data is rendered in the [Map area](#) with antialiasing; can severely decrease the rendering performance.
- *Default* button - restores the default settings on the *Map* tab.

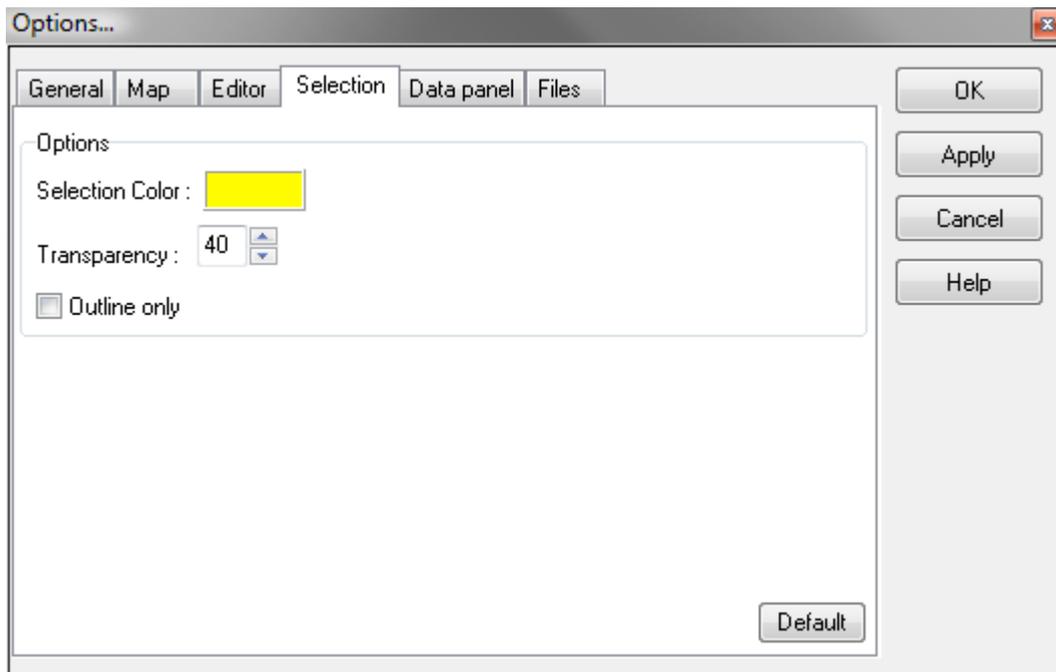
**3.9.6.3 Editor**

Options dialog box, Editor tab.

**Editor tab**

- *Show snapping points* - if checked, the vertices markers are displayed in the edit mode.
- *Show dragging track* - if checked, a line is drawn between the original position of the vertex being edited and its new position.
- *Show points numbers* - if checked, the vertices numeration is displayed for the shape being edited.
- *Show points 3D* - if checked, a label with value of the Z coordinate is displayed for each vertex of the shape being edited.
- *Wire mode* - if checked, a thin black line shows how the shape being edited looked before the most recent edit operation.
- *Default* button - restores the default settings on the *Editor* tab.

### 3.9.6.4 Selection

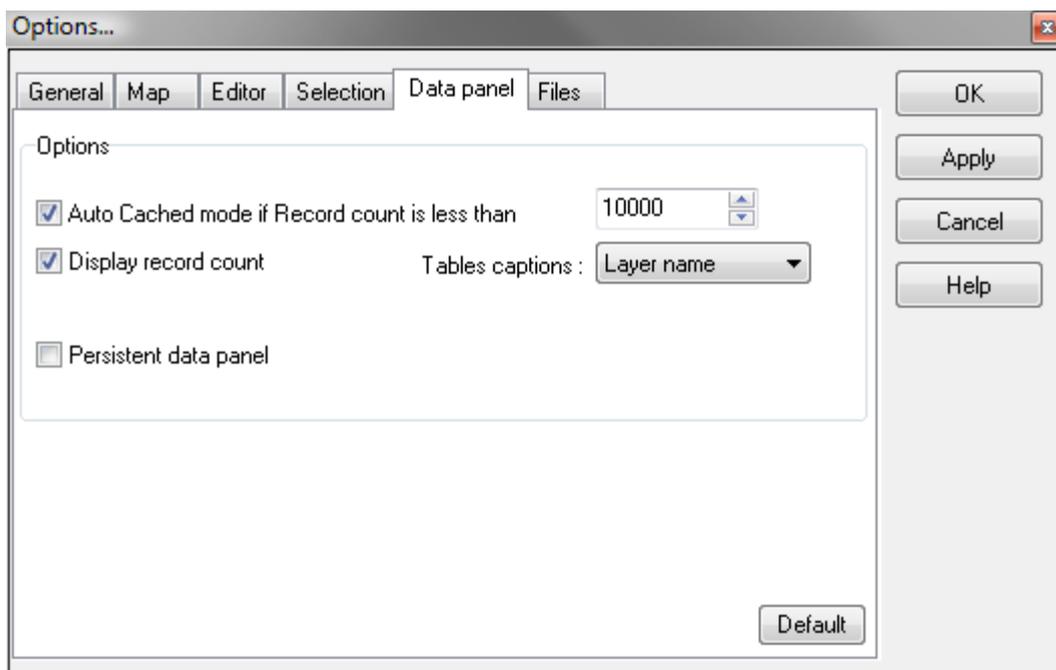


Options dialog box, Selection tab.

#### Selection tab

- *Selection color* - color used to highlight the selected shapes; to choose another color click on the colored rectangle.
- *Transparency* - transparency of the selection highlight; can vary from 0 to 100, where 0 means invisible and 100 means opaque.
- *Outline only* - if checked, only the outline of the selected shapes is highlighted.
- *Default* button - restores the default settings on the Selection tab.

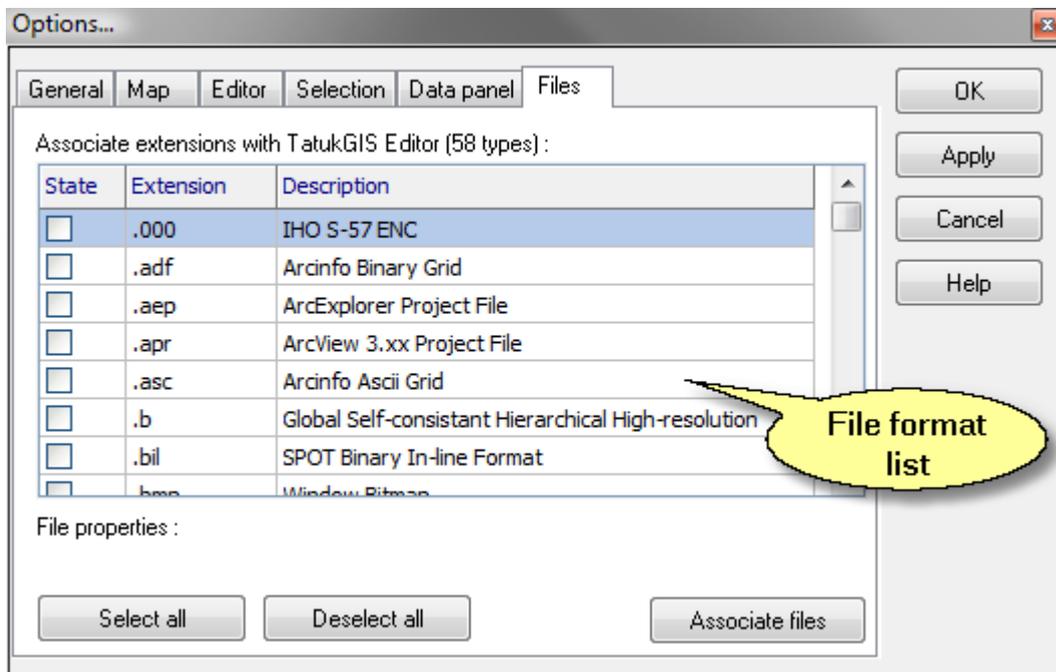
### 3.9.6.5 Data panel



Options dialog box, Data panel tab.

**Data panel tab**

- *Auto cached mode if record count is less than [limit]* - if checked and if the number of records of the current layer is less than the limit, the columns header menu in the [Data panel](#) display additional selection lists which can be used for attribute values filtering; the layers with the record count greater than the limit are treated as if this feature was unchecked; in cases when this feature is inactive (i.e. it is unchecked or the record count of the current layer exceeds the limit) the performance with very large and complicated vector data sets can be dramatically improved.
- *Display record count* - if checked, the total number of records loaded in the currently active tab of the [Data panel](#) is displayed on the status bar.
- *Tables captions* - indicates which layer identifier is displayed in the [Data panel](#): name, caption or both; while the layer name is a read-only property the layer caption can be set using the [Properties](#) feature.
- *Persistent data panel* - if checked, the state and layout of the [Data panel](#) is saved to the project file and restored whenever the project is being opened.
- *Default* button - restores the default settings on the [Data panel](#) tab.

**3.9.6.6 Files**

Options dialog box, Files tab.

**Files tab**

- *Select all* button - selects all formats from the *File format* list.
- *Deselect all* button - deselects all formats from the *File format* list.
- *Associate files* button - associates all formats selected in the *File format* list with the *Editor*.

**Note**

- To select/deselect any file format, click on its checkbox in the *State* column of the *File format* list.

**3.10 Scripts****Description**

The *Scripts* menu group provides the means for creating and executing scripts for the *Editor*. For detailed information refer to the [Scripter Studio](#) help topic.

### 3.10.1 Run

#### Description

Clicking on the *Scripts/Run* menu item displays a list of 8 recently executed scripts.

#### To execute a recently executed script

1. Click on the *Scripts/Run* menu item - a list of the 8 most recently executed scripts will appear.
2. Search for the desired script project file name on the list - if the script is not present on the list, this means that the script has never been executed or at least 8 other scripts have been executed since this script was last executed.
3. Click on the script project file name.

#### Associated functions

To execute a script that is not present on the list of recent scripts, use the [Open](#) feature.

To clear the list of 16 recently executed scripts, use the [Clear list](#) feature.

To create, edit or execute a script, use the [Scripter Studio](#) feature.

#### Note

- The script project file has the *SSPROJ* extension.
- The *Editor* comes with a collection of sample scripts that are available in the *Scripts* folder located in the *Editor* installation folder.

#### 3.10.1.1 Open

#### Description

Clicking on the *Scripts/Run/Open* menu item provides for the execution of a script.

#### To execute a script

1. Click on the *Scripts/Run/Open* menu item - this invokes the *Open* dialog box.
2. Within the *Open* dialog box select the appropriate drive from the *Look in* list.
3. Locate the script by entering the directory that contains its files.
4. For a normal script double-click on the script project file name. For a binary script double-click on the main unit binary file. For a script package double-click on the package file.
5. If a script package was chosen in the previous step and the package is password protected, a *Package password* dialog box will be invoked. To execute such a script the user has to provide a valid password and click on the *OK* button.



*Package password* dialog box.

#### Associated functions

To execute a script that has been recently executed, use the [Run](#) feature.

To create, edit or execute a script, use the [Scripter Studio](#) feature.

#### Note

- A script project file has the *SSPROJ* extension.
- A binary script file has the *CODE* extension.
- A script package file has the *SSPKG* extension.
- A script package may be password protected. To execute such a script the user has to provide a valid password after opening the package.
- The *Editor* comes with a collection of sample scripts that are available in the *Scripts* folder located in the *Editor* installation folder.

### 3.10.1.2 Clear list

#### Description

Clicking on the *Scripts/Run/Clear list* menu item clears the list of the 16 most recently executed scripts that is available under the *Scripts/Run* menu item.

**To clear the list of the 16 most recently executed scripts**, click on the *Scripts/Run/Clear list* menu item.

### 3.10.2 Scripter Studio

#### Description

Clicking on the *Scripts/Scripter Studio* menu item displays the three methods of invoking the [Scripter Studio](#):

- [New Pascal project](#),
- [New Basic project](#),
- [Open](#).

It also displays a list of 8 scripts recently edited in the [Scripter Studio](#).

#### IMPORTANT

The [Scripter Studio](#) is a complete solution for creating, editing and executing the scripts for the *Editor*. For detailed information refer to the [Scripter Studio](#) help topic.

#### To open a script recently edited in the *Scripter Studio*

1. Click on the *Scripts/Scripter Studio* menu item - a list of the 8 most recently edited scripts will appear.
2. Search for the desired script project file name on the list - if the script is not present on the list, this means that the script has never been executed or at least 8 other scripts have been edited since this script was last edited.
3. Click on the script project file name.

#### Note

- The script project file has the *SSPROJ* extension.

### 3.10.2.1 New project (Pascal)

#### Description

Clicking on the *Scripts/Scripter Studio/New Pascal project* menu item invokes the [Scripter Studio](#) with a new blank *Pascal* script project.

**To invoke the *Scripter Studio* with a new *Pascal* script project**, click on the *Scripts/Scripter Studio/New Pascal project* menu item.

#### Associated functions

To invoke the [Scripter Studio](#) with a new *Basic* script project, use the [New Basic project](#) feature.

To invoke the [Scripter Studio](#) with an existing script project, use the [Open](#) feature.

To run a script without invoking the [Scripter Studio](#), use the [Run](#) feature.

### 3.10.2.2 New project (Basic)

#### Description

Clicking on the *Scripts/Scripter Studio/New Basic project* menu item invokes the [Scripter Studio](#) with a new blank *Basic* script project.

**To open the *Scripter Studio* with a new *Basic* script project**, click on the *Scripts/Scripter Studio/New Basic project* menu item.

#### Associated functions

To invoke the [Scripter Studio](#) with a new *Pascal* script project, use the [New Pascal project](#) feature.

To invoke the [Scripter Studio](#) with an existing script project, use the [Open](#) feature.

To run a script without invoking the [Scripter Studio](#), use the [Run](#) feature.

### 3.10.2.3 Open

#### Description

Clicking on the *Scripts/Scripter Studio/Open* menu item provides for opening of an existing script in the [Scripter Studio](#).

#### To open a script in the *Scripter Studio*

1. Click on the *Scripts/Scripter Studio/Open* menu item - this invokes the *Open* dialog box.
2. Within the *Open* dialog box select the appropriate drive from the *Look in* list.
3. Locate the script by entering the directory that contains its files.
4. Double-click on the script project file name.

#### Associated functions

To invoke the [Scripter Studio](#) with a new *Pascal* script project, use the [New Pascal project](#) feature.

To invoke the [Scripter Studio](#) with a new *Basic* script project, use the [New Basic project](#) feature.

To run a script without invoking the [Scripter Studio](#), use the [Run](#) feature.

#### Note

- The script project file has the *SSPROJ* extension.
- The *Editor* comes with a collection of sample scripts that are available in the *Scripts* folder located in the *Editor* installation folder.

### 3.10.2.4 Clear list

#### Description

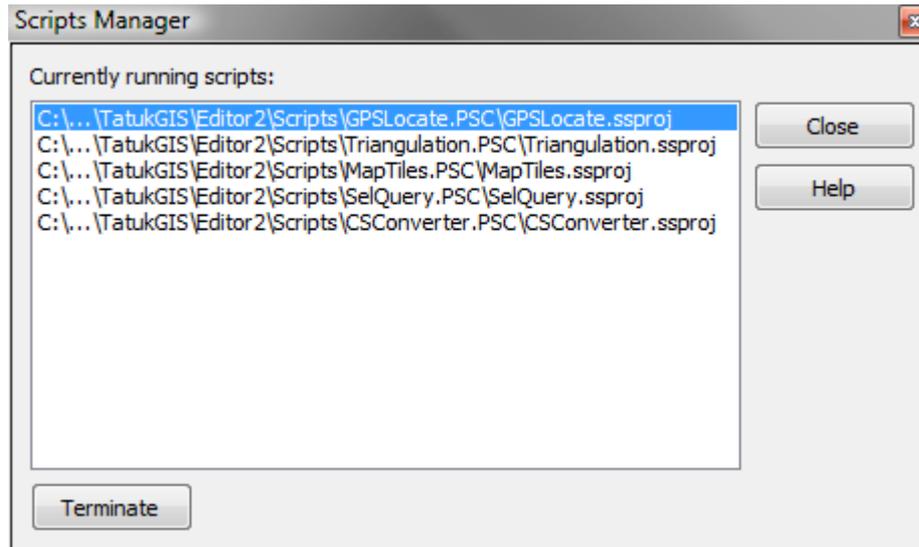
Clicking on the *Scripts/Scripter Studio/Clear list* menu item clears the list of the 8 scripts most recently opened in the [Scripter Studio](#). The list is available under the *Scripts/Scripter Studio* menu item.

To clear the list of the 16 scripts most recently opened in the *Scripter Studio*, click on the *Scripts/Scripter Studio/Clear list* menu item.

## 3.10.3 Scripts Manager

#### Description

Clicking on the *Scripts/Scripts Manager* menu item invokes the *Scripts Manager* tool. The *Scripts Manager* provides a list of all running scripts executed through the [Run](#) or [Open](#) features and gives the possibility to force script termination. This is especially useful when user encounters a script malfunction.



*Scripts Manager displaying a list of running scripts.*

#### **To force termination of a malfunctioned script**

1. Click on the *Scripts/Scripts Manager* menu item - this invokes the *Scripts Manager* dialog box.
2. Within the *Scripts Manager* dialog box locate the script on the *Currently running scripts* list.
3. Click on the script path on the *Currently running scripts* list.
4. Click on the *Terminate* button.
5. Click on the *Close* button.

### **3.10.4 Reset Interface**

#### **Description**

Clicking on the *Scripts/Reset Interface* menu item loads the default *Editor* interface layout. The default *Editor* interface layout is stored within a script file *ttkEDT.psc* located in the *Editor* installation folder. This script can be edited, however, this is not recommended without expert knowledge.

**To load the default *Editor* interface layout**, click on the *Scripts/Reset Interface* menu item.

## **3.11 Help**

#### **Description**

The *Help* menu group contains options used to bring up this help system, *Editor* version information, and the check for updates feature.

### **3.11.1 Help**

#### **Description**

Clicking on the *Help/Help* menu item invokes help system. The *Editor* help system provides a brief description of all features and functionalities found in the *Editor* and basic instructions how to perform standard operations using each feature.

**To invoke the *Editor* help system**, click on the *Help/Help* menu item.

#### **Key shortcut**

This function can be initiated by pressing the *F1* key.

### 3.11.2 Tutorials

#### Description

Clicking on the *Help/Tutorials* menu item invokes *Editor's* tutorial system. Tutorials are designed to guide the user through some procedures performed with the *Editor*.

To invoke *Editor's* tutorial system, click on the *Help/Tutorials* menu item.

### 3.11.3 Check for updates

#### Description

Clicking on the *Help/Check for updates* menu item provides for checking if a new version of the *Editor* is available for downloading.

#### To check if a new version of the *Editor* is available

1. Click on the *Help/Check for updates* menu item - this invokes the *Check for updates* dialog box.
2. Within the *Check for updates* dialog box, click on the *Check* button.
3. When the checking procedure is finished, one of the following messages will appear: **New version** - a version of the *Editor* that is newer than the one installed on your computer is available for downloading, **No new version** - the version installed on your computer is the latest one, **The update site cannot be reached** - there is a problem with connecting to the *TatukGIS* update server, check your internet connection.
4. [OPTIONAL] If a new version of the *Editor* is available, the *Click to download* link will appear in the *Check for updates* dialog box. Clicking on this link will navigate directly to the *TatukGIS* website using your default web browser. There you can download the package containing the *Editor* and use it to upgrade to the newest version.



*Check for updates* dialog box as it appears when the latest *Editor* version is already installed.

### 3.11.4 About

#### Description

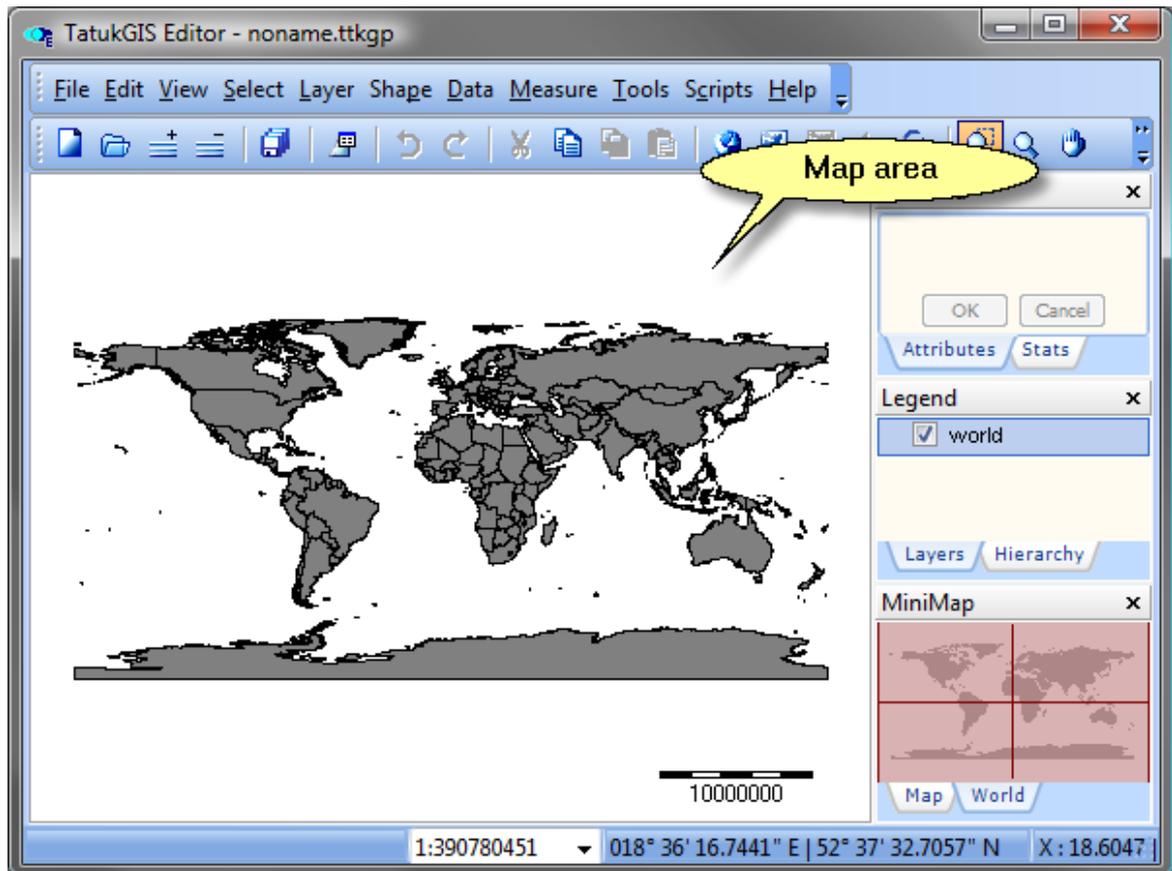
Clicking on the *Help/About* menu item displays information about the installed version of the *Editor* and its external components.

To display information about the installed version of the *Editor* and its external components, click on the *Help/About* menu item.

## 4 Map area

#### Description

The *Map area* is a part of the *Editor* window where all the geometric data is being displayed and edited.



Editor window with Map area indicated.

## 4.1 Context menu

Context menu item	Appears when			Equivalent menu item	Help topic
	selection	no selection	edit mode		
Previous extent	X	X		View/Previous extent	<a href="#">link</a>
End editing			X		<a href="#">link</a>
Copy coordinates to clipboard	X	X	X		<a href="#">link</a>
Edit shape	X	X		Shape/Edit shape	<a href="#">link</a>
Draw MiniMap		X		View/MiniMap/Draw MiniMap	<a href="#">link</a>
Locate record	X			Select/Locate record	<a href="#">link</a>
Selected extent	X			View/Selected extent	<a href="#">link</a>
Invert selection	X			Select/Invert selection	<a href="#">link</a>
Deselect all	X			Select/Deselect all	<a href="#">link</a>
Copy	X			Edit/Copy	<a href="#">link</a>
Copy special...	X			Edit/Copy special...	<a href="#">link</a>
Add part			X	Shape/Add part	<a href="#">link</a>
Delete part			X	Shape/Delete part	<a href="#">link</a>
Delete shape			X	Shape/Delete shape	<a href="#">link</a>
Revert shape			X	Shape/Revert shape	<a href="#">link</a>
Change winding			X	Shape/Change winding	<a href="#">link</a>

## 4.1.1 Copy coordinates to clipboard

### Description

Clicking on the *Copy coordinates to clipboard* context menu item displays the list of methods for copying the coordinates of the point on the *Map area* indicated by the mouse pointer to the system clipboard.

### 4.1.1.1 Degrees:Minutes:Seconds (DMS)

#### Description

Clicking on the *Copy coordinates to clipboard/Degrees:Minutes:Seconds (DMS)* context menu item copies the coordinates of the point indicated by the mouse pointer to the system clipboard in the following format

DDD° MM' SS.SSSS"      DD° MM' SS.SSSS" ,

where D stands for degrees, M for minutes, S for seconds, is the longitude symbol (E if east, W if west) and is the latitude symbol (N if north, S if south). The coordinates depend on the coordinate system set for the open project. To set, change or adjust the coordinate system of the open project, use the [Coordinate Systems](#) feature.

#### To copy point coordinates in the *Degrees:Minutes:Seconds* format to the system clipboard

1. Within the [Map area](#) move the mouse pointer over the desired point.
2. Expand the context menu by clicking with the right mouse button.
3. Click on the *Copy coordinates to clipboard/Degrees:Minutes:Seconds (DMS)* context menu item.

### 4.1.1.2 Decimal Degrees (DD)

#### Description

Clicking on the *Copy coordinates to clipboard/Decimal Degrees (DD)* context menu item copies the coordinates of the point indicated by the mouse pointer to the system clipboard in the following format

DDD.MMMM      DD.MMMM ,

where D stands for degrees and M for minutes. The first number is the longitude and the second is the latitude. Note, that in the *Decimal Degrees* format minutes are represented as decimal fraction, that is, 1' = 0.1666(6) . The coordinates depend on the coordinate system set for the open project. To set, change or adjust the coordinate system of the open project, use the [Coordinate Systems](#) feature.

#### To copy point coordinates in the *Decimal Degrees* format to the system clipboard

1. Within the [Map area](#) move the mouse pointer over the desired point.
2. Expand the context menu by clicking with the right mouse button.
3. Click on the *Copy coordinates to clipboard/Decimal Degrees (DD)* context menu item.

### 4.1.1.3 Map Units

#### Description

Clicking on the *Copy coordinates to clipboard/Map Units* context menu item copies the coordinates of the point indicated by the mouse pointer to the system clipboard. The coordinates are represented in the internal project units defined by the layers it consists of. The units are always represented as a decimal number. The first number is the longitude and the second is the latitude. The coordinates depend on the coordinate system set for the open project. To set, change or adjust the coordinate system of the open project, use the [Coordinate Systems](#) feature.

#### To copy point coordinates represented in map units to the system clipboard

1. Within the [Map area](#) move the mouse pointer over the desired point.
2. Expand the context menu by clicking with the right mouse button.
3. Click on the *Copy coordinates to clipboard/Map Units* context menu item.

## 4.1.2 End editing

### Description

Clicking on the *End editing* context menu item leaves the edit mode. To enter the edit mode use the [Edit shape](#) feature or any of the [New shape](#) subfeatures.

### To leave the edit mode

- click on the *End editing* [Map area](#) context menu item,
- click on the  icon on the [Standard toolbar](#),
- click on the *Shape/Edit shape* menu item.

## 5 Panels

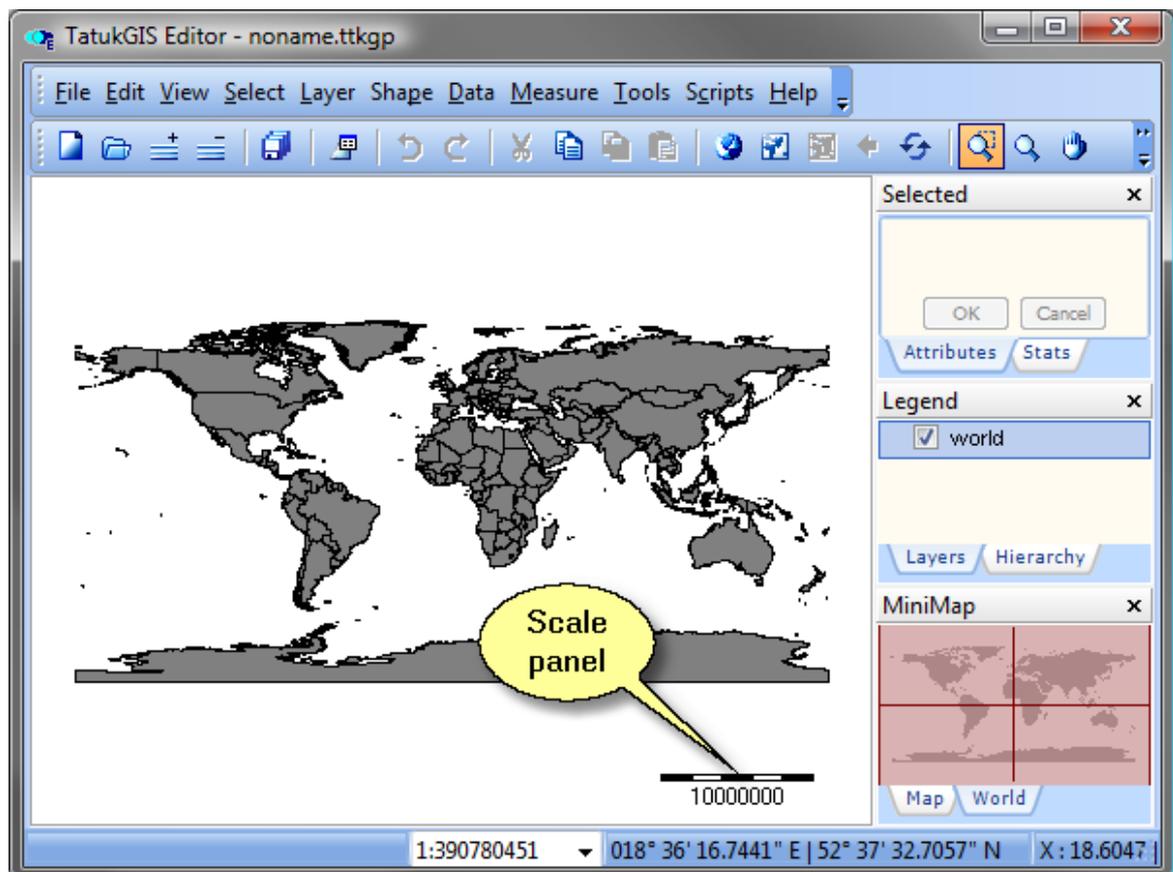
### Description

The *Editor* panels are window components providing many crucial functionalities mostly related to management of layers and vector layer attributes.

### 5.1 Scale

#### Description

The *Scale panel* displays the scale of the extent visible in the [Map area](#) in the open project units. The scale is always computed for the center of the visible extent. The *Scale* panel is visible only when the open project has the coordinate system defined. To set, change or adjust the coordinate system of the open project, use the [Coordinate Systems](#) feature.



*Editor window with Scale panel indicated.*

## 5.2 Selected

### Description

The *Selected panel* is the *Editor* window component designed for the ease of analysis of the vector layers. It consists of four tabs, each displaying different type of information:

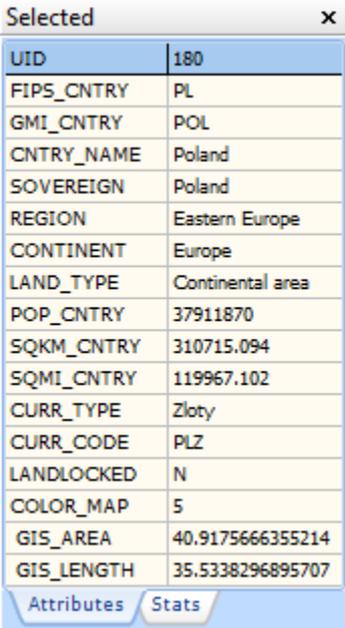
- [Attributes tab](#),
- [Stats tab](#),
- [Points tab](#) - appears only in the edit mode,
- [COGO-360 tab](#) - appears only in the edit mode.

The *Selected panel* displays the information concerning the currently selected shape or shapes. In order to select a shape or multiple shapes use one of the following features: [Localize](#), [Select by Point](#), [Select by Line](#), [Select by Polygon](#), [Select by Circle](#), [Select by Rectangle](#), [Select by Clipboard](#), [Select by Query](#), [Select All](#). To enter the edit mode use the [Edit shape](#) feature or any of the [New shape](#) subfeatures.

### 5.2.1 Attributes

#### Description

The *Attributes tab* of the *Selected panel* displays the values of the attributes of the currently selected shape or, if multiple shapes are selected, the minimal, maximal and average value of the NUMBER and FLOAT type attributes.



Selected	
UID	180
FIPS_CNTRY	PL
GMI_CNTRY	POL
CNTRY_NAME	Poland
SOVEREIGN	Poland
REGION	Eastern Europe
CONTINENT	Europe
LAND_TYPE	Continental area
POP_CNTRY	37911870
SQKM_CNTRY	310715.094
SQMI_CNTRY	119967.102
CURR_TYPE	Zloty
CURR_CODE	PLZ
LANDLOCKED	N
COLOR_MAP	5
GIS_AREA	40.9175666355214
GIS_LENGTH	35.5338296895707

*Attributes tab* of the *Selected panel* displaying attributes of a sample shape.

**To display/edit the values of the attributes of all shapes belonging to some vector layer, use the [Data panel](#).**

#### Associated features

To add a new attribute to a vector layer, use the [Restructure](#) feature.

To set the value of some attribute for all shapes belonging to a vector layer, use the [Set column value](#) feature.

To import attributes from a file of non-GIS format or *Open DataBase Connectivity (ODBC)* interface, use the [Import data](#) feature.

To preview and use the attributes stored in a database, use the [Join Database](#) feature.

## 5.2.2 Stats

### Description

The *Stats* tab of the *Selected* panel displays the information about the geometry of the currently selected shapes.

Selected	
Count	1
Points	523
Parts	1
Length	35.53
Area	40.92

*Stats* tab of the *Selected* panel displaying attributes of a sample shape.

The table below explains the meaning of information displayed within the *Stats* tab:

Name	Appears when selection is		Description
	one shape	many shapes	
Count	X	X	Total number of selected shapes.
Points	X		Number of vertices of the selected shape.
sum( Points )		X	Total number of vertices of the selected shapes.
avg( Points )		X	Average number of vertices of the selected shapes.
Parts	X		Number of parts of the selected shape.
sum( Parts )		X	Total number of parts of the selected shapes.
avg( Parts )		X	Average number of parts of the selected shapes.
Length	X		Zero if the shape type is point or multipoint; for line type shapes displays the length of the line; for polygon type shapes displays the length of the outline.
sum ( Length )		X	The total length of all selected shapes; is greater than zero only if some line or polygon type shapes are selected.
avg( Length )		X	The average length of all selected shapes; is greater than zero only if some line or polygon type shapes are selected.
Area	X		Zero if the shape type is point, multipoint or line; for polygon type shapes displays the area of the polygon.
sum( Area )		X	The total area of all selected shapes; is greater than zero only if some polygon type shapes are selected.
avg( Area )		X	The average area of all selected shapes; is greater than zero only if some polygon type shapes are selected.

### Note

- All values are displayed in the layer units.

## 5.2.3 Points

### Description

The *Points* tab of the *Selected* panel displays the coordinates list of all vertices of the currently edited/created shape. It also allows to edit the vertices by entering their coordinates by hand.

No	X	Y
0	-105.776566757493	-22.234332425068
1	-99.6817438692098	-17.243542234332
2	-91.0234332425068	-9.9243596730245
3	-80.507901907357	-0.9663760217983
4	-68.841416893733	8.9408174386921
5	-56.7302452316076	19.1076294277929
6	-44.8806539509537	28.8444686648501
7	-33.9989100817439	37.4617438692098
8	-24.791280653951	44.269863760218
9	-17.9640326975477	48.5792370572201

Points tab of the Selected panel displaying vertices coordinates of a sample shape.

## 5.2.4 COGO-360

### Description

The *COGO-360* tab of the Selected panel displays the coordinates list of all vertices of the currently edited/created shape in the *COGO-360* representation.

No	Bearing	Distance
0	-105.776566757493	-22.234332425068
1	50.6874179081928	7.8774902581651
2	49.7909568369124	11.3374060646264
3	49.5729462172799	13.8138289534859
4	49.6620434040406	15.3055334711561
5	49.987974923032	15.8127968763021
6	50.5899677269733	15.3368462157918
7	51.624225292054	13.8805540805384
8	53.5207839213928	11.4512416850701

COGO-360 tab of the Selected panel displaying vertices coordinates of a sample shape.

## 5.3 Legend

### Description

The *Legend* panel is the *Editor* window component holding the basic information about open layers and their visual properties. It consists of two tabs differing in information arrangement:

- [Layers tab](#),
- [Hierarchy tab](#).

### 5.3.1 Context menu

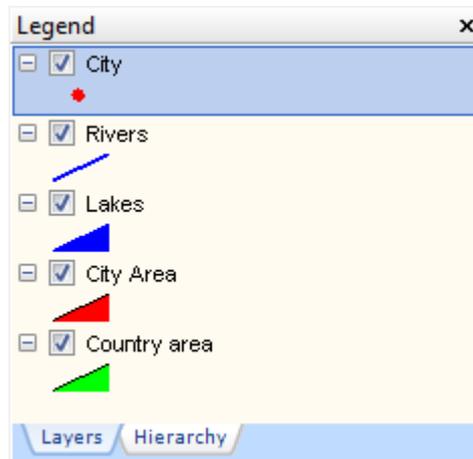
Context menu item	Equivalent menu item	Help topic
Show attributes table	Layer/Show attributes table	<a href="#">link</a>
Add	Layer/Add	<a href="#">link</a>

<i>Remove</i>	<i>Layer/Remove</i>	<a href="#">link</a>
<i>Move up</i>	<i>Layer/Move up</i>	<a href="#">link</a>
<i>Move down</i>	<i>Layer/Move down</i>	<a href="#">link</a>
<i>Hierarchy</i>	<i>File/Hierarchy</i>	<a href="#">link</a>
<i>Save layer properties</i>	<i>Layer/Save layer properties</i>	<a href="#">link</a>
<i>Load layer properties</i>	<i>Layer/Load layer properties</i>	<a href="#">link</a>
<i>Properties</i>	<i>Layer/Properties</i>	<a href="#">link</a>

### 5.3.2 Layers

#### Description

The *Layer tab* of the *Legend panel* displays the list of all open layers and the list of sections for each layer (if defined). The order of layers on the *Layer tab* determines the order of rendering on the [Map area](#). For information about changing the order of layers on the *Layer tab* refer to the [Move up](#) and [Move down](#) help topics. For detailed information about defining layer sections and layer visual properties refer to the [Properties](#) help topic.

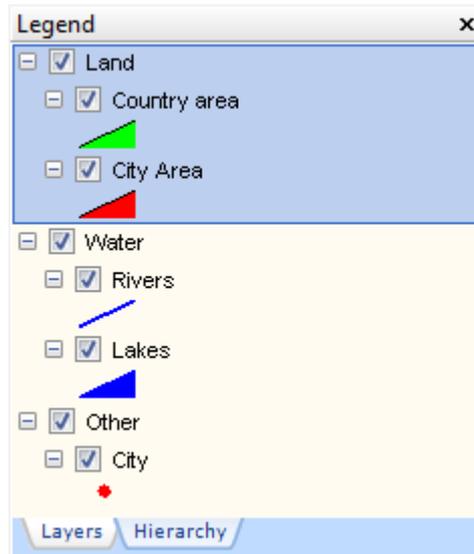


Layer tab of the Legend panel displaying sample data.

### 5.3.3 Hierarchy

#### Description

The *Hierarchy tab* of the *Legend panel* displays the content that is entirely managed by the user. For detailed information about managing the *Hierarchy tab* refer to the [Hierarchy](#) help topic and its subtopics.



*Hierarchy tab of the Legend panel displaying sample data.*

## 5.4 MiniMap

### Description

The *MiniMap panel* is the *Editor* window component that localizes the extent visible within the [Map area](#) with respect to the extent set in this panel. It consists of two tabs differing in the set of features:

- [Map tab](#),
- [World tab](#).

The size, shape and position of the [Map area](#) extent is indicated on the *MiniMap panel* extent by the red semi-transparent rectangle. The center of the extent is where the red vertical and horizontal lines cross. The rectangle combined with the vertical and horizontal line is called the *View-finder*.

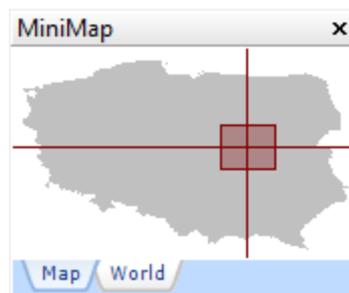
### To drag the extent of the *Map area* using the *MiniMap panel*

1. Move the mouse pointer over the *View-finder* in the *MiniMap* panel.
2. Press and hold the left mouse button.
3. Move the mouse pointer to any place within the *MiniMap* panel and release the left mouse button - both the *MiniMap panel* and the [Map area](#) will be updated immediately.

### 5.4.1 Map

#### Description

The *Map tab* of the *MiniMap panel* localizes the extent visible within the [Map area](#) with respect to the extent previously transferred from the [Map area](#).



*Map tab of the MiniMap panel displaying sample data.*

### To transfer the extent visible on the *Map area* to the *Map tab*

1. Use the [Zoom mode](#), [Zoom extended mode](#) and [Drag mode](#) to adjust the extent visible on the

[Map area.](#)

2. Make sure that the *Map tab* is the active tab of the *MiniMap panel*. If not, click on its name at the bottom of the *MiniMap panel*.
3. Open the context menu over the *MiniMap panel* and click on the *Draw MiniMap* item.

**To clear the *Map tab***

1. Make sure that the *Map tab* is the active tab of the *MiniMap panel*. If not, click on its name at the bottom of the *MiniMap panel*.
2. Open the context menu over the *MiniMap panel* and click on the *Clear* item.

**To export the extent visible within the *Map tab* into a web quality image file of *JPG* format**

1. Make sure that the *Map tab* is the active tab of the *MiniMap panel*. If not, click on its name at the bottom of the *MiniMap panel*.
2. Open the context menu over the *MiniMap panel* and click on the *Export to image...* item - this invokes the *Export to image* dialog box.
3. Within the *Export to image* dialog box select the appropriate drive from the *Save in* list.
4. Locate the folder where you would like to store the image file. A new folder can be created by clicking on the  icon at the top-right corner of the *Export to image* dialog box, entering its name and pressing the *Enter* key.
5. Enter a name for the image file in the *File name* list.
6. Click on the *Save* button.

**IMPORTANT**

Changing colors will take effect only when the extent of the *Map tab* has been transferred via the *Legend panel* (see **To transfer any layer listed in the *Legend panel* to the *Map tab*** above).

**To change the background color of the *Map tab***

1. Make sure that the *Map tab* is the active tab of the *MiniMap panel*. If not, click on its name at the bottom of the *MiniMap panel*.
2. Open the context menu over the *MiniMap panel* and click on the *Colors/Background color* item - this invokes the *Color* dialog box.
3. Pick or define a custom color and click on the *OK* button.

**To change the color of the layer open in the *Map tab***

1. Make sure that the *Map tab* is the active tab of the *MiniMap panel*. If not, click on its name at the bottom of the *MiniMap panel*.
2. Open the context menu over the *MiniMap panel* and click on the *Colors/Layer color* item - this invokes the *Color* dialog box.
3. Pick or define a custom color and click on the *OK* button.

**To change the color of the *View-finder* on the *Map tab***

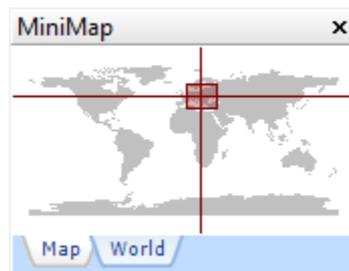
1. Make sure that the *Map tab* is the active tab of the *MiniMap panel*. If not, click on its name at the bottom of the *MiniMap panel*.
2. Open the context menu over the *MiniMap panel* and click on the *Colors/View-finder color* item - this invokes the *Color* dialog box.
3. Pick or define a custom color and click on the *OK* button.

## 5.4.2 World

**Description**

The *World tab* of the *MiniMap panel* localizes the extent visible within the [Map area](#) with respect to one of the seven predefined vector layers. The predefined layers show the filled contour of

- World (as all continents),
- Europe,
- North America,
- South America,
- Asia,
- Africa,
- Australia.



World tab of the MiniMap panel displaying sample data.

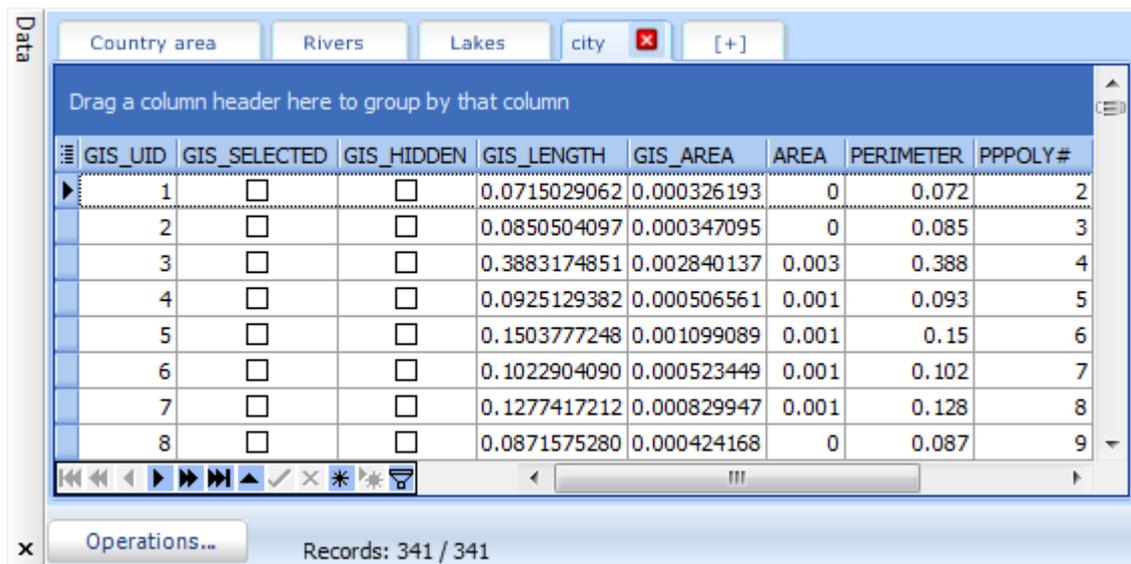
### To switch the extent of the **World** tab to any of the seven predefined layers

1. Make sure that the *World* tab is the active tab of the *MiniMap* panel. If not, click on its name at the bottom of the *MiniMap* panel.
2. Open the context menu over the *MiniMap* panel and click on the name of the desired layer.

## 5.5 Data

### Description

The *Data Panel* is the *Editor* window component that provides the means to preview and edit the attributes tables of the vector layers.



Data Panel displaying sample attributes tables.

To toggle the visibility of the *Data panel*, click on the *View/Panels/Data* menu item.

### 5.5.1 [+]

#### Description

Clicking on the *[ + ]* tab displays the list of vector layers which attribute tables are not open in the [Data panel](#).

#### To show the attributes table of a vector layer in the *Data panel*

1. Make sure that the *Data panel* is open. If not, click on the *View/Panels/Data* menu item.
2. Click on the *[ + ]* tab at the top of the [Data panel](#) - this displays the list of vector layers which are not loaded into the [Data panel](#).
3. Click on the desired layer name on the drop down list.

#### Equivalent actions

The same function can be activated by selecting the desired layer in the [Legend panel](#) and clicking on the *Layer/Show attributes table* menu item. Another way is to expand the context menu over the desired layer name in the [Legend panel](#) and clicking on the *Show attributes table* item on the drop down list.

## 5.5.2 Operations and Context menu

### Description

In the case of the [Data panel](#) the *Operations* button and the context menu display the same set of features.

### 5.5.2.1 Flash current shape

#### Description

Clicking on the *Operations/Flash current shape* menu item makes the shape which record is selected in the [Data panel](#) blink for a second within the [Map area](#). Despite the layer color settings the selected shape will blink sequentially in red and yellow.

#### To make a shape selected in the *Data panel* blink within the *Map area*

1. Open the attributes table of the desired layer using the [ + ] button (see [here](#)) or the [Show attributes table](#) feature.
2. Within the [Data panel](#) select the attributes record of the desired shape.
3. Click on the *Operations/Flash current shape* menu item.

### 5.5.2.2 Zoom to current shape

#### Description

Clicking on the *Operations/Zoom to current shape* menu item sets the extent visible in the [Map area](#) to cover the shape which record is selected in the [Data panel](#).

#### To zoom to the shape selected in the *Data panel*

1. Open the attributes table of the desired layer using the [ + ] button (see [here](#)) or the [Show attributes table](#) feature.
2. Within the [Data panel](#) select the attributes record of the desired shape.
3. Click on the *Operations/Zoom to current shape* menu item.

### 5.5.2.3 Copy selected row(s) to clipboard

#### Description

Clicking on the *Operations/Copy selected row(s) to clipboard* menu item copies the records selected in the [Data panel](#) to the system clipboard. The records are copied as a text in separate lines with tab-separated attributes values.

#### To copy a record or multiple records from the *Data panel* to the system clipboard

1. Open the attributes table of the desired layer using the [ + ] button (see [here](#)) or the [Show attributes table](#) feature.
2. [OPTIONAL] If multiple records are to be selected press and hold the *Ctrl* key.
3. Within the [Data panel](#) click on the desired record. [OPTIONAL] Repeat this step until all desired records are selected.
4. [OPTIONAL] Release the *Ctrl* key.
5. Click on the *Operations/Copy selected row(s) to clipboard* menu item.

### 5.5.2.4 Auto zoom

#### Description

Clicking on the *Operations/Auto zoom* menu item toggles the automatic zooming to the shape which record is selected in the [Data panel](#).

**To toggle the *Auto zoom* feature**, click on the *Operations/Auto zoom* menu item.

### 5.5.2.5 Select group and zoom to

#### Description

Clicking on the *Operations/Select group and zoom to* menu item selects all shapes from the active attribute group and sets the extent of the [Map area](#) to cover the selected shapes. For more information about grouping shapes by attributes refer to the [Grouping](#) help topic.

**To select all shapes from the active attribute group and zoom to them**, click on the *Operations/Select group and zoom to* menu item.

#### Associated functions

To transfer the selected shapes to the temporary clipboard layer, use one of the following functions: [Cut](#), [Copy](#), [Copy Special](#), [Load Clipboard](#).

To remove the selected shapes from the layer, use the [Delete Shape](#) feature.

To cancel all previously made selections, use the [Deselect all](#) feature.

#### Note

- All currently selected shapes are highlighted on the [Map area](#).
- Values (or averages, maximal and minimal numeric values) of attributes of the selected shape (or shapes) are displayed in the *Attributes* tab of the [Selected panel](#).

### 5.5.2.6 Selections

#### Description

Clicking on the *Operations/Selections* menu item displays the list of features used for automatic shape selecting.

**To display the list of features used for automatic shape selecting**, click on the *Operations/Selections* menu item.

#### 5.5.2.6.1 Select group

#### Description

Clicking on the *Operations/Selections/Select group* menu item selects all shapes from the active attribute group. For more information about grouping shapes by attributes refer to the [Grouping](#) help topic.

**To select all shapes from the active attribute group**, click on the *Operations/Selections/Select group* menu item.

#### Associated functions

To transfer the selected shapes to the temporary clipboard layer, use one of the following functions: [Cut](#), [Copy](#), [Copy Special](#), [Load Clipboard](#).

To remove the selected shapes from the layer, use the [Delete Shape](#) feature.

To cancel all previously made selections, use the [Deselect all](#) feature.

#### Note

- All currently selected shapes are highlighted on the [Map area](#).
- Values (or averages, maximal and minimal numeric values) of attributes of the selected shape (or shapes) are displayed in the *Attributes* tab of the [Selected panel](#).

#### 5.5.2.6.2 Deselect group

#### Description

Clicking on the *Operations/Selections/Deselect group* menu item deselects all shapes from the active attribute group. For more information about grouping shapes by attributes refer to the [Grouping](#) help topic.

**To deselect all shapes from the active attribute group**, click on the *Operations/Selections/Deselect group* menu item.

**Note**

- All currently selected shapes are highlighted on the [Map area](#).
- Changing the active layer cancels all previously made selections.

## 5.5.2.6.3 Select all

**Description**

The *Select all* item of the *Data panel Operations* menu is equivalent to the *Select/Select all* menu item. For detailed information see the [Select all](#) help topic.

## 5.5.2.6.4 Invert Selection

**Description**

The *Invert selection* item of the *Data panel Operations* menu is equivalent to the *Select/Invert selection* menu item. For detailed information see the [Invert selection](#) help topic.

## 5.5.2.6.5 Deselect all

**Description**

The *Deselect all* item of the *Data panel Operations* menu is equivalent to the *Select/Deselect all* menu item. For detailed information see the [Deselect all](#) help topic.

**5.5.2.7 Show only current group****Description**

Clicking on the *Operations/Show/Hide/Show group* menu item makes the shapes belonging to the active attribute group the only shapes visible within the [Map area](#). The visibility of layers other than the active vector layer is not affected in any way. For more information about grouping shapes by attributes refer to the [Grouping](#) help topic.

**To make the *Map area* display only the shapes belonging to the active attribute group, click on the *Operations/Show/Hide/Show group* menu item.**

**Associated functions**

See [Show Selected](#), [Hide Selected](#), [Show group](#), [Hide group](#), [Show all](#), [Hide all](#).

**5.5.2.8 Show/Hide****Description**

Clicking on the *Operations/Show/Hide* menu item displays the list of features used for managing the visibility of shapes within the [Map area](#).

**To display the list of features used for managing the visibility of shapes, click on the *Operations/Show/Hide* menu item.**

## 5.5.2.8.1 Show selected

**Description**

The *Show selected* item of the *Data panel Operations* menu is equivalent to the *Select/Show selected* menu item. For detailed information see the [Show selected](#) help topic.

## 5.5.2.8.2 Hide selected

**Description**

The *Hide selected* item of the *Data panel Operations* menu is equivalent to the *Select/Hide selected* menu item. For detailed information see the [Hide selected](#) help topic.

#### 5.5.2.8.3 Show group

##### Description

Clicking on the *Operations/Show/Hide/Show group* menu item makes the shapes belonging to the active attribute group visible within the [Map area](#). If all of these shapes are already visible then no action is taken. The visibility of layers other than the active vector layer is not affected in any way. For more information about grouping shapes by attributes refer to the [Grouping](#) help topic.

**To make the *Map area* display only the shapes belonging to the active attribute group**, click on the *Operations/Show/Hide/Show group* menu item.

##### Associated functions

See [Show Selected](#), [Hide Selected](#), [Show only current group](#), [Hide group](#), [Show all](#), [Hide all](#).

#### 5.5.2.8.4 Hide group

##### Description

Clicking on the *Operations/Show/Hide/Hide group* menu item makes the shapes belonging to the active attribute group invisible within the [Map area](#). The visibility of layers other than the active vector layer is not affected in any way. For more information about grouping shapes by attributes refer to the [Grouping](#) help topic.

**To make the *Map area* hide all the shapes belonging to the active attribute group**, click on the *Operations/Show/Hide/Hide group* menu item.

##### Associated functions

See [Show Selected](#), [Hide Selected](#), [Show only current group](#), [Show group](#), [Show all](#), [Hide all](#).

#### 5.5.2.8.5 Show all

##### Description

The *Show all* item of the *Data panel Operations* menu is equivalent to the *Select/Show all* menu item. For detailed information see the [Show all](#) help topic.

#### 5.5.2.8.6 Hide all

##### Description

The *Hide all* item of the *Data panel Operations* menu is equivalent to the *Select/Hide all* menu item. For detailed information see the [Hide all](#) help topic.

#### 5.5.2.9 Set column value

##### Description

The *Set column value* item of the [Data panel Operations](#) menu is equivalent to the *Data/Set column value* menu item. For detailed information see the [Set column value](#) help topic.

#### 5.5.2.10 Cached mode

##### Description

Clicking on the *Operations/Cached mode* menu item toggles the cached mode of the [Data panel](#). If the *Operations/Cached mode* menu item is checked, the columns header menu in the [Data panel](#) displays additional selection lists which can be used for attribute values filtering. In cases when this feature is inactive the performance with very large and complicated vector data sets can be dramatically improved.

**To toggle the cached mode of the *Data panel***, click on the *Operations/Cached mode* menu item.

##### Associated functions

See the [Options Data panel](#) help topic for information about automatic cached mode handling.

### 5.5.3 Grouping

#### Description

The [Data panel](#) supports automatic shape grouping by the user specified attribute. Each group created by the *Grouping* feature consists of shapes with the same attribute value.

#### To group shapes belonging to a vector layer according to some attribute

1. Open the attributes table of the desired layer using the [ + ] button (see [here](#)) or the [Show attributes table](#) feature.
2. Move the mouse pointer over the desired attribute column header and press the left mouse button.
3. Holding the left mouse button move the mouse pointer over the blue field at the top of the attributes table, i.e. the one indicated by "Drag a column header here to group by that column" text.
4. Release the left mouse button.

#### To cancel the grouping

1. Make sure that the [Data panel](#) displays the attributes table of the desired layer. If not then click on the tab with the right layer name at the top of the [Data panel](#).
2. Move the mouse pointer over the rectangle with the attribute name on the blue field at the top of the attributes table and press the left mouse button.
3. Holding the left mouse button move the mouse pointer over the attributes table.
4. Release the left mouse button.

### 5.5.4 Toolbar

#### Description

The [Data panel](#) toolbar provides quick access to the basic functions used to operate and filter records within an attribute table.

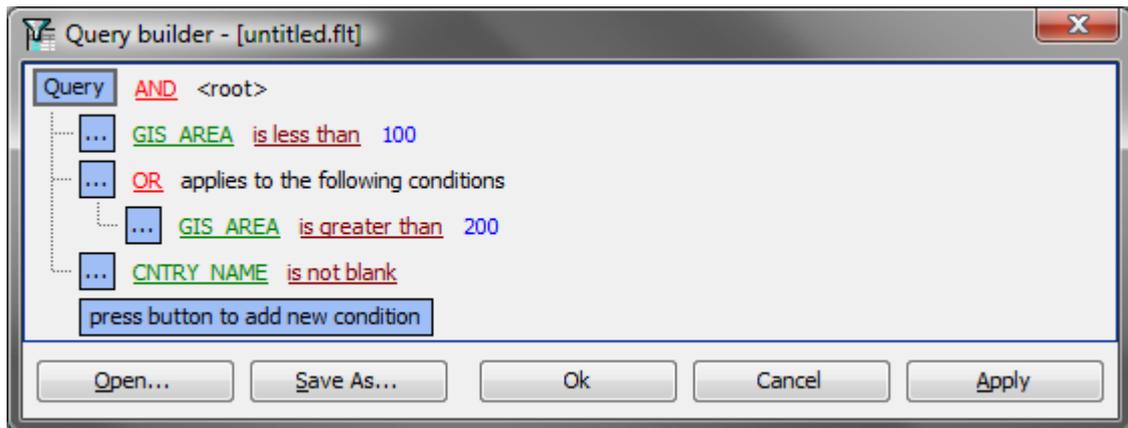


Icon	Name	Description
	First record	Jumps to the first record within the current attribute table.
	Prior page	Jumps <b>n</b> records backward within the current attribute table; <b>n</b> is the number of records visible at the current <a href="#">Data panel</a> height.
	Prior record	Moves one record backward within the current attribute table.
	Next record	Moves one record forward within the current attribute table.
	Next page	Jumps <b>n</b> records forward within the current attribute table; <b>n</b> is the number of records visible at the current <a href="#">Data panel</a> height.
	Last record	Jumps to the last record within the current attribute table.
	Edit record	Starts editing of the selected cell.
	Post edit	Confirms changes done within the edited cell.
	Cancel edit	Cancels changes done within the edited cell.
	Save Bookmark	Bookmarks the selected record within the current attribute table; the bookmark is preserved as long as the attribute table is open within the <a href="#">Data panel</a> .
	Go to Bookmark	Jumps to the bookmarked record.
	Query	Invokes the <a href="#">Data panel</a> Query builder dialog box; refer to the <a href="#">Query builder</a> help topic for more information.

#### 5.5.4.1 Query builder

#### Description

The *Query builder* is a component of the [Data panel](#) designed for records filtering. It provides the means for graphical creation of a query filter. When executed, only the records for which the query statement has the logical value TRUE remain visible within the records table.



Data panel Query builder displaying sample query.

#### To create a query filter

1. Open the attributes table of the desired layer using the [ + ] button (see [here](#)) or the [Show attributes table](#) feature.
2. Click on the  icon on the [Data panel Toolbar](#) - this invokes the *Query builder* dialog box.
3. Within the *Query builder* dialog box use the graphical tool to create the query filter.
4. [OPTIONAL] Click on the *Apply* button to preview the result within the attributes table.
5. Click on the *OK* button.

#### To use a query filter stored in a file

1. Open the attributes table of the desired layer using the [ + ] button (see [here](#)) or the [Show attributes table](#) feature.
2. Click on the  icon on the [Data panel Toolbar](#) - this invokes the *Query builder* dialog box.
3. Within the *Query builder* dialog box click on the *Open...* button - this invokes the *Open an existing query* dialog box.
4. Within the *Open an existing query* dialog box select the appropriate drive from the *Look in* list.
5. Locate the query filter file by entering the directory that contains this file.
6. Double-click on the file name - this loads the query filter and brings back the *Query builder* dialog box.
7. [OPTIONAL] Click on the *Apply* button to preview the result within the attributes table.
8. Click on the *OK* button.

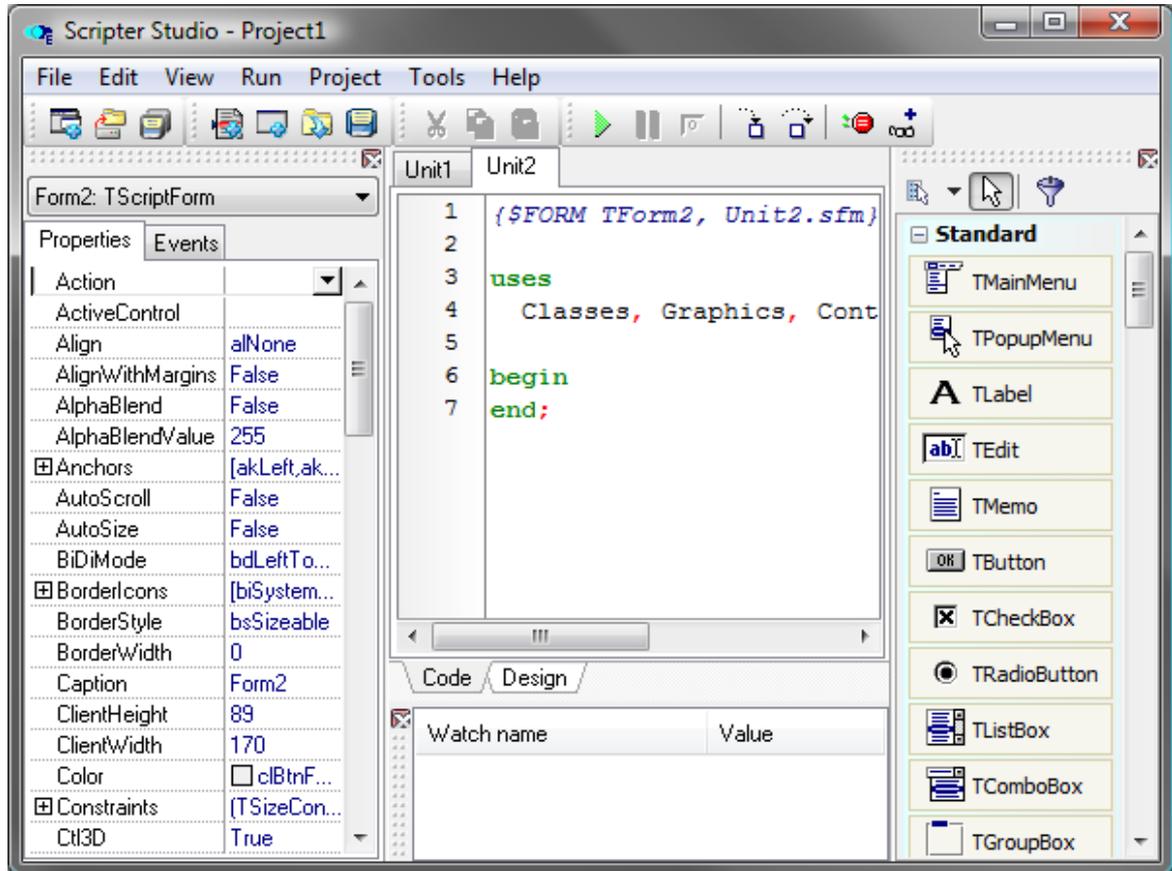
#### To save a query filter to a file

1. Open the attributes table of the desired layer using the [ + ] button (see [here](#)) or the [Show attributes table](#) feature.
2. Click on the  icon on the [Data panel Toolbar](#) - this invokes the *Query builder* dialog box.
3. Within the *Query builder* dialog box use the graphical tool to create the query filter.
4. [OPTIONAL] Click on the *Apply* button to preview the result within the attributes table.
5. Click on the *Save As...* button - this invokes the *Save the active query to file* dialog box.
6. Within the *Save the active query to file* dialog box select the appropriate drive from the *Save in* list.
7. Locate the folder where you would like to store the query filter file. A new folder can be created by clicking on the  icon at the top-right corner of the *Save the active query to file* dialog box, entering its name and pressing the *Enter* key.
8. Enter a name for the query filter file in the *File name* list.
9. Click on the *Save* button - this brings back the *Query builder* dialog box.
10. Click on the *OK* button.

**To activate/deactivate a query filter**, check/uncheck the checkbox on the blue field containing the query over the [Data panel Toolbar](#).

**To remove a query filter**, click on the **X** button on the blue field containing the query over the [Data panel Toolbar](#).

## 6 Scripter Studio



Scripter Studio window.

### Description

The *Scripter Studio* is an *Integrated Development Environment (IDE)* - a complete solution for creating, editing and executing scripts for the *Editor*. It can be invoked by clicking on any of the *Scripts/Scripter Studio* menu items. The *Scripter Studio* allows to utilize the capabilities of almost all *Object Pascal* and *TatukGIS Developer Kernel* procedures and functions using each of the two supported scripting languages: *Pascal* and *Basic*. Moreover, the user can create advanced *Graphical User Interfaces (GUIs)* with the power of *Visual Component Library* and *TatukGIS Developer Kernel Components*.

### Structure of a script

The code of the script is stored in the unit files. There are two types of unit files: non-*GUI* unit - raw code file, *GUI* unit - code file with associated *Graphical User Interface* file. The default extension of the *Pascal* unit files is *PSC* and of the *Basic* unit files is *BSC*. The *GUI* files default extension is *SFM*. A script for the *Editor* consists of at least two files: a script project file - *SSPROJ* extension, and a non-*GUI* main unit file. The script project file is automatically created and governed by the *Scripter Studio* - the user never edits it directly. The *GUI* files are being edited indirectly using the *Scripter Studio* form editor.

### Binary scripts

The *Scripter Studio* provides the means to convert any script into binary form. This can be especially useful when the user wants to publish a script without the source code. Moreover, a script can be automatically converted into a package containing all necessary data in one file. For more information on generating a binary script or making a package refer to the [Compile](#) and [Make package](#) features help topics.

## 6.1 Languages

### IMPORTANT

This chapter of the *Editor* help system is entirely imported from the *TMS Software* (<http://www.tmssoftware.com/>) *Scripter Studio Pro* help system. It covers all the languages and language features that can be used to write scripts, language syntax, constructors, etc.

### 6.1.1 Pascal syntax

#### 6.1.1.1 Overview

Current *Pascal* syntax supports:

- **begin .. end** constructor
- **procedure** and **function** declarations
- **if .. then .. else** constructor
- **for .. to .. do .. step** constructor
- **while .. do** constructor
- **repeat .. until** constructor
- **try .. except** and **try .. finally** blocks
- **case** statements
- **array** constructors, e.g. `x := [ 1, 2, 3 ] ;`
- **exit** statement
- **^, \*, /, and, +, -, or, <>, >=, <=, =, >, <, div, mod, xor, shl, shr** operators
- access to object properties and methods, e.g. `ObjectName.SubObject.Property`

#### 6.1.1.2 Script structure

Script structure is made of two major blocks: a) procedure and function declarations, and b) main block. Both are optional, but at least one should be present in script. There is no need for main block to be inside **begin .. end**. It could be a single statement. Examples:

SCRIPT 1:

```
procedure DoSomething ;
begin
  CallSomething ;
end ;

begin
  CallSomethingElse ;
end ;
```

SCRIPT 2:

```
begin
  CallSomethingElse ;
end ;
```

SCRIPT 3:

```
function MyFunction ;
begin
  Result := 'Ok!' ;
end ;
```

SCRIPT 4:

```
CallSomethingElse ;
```

Like in *Pascal*, statements should be terminated by ";" character. **begin** .. **end** blocks are allowed to group statements.

### 6.1.1.3 Identifiers

Identifier names in script (variable names, function and procedure names, etc.) follow the most common rules in *Pascal*: should begin with a character (a..z or A..Z), or '\_', and can be followed by alphanumeric chars or '\_' char. Cannot contain any other character or spaces.

Valid identifiers:

```
VarName
_Some
V1A2
_____Some_____
```

Invalid identifiers:

```
2Var
My Name
Some-more
This,is,not,valid
```

### 6.1.1.4 Assign statements

Just like in *Pascal*, assign statements (assign a value or expression result to a variable or object property) are built using ":=". Examples:

```
MyVar := 2 ;
Button.Caption := 'This ' + 'is ok.' ;
```

### 6.1.1.5 Character strings

Strings (sequence of characters) are declared in pascal using single quote (') character. Double quotes (") are not used. You can also use #nn to declare a character inside a string. There is no need to use '+' operator to add a character to a string. Some examples:

```
A := 'This is a text' ;
Str := 'Text ' + 'concat' ;
B := 'String with CR and LF char at the end' + #13 + #10 ;
C := 'String with ' + #33 + #34 + ' characters in the middle' ;
```

### 6.1.1.6 Comments

Comments can be inserted inside script. You can use // chars or (\* \*) or { } blocks. Using // char the comment will finish at the end of line.

```
//This is a comment before ShowMessage
ShowMessage( 'Ok' ) ;
```

```
(* This is another comment *)
ShowMessage( 'More ok!' ) ;
```

```
{ And this is a comment
  with two lines }
```

```
ShowMessage( 'End of okays' ) ;
```

### 6.1.1.7 Variables

There is no need to declare variable types in script. Thus, a variable can be declared just using **var** directive and its name. Examples:

SCRIPT 1:

```
procedure Msg ;
var
  S : String ;
begin
  S := 'Hello world!' ;
  ShowMessage( S ) ;
end ;
```

SCRIPT 2:

```
var
  A : Integer ;
begin
  A := 0 ;
  A := A + 1 ;
end ;
```

SCRIPT 3:

```
var S : String ;
S := 'Hello World!' ;
ShowMessage( S ) ;
```

### 6.1.1.8 Indexes

Strings, arrays and array properties can be indexed using "[" and "]" characters. For example, if *Str* is a **String** variable, the expression *Str*[3] returns the third character in the string denoted by *Str*, while *Str*[i + 1] returns the character immediately after the one indexed by *i*. More examples:

```
MyChar := MyStr[2] ;
MyStr[1] := 'A' ;
MyArray[1,2] := 1530 ;
Lines.Strings[2] := 'Some text' ;
```

### 6.1.1.9 Arrays

To construct an array, use "[" and "]" characters. You can construct multi-index array by nesting the array constructors. You can then access arrays using indexes. If an array is multi-index, separate indexes using ",". If a variable is a variant array, script automatically supports indexing in that variable. A variable is a variant array if it was assigned using an array constructor, if it is a direct reference to a *Delphi* variable which is a variant array (see *Delphi* integration later) or if it was created using *VarArrayCreate* procedure.

Arrays in scripts have indexes starting from zero. Examples:

```
NewArray := [ 2, 4, 6, 8 ] ;
Num := NewArray[1] ; //Num receives "4"
MultiArray := [ ['green','red','blue'] , ['apple','orange','lemon'] ] ;
Str := MultiArray[0,2] ; //Str receives 'blue'
MultiArray[1,1] := 'new orange' ;
```

#### 6.1.1.10 If statements

There are two forms of **if** statements: **if .. then** and **if .. then .. else**. Like in normal *Pascal*, if the **if** expression is true, the statement (or block) is executed. If there is the **else** part and the expression is false, statement (or block) after else is executed. Examples:

```
if J <> 0 then Result := i / j ;

if J = 0 then exit else Result := i / j ;

if J <> 0 then
begin
  Result := i / j ;
  Count := Count + 1 ;
end
else begin
  Done := True ;
end ;
```

#### 6.1.1.11 while statements

The **while** statement is used to repeat a statement or a block, while a control condition (expression) is evaluated as true. The control condition is evaluated before the statement. Hence, if the control condition is false at first iteration, the statement sequence is never executed. The while statement executes its constituent statement (or block) repeatedly, testing expression before each iteration. As long as expression returns true, execution continues. Examples:

```
while Data[i] <> x do i := i + 1 ;

while i > 0 do
begin
  if Odd( i ) then z := z * x ;
  i := i div 2 ;
  x := Sqr( x ) ;
end ;

while not Eof( InputFile ) do
begin
  ReadLn( InputFile, Line ) ;
  Process( Line ) ;
end ;
```

#### 6.1.1.12 repeat statements

The syntax of a **repeat** statement is **repeat** statement\_1 ; .. statement\_n ; **until** expression ; where expression returns a boolean value. The **repeat** statement executes its sequence of constituent statements continuously, testing expression after each iteration. When expression returns true, the **repeat** statement terminates. The sequence is always executed at least once because expression is not evaluated until after the first iteration. Examples:

```
repeat
  k := i mod j ;
  i := j ;
  j := k ;
until j = 0 ;
```

```
repeat
  Write( 'Enter a value (0..9): ' ) ;
  ReadLn( i ) ;
until ( i >= 0 ) and ( i <= 9 ) ;
```

#### 6.1.1.13 for statements

Scripter Studio supports **for** statements with the following syntax: **for** counter := initial\_value **to** final\_value **do** statement ;. **for** statement sets counter to the initial\_value, repeats execution of statement (or block) and increments value of counter until counter reaches the final\_value. Examples:

SCRIPT 1:

```
for c := 1 to 10 do a := a + c ;
```

SCRIPT 2:

```
for i := a to b do
begin
  j := i ^ 2 ;
  sum := sum + j ;
end ;
```

#### 6.1.1.14 case statements

Scripter Studio supports **case** statements with the following syntax:

```
case expression of
  case_1 : statement_1 ;
  ..
  case_i : statement_i ;
  ..
  case_n : statement_n ;
else
  else_statement ;
end ;
```

if expression matches the result of one of case\_i expressions, the respective statement\_i (or block) will be executed. Otherwise, else\_statement will be executed. **else** part of **case** statement is optional. Different from *Delphi*, **case** statement in script doesn't need to use only ordinal values. You can use expressions of any type in both expression and case\_i. Example:

```
case Uppercase( fruit ) of
  'lime' : ShowMessage( 'green' ) ;
  'orange' : ShowMessage( 'orange' ) ;
  'apple' : ShowMessage( 'red' ) ;
else
  ShowMessage( 'black' ) ;
end ;
```

#### 6.1.1.15 function and procedure declaration

Declaration of functions and procedures are similar to *Object Pascal (Delphi)*, but there is no need to specify variable types of the parameters and the return value. To return function value, use implicitly declared `Result` variable. Examples:

```
procedure HelloWorld ;
```

```

begin
  ShowMessage( 'Hello world!' ) ;
end ;

procedure UppcaseMessage( msg : String ) ;
begin
  ShowMessage( Uppercase( msg ) ) ;
end ;

function TodayAsString : String ;
begin
  Result := DateToStr( Date ) ;
end ;

function Max( A, B ) ;
begin
  if A > B then
    Result := A
  else
    Result := B ;
end ;

procedure SwapValues( A, B ) ;
var
  Temp ;
begin
  Temp := A ;
  A := B ;
  B := Temp ;
end ;

```

## 6.1.2 Basic syntax

### 6.1.2.1 Overview

Current *Basic* syntax supports:

- SUB .. END SUB and FUNCTION .. END FUNCTION declarations
- BYREF and DIM directives
- IF .. THEN .. ELSE .. END constructor
- FOR .. TO .. STEP .. NEXT constructor
- DO .. WHILE .. LOOP and DO .. LOOP .. WHILE constructors
- DO .. UNTIL .. LOOP and DO .. LOOP .. UNTIL constructors
- ^, \*, /, AND, +, -, OR, <>, >=, <=, =, >, <, DIV, MOD, XOR, SHL, SHR operators
- TRY .. EXCEPT .. END and TRY .. FINALLY .. END blocks
- SELECT CASE .. END SELECT constructor
- array constructors, e.g. x = [ 1, 2, 3 ]
- EXIT statement
- access to object properties and methods, e.g. ObjectName.SubObject.Property

### 6.1.2.2 Script structure

Script structure is made of two major blocks: a) function and sub declarations and b) main block. Both are optional, but at least one should be present in script. Some examples:

SCRIPT 1:

```

SUB DoSomething
  CallSomething

```

```
END SUB

CallSomethingElse

SCRIPT 2:

CallSomethingElse

SCRIPT 3:

FUNCTION MyFunction
  MyFunction = "Ok!"
END FUNCTION
```

Like in normal *Basic*, statements in a single line can be separated by ":" character.

### 6.1.2.3 Identifiers

Identifier names in script (variable names, function and procedure names, etc.) follow the most common rules in *Basic*: should begin with a character (a..z or A..Z), or '\_' , and can be followed by alphanumeric chars or '\_' char. Cannot contain any other character or spaces.

Valid identifiers:

```
VarName
_Some
V1A2
_____Some_____
```

Invalid identifiers:

```
2Var
My Name
Some-more
This,is,not,valid
```

### 6.1.2.4 Assign statements

Assign statements (assign a value or expression result to a variable or object property) are built using "=". Examples:

```
MyVar = 2
Button.Caption = "This " + "is ok."
```

### 6.1.2.5 New statement

*Scripter Studio* provides the **NEW** statement for *Basic* syntax. Since you don't provide the method name in this statement, *Scripter Studio* looks for a method named **CREATE** in the specified class. If the method doesn't exist, the statement fails. Example:

```
MyLabel = NEW TLabel( Form1 )

MyFont = NEW TFont
```

In the above examples, a method named **CREATE** for `TLabel` and `TFont` class will be called. The method must be registered. If the method receives parameters, you may pass the parameters in parenthesis, like the `TLabel` example above.

### 6.1.2.6 Character strings

Strings (sequence of characters) are declared in basic using double quote (") character. Examples:

```
A = "This is a text"
Str = "Text " + "concat"
```

### 6.1.2.7 Comments

Comments can be inserted inside script. You can use ' character or *REM*. Comment will finish at the end of a line. Examples:

```
' This is a comment before ShowMessage
ShowMessage( "Ok" )

REM This is another comment
ShowMessage( "More ok!" )

' And this is a comment
' with two lines
ShowMessage( "End of okays" )
```

### 6.1.2.8 Variables

There is no need to declare variable types in script. Thus, you declare variable just using *DIM* directive and its name. Examples:

SCRIPT 1:

```
SUB Msg
  DIM S
  S = "Hello world!"
  ShowMessage( S )
END SUB
```

SCRIPT 2:

```
DIM A
A = 0
A = A + 1
ShowMessage( A )
```

You can also declare global variables as private or public using the following syntax:

SCRIPT 3:

```
PRIVATE A
PUBLIC B
B = 0
A = B + 1
ShowMessage( A )
```

Variable declared with *DIM* statement are public by default. Private variables are not accessible from other scripts.

Variables can be initialized using the following syntax:

```
DIM A = "Hello world"
DIM B AS Integer = 5
```

### 6.1.2.9 Indexes

Strings, arrays and array properties can be indexed using "[" and "]" chars. For example, if `Str` is a string variable, the expression `Str[2]` returns the third character in the string denoted by `Str`, while `Str[i + 1]` returns the character immediately after the one indexed by `i`. Examples:

```
MyChar = MyStr[2]
MyStr[1] = "A"
MyArray[1,2] = 1530
Lines.Strings[2] = "Some text"
```

### 6.1.2.10 Arrays

To construct an array, use "[" and "]" chars. You can construct multi-index array by nesting the array constructors. You can then access arrays using indexes. If an array is multi-index, separate indexes using ",". If a variable is a variant array, script automatically supports indexing in that variable. A variable is a variant array if it was assigned using an array constructor, if it is a direct reference to a *Delphi* variable which is a variant array (see *Delphi* integration later) or if it was created using `VarArrayCreate` procedure.

Arrays in scripts have indexes starting from zero. Examples:

```
NewArray = [ 2, 4, 6, 8 ]
Num = NewArray[1] 'Num receives "4"
MultiArray = [ ["green","red","blue"] , ["apple","orange","lemon"] ]
Str = MultiArray[0,2] 'Str receives 'blue'
MultiArray[1,1] = "new orange"
```

### 6.1.2.11 If statements

There are two forms of `IF` statement: `IF .. THEN .. END IF` and `IF .. THEN .. ELSE .. END IF`. Like normal basic, if the if expression is true, the statements are executed. If there is else part and expression is false, statements after else are executed. Examples:

```
IF j <> 0 THEN Result = i / j END IF

IF j = 0 THEN EXIT ELSE Result = i / j END IF

IF j <> 0 THEN
  Result = i / j
  Count = Count + 1
ELSE
  Done = True
END IF
```

If the `IF` statement is in a single line, you don't need to finish it with `END IF`:

```
IF j <> 0 THEN Result = i / j
IF j = 0 THEN EXIT ELSE Result = i / j
```

### 6.1.2.12 while statements

The `WHILE` statement is used to repeat a statement or a block, while a control condition (expression) is evaluated as true. The control condition is evaluated before the statement. Hence, if the control condition is false at first iteration, the statement sequence is never executed. The while statement executes its constituent statement (or block) repeatedly, testing expression before each iteration. As long as expression returns true, execution continues. Examples:

```
WHILE ( Data[i] <> x )
```

```

    i = i + 1
END WHILE

WHILE ( i > 0 )
    IF Odd( i ) THEN z = z * x END IF
    x = Sqr( x )
END WHILE

WHILE ( NOT Eof( InputFile ) )
    Readln( ReadLn, Line )
    Process( Line )
END WHILE

```

### 6.1.2.13 loop statements

*Scripter Studio* supports loop statements. The possible syntax is:

```

DO WHILE expression statements LOOP
DO UNTIL expression statements LOOP
DO statements LOOP WHILE expression
DO statement LOOP UNTIL expression

```

The statements will be executed **WHILE** expression is true, or **UNTIL** expression is true. If expression is before statements, then the control condition will be tested before iteration. Otherwise, control condition will be tested after iteration. Examples:

```

DO
    k = i MOD j
    i = j
    j = k
LOOP UNTIL j = 0

DO UNTIL i >= 0
    Write( "Enter a value (0..9): " )
    Readln( i )
LOOP

DO
    k = i MOD j
    i = j
    j = k
LOOP WHILE j <> 0

DO WHILE i < 0
    Write( "Enter a value (0..9): " )
    Readln( i )
LOOP

```

### 6.1.2.14 for statements

*Scripter Studio* supports **for** statements with the following syntax: **FOR** counter = initial\_value **TO** final\_value **STEP** step\_value statements **NEXT**. **FOR** statement sets counter to the initial\_value, repeats execution of statement until **NEXT** and increments value of counter by step\_value, until counter reaches final\_value. The **STEP** part is optional, and if omitted step\_value is considered 1. Examples:

SCRIPT 1:

```

FOR c = 0 TO 10 STEP 2
    a = a + c
NEXT

```

SCRIPT 2:

```
FOR i = a TO b
  j = i ^ 2
  sum = sum + j
NEXT
```

### 6.1.2.15 select case statements

Scripter Studio supports **SELECT CASE** statements with the following syntax:

```
SELECT CASE expression
  CASE case_1 statement_1
  ..
  CASE case_i statement_i
  ..
  CASE case_n statement_n
  CASE ELSE
    else_statement
END SELECT
```

If expression matches the result of one of case\_i expressions, the respective statement\_i will be executed. Otherwise, else\_statement will be executed. **CASE ELSE** part of **SELECT CASE** statement is optional. Example:

```
SELECT CASE Uppercase( fruit )
  CASE "lime" ShowMessage( "green" )
  CASE "orange" ShowMessage( "orange" )
  CASE "apple" ShowMessage( "red" )
  CASE ELSE
    ShowMessage( "black" )
END SELECT
```

### 6.1.2.16 function and sub declaration

Declaration of functions and procedures are similar to *Basic*. To return function values, use implicitly declared variable which has the same name as the function, or use **Return** statement. Parameters by reference can also be used, using **BYREF** directive. Examples:

```
SUB HelloWorld
  ShowMessage( "Hello world!" )
END SUB

SUB UppcaseMessage( Msg )
  ShowMessage( Uppercase( Msg ) )
END SUB

FUNCTION TodayAsString
  TodayAsString = DateToStr( Date )
END FUNCTION

FUNCTION Max( a, b )
  IF a > b THEN
    Max = a
  ELSE
    Max = b
  END IF
END FUNCTION

SUB SwapValues( BYREF a, b )
  DIM temp
  temp = a
  a = b
```

```

    b    = temp
END SUB

```

You can also declare functions and procedures as private or public using the following syntax:

```

PRIVATE SUB Hello
END SUB

PUBLIC FUNCTION Hello
END FUNCTION

```

Procedures and functions are public by default. Private subs and functions are not accessible from other scripts.

You can use `Return` statement to exit subs and functions. For functions, you can also return a valid value. Examples:

```

SUB UppcaseMessage( Msg )
    ShowMessage( Uppercase( Msg ) )
    Return
    'This line will be never reached
    ShowMessage( "never displayed" )
END SUB

FUNCTION TodayAsString
    Return DateToStr( Date )
END FUNCTION

```

## 6.1.3 Calling dll functions

### 6.1.3.1 Overview

*Scripter Studio* allows importing and calling functions from external *DLL* libraries, by inserting special directives in declaration of script routines, indicating library name and, optionally, the calling convention, beyond the function signature.

External libraries are loaded by *Scripter Studio* on demand, before function calls, if not loaded yet (dynamically or statically). To load and unload libraries explicitly, functions `LoadLibrary` and `FreeLibrary` from `unit Windows` can be used.

**Note:** to enable *DLL* function calls, you must set `AllowDLLCalls` property to true.

### 6.1.3.2 Pascal syntax

```

function function_name( arguments ) : result_type ; calling_convention ;
external 'libName.dll' name external_function_name ;

```

For example, the following declaration:

```

function MyFunction( arg : integer ) : integer ; external
'CustomLib.dll' ;

```

imports a function called `MyFunction` from `CustomLib.dll`. Default calling convention, if not specified, is `register`. *Scripter Studio* also allows to declare a different calling convention ( `stdcall`, `register`, `pascal`, `cdecl` or `safecall`) and to use a different name for *DLL* function, like the following declaration:

```

function MessageBox( hwnd : pointer ; text, caption : String ; msgtype :
Integer ) : Integer ; stdcall ;external 'User32.dll' name 'MessageBoxA'
;

```

The above function imports function `MessageBoxA` from `User32.dll` (*Windows API* library),

and names it `MessageBox` for usage in script.

Declaration above can be used for functions and procedures (routines without result value).

### 6.1.3.3 Basic syntax

```
FUNCTION LIB "libName.dll" ALIAS external_function_name  
calling_convention function_name( arguments ) AS result_type
```

For example, the following declaration:

```
FUNCTION LIB "CustomLib.dll" MyFunction( arg AS Integer ) AS Integer
```

imports a function called `MyFunction` from `CustomLib.dll`. Default calling convention, if not specified, is `stdcall`. *Scripter Studio* also allows to declare a different calling convention (`stdcall`, `register`, `pascal`, `cdecl` or `safecall`) and to use a different name for *DLL* function, like the following declaration:

```
FUNCTION MessageBox LIB "User32.dll" ALIAS "MessageBoxA" stdcall ( hwnd  
AS pointer, text AS String, caption AS String, msgtype AS Integer ) AS  
Integer
```

The above function imports function `MessageBoxA` from `User32.dll` (*Windows API* library), and names it `MessageBox` for usage in script.

Declaration above can be used for functions and procedures (routines without result value).

### 6.1.3.4 Supported types

*Scripter Studio* supports following basic data types:

- *Integer*
- *Boolean*
- *Char*
- *Extended*
- *String*
- *Pointer*
- *PChar*
- *Object*
- *Class*
- *WideChar*
- *PWideChar*
- *AnsiString*
- *Currency*
- *Variant*
- *Interface*
- *WideString*
- *Int64*
- *Longint*
- *Cardinal*
- *Longword*
- *Single*
- *Byte*
- *Shortint*
- *Word*

- *Smallint*
- *Double*
- *Real*
- *DateTime*
- *Comp*
- *TObject* descendants (class must be registered in scripiter with *DefineClass*)

Others types (records, arrays, etc.) are not supported yet. Arguments of above types can be passed by reference, by adding *var* (Pascal) or *BYREF* (Basic) in function parameters declaration.

## 6.2 Edit area

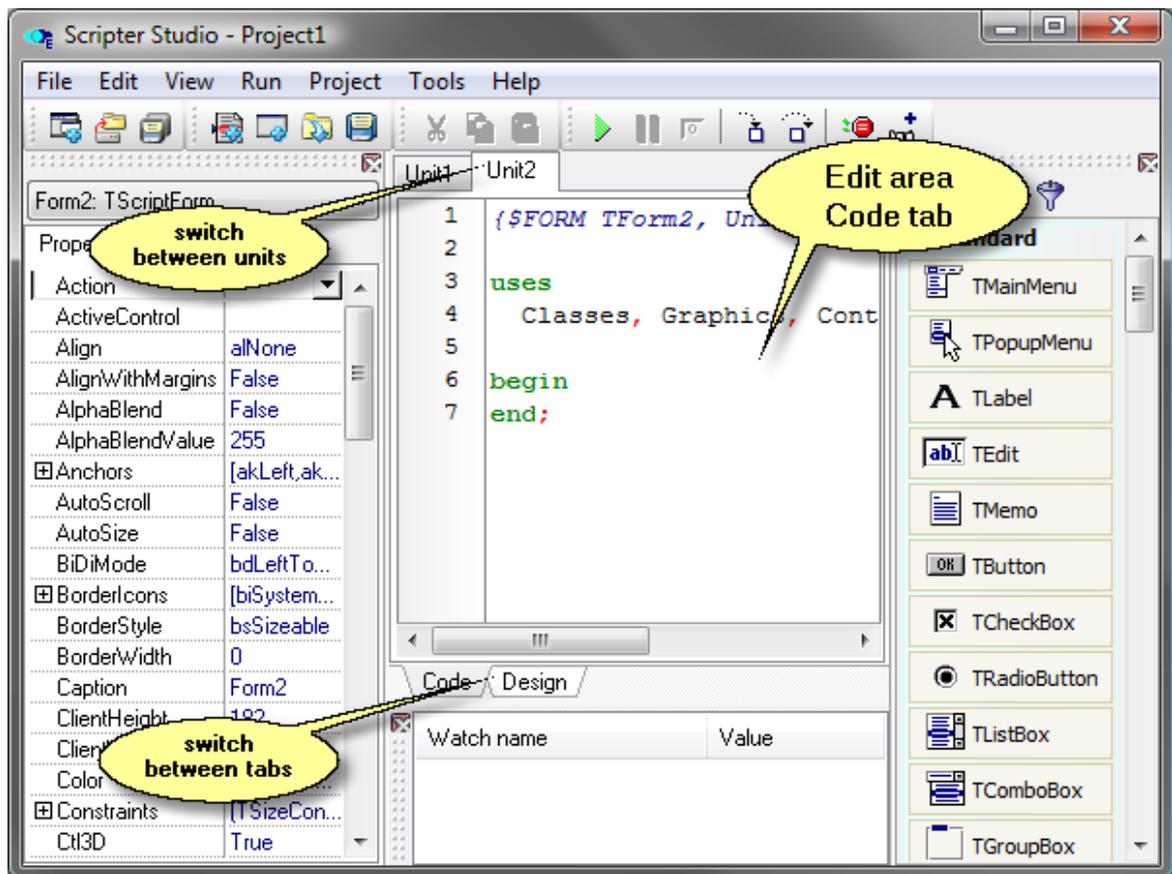
### Description

The *Edit area* is a part of the *Scripter Studio* window where the script units are being edited. The *Edit area* has two tabs: the *Code tab* used for editing code and the *Design tab* used for GUI creation.

### 6.2.1 Code tab

#### Description

The *Code tab* of the *Edit area* is a part of the *Scripter Studio* window where the script code is being edited.



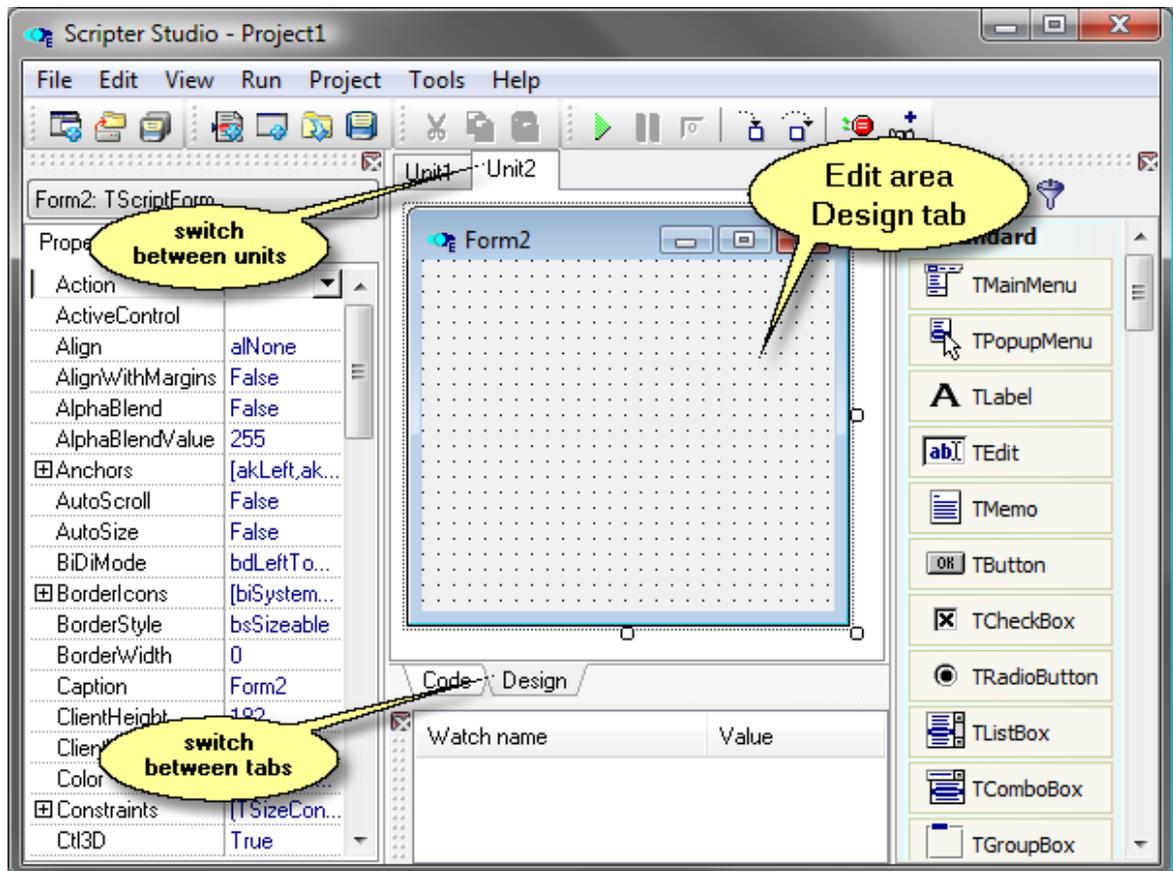
### 6.2.1.1 Context menu

Context menu item	Equivalent menu item	Help topic
Undo	Edit/Undo	<a href="#">link</a>
Redo	Edit/Redo	<a href="#">link</a>
Copy	Edit/Copy	<a href="#">link</a>
Cut	Edit/Cut	<a href="#">link</a>
Paste	Edit/Paste	<a href="#">link</a>
Delete	Edit/Delete	<a href="#">link</a>
Select All	Edit/Select All	<a href="#">link</a>

### 6.2.2 Design tab

#### Description

The *Design tab* of the *Edit area* is a part of the *Scripter Studio* window where the script *GUI* form is being created.



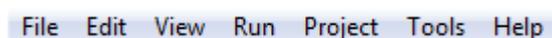
To add a component to the script *GUI* form, use the [Tool Palette](#) panel.

To edit the properties/events of a component, use the [Object Inspector](#) panel.

### 6.3 Menu

#### Description

The *Scripter Studio* menu is used to activate any of the *Scripter Studio* features.



### 6.3.1 File

#### Description

The *File* menu group contains basic features used to manage unit and project files.

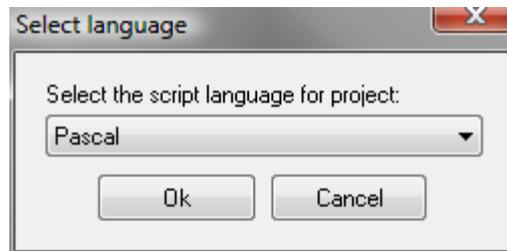
#### 6.3.1.1 New Unit

##### Description

Clicking on the *File/New Unit* menu item provides for adding a new non-*GUI* unit to the current script project. If no project is currently open then a standalone unit is created.

##### To add a new non-*GUI* unit to the current script project or create a standalone non-*GUI* unit

1. Click on the *File/New Unit* menu item - this invokes the *Select language* dialog box.
2. Within the *Select language* dialog box choose the desired scripting language from the drop down list.
3. Click on the *OK* button.



*Select language* dialog box.

##### Equivalent actions

The same function can be initiated by clicking on the  icon on the [File toolbar](#).

##### Associated functions

To create a new script project, use the [New project](#) feature.

##### Similar functions

To add a new *GUI* unit to the current script project, use the [New Form](#) feature.

To add an existing unit to the current script project, use the [Open \(add to project\)](#) feature.

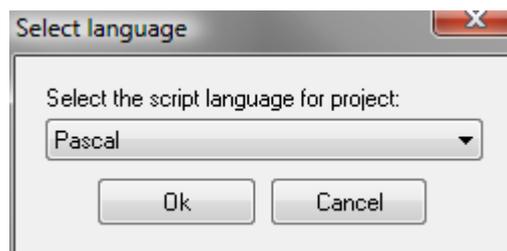
#### 6.3.1.2 New Form

##### Description

Clicking on the *File/New Form* menu item provides for adding a new *GUI* unit to the current script project. If no project is currently open then a standalone unit is created.

##### To add a new *GUI* unit to the current script project or create a standalone *GUI* unit

1. Click on the *File/New Form* menu item - this invokes the *Select language* dialog box.
2. Within the *Select language* dialog box choose the desired scripting language from the drop down list.
3. Click on the *OK* button.



*Select language* dialog box.

**Equivalent actions**

The same function can be initiated by clicking on the  icon on the [File toolbar](#).

**Associated functions**

To create a new script project, use the [New project](#) feature.

**Similar functions**

To add a new non-*GUI* unit to the current script project, use the [New Unit](#) feature.

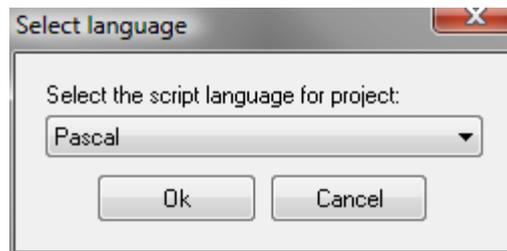
To add an existing unit to the current script project, use the [Open \(add to project\)](#) feature.

**6.3.1.3 New project****Description**

Clicking on the *File/New project* menu item prepares the *Scripter Studio* for a new script project. It closes all open units and resets project file settings.

**To create a new script project**

1. Click on the *File/New project* menu item - this invokes the *Select language* dialog box.
2. Within the *Select language* dialog box choose the desired scripting language from the drop down list.
3. Click on the *OK* button.



*Select language* dialog box.

**Equivalent actions**

The same function can be initiated by clicking on the  icon on the [Project toolbar](#).

**Associated functions**

To add a new non-*GUI* unit to the current script project, use the [New Unit](#) feature.

To add a new *GUI* unit to the current script project, use the [New Form](#) feature.

To add an existing unit to the current script project, use the [Open \(add to project\)](#) feature.

**Similar functions**

To open an existing script project, use the [Open project](#) feature.

**Note**

- If the *New project* function is initiated while some project is open, the *Scripter Studio* will prompt for saving any changes made to the current project before closing it.
- By default the *Scripter Studio* creates a two-units project: the main *Unit1* is a non-*GUI* unit which is used to activate the *Unit2 GUI* unit.

**6.3.1.4 Open project****Description**

Clicking on the *File/Open project* menu item provides for opening of a script project. Because a script typically contains multiple units, this function opens all the unit files contained in a project, along with all the *GUI* files, in a single step.

**To open a script project**

1. Click on the *File/Open project* menu item - this invokes the *Open* dialog box.
2. Within the *Open* dialog box select the appropriate drive from the *Look in* list.

3. Locate the project file by entering the directory that contains this file.
4. Double-click on the file name.

**Equivalent actions**

The same function can be initiated by clicking on the  icon on the [Project toolbar](#).

**Associated functions**

To add a new non-*GUI* unit to the current script project, use the [New Unit](#) feature.

To add a new *GUI* unit to the current script project, use the [New Form](#) feature.

**Similar functions**

To create a new script project, use the [New project](#) feature.

To add an existing unit to the current script project, use the [Open \(add to project\)](#) feature.

**6.3.1.5 Open (add to project)****Description**

Clicking on the *File/Open (add to project)* menu item provides for adding an existing unit file to the current script project.

**To add an existing unit file to the current project**

1. Click on the *File/Open (add to project)* menu item - this invokes the *Open* dialog box.
2. Within the *Open* dialog box select the appropriate drive from the *Look in* list.
3. Locate the unit file by entering the directory that contains this file.
4. Double-click on the file name.

**Equivalent actions**

The same function can be initiated by clicking on the  icon on the [File toolbar](#).

**Similar functions**

To open a script project, use the [Open project](#) feature.

To add a new non-*GUI* unit to the current script project, use the [New Unit](#) feature.

To add a new *GUI* unit to the current script project, use the [New Form](#) feature.

**6.3.1.6 Remove from project****Description**

Clicking on the *File/Remove from project* menu item closes the currently edited unit and removes it from script project. The currently edited unit is the one displayed within the [Edit area](#).

**To remove a unit from a script project**

1. Switch to the desired unit by clicking on its name at the top of the [Edit area](#).
2. Click on the *File/Remove from project* menu item.
3. A message box will appear asking for confirmation of removal - click on the *OK* button.

**Similar functions**

To close a unit without removing it from a script project, use the [Close file](#) feature.

**Note**

- If the *Scripter Studio* detects unsaved changes in the unit being removed, it will prompt the user to save the changes before continuing.

**6.3.1.7 Save****Description**

Clicking on the *File/Save* menu item provides for saving the current state of the currently edited unit to the file to which it was previously saved. This overwrites the existing file destroying the previous state of the unit. The currently edited unit is the one displayed within the [Edit area](#).

**To save the current state of a unit**

1. Switch to the desired unit by clicking on its name at the top of the [Edit area](#).
2. Click on the *File/Save* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [File toolbar](#).

#### Similar functions

To save a unit to a new location, use the [Save as](#) feature.

To save a script project, use the [Save project as](#) feature.

To save all open units and the script project in one step, use the [Save all](#) feature.

#### Key shortcut

This function can be initiated by pressing the *Ctrl+S* key combination.

### 6.3.1.8 Save as

#### Description

Clicking on the *File/Save* menu item provides for saving the current state of the currently edited unit to a file. The currently edited unit is the one displayed within the [Edit area](#).

#### To save the current state of a unit

1. Switch to the desired unit by clicking on its name at the top of the [Edit area](#).
2. Click on the *File/Save as* menu item - this invokes the *Save [unit name] as* dialog box.
  1. Within the *Save [unit name] as* dialog box select the appropriate drive from the *Save in* list.
2. Locate the folder where you would like to store the unit file. A new folder can be created by clicking on the  icon at the top-right corner of the *Save As* dialog box, entering its name and pressing the *Enter* key.
3. Enter a name for the unit file in the *File name* list.
4. Click on the *Save* button.

#### Similar functions

To save a unit to a previously specified file, use the [Save](#) feature.

To save a script project, use the [Save project as](#) feature.

To save all open units and the script project in one step, use the [Save all](#) feature.

### 6.3.1.9 Save project as

#### Description

Clicking on the *File/Save project as* menu item provides for saving the open script project to a file. The project file contains all the information required to pull the project together. This includes the list of units which compose the project, the paths to the files containing each unit, etc.

#### To save a new script project

1. Click on the *File/Save project as* menu item - this invokes the *Save As* dialog box.
2. Within the *Save As* dialog box select the appropriate drive from the *Save in* list.
3. Locate the folder where you would like to store the script project file. A new folder can be created by clicking on the  icon at the top-right corner of the *Save As* dialog box, entering its name and pressing the *Enter* key.
4. Enter a name for the project file in the *File name* list.
5. Click on the *Save* button.

#### To overwrite an existing project

1. Click on the *File/Save Project As* menu item - this invokes the *Save As* dialog box.
2. Within the *Save As* dialog box select the appropriate drive from the *Save in* list.
3. Locate the folder from which the script project has been opened.
4. Double-click on the project file name. A message box will appear asking for confirmation of the overwrite operation - click on the *OK* button.

**Similar functions**

To save a unit to a previously specified file, use the [Save](#) feature.

To save a unit to a new location, use the [Save as](#) feature.

To save all open units and the script project in one step, use the [Save all](#) feature.

**Note**

- If the units of the script project being saved were not saved before, the *Scripter Studio* will ask to save them first. The procedure of saving the unit is the same as for the project.

**6.3.1.10 Save all****Description**

Clicking on the *File/Save all* menu item provides for saving both the changes to all the open units since the last save operation and the script project file, in one step.

**To save the current state of all open units and script project file**, click on the *File/Save all* menu item.

**Equivalent actions**

The same function can be initiated by clicking on the  icon on the [Project toolbar](#).

**Similar functions**

To save a unit to a previously specified file, use the [Save](#) feature.

To save a unit to a new location, use the [Save as](#) feature.

To save a script project, use the [Save project as](#) feature.

**Key shortcut**

This function can be initiated by pressing the *Shift+Ctrl+S* key combination.

**Note**

- If the units or the project were never saved before, the *Scripter Studio* will ask to specify the saving paths.

**6.3.1.11 Close file****Description**

Clicking on the *File/Close file* menu item closes the currently edited unit. The currently edited unit is the one displayed within the [Edit area](#).

**To close a unit**

1. Switch to the desired unit by clicking on its name at the top of the [Edit area](#).
2. Click on the *File/Close file* menu item.

**Associated functions**

To remove a unit from a script project, use the [Remove from project](#) feature.

**Similar functions**

To close the project along with all units, use the [Close all](#) feature.

**Note**

- If the *Scripter Studio* detects unsaved changes in the unit being closed, it will prompt the user to save the changes before continuing.

**6.3.1.12 Close all****Description**

Clicking on the *File/Close all* menu item closes the current script project along with all units. After performing this action the *Scripter Studio* is ready for opening or creating a new script project/standalone unit.

To close the current project along with all units, click on the *File/Close all* menu item.

#### Similar functions

To close only a single unit, use the [Close file](#) feature.

#### Note

- If the *Scripter Studio* detects unsaved changes in any of the open units, it will prompt the user to save the changes before closing the project.

### 6.3.1.13 Exit

#### Description

Clicking on the *File/Exit* menu item closes the *Scripter Studio*.

To leave the *Scripter Studio*, click on the *File/Exit* menu item.

#### Note

- If the *Scripter Studio* detects unsaved changes in any of the open units, it will prompt the user to save the changes before closing.

## 6.3.2 Edit

#### Description

The *Edit* menu group contains standard code and form editing features.

### 6.3.2.1 Undo

#### Description

Clicking on the *Edit/Undo* menu item cancels the most recent edit operation performed on script code.

To undo the most recent edit operation, click on the *Edit/Undo* menu item.

#### Associated functions

To cancel the *Undo* operation, use the [Redo](#) feature.

#### Key shortcut

This function can be initiated by pressing the *Ctrl+Z* key combination.

#### Note

- If the context of the situation is such that it is impossible to *Undo* the most recent edit operation, the *Edit/Undo* menu item will be inactive.

### 6.3.2.2 Redo

#### Description

Clicking on the *Edit/Redo* menu item restores the state before the [Undo](#) operation was performed.

To cancel the *Undo* operation, click on the *Edit/Redo* menu item.

#### Key shortcut

This function can be initiated by pressing the *Shift+Ctrl+Z* key combination.

#### Note

- If the context of the situation is such that it is impossible to *Redo* the most recent *Undo* operation, the *Edit/Redo* menu entry will be inactive.

### 6.3.2.3 Cut

#### Description

Clicking on the *Edit/Cut* menu item provides the means to transfer a piece of code or a *GUI* component to the system clipboard. This operation removes the object being cut from its unit.

#### To cut a piece of code

1. Switch to the unit containing the desired code by clicking on its name at the top of the [Edit area](#).
2. If the unit is of *GUI* type then click on the *Code* tab at the bottom of the [Edit area](#).
3. Within the [Edit area](#) find the piece of code, move the mouse pointer to its beginning and press the left mouse button.
4. Move the mouse pointer to the end of the piece of code and release the left mouse button.
5. Click on the *Edit/Cut* menu item.

#### To cut a *GUI* component

1. Switch to the unit containing the desired component by clicking on its name at the top of the [Edit area](#).
2. Click on the *Design* tab at the bottom of the [Edit area](#).
3. Within the [Edit area](#) find the component, move the mouse pointer over it and click.
4. Click on the *Edit/Cut* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Edit toolbar](#).

#### Associated functions

To transfer a piece of code/component from the system clipboard to a unit, use the [Paste](#) feature. To remove a piece of code/component from a unit, use the [Delete](#) feature.

#### Similar functions

To transfer a piece of code/component to the system clipboard without removing it from the unit, use the [Copy](#) feature.

#### Key shortcut

This function can be initiated by pressing the *Ctrl+X* key combination.

### 6.3.2.4 Copy

#### Description

Clicking on the *Edit/Copy* menu item provides the means to transfer a piece of code or a *GUI* component to the system clipboard. This operation does not remove the object being copied from its unit.

#### To copy a piece of code

1. Switch to the unit containing the desired code by clicking on its name at the top of the [Edit area](#).
2. If the unit is of *GUI* type then click on the *Code* tab at the bottom of the [Edit area](#).
3. Within the [Edit area](#) find the piece of code, move the mouse pointer to its beginning and press the left mouse button.
4. Move the mouse pointer to the end of the piece of code and release the left mouse button.
5. Click on the *Edit/Copy* menu item.

#### To copy a *GUI* component

1. Switch to the unit containing the desired component by clicking on its name at the top of the [Edit area](#).
2. Click on the *Design* tab at the bottom of the [Edit area](#).
3. Within the [Edit area](#) find the component, move the mouse pointer over it and click.
4. Click on the *Edit/Copy* menu item.

#### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Edit toolbar](#).

**Associated functions**

To transfer a piece of code/component from the system clipboard to a unit, use the [Paste](#) feature. To remove a piece of code/component from a unit, use the [Delete](#) feature.

**Similar functions**

To transfer a piece of code/component to the system clipboard and remove it from the unit, use the [Cut](#) feature.

**Key shortcut**

This function can be initiated by pressing the *Ctrl+C* key combination.

**6.3.2.5 Paste****Description**

Clicking on the *Edit/Paste* menu item provides the means to transfer a piece of code or a *GUI* component from the system clipboard to a unit.

**To paste a piece of code**

1. Switch to the destination unit by clicking on its name at the top of the [Edit area](#).
2. If the unit is of *GUI* type then click on the *Code* tab at the bottom of the [Edit area](#).
3. Within the [Edit area](#) click on a place where you would like to insert the code.
4. Click on the *Edit/Paste* menu item.

**To paste a GUI component**

1. Switch to the destination unit by clicking on its name at the top of the [Edit area](#).
2. Click on the *Design* tab at the bottom of the [Edit area](#).
3. Within the [Edit area](#) click on a place where you would like to insert the component.
4. Click on the *Edit/Paste* menu item.

**Equivalent actions**

The same function can be initiated by clicking on the  icon on the [Edit toolbar](#).

**Associated functions**

To transfer a piece of code/component to the system clipboard and remove it from the unit, use the [Cut](#) feature.

To transfer a piece of code/component to the system clipboard without removing it from the unit, use the [Copy](#) feature.

To remove a piece of code/component from a unit, use the [Delete](#) feature.

**Key shortcut**

This function can be initiated by pressing the *Ctrl+V* key combination.

**6.3.2.6 Delete****Description**

Clicking on the *Edit/Delete* menu item provides the means to remove a piece of code or a *GUI* component from a unit.

**To delete a piece of code**

1. Switch to the desired unit by clicking on its name at the top of the [Edit area](#).
2. If the unit is of *GUI* type then click on the *Code* tab at the bottom of the [Edit area](#).
3. Within the [Edit area](#) find the piece of code, move the mouse pointer to its beginning and press the left mouse button.
4. Move the mouse pointer to the end of the piece of code and release the left mouse button.
5. Click on the *Edit/Delete* menu item.

**To delete a GUI component**

1. Switch to the destination unit by clicking on its name at the top of the [Edit area](#).
2. Click on the *Design* tab at the bottom of the [Edit area](#).
3. Within the [Edit area](#) find the component, move the mouse pointer over it and click.

4. Click on the *Edit/Delete* menu item.

#### Key shortcut

This function can be initiated by pressing the *Ctrl+Del* key combination.

### 6.3.2.7 Select All

#### Description

Clicking on the *Edit/Select all* menu item selects the whole code from the currently edited unit ([Edit area Code](#) tab) or all the components from the currently edited GUI ([Edit area Design](#) tab).

**To select the entirety of the edited code/all the components**, click on the *Edit/Select all* menu item.

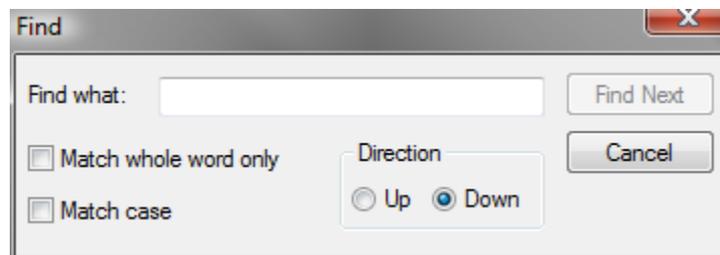
### 6.3.2.8 Find

#### Description

Clicking on the *Edit/Find* menu item provides the means to search for a specific text within the script code.

#### To search for a specific text within the script code

1. Switch to the unit of interest by clicking on its name at the top of the [Edit area](#).
2. If the unit is of GUI type then click on the *Code* tab at the bottom of the [Edit area](#).
3. Clicking on the *Edit/Find* menu item - this invokes the *Find* dialog box.
4. Within the *Find* dialog box enter the desired search phrase in the *Find what* text box.
5. Choose the direction of search from the *Direction* box - upward (*Up*) or downward (*Down*) from the current cursor position.
6. To search only for whole words check the *Match whole word only* option. To make the search case sensitive check the *Match case* option.
7. Click on the *Find Next* button.



*Find* dialog box.

#### Associated functions

To find the next match for the search defined in *Find* dialog box, use the [Search again](#) feature.

#### Similar functions

To search and replace a text within the script code, use the [Replace](#) feature.

#### Key shortcut

This function can be initiated by pressing the *Ctrl+F* key combination.

### 6.3.2.9 Replace

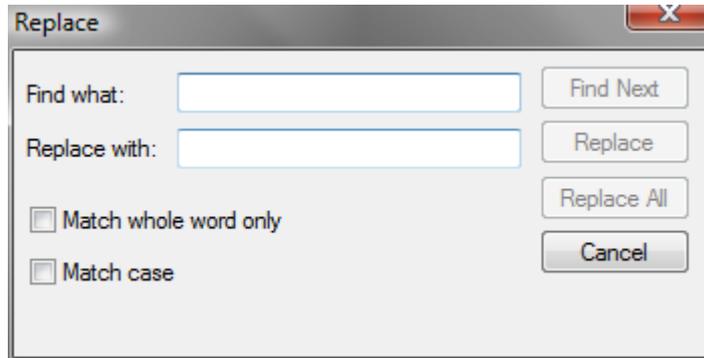
#### Description

Clicking on the *Edit/Find* menu item provides the means to search and replace a specific text within the script code.

#### To search and replace a specific text within the script code

1. Switch to the unit of interest by clicking on its name at the top of the [Edit area](#).
2. If the unit is of GUI type then click on the *Code* tab at the bottom of the [Edit area](#).
3. Clicking on the *Edit/Replace* menu item - this invokes the *Replace* dialog box.

4. Within the *Replace* dialog box enter the desired search phrase in the *Find what* text box.
5. Enter the replacement text in the *Replace with* text box.
6. Choose the direction of search from the *Direction* box - upward (*Up*) or downward (*Down*) from the current cursor position.
7. To search only for whole words check the *Match whole word only* option. To make the search case sensitive check the *Match case* option.
8. To perform only the search click on the *Find Next* button. To replace only the first match click on the *Replace* button. To replace all matches in the current code click on the *Replace All* button.



*Replace dialog box.*

#### **Similar functions**

To search for a text within the script code, use the [Find](#) feature.

#### **Key shortcut**

This function can be initiated by pressing the *Ctrl+R* key combination.

#### **6.3.2.10 Search again**

##### **Description**

Clicking on the *Edit/Search again* menu item finds the next match for the search defined in the *Find* dialog box (see the [Find](#) feature).

**To find the next match for the search defined in the *Find* dialog box**, click on the *Edit/Search again* menu item.

#### **6.3.2.11 Align to Grid**

##### **Description**

Clicking on the *Edit/Align to Grid* menu item snaps all the components of the currently edited *GUI* form to the closest grid points.

##### **To align all the components to the grid points**

1. Switch to the unit of interest by clicking on its name at the top of the [Edit area](#).
2. Click on the *Design* tab at the bottom of the [Edit area](#).
3. Click on the *Edit/Align to Grid* menu item.

#### **6.3.2.12 Bring to Front**

##### **Description**

Clicking on the *Edit/Bring to Front* menu item gives the selected *GUI* component the highest visibility priority, i.e. this component will always be visible as on top of all the other components.

##### **To put a *GUI* component on top of all the other components**

1. Switch to the unit of interest by clicking on its name at the top of the [Edit area](#).
2. Click on the *Design* tab at the bottom of the [Edit area](#).
3. Within the [Edit area](#) click on the desired component to make a selection.
4. Click on the *Edit/Bring to Front* menu item.

**Associated functions**

To move a *GUI* component behind all the other components, use the [Send to Back](#) feature.

**6.3.2.13 Send to Back****Description**

Clicking on the *Edit/Send to Back* menu item gives the selected *GUI* component the lowest visibility priority, i.e. this component will always be visible as behind all the other components.

**To put a *GUI* component behind all the other components**

1. Switch to the unit of interest by clicking on its name at the top of the [Edit area](#).
2. Click on the *Design* tab at the bottom of the [Edit area](#).
3. Within the [Edit area](#) click on the desired component to make a selection.
4. Click on the *Edit/Send to Back* menu item.

**Associated functions**

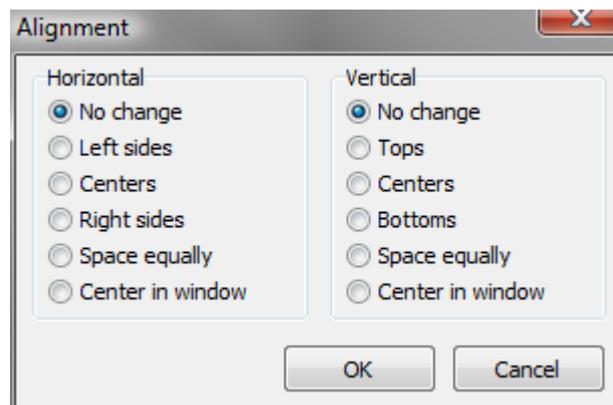
To put a *GUI* component on top all the other components, use the [Bring to Front](#) feature.

**6.3.2.14 Align****Description**

Clicking on the *Edit/Align* menu item provides the means to change the alignment of the selected *GUI* components. The user can choose between predefined 6 horizontal and 6 vertical alignments.

**To change the alignment of some *GUI* components**

1. Switch to the unit of interest by clicking on its name at the top of the [Edit area](#).
2. Click on the *Design* tab at the bottom of the [Edit area](#).
3. Hold down the *Shift* key.
4. Within the [Edit area](#) click on the desired components to make a selection.
5. Release the *Shift* key.
6. Click on the *Edit/Align* menu item - this invokes the *Alignment* dialog box.
7. Choose appropriate horizontal and vertical alignment.
8. Click on the *OK* button.



*Alignment* dialog box.

**Similar functions**

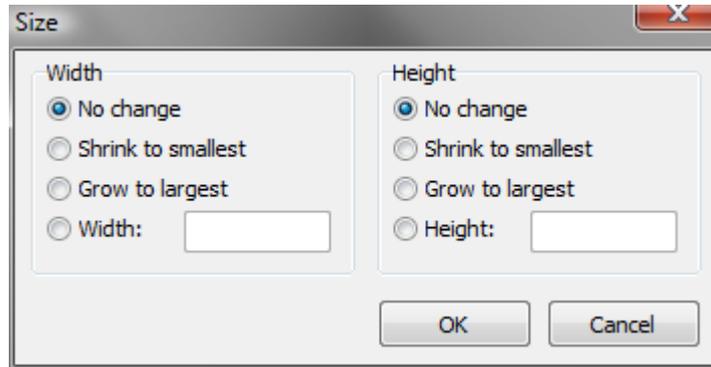
To change the size of some *GUI* components, use the [Size](#) feature.

**6.3.2.15 Size****Description**

Clicking on the *Edit/Size* menu item provides the means to change the size of the selected *GUI* components. The user can choose between predefined 4 horizontal and 4 vertical size modifiers.

**To change the size of some *GUI* components**

1. Switch to the unit of interest by clicking on its name at the top of the [Edit area](#).
2. Click on the *Design* tab at the bottom of the [Edit area](#).
3. Hold down the *Shift* key.
4. Within the [Edit area](#) click on the desired components to make a selection.
5. Release the *Shift* key.
6. Click on the *Edit/Size* menu item - this invokes the *Size* dialog box.
7. Choose appropriate horizontal and vertical size modifier.
8. Click on the *OK* button.



Size dialog box.

### Similar functions

To change the alignment of some *GUI* components, use the [Align](#) feature.

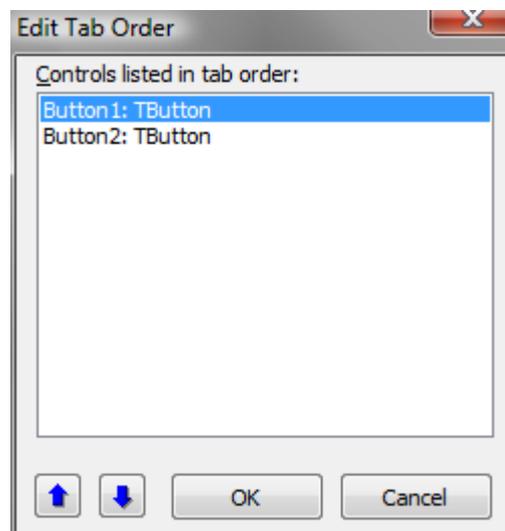
#### 6.3.2.16 Tab Order

##### Description

Clicking on the *Edit/Tab Order* menu item provides the means to rearrange the *GUI* components tab ordering. The tab order is the order of switching between the components using the *Tab* key.

##### To rearrange the tab order list

1. Switch to the unit of interest by clicking on its name at the top of the [Edit area](#).
2. Click on the *Design* tab at the bottom of the [Edit area](#).
3. Click on the *Edit/Tab Order* menu item - this invokes the *Edit tab order* dialog box.
4. Within the *Edit tab order* dialog box click on the desired component name.
5. To move the component upwards on the tab order list click on the up arrow button. To move the component downwards on the tab order list click on the down arrow button.
6. Repeat the steps from 4 to 5 until the desired result is achieved.
7. Click on the *OK* button.



*Edit tab order dialog box.*

### 6.3.2.17 Lock controls

#### **Description**

Clicking on the *Edit/Lock controls* menu item locks the size and the alignment of all the *GUI* components.

#### **To lock the size and the alignment of all the GUI components**

1. Switch to the unit of interest by clicking on its name at the top of the [Edit area](#).
2. Click on the *Design* tab at the bottom of the [Edit area](#).
3. Click on the *Edit/Lock controls* menu item.

## 6.3.3 View

#### **Description**

The *View* menu group contains features used to manage the appearance of the *Scripter Studio*.

### 6.3.3.1 Object Inspector

#### **Description**

Clicking on the *View/Object inspector* menu item opens the *Object inspector* panel.

#### **IMPORTANT**

All information concerning the *Object inspector* is available in the *Scripter Studio/Panels/Object inspector* section of this help system (see [here](#)).

**To open the *Object inspector* panel**, click on the *View/Object inspector* menu item.

### 6.3.3.2 Tool Palette

#### **Description**

Clicking on the *View/Tool Palette* menu item opens the *Tool Palette* panel.

#### **IMPORTANT**

All information concerning the *Tool Palette* is available in the *Scripter Studio/Panels/Tool Palette* section of this help system (see [here](#)).

**To open the *Tool Palette* panel**, click on the *View/Tool Palette* menu item.

### 6.3.3.3 Watches

#### **Description**

Clicking on the *View/Watches* menu item opens the *Watches* panel.

#### **IMPORTANT**

All information concerning the *Watches* is available in the *Scripter Studio/Panels/Watches* section of this help system (see [here](#)).

**To open the *Watches* panel**, click on the *View/Watches* menu item.

### 6.3.3.4 Toggle Form/Unit

#### **Description**

Clicking on the *View/Toggle Form/Unit* menu item switches between the *Code* and the *Design* edit mode of a *GUI* unit.

**To switch between the *Code* and the *Design* edit mode of a GUI unit**, click on the *View/Toggle Form/Unit* menu item.

**Equivalent actions**

The same can be achieved by clicking on the *Code* or *Design* tab at the bottom of the [Edit area](#).

### 6.3.4 Run

**Description**

The *Run* menu group contains features used to execute and debug a script.

#### 6.3.4.1 Run

**Description**

Clicking on the *Run/Run* menu item executes the currently open script and starts the debug process. The debug process informs the user about any errors that may occur during the execution. If there are no bugs in the script code then the script produces its result and terminates in the proper way.

**To execute a script/start the debug process**, click on the *Run/Run* menu item.

**Equivalent actions**

The same function can be initiated by clicking on the  icon on the [Run toolbar](#).

**Key shortcut**

This function can be initiated by pressing the *F9* key.

#### 6.3.4.2 Compile

**Description**

Clicking on the *Run/Compile* menu item checks the currently open script for the correctness of code structure, semantics and syntax. If the script passes the test a 'Project compiled' message appears and the binary version of the script is generated. The binary version of the script consists of all files with *CODE* extension found in the script project directory. It can be executed as the normal, source code version through the *Editor* scripts [Open](#) feature.

**To compile the currently open script**, click on the *Run/Compile* menu item.

**Key shortcut**

This function can be initiated by pressing the *Ctrl+F9* key combination.

**Similar functions**

To make a binary script package (single file), use the [Make package](#) feature.

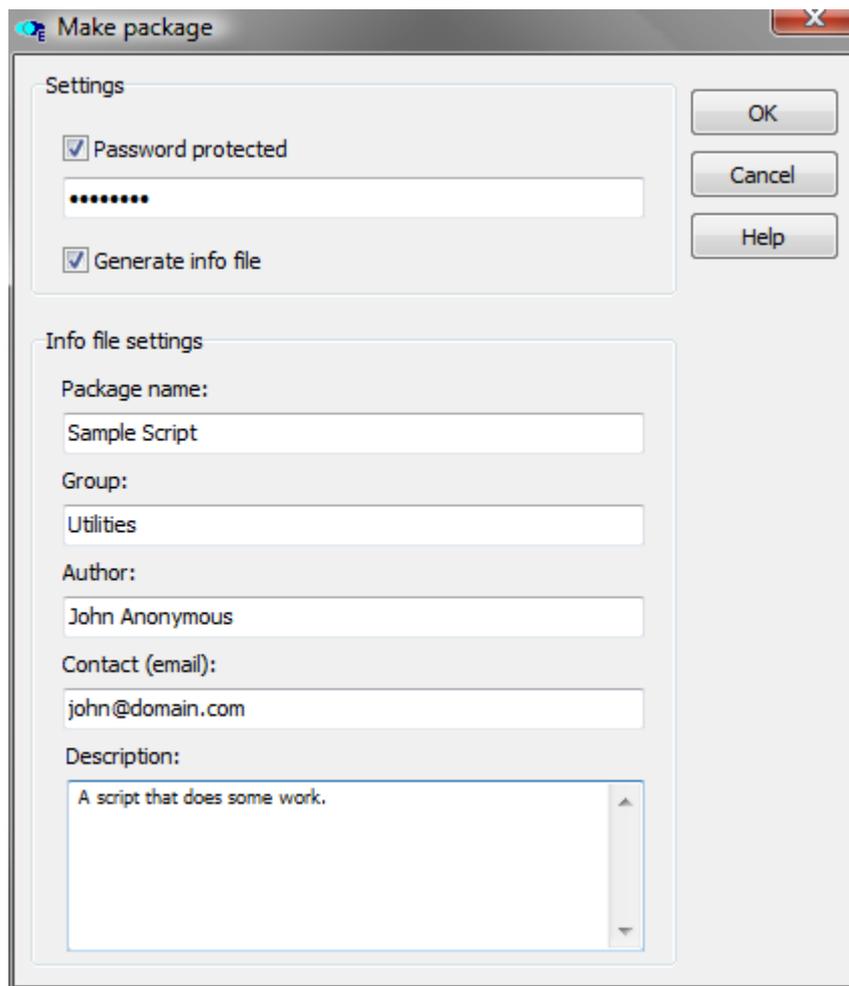
#### 6.3.4.3 Make package

**Description**

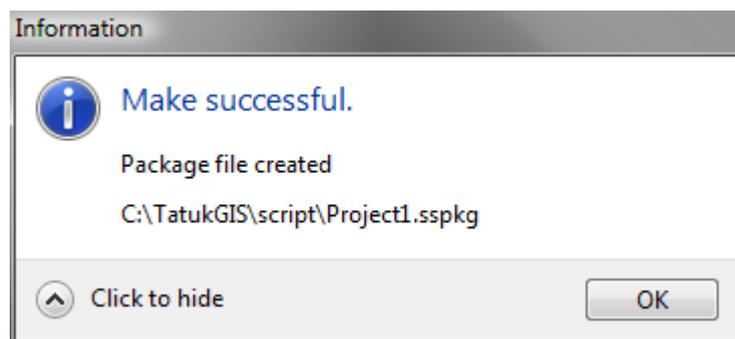
Clicking on the *Run/Make package* menu item provides for creation of a package from the currently open script project. A script package is a single file containing the binary version of a script along with all other necessary data.

**To make a package from the currently open script**

1. Click on the *Run/Make package* menu item - this invokes the *Make package* dialog box.
2. If the script package should be password protected, click on the *Password protected* check box within the *Make package* dialog box and type the password in the text area below the check box.
3. If the script package should contain basic information (name, group (type), author, contact and/or description) click on the *Generate info file* and fill in all desired fields in the *Info file settings* group box.
4. Click on the *OK* button.
5. If the script package was successfully created a 'Make successful' message box appears. To show the path to the newly created package click on the arrow beside 'Click to see more' label.



Make package dialog box.



Message box displayed after successful package creation.

#### Associated functions

To execute a script package, use the [Open](#) feature.

#### Similar functions

To produce the binary version of a script, use the [Compile](#) feature.

#### Note

- A script package file has the *SSPKG* extension.

#### 6.3.4.4 Step over

##### Description

Clicking on the *Run/Step over* menu item provides for line-by-line script execution. When using the *Step over* feature the *Scripter Studio* executes the procedures/functions called from the procedure/function being debugged without pausing.

##### To execute a procedure/function line-by-line without entering the called procedures/functions

1. Use the [Toggle breakpoint](#) feature to add a breakpoint inside the procedure/function of interest.
2. Execute the script up to the breakpoint by using the [Run](#) feature.
3. Click on the *Run/Step over* menu item to continue with the line-by-line execution. Repeat this step as many times as needed.

##### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Run toolbar](#).

##### Associated functions

To abort the execution of a script, use the [Script reset](#) feature.

##### Similar functions

To perform the line-by-line script execution with entering the called procedures/functions, use the [Trace into](#) feature.

##### Key shortcut

This function can be initiated by pressing the *F8* key.

#### 6.3.4.5 Trace into

##### Description

Clicking on the *Run/Trace into* menu item provides for line-by-line script execution. When using the *Trace into* feature the *Scripter Studio* executes line-by-line the procedures/functions called from the procedure/function being debugged.

##### To execute a procedure/function line-by-line with entering the called procedures/functions

1. Use the [Toggle breakpoint](#) feature to add a breakpoint inside the procedure/function of interest.
2. Execute the script up to the breakpoint by using the [Run](#) feature.
3. Click on the *Run/Trace into* menu item to continue with the line-by-line execution. Repeat this step as many times as needed.

##### Equivalent actions

The same function can be initiated by clicking on the  icon on the [Run toolbar](#).

##### Associated functions

To abort the execution of a script, use the [Script reset](#) feature.

To execute a called procedure/function without pausing, use the [Run until return](#) feature.

##### Similar functions

To perform the line-by-line script execution without entering the called procedures/functions, use the [Step over](#) feature.

##### Key shortcut

This function can be initiated by pressing the *F7* key.

#### 6.3.4.6 Run to cursor

##### Description

Clicking on the *Run/Run to cursor* menu item executes the currently open script up to the point in the code indicated by the text cursor in the [Edit area](#).

**To execute a script up to a desired point**

1. Switch to the desired unit by clicking on its name at the top of the [Edit area](#).
2. If the unit is of *GUI* type then click on the *Code* tab at the bottom of the [Edit area](#).
3. Within the [Edit area](#) move the mouse pointer over the place, where you would like to pause the execution and click.
4. Click on the *Run/Run to cursor* menu item.

**Key shortcut**

This function can be initiated by pressing the *F4* key.

**6.3.4.7 Run until return****Description**

When a procedure/function has been entered using the [Trace into](#) feature then clicking on the *Run/Run until return* menu item executes the rest of the current procedure/function without pausing.

**To execute the rest of a procedure/function entered using the *Trace into* feature without pausing,** click on the *Run/Run until return* menu item.

**Associated functions**

To abort the execution of a script, use the [Script reset](#) feature.

**Key shortcut**

This function can be initiated by pressing the *Shift+F11* key combination.

**6.3.4.8 Pause****Description**

Clicking on the *Run/Pause* menu item suspends the execution of a script. To continue the execution of a script use the [Run](#) feature.

**To suspend the execution of a script,** Clicking on the *Run/Pause* menu item.

**Equivalent actions**

The same function can be initiated by clicking on the  icon on the [Run toolbar](#).

**Key shortcut**

This function can be initiated by pressing the *Shift+F9* key combination.

**6.3.4.9 Script reset****Description**

Clicking on the *Run/Script reset* menu item terminates the execution of a script at any time.

**To abort the execution of a script,** click on the *Run/Script reset* menu item.

**Equivalent actions**

The same function can be initiated by clicking on the  icon on the [Run toolbar](#).

**Key shortcut**

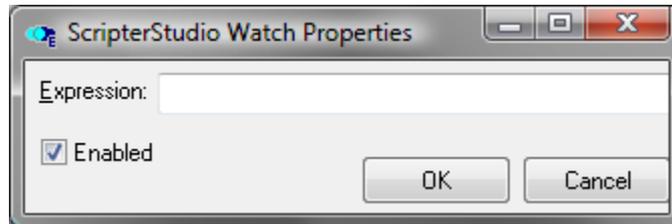
This function can be initiated by pressing the *Ctrl+F2* key combination.

**6.3.4.10 Add watch****Description**

Clicking on the *Run/Add watch* menu item provides the means to add a variable watch for the debug process. By adding a watch the user can monitor the value of a variable during the execution of a script.

**To add a watch**

1. Click on the *Run/Add watch* menu item - this invokes the *Scripter Studio Watch Properties* dialog box.
2. Within the *Scripter Studio Watch Properties* dialog box write the name of a desired variable in the *Expression* text box.
3. Make sure that the *Enabled* check box is checked.
4. Click on the *OK* button.



*Scripter Studio Watch Properties* dialog box.

**Equivalent actions**

The same function can be initiated by clicking on the  icon on the [Run toolbar](#).

**Key shortcut**

This function can be initiated by pressing the *Ctrl+F5* key combination.

### 6.3.4.11 Toggle breakpoint

**Description**

Clicking on the *Run/Toggle breakpoint* menu item toggles a breakpoint at the code line indicated by the text cursor within the [Edit area](#). The breakpoint is a virtual flag informing the *Scripter Studio* to pause the execution process after reaching the indicated line.

**To toggle a breakpoint at some line of a script unit**

1. Switch to the unit of interest by clicking on its name at the top of the [Edit area](#).
2. If the unit is of *GUI* type then click on the *Code* tab at the bottom of the [Edit area](#).
3. Move the mouse pointer over the desired line and click to place the text cursor.
4. Click on the *Run/Toggle breakpoint* menu item.

**Equivalent actions**

The same function can be initiated by clicking on the  icon on the [Run toolbar](#).

**Key shortcut**

This function can be initiated by pressing the *F5* key.

## 6.3.5 Project

**Description**

The *Project* menu group contains features used to manage a script project.

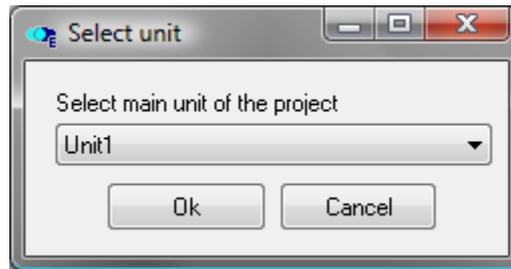
### 6.3.5.1 Select Main Unit

**Description**

Clicking on the *Edit/Select Main Unit* menu item provides the means to set which unit is the script main unit. The script main unit is the unit which the *Scripter Studio* uses to start the execution of a script.

**To set the script main unit**

1. Clicking on the *Edit/Select Main Unit* menu item - this invokes the *Select unit* dialog box.
2. Within the *Select unit* dialog box choose the main unit from the *Select main unit of the project* dropdown list.
3. Click on the *OK* button.



Select unit dialog box.

## 6.3.6 Tools

### Description

The *Tools* menu group contains options used to manage the basic settings of the *Scripter Studio*.

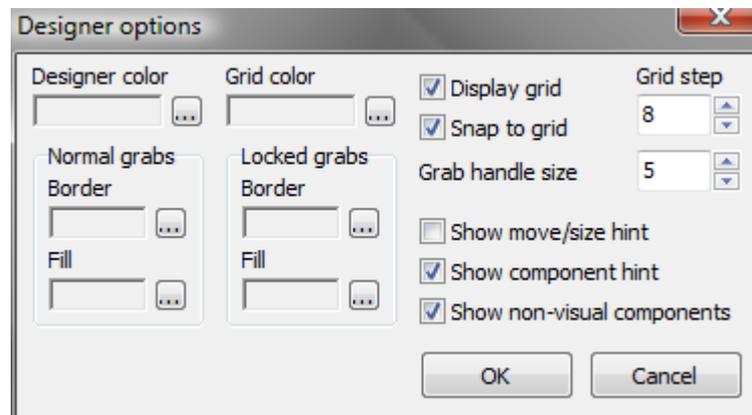
### 6.3.6.1 Designer Options

#### Description

Clicking on the *Edit/Designer Options* menu item provides the means to adjust the basic settings of the *Scripter Studio*.

#### To adjust the settings of the *Scripter Studio*

1. Click on the *Edit/Designer Options* menu item - this invokes the *Designer Options* dialog box.
2. Within the *Designer Options* dialog box adjust the desired settings.
3. Click on the *OK* button.



Designer Options dialog box.

## 6.3.7 Help

### Description

The *Help* menu group contains options used to bring up this help system and the *TatukGIS Developer Kernel* help system.

### 6.3.7.1 Scripter Studio help

#### Description

Clicking on the *Help/Scripter Studio help* menu item opens the *Scripter Studio* section in the *Editor* help system. It provides a brief description of all features and functionalities found in the *Scripter Studio* as well as instructions to perform basic operations.

**To invoke the *Scripter Studio* help system,** click on the *Help/Scripter Studio help* menu item.

### 6.3.7.2 Developer Kernel help

#### Description

Clicking on the *Help/Developer Kernel help* menu item opens the *TatukGIS Developer Kernel* help system. It provides a brief description of all the classes and methods defined within the *TatukGIS Developer Kernel*.

To invoke the *TatukGIS Developer Kernel* help system, click on the *Help/Developer Kernel help* menu item.

## 6.4 Toolbars

#### Description

The *Scripter Studio* toolbars are used for quick access to most frequently used *Scripter Studio* features.

### 6.4.1 Project

#### Description

The *Project* toolbar provides quick access to the project management features.



Icon	Equivalent menu item	Help topic
	<i>File/New project</i>	<a href="#">link</a>
	<i>File/Open project</i>	<a href="#">link</a>
	<i>File/Save all</i>	<a href="#">link</a>

### 6.4.2 File

#### Description

The *File* toolbar provides quick access to the unit management features.



Icon	Equivalent menu item	Help topic
	<i>File/New Unit</i>	<a href="#">link</a>
	<i>File/New Form</i>	<a href="#">link</a>
	<i>File/Open (add to project)</i>	<a href="#">link</a>
	<i>File/Save</i>	<a href="#">link</a>

### 6.4.3 Edit

#### Description

The *Edit* toolbar provides quick access to the standard editing features.



Icon	Equivalent menu item	Help topic
	<i>Edit/Cut</i>	<a href="#">link</a>
	<i>Edit/Copy</i>	<a href="#">link</a>
	<i>Edit/Paste</i>	<a href="#">link</a>

## 6.4.4 Run

### Description

The *Run* toolbar provides quick access to the script execution and debug features.



Icon	Equivalent menu item	Help topic
	<i>Run/Run</i>	<a href="#">link</a>
	<i>Run/Pause</i>	<a href="#">link</a>
	<i>Run/Script reset</i>	<a href="#">link</a>
	<i>Run/Trace into</i>	<a href="#">link</a>
	<i>Run/Step over</i>	<a href="#">link</a>
	<i>Run/Toggle breakpoint</i>	<a href="#">link</a>
	<i>Run/Add watch</i>	<a href="#">link</a>

## 6.5 Panels

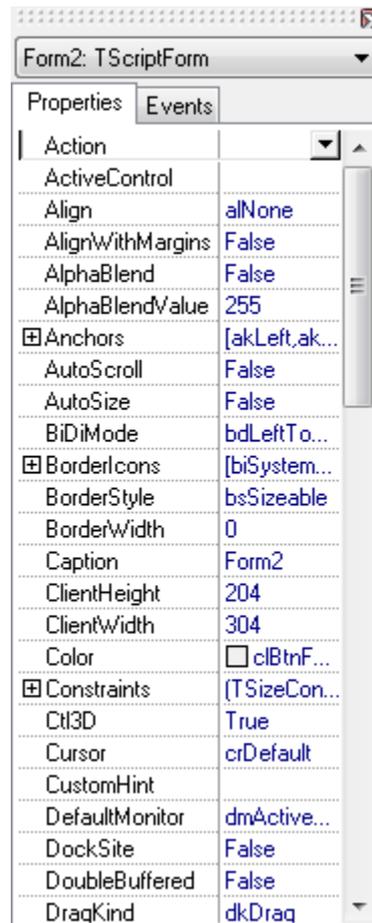
### Description

The *Scripter Studio* panels are window components providing many crucial functionalities related to *GUI* creation and script debugging.

### 6.5.1 Object Inspector

#### Description

The *Object Inspector* panel provides the means to display and edit the properties/events of the component currently selected on the *GUI* form displayed in the [Design tab](#) of the [Edit area](#).



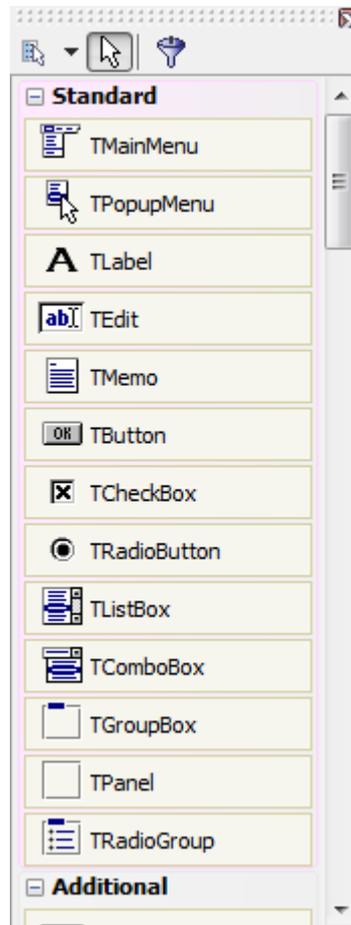
*Object Inspector* panel displaying properties of the object named *Form2* of *TScriptForm* class.

To add a component to the script *GUI* form, use the [Tool Palette](#) panel.

## 6.5.2 Tool Palette

### Description

The *Tool Palette* panel holds the list of all components available in the *Scripter Studio*.



*Tool Palette panel.*

### To add a component to the script *GUI* form

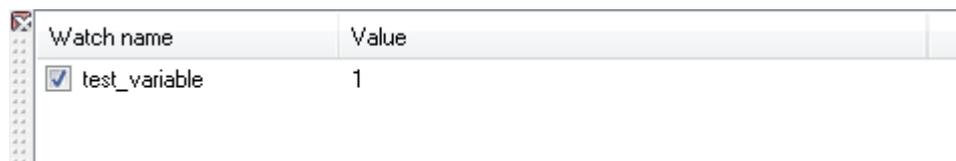
1. Switch to the unit of interest by clicking on its name at the top of the [Edit area](#).
2. Click on the [Design tab](#) at the bottom of the [Edit area](#).
3. Within the *Tool Palette* panel search for the desired component and click on it.
4. Click within the *GUI* form displayed on the [Design tab](#) of the [Edit area](#) to place the component.

To edit the properties/events of a component, use the [Object Inspector](#) panel.

## 6.5.3 Watches

### Description

The *Watches* panel holds the list of script variables added by the user to the watch list and monitors their values during the debugging process.



*Watches panel monitoring the value of a variable named test\_variable.*

To add a variable to the watch list, use the [Add watch](#) feature.

**To remove a variable from the watch list**

1. Click on the variable name within the *Watches* panel.
2. Press the *Del* key.

## 7 Standard toolbar

**Description**

The *Standard toolbar* provides quick access to the most frequently used *Editor* features.



Icon	Equivalent menu item	Help topic
	File/New Project	<a href="#">link</a>
	File/Open	<a href="#">link</a>
	Layer/Add	<a href="#">link</a>
	Layer/Remove	<a href="#">link</a>
	File/Save All	<a href="#">link</a>
	View/Panels/Data	<a href="#">link</a>
	Edit/Undo	<a href="#">link</a>
	Edit/Redo	<a href="#">link</a>
	Edit/Cut	<a href="#">link</a>
	Edit/Copy	<a href="#">link</a>
	Edit/Copy Special	<a href="#">link</a>
	Edit/Paste	<a href="#">link</a>
	View/Full Extent	<a href="#">link</a>
	View/Layer Extent	<a href="#">link</a>
	View/Selected Extent	<a href="#">link</a>
	View/Previous Extent	<a href="#">link</a>
	View/Refresh map	<a href="#">link</a>
	View/Zoom mode	<a href="#">link</a>
	View/Zoom extended mode	<a href="#">link</a>
	View/Drag mode	<a href="#">link</a>
	Select/Localize	<a href="#">link</a>
	Select/Select by Point	<a href="#">link</a>
	Select/Select by Line	<a href="#">link</a>
	Select/Select by Polygon	<a href="#">link</a>
	Select/Select by Circle	<a href="#">link</a>
	Select/Select by Rectangle	<a href="#">link</a>
	Select/Clear Selection	<a href="#">link</a>
	Select/Deselect All	<a href="#">link</a>
	Measure/Line	<a href="#">link</a>
	Measure/Polygon	<a href="#">link</a>
	Measure/Rectangle	<a href="#">link</a>
	Measure/Rectangle rotated	<a href="#">link</a>
	Measure/Circle	<a href="#">link</a>
	Shape/Edit shape	<a href="#">link</a>
	Shape/New shape/Point	<a href="#">link</a>
	Shape/New shape/Multipoint	<a href="#">link</a>
	Shape/New shape/Line	<a href="#">link</a>
	Shape/New shape/Line 90°	<a href="#">link</a>
	Shape/New shape/Line free	<a href="#">link</a>

	Shape/New shape/Close line	<a href="#">link</a>
	Shape/New shape/Close line 90°	<a href="#">link</a>
	Shape/New shape/Rectangle [line]	<a href="#">link</a>
	Shape/New shape/Rectangle rotated [line]	<a href="#">link</a>
	Shape/New shape/Circle [line]	<a href="#">link</a>
	Shape/New shape/Circle 3point base [line]	<a href="#">link</a>
	Shape/New shape/Polygon	<a href="#">link</a>
	Shape/New shape/Polygon 90°	<a href="#">link</a>
	Shape/New shape/Rectangle [polygon]	<a href="#">link</a>
	Shape/New shape/Rectangle rotated [polygon]	<a href="#">link</a>
	Shape/New shape/Circle [polygon]	<a href="#">link</a>
	Shape/New shape/Circle 3point base [polygon]	<a href="#">link</a>
	Shape/Revert shape	<a href="#">link</a>

## 8 Command Line parameters

### Description

The *Editor* can be executed with a number of different command line parameters. The command line parameters make the *Editor* act in different way in comparison to the default execution (without parameters).

### To execute the Editor with a command line parameter

1. Click on the *Start* button on the *Windows taskbar* - this invokes the *Windows main menu*.
2. Within the *Windows main menu* click on the *Run...* item - this invokes the *Run* dialog box.
3. Within the *Run* dialog box type *cmd* and press the *Enter* key - this invokes the *Windows Command Line*.
4. Within the *Windows Command Line* type *[drive letter]:* , where the *[drive letter]* is the letter of the drive on which the *Editor* is installed, and press the *Enter* key.
5. Type *cd [Editor installation path]* , where *[Editor installation path]* is the path to the folder where the *Editor* is installed, and press the *Enter* key.
6. Type *ttkEDT.exe /[parameter]=[path]* and press the *Enter* key. For the list of available parameters see **Editor command line parameters** below.

### Editor command line parameters

Parameter	Example	Description
ss or <i>StartupScript</i>	ttkEDT.exe /ss=C:\TatukGIS\startup.psc	Force the <i>Editor</i> to use different startup script for building the user interface.
es or <i>ExecuteScript</i>	ttkEDT.exe /es=C:\TatukGIS\sample.ssproj	Executes the user specified script immediately after the <i>Editor</i> startup; terminates the <i>Editor</i> after finishing the execution.
rs or <i>RunScript</i>	ttkEDT.exe /rs=C:\TatukGIS\sample.ssproj	Executes the user specified script immediately after the <i>Editor</i> startup.
sc or <i>SyntaxCheck</i>	ttkEDT.exe /sc=C:\TatukGIS\sample.ssproj > C:\TatukGIS\result.txt	Compiles a user specified script and saves the compilation result to a user specified text file.
c or <i>Compile</i>	ttkEDT.exe /c=C:\TatukGIS\sample.ssproj	Compiles a user specified script and, if the compilation returns no errors, generates the binary version of the script.

### Note

- The default *Editor* installation path is *C:\Program Files\TatukGIS\Editor*.
- The default *Editor* startup script is the file *ttkEDT.psc* located in the *Editor* installation path.

# Index

## - A -

Attributes 118

## - B -

Basic language

Arrays 171

Assign statements 169

Character strings 170

Comments 170

For statements 172

Function and procedure declaration 173

Identifiers 169

If statements 171

Indexes 171

Loop statements 172

New statement 169

Overview 168

Script structure 168

Select Case statements 173

Variables 170

While statements 171

## - C -

Command Line parameters 202

Coordinate Systems

Copy coordinates to clipboard 147

Project/Map 12

Copy coordinates to clipboard

Decimal Degrees (DD) 147

Degrees:Minutes:Seconds (DMS) 147

Map Units 147

## - D -

Data 118

Export data 118

Import data 118

Join Database 121

Set column value 124

Data panel 139, 155

[+] 155

Context menu 156

Grouping 160

Operations 156

Toolbar 160

Data panel operations

Auto zoom 156

Cached mode 159

Copy selected row(s) to clipboard 156

Flash current shape 156

Select group and zoom to 157

Selections 157

Set column value 159

Show only current group 158

Show/Hide 158

Zoom to current shape 156

Data panel toolbar 160

Query builder 160

Desktops 134

Default 134

Load Desktop 134

Save Desktop 134

## - E -

Edit 21, 138

Clear Clipboard 26

Copy 23

Copy Special 24

Cut 22

Load Clipboard 27

Paste 26

Redo 22

Save Clipboard 26

Undo 21

Edit mode 90, 93, 106, 148

After active point 106

Nearest point 106

Edit shape 148

Edit snap type 105

Snap to line 105

Snap to point 105

Export points 114

Clipboard 116

File 114

WKT 115

Export points to clipboard 116

Decimal Degrees (DD) 116

Degrees:Minutes:Seconds (DMS) 116

Map Units 116

## - F -

Favorites 19

- Favorites 19
  - Add active layer 20
  - Add current project 20
  - Organize Favorites 20
- File 4, 140
  - Coordinate Systems 12
  - Exit 21
  - Export to image 10
  - Favorites 19
  - Hierarchy 16
  - Internet Server Wizard 12
  - New Project 5
  - Open 5
  - Open from server 5
  - Print 8
  - Recent Files 19
  - Save 6
  - Save All 7
  - Save Project As 7
  - Scale Units 15
  - Welcome Page 4
- File associations 140

## - H -

- Help 144
  - About 145
  - Check for updates 145
  - Help 144
  - Tutorials 145

## - I -

- Import points 112
  - Clipboard 113
  - File 112
  - WKT 112
- Import points from clipboard 113
  - Decimal Degrees (DD) 114
  - Degrees:Minutes:Seconds (DMS) 113
  - Map Units 114
- Introduction 1

## - L -

- Labels 77
  - Value label formatting 78
- Language 135
  - Edit Language 135
- Layer 54
  - Add 56

- Add from server 59
- Add SQL layer 57
- Export 62
- Import 60
- Load layer properties 67
- Move down 89
- Move up 88
- New 55
- Properties 67
- Recalculate extent 90
- Remove 59
- Restructure 65
- Save layer properties 66
- Show attributes table 89
- Visible 89
- Layer Properties 67
  - Raster dialog box 85
  - Vector dialog box 70
- Legend 151
- Legend hierarchy 16
  - Add layer 18
  - Add main group 16
  - Add subgroup 16
  - Add unused layers 18
  - Delete all subgroups 17
  - Delete group 17
  - Remove layer 18
- Legend panel 151
  - Context menu 151
  - Hierarchy 16, 152
  - Layers 152
  - Move down 89
  - Move up 88
  - Properties 67
  - Show attributes table 89
- Localization 135
  - Edit Language 135

## - M -

- Map area 137, 145
  - Context menu 146
- Measure 124
  - Circle 127
  - Line 124
  - Polygon 125
  - Rectangle 126
  - Rectangle rotated 126
- Menu 4
  - Data 118
  - Edit 21

- Menu 4
  - File 4
  - Help 144
  - Layer 54
  - Measure 124
  - Scripts 140
  - Select 35
  - Shape 90
  - Tools 128
  - View 27
- MiniMap 153
- MiniMap panel 153
  - Clear 29
  - Draw MiniMap 29
  - Export To Web Image 29
  - Map 153
  - World 154

## - N -

- New shape 93, 148
  - Circle [line] 99
  - Circle [polygon] 103
  - Circle 3point base [line] 100
  - Circle 3point base [polygon] 104
  - Close line 96
  - Close line 90° 97
  - Line 94
  - Line 90° 95
  - Line free 96
  - Multipoint 94
  - Point 93
  - Polygon 101
  - Polygon 90° 101
  - Rectangle [line] 98
  - Rectangle [polygon] 102
  - Rectangle rotated [line] 99
  - Rectangle rotated [polygon] 103

## - O -

- Options 136
  - Data panel 139
  - Editor 138
  - Files 140
  - General 137
  - Map 137
  - Selection 139

## - P -

- Panels 148
  - Data 28, 155
  - Default layout 28
  - Legend 28, 151
  - MiniMap 28, 153
  - Scale 28, 148
  - Selected 28, 149
- Pascal language
  - Arrays 165
  - Assign statement 164
  - Case statements 167
  - Character strings 164
  - Comments 164
  - For statements 167
  - Function and procedure declaration 167
  - Identifiers 164
  - If statements 166
  - Indexes 165
  - Overview 163
  - Repeat statements 166
  - Script structure 163
  - Variables 165
  - While statements 166

## - R -

- Raster Layer Properties 85
  - Grid 88
  - Layer 85
  - Pixel 87
  - Section 86
- Recent files 19
  - Clear list 19
- Recent scripts 141, 142
  - Clear list 142, 143

## - S -

- Scale panel 148
  - Scale Units 15
- Script package 191
- Scripter Studio 142, 162
  - Code tab 176
  - Context menu 177
  - Design tab 177
  - Edit area 176
  - Languages 163
  - Menu 177

- Scripter Studio 142, 162
  - New project (Basic) 142
  - New project (Pascal) 142
  - Open 142, 143
  - Panels 198
  - Toolbars 197
- Scripter Studio menu 177
  - Edit 183
  - File 178
  - Help 196
  - Project 195
  - Run 191
  - Tools 196
  - View 190
- Scripter Studio panels
  - Object Inspector 198
  - Tool Palette 200
  - Watches 200
- Scripter Studio settings 196
- Scripter Studio toolbars
  - Edit 197
  - File 197
  - Project 197
  - Run 198
- Scripting 140, 162
  - Languages 163
- Scripting, Edit 183
  - Align 188
  - Align to Grid 187
  - Bring to Front 187
  - Copy 184
  - Cut 184
  - Delete 185
  - Find 186
  - Lock controls 190
  - Paste 185
  - Redo 183
  - Replace 186
  - Search again 187
  - Select All 186
  - Send to Back 188
  - Size 188
  - Tab Order 189
  - Undo 183
- Scripting, File 178
  - Close all 182
  - Close file 182
  - Exit 183
  - New Form 178
  - New project 179
  - New Unit 178
  - Open (add to project) 180
  - Open project 179
  - Remove from project 180
  - Save 180
  - Save all 182
  - Save as 181
  - Save project as 181
- Scripting, Help 196
  - Developer Kernel help 197
  - Scripter Studio help 196
- Scripting, Project 195
  - Select Main Unit 195
- Scripting, Run 191
  - Add watch 194
  - Compile 191
  - Make package 191
  - Pause 194
  - Run 191
  - Run to cursor 193
  - Run until return 194
  - Script reset 194
  - Step over 193
  - Toggle breakpoint 195
  - Trace into 193
- Scripting, tools 196
  - Designer Options 196
- Scripting, View 190
  - Object Inspector 190
  - Toggle Form/Unit 190
  - Tool Palette 190
  - Watches 190
- Scripts 140, 162
  - Languages 163
  - New project (Basic) 142
  - New project (Pascal) 142
  - Open 141, 142, 143
  - Reset Interface 144
  - Run 141
  - Scripts Manager 143
  - Tools Manager 132
- Select 35, 139
  - Clear Selection 41
  - Deselect all 158
  - Deselect group 157
  - Hide all 159
  - Hide group 159
  - Hide selected 158
  - Invert Selection 158
  - Localize 35
  - Select all 158
  - Select by Circle 38

Select 35, 139  
 Select by Clipboard 40  
 Select by Line 36  
 Select by Point 36  
 Select by Polygon 37  
 Select by Query 50  
 Select by Rectangle 39  
 Select group 157  
 Select type 41  
 Show all 159  
 Show group 159  
 Show selected 158

Select type 41  
 Contains 48  
 Cross 46  
 Cross (lines only) 47  
 Disjoint 42  
 Equality 42  
 Intersect (boundary-boundary) 45  
 Intersect (boundary-interior) 44  
 Intersect (interior-boundary) 44  
 Intersect (interior-interior) 43  
 Overlap 49  
 Overlap (lines only) 49  
 Touch (boundary-boundary) 46  
 Touch (boundary-interior) 45  
 Within 47

Selected panel 149  
 Attributes 149  
 COGO-360 151  
 Points 150  
 Stats 150

Settings 136

Shape 90  
 Add part 107  
 Change winding 108  
 Clipboard buffer 111  
 Clipboard convex hull 111  
 Delete part 107  
 Delete shape 108  
 Edit mode 106  
 Edit shape 90  
 Edit snap type 105  
 Export points 114  
 Import points 112  
 New shape 93  
 Revert shape 108  
 Simplify shape 117  
 Smooth shape 117  
 Split parts 111  
 Split shapes 109  
 Union shapes 110

Standard toolbar 27, 201

## - T -

Tools 128  
 Desktops 134  
 Edit Language 135  
 GUI Style 136  
 Language 135  
 Options 136  
 Tools Manager 132  
 Topology 128

Topology 128  
 Show lines 0 connected 132  
 Show lines 1 connected 132  
 Show lines 2 connected 132  
 Show polygons correct 131  
 Show polygons holes 131  
 Show polygons overlaps 131  
 Topology 128

## - U -

User Interface 3  
 Data panel 28, 155  
 Edit Language 135  
 GUI Style 136  
 Language 135  
 Legend panel 28, 151  
 Map area 145  
 MiniMap panel 28, 153  
 Panels 27  
 Reset Interface 144  
 Scale panel 28, 148  
 Selected panel 28, 149  
 Settings 137  
 Standard toolbar 27, 201

## - V -

Vector Layer Properties 70  
 Area 75  
 Chart 84  
 Label 77  
 Layer 71  
 Line 74  
 Marker 76  
 Renderer 73  
 Section 72

View 27  
 Auto center 34

View	27
Auto locate record	34
Drag mode	33
Full Extent	30
Full Screen	34
Layer Extent	30
Map hint	33
Map hotlinks	34
MinMap	28
Panels	27
Previous Extent	31
Refresh map	31
Selected Extent	30
Toolbars	27
Zoom extended mode	32
Zoom mode	32