

# **TopoL xT - the user guide**

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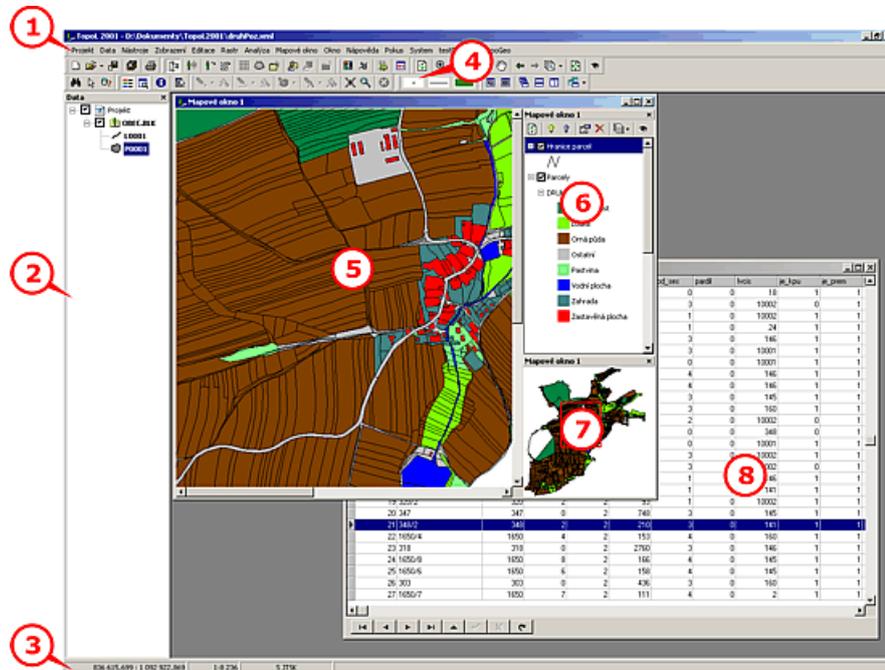
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# Chapter 1. The user environment of TopoL xT

## 1. Basic dividing



User environment of TopoL xT

The user environment of the TopoL consists of the following parts described in the following chapters.

1	basic program menu
2	"data tree" window
3	status bar
4	toolbars
5	map window
6	legend of map window
7	preview window
8	database window

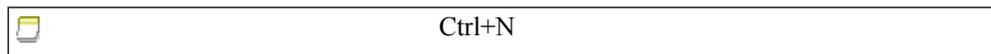
## 2. Menu

The description of menu items according to location in the program. The shortcuts and images are presented from the standard TopoL version - which means without being modified by user.

Project  
Data  
Tools  
View  
Edit  
Raster  
Analyze  
Database window  
Map window  
Window  
Help

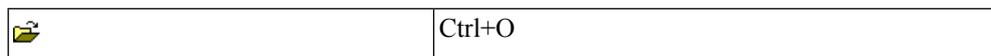
## 2.1. Project Menu

New...



Creates a new project by selection of the template, the currently opened project will be closed.

Open...

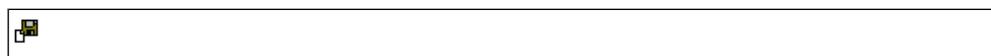


Opens an existing project. The currently opened project will be closed.

Recent projects

Contents a list of recently opened projects. The project will be opened. after a click on the corresponding item in the list. The currently opened project will be closed.

Save



Saves the currently opened project on the disc. If the project is being saved for the first time, the user is asked for setting the project location.

Save as...

Saves the currently opened project on the disc under a new name.

Save all

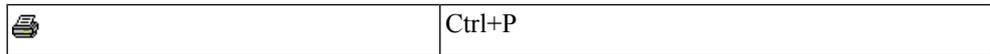


Saves the currently opened project on the disc and in the same time saves all the changed data.

Print current map window

Prints the current map window on printing mashine in the currently displayed form.

Print map in scale...



Runs a map print wizard enabling printout of map compositions.

Project properties



Opens a dialog which enables to set properties of the project.

Define project structure...

Otevře dialog, kde je možné upravit Definici struktury projektu.

Attached files

A submenu that contents a list of attached files and a command for its administration. A file will be opened (if it's possible) by click on an item with the attached file.

Edit list of attached files...



Opens a dialog that enables to edit a list of files attached to the currently opened file.

Exit

Closes the TopoL

## 2.2. Data Menu

Display data tree



Displays a window with data tree.

Display in current map window

Displays data selected in data tree in a current map window.

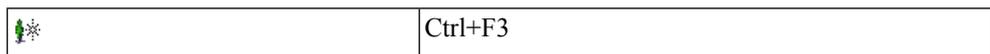
Display in all map windows

Displays data selected in data tree in all map windows.

Display in new map window

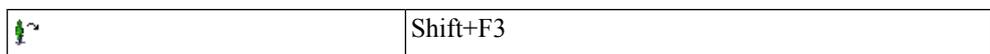
Displays data selected in data tree in a new map window.

Now block



Creates a new block according to a set directory.

Open blocks



Opens TopoL blocks and adds them to data tree.

Open ShapeFile

	Alt+F3
---	--------

Opens ShapeFile and adds it to data tree.

Open ShapeFile for editing

Opens ShapeFile for editing (creates a topology in this ShapeFile) and adds it to data tree.

Open DGN Files

	
---	--

Opens DGN files and adds them to data tree.

Open MapInfo data

	
---	--

Opens data in MapInfo format and adds them to data tree.

Open data in MDB database

Opens data in MDB database and adds them to data tree.

Open rasters

	F4
---	----

Opens rasters and adds them to data tree.

New grid

	Ctrl+G
---	--------

Creates a new grid and adds it to data tree.

New map sheet

	Ctrl+M
---	--------

Creates a new map sheet and adds it to data tree.

New folder

	Shift+Ctrl+F
---	--------------

Creates a new folder in the current position in data tree.

Browse DB table

Opens a database table from external database.

Save edited data

	Ctrl+S
---	--------

Saves the data currently set for editing.

Save edited data copy

Creates a copy of the data currently set for editing in a selected position on the disc.

Save modified data

Saves all the modified vector data.

Save modified data with selection

Opens a dialog with a list of modified vector data and enables their saving.

Set for editing



Sets the data selected in data tree for editing.

Export

An export of data to the BLK, SHP, DXF, VIX formats.

Export to SHP...

Exports the selected data from data tree to the SHP format.

Export to BLK...

Exports the selected data from data tree to the BLK format.

Export to DXF...

An export of data to the DXF format.

Export to VTX, DKM, VKM ...

An export of data to the VTX, DKM, VKM formats.

Import

An import of data from the DXF, VTX formats.

Import from DXF...

An import of data from the DXF format.

Import from VTX, DKM, VKM ...

An import of data from the VTX, DKM, VKM formats.

Close data source



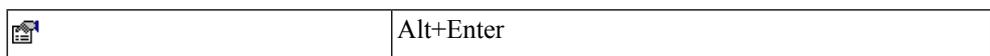
Closes all the data selected in data tree.

Rename



Enables to rename the data selected in data tree. Renaming doesn't affect a name of the source file (directory) - it's just a data description.

Properties



Displays a dialog with properties printout of the data selected in the data tree.

## 2.3. Tools Menu

Colour transfers



Opens a dialog for an administration of colour transfers in the project.

Symbol transfers



Opens a dialog for an administration of převodníků značek v projektu.

Symbol libraries



Opens a dialog for an administration of symbol libraries in the project.

Text styles libraries



Opens a dialog for an administration of text styles libraries in the project.

Templates



Opens a dialog for an administration of project templates for the TopoL.

Define coordinate system

Opens a dialog that enables to define user coordinate systems.

Options



Opens a dialog for parameters setting of the TopoL environment.

Show application messages



Opens a dialog with TopoL messages.

Event viewer



Opens a dialog for viewing of the TopoL events protocol.

Toolbar setting

Opens a dialog for toolbar setting.

## Toolbars

This item contents a list of accessible toolbars. Within the list you can modify their visibility.

## 2.4. View Menu

## View

## Redraw

	Alt+O
---	-------

Redraws the current map window.

## Zoom +

	F5
---	----

Minimization of the current map window drawing by a graphically set size. The size is set via selecting rectangle with fixed aspect ratio.

## Zoom -

	Shift + F5
---	------------

Maximization of the current map window drawing by a graphically set size. The size is set via selecting rectangle with fixed aspect ratio.

## Follow cursor

	F7
---	----

The command will move the center of the current map window drawing to the cursor position.

## Pan

	Shift+F7
---	----------

Příkaz umožní posouvat výřez v mapovém okně pomocí uchopení a posunu realizovaném myší.

## Previous viewport

	F8
---	----

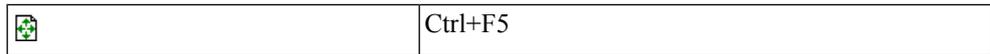
Changes a viewport in the current map window into the previous one (including the coordinate system).

## Next viewport

	Shift+F8
---	----------

Changes a viewport in the current map window into the next one (the one that was set to be the last before using the Next viewport command).

Fit all



Modifies a viewport in the current map window so that it displays all included and visible data.

Viewport by selected

Enables to set a viewport in the current map window according to the selection of displayed objects.

Set scale



Opens a dialog that enables to set accurately a scale of the current map window display.

Current viewport to list of viewports...



Adds the currently set viewport in the current map window to named viewports.

List of named viewports...



Opens a Viewports dialog which enables to add, delete and set named viewports.

Named viewports

Contains a list of named viewports, defined in the project. By selecting of a viewport, its setting in the current map window is done.

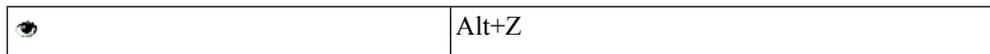
Select map sheet by name

The command displays a map sheet of the set name including its map frame. Resp. it modifies a viewport so that the map sheet is located in the window and is extended to the whole width of the window (s. the Dialogs for map sheets operating).

Select map sheet by cursor

The command specifies a map sheet of the selected layout, the location of which you can set by cursor (s. the Dialogs for map sheets operation).

Display setting



Opens a dialog that enables setting of data display in the current map window.

## 2.5. Edit Menu

## 2.6. Raster Menu

The "Raster" submenu contains commands for raster formats operating. Any of the supported raster formats can be at input of most raster operations. At present it's possible to set output only in the RAS internal format and in TIFF and BMP formats. Most of the operations need to have a new raster file created.

Geometric operation

Image processing

Spectral analysis

DEM

Supplement

Rasters from directory

## 2.6.1. Geometric operation

Geometric operations means a group of operations that are somehow related to raster location in the coordinate system, which means that the raster is either located (raster location, raster transformation) or the location is deleted by this operation (rotating, mirroring). Another operations in this group are copying of the raster rectangular part, combining of several located rasters into a mosaic, deviding of large raster into several smaller rasters corresponding to map sheets for example.

Raster transformation

Transformation in parts

Locate raster

Rotate raster

Copy raster

Mirror horizontal

Mirror vertical

Mask raster

Mosaic

Mosaic into map sheets

Cut raster along map sheets

### 2.6.1.1. Geometric operations - commands

Raster transformation

The command enables to carry out a transformation of the selected raster file or of its viewport according to preset transformation table (calculated on the basis of detached reference points). The command saves the transformed file under a set name and submits it into the project. In other words, this command locates the raster to a new location on the basis of reference points, which means points that are well visible on the raster and their required location is known.

Transformation in parts

The command enables to carry out a transformation of the selected raster file or its viewport in parts. This transformation is used mostly for the aerial photo transformation, where you can eliminate the impact of landscape elevation distortion. The command saves the transformed file under a set name and submits it into the project. During the transformation via this function a triangle network will be created upon a detached reference points and every triangular area of the raster will be transformed separately by affine transformation according to a key calculated from the identical points located allways in corners of the area. Individual partial rasters will be put together into a mosaic of the whole raster.

#### Locate raster

The command locates the selected raster in the set way into the coordinate system by one of the following location types:

- According to a corner and width of the whole file
- According to any point and the distance
- According to a reference point

#### Rotate raster

The command rotates the selected raster by the set angle. Using of the command before the raster transformation shortens the time of the transformation, if the raster is rotated as close as possible to the target state.

#### Copy raster

The command copies the selected part of a specified raster file and saves it under a set name. The command doesn't modify a pixel size. The command is appropriate, if you don't operate with a whole raster image to save time and the disc capacity.

#### Mirror horizontal

The command creates from the selected raster its mirror view according to the horizontal axis. The first row of the raster becomes the last and vice versa.

#### Mirror vertical

The command creates from the selected raster its mirror view according to the vertical axis. The command serves for example to avoiding the mirror effect, if the raster is scanned from the reverse side of transparent foil.

#### Mask raster

The command masks a set area of the selected raster file, i.e. makes the set area transparent. If peripheries of the raster are masked, the raster will be trimmed to the minimum possible size. The command is appropriate during creating a mosaic, when the raster is composed of several overlaying rasters.

#### Mosaic

The command creates a new raster file with a set name by connecting of displayed raster images, resp. in a selected area only. The raster files from which the mosaic is to be created can be of any type whereas a type of the resulting raster depends on them. Mosaic respects masking of separated rasters.

#### Mosaic into map sheets

The command creates new raster files by connecting of displayed raster views, that either correspond to the selected map layout, resp. the set rectangular net. This way we can avoid creating too large raster, that would be difficult to operate with. The name of resulting rasters corresponds either to the name of corresponding map sheet, or is generated from the common base and number of a new raster.

#### Cut raster along map sheets

The command creates by cutting off the set raster view new raster files which either correspond to selected map layout, or to set rectangular net. This way we can operate too large raster, which would be later difficult to work with.

## 2.6.2. Image processing

Image processing is a group of raster operations, that don't change raster, geometric properties, its location for example or size of a pixel. It serves above all to modification of raster colour rendering or to synchronizing of several rasters colours. Thus the size of separated pixels, resp.

the way of its interpretation in map windows is modified. This item includes arithmetic operations with grayscaled rasters, logical and morphological operations with binary rasters.

Transfer operations

Arithmetic operation

Logical operation

Morphology

Balance colours of rasters

Balance colour of all rasters

Balance Colours of 2 Rasters along Polyline

Change Colours of Raster by Sample

Histogram Equalization

Raster Brightness and Contrast

Change Raster Colours

Raster Gamma Correction

Raster Sharpening

### **2.6.2.1. Image processing - commands**

Transfer operations

The command carries out an operation, that modifies the way of pixel values display (the transfer is changed - Look Up Table, resp. an auxiliary file transfer as well - \*.MEZ for RASes) in the selected grayscaled raster image. If a raster is displayed in one of the windows, the modification is carried out only in the operational memory and so it doesn't have an instant impact on a transfer file of the selected raster file. The modification is saved at remove of the raster from the window legend, where it was displayed. A value of pixels is modified as well only when the "Level transformation" operation is selected and for this operation you have to set an output raster to save the result in.

Arithmetic operation

The command creates a new raster file by modification of a pixel value of the selected grayscaled raster image or two grayscaled images of an arithmetic operation (function) application.

Logical operation

The command creates a raster image, the value of its pixels is a result of logical operation between two selected binary rasters resp. application of a binary raster negation.

Morphology

This function enables to carry out erosion and dilatation morphological operations. This operation can be carried out only with binary rasters. In other words, during the application a thinning or thickening of binary raster drawing (foreground) takes place.

Balance colours of rasters

The operation ensures fluent transfers of colours resp. levels of gray in a serie of photos, that will serve for example as an input for mosaic creation. This operation is also suitable to use before printing to achieve a better look of an output. An input for the operation can be any number of grayscaled rasters or TrueColour, but only of the same type at a time. Input rasters should be masked. It is supposed, that rasters will have overlays large enough to provide sufficient information for analysis.

#### Balance colour of all rasters

The command carries out the same operation as the "Balance colours rasters", but as input rasters it takes all the rasters displayed in the current window.

#### Balance Colours of 2 Rasters along Polyline

The operation ensures fluent transfers of colours, resp. grayscaled levels for two selected rasters. The operation can be defined as any combination of the operations: colour balancing, blurring of the transfer, raster masking and mosaic of both rasters. The three former suboperations are carried out with regard to a set polyline, that will create a transfer border between both the rasters. The operation is aimed to achieve a perfect transfer between both the rasters in colour, or the consequent masking of the raster, which was selected as a foreground raster. Finally it's possible to unite both the rasters into an output raster. As a result the transfer between individual rasters after the possible masking along a given polyline is almost invisible.

#### Change Colours of Raster by Sample

The command is a combination of the "Gamma correction of raster" and "Brightness and contrast of raster" commands. It enables to balance colouring of the selected raster to the selected image, which can be continuously compared in preview.

#### Histogram Equalization

The function enables to modify a colour channels dynamics of all raster types except the binary types. It's possible to change the dynamics of all raster channels or to affect only individual colour channels (red, green, blue) of a raster, so that a colour tone can be changed. It's also possible to carry out equalization for raster brightness component when the dynamics of all basic raster components is modified some way as well, but not in the same way as when modification of all the components is set. As for grayscaled rasters, the correction can be done only for the image brightness component.

#### Raster Brightness and Contrast

This function enables to modify brightness and contrast of all raster types except a binary raster. Both brightness and contrast can be changed simultaneously. As for True Colour raster it's necessary to create a new result raster, where R, G, B channels of all the pixels are recalculated. As for coloured or grayscaled rasters the modification is carried out only through colour range modification, resp. transfer modification.

#### Change Raster Colours

This function enables to change colouring of all raster types, except a binary raster. It's possible either to change brightness of a whole raster, or to influence only individual channels of raster colour (red, green, blue) and thereby to achieve the colour tone modification. The process consists in the colour channels selection (it contents basic channels and the "All" option for brightness modification as well). Furthermore one of the preset functions for colour change is applied (even several times additive).

#### Raster Gamma Correction

The function enables to change colouring of all raster types except a binary raster. It can be carried out for any colour channels and thereby to change a colour tone - to add or subtract some of the basic colours. Another possibility is to carry out the modification for all the components simultaneously - essentially the brightness and contrast modification is reached then. Compared to most of this kind of operations it's possible here to achieve very subtle shifts in colouring.

#### Raster Sharpening

This command carries out sharpening of True Colour or grayscaled raster according to a set degree. Always it's necessary to create a new output file. The operation isn't applicable to grass clearance, it can be successfully used only to defocused raster clearance.

### **2.6.3. Spectral Analysis**

A spectral analysis is a group of operations for working with multispectral image data, i.e. geometrically identical raster data, displaying the given territory in varied parts of the spectrum.

Colour Synthesis

### **2.6.3.1. Spectral Analysis - Commands**

Colour Synthesis

The command creates a colour or TrueColour raster image out of three set grayscale images (channels), each of which is assigned to a basic colour (R, G, B), and saves this raster file under a set name. In the first phase it's necessary to select three grayscale rasters of the same size and location.

### **2.6.4. DEM**

An operation for working with raster digital terrain model- creating, displaying etc.

Creating from points

Import grid XYZ

Display 3D

Set up 2D display

#### **2.6.4.1. DEM - commands**

Creating from points

This command creates a digital terrain model on the basis of the vector drawing with height information saved for example in a database numeric item. In this case it means, that it creates a digital model on the basis of points with given height coordinate (altitude). Pixels of the result DEM raster on the coordinates of these points (both points and vertices) will have values according to a content of the corresponding vector object attribute. The system will calculate the height coordinates for other pixels of the raster as well, according to the given ("known") pixel values. It's possible to set obligatory edges, i.e. junctions between individual points, that have to be kept during creating of a triangle network. Creating of the DEM raster can be limited under certain circumstances to a specific area by border polylines. The number of input points isn't limited on principle.

Import grid XYZ

The command creates a digital terrain model raster from an information saved in a text file. Every row of the text file represents an information on a pixel of the digital terrain model, namely the Y coordinate, X coordinate of the pixel center and the height value of the pixel and it's supposed that coordinates of individual points create a grid with regular frequency which corresponds to pixel size in the Y, resp. X direction.

Display 3D

The command displays 3D view of a rectangular viewport of the raster terrain model. It's possible to display a selected nonbinary raster, that is coordinate attached, on the terrain model surface.

Set up 2D display

The command carries out operations that set the display of pixels value of digital terrain model rasters while loading into the point of interest. A table of transfer is created or changed to create an auxiliary display raster (grayscale 8-bit raster with .IMG extension) from the original 2 or 4-byte raster.

### **2.6.5. Supplement**

The auxiliary operations with rasters enable to find certain information on displayed rasters and to converse individual raster formats. They include for example palette editing of indexed colour rasters and creating of generalized raster reductions designed for a faster display. Certain attributes

of geometric operations have here refiguring of a raster on the pattern of another raster and also creating of bit map for all components displayed in a map window.

Export

Tiff  
Tiff (JPEG)  
Geotiff  
BMP  
GIF  
JPG  
CIT  
COT  
RGB  
RLE  
ECW  
PCX

Import

Tiff  
BMP  
GIF  
JPG  
SID  
CIT  
COT  
RGB  
RLE  
PCX  
ECW  
HRF  
IMG

Edit Palette

Rasters names Info

Levels info

Resampling

Raster conversion

Ras for TopoL DOS

Delete Raster

Raster Generalization

Compress

Decompress

Map window into raster

### **2.6.5.1. Supplement - commands**

#### Export

The command converts a selected raster file to a format specified by a selected output raster format and saves so created file under a set name. Eventually the system creates a coordinate text file that can be used for raster location in the Arc/Info system. Simultaneously an input raster is refigured so that an output raster pixel has a square dimension.

#### Import

Commands in this submenu convert raster data from formats of other systems to the TopoL for Windows system format - RAS format. During this conversion also a conversion of raster type can be done based on the user specifications as well, e.g. from True Colour to colour or grayscaled raster.

#### Edit Palette

The command displays colour palette saved in a selected file and enables to modify its setting. Contingent changes can be checked in a preview.

#### Rasters names Info

After you activate this function, a tool in the form of a cross is displayed. If you move the tool above a raster, a short title of this raster is displayed in a bottom information panel. If rasters overlay, a name of the top raster (viewed from above) is displayed. Where there is more than one relevant raster and the orientation is difficult, it's appropriate to use a display of raster outlines. If you click with the left button on a raster, a dialog appears with names display of all rasters that interfere with the given point. In the dialog there you can change the display of these rasters and display their characteristics.

#### Levels info

This command displays a value of any pixel in a selected raster, resp. values of R,G,B channels of the given pixel for a True Colour raster. Furthermore the index of gray level of any pixel is displayed for a grayscaled raster, the index of palette colour is displayed for a colour rasters. For DMT rasters a value of a pixel converted to meters and an index of gray level presented in the map window displays.

#### Resampling

The command creates a mosaic from a set raster file and the so created image is saved under a set name. Parameters of the result mosaic (pixel size, file size and its location) follow the smple file. This operation is aimed to geometric union of two rasters to which it's possible to apply arithmetic and logical operations. The operation can be used as a preparation for synthesis cration because it requires three geometrically identical rasters as an input.

#### Raster conversion

The command allows to carry out a transfer between various types of raster files in the RAS, BMP and TIF formats. It enables to change a colour raster into grayscaled one and vice versa. If the input is a True Colour raster, its possible to decompose it into R, G, B channels in the same way as during True Colour rasters import from other formats. True Colour raster can be converted into a 4-bit or 8-bit colour resp. grayscaled raster. For any input raster there are two variants of output raster. The command also enables to change a tiled raster format into a row raster and vice versa.

#### Ras for TopoL DOS

The command changes the \*.MEZ transfer file, resp. the \*.PAL palette file of a selected colour or grayscaled raster in the RAS format in the way, that enables working with it in the TopoL for DOS system. The TopoL for DOS enables working only in 16 colours mode. Output file of this command can be identical to the input file.

#### Delete Raster

The command deletes selected rasters including its auxiliary files.

#### Raster Generalization

This command enables creating of a raster generalized part for its faster display. It means, that there can be a minimized generalized raster (of size cca 1/16 to original raster) created for a raster of any type and version. This generalized raster is attached either to the end of the RAS file, or to auxiliary files of other formats.

#### Compress

This command compresses one or more selected raster files in the RAS format into the RAK format. The compression ratio, i.e. size of the result file, depends on the file type and content. Name of the result raster including the path is always identical to input name.

#### Decompress

The command decompresses one or more selected RAK raster files. After the selection input files are decompressed and saved on the disc under an identical name, but with the RAS extension.

#### Map window into raster

The command converts a selected viewport of map window (including all the displayed vector and raster files) to a raster file of a set name, size and type.

### **2.6.5.1.1. Export**

#### Tiff

The command transfers a selected raster file into the Tiff format.

#### Tiff (JPEG)

The command converts a selected raster file into the Tiff format with the JPEG compression with a selected information loss.

#### Geotiff

The command converts a selected raster file into the Geotiff variant of the Tiff format, the coordinate location is written directly in the raster header.

#### BMP

The command converts a selected raster file into the BMP format.

#### GIF

The command converts a selected raster file into the GIF format.

#### JPG

The command converts a selected raster file into the JPG format.

#### CIT

The command converts a selected raster file into the CIT format.

#### COT

The command converts a selected raster file into the COT format.

#### RGB

The command converts a selected raster file into the RGB format.

RLE

The command converts a selected raster file into the RLE format.

ECW

The command converts a selected raster file into the ECW format.

PCX

The command converts a selected raster file into the PCX format.

#### **2.6.5.1.2. Import**

Tiff

The command serves for raster data transfer from the Tiff into the RAS format.

BMP

The command serves for raster data transfer from the BMP into the RAS format.

GIF

The command serves for raster data transfer from the GIF into the RAS format.

JPG

The command serves for raster data transfer from the JPG into the RAS format.

SID

The command serves for raster data transfer from the SID into the RAS format.

CIT

The command serves for raster data transfer from the CIT into the RAS format.

COT

The command serves for raster data transfer from the COT into the RAS format.

RGB

The command serves for raster data transfer from the RGB into the RAS format.

RLE

The command serves for raster data transfer from the RLE into the RAS format.

PCX

The command serves for raster data transfer from the PCX into the RAS format.

ECW

The command serves for raster data transfer from the ECW into the RAS format.

HRF

The command serves for raster data transfer from the HRF into the RAS format.

IMG

The command serves for raster data transfer from the nonstandard IMG file into the RAS format.

### **2.6.6. Rasters from directory**

It's possible to set a directory containing rasters. This is carried out in the project properties setting - Raster directory. After you select the command Rasters in Viewport from the directory, the system will check out all the rasters in a current map window legend and those which aren't in the window viewport will be removed. Then it will search the defined directory and those rasters that could be displayed in the current directory, will be opened and displayed in the current window.

## 2.7. Analysis Menu

## 2.8. Database Window Menu

The "Database Window" menu contains main commands for working with database table browsers. It's displayed, resp. it's active only if any database window is active.

### Sort

The command enables to set a sort key for the active database table.

### Query

The command enables to arrange a query for selection of records within the active database table according to set criteria.

### Compare Fields

The command for the active database table enables to set a simple query for selection of records according to set criteria. The query takes a form of a value comparison of two selected table columns.

### Summarization

The command enables to count a sum, diameter, standard deviation, minimum and maximum value of the set item within database table.

### Display

The command enables to set a display of the active database table columns - switch on, switch off and set a description in the header.

### Set Standard Fields Order

The command for the active database table sets the order of displayed columns according to the database file.

### Show Objects

The command enables to display graphic objects corresponding to highlighted table records in a map window. It's possible to display even more records, mostly by click on any item of the required record.

### Print Report

The command enables to set and print a print report for the active database table.

### Graph

The command for the active database table enables to display a graph of the selected numeric item.

### Join

The command for the active database table enables to display other database table linked with primary table through key items.

In the TopoL 2001 there is a special dialog, accessible from the "Analysis" submenu by the "Queries" command, which serves to definition of a so-called database model. There the attached databasis can be defined - not necessarily in the DBF format - and in the same time you can define hierarchic relationships between mutually attached tables by a definition of key items couples.

### Selected Only

The command for the active database table enables to display only selected records, i.e. records with the `_Select=1` item value.

### Zoom to Highlighted

The command enables to set a viewport of selected map window corresponding to highlighted records of the active database table. Corresponding graphic objects are highlighted simultaneously in the map window.

## 2.9. Map Window Menu

### Display / hide legend



Displays or hides a legend in a current map window.

### Display / hide preview window



Displays or hides a preview window in a current map window.

### Map window properties

This dialog helps to set parameters of a current map window.

### Map windows duplicates

#### Create copy

Creates a new map window as a duplicate of the active map window.

#### Create child window

Creates a duplicate of the active map window, which becomes its child window (s. child map windows).

#### Create synchronized window

Creates a new map window synchronized with the active map window (s. synchronized map windows).

### Child Windows

Opens the Child Windows dialog in which a hierarchy of the child map windows can be defined.

### Synchronization

Opens the Windows Synchronization dialog in which the groups of synchronized map windows can be defined.

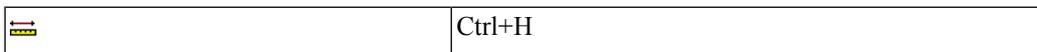
### Identify



This command enables to select vector objects via selecting rectangle with variable aspect ratio and display information on them.

### Identify in DB window

### Distance measurement



Area measurement



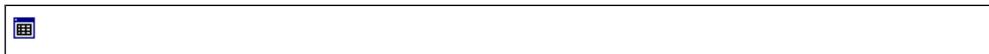
## 2.10. Window Menu

New map window



Creates a new map window. Default parameters for to be created map windows can be modified in the Project Setting, Map Window item, that is accessible from the Project Menu, theProject Properties command.

New database window



Opens a database table selected in the data tree in a new database window.

Cascade



Cascades map and database windows so that title stripe of as much windows as possible is visible.

Tiles vertically



Arranges map and database windows vertically so that they don't overlap.

Tiles horizontally



Arranges map and database windows horizontally so that they don't overlap.

<windows list>

Here a list of all the opened windows is displayed - the relevant window becomes active by click on a menu item.

## 2.11. Help Menu

Index

Opens an index of this help.

Content

Opens a content of this help.

About program...

Opens a dialog window with basic information on the TopoL version.

## 3. Toolbars

The toolbars description according to their order in the program. Shorcutc and images are presented from the TopoL 2001 standard version - it means without being modified by the user.

Project Toolbar

Data Toolbar

Tools Toolbar

View Toolbar

Window Toolbar

### 3.1. Project Toolbar



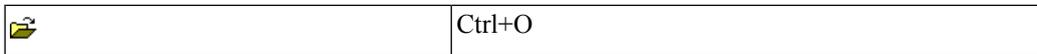
Project Toolbar

New Project



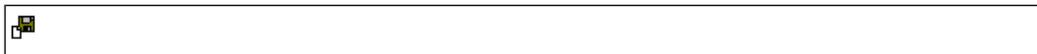
Creates a new project on the basis of the default template. The currently opened project will be closed.

Projects



Opens existing Project. The currently opened project will be closed. After click on the arrow next to the toolbar key a list of recently opened projects will be displayed - if you click on any of them, it will be opened.

Save Project



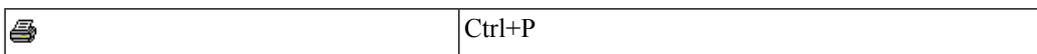
Saves the currently opened project on the disc. If the project is saved for the first time, the user is asked to set the project location.

Save All



Saves the currently opened project on the disc and simultaneously saves all changed data.

Print map in scale



Runs a map print wizard enabling printout of map compositions.

## 3.2. Data Toolbar



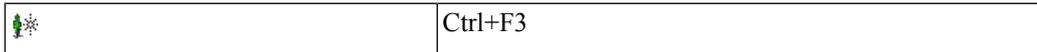
Data Toolbar

Display Data Tree



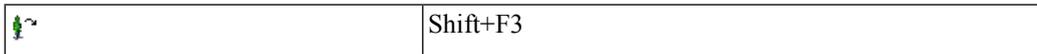
Displays a window with data tree.

New Block



Creates a new block according to a set directory.

Open Blocks



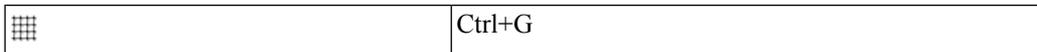
Opens the TopoL blocks and adds them to the data tree.

Open Rasters



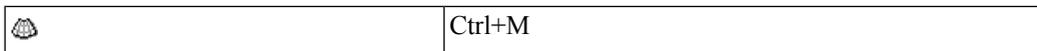
Opens rasters and adds them to the data tree.

New Grid



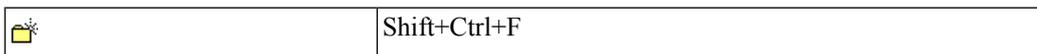
Creates a new grid and adds it to the data tree.

New Map Sheet



Creates a new map sheet and adds it to the data tree.

New Folder



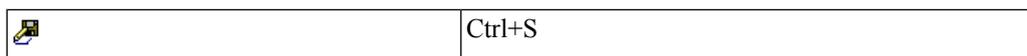
Creates a new folder in the data tree on a current position .

Set for Editing



Sets the data selected in the data tree for editing.

Save Editing Data



Saves the just edited data.

Close Data Source



Closes all the data selected in the data tree.

### 3.3. Tools Toolbar



Tools Toolbar

Colour Transfers



Opens a dialog for colour transfers administration in the project.

Symbols transfers



Opens a dialog for symbol transfers administration in the project.

Options



Opens a dialog for parameters setting of the TopoL environment.

Program Messages



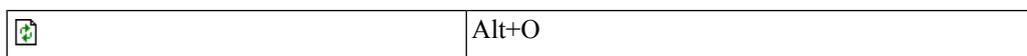
Opens a dialog with the TopoL messages.

### 3.4. Display Toolbar



Display Toolbar

Redraw



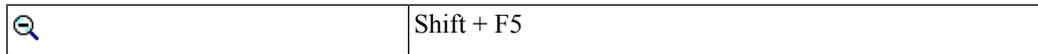
Redraws the current map window.

Zoom +



Minimization of the current map window drawing by a graphically set size. The size is set via selecting rectangle with fixed aspect ratio.

Zoom -



Maximization of the current map window drawing by a graphically set size. The size is set via selecting rectangle with fixed aspect ratio.

Follow Cursor



The command shifts the centre of a drawing in the current map window so that the position of cursor would be in the centre of the current map window.

Set Scale



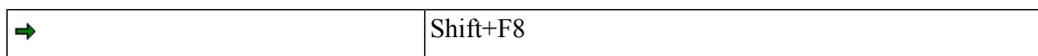
Enables the accurate scale setting of the current map window display by means of the Set Scale dialog.

Previous viewport



Changes a viewport in the current map window to the previous used (including the coordinate system).

Next viewport



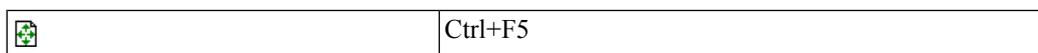
Modifies a viewport in the current map window to the next one (the one that was set as the last before using of the Previous viewport command).

Named Viewports



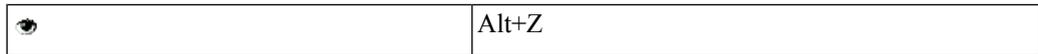
Opens the Viewports dialog which enables adding, deleting and setting of named viewports. After click on the arrow next to the toolbar button a list of the named viewports defined in the project is displayed - after click on one of them this one will be set in the current map window.

Fit All



Changes a viewport in the current map window so that all the included and visible data would be displayed.

Display Setting



Enables to set the display of the data in the current map window by means of the Display dialog.

## 3.5. Map Window Toolbar



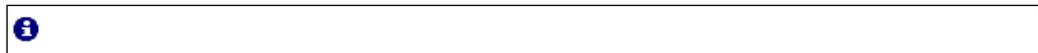
Map Window Toolbar

Display Legend



Displays a legend of the current map window.

Identify



Enables to select vector objects and display information on them by means of the selecting rectangle with variable aspect ratio.

## 3.6. Window Toolbar



Window Toolbar

New map window



Creates a new map window. The default parameters for currently created map windows can be modified in the Project Setting, the Map Window item, which is accesible from the Project Menu, Project Properties command.

New database window



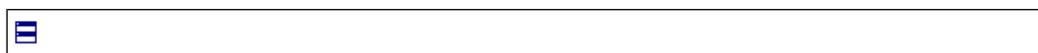
Opens a database table selected in the data tree in a new database window.

Cascade



Cascades map and database windows so that title stripe of as much windows as possible is visible.

Tile horizontally



Arranges map and database windows horizontally so that they don't overlap.

Tiles vertically



Arranges map and database windows vertically so that they don't overlap.

Opened Windows



The dialog with a list of currently opened windows is opened. In this dialog a window can be selected - which becomes the current window. After click on the arrow next to the toolbar button the list of currently opened windows displays - after click on an item of the list a window represented by this item becomes the current window.

## 4. Status Bar

The status bar is located in the bottom part of the main window and current information are displayed in it: if you select a command from a menu or a toolbar, only one panel with the currently selected command description is displayed in the status bar. Otherwise it depends on the current window:

Status Bar for Map Window

The status bar for map window has four panels in total (from left):

- The display of coordinates of a current cursor position above the map window. The coordinates are displayed in the coordinate system of the map window, the horizontal coordinate is displayed as the first, the vertical as the second.

### Note

A format of the coordinates display can be set in the Set Environment dialog, the Environment category. This dialog is accessible from the Tools Menu, the Options command.

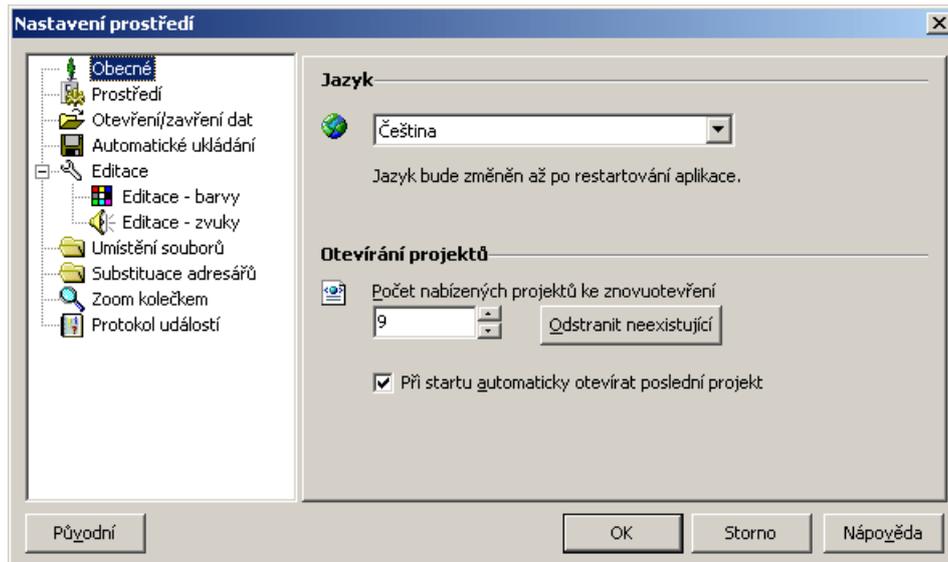
## 5. Environment Parameters Setting

The environment parameters setting is carried out via the Set Environment dialog, accessible from the Tools menu, the Options command.

### Note

The parameters set in this dialog are used for an application - they aren't related to the project. The Project properties can be set by the Properties command from the Project menu.

After pressing the *Original* button values of parameters are displayed which were current during the last opening of this dialog. If you press the *OK* button you confirm changes and close this dialog, if you press the *Cancel* button you finish parameters setting without saving of changes. With *Help* button you can open the help.

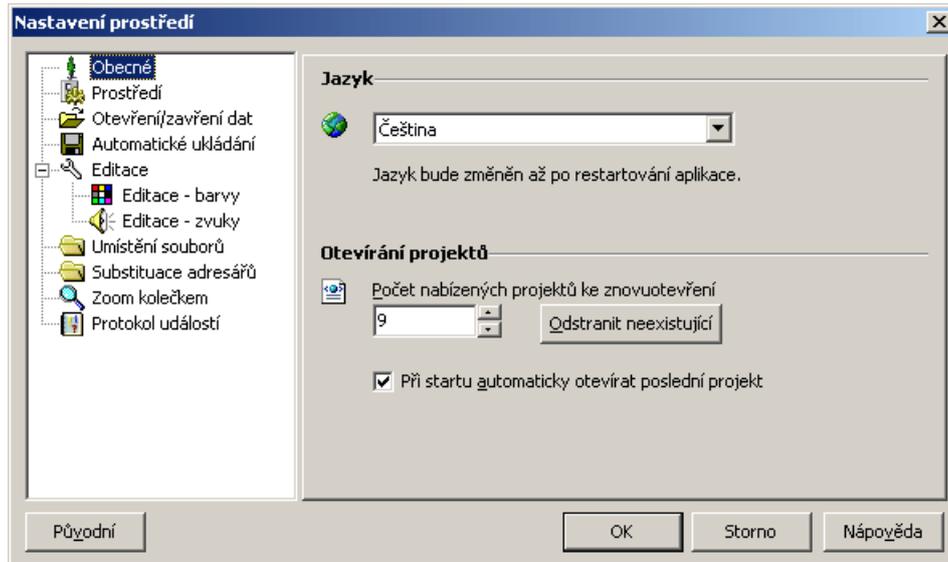


Environment Setting dialog

Individual parameters of environment setting are divided into several categories displayed in the "tree" structure in the right field:

- Common
- Environment
- Opening/closing data
- Save automatically
- Edit
- Edit - colours
- Edit - sounds
- Edit - cursor
- File folders
- Directory substitution
- Zoom with wheel
- Log file

## 5.1. Environment parameters setting - Common category



Environment setting dialog, common category

### Language

In this field a program language can be selected. All the menu items, dialog descriptions, messages etc. will be then displayed in the selected language.

### Note

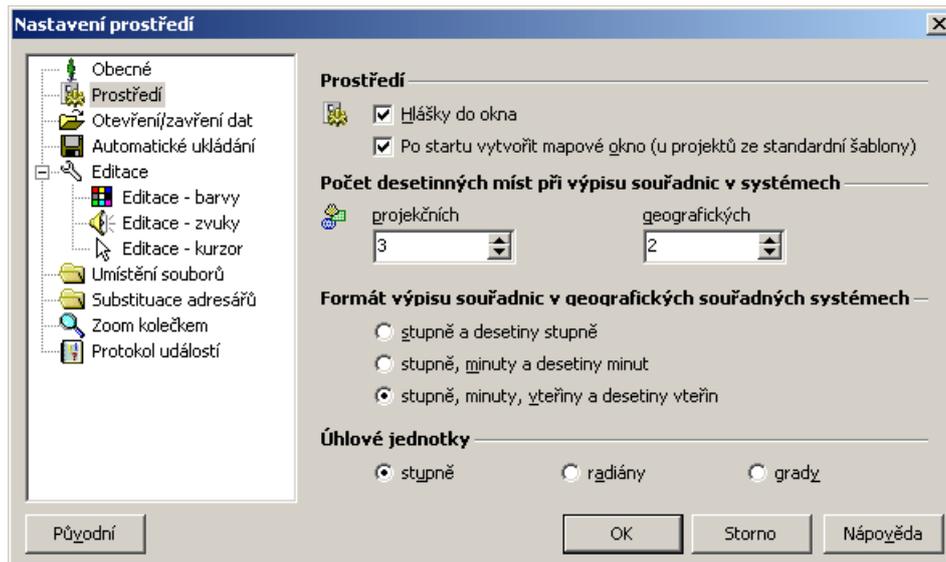
The language change shows itself only after restart of the program.

### Opening of projects

Projects for reopening are displayed in the *Project*, menu, the *Last opened projects*. submenu. Here you can set a number of offered projects in this menu. If you press the *Delete not existing* button, references to all the projects that aren't on the disc already are deleted from this menu.

Checking of the *Automatic opening...* field influences, whether, after a start of the program, the project will be loaded, that was opened at the last program closure (the field is checked) or a new project will be started according to a default template (the field isn't checked).

## 5.2. Setting environment parameters - Environment category



The Environment setting dialog, Environment category

### Environment

*Messages to window* - if this field is checked, messages of the program are displayed in the Application Messages window (this window is accessible from the Tools menu, the Show Application messages command). Otherwise messages are displayed in a standard way as modal dialogs of the operating system.

*Po startu vytvořit mapové okno (u projektů ze standardní šablony)* - pokud je toto pole zaškrtnuto, bude po vytvoření projektu ze standardní šablony vytvořeno nového mapové okno.

### Note

Toto nastavení platí pouze pro nové projekty vytvářené na základě standardní šablony. Při vytváření projektů z jiných šablon budou akceptována mapová okna v ní uložená. (viz. kapitola Nový projekt).

### Number of decimal places of coordinates of the system display

In both fields - for projection and geographical coordinate systems - a number of decimal places is set to which the coordinates will be displayed in the status bar.

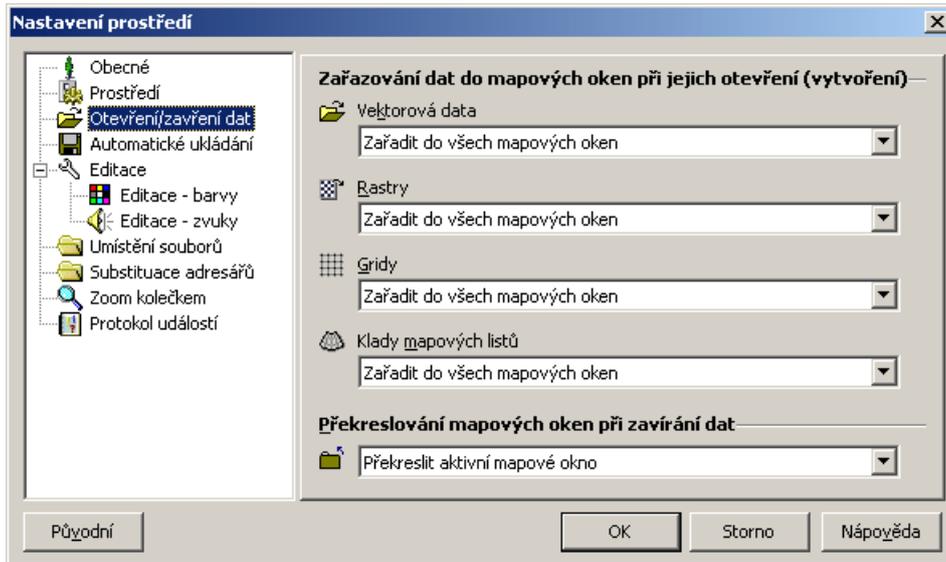
### Format of coordinates display in geographical CS

Select one of the fields and thus select a format of coordinates display in the status bar for geographical coordinate systems.

### Angle units

Select one of the fields and thus select a unit for angles set in the TopoL dialogs.

## 5.3. Environment parameters setting - Opening/closing data category



The Environment setting dialog, Opening/closing data category

In this category map windows behavior is set at opening (creating) and closing the data. Here you can specify how to order data into map windows and also their automatic redrawing.

Data ordering when opened (created)

*Vector data* - specifies vector data ordering when opened into map windows.

*Rasters* - specifies rasters ordering when opened into map windows.

*Grids* specifies grids ordering when created into map windows.

*Map sheets* - specifies map sheet ordering when created into map windows.

For all data types one of the following options can be set individually:

- *Do not open in active map window*

Currently opened (created) data will not be put in the required window.

- *Open in active map window*

Currently opened (created) data will be put in the current map window. If no map window is opened, a new one will be created.

- *Open in all map windows*

Currently opened (created) data will be put in all existing map windows. If no map window is opened, a new one will be created.

- *Open all data in a new map window*

Currently opened (created) data will be put in a newly opened window.

- *Zařadit každá data do nového mapového okna !!!*

Každá právě otevřená (vytvořená) data budou zařazena do nově otevřeného mapového okna.

- *Open only in map windows with identical coordinate system*

Currently opened (created) data will be put in all existing map windows coordinate system of which is identical to the data.

Redrawing of map windows at data closing

Specifies redrawing of map windows after data closing. Three options are available:

- *Do not redraw*

Map windows will not be redrawn automatically after data closing.

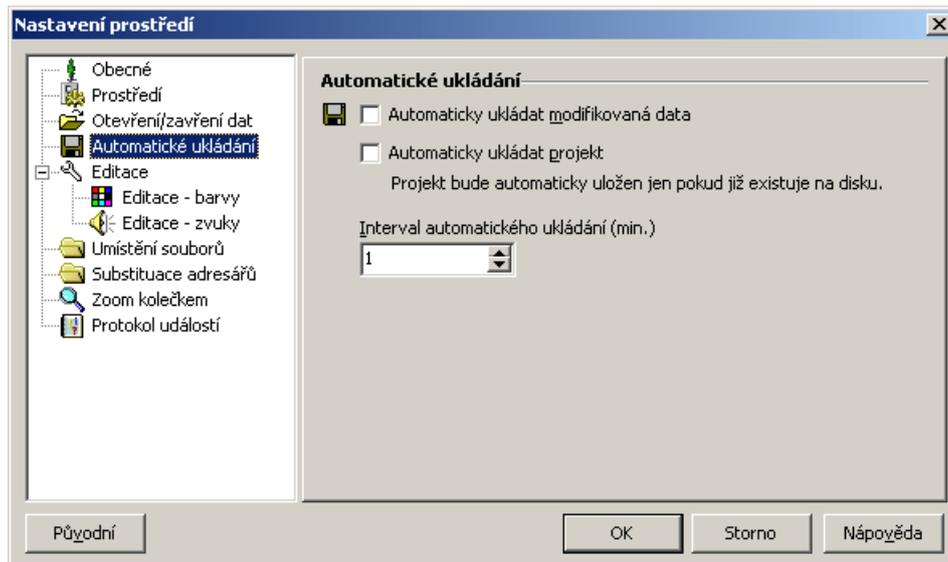
- *Redraw active map window*

Only the active map window will be redrawn after data closing (if the currently closed data were displayed in it).

- *Redraw all map windows*

After data closing all map windows will be redrawn, in which the currently closed data were displayed.

## 5.4. Environment parameters setting - Save automatically



The Environment setting dialog, Automatic saving category

Automatic saving of modified data

If the field is checked, modified data will be saved automatically in a selected interval.

### Note

At automatic saving a backup data copy(BAK) isn't created. This copy is created only at data saving by the user. The only exception is the first automatic data saving if a backup copy hasn't been created yet at the user's saving.

Automatic saving of project

If the field is checked, the project will be automatically saved in a selected interval.

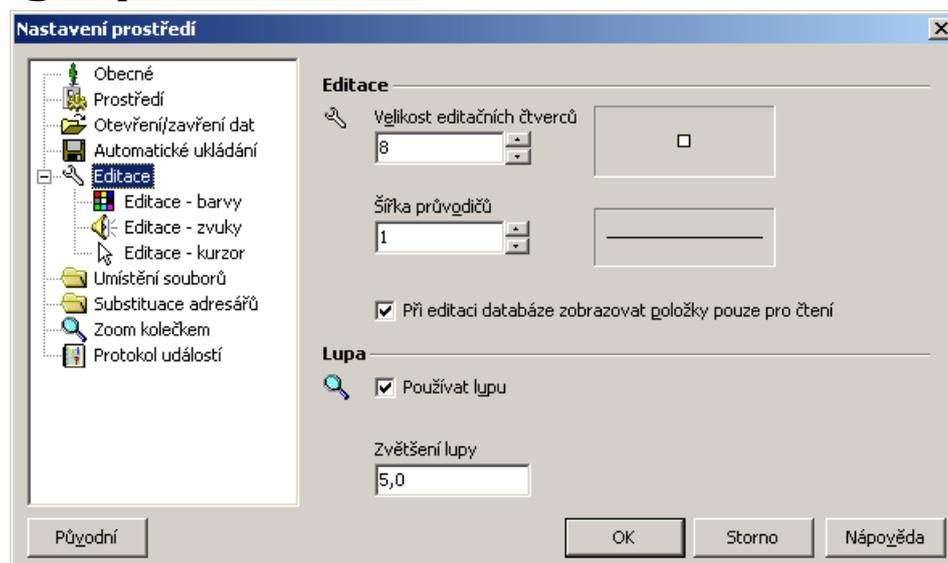
### Note

Automatic saving of the project will be carried out only if this project has been already existing on the disc.

## Interval of automatic saving

In this field set an interval (in minutes) of automatic saving. The interval can be set in whole minutes within the range of 1-60 minutes.

## 5.5. Environment parameters setting-Edit category



The Environment setting dialog, Edit category

## Size of editing boxes

The number in this field specifies the size of quadrates used at editing of vector objects. The size is set in pixels and can be within the range 4-35 pixels. Editing quadrate preview is updated with every modification of set size.

## Consecutive lines thickness

The number in this field specifies a thickness of consecutive lines used at editing of vector objects and at modifications of viewports. The size is set in pixels and can be within the range of 1-10 pixels. Consecutive lines preview is displayed in the field on the right.

## At database editing display items for reading only

If the field is checked, the items for reading only (that can't be modified by user) will be displayed (in a database window also at editing of individual records of vector objects).

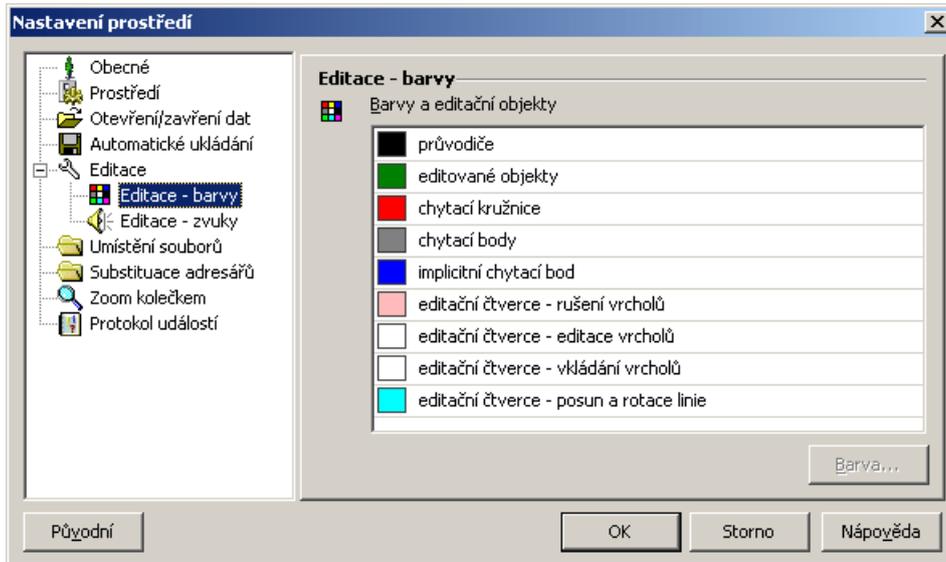
## Use local zoom

The field specifies, whether the local zoom will be used at editing.

## Zoom index !!!

V tomto poli je uveden násobek zvětšení lupy.

## 5.6. Environment parameters setting - Edit category - colours

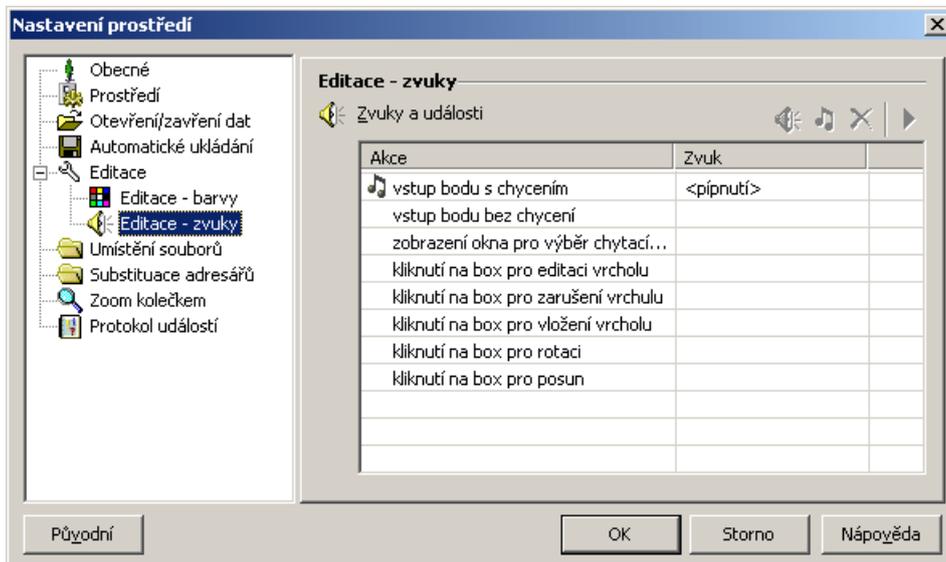


Environment setting dialog, Edit category - colours

### Colours and editing objects

In the table there are colours displayed with information for use, that are used for graphical representation in editing. Individual colours can be changed, if you select a required bar in the table and press the *Colour* button or doubleclick on the bar.

## 5.7. Environment parameters setting - Edit category - sounds



The Environment setting dialog, Edit category - sounds

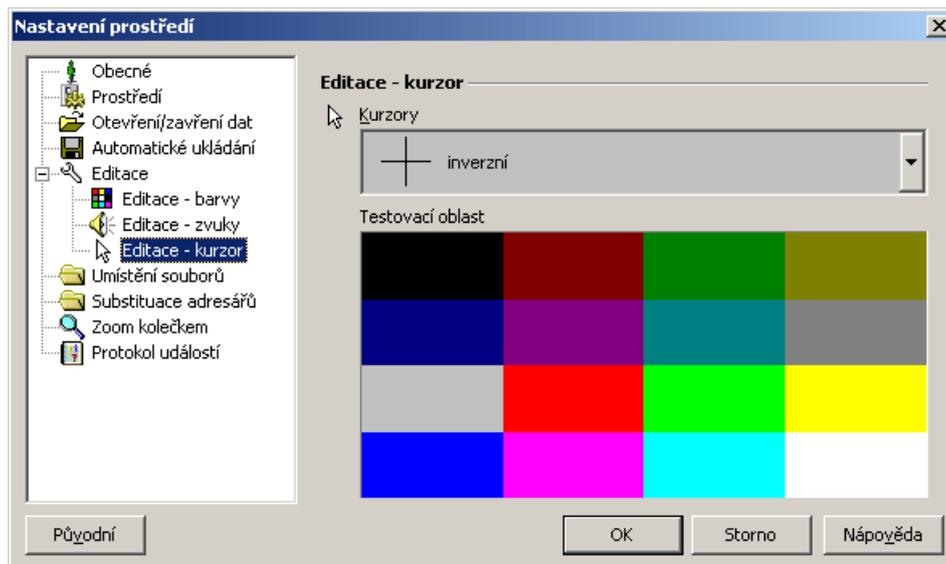
### Sounds and events

In the table there are events at editing displayed to which it's possible to assign a sound file. The "beep" or the WAV format sound can be assigned to each displayed event. The assigned sound can be replayed.

To set a sound use either the buttons in the right part of the dialog or the context menu (which is displayed after click with right mouse button on the selected event).

	Sound...	A standard dialog enables to assign a sound in the WAV format to an event.
	Beep	Enables to assign the "beep" sound to a selected event.
	Remove sound	Removes the sound assigned to a selected event.
	Replay	Replays the sound assigned to a selected event.

## 5.8. Environment parameters setting - Edit category - Cursor

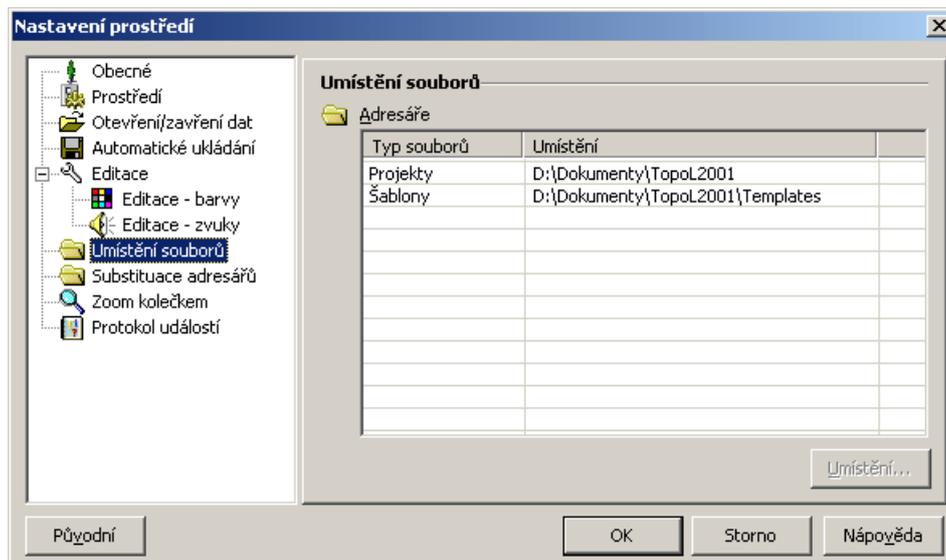


Environment setting dialog, Edit - cursor category

### Cursors

In the list cursors are displayed available to use at editing. You can test their form in the *Test area* panel.

## 5.9. File folders



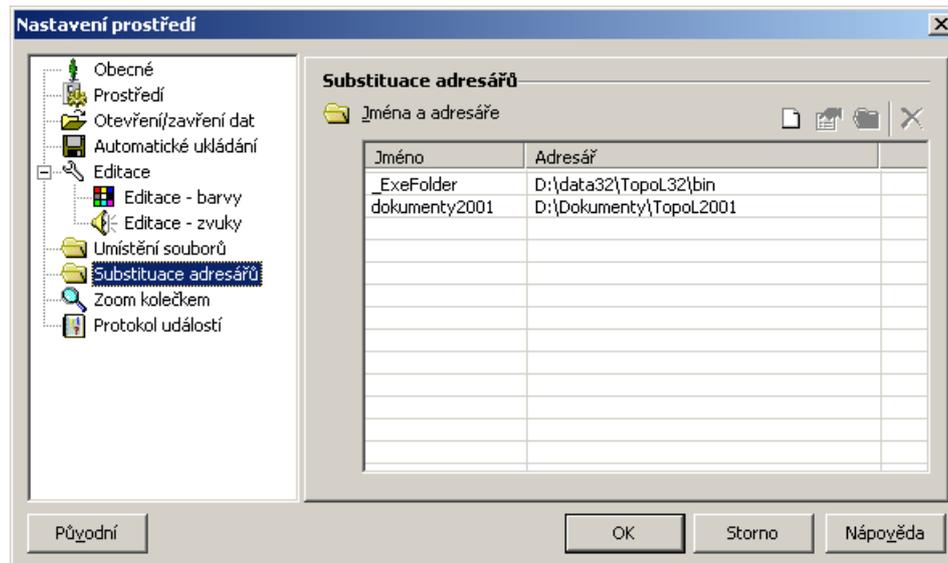
Environment setting dialog, File folders

### Directories

In the table there are file types displayed and their original location on the disc. This location is used as a default one during searching, opening and closing of files. For example when saving a new project the user will be default-offered a directory set in here.

Directory can be changed, if you select a required file type in the table and press the *Folders...* button or doubleclick on file type.

## 5.10. Directory substitution



Environment setting dialog, Directory substitution category

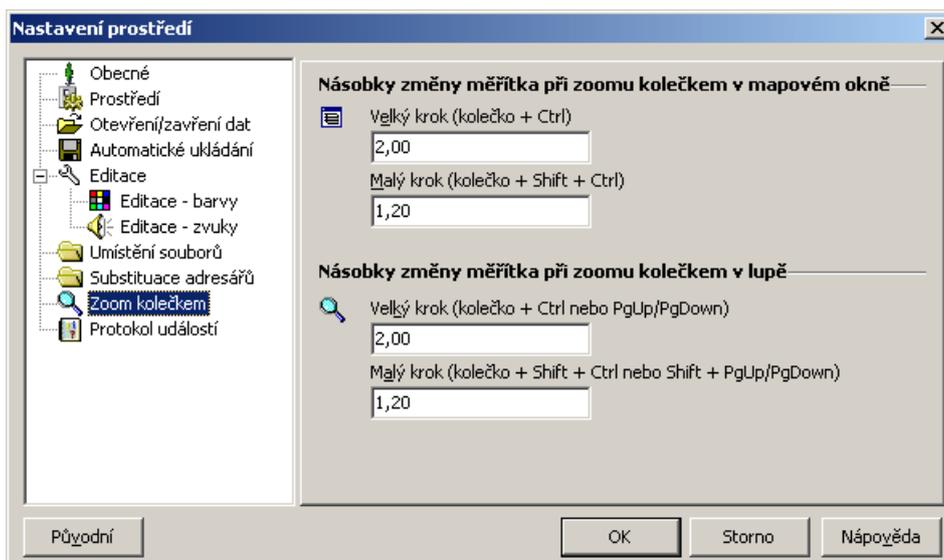
### Names and folders

In the table there are names of directory substitutions displayed and their values. As the first there is the *\_ExeFolder*, substitution used by the TopoL, that can't be either modified or deleted. The others are user substitutions and can be modified at will.

To set a substitution use either the buttons in the right dialog part or the context menu (which is displayed after click with the right mouse button on a selected substitution).

	New substitution	Creates a new substitution in the table.
	Name	Changes a name of a selected substitution. The substitution name must be unique.
	Substituted directory	Changes a selected substitution directory.
	Delete	Deletes the selected substitution.

## 5.11. Zoom with wheel



Environment setting dialog, Zoom with wheel category

### Zoom factor in map window

In both fields a constant is set by which the scale will be modified (zoomed out or zoomed in) in viewport modification with wheel in map window. The constant is a real number and must be within the range of 1.01-100, two decimal places considered. The data with a higher accuracy will be rounded.

### Zoom factor in zoom window

In both fields a constant is set by which the scale will be modified (zoomed out or zoomed in) in viewport modification with wheel in zoom window. The constant is a real number and must be within the range of 1.01-100, two decimal places considered. The data with a higher accuracy will be rounded.

## 5.12. Log file

The TopoL enables to create a log file which mostly serves to errors searching. It's not necessary to create it. The log file can be viewed, if you use the Log file command from the Tools menu.



Environment setting dialog, Log file category

Create log file

By checking of the field a log file creating is set.

When starting clear log file

If the field is checked and creating of log file is set, the log file will be cleared at every start of the TopoL.

Automatical location

If the automatic location of log file is selected and its creating is set, the log file will be located in the directory in which the TopoL is installed and its name will be TopoL.og. If the automatical location isn't selected, the log file will be located in a file set in the Log file name.

Log file name

Specifies a location of the log file (if its automatical location isn't set).

**Note**

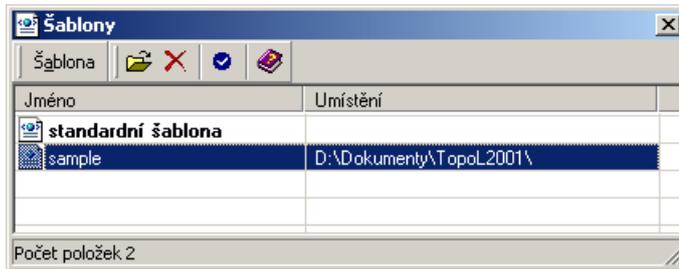
Changes in a log file location will show up after the application restart only.

Add to log file

By checking the Information, Warning and Error fields you can specify what kind of events will be recorded into the log file.

## 6. Projects templates

An administration of templates for new projects is carried out in the Templates dialog, which is accessible from the Tools menu, Templates command.



Templates dialog

The dialog can be operated by the menu or by the toolbar buttons.

	Add	A standard dialog for file opening in which a selected project is added to the templates list.
	Remove	Removes a selected template from the templateslist. The standard template can't be deleted.
	Set as default	Sets a selected template as a default one - it will be used for creating of new projects without a selected template (in a standard way press a New project button in the Project toolbar).

---

# Chapter 2. Project

This chapter contains overall information on a project - on its components and its operating.

The project in the TopoL 2001 environment represents a list of all opened data, their current display, opened symbol libraries and text style libraries. In the project there are colour, symbol and text transfers saved as well, layout and content of map and database windows, coordinate systems defined by the user etc. - s. the Project Componentschapter.

## Note

Only one project at a time can be opened within the TopoL.

The project also contains many selectable properties that influence data processing. Their list, meaning and options are described in the Project Propertieschapter.

## 1. Project Components

### Data

The project contains a "tree" structure of open data. This structure is displayed in the Data dialog that enables basic data operations.

### Symbol Libraries

Besides standard symbols, the user symbol libraries can be a project component as well.

### Text Style Libraries

User text style libraries can be attached to the project as well.

### Colour Transfers

Transfer tables that enable to modify vector data colour according to their attributes when being displayed.

### Symbol Transfers

Transfer tables that enable to modify vector data symbol according to their attributes when being displayed.

### Text Style Transfers

Transfer tables that enable to modify a text style according to its attributes when being displayed.

### Map Windows

All opened map windows are project components as well, including their content - Legend.

### Database Windows

The project can also contain database windows - their content is a project component as well.

### Attached Files

Other external files can be also attached to the project - administration of attached files is carried out in the Attached Files dialog that can be opened from the Project menu, the Attached files submenu, the Edit list of attached files command.

### Named Viewports

In the project named viewports - "viewsy" into map windows defined by name, location, size and coordinate system.

### Project structure definition

In the project its structure can be defined as well. Can be defined: description of databases and tables, limitation of colours and symbols for tables editing, definition of table structures and table

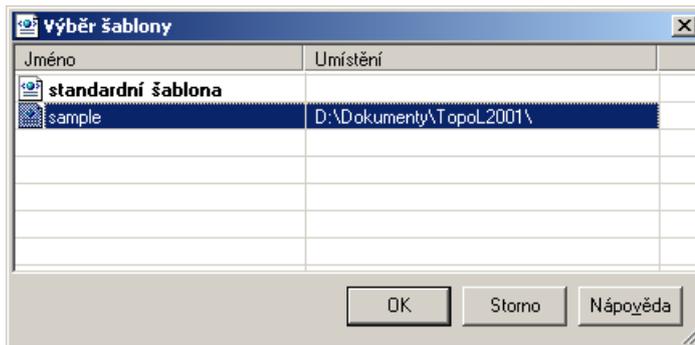
items values etc. A structure definition quite extend options of "DBFSymbols" from the TopoL for Windows and enables to import them as well.

## 2. New project

A new project can be created either by the New command from the Project menu or by click on the related button in the toolbar.

If a new project is created by the command from the menu, the user is asked to select a template according to which the new project will be created. The template is selected in the Select template dialog.

If the command is called from the toolbar, a new project is created according to default template.



Select template dialog

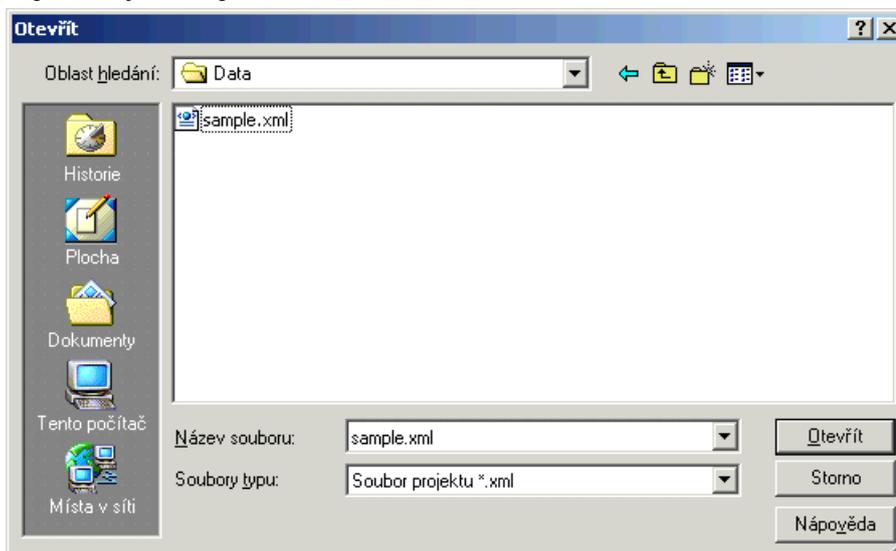
In the templates table select a template according to which the new project will be created and press the OK button. The default template is displayed in bold type.

### Note

The templates administration (adding, deleting, default setting) is carried out in the Templates dialog, accessible from the Templates command from the Tools Menu.

## 3. Open Project

The project is saved in the XML file. The file is opened by a standard dialog for file opening (its form can be different to the given example - depending on the operating system version). Select a file with required object and press the OK button.

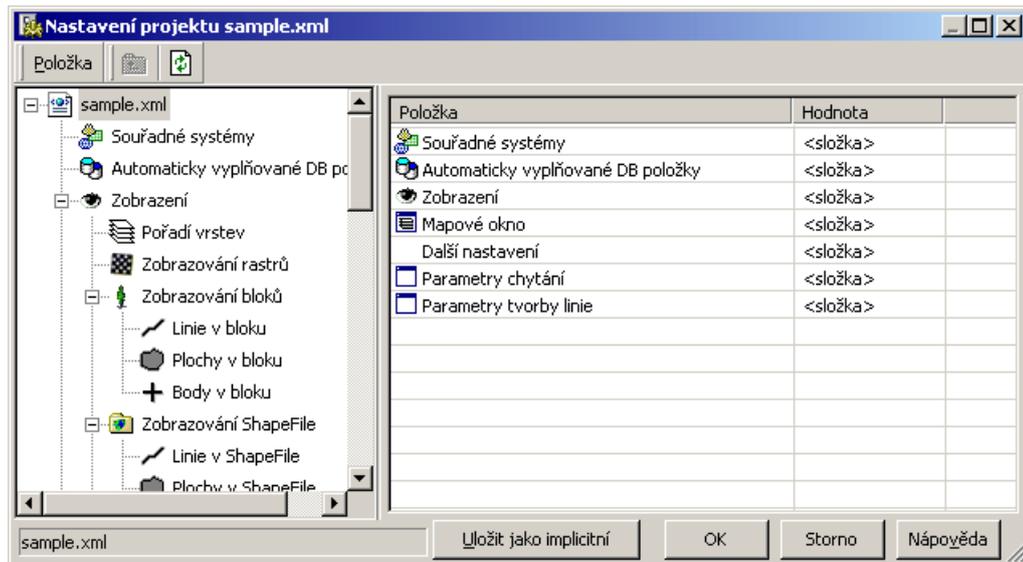


Open project dialog

The current project will be closed before opening of the selected project.

## 4. Project properties setting

Individual project properties are saved in a hierarchical structure (tree) according to their importance. The data tree is in the left part of the dialog, properties are displayed in the right part. You can change groups of properties by selecting a properties group in the properties tree or by doubleclick on a properties group in items display in the right part of the dialog. If a property value is modified, it's possible either to select one of the offered values, or there is a dialog in which a value of the set property can be selected.



Dialog Project properties

Individual properties are set by doubleclick on the selected property or by click of the right mouse button or by the command from the *Item* menu. Current item is (including the whole path) displayed in the field in the bottom left corner of the main window.

Stisknutím tlačítka *Uložit jako implicitní* uložíte aktuální nastavení projektu jako implicitní - toto nastavení bude použito při vytváření projektu dle standardní šablony. Tlačítkem *OK* ukončíte tento dialog a potvrdíte v něm provedené změny, tlačítkem *Storno* uzavřete tento dialog bez uložení změn, tlačítkem *Nápověda* spustíte tuto nápovědu.

Stisknutím tlačítka *Reset options* button in the toolbar, the original project setting is reset (the one that was the current one at this dialog opening). The dialog is finished and carried changes confirmed by *OK* button, by *Cancel* button you can close the dialog without saving of changes, by *Help* button you run this help.

Individual project properties are described in the Project properties description chapter.

### 4.1. Project properties description

The properties are described in the same order as displayed in the properties "tree" list:

-  Coordinate systems
-  Automatically calculated DB items
-  Display setting

-  Layers order
-  Rasters displaying
-  Blocks displaying
  -  Lines in block
  -  Areas in block
  -  Points in block
-  ShapeFile display
  -  Lines in ShapeFile
  -  Areas in ShapeFile
  -  Points in ShapeFile
-  DGN display setting
  -  Lines in DGN
  -  Areas in DGN
  -  Points in DGN
-  MapInfo display setting
  -  Lines in MapInfo
  -  Areas in MapInfo
  -  Points in MapInfo
-  OpenGIS data display setting
  -  Lines in OpenGIS data
  -  Areas in OpenGIS data
  -  Points in OpenGIS data
-  Map sheets displaying
-  Grids displaying
-  Advanced line display setting
-  Advanced area display setting

-  Selection displaying
  -  Lines selection
  -  Areas selection
  -  Points selection
  -  Text selections
  
-  Highlight setting
  -  Highlight setting of lines
  -  Highlight setting of areas
  -  Highlight setting of points
  
-  Map window
- Other setting
- Cursor snapping parameters
- Line creation parameters

 Coordinate systems

Default coordinate system setting for working with data of various formats. Coordinate systems are set by the Define coordinate system dialog.

Default coordinate system

The default coordinate system is used at new blocks creating, for opening of rasters, for new grids and map sheets, for opening of new map windows etc.

Default coordinate system for DGN files

This coordinate system is used as default at files opening in the DGN format.

Default coordinate system for blocks in Gauss-Krüger

This coordinate system is used at opening of blocks which have the Gauss-Krüger coordinate system set.

Default coordinate system for ShapeFiles

This coordinate system is used as default at ShapeFile opening.

 Automatically calculated DB items

Properties setting for automatically calculated database items at vector objects editing.

Unit for area size

Unit in which the AREA database item is filled automatically.

Unit for distance

Unit in which the database item LENGTH will be filled automatically.

Number of decimal places

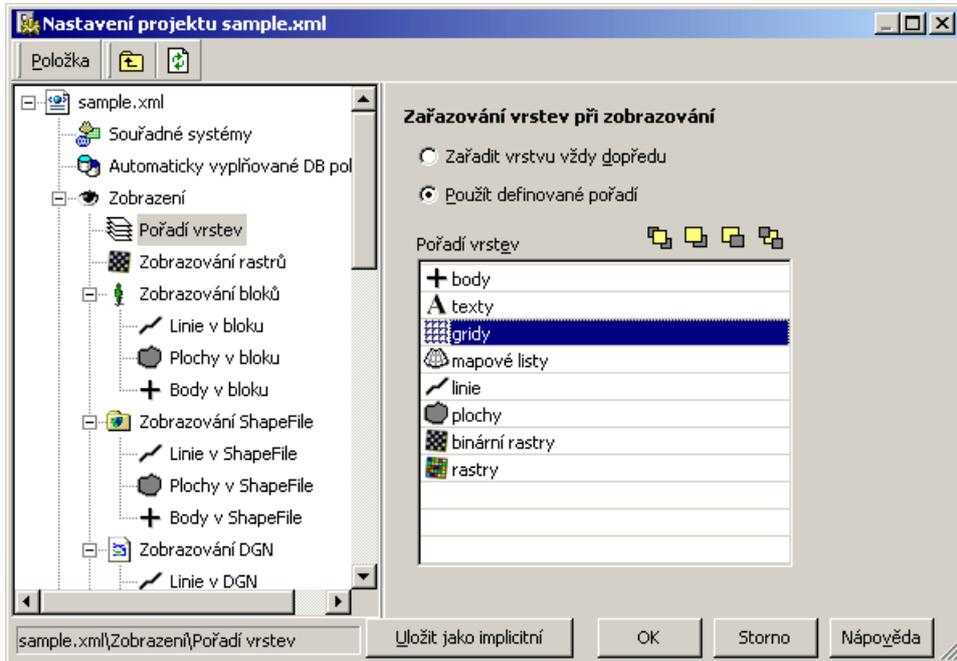
Specifies s filling accuracy of automatically filled database items.

• Display setting

Setting of default display of data, selections and highlight.

☰ Layers order

Setting of layers (objects from data tree) order, added in the map window. There are two options, that can be selected by checking of the corresponding field in the *Layers order* dialog.



Výběr způsobu zařazování vrstev při zobrazování !!!

Load layer allways as first

Each layer will be loaded allways as the first one, i.e. it will be displayed atop.

Use defined order

Each layer will be ordered according to its type according to the order defined in the *Layers order* field. The layer location can be changed by buttons above this field:

	Brings a selected layer ahead.
	Moves a selected layer up by one.
	Moves a selected layer down by one.
	Brings a selected layer aback.

☒ Rasters displaying

Default setting of rasters display.

Colour of binary rasters

Specifies a colour in which binary rasters will be displayed by default at their submitting into a map window.

Display of rasters and their borders

Specifies how rasters and their borders will be displayed by default at their submitting into a map window.

Colour of raster borders

Specifies the default colour of raster borders at submitting of a raster into a map window.

Symbol of raster borders

Specifies the default symbol of raster borders at submitting of a raster into a map window. The symbol can be selected only from the standard TopoL symbols.

 Blocks displaying

Default setting of blocks display.

 Lines in block

Setting of lines display in a block at their submitting into the map window.

Colour of lines

Colour setting of lines in a block at their submitting into a map window. At the by *TopoL* selection the lines will be displayed in a colour set in the block, at the *unified by value* all lines will be displayed in one selected colour.

Symbol of lines

Symbol setting of lines in a block at their submitting into a map window. At the by *TopoL* selection the lines will be displayed in a symbol set in the block, at the unified by value selection all lines will be displayed in one selected symbol. For specific symbol setting only the standard TopoL symbols can be used.

Transparency of lines

Transparency setting of lines in a block at their submitting into a map window. 0% - the lines will be non transparent, 100% - the lines will be fully transparent. The transparency is set in the Transparency dialog.

 Areas in block

Setting of areas in a block at their submitting into a map window.

Colour of areas

Colour setting of areas in a block at their submitting into a map window. At the by *TopoL* selection the areas will be displayed in a colour saved in the block, at the unified by value selection all the will be displayed in one selected colour.

Areas symbol

Symbol setting of areas in a block at their submitting into a map window. At the by *TopoL* selection the areas will be displayed in a symbol saved in the block, at the unified by value selection all the areas will be displayed in one selected symbol. For specific symbol setting only the standard TopoL symbols can be used.

Areas transparency

Transparency setting of areas in a block at their submitting into a map window. 0% - the areas will be non transparent, 100% - the areas will be fully transparent. The transparency is se in the Transparency dialog.

Display borders of areas

At areas submitting into a map window this command specifies, whether their borders will be displayed by default.

Colour of area borders

Colour setting of area borders in a block at their submitting into a map window. At the by *TopoL* selection the area borders will be displayed in a colour saved in the block, at the unified by value selection all area borders will be displayed in one selected colour.

Areas borders symbol

Symbol setting of area borders in a block at their submitting into a map window. At the by *TopoL* selection the area borders will be displayed in a symbol saved in the block, at the unified by value selection all area borders will be displayed in one

selected symbol. For a specific symbol setting only the standard TopoL symbols can be used.

✚ Point in block

Setting of points display in a block at their submitting into a map window.

Colour of points

Colour setting of points in a block at their submitting into a map window. At the by TopoL selection the points will be displayed in a colour saved in the block, at the unified by value selecting all points will be displayed in one selected colour.

Points symbol

Symbol setting of points in a block at their submitting into a map window. At the by TopoL selection the points will be displayed in a symbol saved in the block, at the unified by value selection all points will be displayed in one selected symbol. For a specific symbol setting only the standard TopoL symbols can be used.

Points transparency

Transparency setting of points in a block at their submitting into a map window. 0% - the points will be non transparent, 100% - the points will be transparent. The transparency is set in the Transparency dialog.

 ShapeFile displaying

Default setting of the ShapeFile display. This setting will be used for ShapeFile opening for reading and editing.

✍ Lines in ShapeFile

Setting of lines display in the ShapeFile at their submitting into a map window.

Colour of lines

Colour setting of the ShapeFile lines at their ordering into a map window. At the automatic selection the lines will be displayed in a colour selected by the system, at the unified by value selection all lines will be displayed in one selected colour.

Symbol of lines

Symbols setting of lines in the ShapeFile at their ordering into a map window. The symbol can be selected only from the standard TopoL symbols.

Transparency of lines

Transparency setting of lines in the shapefile at their submitting into a map window. 0% - the lines will be non transparent, 100% - the lines will be transparent. The transparency is set in the Transparency dialog.

 Areas in ShapeFile

Setting of areas display in the ShapeFile at their submitting into a map window.

Colour of areas

Colour setting of the ShapeFile areas at their submitting into the map window. At the automatic selection the areas will be displayed in a colour selected by the system, at the unified by value selection all areas will be displayed in one selected colour.

Symbol of areas

Symbols setting of areas in the ShapeFile at their irdering into a map window. The symbol can be selected only from the standard TopoL symbols.

Transparency of areas

Transparency setting of areas in the ShapeFile at their prderomg into a map window. 0% - the areas will be non transparent, 100% - the areas will be transparent. The transparency is set in the Transparency dialog.

Display borders of areas

Specifies whether area borders will be displayed by default at their submitting into a map window. Options: *never display, display only with SHP for reading, display only with SHP for editing, always display.*

Colour of area borders

Colour setting of the ShapeFile area borders at their submitting into a map window. At the automatic selection the area borders will be displayed in a colour selected by the system, at the unified by value selection all area borders will be displayed in one selected colour.

Symbol of area borders

Symbols setting of area borders in the ShapeFile at their submitting into a map window. The symbol can be selected only from the standard TopoL symbols.

+ Points in ShapeFile

Setting of points display in the ShapeFile at their submitting into a map window.

Colour of points

Colour setting of the ShapeFile points at their submitting into a map window. At the automatic selection the points will be displayed in a colour selected by the system, at the unified by value selection all points will be displayed in one selected colour.

Symbol of points

Symbols setting of points in the ShapeFile at their submitting into a map window. The symbol can be selected only from the standard TopoL symbols.

Transparency of points

Transparency setting of points in the shapefile at their submitting into a map window. 0% - the points will be non transparent, 100% - the points will be fully transparent. The transparency is set in the Transparency dialog.

 DGN display setting

Default setting of the DGN files display.

 Lines in DGN

Setting of lines display in the DGN files at their submitting into a map window.

Colour of lines

Colour setting of lines in the DGN files at their submitting into a map window. At the automatic selection the lines will be displayed in a colour saved in the DGN file, at the unified by value selection all lines will be displayed in one selected colour.

Symbol of lines

Symbol setting of lines in the DGN files at their submitting into a map window. The symbol can be selected only from the standard TopoL symbols.

Transparency of lines

Transparency setting of lines in the DGN files at their submitting into a map window. 0% - the lines will be non transparent, 100% - the lines will be transparent. The transparency is set in the Transparency dialog.

 Areas in DGN

Setting of areas in the DGN files at their submitting into a map window.

Colour of areas

Colour setting of areas in the DGN files at their submitting into a map window. At the automatic selection the areas will be displayed in a colour saved in the DGN file, at the unified by value selection all areas will be displayed in one selected colour.

Symbol of areas

Symbol setting of areas in the DGN files at their submitting into a map window. The symbol can be selected only from the standard TopoL symbols.

Transparency of areas

Transparency setting of areas in the DGN files at their submitting into the map window. 0% - the areas will be non transparent, 100% - the areas will be transparent. The transparency setting is carried out by the Transparency dialog.

Display borders of areas

Specifies whether the area borders will be displayed by default at their submitting into a map window.

Colour of border

Colour setting of area borders in the DGN files at their submitting into a map window. At the automatic selection the area borders will be displayed in a colour saved in the DGN file, at the unified by value selection all areas borders will be displayed in one selected colour.

Symbol of border

Symbol setting of area borders in the DGN files at their submitting into a map window. The symbol can be selected only from the standard TopoL symbols.

+ Points in DGN

Setting of points in the DGN files at their submitting into a map window.

Colour of points

Colour setting of points in the DGN files at their submitting into a map window. At the automatic selection the points will be displayed in a colour saved in the DGN file, at the unified by value selection all the points will be displayed in one selected colour.

Symbol of points

Symbol setting of points in the DGN files at their submitting into a map window. The symbol can be selected only from the standard TopoL symbols.

Transparency of points

Transparency setting of points in the DGN files at their submitting into a map window. 0% - the points will be non transparent, 100% - the points will be transparent. The transparency is set in the Transparency dialog.

 MapInfo display setting

Setting of lines display in the MapInfo data at their submitting into a map window.

 Lines in MapInfo

Setting of lines display in the MapInfo data at their submitting into a map window.

Colour of lines

Colour setting of lines in the MapInfo data at their submitting into a map window. At the automatic selection the lines will be displayed in a colour saved in the MapInfo data, at the unified by value selection all lines will be displayed in one selected colour.

Symbol of lines

Symbol setting of lines in the MapInfo data at their submitting into a map window. At the automatic selection the lines will be displayed in a symbol saved in the MapInfo data, at the unified by value selection all lines will be displayed in one selected symbol. The symbol can be selected only from the standard TopoL symbols.

#### Transparency of lines

Transparency setting of lines in the MapInfo data at their submitting into a map window. 0% - the lines will be non transparent, 100% - the lines will be transparent. The transparency is set in the Transparency dialog.

#### ■ Areas in MapInfo

Setting of areas in the MapInfo data at their submitting into a map window.

##### Colour of areas

Colour setting of areas in the MapInfo data at their submitting into a map window. At the automatic selection the areas will be displayed in a colour saved in the MapInfo data, at the unified by value selection all areas will be displayed in one selected colour.

##### Symbol of areas

Symbol setting of areas in the MapInfo data at their submitting into a map window. At the automatic selection the areas will be displayed in a symbol saved in the MapInfo data, at the unified by value selection all areas will be displayed in one selected symbol. The symbol can be selected only from the standard TopoL symbols.

##### Transparency of Areas

Transparency setting of areas in the MapInfo data at their submitting into a map window. 0% - the areas will be non transparent, 100% - the areas will be transparent. The transparency is set in the Transparency dialog.

##### Display borders of areas

Specifies whether the area borders will be displayed by default at their submitting into a map window.

##### Colour of border

Colour setting of area borders in the MapInfo data at their submitting into a map window. At the automatic selection the areas borders will be displayed in a colour saved in the MapInfo data, at the unified by value selection all areas borders will be displayed in one selected colour.

##### Symbol of border

Symbol setting of area borders in the MapInfo data at their submitting into a map window. The specific symbol can be selected only from the standard TopoL symbols.

#### ✚ Points in MapInfo

Setting of points display in the MapInfo data at their submitting into a map window.

##### Colour of points

Colour setting of points in the MapInfo data at their submitting into a map window. At the automatic selection the points will be displayed in a colour saved in the MapInfo data, at the unified by value selection all points will be displayed in one selected colour.

##### Symbol of points

Symbol setting of points in the MapInfo data at their submitting into a map window. At the automatic selection the points will be displayed in a symbol saved in the MapInfo data, at the unified by value selection all points will be displayed in one selected symbol. The specific symbol can be selected only from the standard TopoL symbols.

##### Transparency of points

Transparency setting of points in the MapInfo data at their submitting into a map window. 0% - the points will be non transparent, 100% - the areas will be transparent. The transparency is set in the Transparency dialog.

 OpenGIS data display setting

The default display setting of data saved in database according to the OpenGIS specification.

 Lines in OpenGIS data

Setting of lines display in the OpenGIS data at their submitting into a map window.

Colour of lines

Colour setting of lines in the OpenGIS data at their submitting into a map window. At the automatic selection the lines will be displayed in a colour saved in the MapInfo data, at the unified by value selection all lines will be displayed in one selected colour.

Symbol of lines

Setting of lines symbol in the OpenGIS data at their submitting into a map window. After being submitted the lines will be displayed in a map window by the selected symbol.

Transparency of lines

Transparency setting of lines in the OpenGIS data at their submitting into a map window. 0% - the lines will be non transparent, 100% - the lines will be transparent. The transparency is set in the Transparency dialog.

 Areas in OpenGIS data

Setting of areas display in the OpenGIS data at their submitting into a map window.

Colour of areas

Colour setting of areas in the OpenGIS data at their submitting into a map window. At the automatic selection the areas will be displayed in a colour saved in the MapInfo data, at the unified by value selection all areas will be displayed in one selected colour.

Symbol of areas

Setting of areas symbol in the OpenGIS data at their submitting into a map window. After being submitted the areas will be displayed in a map window by the selected symbol.

Transparency of areas

Transparency setting of areas in the OpenGIS data at their submitting into a map window. 0% - the areas will be non transparent, 100% - the areas will be transparent. The transparency is set in the Transparency dialog.

Display border of areas

Specifies whether the area borders will be displayed by default at their submitting into a map window.

Colour of border

Colour setting of area borders in the OpenGIS data at their submitting into a map window. At the automatic selection the area borders will be displayed in a colour saved in the MapInfo data, at the unified by value selection all areas borders will be displayed in one selected colour.

Symbol of border

Setting of area borders symbol in the OpenGIS data at their submitting into a map window. For setting of a specific symbol only the standard TopoL symbols can be used.

 Points in OpenGIS data

Setting of points display in the OpenGIS data at their submitting into a map window.

#### Colour of points

Colour setting of points in the OpenGIS data at their submitting into a map window. At the automatic selection the points will be displayed in a colour saved in the MapInfo data, at the unified by value selection all points will be displayed in one selected colour.

#### Symbol of points

Setting of points symbol in the OpenGIS data at their submitting into a map window. After being submitted the points will be displayed in a map window by the selected symbol.

#### Transparency of points

Transparency setting of points in the OpenGIS data at their submitting into a map window. 0% - the points will be non transparent, 100% - the points will be transparent. The transparency is set in the Transparency dialog.

#### Map-sheets displaying

Default display setting of map-sheets.

#### Colour of map-sheets

Colour setting of map-sheets at their submitting into a map window. At the automatic selection the map-sheets will be displayed in a colour selected by the system, at the unified by value selection all the map-sheets will be displayed in one selected colour.

#### Symbol of map-sheets

Setting of map-sheets symbol at their submitting into a map window. For setting of specific symbol only standard TopoL symbols can be used.

#### Colour of minor map-sheets

Colour setting of minor map-sheets at their submitting into a map window. At the automatic selection the minor map-sheets will be displayed in a colour selected by the system, at the unified by value selection all the minor map-sheets will be displayed in one selected colour.

#### Symbol of minor map-sheets

Setting of minor map-sheets symbol at their submitting into a map window. For setting of specific symbol only standard TopoL symbols can be used.

#### Maximal scale of map-sheets coefficient

At submitting of the map sheet into a map window the maximum scale will be set by default for its display as a product of this coefficient and a map sheet scale of the displayed map-sheets. For example at the 500x coefficient for the SMO 1:1,000 map sheet the maximum scale 500,000 will be set for the display. If the value set for this coefficient is 0, the maximum scale for the display will not be limited.

#### Grids displaying

Default display setting of grids.

#### Type of grids display

Setting of the type of grids display at their submitting into a map window. At the by point symbol selection the grids will be displayed by a point symbol located in the grid corners, at the by cross of defined size selection the grids will be displayed by a cross of the given size, located in the grid corners.

#### Colour of grids

Colour setting of grids at their submitting into a map window. At the automatic selection the grids will be displayed in a colour selected by the system, at the unified by value selection all grids will be displayed in one selected colour.

Symbol of grids

Setting of grids symbol at their submitting into a map window. The selected symbol will be used for grids, if the Type of grid display is set on the point symbol. For specific symbol setting only the standard TopoL symbols can be used.

Cross size

Setting of the cross size displaying the grid (the size will be used, if the Type of grid display is set on the cross of defined size). The cross size is given in meters.

Maximal scale of grids coefficient

At submitting of the grid into a map window the maximum scale will be set by default for its display as a product of this coefficient and the lesser grid scale. For example at the 500x coefficient for the 100x1,000 grid the maximum scale 50,000 will be set for the display. If the value set for this coefficient is 0, the maximum scale for the display will not be limited.

✓ Advanced lines display setting

Another option for lines display. This setting is used for blocks, the ShapeFile and DGN files as well.

Display free tails

Specifies whether the lines free tails will be displayed.

Colour of free tails

Colour setting of the lines free tails at their submitting into a map window.

Symbol of free tails

Symbol setting of the lines free tails at their submitting into a map window. For specific symbol setting only the standard TopoL symbols can be used.

Display vertexes

Specifies whether the line vertexes will be displayed.

Colour of vertexes

Colour setting of the vertexes symbols at their submitting into a map window.

Symbol of vertexes

Symbol setting of the vertexes at their submitting into a map window. For setting of specific symbol only the standard TopoL symbols can be used.

Display line direction

Specifies whether the lines direction will be displayed - the direction is displayed by arrows on the line body.

Colour of line direction

Colour setting of the arrows representing the line direction at its submitting into a map window.

■ Advanced areas display setting

Another options for the area display. This setting is used for blocks, the ShapeFile and DGN files as well.

Display area labels

Specifies whether the area labels will be used.

Colour of labels

Colour setting of the labels at their submitting into a map window.

Symbol of labels

Symbol setting of the labels at their submitting into a map window. For the symbol setting only the standard TopoL symbols can be used.

☞ Selection displaying

Default type of the selected vector objects display at their submitting into a map window.

☞ Lines selection

Setting of the type of the lines selection default display.

Selected lines advanced display setting

A type of the default display of the selected and deselected lines at their submitting into a map window.

Colour of selected lines

Colour of the selected lines at their submitting into a map window.

Symbol of selected lines

Symbol setting of the selected lines at their submitting into a map window. For specific symbol setting only the standard TopoL symbols can be used.

Colour of deselected lines

Colour of the deselected lines at their submitting into a map window.

Symbol of deselected lines

Symbol setting of the deselected lines at their submitting into a map window. For specific symbol setting only the standard TopoL symbols can be used.

☐ Areas selection

Setting of a type of the default areas selection display.

Selected areas advanced display setting

A type of the default display of selected and deselected areas at their submitting into a map window.

Colour of selected areas

Colour of the selected areas at their submitting into a map window.

Symbol of selected areas

Symbol setting of the selected areas at their submitting into a map window. For specific symbol setting only the standard TopoL symbols can be used.

Colour of deselected areas

Colour of the deselected areas at their submitting into a map window.

Symbol of deselected areas

Symbol setting of the deselected areas at their submitting into a map window. For specific symbol setting only the standard TopoL symbols can be used.

✚ Points selection

Setting of a type of the default points selection display.

Selected points advanced display setting

A type of default display of selected and deselected points at their submitting into a map window.

Colour of selected points

Colour of the selected points at their submitting into a map window.

Symbol of selected points

Symbol setting of the selected points at their submitting into a map window. For specific symbol setting only the standard TopoL symbols can be used.

Colour of deselected points

Colour of the deselected points at their submitting into a map window.

Colour of deselected points

Symbol setting of the deselected points at their submitting into a map window. For specific symbol setting only the standard TopoL symbols can be used.

**A** Texts selection

Setting of a type of the default texts selection display.

Selected texts advanced display setting

A type of the default display of selected and deselected texts at their submitting into a map window.

Colour of selected texts

Colour of the selected texts at their submitting into a map window.

Colour of deselected texts

Colour of the deselected texts at their submitting into a map window.

**i** Highlight setting

The default way of vector objects highlight. This setting is used for example for the highlight of vector objects from the database window.

**/** Highlight setting of lines

Setting of a type of the lines highlight display.

Colour of highlighted lines

Colour setting of the highlighted lines.

Symbol of highlighted lines

Symbol setting of highlight lines. For specific symbol setting only the standard TopoL symbols can be used.

**●** Highlight setting of areas

Setting of a type of the areas highlight display.

Colour of highlighted areas

Colour of the highlighted areas.

Symbol of highlighted areas

Symbol setting of the highlighted areas. For specific symbol setting only the standard TopoL symbols can be used.

**+** Highlight setting of points

Setting of a type of the points highlight display.

Colour of highlighted points

Colour setting of the highlighted points.

Symbol of highlighted points

Symbol setting of the highlight points. For specific symbol setting only the standard TopoL symbols can be used.

Map window

Setting of properties for a newly opened map windows.

Background colour of map window

Specifies the background colour of a map window.

Open legend automatically when opening new window

Specifies whether at a new map window opening the display legend will be displayed as well in this window.

Mapová okna vytvářet maximalizovaná !!!

Určuje, zda budou nová mapová okna vytvářena maximalizovaná.

Relative scale

Relative scale for new map windows.

V legendě zobrazovat položku ostatní

Určuje, zda budou v položkách legendy případně zobrazovány implicitní barva a značka vybraných převodníků jako další položka legendy pod názvem Ostatní.

Při vytvoření okna otevřít okno s přehledem dat

Určuje zda bude při otevření nového mapového okna zároveň zobrazeno okno s přehledem dat.

Other setting

Setting of other project properties.

Directory with rasters

Setting of a directory from which rasters will be automatically selected at the Rasters function selection from the directory.

Měřítko pro vykreslování textů v nabídkách

Určuje měřítko, které bude použito při vykreslování textů v nabídkách (při editaci převodníků textů, při náhledu obsahu knihoven stylů textů, apod.).

Relativní měřítko pro vykreslování textů v nabídkách

Určuje relativní měřítko, které bude použito při vykreslování textů v nabídkách (při editaci převodníků textů, při náhledu obsahu knihoven stylů textů, apod.).

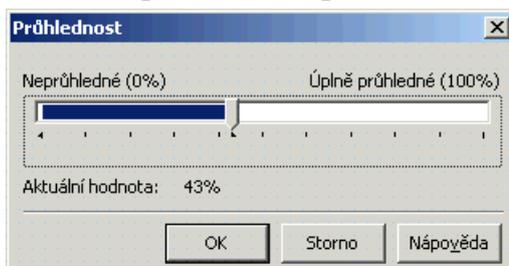
Cursor snapping parameters

Setting of default parameters for snapping during editing.

Line creation parameters

Setting of default parameters for the line creation.

## 4.2. Transparency value setting

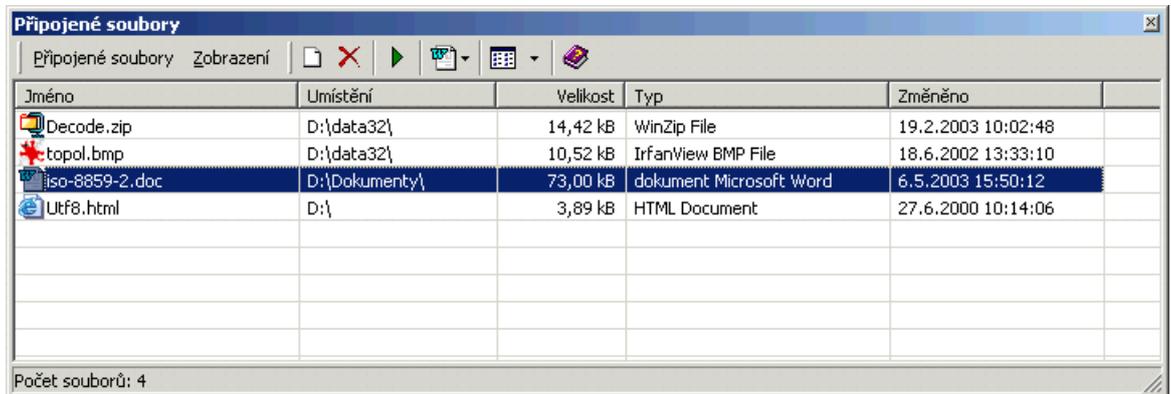


Transparency dialog

A transparency value is changed by moving of the scroll bar in the dialog. The currently set transparency value is displayed in the *Current value* field.

## 5. Attached files

Attached files are administrated in the Attached files dialog which can be opened from the Project menu, Attached files submenu, Edit list of attached files command.



Attached files dialog

In the table within the dialog body there is a list of attached files displayed. These files can be administrated by commands from the menu, toolbars or context menu.

Attached files menu

Attach files...		Ctrl+N	Opens a standard dialog for file opening in which the files, that will be attached to the attached files list, can be set.
Detach files		Ctrl+Del	Detaches files selected in the table.
Open...		Ctrl+O	Opens files selected in the table. For the opening the operation system mechanism is used.
System			Opens the operative system menu corresponding to a selected file. The icon of this command is changed according to a selected file icon.
Help		F1	Runs the help.
Close			Closes the Attached files dialog.

View menu

Sort mode	by name	Files in the table are sorted according to their name.
	by location	Files in the table are sorted according to their location on the disc.
	by size	Files in the table are sorted according to their size.
	by type	Files in the table are sorted according to their type.
	by date	Files in the table are sorted according to the date of their last change.
Large icons		Displays items as large icons.
Small icons		Displays items as small icons.
List		Displays items in a list.

Details		Displays information on each item in the window.
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## 6. Define project structure

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# Chapter 3. Data

By data we understand in the TopoL all opened vector and raster data, map sheets and grids.

## 1. Data supported in the TopoL

### Vector data

Vector data for editing are accessible from the Reduced variant on, including the vector data supported by the import form.

#### TopoL Block

Data in the TopoL Block format are supported for reading as well as editing. This data are saved as a directory with the BLK. extension.

#### ShapeFile

Data in the ShapeFile are supported for reading, they can be edited at opening with Open ShapeFile command for editing after the topologic connections are created in them. ShapeFile data are saved as a directory with the \*.shp extension.

#### DGN

Data in the DGN format are supported for reading only. These data are saved in files with the DGN extension.

#### DXF

Data in the DXF format are supported by an import form only. These data are saved in files with the DXF extension.

#### VTX, DKM, VKM

Data in the VTX, DKM, VKM formats are supported by an import form only. These data are saved in files with the VTX, DKIM, and VKM extensions.

### Raster data

Reading and display of raster data is accessible in all variants, rasters editing is accessible from the Basic variant on.

#### RAS, RAK

Data in the TopoL RAS format and their comprimed RAK variant.

#### BMP

BMP

#### TIFF

TIFF including the GeoTiff variant.

#### CIT

CIT

#### JPEG

JPEG

#### GIF

GIF

#### PCX

PCX

#### HRF

HRF

Mr.Sid  
Mr.Sid

COT  
COT

RGB  
RGB

RLE  
RLE

ECW  
ECW

#### Map sheets layout

Map sheet layout of czech and slovak map sheets is supported in all variants.

Klad listů základní mapy ČR a SR  
měřítko 10 000, 25 000, 50 000, 100 000, 200 000

Klad listů SMO  
měřítko 500, 1 000, 2 000, 5 000, 50 000

Klad listů Gauss-Krüger  
měřítko 10 000, 25 000, 50 000, 100 000, 1 000 000

#### Klad listů katastrálních map

Gusterberg  
měřítko 2 500, 2 880

Sv. Štěpán  
měřítko 2 500, 2 880

Gellertthey  
měřítko 2 500, 2 880

Klad listů lesnických map  
LHP a OPRL

#### Grids

Grids - rectangular networks of crosses or point symbols.

## 2. Data window

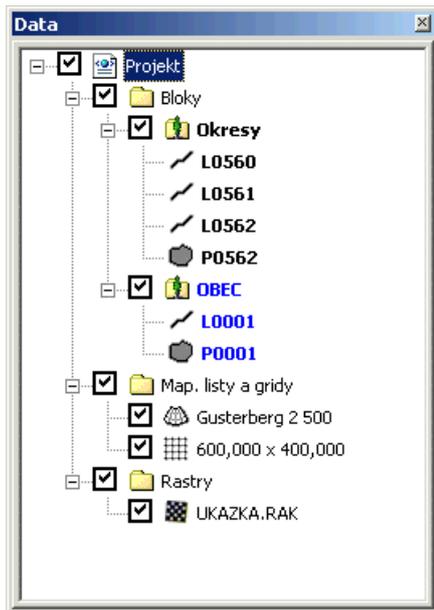
In the Data window a tree structure is presented of all the data opened in the project. Commands in the Data menu and the context menu of this window allways relate to a selected data item. The selected item is displayed in white letters against a blue background (colours can differ depending on the Windows setting).

A checking field of individual joints specifies whether the data are opened (the field is checked) or attached to the project only (the field isn't checked). If the field is gray, the joint contents both opened and attached data. Data that aren't opened can't be either edited or displayed.

Individual data can be moved within the "tree" and sorted by virtual folders. The data can be moved by drag and drop of the mouse.

The data can be displayed simply by pulling over into the map window.

Data set for editing are displayed in blue bold type. The vector data in the TopoL Block format or data in the ShapeFile opened for editing can be set for editing. For easier differentiation the data, that can be set for editing, are displayed in the bold type.



Data dialog

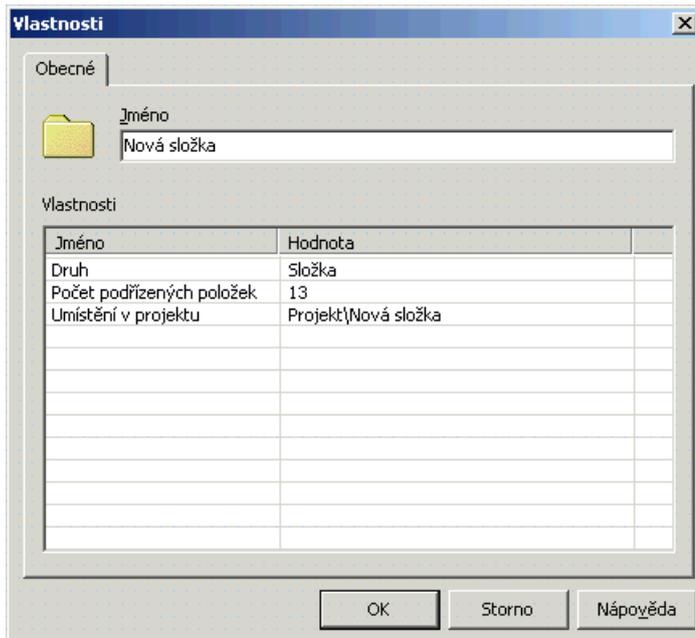
For data presentation in the tree structure the following icons are used:

	a node in the data tree representing current opened project
	virtual folder
	data in the TopoL Block format
	data in the ShapeFile format
	data in the DGN format
	data in the MapInfo format
	data saved in the database according to the OpenGIS specification
	raster
	network of crosses - grid
	map sheet
	points table
	lines table
	areas table
	texts table

Information on item selected in the data tree can be reached by the Properties command from the Data menu.

## 2.1. Information on selected data item

Information on the selected data item are displayed in the Properties dialog.



Properties dialog

The dialog differs according to a type of data for which it's displayed:

- Shared data properties
- Project properties
- Folder properties
- Database properties
- Table properties
- Raster properties
- Map sheets properties
- Grid properties

### 2.1.1. Shared data properties

#### *Name field*

In the *Name* field a name of a data item is recorded for which the Properties dialog is displayed. In this field you can change an item name - item name has only informative character for easier data identification within the project. Its change will not directly affect data saved for example on the disc.

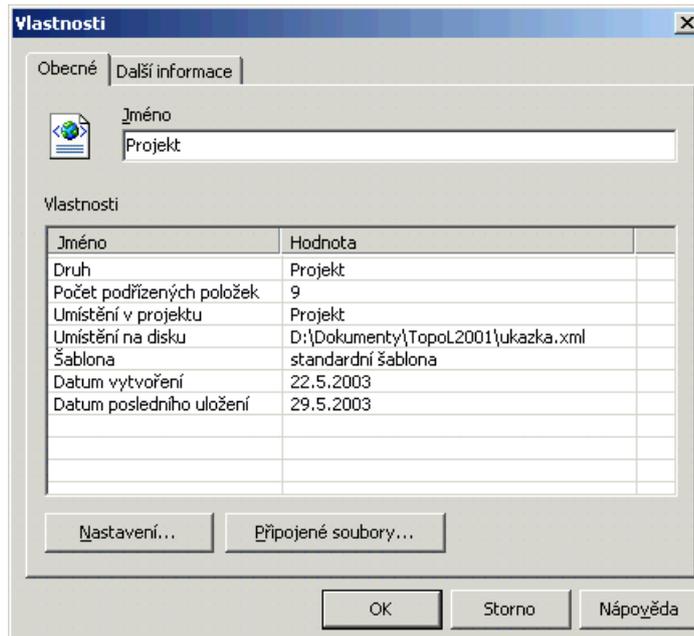
#### *Properties table*

In the *Properties* table the first three rows are shared:

Name	Value
Type	A type of the selected data item, for example a project, TopoL Block, raster etc.
Number of feature classes	Shows how many other items are contained in an item for which the Properties dialog is displayed.
Position in project	The whole path of an item in the data tree. To separate individual items the "\" symbol is used - virgule.

## 2.1.2. Project properties

Common panel



Project properties - Common

*Properties table*

Except the common properties the following values are recorded in this table:

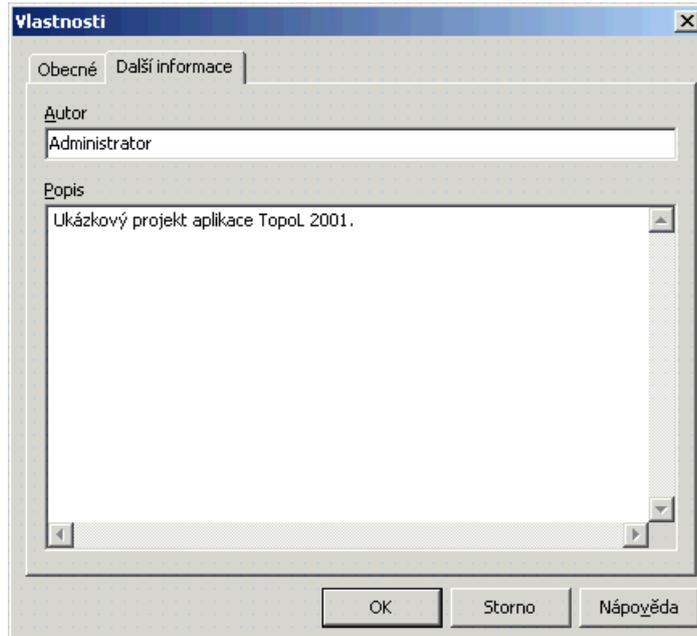
Name	Value
Location on disc	A path to the file representing the currently opened project. If the project hasn't been saved yet, the <unsaved> is displayed in here.
Template	A template, according to which the currently opened project has been created.
Created	A date of creation of the currently opened project.
Modified	The date of last saving of the currently opened project.

*Options button*

By pressing the Options button you open the Project setting dialog in which you can set various properties of the currently opened project.

*Attached files button*

By pressing this button you open the dialog for administration of files attached to currently opened project.

*Advanced info panel*

Project properties - Advanced information

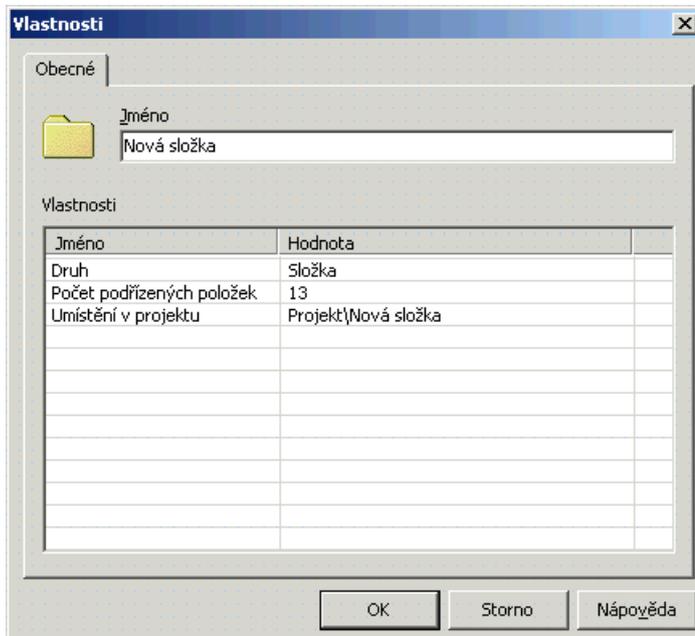
**Author field**

In this field an author of the currently opened project is shown. The name can be modified.

**Description field**

Into this field a comment on the currently opened project can be set.

### 2.1.3. Folder properties

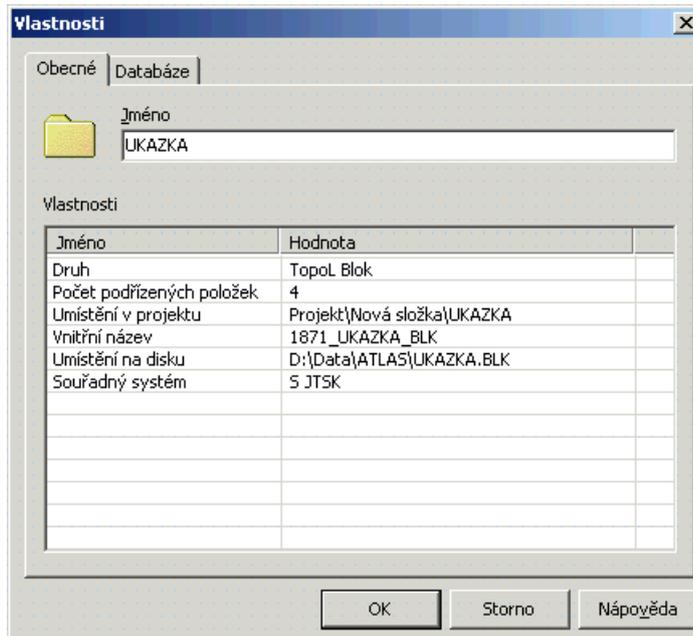


Folder properties

Information on a folder contains the standard properties only.

## 2.1.4. Database properties

Common panel



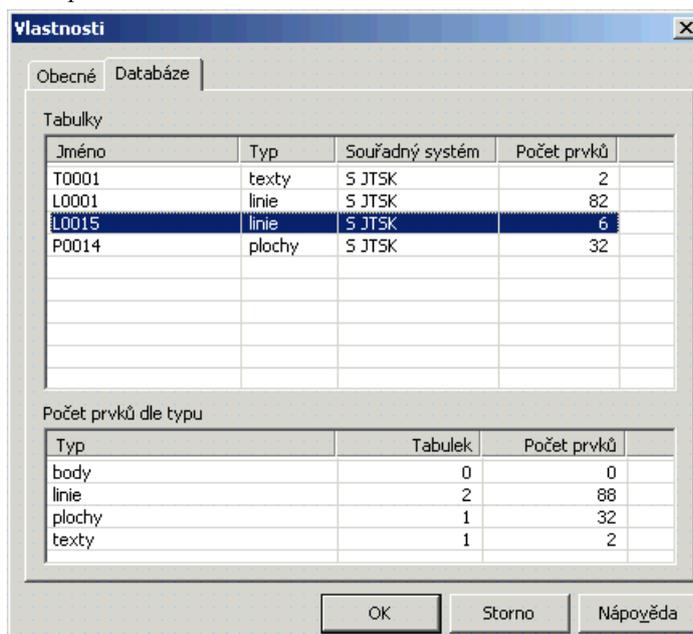
Database properties - common

Properties table

Besides the common properties values showed in this table are following:

Name	Value
Internal name	Symbolic database name used by the system.
Location on the disc	A path to a file (directory) representing the selected data. If the data are opened from the database according to the OpenGIS specification, a name of server is showed here.
Coordinate system	Coordinate system of data in the database.

Database panel



## Database properties - Database

*Tables list*

In the list you can see all the tables contained in the database represented by the selected data item.

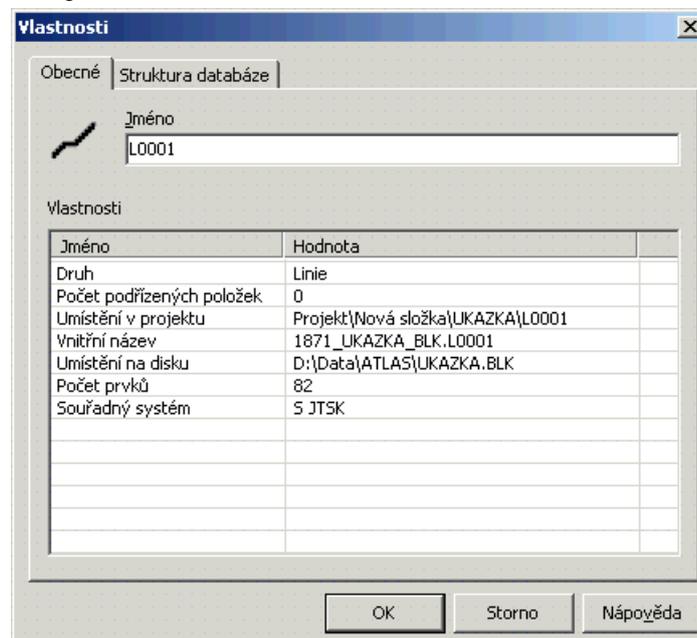
Column	Description
Name	Table name.
Type	A type of the vector data contained in this table (text, point, line, area).
Coordinate system	Coordinate system of data in the table.
Number of objects	Number of vector objects contained in the table.

*Number of objects by type table*

In this table you can see a list of vector objects by their type.

Column	Description
Type	Vector objects type (text, point, line, area).
Feature classesk	Number of tables in the selected database that contain a related type of vector objects.
Number of objects	Count of vector objects contained in the database according to their type.

## 2.1.5. Table properties

*Common panel*

## Table properties - Common

*Properties table*

Besides the common properties values contained in this table are the following:

Name	Value
Internal name	Symbolic table name used by the system.

Name	Value
Location on the disc	A path to the database containing the selected table. If data are opened from the database by the OpenGIS specification, a name of the server is showed here.
Number of feature classes	Number of records in the table.
Coordinate system	Coordinate data system in the table.

Table structure panel

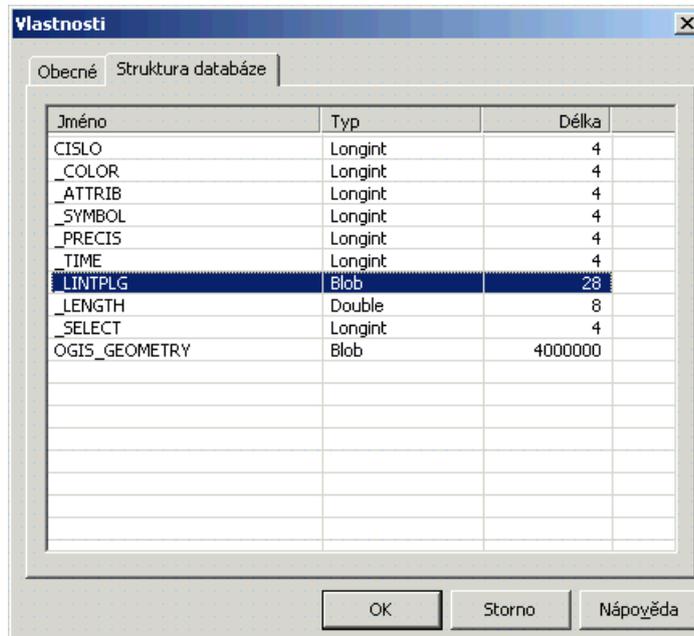
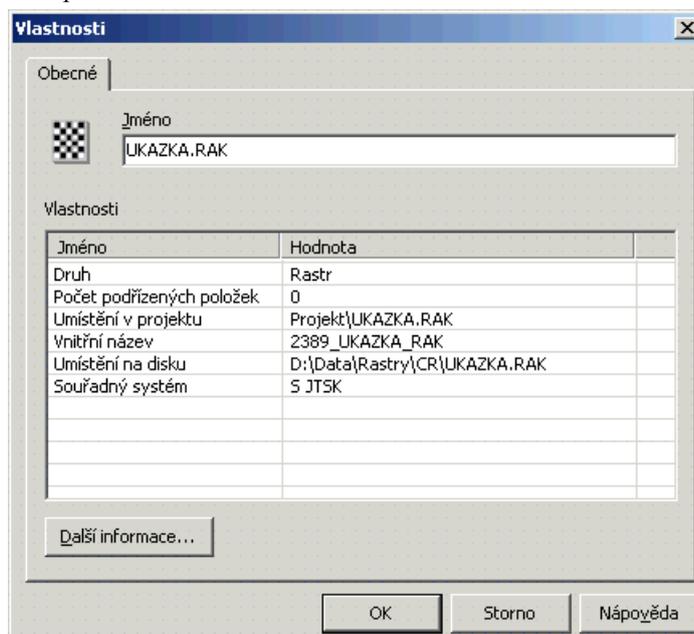


Table properties - Table structure

In the table you can see a list of all the database columns with their names (*Name* column), type (*Type* column) and size (*Length* column).

## 2.1.6. Raster properties

Common panel



## Raster properties - Common

### Properties table

Besides the common properties values showed in this table are the following:

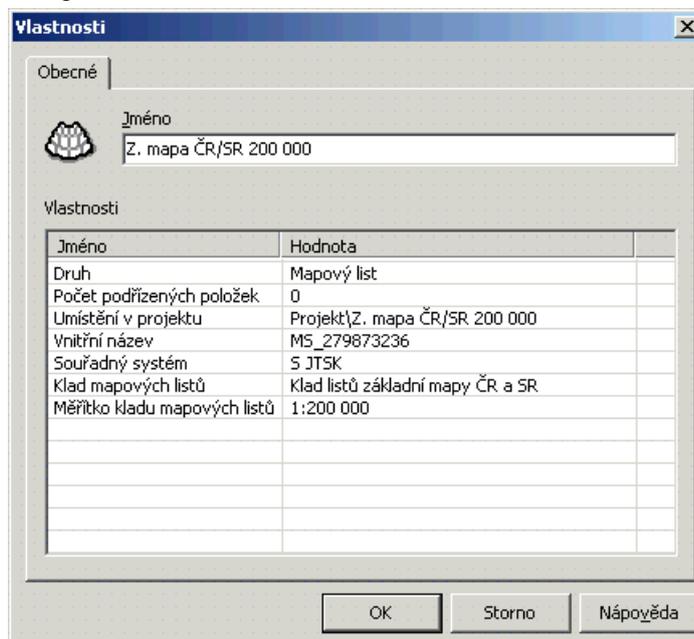
Name	Value
Internal name	Symbolic name of a raster used by the system.
Location on the disc	Path to the raster - its source file.
Coordinate system	Coordinate raster system.

### Other information button

If you press this button, the Information on raster dialog is opened in which you can obtain other detailed information, including the preview.

## 2.1.7. Map sheet properties

### Common panel



### Map sheet properties - Common

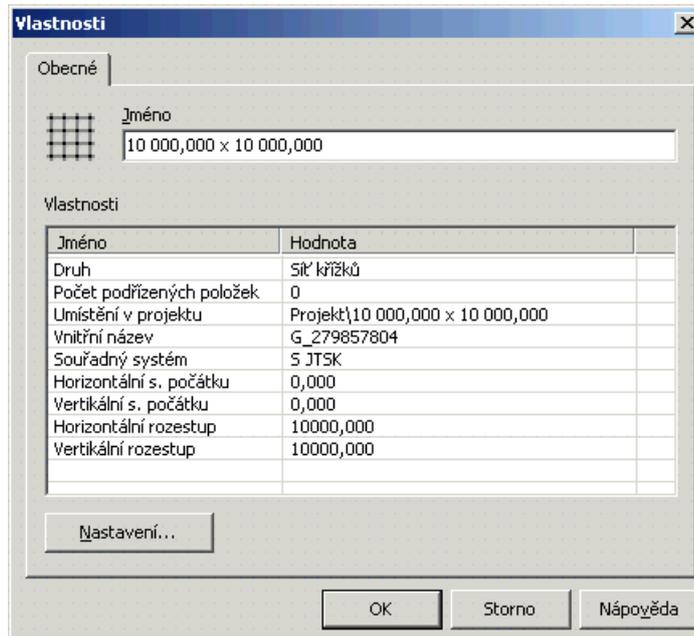
### Properties table

Besides the common properties values showed in this table are the following:

Name	Value
Internal name	Symbolic map layout name used by the system.
Coordinate system	Coordinate system of the map layout.
Map sheet	Map sheet name.
Scale of map sheet	Scale of map sheet.

## 2.1.8. Grid properties

Common panel



Grid properties - Common

Properties table

Besides the common properties values showed in this table are the following:

Name	Value
Internal name	Symbolic grid name used by the system.
Coordinate system	Coordinate system of the grid.
Horizontal margin	Horizontal coordinates of the grid origin.
Vertical margin	Vertical coordinates of the grid origin.
Horizontal size	Horizontal distance between individual points of the grid.
Vertical size	Vertical distance between individual points of the grid.

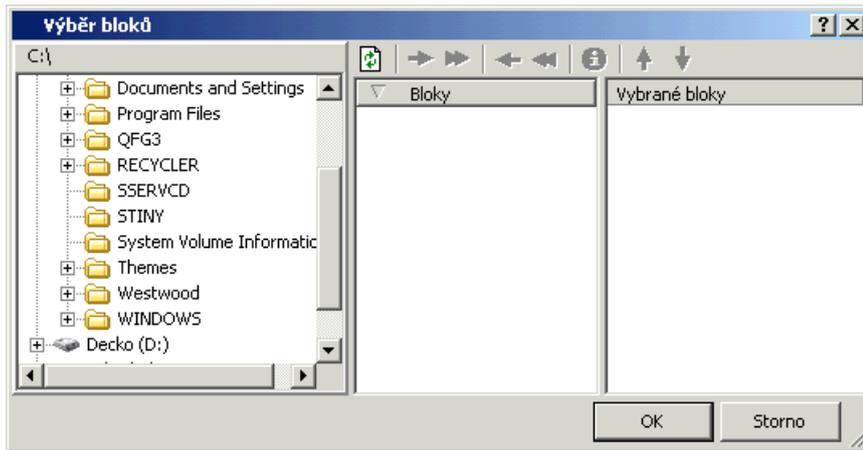
Setting button

If you press this button the Grid creation dialog is opened in which a size and origin of the grid can be changed.

## 3. New block

## 4. Open blocks

Data in the TopoL Block format are opened by the Select TopoL Block dialog.



Select TopoL blocks dialog

The dialog is divided into three fields. In the left part there is a directories tree structure on the discs in your computer displayed there. In the middle part of the dialog all blocks are displayed that are available in the selected directory. By doubleclick the selected blocks are transferred into the right part of the dialog, where the to be opened blocks are displayed. To remove a block from the list for opening doubleclick on the related block.

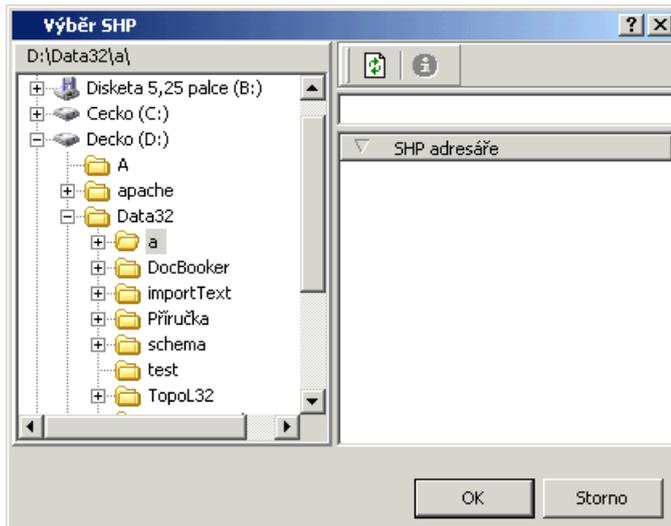
In the dialog you can also use the following buttons:

	Refreshes the list of the blocks accessible within the selected directory.
	Moves a block selected in the middle part of the dialog into the list of the to be opened blocks.
	Moves all the blocks from the middle part of the dialog into the list of to be opened blocks.
	Removes a selected block from the list of the to be opened blocks.
	Removes all blocks from the list of the to be opened blocks.
	Displays information on a block selected in the field with available blocks or in the list of the to be opened blocks.
	Moves a block selected in the <i>Selected blocks</i> field up by one
	Shifts a block selected in the <i>Selected blocks</i> field down by one.

The blocks will be opened in the same order as in the right part of the dialog - in the *Selected blocks* field.

## 5. Open ShapeFile

Data in the ShapeFile format are opened by the SHP Selection dialog.



SHP Selection dialog

The dialog is divided into two fields. In the left part there is a directories tree structure in your computer displayed there. In the right part of the dialog there is a list of the ShapeFile available in the selected directory. In this field select a ShapeFile which will be opened.

The dialog contains the buttons:

	Renews a list of ShapeFile available in the selected directory
	Displays information on ShapeFile selected in the right part of the dialog.

## 6. Open ShapeFile for editing

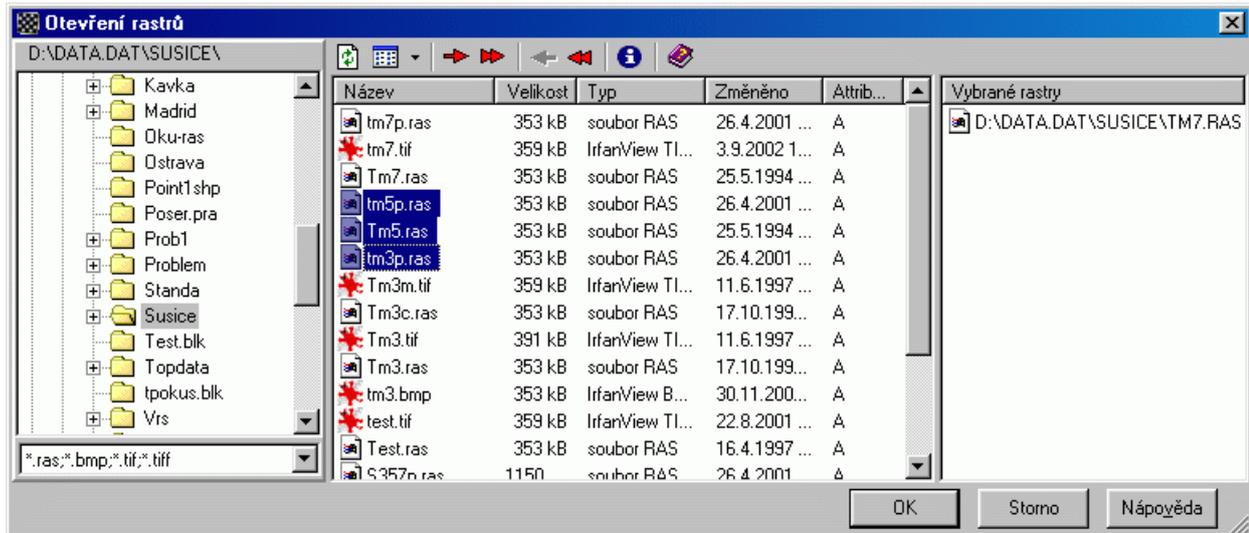
## 7. Open DGN file

## 8. Otevření dat MapInfo

## 9. Otevření z databáze MDB

## 10. Open rasters

Raster data are opened by the Open rasters dialog.



Open rasters dialog

The dialog is divided into three fields. In the left part a directories tree structure in your computer is displayed. In the middle part of the dialog all available rasters in the selected directory are displayed. By doubleclick the selected rasters are moved into the right part of the dialog, where all the to be opened rasters are displayed. To remove rasters from the rasters for opening list doubleclick on the related block.

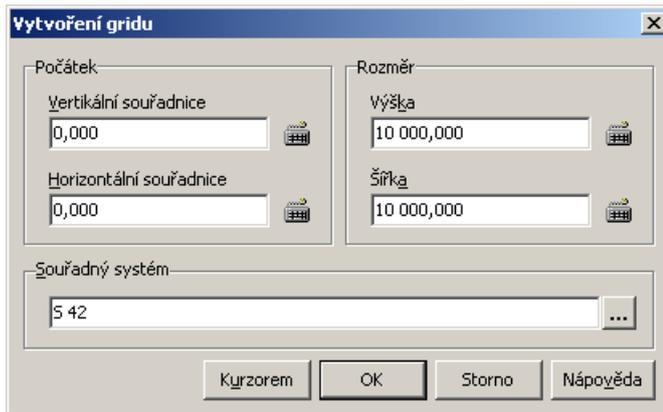
In the dialog you can also use the following buttons:

	Refreshes a list of available rasters in the selected dialog.
	Enables to change individual rasters presentation in the list (large, small icons, details).
	Moves a raster selected in the middle part of the dialog into the list of the to be opened rasters.
	Moves all rasters from the middle part of the dialog into the list of the to be opened rasters.
	Removes the selected raster from the list of the to be opened rasters.
	Removes all rasters from the list of the to be opened rasters.
	Displays information on raster selected in the available rasters field or in the list of the to be opened rasters.
	Runs the help.

Rasters in the list can be sorted according to individual columns content. By click on a column header the list is sorted out, after another possible click a sorting direction is reversed. You can also filter a content of the list by using a combo box below the directories tree structure. Here you can limit the raster selection to only one raster data format.

## 11. Grid definition

A new grid parameters are set in the *Grid definition dialog*.



Grid definition dialog

Set a grid origin into the *Vertical* and *Horizontal coordinate* fields, set distances of individual grid points into the *Height* and *Width* fields.

### Note

A grid will be created from a set origin in the direction in which the coordinates of its coordinate system are rising. In the JTSK coordinate system, for example, the origin will form the upper right corner of the grid, in the S42 coordinate system it will form the bottom left corner.

In the *Coordinate system* field set coordinate system of a grid that is being created.

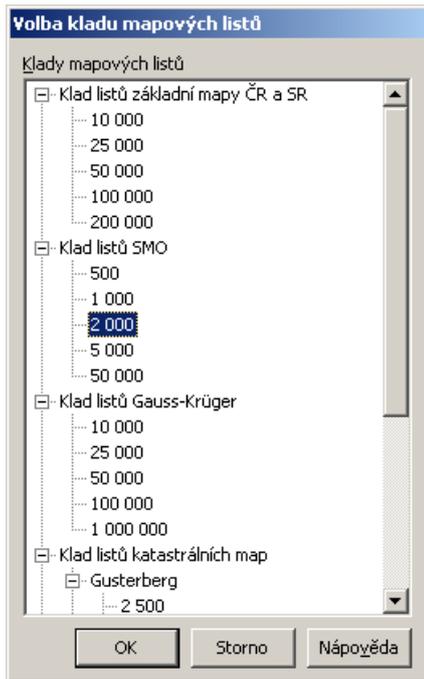
### Note

If this dialog is used for grid origin and size modification (for example from the Grid properties dialog), it's impossible to set the coordinate system.

A size and origin of a grid can be graphically set as well - if you press the *By cursor* button you can set these parameters of a new grid by selecting rectangle with variable aspect ratio. This option is accessible only if at least one map window is available.

## 12. Vytvoření kladu mapových listů

Výběr kladu mapových listů se provádí v dialogu *Volba kladu mapových listů*.



Dialog Volba kladu mapových listů

V poli *Klady mapových listů* jsou uvedeny všechny podporované klady mapových listů - v něm vyberte požadovaný klad a stisknete tlačítko *OK*. Výběr lze také provést dvojklikem myši.

## 13. Import Dxf

At the Dxf format import into the TopoL block first select the DXF file by a standard dialog. Then its analysis is carried out and the following dialog is displayed.



Import Dxf dialog

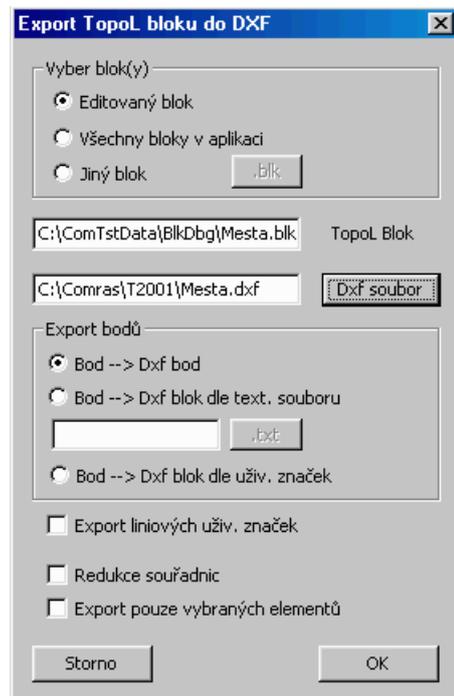
By the *Block* button you can set (select) a name of the block under which you want to save the imported file. Next you must decide whether to convert the Dxf layers to groups in a single block (the *Layer->Feature* button) or to create an individual block for each Dxf layer (the *Layer->Block* button).

Check the *Change sign. xy*, if you want to exchange the coordinate system of the imported file (i.e. the first quadrant for the third quadrant and vice versa). By the *Circ,Arc->Poly* button you can decide whether to convert imported circles and arches to polylines. Check the *Write Z coordinates* button, if you want to record the "Z" coordinate into the block.

From the *Code page* list box select a code page according to the code page of the Dxf file texts. This page is also recorded into the "Info.txt" file in the block. You can also decide which layers to convert, you can even change the codes of these groups. If everything is set, press the *OK* button and thereby the import will be done.

## 14. Dxf Export

The Export converts polyline, point and text TopoL objects to a file in the DXF format. It is carried out by the following dialog.



Export TopoL block to Dxf dialog.

If you want to export a currently edited block, check the *Edited block*. For export of all opened blocks within an application check the *All blocks in app.*. Otherwise you can check the *Other block* button and select any block by the *.Blk* button.

By the *Dxf file* button you can specify a file into which the block is exported.

Then you must decide how to export point objects from the TopoL block into the Dxf format. You have the following options:

### Point-->Dxf point

To convert a point object from the TopoL block to the "Point" element in the Dxf format.

### Point-->Dxf block by text file

To convert a point object from the block into an element of the reference in the Dxf file sort. The reference in the Dxf is an installation of the definition of the ACAD block. This transfer is used if you want to convert to the Dxf points represented by a user symbol for example. In the ACAD you can create a library with cells of an appearance identical to the TopoL symbols and use their names at the transfer.

The assignment of the TopoL point groups and ACAD cells is described in a text file consisting of rows. On each row there is a PointSymbol pair and a corresponding cell name in the Dxf. An exclamation introduces a comment. Example:

!	File for the TopoL symbols convert to Dxf cells.
1	Symbol1
5	Symbol5

Bod-->Dxf block by user symbols

To convert a point object from the block into an element of the reference in the Dxf file sort. This version differs from the previous by automatic generating of Dxf cells from user symbols. Note: not implemented!

If you want to export into the Dxf line symbol, check the *Export line user symbols* button. Note: not implemented!

Check the *Coordinates reduction*, if you want the minimum coordinate of the exported file to start in the [0,0] point.

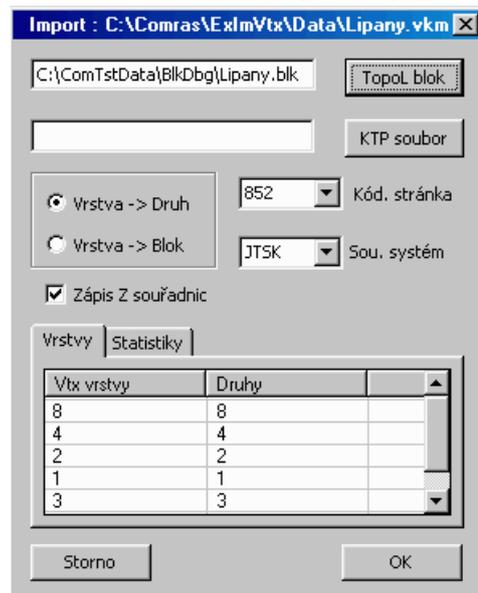
!!!Pokud chceme exportovat pouze vybrané objekty, zatrhneme tlačítko *Export pouze vybraných elementů*.

Je-li vše nastaveno, stiskneme tlačítko *OK* a tím provedeme převod.

## 15. Import Vtx,Dkm,Vkm

Formáty DKM a VKM slouží jako výměnný formát digitální katastrální mapy a souboru popisných informací katastru nemovitostí České republiky. VTX formát je vstupně/výstupní komunikační formát dat systému Kokeš.

Při importu jednoho z těchto formátů si nejprve vybereme pomocí standardního dialogu soubor Dkm,Vkm, či Vtx. Poté se provede jeho analýza a zobrazí se následující dialog.



Dialog pro import Dkm,Vkm,Vtx

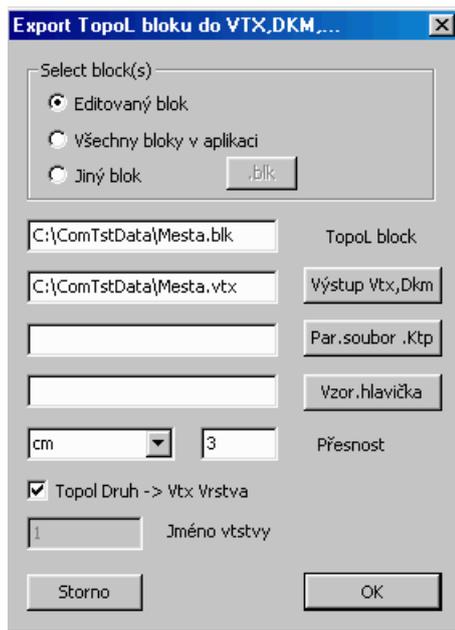
Pomocí tlačítka *Topol Blok* zadáme (vybereme) jméno bloku, pod kterým chceme uložit importovaný soubor. Dále rozhodneme, zda převést vrstvy v souboru na druhy v jednom bloku (tlačítko *Vrstva->Druh*), nebo vytvořit pro každou vrstvu samostatný blok (tlačítko *Vrstva->Blok*).

Přenos informace o značce a barvě objektů se provádí přes textový popisový soubor, který určuje jednotlivá přiřazení. Obvykle používá koncovku .KTP. Pomocí tlačítka *KTP.soubor* ho můžeme zadat. Není-li zadán, použije se implicitní přiřazení barev a značek.

Z list boxu *Kód. stránka* vybereme kódovou stránku dle toho, v jaké kódové stránce jsou texty v importovaném souboru. Tato stránka se také zapíše do souboru "Info.txt" v bloku. Tlačítko *Zápis Z souřadnic* zatrhne, pokud chceme do bloku zapsat "Z" souřadnici. Je-li vše nastaveno, stiskneme tlačítko *OK* a tím provedeme import.

## 16. Export Vtx,Dkm,Vkm

Export převede liniové, bodové a textové objekty TopoL bloku do souboru ve formátu Vtx,Vkm,Dkm. Provádí se pomocí následujícího dialogu.



Dialog pro export Dkm,Vkm,Vtx

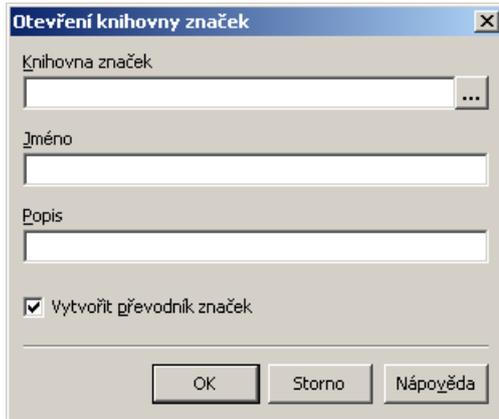
Chceme-li exportovat právě editovaný blok, zatrhne tlačítko *Editovaný blok*. Pro export všech otevřených bloků v aplikaci zatrhne tlačítko *Všechny bloky v aplikaci*. Nebo zatrhne tlačítko *Jiný blok* a tlačítkem *.Blk* vybereme libovolný blok.

Tlačítkem *Výstup Vtx,Dkm* určíme soubor, do kterého se blok exportuje. Musíme zadat příponu souboru, dle které se určí výstupní formát.

Přenos informace o značce a barvě objektů na kreslicí klíče se provádí přes textový popisový soubor, který určuje jednotlivá přiřazení. Obvykle používá koncovku .KTP. Pomocí tlačítka *Par.soubor .Ktp* ho můžeme zadat. Není-li zadán, použije se implicitní přiřazení.

Pomocí tlačítka *Vzor.hlavicka* můžeme zadat tzv. hlavičkový soubor, tj. soubor ve výstupním formátu, ze kterého se do výstupního souboru zkopíruje jeho hlavička. Není-li zadán, vytvoří se hlavička výstupního souboru automaticky. Dále je možno nastavit parametry *Přesnost* a *Třída přesnosti*, které jsou pro dané formáty povinné. Zatřžením tlačítka *TopolDruh->VtxVrstva* zadáme, že každý druh v TopoL bloku bude mít odpovídající vrstvu ve Vtx,Vkm,Dkm. Jinak budou všechny druhy z bloku zapsány do jedné námi zadané vrstvy. Je-li vše nastaveno, stiskneme tlačítko *OK* a tím provedeme export.





Opening symbol library dialog

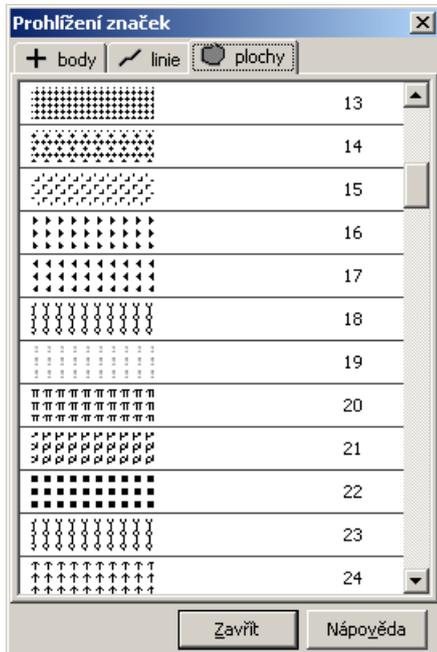
Set a location of the symbol library (\*.TTS) file on the disc into the Symbol library field. Press a button next to the field and a standard dialog of the operating system will be opened for the file opening, in which you can search the required library.

Set a library name into the Name field - the name must be unique within the project. The library description can be set in the Description field - the description is optional.

If the Create symbol transfer field is checked, a standard symbol transfer will be created from the symbol library after its opening. The symbol transfer will contain symbols from a currently being opened library and symbols from the Topol symbols standard library. The transfer will have a name identical to the attached symbol library.

## 1.2. Included symbols view

Symbols contained in the symbol library can be viewed in the Included symbols dialog.



Symbols preview

The symbols for individual vector objects groups are displayed in tables. If a library doesn't contain any symbol for any vector object group, a table for this group isn't displayed.

In each table row there is a symbol and its number displayed.

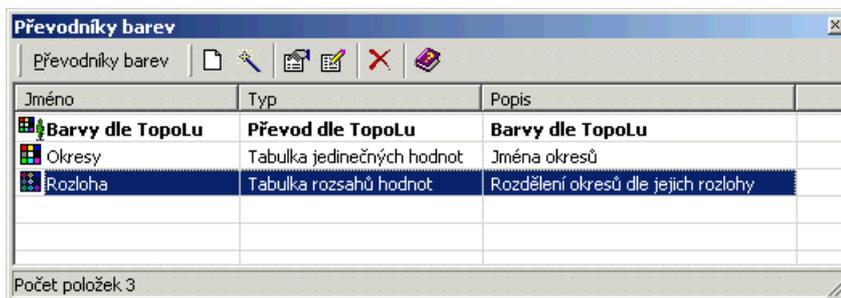
# Chapter 5. Colour, symbol and text style transfers

The colour, symbol and style transfers serve to the display of vector data by their database attributes - actually it means display tables, where a single colour (symbol, style) is assigned to each value (or value interval). The transfers can be created by text, numerical (both integral and real) and logical values.

The colour and symbol transfers by TopoL are specific. These transfers enable a reverse compatibility of the data saved in the TopoL Block format. Their use and editing is different from the other transfers.

## 1. Colour transfers

The colour transfers serve for convert of a database attribute value of a vector object to a specific colour. Colour transfers are administrated in the Colour transfers dialog. The dialog is accesible from the Tools menu - Colour transfers.



Colour transfers dialog

The list of transfers is showed in a table where individual columns (from the left) mean: unique transfer name, transfer type and its description. The default colour transfer is displayed in a bold type - always the Colour transfer by TopoL.

New transfers and their editing and deleting are carried out by commands from the menu, toolbar or context menu.

Add...		Ctrl+N	A new colour transfer creation.
Add with wizard...		Ctrl+W	A new colour transfer creation with wizard.
Properties...		Alt+Enter	Change of a transfer name and description.
Edit		Ctrl+E	Editing of a selected transfer. If the Colour transfer according to TopoL is selected from a transfers table, its editing is activated, otherwise the editing is activated by its type - edit colour transfer by unique values or edit colour transfer according to range of values.
Delete		Del	Deletes a transfer. Only transfers not used for display can be deleted. Also the Colour transfer according to TopoL can't be deleted.
Help		F1	Runs the help.
Close			Closes the Colour transfers dialog.

## 1.1. New colour transfer

A new colour transfer can be created by the Add command in the Colour transfers dialog. This is accessible from the Tools menu, Colour transfers command.

Parameters of a new colour transfer are set in the *New colour transfer* dialog.

New colour transfer dialog

Into the *Name* field set a name of a new transfer - this name must be unique so that there isn't any colour transfer of the identical name within the current project.

In the *Description* field you can set the currently created colour transfer description. The description is optional.

A type of values for which the transfer will be defined, is selected in the *Type of values*.

In the *Type of transfer* select a way in which values will be converted to colour.

### Note

For the Yes/No value type (logical values) it's possible to define the transfer only as a table of unique values - intervals make no sense for this case.

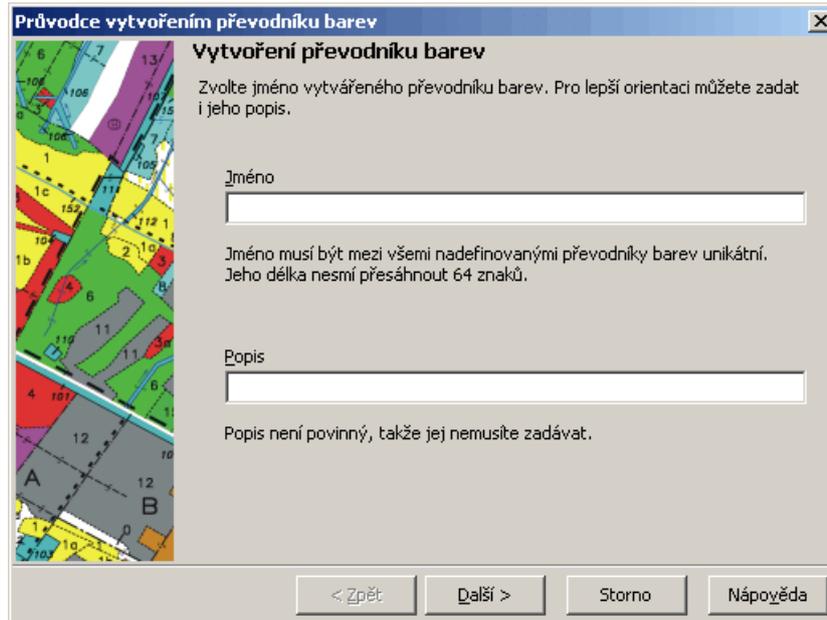
After setting the name and other attributes of a new transfer and pressing the *OK* button its editing is activated (Edit colour transfer by unique values or Edit colour transfer by values range - depending on the set type).

## 1.2. Colour transfer wizard

With the wizard it's easy to create a new colour transfer by values from the opened database. The transfer creating is divided into 5 steps:

- Transfer name and description setting
- Select database table
- Database item selection
- Colour transfer type
- Colour transfer modification (by unique values or by values range)

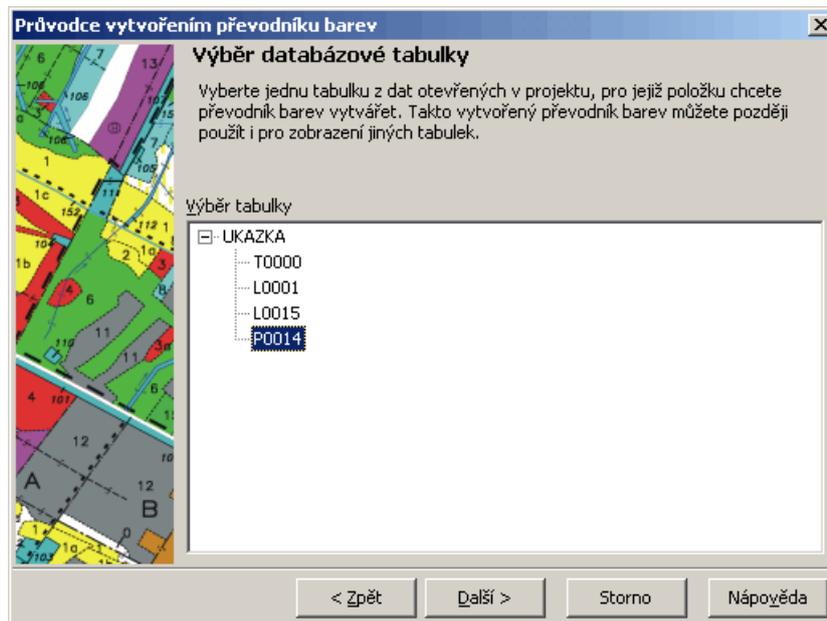
Name and description setting



Wizard to colour transfer creating, name and description setting

Set the name of the being created colour transfer to the *Name* field. The name must be unique among transfers within the project. Into the *Description* field you can set the description of the being created colour transfer - the description is optional.

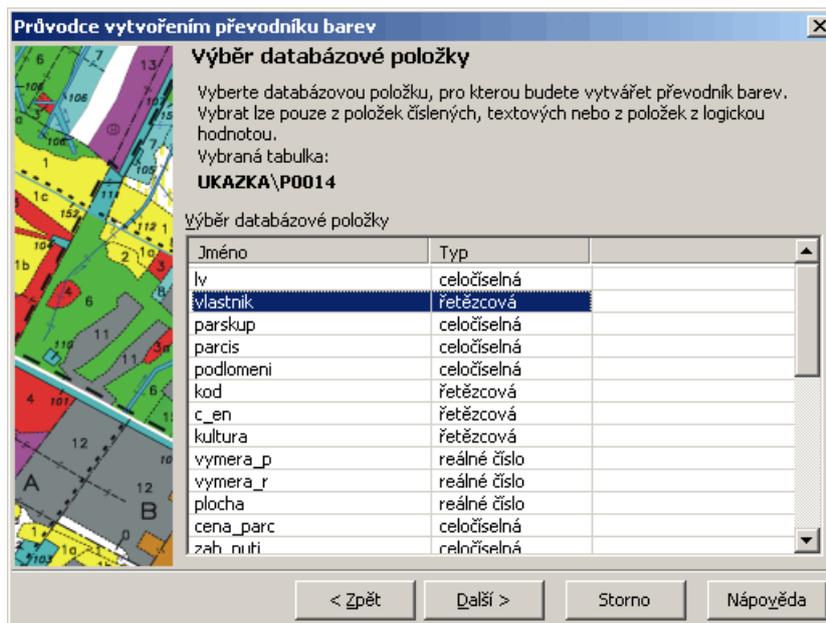
Database table selection



Wizard to colour transfer creating dialog, database table selection

A list of all the opened databasis and their tables is displayed in the *Table selection* field - select a table and press the *Next* button.

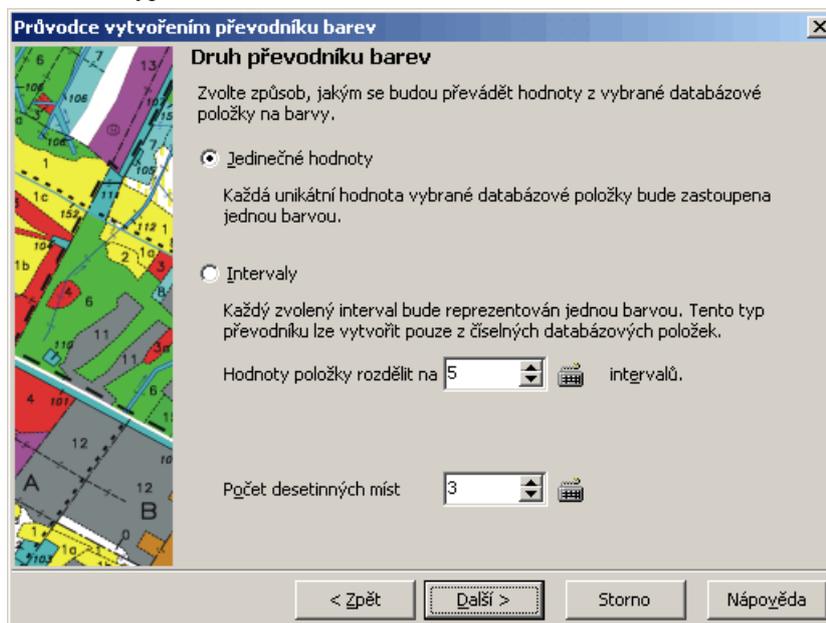
## Database item selection



Colour transfer wizard, database item selection dialog

From database items in the *Database items selection* select a database item by which you want to create a colour transfer. All the integral, string and logical table items selected in the previous step are displayed in the list.

## Colour transfer type selection



Colour transfer wizard, colour transfer type dialog

In this step a colour transfer type is selected. The type is selected by checking of one of the fields - *Unique values* or *Intervals*.

If one of transfer types is selected by intervals (the *Intervals* field is selected), in another field you can set a number of intervals into which the values of the being created transfer will be divided.

## Note

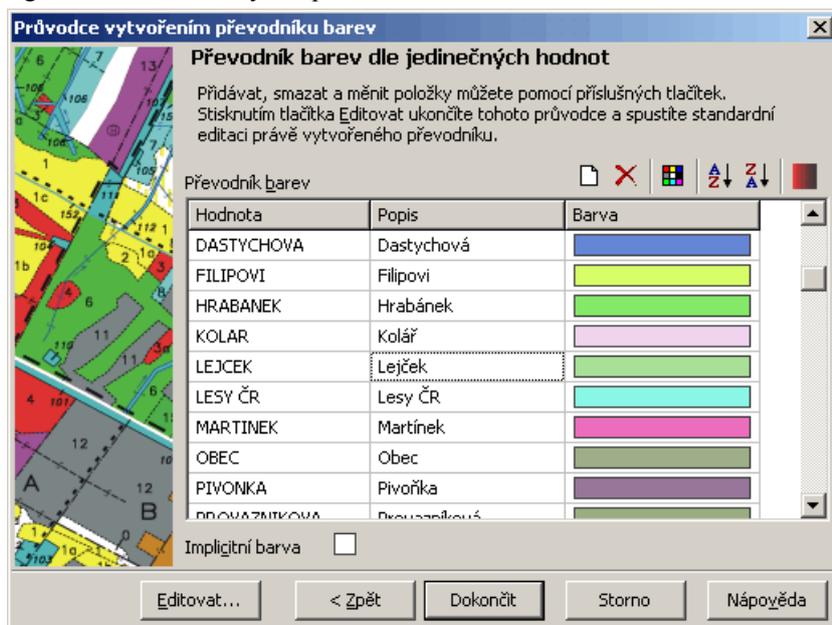
For text database items only a selection of the *Unique values* sort is available.

In the *Number of decimal places* field an accuracy of transfer creating is set.

## Note

This field is accessible only if database item of the real number sort is selected.

Editing of colour transfer by unique values



Colour transfer wizard, edit colour transfer by unique values

In the Colour transfer table individual items of the being created transfer are displayed (from the left: value, description, colour).

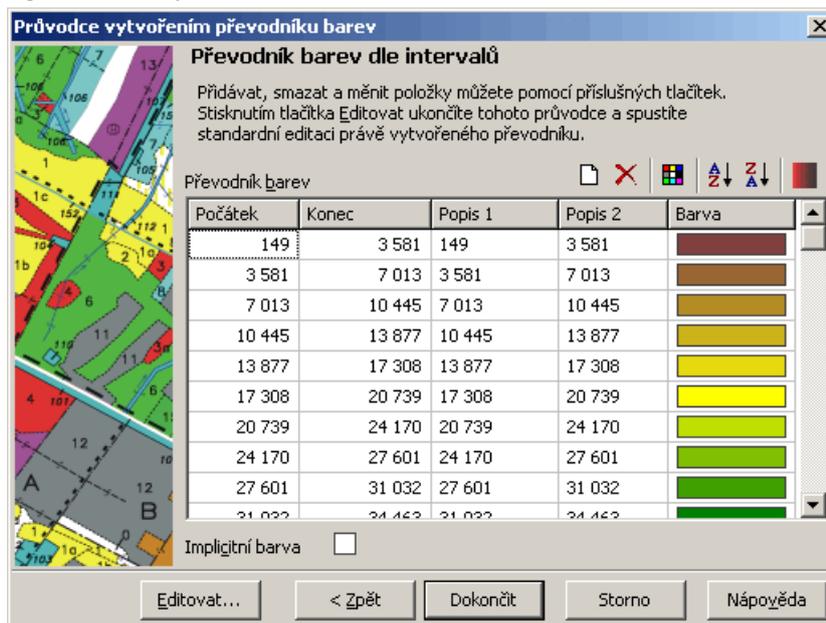
For adding, deleting and change of individual items use the context menu or the toolbar buttons. Selected item properties can be also run by doubleclick with mouse or by the F2 shortcut.

New item...		Ctrl+N	Opens a dialog for a new item attributes setting.
Delete item		Del	Deletes a selected item.
Edit		F2	Runs editing of a selected attribute (column) of the selected item.
Edit colour...		Ctrl+Shift+C	A colour definition for the selected colour transfer item.
Sort upwards		Ctrl+U	Sorts items in upwards by a value.
Sort downwards		Ctrl+D	Sorts the items downwards by a value.
Colour array...			Enables to set colours for all items within the transfer via colour array.

A default transfer colour can be set by the *Default colour* button.

By the *Finish* button you can finish the colour transfer creating. The creating can be also finished by the *Edit...*In such case the wizard is finished and editing of the newly created transfer is ran.

## Editing of transfer by intervals



Colour transfer wizard, edit colour transfer by intervals dialog

In the Colour transfer table there are items of the being created transfer displayed (from the left: left and right border value of an interval; left and right border description; colour).

For adding, deleting and change of items use the context menu or the toolbar buttons. Editing of the selected item properties can be also ran by doubleclick with mouse or by the F2 shortcut.

New item...		Ctrl+N	Opens the dialog for a new item attributes setting.
Delete item		Del	Selected item deleting.
Edit		F2	Runs editing of a selected attribute (column) of the selected item.
Edit colour...		Ctrl+Shift+C	Colour definition for the selected transfer item.
Sort upwards		Ctrl+U	Sorts items upwards by value.
Sort downwards		Ctrl+D	Sorts items downward by value.
Colour array...			Enables to set colours for all items within the transfer via colour array.

A default transfer colour can be set by the *Default colour* button.

By the *Finish* button you can finish the colour transfer creating. This creating can be also finished by the *Edit....* button. In such case the wizard is finished and editing of the newly created transfer is ran.

## 1.3. Colour transfer name and description

A colour transfer name and description can be changed in the Transfer name and description table.



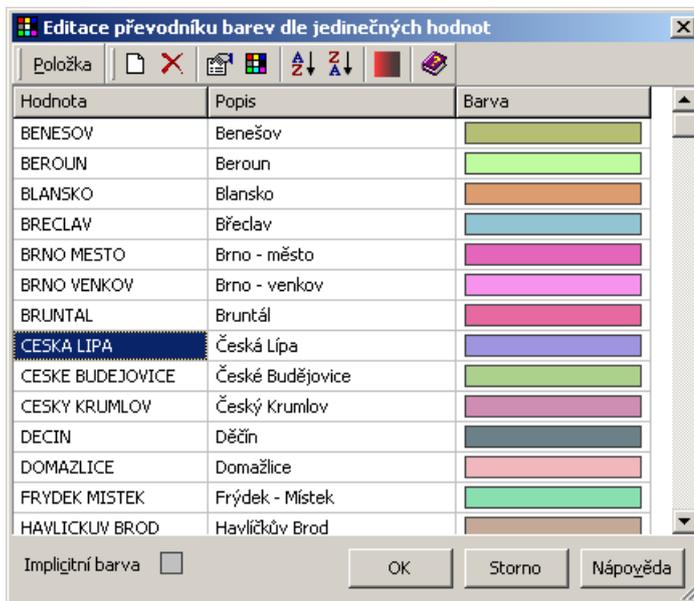
Transfer name and description dialog

Into the *Name* field set a transfer name - this name must be unique so that there is no other transfer of identical name within the current project.

In the *Description* field you can change a description of colour transfer. The description is optional.

## 1.4. Editing of colour transfer by unique values

In the transfer by unique values a single colour is always assigned to the specific value. Values must be unique within the transfer - must not be repeated.



Edit colour transfer by unique values dialog

The transfer is displayed in a table within the dialog body. In the left column there are item values displayed there, in the medium one is their description and in the right one is an item colour. If you doubleclick or press the F2 key on some of these attributes you will run its editing. For saving of changes in an edited attribute press the Enter, for cancelling of changes press the Esc button.

In the bottom left part of the dialog there is a Default colour field - it specifies a colour used for drawing of objects for which no record is found in the edited transfer.

The transfer items change can be also done in the toolbar, the main and context menu.

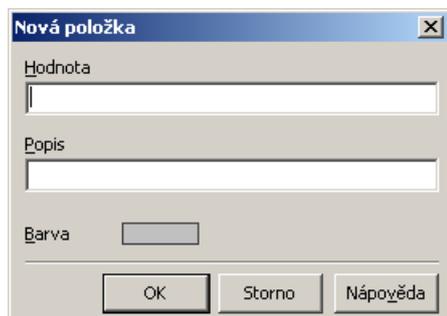
New item...		Ctrl+N	Opens a dialog for a new item attributes setting.
Delete item		Del	Deletes selected items.
Edit		F2	Runs editing of a selected attribute (column) of the selected item.

Edit colour...		Ctrl+Shift+C	Definice barvy pro vybranou položku převodníku.
Sort upwards		Ctrl+U	Sorts items upwards by value.
Sort downwards		Ctrl+D	Sorts items downwards by value.
Colour array...			Enables to set colours for all items within the transfer via colour array.
Help		F1	Runs the help.

## Note

Because of rounding this type of transfer isn't appropriate for real numbers.

### 1.4.1. New item of colour transfer by unique values



New item dialog

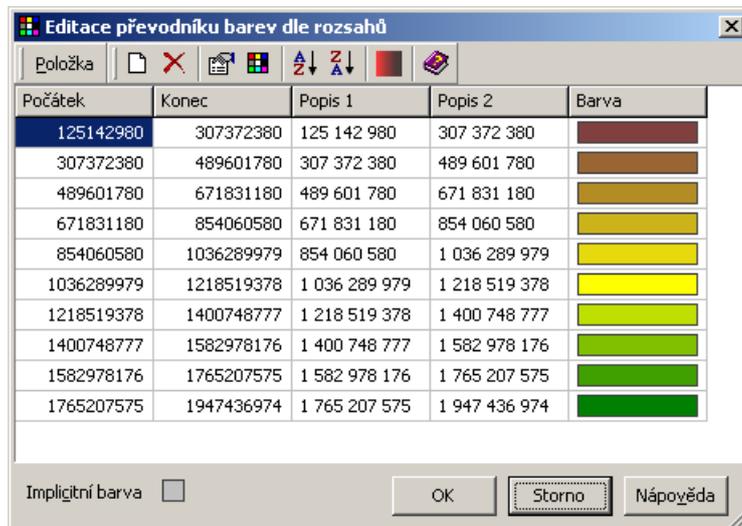
Set a value of a new item of the edited transfer in the *Value* field. The value must be unique within the transfer.

Set an item description in the *Description* field. The description is optional.

Select an item colour by click on the *Colour* button.

### 1.5. Editing of colour transfer by intervals

In the transfer by intervals a single colour is always assigned to a specific value interval. The intervals are closed from the left, opened from the right and must not overlay.



Edit colour transfer by intervals dialog

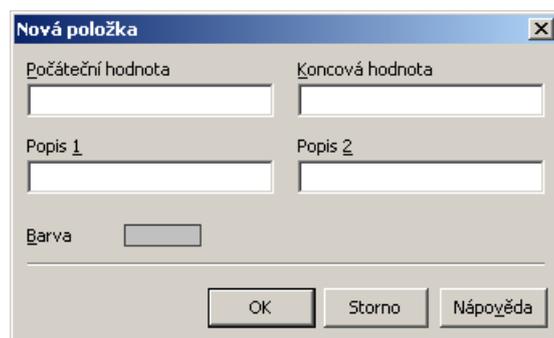
The transfer is displayed in a table within the dialog body. Displayed in the columns (from the left): left border of item interval; right border of item interval; first description; second description; item colour. If you doubleclick or press the F2 key on one of these attributes you can run its editing. For saving of changes in the edited attribute press the Enter, for cancelling of changes press the Esc button.

In the bottom left part of the dialog there is a Default colour field - it specifies a colour used for drawing of objects for which no record is found in the edited transfer.

Transfer items change can be also done by the toolbar, the main and context menu.

Add...		Ctrl+N	Opens a dialog for a new item attributes setting.
Delete item		Del	Deletes selected items.
Edit		F2	Runs editing of a selected attribute (column) of the selected item.
Edit colour...		Ctrl+Shift+C	Definition of colour for a selected transfer item.
Sort upwards		Ctrl+U	Sorts items upwards by value.
Sort downwards		Ctrl+D	Sorts items downwards by value.
Colour array...			Enables to set colours for all items in the transfer via colour array.
Help		F1	Runs the help.

### 1.5.1. New item of colour transfer by intervals



New item dialog

Set the left border of a new item interval of the edited transfer to the *Start value* Set the right border into the *End value* field. The interval is closed from the left and opened from the right. Intervals must not overlay within the transfer.

Set the interval borders in the *Description 1* and *Description 2* fields. The descriptions are optional.

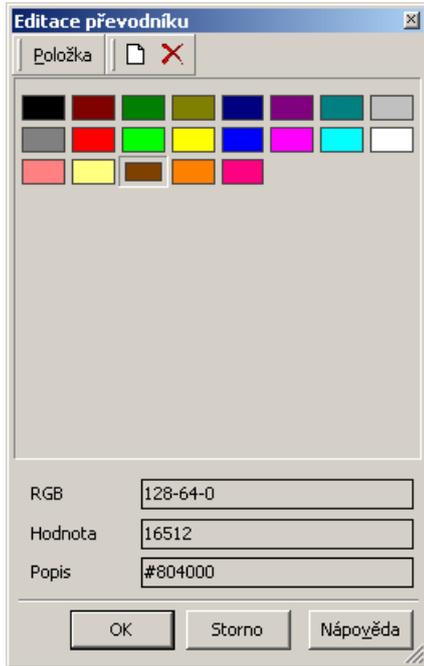
Select the item colour by click on the *Colour* button.

## 2. Colour transfer by TopoL

Colour transfer according to TopoL is a special type of transfer which ensures a reverse compatibility for display of data saved in the TopoL Block format. This transfer also serves to saving and modification of user defined colours.

## 2.1. Editing of colour by TopoL

Editing of colour transfer by TopoL is enabled by the Transfer editing dialog.



Edit colour transfer by TopoL

This transfer contains 16 basic colours (first two rows in the dialog) that are intended for reading only - can't be deleted or modified. Other rows represent user defined colours.

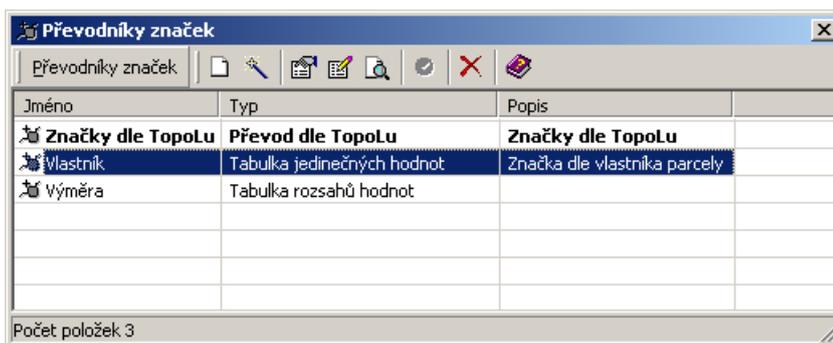
Colours are displayed in the upper field of the dialog. After click on a colour the RGB items value is displayed in the bottom part of the dialog, integral colour value and description (text description for standard colours, the HTML format for user defined colours - RGB channels in the hexadecimal system).

Colours can be added and deleted in the Transfer by TopoL by buttons in the toolbar and commands from the main and context menu.

Add...		Ctrl+N	Adding of a new colour via a standard MS Windows dialog. If the selected colour is already defined, it's not added to the list of colours, but a selection in the colour field is moved to this colour.
Delete		Del	Deletes a colour. Only user defined colours can be deleted.

## 3. Symbol transfers

The symbol transfers are intended for a value convert of database attribute of the vector object to a specific symbol. Symbol transfers can be administrated in the Symbol transfers dialog. It's accessible from the Tools menu - Symbol transfers.



Symbol transfers dialog

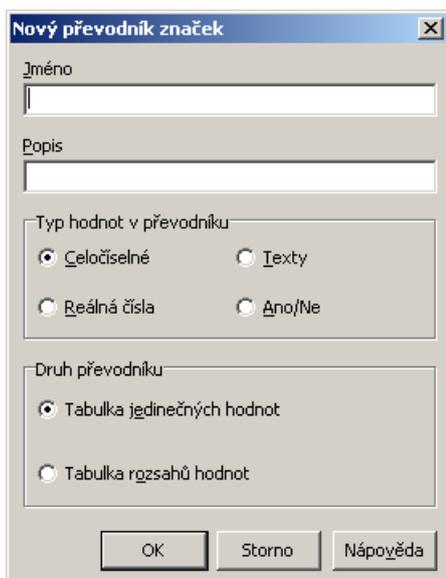
The list of transfers is displayed in a table where columns mean (from the left): unique transfer name; transfer type its description. A default symbol transfer is displayed in bold type - this can be only a transfer of the Transfer by TopoL sort.

New transfers, their editing and deleting is carried out via commands from the menu, toolbar or context menu.

Add...		Ctrl+N	A new symbol transfer creation.
Add with wizard...		Ctrl+W	A new symbol transfer creation with wizard.
Properties...		Alt+Enter	Change of a transfer name and description.
Edit		Ctrl+E	Editing of a selected transfer. The selected transfer editing is activated by its type - Edit symbol transfer by unique values or Edit transfer by intervals.
Contained symbols			Opens a dialog in which all symbols contained in the selected transfer are displayed.
Set as default			Sets the selected transfer as default - it will be used by default for newly displayed data. Only transfers by TopoL can be set as default.
Delete		Del	Deletes a transfer. Only transfers not used for display can be deleted. Also the Symbol transfer by TopoL can't be deleted.
Help		F1	Runs the help.
Close			Closes the Symbol transfers dialog.

### 3.1. New symbol transfer

Parameters of a new symbol transfer are set in the New symbol transfer dialog.



New symbol transfers dialog

Into the *Name* field set a name of a new transfer - this name must be unique so that there isn't any symbol transfer of the identical name within the current project.

In the *Description* field you can set the currently created symbol transfer description. The description is optional.

A type of values for which the transfer will be defined, is selected in the *Type of values* field.

In the *Type of transfer* select a way in which values will be converted to a symbol.

### Note

For the Yes/No value type (logical values) it's possible to define the transfer only as a table of unique values -intervals make no sense for this case.

After you set the name and other attributes of a new transfer and press the *OK* button its editing is activated (Edit symbol transfer by unique values or Edit symbol transfer by intervals - depending on the set type).

## 3.2. Symbol transfer name and description

A colour transfer name and description can be changed in the Transfer name and description table.



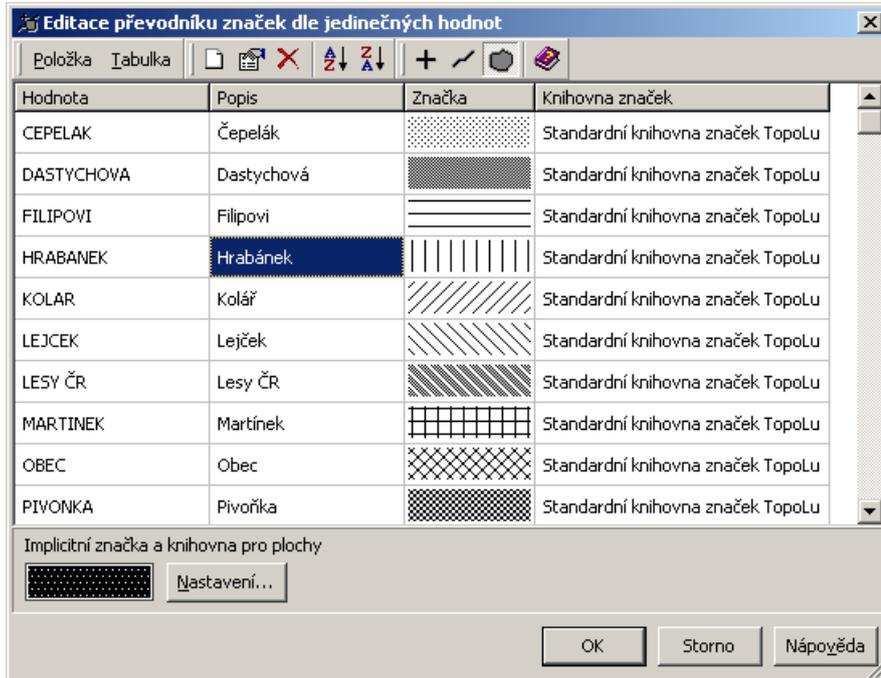
Transfer name and description dialog

Into the *Name* field set a transfer name - this name must be unique so that there is no other transfer of identical name within the current project..

In the *Description* field you can change a description of colour transfer. The description is optional.

### 3.3. Editing of symbol transfers by unique values

In the transfer by unique values a single symbol is always assigned to a specific value and vector object type (point, polyline, area). Values must be unique within the transfer - must not be repeated.



Edit symbol transfer by unique values dialog

For each type of vector object the corresponding part of the transfer is displayed in a table within the dialog body. These are the data displayed in the columns (from the left): item value; their description, symbol and symbol library name. If you doubleclick or press the F2 key on some of these attributes its editing is activated. For saving of changes in edited attribute press the Enter, to cancel changes press the Esc button.

If you want to switch between editing of part of the transfer for points, polylines and areas, press the button with a symbol of the corresponding vector object or press the related shortcut - details in the commands table.

#### Note

If no record is defined for the selected vector object type in the edited transfer, the sign <NO RECORD DEFINED FOR POINTS (POLYLINES, AREAS)> is displayed in the body instead of a table.

In the bottom left part of the dialog you can find a Default symbol and library field - it specifies the symbol by which the objects with no record in the edited transfer will be drawn.

Transfer items edit can be done by the toolbar and the main and context menu.

#### Note

Because of rounding this transfer type isn't appropriate for real numbers.

Item Menu

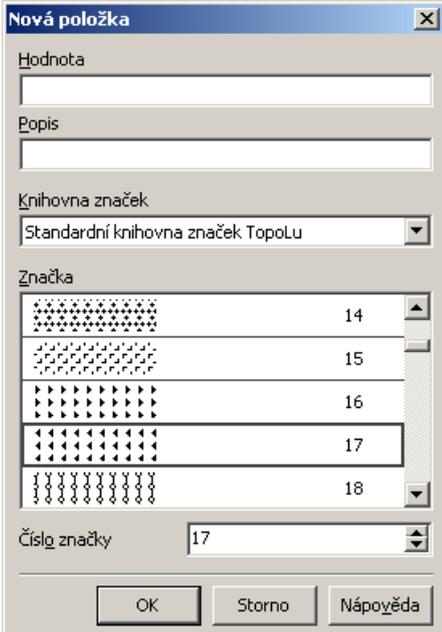
New item...	[Icon]	Ctrl+N	Opens a dialog for new item attributes setting.
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Delete item		Del	Deletes selected items.
Edit		F2	Runs editing of a selected attribute (column) of the selected item.
Symbol and library...		Ctrl+Shift+S	Definition of symbol for a selected transfer item.
Default symbol and library...			Enables to set a default symbol for a currently being edited type of vector objects (point, polyline, area) from the selected symbol library.
Sort upwards		Ctrl+U	Sorts items upwards by value.
Sort downwards		Ctrl+D	Sorts items downwards by value.
Help		F1	Runs the help.

Table Menu

Points		Shift+P	Displays a definition table of the edited transfer part for points.
Polylines		Shift+L	Displays a definition table of the edited transfer part for polylines.
Areas		Shift+A	Displays a definition table of the edited transfer part for areas.
Help		F1	Runs the help.

### 3.3.1. New item of symbol transfer by unique values



New item dialog

Set a value of a new item of the edited transfer in the *Value* field. The value must be unique within the transfer.

Set an item description in the *Description* field. The description is optional.

In the *Symbol library* field select a symbol library from which the symbol for a new item is to be selected.

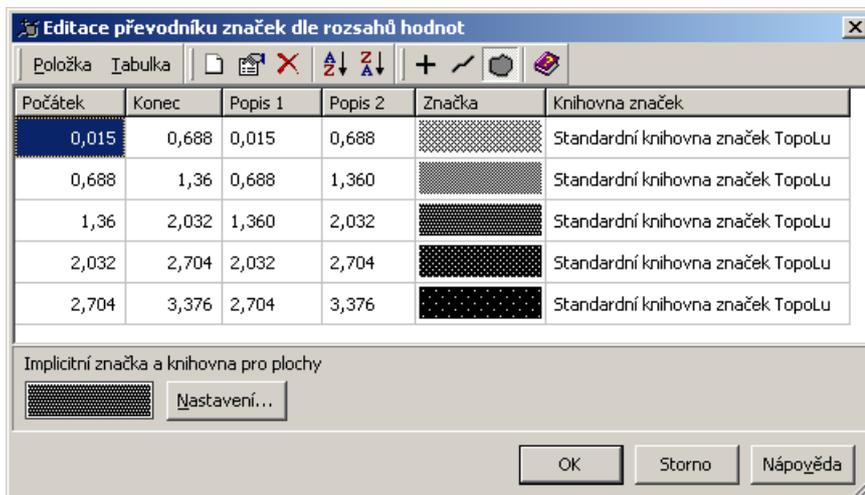
Select a symbol for an item from a symbol list in the *Symbol* field or set its number in the Symbol ID field.

### Note

The symbol ID order doesn't have to be coherent - the Symbol ID field is limited only by minimum and maximum value of the symbol ID within the library. If an invalid symbol ID is set, it's impossible to finish the dialog with the OK button and the user is asked to set a valid symbol.

## 3.4. Editing of symbol transfer by intervals

In the transfer by intervals a single symbol is always assigned to a single value interval and vector object type (point, polyline, area). Intervals are closed from the left, opened from the right and must not overlay within the transfer and for each vector object type.



Edit symbol transfer by interval dialog

For each vector object type a corresponding part of the transfer is displayed in the table within the dialog body. Displayed in the columns (from the left): left border of item interval; right border of item interval; descriptions; item symbol; name of symbol library. If you doubleclick or press the F2 key on one of these attributes you can run its editing. For saving of changes in the edited attribute press the Enter, for cancelling of changes press the Esc button.

If you want to switch between editing of transfer part for points, polylines and areas press the button with a symbol of corresponding vector object or press the corresponding shortcut - details in the commands table.

### Note

If no record is defined for the selected vector object type in the edited transfer, the sign <NO RECORD DEFINED FOR POINTS (POLYLINES, AREAS)> is displayed in the body instead of a table.

In the bottom left part of the dialog there is a Default symbol and library field - it specifies a symbol used for drawing of objects for which no record is found in the edited transfer.

Transfer items change can be also done by the toolbar, the main and context menu.

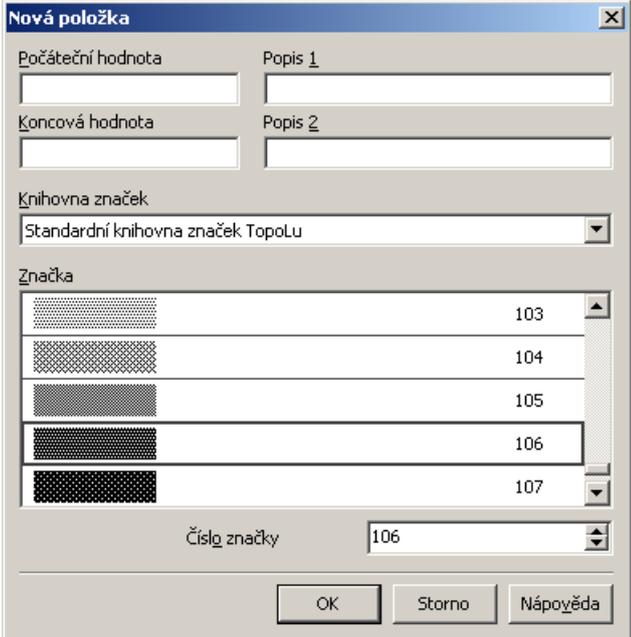
## Item Menu

New item...		Ctrl+N	Opens a dialog for new item attributes setting.
Delete item		Del	Deletes selected items.
Edit		F2	Runs editing of a selected attribute (column) of the selected item.
Symbol and library...		Ctrl+Shift+S	Definition of symbol for a selected transfer item.
Default symbol and library...			Enables to set a default symbol for a currently being edited type of vector objects (point, polyline, area) from the selected symbol library.
Sort upwards		Ctrl+U	Sorts items upwards by value.
Sort downwards		Ctrl+D	Sorts items downwards by value.
Help		F1	Runs the help.

## Table Menu

Points		Shift+P	Displays a definition table of the edited transfer part for points.
Polylines		Shift+L	Displays a definition table of the edited transfer part for polylines.
Areas		Shift+A	Displays a definition table of the edited transfer part for areas.
Help		F1	Runs the help.

### 3.4.1. New item in the symbol transfer by interval



New item dialog

Set interval borders of a new item of the edited transfer in the *Start value* and *End value* fields.

Set item descriptions in the *Description 1* a *2* fields. The descriptions are optional.

In the *Symbol library* field select a symbol library from which a symbol for a new item is to be selected.

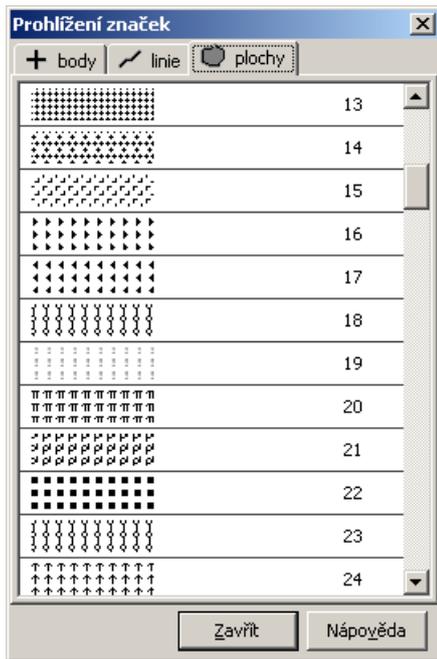
Select a symbol for an item from a symbol list in the *Symbol*, field or set its number in the *Symbol ID* field.

### Note

The symbol ID order doesn't have to be coherent - the Symbol ID field is limited only by minimum and maximum value of the symbol ID within the library. If an invalid symbol ID is set, it's impossible to finish the dialog with the OK button and the user is asked to set a valid symbol.

## 3.5. Included symbols preview

The symbols included in a symbol transfer can be previewed in the Symbols preview dialog.



Symbols preview dialog

Symbols for individual vector object types are displayed in tables. If a transfer doesn't contain any record for a vector object type, the table for this type isn't displayed.

In each table row a symbol and assigned value in a transfer is displayed (for transfers by unique values) or an interval border of values separated by two comas (for transfers by interval).

## 4. Symbol transfer by TopoL

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# Chapter 6. Data display

Data in the TopoL are displayed in map windows. A number of map windows is not limited theoretically (depending on capacity of a computer in which the TopoL 2001 is installed). Content of map windows is mutually independent - in each of them various data can be displayed or identical data can be presented in another way. But certain data can be displayed in the same window only once (for example one polyline table can't be showed twice in the same map window).

Data can be displayed in a map window independently of their coordinate system - all displayed data (including rasters) are transformed during the display into a coordinate system of the map window in which they are displayed.

## 1. How to display data

The first step for data display is to create a map window. This is carried out by selection of the New map window command from the Window menu.

Data can be inserted into a map window by pulling over with mouse from the Data tree into a corresponding map window. Another option is to use the Display command in a current map window or the Display command in all map windows from the Data menu.

### Note

Any folder from the Data tree can be inserted into a map window - in the map window all the data included in this folder will be displayed, including their subcomponents.

A way of default data display can be selected in the Project setting, the Display item. Default properties of a map window can be selected again in the Project setting, the Map window item.

Display properties of already displayed data can be changed in the Display dialog, which is accessible from the Display menu, the Display setting command. Another option is to select data in a map window legend and to select the Display properties command.

### Note

The way of automatic data insert into map windows after their opening can be set in the Environment setting dialog, the Opening/closing data category.

## 2. Map window

A map window serves to display data presentation. A legend is one of its parts, in which a displayed data list is displayed including the way of presentation preview. The layer properties for displaying can be set in the legend as well. Multiple and individual setting of displayed data properties and their administration are carried out in the Display dialog which is accessible by the Display setting from the View menu.

Další součástí mapového okna je okno s přehledem dat. Slouží k celkovému náhledu dat zobrazených v mapovém okně. Lze v něm posouvat a měnit výřez (viz. kapitola Přehled dat v mapovém okně).

A new map window can be created by the New map window command from the Window menu.

Current map window properties (Window name, background colour, relative scale and coordinate system) are set by the Map window properties command from the Map window menu.

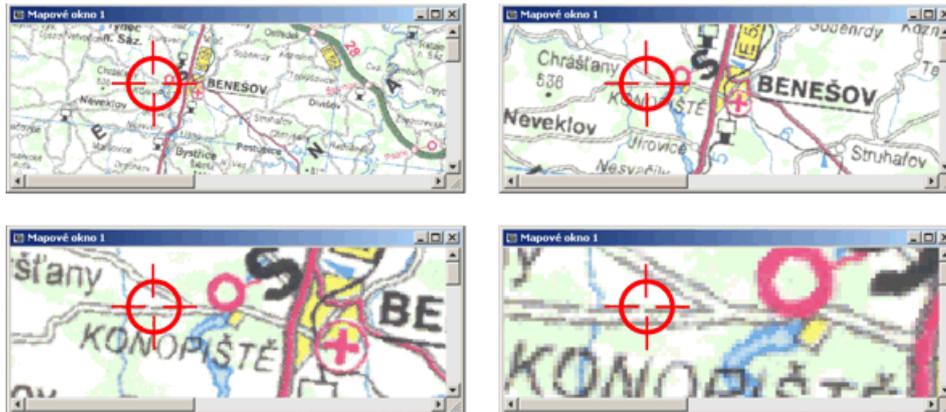
The current map window viewport can be modified with the mouse wheel or by standard commands from the View menu.

## 2.1. Use of mouse wheel in map window

The mouse wheel can be used in a map window for rolling within the window and for a viewport change.

wheel direction	pressed keys	viewport change
Ahead		A viewport in a map window is shifted downwards. The shifting is only within the window scrollbar range.
Aback		A viewport in a map window is shifted upwards. The shifting is only within the window scrollbar range.
Ahead	Shift	A viewport in a map window is shifted to the right. The shifting is only within the window scrollbar range.
Aback	Shift	A viewport in a map window is shifted to the left. The shifting is only within the window scrollbar range.
Ahead	Ctrl	A scale minimizing (Zoom+) by a gross change.
Aback	Ctrl	A scale maximizing (Zoom-) by a gross change.
Ahead	Shift + Ctrl	A scale minimizing (Zoom+) by a fine change.
Aback	Shift + Ctrl	A scale maximizing (Zoom-) by a fine change.

A viewport change with wheel is always carried out so that the point, above which the mouse cursor was situated during moving with wheel, stays in place (s. the following image).



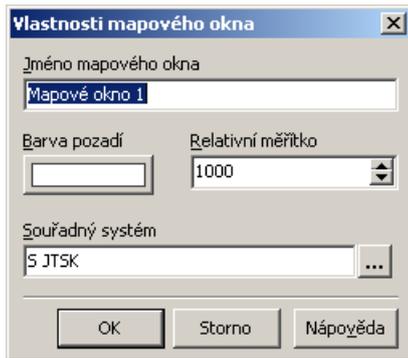
Viewport change with wheel

### Note

Multiples of the viewport change with wheel are set in the Environment setting dialog Zoom with wheel category. The dialog is accessible from the Tools menu, the Options command.

## 2.2. Map window properties

Parameters of a map window can be set in the Map window properties dialog. This dialog is accessible (for a current map window) from the Window menu, the Map window properties command.



Map window properties dialog

The window title is set into the *Map window name* field - it's displayed in the upper bar of the window.

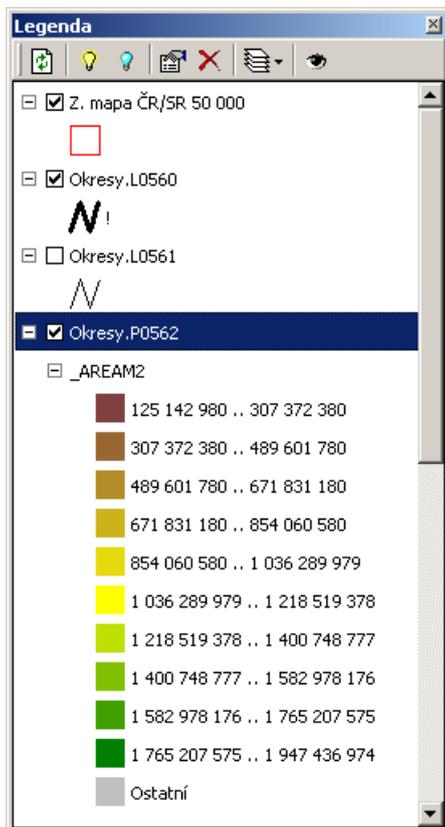
If you press the *Background colour* button, a standard MS Windows dialog is opened for a colour selection - the map window background will be drawn in the selected colour.

In the *Relative scale* field a relative scale of a map window is set - the scale is used for drawing of some symbols (mostly user symbols) and it influences their size.

A current coordinate system of a map window is displayed in the *Coordinate system* field. Its change can be done, if you press the button next to this field.

## 2.3. Map window legend

In a map window legend there is a list displayed of the data displayed in the map window including a preview of their presentation. Data in the legend are ordered according to the display order - data at the first place in a legend are displayed "atop" - that is they are drawn as the last.



Map window legend

All displayed data are represented in a legend by the "unpack" item. A legend item name is identical at data display to a name of this data in the "data tree", independently of the data name - an item created from the specific data can have different names in each map window.

A change of displayed visibility is specified by the checking field next to the name of every displayed layer - a change in a map window comes out only after its redrawing.

There is a data presentation preview displayed for every item in a map window. This preview is either formed by a symbol (data are displayed by unified colour and symbol) or by a legend (resp. by legends - if the data colour and symbol are displayed by database attribute). A legend is displayed for an item in case the data are displayed via a colour (symbol) transfer by database attribute. In the legend header a name of the database attribute is displayed by which the data are presented. In the legend body assignment of individual colours (symbols) is displayed to specific values from the database.

### Note

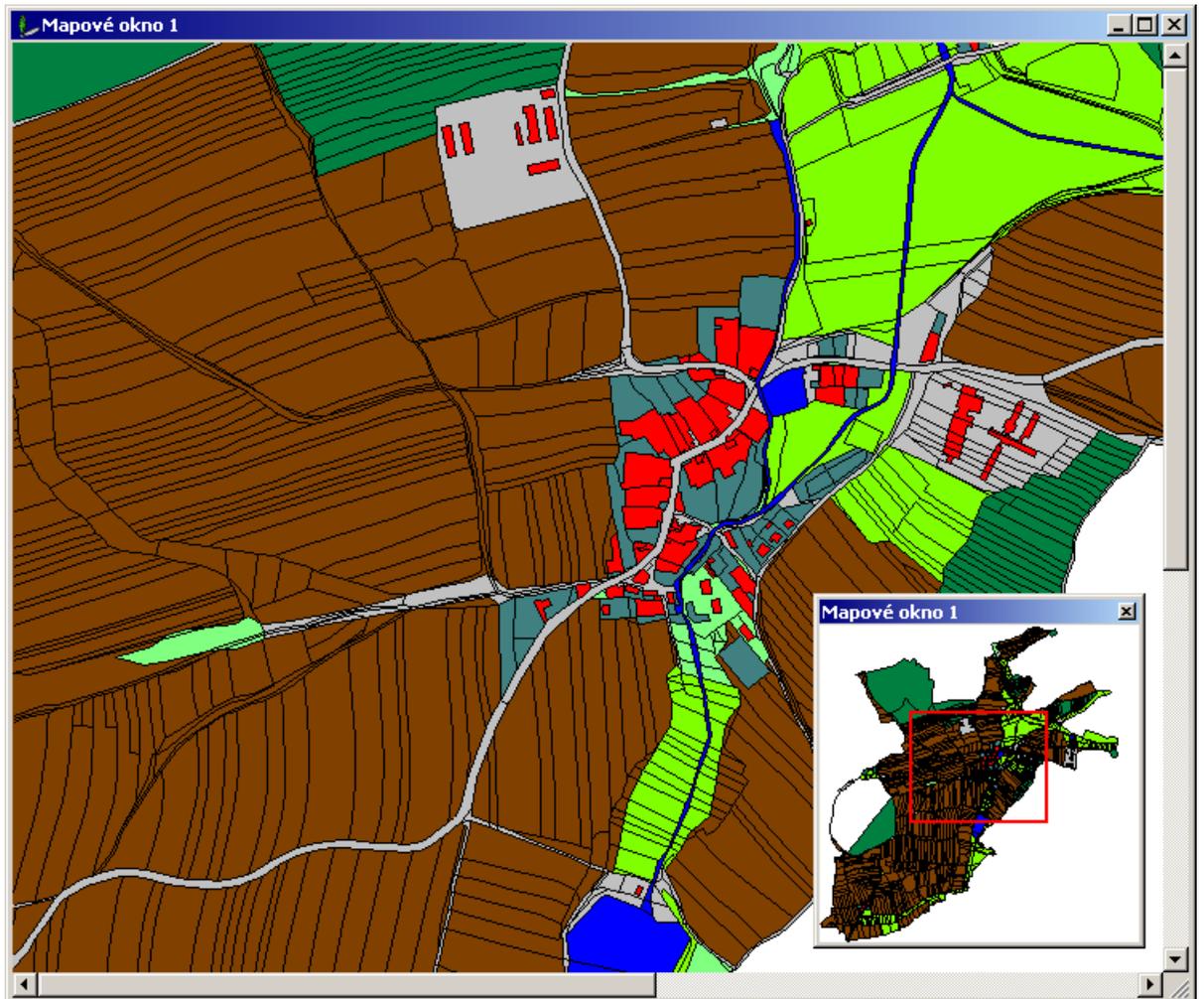
The exclamation (!) symbol behind a preview of data display means that a colour or a symbol of vector data (resp. both colour and symbol) are displayed by these attributes saved directly in the data - this possibility occurs only for the TopoL Block and DGN formats data. In such case a colour (symbol) of the first displayed vector object (colour and symbol of the first point, polyline, areas) is used for the data display within the legend.

The change of individual items within the legend and change of their order is carried out via commands from the specific menu or from the toolbar.

Redraw		Alt+O	Redraws a content of a map window.	
Display			Zapne zobrazování všech dat vybraných v legendě.	
Hide			Vypne zobrazování všech dat vybraných v legendě.	
Displaying properties			Opens the Properties dialog for displaying, in which you can set displaying parameters of the data selected in the legend.	
Delete			Removes the data selected in the legend from the display.	
Order			Change of a location within the drawing order of the data selected in the legend:	
				Brings the selected layer ahead.
				Brings the selected layer ahead by one in the displaying order.
				Brings the selected layer aback by one in the displaying order.
				Brings the selected layer aback.
Display setting		Alt+Z	Opens the Display settings dialog in which you can set display properties of all the data displayed in the map legend.	

## 2.4. Přehled dat v mapovém okně

V přehledu jsou všechna data zobrazována v příslušném mapovém okně. Výřez v přehledu je nastaven tak, aby byla všechna zobrazená a viditelná data. Aktuální výřez v příslušném mapovém okně je nakreslen obdélníkem.



Mapové okno s přehledem dat

Kliknutím a táhnutím myši v přehledu můžete přesunout výřez v mapovém okně (pan) - pokud tažení výřezu začne mimo aktuální výřez, nebo pokud je při kliknutí stisknuta klávesa Shift, je aktuální výřez přesouván za jeho střed, jinak je výřez přesouván dle místa jeho uchopení. Pokud je při kliknutí myši stisknuta klávesa Ctrl, je umožněna změna výřezu (zoom +) - tažením myši lze zvolit část dat, která budou v mapovém okně zobrazena. Přesouvání a změnu výřezu lze zrušit stiskem klávesy Esc nebo stiskem pravého tlačítka myši.

### Note

Vypnout a zapnout Přehled dat lze v menu Mapové okno, příkaz Zobrazit / skrýt okno s přehledem dat. Implicitní nastavení pro to, zda otevírat okna s přehledem dat při vytvoření mapového okna lze v Nastavení projektu, v položce Mapové okno. Tento příkaz je dostupný z menu Projekt.

## 2.5. Display setting in map window

In this dialog the data displayed in a map window are set. A list of all the displayed data is displayed in a table - after the dialog is closed, the data will be displayed in the same order as in the table. Data in a map window are drawn from the end of the list to its start - it means the data drawn at the start of the list will be displayed as the last - they will be displayed "atop".

The table with the list of the displayed data is divided into columns. If you click on a column header, data in the legend will be ordered by the attribute displayed in the corresponding column.

- *Name*  
A name of data in the map window legend.
- *Displaying*  
Specifies whether the layer is displayed.
- *Type*  
The displayed data type - we recognize the following types: points, polylines, areas, texts, rasters, grids and map sheets. If the data are ordered by this attribute, the order by the automatic data ordering in the Project properties is used.
- *Data source*  
Location of a displayed layer in the project data tree.
- *File name*  
Location of a displayed layer on the disc. For grids and map sheets this column is empty because they don't exist on the disc.

Jméno	Viditelnost	Typ	Zdrojová data	Zdrojový soubor (adresář)
Obce.blk.B0001	Ano	body	Projekt\Obce.blk\B0001	D:\Data\ATLAS\Obce.blk
UKAZKA.BLK.T0001	Ano	text	Projekt\UKAZKA.BLK\T0001	D:\Data\TopData\UKAZKA.BLK
15 000,000 x 15 000,000	Ano	grid	Projekt\15 000,000 x 15 000,000	
Z. mapa ČR/SR 200 000	Ano	mapový list	Projekt\Z. mapa ČR/SR 200 000	
UKAZKA.BLK.L0001	Ano	linie	Projekt\UKAZKA.BLK\L0001	D:\Data\TopData\UKAZKA.BLK
UKAZKA.BLK.L0015	Ano	linie	Projekt\UKAZKA.BLK\L0015	D:\Data\TopData\UKAZKA.BLK
Okresy.blk.L0560	Ano	linie	Projekt\Okresy.blk\L0560	D:\Data\ATLAS\Okresy.blk
Okresy.blk.L0561	Ano	linie	Projekt\Okresy.blk\L0561	D:\Data\ATLAS\Okresy.blk
Okresy.blk.L0562	Ano	linie	Projekt\Okresy.blk\L0562	D:\Data\ATLAS\Okresy.blk
UKAZKA.BLK.P0014	Ano	plochy	Projekt\UKAZKA.BLK\P0014	D:\Data\TopData\UKAZKA.BLK
Okresy.blk.P0562	Ano	plochy	Projekt\Okresy.blk\P0562	D:\Data\ATLAS\Okresy.blk
UKAZKA.RAK	Ano	rastr	Projekt\UKAZKA.RAK	D:\Data\TopData\UKAZKA.RAK

Display dialog

The dialog can be closed in two ways: you can press the *Close* button - the dialog will be closed only; if you press the *Redraw* the dialog will be closed and the map window, for which the display setting have been done, will be redrawn. The way of the closing doesn't affect the executed changes confirming because the modifications are realised immediately after their carrying out.

Setting of individual layers can be changed by commands from the menu, context menu or from the toolbar.

Item Menu

Delete		Ctrl+Del	Removes the selected data from the display.
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Do not display			Switches off the display of the selected data.	
Display			Switches on the display of the selected data.	
Order			Move item down 	Moves the selected data down by one in the displaying order.
			Move item up 	Moves the selected data up by one in the displaying order.
			Bring ahead 	Brings the selected data ahead in the displaying order.
			Bring aback 	Brings the selected data aback in the displaying order.
			After...	Changes a cursor to an arrow by which any displayed data can be selected. After the selection the selected data will be moved in the displaying order after the selected layer.
			Before...	Changes a cursor to an arrow by which any displayed data can be selected. After the selection the selected data will be moved in the displaying order before the selected layer.
Close			Closes the dialog.	

Setting Menu

Layer properties		Alt+Enter	If there is only one layer selected, the dialog for setting of its properties for display is opened (the dialog shape depends on a type of the selected data). If more layers are selected, the dialog for setting of basic properties for display is opened (visibility, snapping, minimum and maximum scale for display).
Points		Ctrl+Alt+P	If there is only one layer of points among the selected data, the dialog for setting of its properties for display is opened, otherwise the dialog for multiple setting of display properties for points is opened.
Polylines		Ctrl+Alt+L	If there is only one layer of polylines among the selected data, the dialog for setting of its properties for display is opened, otherwise the dialog for multiple setting of display properties for polylines is opened.
Areas		Ctrl+Alt+A	If there is only one layer of areas among the selected data, the dialog for setting of its properties for display is opened, otherwise the dialog for multiple setting of display properties for areas is opened.
Texts	<b>A</b>	Ctrl+Alt+T	If there is only one layer of texts among the selected data, the dialog for setting of its properties for display is opened, otherwise the dialog for multiple setting of display properties for texts is opened.
Binary rasters		Ctrl+Alt+B	If there is only one binary raster among the selected data, the dialog for setting of its properties for display is opened, otherwise the dialog for multiple setting of display properties for binary rasters is opened.

Colour and grayscaled rasters		Ctrl+Alt+C	If there is only one colour or grayscaled raster among the selected data, the dialog for setting of its properties for display is opened, otherwise the dialog for multiple setting of display properties for colour and grayscaled rasters is opened.
Raster edges		Ctrl+Alt+E	For all the rasters selected in the table the dialog for multiple setting of raster edges is opened.
Grids		Ctrl+Alt+G	If there is only one grid among the selected data, the dialog for setting of its properties for display is opened, otherwise the dialog for multiple setting of display properties for grids is opened.
Map sheets		Ctrl+Alt+M	If there is only one map sheet among the selected data, the dialog for setting of its properties for display is opened, otherwise the dialog for multiple setting of display properties for map sheets is opened.

Tools Menu

Redraw			Redraws a map window for which the setting of the display data is carried out.	
Sort by			display order	Sorts the data within the table in the same order as in their current display.
			name	Sorts the data within the table in alphabetical order by their name.
			displaying	Sorts the data within the table by their visibility.
			type	Sorts the data within the table by their type.
			data source	Sorts the data within the table by their location in the data tree.
			file name	Sorts the data within the table by their location on the disc.
Help		F1	Runs the help.	

Select Menu

Select points		Shift+Ctrl+P	Selects all point layers within the table.
Select lines		Shift+Ctrl+L	Selects all line layers within the table.
Select areas		Shift+Ctrl+A	Selects all area layers within the table.
Select texts		Shift+Ctrl+T	Selects all text layers within the table.
Select vector objects		Shift+Ctrl+V	Selects all vector data layers (points, polylines, areas and texts) within the table.
Select rasters		Shift+Ctrl+R	Selects all raster layers within the table.
Select binary rasters		Shift+Ctrl+B	Selects all binary raster layers within the table.
Select colour and grayscaled rasters		Shift+Ctrl+C	Selects all colour and grayscaled raster layers within the table.
Select grids		Shift+Ctrl+G	Selects all grid layers within the table.
Select map sheets		Shift+Ctrl+M	Selects all map sheet layers within the table.
Select all		Ctrl+A	Selects all layers within the table.

Unselect all		Ctrl+U	Cancels the selection of all layers within the table.
Invert selection		Ctrl+I	Converts the deselected layers into the selected and vice versa.

### 2.5.1. Multiple setting of basic display properties

In this dialog you can set basic display parameters of the data selected in the Display settings dialog.



Display properties dialog

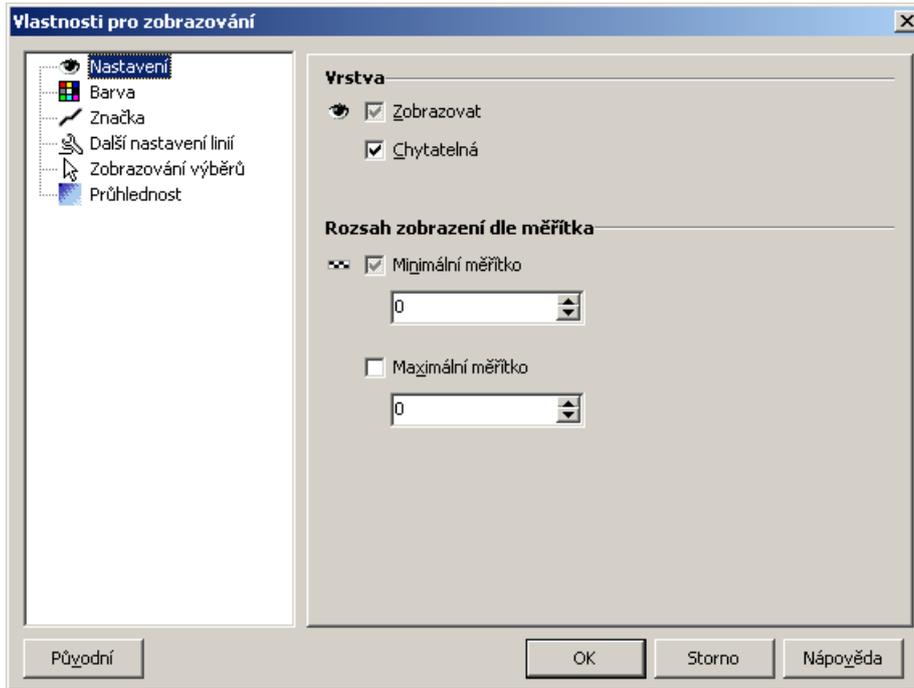
In the *Display* field a visibility of the selected data is specified. If the field is grayed, a visibility of the selected data will not be changed.

*Snappable* - checking of this field specifies whether the selected data will be included at editing to a list of the data which take part in snapping. If the field is grayed, this property will not be changed for the selected data.

The *Minimum and maximum scale* fields specify a scale interval of a map window in which the selected data will be displayed. If the checking fields are grayed, scales of the selected data will not be changed.

### 2.5.2. Multiple setting of display properties

Parameters for the selected data display are set in the Display properties dialog. Properties of the displayed data are divided by their importance into categories that are displayed in the right part of the dialog in the "tree" structure.



Display properties dialog

If you press the *Reset* button you can reload original properties of the selected data so that they are set at opening of this dialog.

Individual categories of properties differ according to a type of the displayed data:

Points

	Options	Common setting for the data display - name, visibility, minimum and maximum scale etc.
	Colour	Points colour setting.
	Symbol	Points symbol setting.
	Advanced points setting	Point symbols angle setting.
	Selections display	Points display by selection.
	Transparency	Points transparency setting.

Polylines

	Options	Common setting for the data display - name, visibility, minimum and maximum scale etc.
	Colour	Polylines colour setting.
	Symbol	Polylines symbol setting.
	Advanced polylines setting	Advanced polylines setting.
	Selections display	Polylines display by selection.
	Transparency	Polylines transparency setting.

Areas

	Options	Common setting for the data display - name, visibility, minimum and maximum scale etc.
	Colour	Areas colour setting.
	Symbol	Areas symbol setting.
	Advanced areas setting	Advanced areas setting.
	Selections display	Areas display by selection.
	Transparency	Areas transparency setting.

Texts

	Options	Common setting for the data display - name, visibility, minimum and maximum scale etc.
	Colour	Texts colour setting.
	Style	Texts colour setting.
	Selections display	Texts display by selection.
	Transparency	Texts transparency setting.

Binary rasters

	Setting	Common setting for the data display - name, visibility, minimum and maximum scale etc.
	Raster	Binary rasters colour setting.
	Raster borders	Binary rasters borders setting.

Colour and grayscaled rasters

	Options	Common setting for the data display - name, visibility, minimum and maximum scale etc.
	Raster	Setting of colour and gamma correction of colour and grayscaled rasters.
	Hranice rastru	Nastavení hranic binárních rastrů
	Raster borders	Colour and grayscaled raster borders setting.

Grids

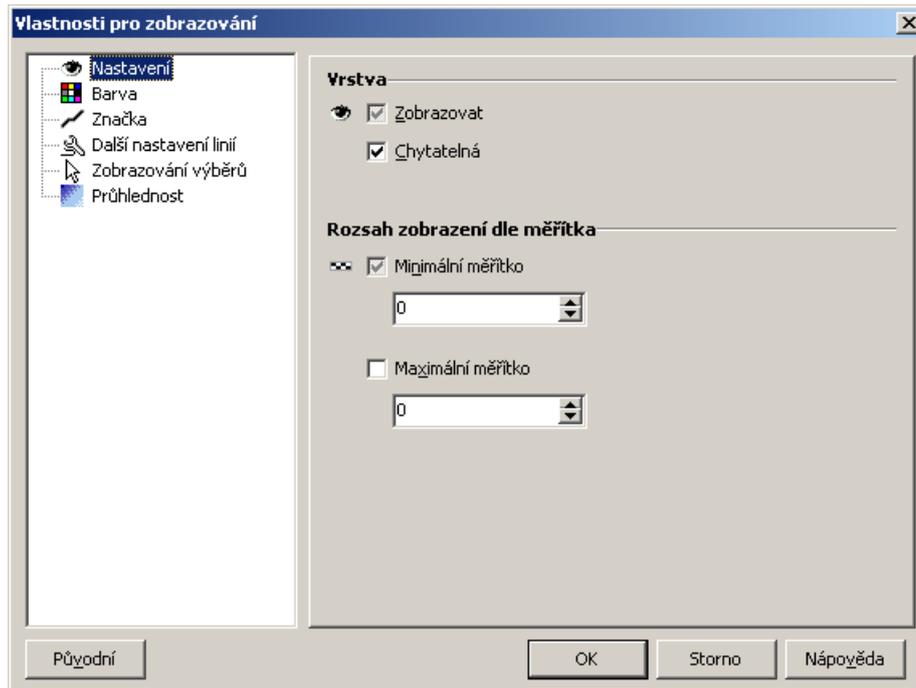
	Setting	Common setting for the data display - name, visibility, minimum and maximum scale etc.
	Grid	Setting of a grids display type.

Map sheets

	Options	Common setting for the data display - name, visibility, minimum and maximum scale etc.
	Map sheets	Setting of a map sheets display type.

### 2.5.2.1. Common setting of layers for display

The *Setting* category is shared by all the displayed data types.



Display properties dialog, Setting category

The *Display* field specifies the data visibility - the data will be displayed if this field is checked.

*Snappable* - checking of this field specifies whether the data will be included at editing to the list of the data which take part in the snapping.

#### Note

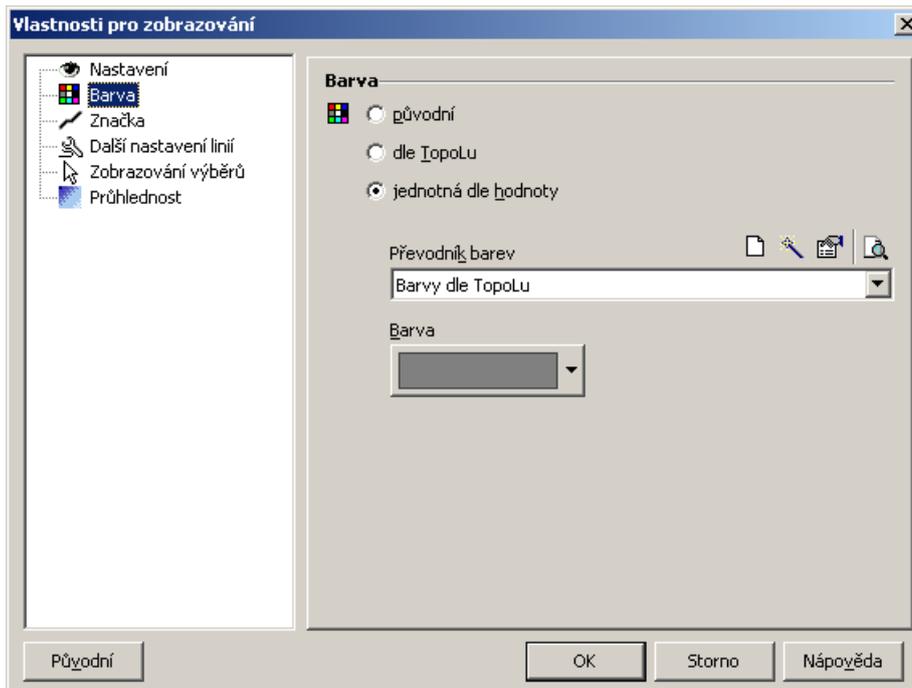
This field is accessible for vector objects and grids only.

The *Minimum and Maximum scale* fields specify a scale interval of a map window in which the data will be displayed.

#### Note

If any checking field is grayed (*Display, Snap, Minimum and Maximum scale*), the property will not be set - it will stay unchanged for all data.

## 2.5.2.2. Multiple setting of vector objects colour



Display properties dialog, Colour category

In the *Colour* category a colour for vector objects display is set. The basic setting is carried out by selecting of objects source colour. There are three options:

- *Previous*  
Colour of the selected data will not be changed.
- *By TopoL*  
Objects will be displayed in a colour saved within them. This option is accessible only if all the selected data are in the TopoL Block or DGN formats.
- *Unified by value*  
All data will be displayed in a unified colour. This colour is selected after you press the *Colour* button from a colour transfer selected in the *Colour transfer* field.

In the *Colour transfer* field a colour transfer is selected that will be used to obtain a colour of objects during their drawing. You can select from all the colour transfers defined in the project.

### Note

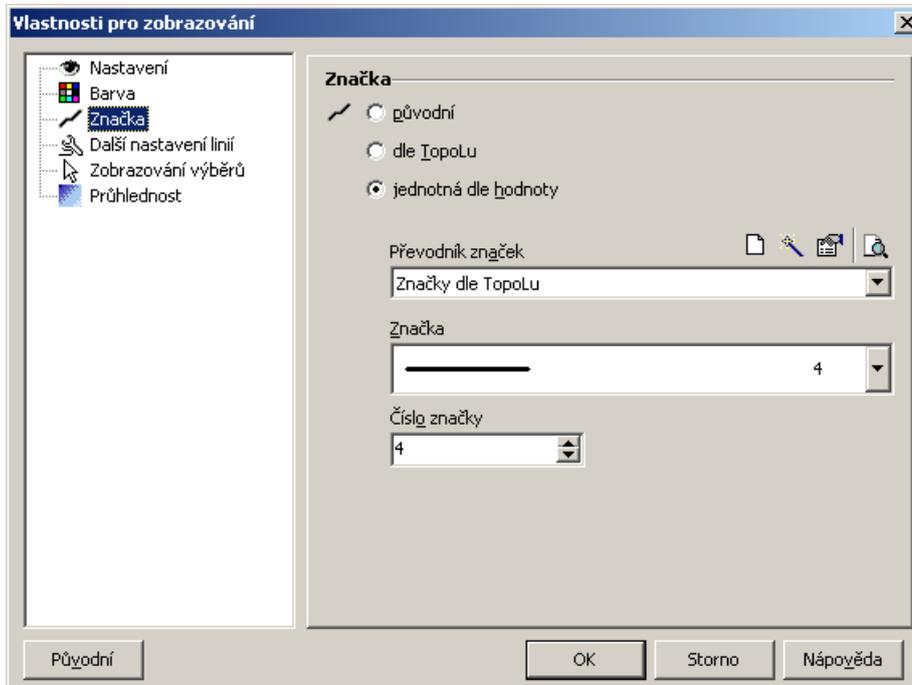
At a selection of the Colour by TopoL the Colour transfer by TopoL will be used for the display regardless the colour setting

With buttons above the *Colour transfer* field you can define a new transfer or modify properties of the following:

	New colour transfer creation
	Creating of a new colour transfer with the wizard.

	Editing of a colour transfer selected in the <i>Colour transfer</i> field. The Editing of colour transfer by TopoL, Editing of colour transfer by unique values or the Editing of colour transfer by intervals will be activated by the type of a transfer.
	Opens a dialog in which all the colours, defined in the transfer selected in the <i>Colour transfer</i> field, are displayed.

### 2.5.2.3. Multiple setting of vector objects symbol



Display properties dialog, Symbol category

In the *Symbol* category a symbol is set for vector objects display. Basic setting is carried out by selection of the objects symbol source. Three options are available:

- *Previous*

The selected data symbol will not be changed.

- *By TopoL*

Objects will be displayed as a symbol saved in them. The option is accessible only when all selected data are in the TopoL Block or DGN formats.

- *Unique by value*

All objects within a layer will be displayed by a unified symbol. The symbol is selected from a list of symbols in the *Symbol* field. In this list all the symbols, contained in a symbol transfer selected in the *Symbol transfer* field, are located. The symbol can be also selected with a number in the *Symbol ID* field.

In the *Symbol transfer* field a symbol transfer is selected that will be used to obtain a symbol of objects at their drawing. You can select from all the symbol transfers defined in the project.

### Note

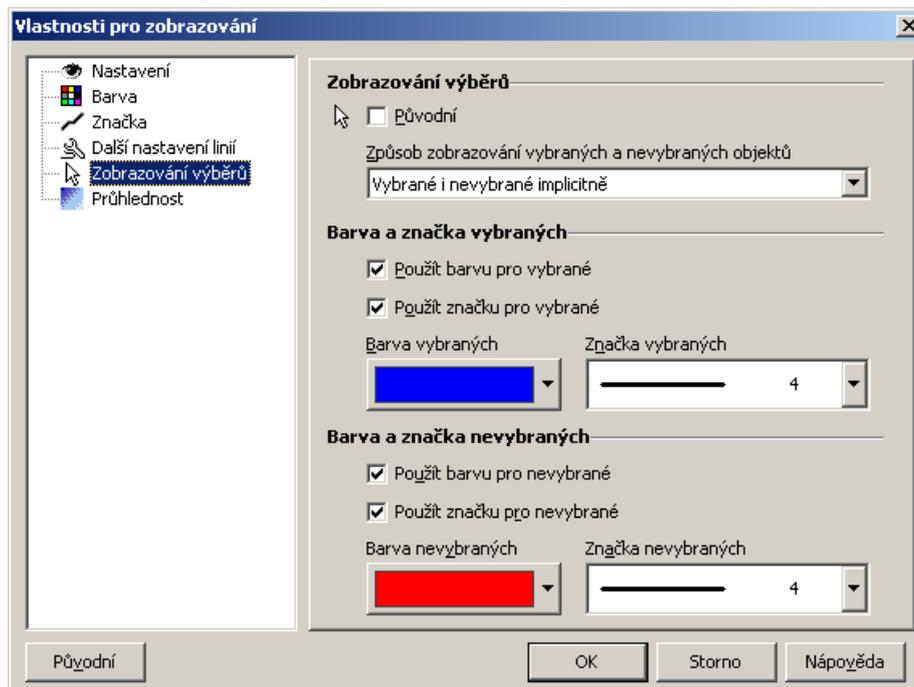
For the Symbol by TopoL selection only transfers of the Transfer by Topol sort can be used.

With buttons above the *Symbol transfer* field you can define a new transfer or to modify properties of those already existing:

	New symbol transfer creation.
	Creating of a new symbol transfer with wizard.
	Editing of a symbol transfer selected in the <i>Symbol transfer</i> field. The Editing of symbol by unique values or the Editing of symbol transfer by intervals will be activated according to a transfer type. Symbol transfers of the Transfer by Topol sort can't be edited.
	Opens the Symbols preview dialogin which all the symbols, included in the symbol transfer selected in the Symbol transfer field, are displayed.

### 2.5.2.4. Multiple setting of display by selections

The *Selections display* field specifies how vector objects will be displayed by selections.



Display properties dialog, Selections display category

Selections display

If the *Previous* field is checked, the display by selections will not be set for the selected objects - the original setting will be kept.

In the *Setting of selected and deselected objects display* field a basic setting of objects display by selection is set. The options are following:

- *Selected and deselected by display setting*

Objects will be displayed without regard to the selection - objects will be displayed in the same way as set in the Colour and Symbol categories.

- *Selected by advanced setting, deselected by display setting*

The selected objects will be displayed by a setting in this category, the deselected objects will be displayed without regard to the selection - they will be displayed as set in the Colour and Symbol categories.

- *Selected by display setting, deselected by advanced setting*

The deselected objects will be displayed by a setting in this category, the selected objects will be displayed without regard to the selection - they will be displayed as set in the Colour and Symbol categories.

- *Only selected by advanced setting*

Only the selected objects by this category will be displayed. The deselected objects will not be displayed at all.

- *Only selected by display setting*

Only the selected objects by a setting in the Colour and Symbol categories will be displayed. The deselected objects will not be displayed at all.

- *Only deselected by advanced setting*

Only the deselected objects by this category will be displayed. The deselected objects will not be displayed at all.

- *Only deselected by display setting*

Only the deselected objects by a setting in the Colour and Symbol categories will be displayed. The selected objects will not be displayed at all.

- *Selected and deselected by advanced setting*

The selected and deselected objects will be displayed by a setting in this category.

## Note

Pro hromadné nastavení zobrazování textů dle výběru není k dispozici nastavení jeho stylu - pro texty lze nastavit pouze jejich barvu.

### Colour and symbol of selected

Checking of the *Use colour of selected* specifies whether a colour by the *Colour of selected* (the field is checked) will be used for the selected objects display or whether the selected objects will be displayed in a colour by the setting in the Colour category (the field isn't checked).

Checking of the *Use symbol of selected* specifies whether a symbol by the *Symbol of selected* (the field is checked) will be used for the selected objects display or whether the selected objects will be displayed by a symbol by the setting in the Symbol category (the field isn't checked).

### Colour and symbol of deselected

Checking of the *Use colour of deselected* specifies whether a colour by the *Colour of deselected* (the field is checked) will be used for the deselected objects display or whether the deselected objects will be displayed in a colour by the setting in the Colour category (the field isn't checked).

Checking of the *Use symbol of deselected* specifies whether a symbol according to the *Symbol of deselected* (the field is checked) will be used for the deselected objects display or whether the deselected objects will be displayed by a symbol by the setting in the Symbol category (the field isn't checked).

## Note

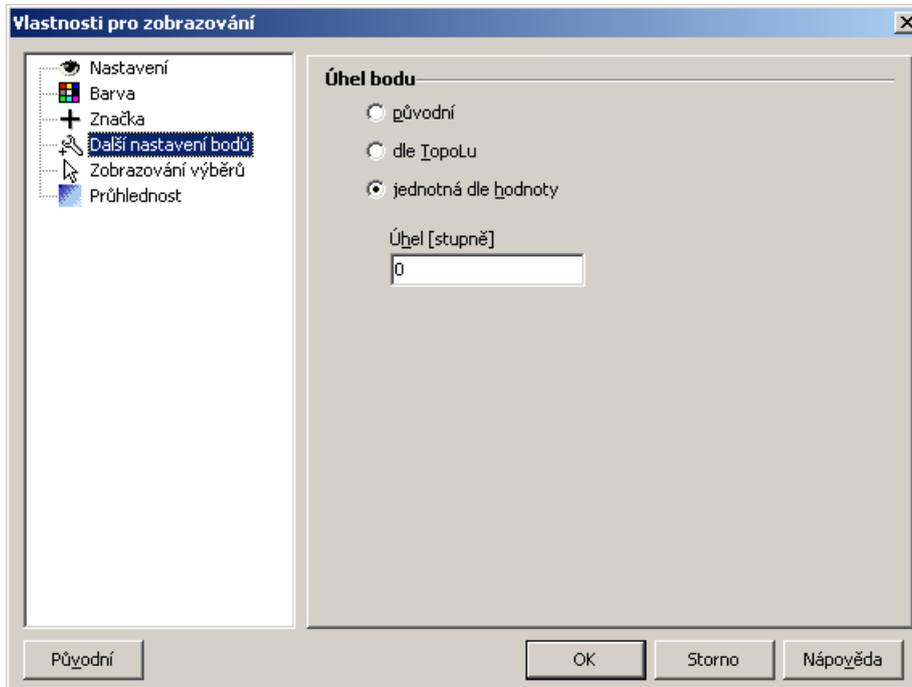
If any checking field (*Use colour of selected*, *Use symbol of deselected*, *Use colour of deselected*, *Use symbol of deselected*) is grayed, the corresponding property will not be set - for all the data its original value will be retained.

### 2.5.2.5. Multiple setting for advanced points properties

In the Other points setting category an angle of point symbols can be set for their display.

#### Note

Not all the point symbols can be drawn at any angle. The symbols that can't be rotated during a drawing will be drawn without regard to the angle setting.



Display properties dialog, Advanced points setting category

An angle of point symbol can be set for the display in three ways:

- *Previous*

Point symbols angle will not be set - for all data the original value will be retained.

- *By TopoL*

If this option is selected for a point angle, the angle of point symbols will be read directly from the data.

#### Note

This option is accessible only for the data within which a point angle is saved - for the data in the TopoL Block and DGN formats.

- *Unified by value*

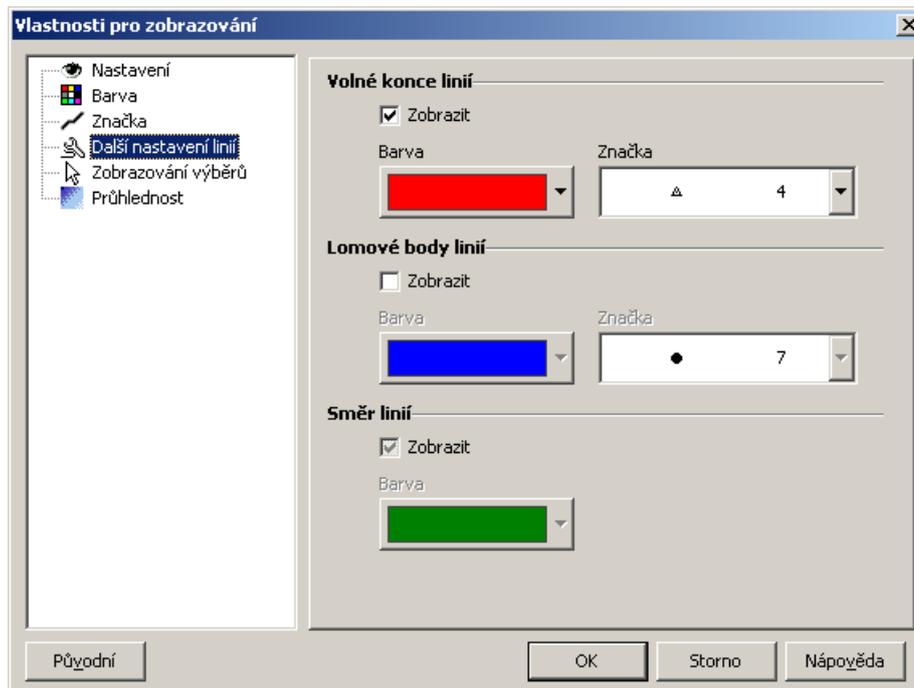
Set a point symbols angle into the *Angle* field. A unit for the angle setting is showed in the field name.

#### Note

A unit for the angle setting can be set as a variable of the TopoL environment. The setting is carried out in the Environment setting dialog, the Environment category. The dialog is accessible from the Tools menu, the Options command.

### 2.5.2.6. Multiple setting of advanced lines properties

In this category you can set other options for the lines display.



Display properties dialog, Advanced lines setting category

#### Free tails

If the *Display* field is checked, free tails will be displayed in a colour selected in the *Colour* field and by a symbol selected in the *Symbol* field.

#### Vertexes

If the *Display* field is checked, vertexes will be displayed in a colour selected in the *Colour* field and by a symbol selected in the *Symbol* field.

#### Line direction

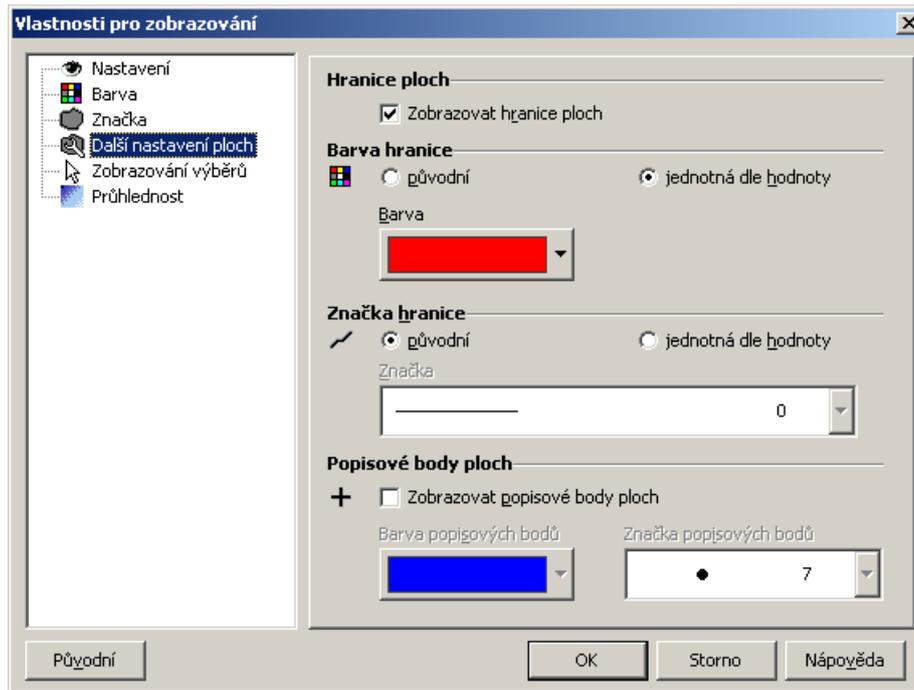
If the *Display* field is checked, a line direction will be displayed in a colour selected in the *Colour* field. The lines direction is displayed by an arrow on the line body.

### Note

If some of the *Display* checking fields is grayed, the corresponding property will not be changed.

### 2.5.2.7. Multiple setting of advanced area properties

In the Advanced area setting category parameters can be set for the display of area borders and area label points.



Dialog Vlastnosti pro zobrazování, kategorie Další nastavení ploch

#### Area borders

If the *Display area borders* field is checked, borders of areas will be displayed and it's possible to set their display in other fields of the dialog. If this field is grayed, the display of area borders will not be changed for the selected data.

#### Colour of border

If the *Previous* option is selected, a colour of the area border will not be changed for the selected data.

If the *Unified by value* option is selected, the border will be displayed in a unified colour set in the *Colour* field.

#### Symbol of border

If the *Previous* option is selected, a symbol of the area border will not be changed for the selected data.

If the *Unified by value* option is selected, the border will be displayed by a unified symbol set in the *Symbol* field.

#### Area label points

If you check the *Display area label points* field, the display of descriptive area points is enabled. The points will be displayed in a colour set in the *Label points colour* field and by a symbol set in the *Label points symbol* field.

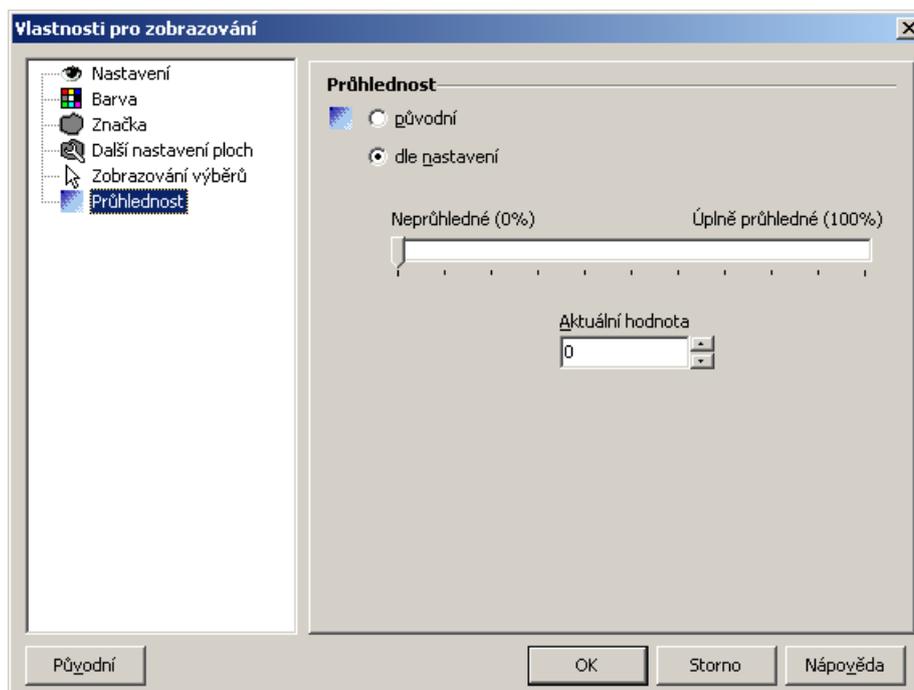
If the *Display area label points* field is grayed, the setting of the descriptive area points display will not be changed for the selected data.

### 2.5.2.8. Multiple setting of transparency of vector objects and rasters

The transparency of vector objects and rasters is specified by a coefficient within the range 0% (non transparent) to 100% (fully transparent).

#### Note

It's not possible to set the transparency for binary rasters.



Display properties dialog, Transparency category

If the *Previous* field is selected, transparency will not be changed for the selected data.

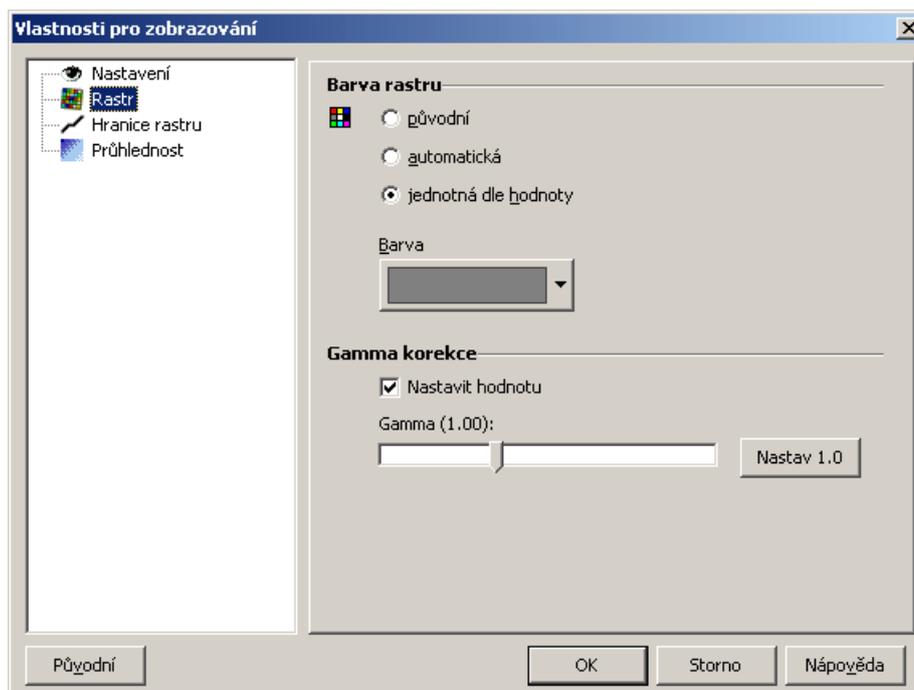
If you select the *By setting* field, a transparency coefficient of the selected data is set by change of the scrollbar position in the dialog or by number in the *Current value* field.

### 2.5.2.9. Multiple setting of rasters colour and gamma correction

In this category you can set a colour and gamma correction of a raster.

#### Note

The gamma correction can't be set for binary rasters; the *automatic* option isn't available for a colour selection of this raster type.



Display properties dialog, Raster category

#### Raster colour

For raster display colour there are three options:

- *Previous*

A colour of the selected rasters will not be changed.

- *Automatic*

A colour will be read from rasters - rasters will be displayed as created.

- *Unified by value*

Rasters will be displayed in a colour selected in the Colour field - binary rasters will be displayed in this colour, other rasters will be displayed in tones of this colour.

#### Raster gamma correction

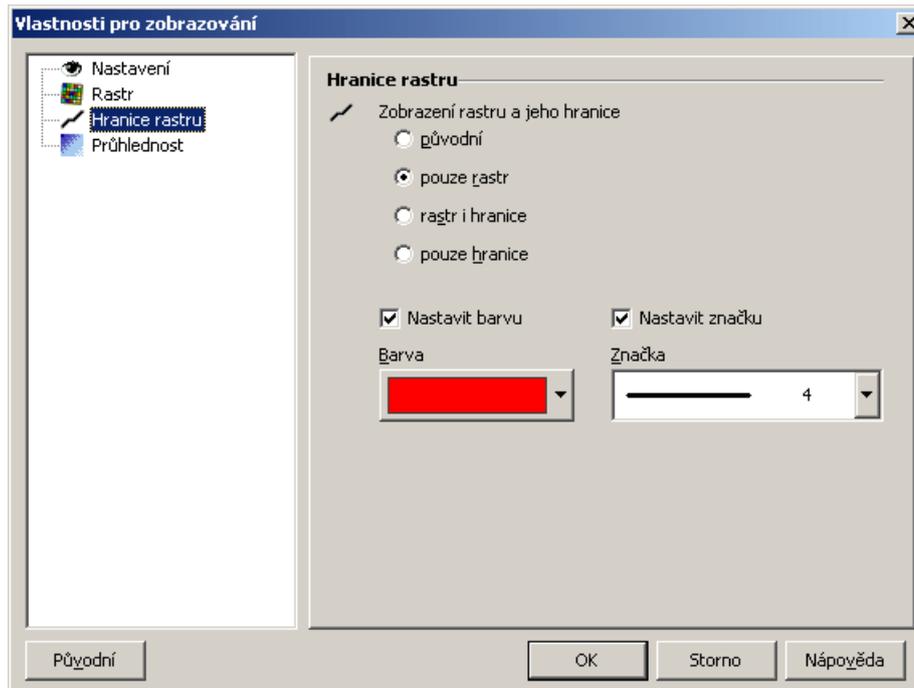
You can set a coefficient of raster gamma correction by change of the scrollbar position - the higher the coefficient is, the brighter the rasters are. If you want return to the original value 1.00, press the *Set 1.0* button.

### Note

A value of the raster gamma correction will be set only if the *Set value* field is checked.

## 2.5.2.10. Multiple setting of raster borders

In this category you can set borders of the selected rasters.



Display properties dialog, Raster borders category

#### Display of raster and its border

In the Display of raster and its border you can set the way of raster borders display. You have the following options:

- *Previous*  
The way of the display will not be changed, the current one will be retained.
- *Raster only*  
The raster borders will not be displayed - only the rasters will be displayed.
- *Raster and borders*  
Rasters and their borders will be displayed.
- *Borders only*  
Only the raster borders will be displayed.

#### Border colour

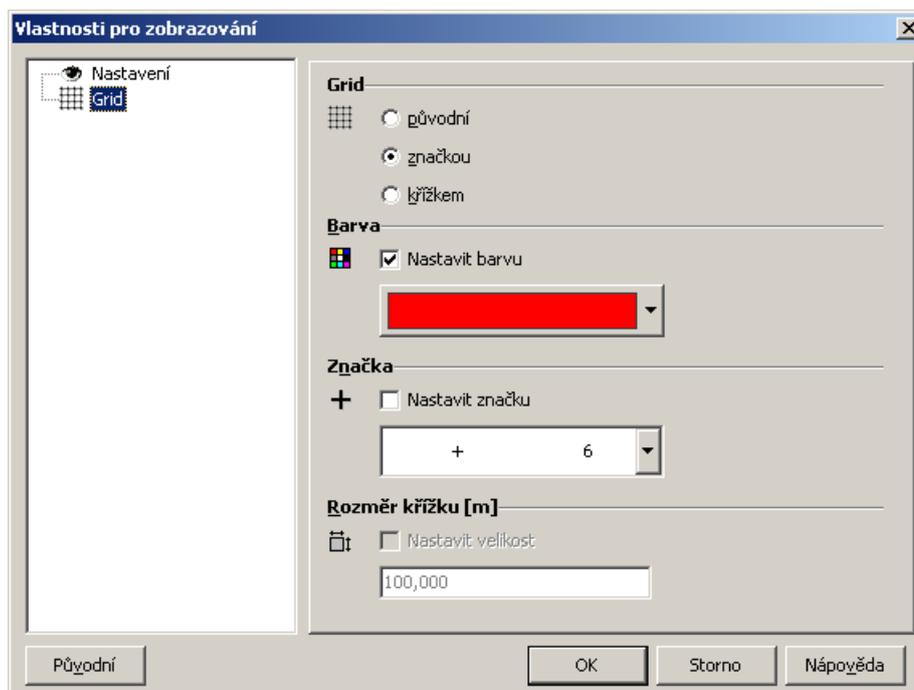
If the *Set colour* field is checked, a colour specified in the *Colour* field will be set for borders of the selected rasters.

#### Border symbol

If the *Set symbol* field is checked, a symbol specified in the *Symbol* field will be set for borders of the selected rasters.

### 2.5.2.11. Multiple setting of grids

In this section you can set a colour of grids and the way of their display.



Display properties dialog, Grid category

#### Grid

In this field you can select the way of a grid display:

- *Previous*

The way of the display will not be changed, the original one will be retained.

- *By symbol*

Grids will be displayed as a point symbols network. This symbol can be selected in the *Symbol* field.

- *By cross*

Grids will be displayed as a crosses network. A size of crosses can be selected in the *Cross size* field.

#### Colour

If the *Set colour* field is checked, a colour from this field will be used for display of grids.

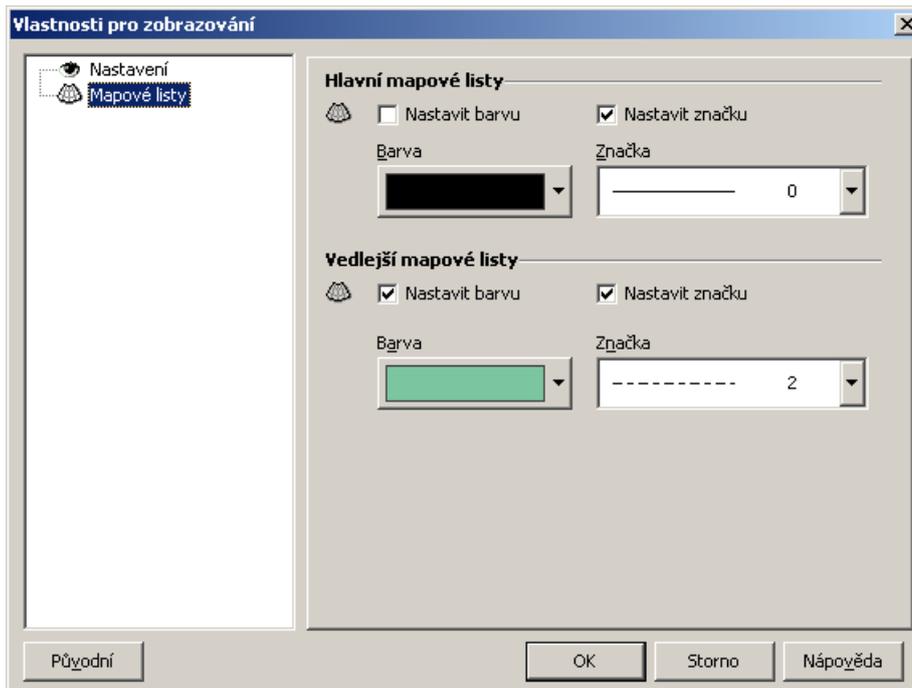
#### Symbol

If the grid display *By symbol* is selected and the *Set symbol* field checked, a symbol from this field will be used for the grids display.

#### Cross size

If the grid display *By cross* is selected and the *Set size* field is checked, grids will be displayed by a cross of the size set in this field. The cross size is set in meters.

### 2.5.2.12. Multiple setting of map sheets



Display properties dialog, Map sheets category

#### Note

A colour and symbol of map-sheets will be set only if the corresponding fields (*Set colour* and *Set symbol*) are checked.

#### Major map sheets

A colour of major map sheets is specified in the *Colour* field, a symbol of borders of major map sheets is specified in the *Symbol* field.

#### Minor map sheets

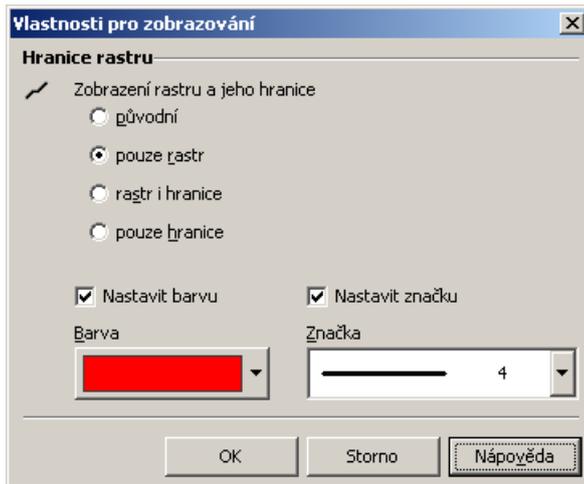
A colour of minor map sheets is specified in the *Colour* field, a symbol of borders of minor map sheets is specified in the *Symbol* field.

#### Note

Minor map sheets can be found only with the map layout of cadastral maps.

### 2.5.3. Multiple setting of raster borders

In this dialog borders of rasters selected in the Display setting dialog are set.



Raster borders dialog

#### Display of raster and its border

In this field you can set the way of the raster borders display. The options are following:

- *Previous*

The way of the display will not be changed, the current one will be retained.

- *Raster only*

Raster borders will not be displayed - only the rasters will be displayed.

- *Raster and borders*

Rasters and their borders will be displayed.

- *Borders only*

Only raster borders will be displayed.

#### Border colour

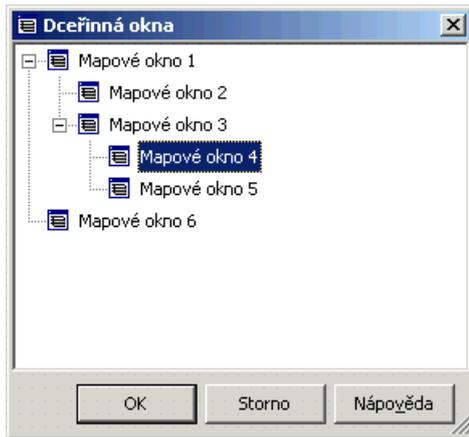
If the *Set colour* field is checked, a colour specified in the *Colour* field will be set for borders of the selected rasters.

#### Border symbol

If the *Set symbol* field is checked, a symbol specified in the *Symbol* field will be set for borders of the selected rasters.

## 2.6. Child map windows

Child map windows are administrated in the Child windows dialog, which is accessible from the Map window menu, the Child windows command.

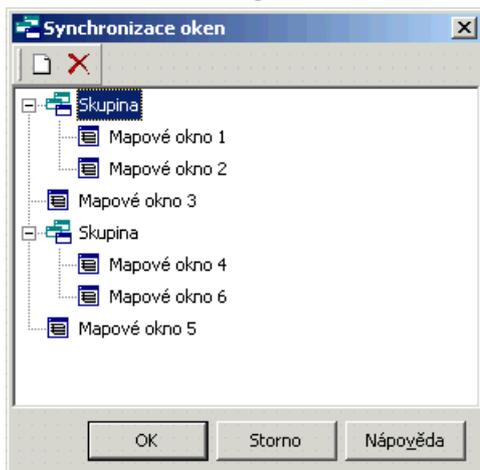


Child windows dialog

Each map window can have several child windows. A hierarchy of child windows is defined via their location in the data tree displayed within this dialog. A position in the data tree can be changed by pulling over with the mouse. If you want to remove a window from the hierarchy, pull it over to an empty place within the tree.

## 2.7. Synchronization of map windows

Groups of synchronized map windows are administered in the Windows synchronization which is accessible from the Map window menu, the Synchronization command.

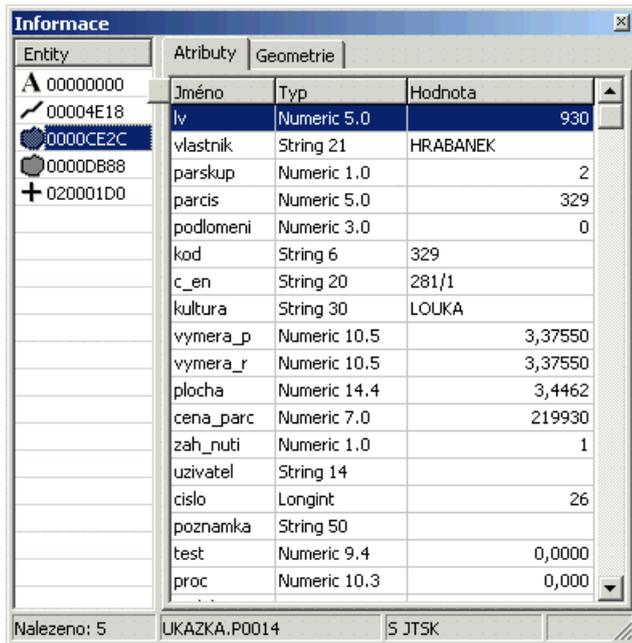


Windows synchronization dialog

Map windows can be synchronized into several groups. The groups can be created and deleted with buttons on the toolbar or by commands from the context menu. Windows can be moved among individual groups by pulling with the mouse. If you want to remove a window from a group, pull it over to an empty position in the tree.

## 2.8. Information on objects in map window

Via the selecting rectangle any number of objects can be selected information on which is displayed. The command is accessible from the Map window menu, the Identify command.



Information on objects dialog

In the left part of the dialog, in the Entities column, there is a list of all selected objects (to be included in the selection, an object must interfere, at least partly, in the selecting rectangle). After selection in the list the object is highlighted in all map windows it is displayed in and detailed information are displayed in the dialog body. In the status bar of the dialog a total number of the found objects is displayed (from the left), as well as a table in which the currently selected object and its coordinate system is located.

#### Attributes panel

In the table there are all the database attributes of an object selected in the Entity column. In columns of the table the following are displayed (from the left): Name of the attribute; its type; its value.

#### Geometry panel

A content of the Geometry panel depends on the selected object type:

## Geometry - Point

Information on objects dialog - Point

In the *Horizontal* and *Vertical location* fields there are coordinates of the selected point. In the *Angle* field there is an angle of the selected point, which is recorded in data (it can differ from the angle in which the point is currently displayed).

## Geometry - Polyline

	horizontální:	vertikální:
1.	738 470,650	1 052 272,858
2.	738 661,970	1 052 177,720
3.	738 811,106	1 052 171,369
4.	738 690,339	1 052 538,945
5.	738 793,102	1 052 724,097
6.	738 956,174	1 052 794,560
7.	739 242,691	1 052 839,993
8.	739 577,751	1 053 140,896
9.	739 797,797	1 053 181,440
10.	740 422,192	1 053 156,470

Information on objects dialog - Polyline

In the *Bounding box - min and max* fields there are the minimum and maximum coordinates of the circumscribed polyline rectangle there. Then there is a number of polyline vertexes displayed (the *Vertexes - count* field) and their coordinates display.

## Geometry - Area

Entity	Atributy	Geometrie
00000000		
00004E18		
0000CE2C	<b>plocha</b>	Opsaný obdélník: min: 708 982,974 x 1 076 982,765 max: 709 289,630 x 1 077 236,758 Poloha popisového bodu: horizontální: 1 077 109,762 vertikální: 709 138,024 Výměra: 34 462,171
0000DB88		
020001D0		

Nalezeno: 5    UKAZKA.P0014    S JTSK

Information on objects dialog - Areas

In the *Bounding box - min and max* there are the minimum and maximum coordinates of the circumscribed area rectangle there. Then there are coordinates of a descriptive area point (the *Label point position*) and an area size in the *Size* field - in square meters.

## Geometry - Text

Entity	Atributy	Geometrie
00000000		
00004E18		
0000CE2C	<b>text</b>	Poloha: horizontální: 709 062,895 vertikální: 1 077 014,753
0000DB88		
020001D0		

Nalezeno: 5    UKAZKA.T0001    S JTSK

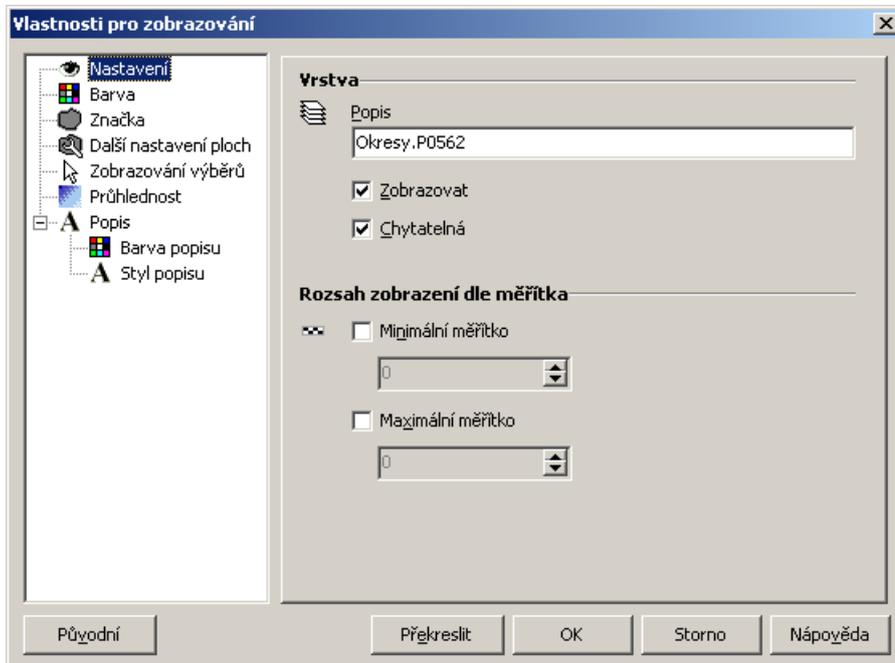
Information on objects dialog - Texts

In the *Horizontal* and *Vertical position* fields there are the descriptive point coordinates of the selected text there.

## 2.9. Distance measuring

# 3. Display properties

Parameters for a display of the data already selected in a map window (already displayed) are set in the Display properties dialog. Properties of the displayed data are divided into categories according to their importance, displayed in the right part of the dialog in the data tree.



Display properties dialog

Press the *OK* button to confirm the executed modifications of the properties setting (changes will be saved although the map window will not be redrawn) or the *Redraw* button (changes will be saved and the map window will be redrawn).

Press the *Cancel* button to close the dialog without saving of executed changes.

Press the *Reset* to reload original properties of the selected data as set at this dialog opening.

### Note

The way of default data display after ordering into a map window can be set in display properties of the project. This setting is carried out in the Project setting dialog, the Display item. The dialog is accessible from the Project menu, the Project properties command.

Individual categories of properties differ according to a type of displayed data:

#### Points

	Options	Common setting for data display - name, visibility, minimum and maximum scale etc.
	Colour	Points colour setting.
	Symbol	Points symbol setting.
	Other points setting	Point symbols angle setting.
	Selections display	Points display by the selection.

	Transparency	Points transparency setting.	
<b>A</b>	Labels	Points labels setting - labels display, labels source etc...	
		 Labels colour	Points labels colour setting.
		<b>A</b> Labels style	Points labels style setting.

Polylines

	Options	Common setting for the data display - name, visibility, minimum and maximum scale etc.	
	Colour	Polylines colour setting.	
	Symbol	Polylines symbol setting.	
	Other polylines setting	Setting of display of free tails, vertexes and polylines direction.	
	Selections display	Polylines display by their selection.	
	Transparency	Polylines transparency setting.	
<b>A</b>	Labels	Polylines labels setting - labels display, labels source etc...	
		 Labels colour	Polylines labels colour setting.
		<b>A</b> Labels style	Polylines labels style setting.

Areas

	Options	Common setting for the data display - name, visibility, minimum and maximum scale etc.	
	Colour	Areas colour setting.	
	Symbol	Areas symbol setting.	
	Other area setting	Display setting of are border and label points.	
	Selections display	Areas display by their selection.	
	Transparency	Areas transparency setting.	
<b>A</b>	Labels	Areas labels setting - labels display, labels source etc...	
		 Labels colour	Colour setting of area labels.
		<b>A</b> Labels style	Style setting of area labels.

Texts

	Options	Common setting for the data display - name, visibility, minimum and maximum scale etc.
---	---------	--

	Colour	Texts colour setting.
	Style	Texts style setting.
	Selections display	Texts display by their selection.
	Transparency	Texts transparency setting.

## Rasters

	Options	Common setting for the data display - name, visibility, minimum and maximum scale etc.
	Raster	Setting of raster colour and gamma correction.
	Raster border	Setting of the raster border display.
	Transparency	Rasters transparency setting.
	Raster preview	Preview of raster display.

## Grids

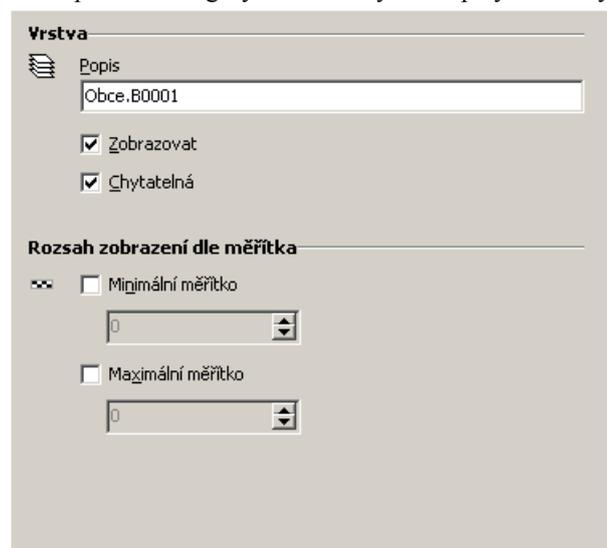
	Options	Common setting for the data display - name, visibility, minimum and maximum scale etc.
	Grid	Setting of display properties for a grid.

## Map sheet

	Options	Common setting for the data display - name, visibility, minimum and maximum scale etc.
	Map sheet	Setting of display properties for a map sheet.

### 3.1. Common setting of layer properties for display

The *Options* category is shared by all displayed data types.



Display properties dialog, Options category

In the *Description* field specify a description of data in the legend - the description isn't limited, it can be empty as well.

The *Display* field specifies a data visibility - the data will be displayed, if it's checked.

*Snappable* - checking of this field specifies whether a layer (data) will be included during editing into a list of the data which take part in snapping.

### Note

This field is accessible for vector objects and grids only.

The *Minimum and Maximum scale* fields specify a scale interval of a map window in which the data will be displayed.

## 3.2. Colour of vector objects (points, polylines, areas and texts)

In the *Colour* category a colour is set for the vector objects display. The basic setting is carried out by selecting of objects colour source. There are three options available by which the dialog shape is changed:

- Unified by value
- By db attribute
- By TopoL

If you check the *Use colour from symbol library* field (*Use colour from style library* field for texts) you can specify that a colour defined in the symbol (style) library will take precedence over a colour setting for objects display set in this dialog.

In the *Colour transfer* field the colour transfer is selected that will be used to obtain a colour of objects during their drawing. You can select from all the colour transfers defined in the project.

### Note

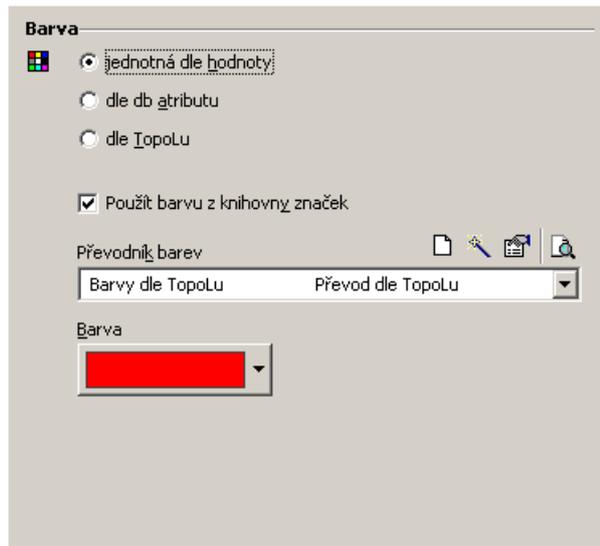
At the Colour by TopoL selection the Colour transfer by TopoL will be used without regard to the transfer setting in this field.

With buttons above the *Colour transfer* field you can define a new transfer or to modify properties of the existing one:

	Create a new colour transfer.
	Create a colour transfer with wizard.
	Edit colour transfer selected in the <i>Colour transfer</i> field. Depending on a transfer type the Editing of colour transfer by TopoL, Editing of colour transfer by unique values or the Editing of colour transfer by intervals will be ran.
	Opens a dialog in which all colours are displayed defined in a transfer, that was selected in the <i>Colour transfer</i> field.

Unified by value

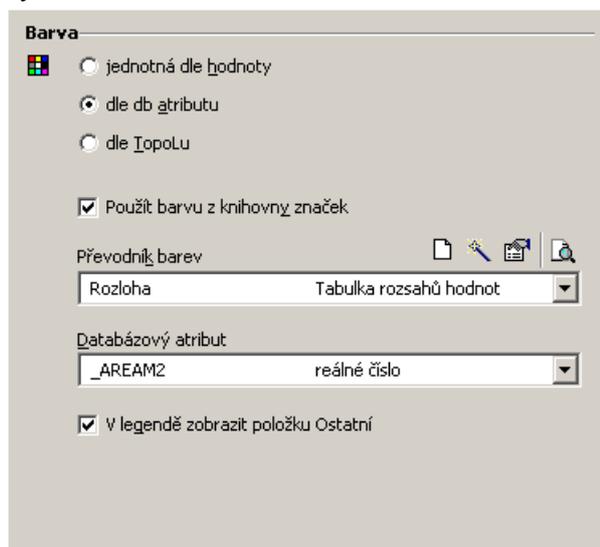
All objects in the layer will be displayed in a unified colour. To select a colour press the *Colour* button from the colour transfer selected in the *Colour transfer* field.



Display properties dialog, Colour category - Unified by value selection

#### By db attribute

Objects will be displayed in a colour from the colour transfer selected in the *Colour transfer* field by a database attribute selected in the *Database attribute* field.

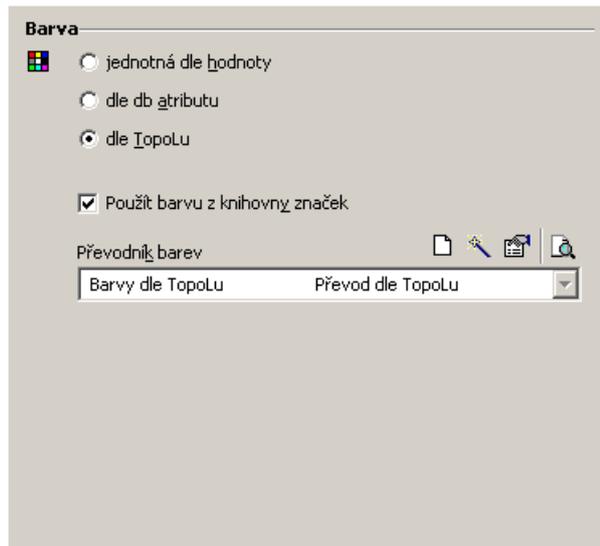


Display properties dialog, Colour category - By db attribute selection

!!!Zaškrtnutí pole *V legendě zobrazit položku Ostatní* určuje zda bude v legendě zobrazena také implicitní barva vybraného převodníku barev.

#### By TopoL

Objects will be displayed in a colour saved within them. This option is accessible only for the data in which individual objects are saved with their colour- data in the TopoL Block and DGN formats.



Display properties dialog, Colour category - By TopoL selection

### 3.3. Symbol of points, polylines and areas

In the *Symbol* category a symbol is set for vector objects display. The basic setting is carried out by selection of objects symbol source. Three options are available by which the dialog shape is changed:

- Unified by value
- By db attribute
- By TopoL

You can specify, whether a symbol background is transparent during the drawing, by checking of the Transparent field.

#### Note

Not all symbols can be drawn transparent. If a symbol of objects isn't drawn with a transparent background despite of the field being checked, it's not possible to draw the symbol with a transparent background.

In the *Symbol transfer* field a symbol transfer is selected, which will be used to obtain a symbol of objects during their drawing. You can select from all the symbol transfers defined in the project.

#### Note

For the Symbol by TopoL selection only the transfers of the Transfer according TopoL sort can be used.

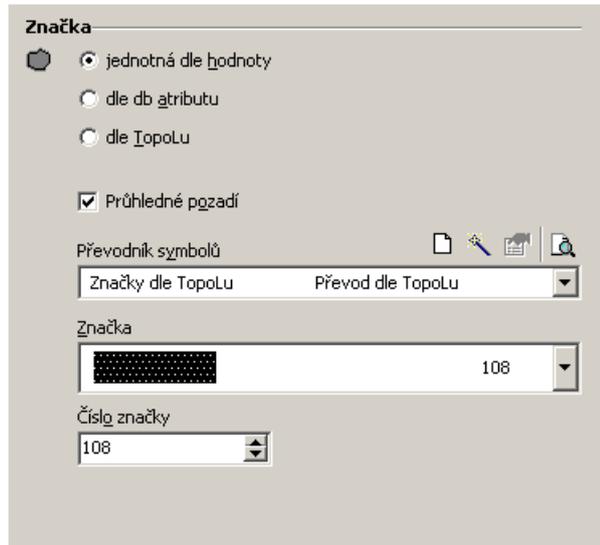
With buttons above the *Symbol transfer* field you can define a new transfer or to change properties of the existing:

	Create a new symbol transfer.
	Create a new symbol transfer with a wizard.
	Editing of a symbol transfer selected in the <i>Symbol transfer</i> field. According to a transfer type the Editing of symbol transfer by unique values or the Editing of symbol transfer by intervals is ran. The symbol transfer of the Transfer by TopoL sort can't be edited.

	Opens the Symbol view dialog in which you can view all the symbols contained in a symbol transfer within the selected Symbol transfer field.
---	--

#### Unique by value

All objects within the layer will be displayed by unique symbol. The symbol is selected in a symbol list in the *Symbol* field. In this list you can find all the symbols contained in the symbol transfer selected in the *Symbol transfer* field. The symbol can be also selected by a number in the *Symbol ID* field.



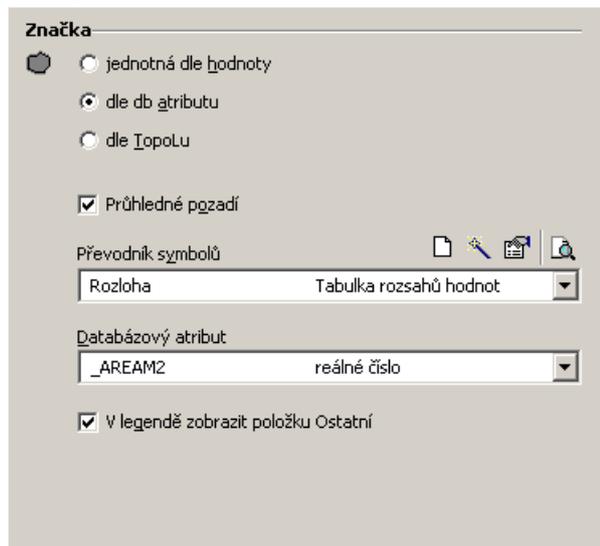
The screenshot shows the 'Značka' dialog box with the following settings:

- jedinotná dle hodnoty*
- dle db atributu*
- dle TopoLu*
- Průhledné pozadí*
- Převodník symbolů*: *Značky dle TopoLu* | *Převod dle TopoLu*
- Značka*: [Symbol] | 108
- Číslo značky*: 108

Display properties dialog, Symbol category - Unified by value selection

#### By db attribute

Objects will be displayed by a symbol from the symbol transfer in the selected *Symbol transfer* field by the selected attribute selected in the *Database attribute* field.



The screenshot shows the 'Značka' dialog box with the following settings:

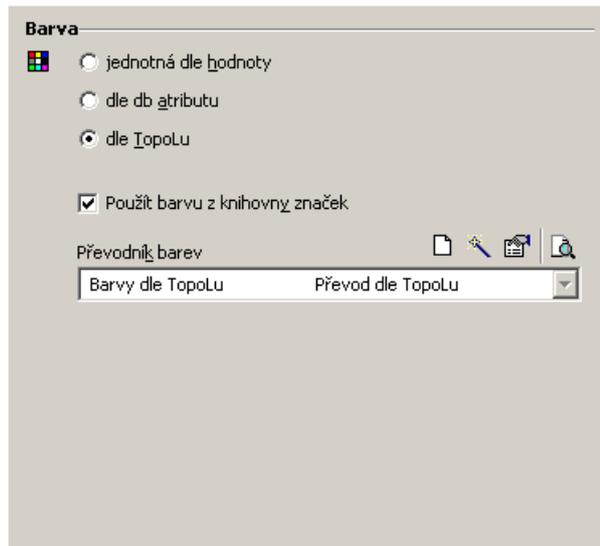
- jedinotná dle hodnoty*
- dle db atributu*
- dle TopoLu*
- Průhledné pozadí*
- Převodník symbolů*: *Rozloha* | *Tabulka rozsahů hodnot*
- Databázový atribut*: *\_AREAM2* | *reálné číslo*
- V legendě zobrazit položku Ostatní*

Display properties field, Symbol category - By attribute selection

!!!Zaškrtnutí pole *V legendě zobrazit položku Ostatní* určuje zda bude v legendě zobrazena také implicitní značka vybraného převodníku značek.

#### By TopoL

Objects will be displayed by a symbol saved within them. This option is accessible only for the data in which a symbol for individual objects is saved - the data in the TopoL Block and DGN formats.



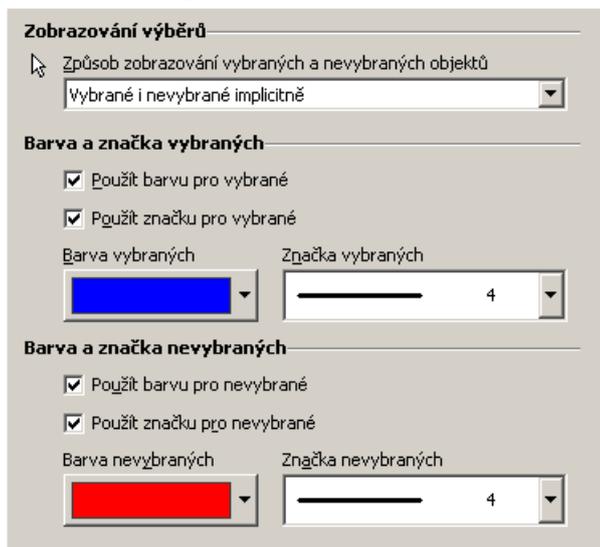
Display properties, Symbol category - By TopoL selection

### 3.4. Display by selection of vector objects (points, polylines, areas and texts)

The *Selections display* specifies how vector objects will be displayed by their selection.

#### Note

For texts display by selection only a colour selection is available.



Display properties dialog, Selections display category

#### Selections display

In the *Displaying of selected and deselected objects* the basic setting of objects displaying is specified by the selection. The options are following:

- *Selected and deselected by display setting*

Objects will be displayed without regard to the selection - objects will be displayed by setting in the Colour and Symbol categories.

- *Selected by advanced setting, deselected by display setting*

The selected objects will be displayed by a setting in this category, the deselected objects will be displayed without regard to the selection - they will be displayed as set in the Colour and Symbol categories.

- *Selected by display setting, deselected by advanced setting*

The deselected objects will be displayed by a setting in this category, the selected objects will be displayed without regard to the selection - they will be displayed as set in the Colour and Symbol categories.

- *Selected by advanced setting only*

Only the selected objects will be displayed by a setting in this category. The deselected objects will not be displayed at all.

- *Selected by display setting only*

Only the selected objects will be displayed by a setting in the Colour and Symbol categories. The deselected objects will not be displayed at all.

- *Deselected by advanced setting only*

Only the deselected objects will be displayed by a setting in this category. The selected objects will not be displayed at all.

- *Deselected by display setting only*

Only the deselected objects will be displayed by a setting in the Colour and Symbol categories. The selected objects will not be displayed at all.

- *Selected and deselected by advanced setting*

Both the selected and deselected objects will be displayed by a setting in this category.

#### Colour and symbol of selected

Checking of the *Use colour for selected* field specifies whether a colour by the *Colour of selected* field will be used for the selected objects display (the field is checked) or the colour by a setting in the Colour category is used (the field isn't checked).

Checking of the *Use symbol for selected* field specifies whether a symbol by the *Symbol of selected* field will be used for the selected objects display (the field is checked) or the symbol by a setting in the Symbol category is used (the field isn't checked).

#### Colour and symbol of the deselected

Checking of the *Use colour for deselected* field specifies whether the colour according to the *Colour of deselected* field will be used for the deselected objects display (the field is checked) or the colour according to setting in the Colour category is used (the field isn't checked).

Checking of the *Use symbol for deselected* field specifies whether a symbol by the *Symbol of deselected* field will be used for the deselected objects display (the field is checked) or a symbol by a setting in the Symbol category is used (the field isn't checked).

### Note

The default setting of vector objects display by the selection can be specified in the Project setting dialog, the Display - Selections display category. The dialog is accessible from the Project menu, the Project properties command.

## 3.5. Other point setting

In the Other point setting category an angle of point symbol can be set for its display.

### Note

Not all point symbols can be drawn under any angle. The symbols that can't be rounded during drawing will be drawn without regard to the angle setting.

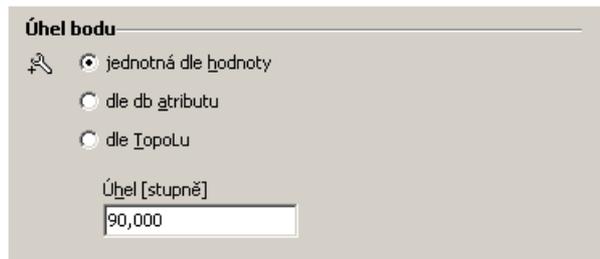
A point symbol angle can be set for the display in three ways:

Unified by value

Set an angle of point symbols into the *Angle* field. A unit for the angle setting is showed in the field name.

### Note

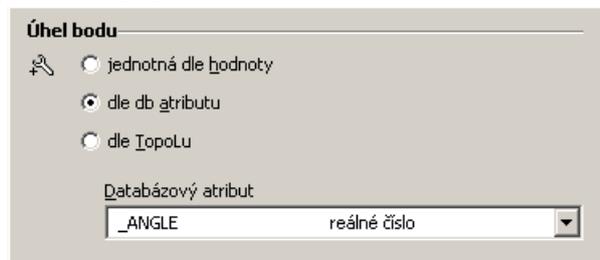
A unit for the angle setting can be set as a variable of the TopoL environment. The setting is carried out in the Environment setting dialog, the Environment category. The dialogue is accessible from the Tools menu, the Options command.



Display properties dialog, Other point setting category, Point angles unified by value

By db attribute

In the *Database attribute* select an attribute from which the angle of point symbols will be read at their display.



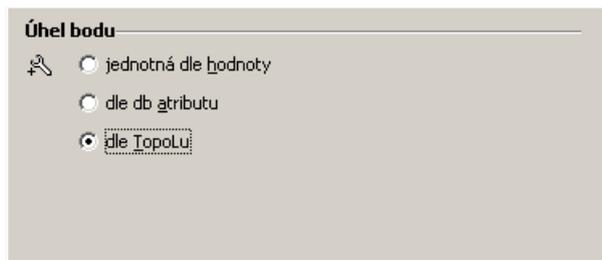
Display properties dialog, Other point setting category, Point angles by item

By TopoL

✓ If this option is selected for a point angle, the angle of point symbols will be read directly from the data.

### Note

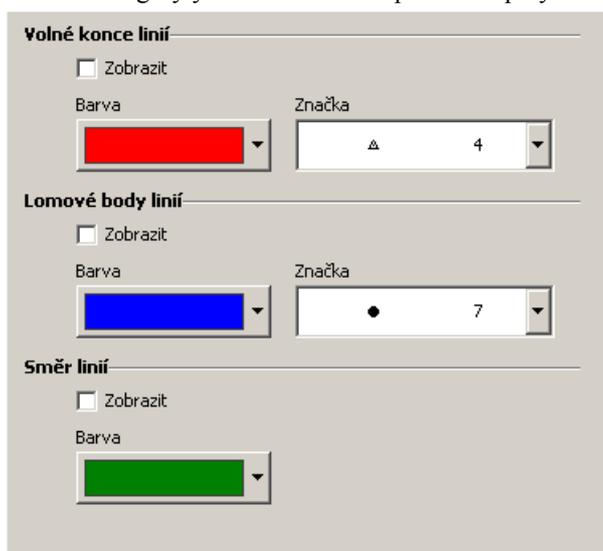
This option is accessible only for the data in which the point angle is saved - for the data in the TopoL Block and DGN format.



Display properties, Other point setting category, Point angles by TopoL

## 3.6. Other polyline setting

In this category you can set other options for polylines display.



Display properties dialog, Other polyline setting category

### Free tails

If the *Display* field is checked, free tails will be displayed in a colour selected in the *Colour* field and by a symbol selected in the *Symbol* field.

### Vertexes

If the *Display* field is checked, vertexes will be displayed in a colour selected in the *Colour* field and by a symbol selected in the *Symbol* field.

### Line direction

If the *Display* field is checked, the polylines direction will be displayed in a colour selected in the *Colour* field. The polylines direction is displayed by an arrow on the polyline body.

## 3.7. Other area setting

In the Other area setting category parameters can be set for the display of area borders and area label points display.

Display properties dialog, Other area setting category

#### Area borders

If the *Display area borders* field is checked, area borders will be displayed and it's possible to set their display in other fields of the dialog.

#### Colour of border

If the *unified by value* option is selected, a border will be displayed in a unified colour set in the *Colour* field.

If the *By db attribute* option is selected, the colour will be displayed by a database attribute selected in the *Database attribute* field. The border colour will be obtained from the database attribute via the colour transfer selected in the Colour category.

#### Symbol of border

If the *unified by value* option is set, the border will be displayed by a unified symbol set in the *Symbol* field.

If the *by attribute* option is selected, the symbol will be displayed by a database attribute selected in the *Database attribute* field. The border symbol will be obtained from the database attribute via the symbol transfer selected in the Symbol category.

#### Area label points

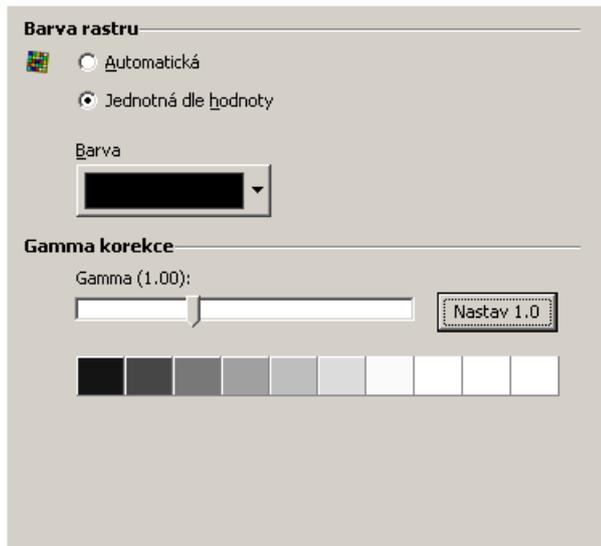
Checking of the *Display label points* field enables displaying of area label points. The points will be displayed in a colour set in the *Label points colour* and by a symbol set in the *Label points symbol*.

## 3.8. Colour and gamma correction of raster

In this category you can set a colour and gamma correction of raster.

### Note

For binary rasters a gamma correction can't be set; for colour selection there is only the *unified by value* option.



Display properties dialog, Raster category

#### Raster colour

A colour for the raster display can be selected from two options:

- *Automatic*

The colour will be read from the raster at displaying- raster will be displayed as created.

- *Unified by value*

The raster will be displayed in a colour selected in the Colour field - binary rasters will be displayed in this colour, other rasters will be displayed in tones of this colour.

#### Gamma correction of raster

By change of a scrollbar position you can specify a coefficient of the gamma correction of a raster - the higher the coefficient is, the brighter the raster is. If you want to return to the original 1.00 value, press the *Set 1.0* button.

## 3.9. Raster border

In this category, in the *Display of raster and its border* a way of raster border display can be specified. Three options are available:

- *Raster only*

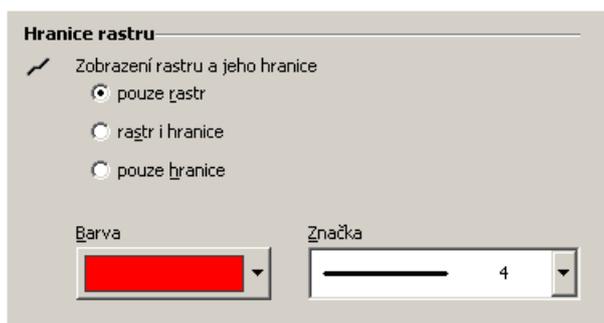
The raster border will not be displayed -the raster only.

- *Raster and border*

The raster and its border will be displayed together. The border will be displayed in a colour selected in the *Colour* field and by a symbol selected in the *Symbol* field.

- *Border only*

Only the raster border will be displayed in a colour selected in the *Colour* field and by a symbol selected in the *Symbol* field.



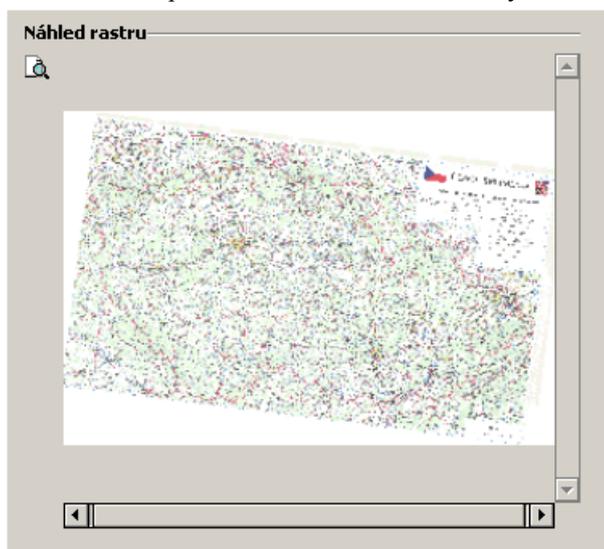
Display properties dialog, Raster border category

## 3.10. Raster preview

In this category a raster preview is displayed - the raster is displayed in a preview by a setting in the Raster, Raster border and Transparency categories.

### Note

The raster preview isn't available for binary rasters.



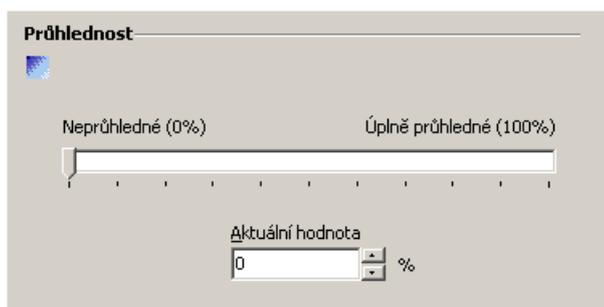
Display properties dialog, Raster preview category

## 3.11. Transparency of vector objects and rasters

A transparency of vector objects and rasters is specified by a coefficient within the range from 0% (non transparent) to 100% (fully transparent).

### Note

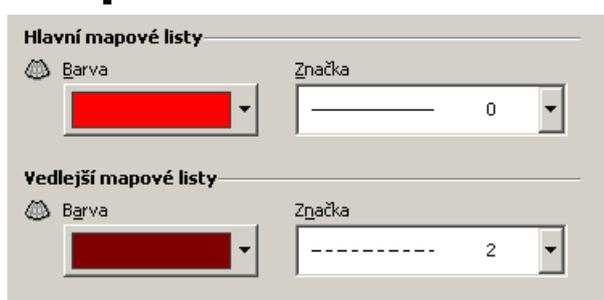
For binary rasters the transparency can't be set.



Display properties dialog, Transparency category

The transparency coefficient is set by a change of the scrollbar position in the dialog or by a number in the *Current value* field.

## 3.12. Map sheets



Display properties dialog, Map sheets category

### Major map sheets

A colour of major map sheets is specified in the *Colour* field, a symbol of major map sheets border is specified in the *Symbol* field.

### Minor map sheets

A colour of minor map sheets is specified in the *Colour* field, a symbol of minor map sheets border is specified in the *Symbol* field.

### Note

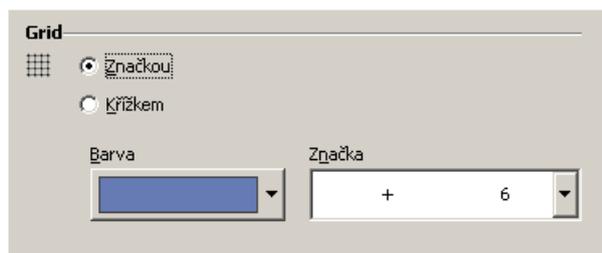
The minor map sheets occur only with cadastral map layout.

## 3.13. Grids

A grid can be displayed in two ways:

### By symbol

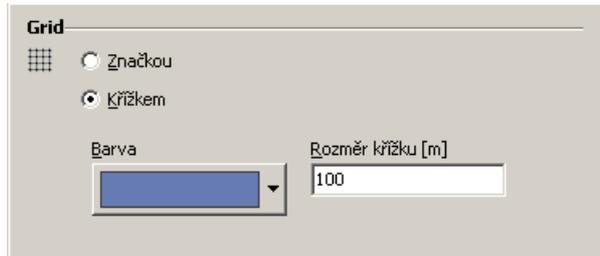
The grid will be displayed as a network of the points displayed by a symbol set in the *Symbol* field and in a colour set in the *Colour* field.



Display properties dialog, Grid category - By symbol selection

By cross

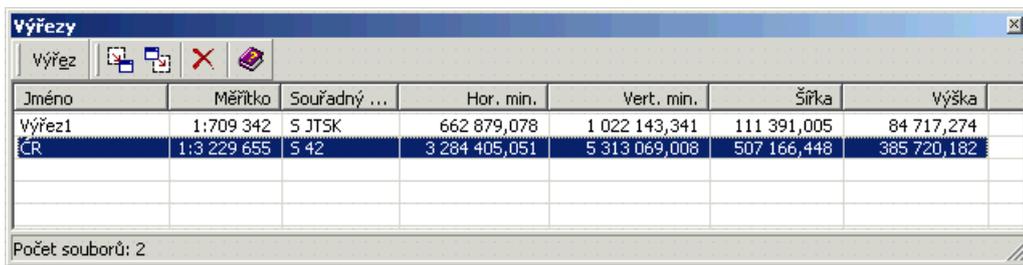
The grid will be displayed as a network of crosses of the size given in the *Cross size* field. The size is displayed in meters. Crosses will be displayed in a colour set in the *Colour* field.



Display properties dialog, Grid category -By cross selection

## 4. Named viewports

Named viewports are administered in the Viewports dialog.



Viewports dialog

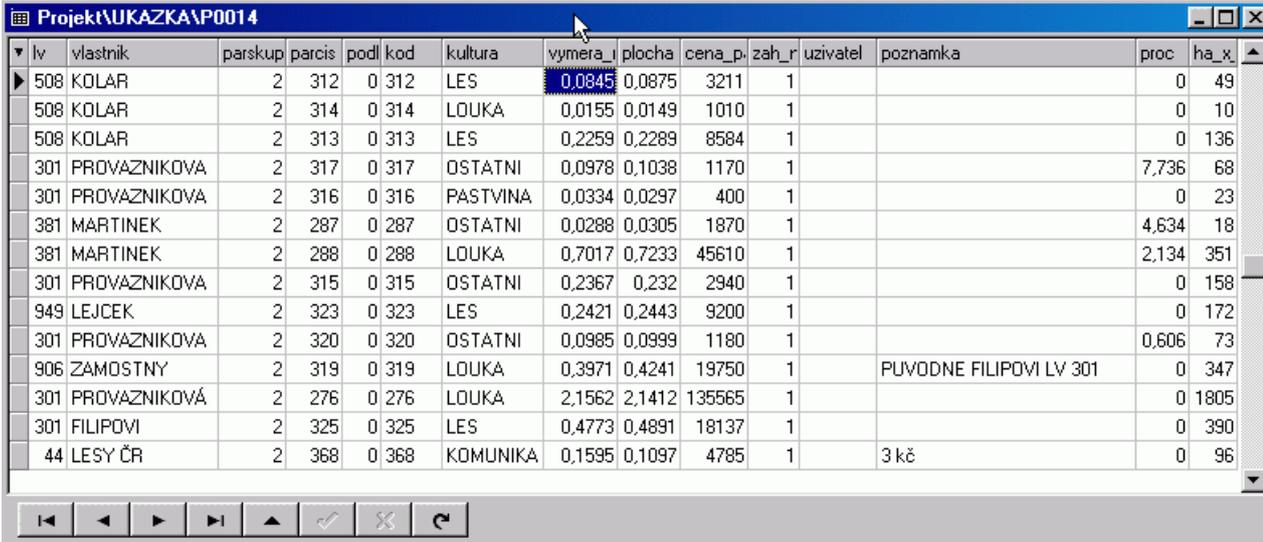
You can add, cancel and set the viewports via commands from the menu, the toolbar or context menu:

Selected viewport in map window			Sets a viewport selected in the list in the current map window.
Selected viewport in all map windows			Sets a viewport selected in the list into all the map windows.
New viewport from map window		Ctrl+N	Adds a viewport currently set in the current map window into the list of named viewports.
Delete		Ctrl+Del	Removes a selected viewport from the named viewports list.
Help		F1	Runs the help.

# Chapter 7. Database windows for working with tables

If you select any table with geometry by click in the project window, database windows will become accessible for working with primary tables. Next the New database window item is made accessible in the Window submenu and the corresponding button in the toolbar. After activation a nonmodal dialog window appears with a presentation of the selected table.

## 1. Database window for table handling - basic state



lv	vlastnik	parskup	parcis	podl	kod	kultura	vymera_i	plocha	cena_p	zah_r	uzivatel	poznamka	proc	ha_x
508	KOLAR	2	312	0	312	LES	0,0845	0,0875	3211	1			0	49
508	KOLAR	2	314	0	314	LOUKA	0,0155	0,0149	1010	1			0	10
508	KOLAR	2	313	0	313	LES	0,2259	0,2289	8584	1			0	136
301	PROVAZNIKOVA	2	317	0	317	OSTATNI	0,0978	0,1038	1170	1			7,736	68
301	PROVAZNIKOVA	2	316	0	316	PASTVINA	0,0334	0,0297	400	1			0	23
381	MARTINEK	2	287	0	287	OSTATNI	0,0288	0,0305	1870	1			4,634	18
381	MARTINEK	2	288	0	288	LOUKA	0,7017	0,7233	45610	1			2,134	351
301	PROVAZNIKOVA	2	315	0	315	OSTATNI	0,2367	0,232	2940	1			0	158
949	LEJCEK	2	323	0	323	LES	0,2421	0,2443	9200	1			0	172
301	PROVAZNIKOVA	2	320	0	320	OSTATNI	0,0985	0,0999	1180	1			0,606	73
906	ZAMOSTNY	2	319	0	319	LOUKA	0,3971	0,4241	19750	1		PUVODNE FILIPOVI LV 301	0	347
301	PROVAZNIKOVA	2	276	0	276	LOUKA	2,1562	2,1412	135565	1			0	1805
301	FILIPOVI	2	325	0	325	LES	0,4773	0,4891	18137	1			0	390
44	LESY ČR	2	368	0	368	KOMUNIKA	0,1595	0,1097	4785	1		3 Kč	0	96

Dialog for database table handling - basic state.

The middle part of the dialog (display field) contains a list of all records and values of its items, saved in the given database table. Via the Database display setting dialog you can switch on and off individual columns display. You can also change an order of the columns display. The order is changed with the mouse - press with the left button a header of the column you want to move and pull to the right or to the left. A future position of the column is signalled by highlight of its left boundary. If you quit hold of the left button, the columns order will be changed immediately. You can always reset the defined order directly in the database file, just press the "Standard columns order" button.

A width of individual columns can be changed graphically directly in the dialog. If you move the mouse on a boundary of two columns, the cursor will be changed. After you press the left button you can move the boundary arbitrarily. Simultaneously a width of the column to the left of the boundary is changed. A future position of the boundary is indicated by a thick vertical line. After you quit hold of the mouse button the width of the column is changed immediately.

You can change a total size of the dialog as well (standard Windows control) and thereby set a number of displayed rows, resp. columns. A total size of the dialog, its location on screen, width and order of individual columns, setting of printing groups etc. is saved within the project we are currently working with.

The scroll bars can be shifted within the display field of the database items with the keyboard and mouse wheel. If the display field is active, one field (the field can be changed with the keyboard) or a whole row is framed. Then you can use the arrows and PageUp, PageDown keys to move this active field resp. active row within the display field and consequently to move a content of the whole display field.

The active field can be edited separately. The editing is ran either with repeated click of the left mouse button on any field in the display field, or with the current field selection (e.g. from the keyboard) and consequent depression of the ENTER key. The simplest way of editing start is to begin to "write" directly a new content of the field. In this case whole original content is redrawn. An edit line appears in the display field, which has similar properties as an edit line within the dialog for editing of the database record. The content can be edited depending on a database item type. If you want to quit editing without saving the changes, use the Esc key. To save the changes you must use either the ENTER key, or the arrows and PageUp, PageDown keys to simultaneous saving of the edited item and moving of the edit line to another position. To move edited items horizontally use a combination of the Alt and Home keys (moves into the first column), End key (moves into the last column), resp. left and right arrow (moves by one column). The state of editing is signalled by a symbol in the most left gray column of the dialog - the state is signalled with a symbol similar to the "I" letter. Carried changes can be confirmed or canceled also by buttons on bottom side of the database window.



Navigating tool bar for working in database windows

The "X" symbol returns an edited item to a state before its editing even if you use the confirming "ENTER" key. The "v" symbol confirms the executed changes. Until the changes are confirmed definitely either from the toolbar or by moving to another row, they can be reset.

The navigating tool bar also serves to moving between individual records of the table. In particular it's efficient to use the first and the fourth button for move to the start, resp. end of the table.

Another option of editing individual database records is to use a dialog in which individual items are displayed in the rolling list unde themselves. The dialog is made accessible by doubleclick with the mouse on the selected bar - table record.

## 1.1. Editing of table records via dialog

Jméno sloupce	Hodnota
lv	381
vlastnik	MARTINEK
parskup	2
parcis	287
podlomeni	0
kod	287
c_en	
kultura	OSTATNI
vymera_p	0,0288
vymera_r	0,0288
plocha	0,0305
cena_parc	1870
zah_nuti	1
uzivatel	
cislo	18

Editing of table records dialog

In the table there is a list of individual database attributes and their values contained in the record.

The keys for easier editing are following:

Up arrow

The active item content is saved and the previous item becomes the active one.

Down arrow

The active item content is saved and the next item becomes the active one.

PageUp

The active item content is saved and the item from the previous page of the list becomes the active one.

PageDown

The active item content is saved and the item from the next page of the list becomes the active one.

ENTER

The active edited item content is saved, the next item becomes the active one, for the last item the dialog is confirmed and it's finished. If the active item isn't edited, you can switch with the ENTER key into the editing mode.

Esc

Sets the original value of the attribute. If there isn't any item in the editing state, the dialog is finished without confirmation of changes.

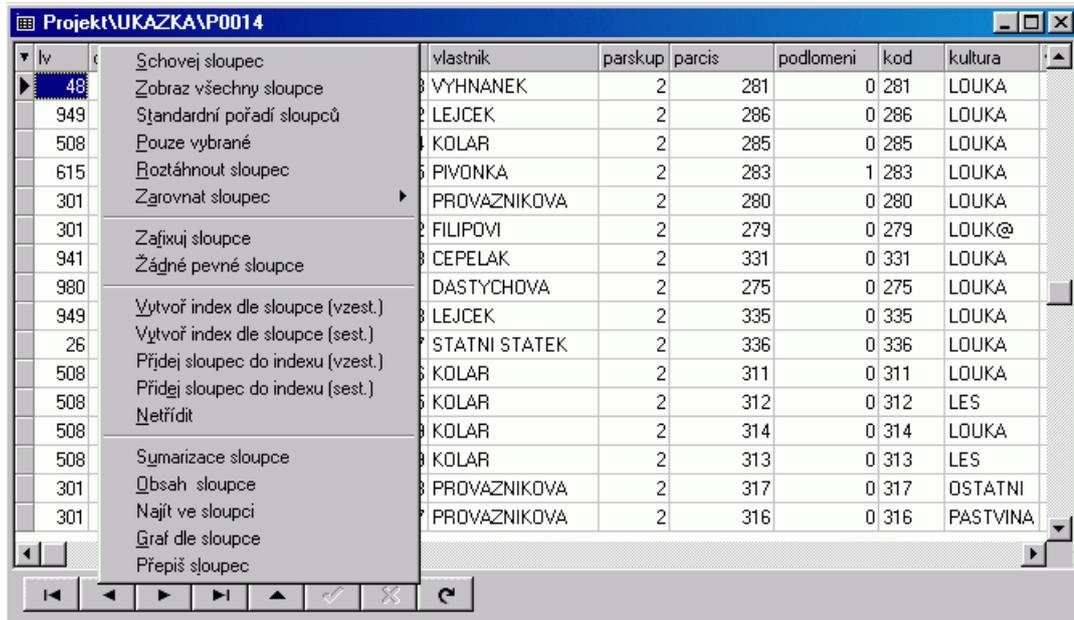
The tool bar in the bottom part of the dialog serves to a change of the whole current table record. So far executed changes are confirmed and an editing of the next, resp. previous, first or the last record of the table will start.

By doubleclick on a database attributes list the given attribute is displayed in an edit line. The edit line becomes active so that you can start editing immediately. Into the editing field you can insert only those symbols that are permissible depending on a type of the edited attribute. If the edit field is filled by a number of symbols equal to the maximum permissible number of symbols for the given attribute, an automatic transition to the next attribute from the list is done.

There are many commands for table handling. Those most important are contained in the "Database table" submenu of the TopoL main menu. The commands which handle a table column are concentrated into the local popup menu which is activated by click of the right mouse button anywhere within the selected column. Other commands are located in the second local popup menu, which is activated by click of the left mouse button on the black triangle symbol in the top left corner of the table.

If the primary database table has a so called database model defined, i.e. connecting with other tables via key items, at opening of a database window it is detected whether there are more such defined models for the given primary table (a tree with individual connections and a root corresponding to the primary table). In such case one model is selected from the offered defined models. If the application is closed with an opened database window, all opened windows (including database windows) are refreshed at its repeated activating. Simultaneously a model, active at close of the application, even if there are more available models. Selecting from several models is available only at another opening of the database window.

## 2. Database window for table handling - local popup menu for table column handling



Local popup menu for table column handling

After activation of a local popup menu by click with the right mouse button anywhere within the given table column you can select one of the commands for the column handling.

### Hide column

The display of a selected column is switched off.

### Display all columns

Displays all the table columns.

### Standard columns order

A columns order is set as defined directly in the database file.

### Selected only

The command enables to display only the selected records for the selected database table, i.e. records with `_Select=1` item value.

### Column auto width

A width of the selected column is set to such minimum width that a column content from all records is fully visible.

### Column alignment

A content of the selected column is justified in the required way. However if text items contain spaces, for example in the left at left justify, the required effect will not be reached probably.

#### Left justify

A content of the selected column is justified to the left.

#### Centre

A content of the selected column is justified to the centre.

### Right justify

A content of the selected column is justified to the right.

### Fix columns

If a database has more items (columns), several columns can be fixed in the left part of the display field, that aren't rolled, which means they stay visible all the time. Besides the selected column all the columns displayed to the left of the selected column are fixed. Width and order of fixed columns can't be changed. So at first you must set widths of columns and possibly move the required columns to the left and only then it's possible to set a number of fixed columns.

lv	vlastnik	plocha	cena_pai	zah_n	uzivatel	poznamka	proc	ha_x
381	MARTINEK	0,0305	1870	1			4,634	18
381	MARTINEK	0,7233	45610	1			2,134	351
301	PROVAZNIKOVA	0,232	2940	1			0	158
949	LEJCEK	0,2443	9200	1			0	172
301	PROVAZNIKOVA	0,0999	1180	1			0,606	73
906	ZAMOSTNY	0,4241	19750	1		PUVODNE FILIPOVI LV 301	0	347
301	PROVAZNIKOVA	2,1412	135565	1			0	1805
301	FILIPOVI	0,4891	18137	1			0	390
44	LESY CR	0,1097	4785	1		3 kč	0	96
930	HRABANEK	3,4462	219930	1			0	3686
301	FILIPOVI	0,1074	7715	1			0	126
930	HRABANEK	0,0249	1450	1		DRIVE KELLEROVA	9,725	19

Database window with fixed columns

### No fixed columns

Fixation of all columns is canceled.

### Create index by column (upwards)

Database records are sorted on basis of the selected column list upwards from minimum to maximum values. After the command confirmation the whole table is sorted and redisplayed.

### Create index by column (downwards)

Database records are sorted on basis of the selected column list in downwards from maximum to minimum values. After the command confirmation the whole table is sorted and redisplayed.

### Add column to index (upwards)

The database records sorting is modified - the selected item is added to the end of a list of sort keys. On basis of this column content the records with identical previous keys are sorted upwards from minimum to maximum values. After the command confirmation the whole table is sorted and redisplayed.

### Add column to index (downwards.)

The database records sorting is modified - the selected item is added to the end of sort keys list. On basis of this column content the records with identical previous keys are sorted downwards from maximum to minimum values. After the command confirmation the whole table is sorted and redisplayed.

### Unsorted

The command cancels setting of a sort key. Records are displayed unsorted.

### Column summary

This command is used for detection of basic numeric characteristics of the set column, such as a sum, count, minimum, maximum, interval and diameter. Statistics always refers to the displayed table records only.

#### Column list

After confirmation a simple dialog is displayed in which all values for the set table column are displayed. Statistics always refers to the displayed table records only.

#### Search column

After confirmation a table is sorted by the given column and displays a simple dialog for setting of the searched column list.

#### Graph

The command enables for a database table to display a graph of active numeric item - column.

#### Rewrite field

The command serves to multiple column list rewriting either by constant or by copying of another column content.

## 2.1. Column summarization

After the command confirmation a simple dialog is displayed in which basic numeric characteristics are displayed for the given column. *The statistics always refers to displayed table records only.*



Charakteristika	Hodnota
Součet:	18.55
Počet:	32
Minimum:	0.02
Maximum:	3.38
Rozsah:	3.36
Průměr:	0.58

Dialog with results of executed summarization of column

## 2.2. Column list

After the command confirmation a simple dialog is displayed in which all values are displayed for the given table column. *The statistics always refers to displayed table records only.*

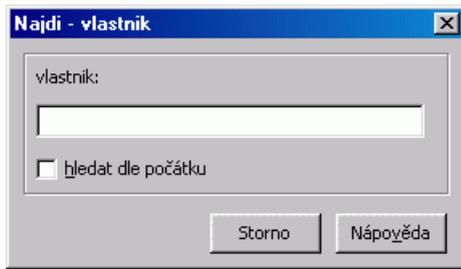


KOMUNIKACE
LES
LOUK@
LOUKA
NEPLODNA
OSTATNI
PASTVINA

Column list dialog

## 2.3. Search column

After the command confirmation a simple dialog is displayed in which you can set in edit line searched values for the given column. Above the edit line a name of the column is displayed by which the searching is executed.

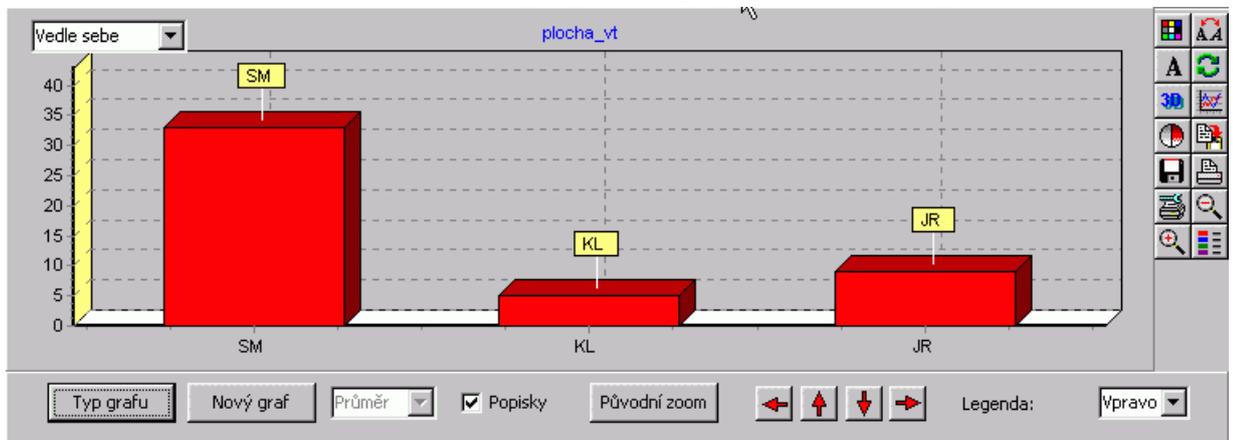


Dialog for searching of records by content of selected column

The "Incremental" switch enables an incremental searching for tables, i.e. according to origin only - otherwise the set value is compared to the whole column content in individual records.

## 2.4. Graph

After the command confirmation a simple dialog is displayed which serves for marks on the horizontal chart axis. After its confirmation a dialog is displayed in which all values of the displayed records for the table column are charted. *The statistics allways refers to displayed table records only.*



Dialog with column chart

You can change a chart as you wish - there are many tools for it, accessible in the right toolbar.

	Enables to set colours for individual chart components.
	Enables to set fonts for individual chart components, resp. their type, subtype, colour and size.
	Enables to set titles for individual chart components.
	Enables to rotate a chart by various axis.
	Enables to switch the 3D chart presentation.
	Enables to switch on and off chart axis with titles.
	Enables to switch between colour and grayscaled chart displaying.
	Enables to copy a chart bit map into clipboard.
	Enables to save a chart bit map into file.
	Enables to print a chart bit map.
	Enables to set printer parameters.
	Enables to zoom out a chart viewport. The original viewport can be set with the "Original zoom" button.

	Enables to zoom in a chart viewport for a larger detail.
	Enables to switch on and off a chart legend with description. If the legend is switched on, the component becomes active - a list box for a legend locating. <i>If there are too many displayed records, it's impossible to display all in the legend.</i>

It's possible to present other charts simultaneously with the already being displayed one in the dialog. Therefore we have another operating components.

#### Series type

Enables to select a type of presented charts in a simple dialog. You can select from the following list:

- Line
- Bar/Stacked
- Area/Step
- Point XY/Stacker
- Chart - fast line
- Pie chart

#### New series

Activates a standard dialog for another numeric item selection. After its confirmation a dialog for db field selection is displayed, which serves for description of another chart. Simultaneously with the original chart a new chart is displayed on the basis of the selected item.

#### Combo box for operations over charts

If another displayed chart is set, a list box is displayed for selection of operation over both the charts. You can select one of basic arithmetic operations:

- Average - a new chart is created as a diameter of both the original charts.
- Subtract - a new chart is created as a difference of both the original charts.
- Add - a new chart is created as a sum of both the original charts.
- Multiply - a new chart is created as a product of both the original charts.
- Divide - a new chart is created as a quotient of both the original charts.

The charts created in operation from the previous charts are displayed into the same dialog. In case that a db selection chart is selected as a type, you can select via list box a possible combination of all the presented charts. The options are following:

- None - all subcolumns of individual charts are displayed in sequence within the Z axis direction.
- Side to side - all subcolumns of individual charts are displayed side to side.
- Stacked - all subcolumns of individual charts are displayed stacked.
- Stacked 100% - all subcolumns of individual charts are displayed stacked in columns of the same height with proportional ratio between individual subcolumns.

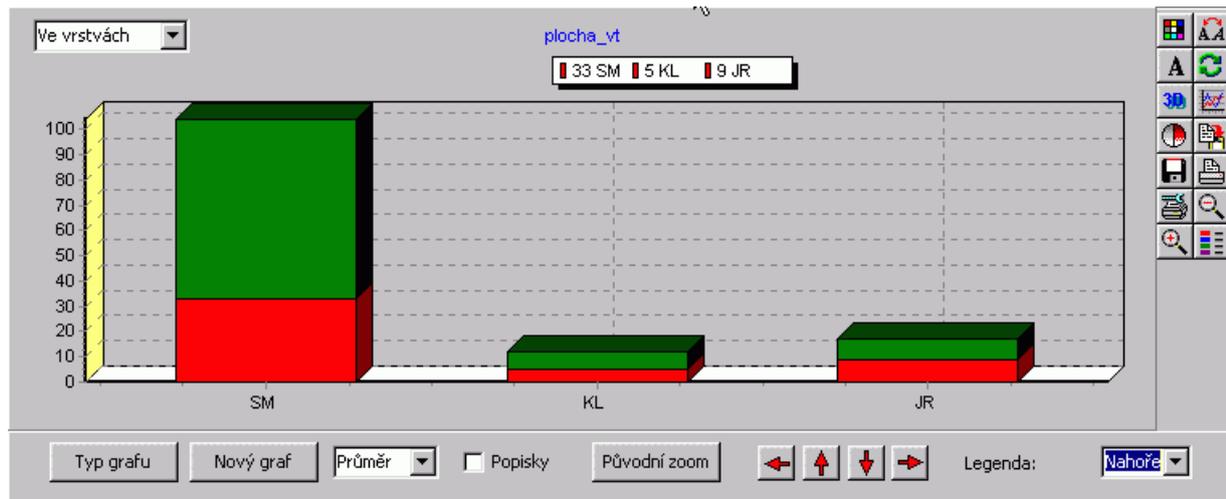


Chart for two table items presented by stacked fields

#### Marks

A switch enabling to switch on and off marks of individual records within a chart.

#### Reset zoom

A button enabling to set an original viewport - chart maximizing.

#### Align legend

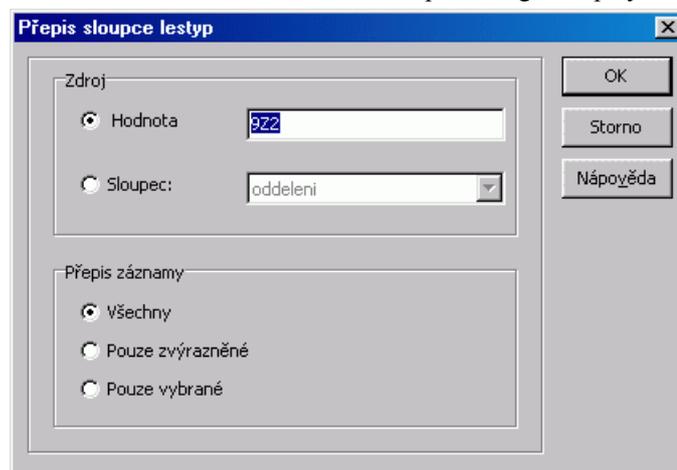
Combo box for chart legend allocation.

#### Arrows

With arrows you can move a chart within a viewport in the required direction. Particularly appropriate in case of chart maximizing for larger detail.

## 2.5. Rewrite field

After the command confirmation a simple dialog is displayed for setting of operation parameters.



Rewrite field dialog

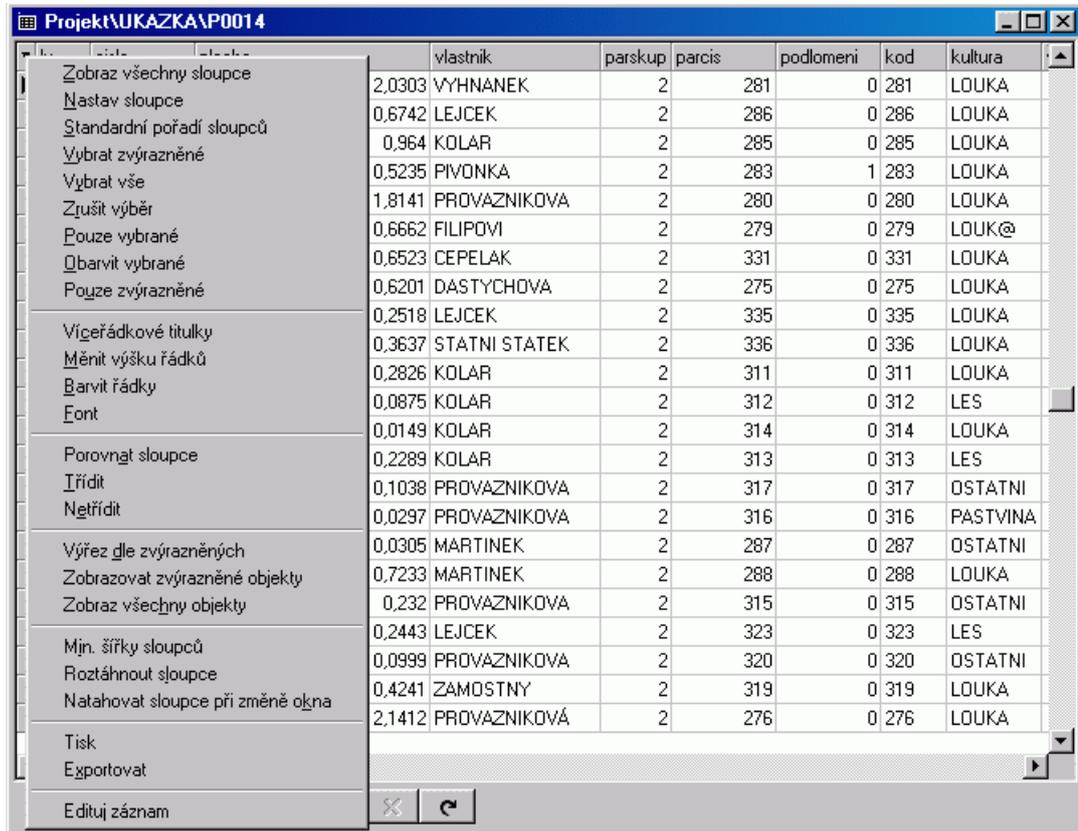
#### Source

Select from two options, whether the given item will be rewritten by a constant (a value from the active table record is preset) or whether a content of another column will be copied. The column is then selected from a list box which contains table items. If an item type is different from a target item, a conversion is executed (if it's possible).

Apply on

Select from three options which table records will be rewritten. It's possible to rewrite all the displayed table records, the selected only (`_Select=1` item) or the highlighted records only (accessible if such records exist).

## 3. Database window for table handling - local popup menu



Local popup menu for database table handling

After activation of a local menu with left mouse button (click on the black triangle symbol in the top left corner of the table) select one of the commands for table handling.

Show all columns

All table columns are displayed.

Customize fields

You can switch on and off display of individual fields via display setting dialog. Simultaneously you can set labels for individual table fields header.

Standard columns order

The order of columns is set as defined directly in the database file.

Highlight to select

Highlighted database records (blue rows) are marked as selected, i.e. the `_Select` item value in these records is set to 1.

Select all

All the displayed database records are marked as selected, i.e. the `_Select` item value in these records is set to 1.

**Deselect all**

All the displayed database records are marked as deselected, i.e. the `_Select` item value in these records is set to 0.

**Only selected**

The command enables for the selected database table to display the selected records only, i.e. the records with the `_Select=1` item value. The command works as a switch, after its repeated selection its effect is suppressed.

**Colour selected**

All the selected database records are coloured according to selection, i.e. the records with `_Select=1` item value are coloured in yellow. The command works as a switch, after its repeated selection its effect is suppressed.

**Highlighted only**

The command enables for the selected database table to display highlighted records only, i.e. hand-picked records coloured in blue. The command works as a switch, after its repeated selection its effect is suppressed.

**Multiline titles**

The command enables to set a label make-up in header of individual fields. If the label consists of more words, it is divided into more rows in case it doesn't fit in the given field width. The command works as a switch, after its repeated selection its effect is suppressed.

**Row sizing allowed**

The command enables setting of nonstandard rows size. After the confirmation it's possible to change a size of two rows by pulling with the left mouse button above their gray edges. The command works as a switch, after its repeated selection its effect is suppressed.

**Row colours**

The command serves to better orientation in tables with long rows. All the odd database records are coloured, all the even stay in original colour. The command works as a switch, after its repeated selection its effect is suppressed.

**Grid font**

After confirmation a standard dialog is displayed in which you can select another font from the offered for display in the table.

**Compare fields**

The command enables for the active database table to set a simple query for records selection by a set criteria. The query takes a form of comparison of the two selected table fields value.

**Sort**

The command enables to set a sort key for the active database table. The dialog which appears after activating, enables selection of sort keys and setting of the way of sorting by individual key items (upwards - downwards).

**Unsorted**

The command cancels setting of a sort key. Records are displayed unsorted.

**Zoom to highlighted**

The command enables to set a viewport of the selected map window, which corresponds to highlighted records of the active database table. Corresponding graphic objects are simultaneously displayed highlighted. If any map window isn't displayed after activating of the command, the corresponding data are displayed in a newly created window. To display an object corresponding to a specific table row just click on any item of the given bar.

For selection of more table rows a routine convention is used - with holding of the CTRL key you can either to add or to remove other records. You can also use a combination of the Shift and Up or Down arrows. Here an effect of the selection is shown only after you quit hold of the keys.

#### Show objects

The command enables to display graphic objects corresponding to highlighted table records in one of map windows. To select a record just click with mouse on any item of the required record. Again a routine convention is used - with holding of the CTRL key you can either to add or to remove other records. You can also use a combination of the Shift and Up or Down arrows. Here an effect of the selection is shown only after you quit hold of the keys.

#### Show all objects

The command displays all graphic objects corresponding to the displayed table records in one of map windows. At first phase all the displayed records are highlighted.

#### Auto size

All the table fields are displayed in a minimum available width so that a content of the given item is fully visible. If the item is of a string sort, a content of spaces isn't examined.

#### Auto width

All the table fields are displayed in the database window active area so that they are all visible without use of a horizontal scrollbar. Widths of fields are computed so that their ratio is proportional with respect to minimum widths of individual fields.

#### Auto width on resize

The command is of a switch sort. If the switch and "Auto width" command are active, at change of a database window width the fields are extended with respect to a new window width.

#### Print

The command enables to set and print report for the active database table.

#### Export

The command enables to set export parameters and to save a table content in a text file.

#### Edit

A standard dialog for editing of active record is activated, individual items are displayed under themselves.

## 3.1. Customize fields

After the command confirmation a dialog is displayed in which you can set table fields display - display of individual fields can be switched on and off and you can set labels for individual table field headers.

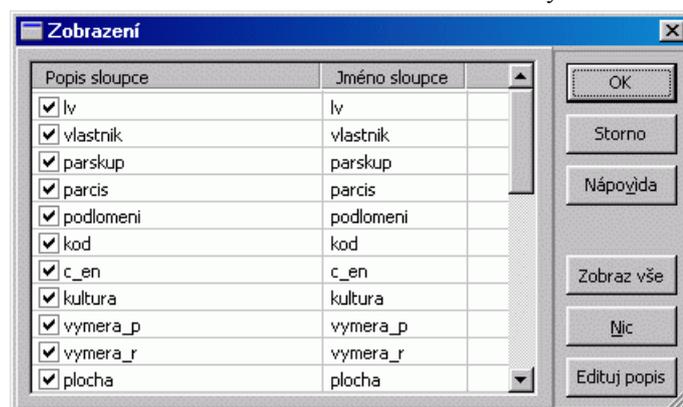


Table fields setting dialog

#### Fields list

In the left part of the dialog there is a rolling list with names of all database table fields with checking fields that serve to switch on and off the fields display. By doubleclick with mouse on a field label in the list you can activate an editing line with which a field label can be changed. This line serves only for its presentation within the field header. You can set a multiword labels - in such case you can use the "Multiline titles" switch.

Display all

All the database table fields will be displayed.

None

All database table fields will be switched off - will not be displayed.

Edit label

An editing line is activated with which a label of the field active in the list can be changed.

## 3.2. Compare fields

After the command confirmation a dialog is displayed which enables for active database table to set a simple query for selection of records- individual records are filtered by comparing of values of two selected table fields and only those which meet the given criteria are displayed.

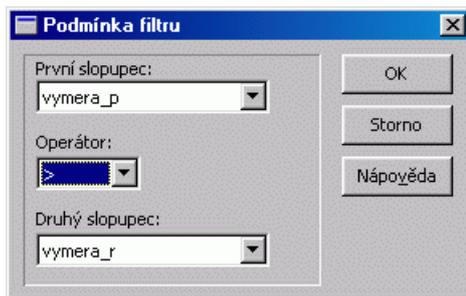


Table filter setting dialog

Field 1

A combo box with names of all database table fields. A filter takes shape of a binary logical operation. The first field figures in the left operand part.

Operator

The combo box with possible operators for a selective filter. Options are the following:

- greater than
- lesser than
- equal to
- greater than or equal to
- lesser than or equal to
- not equal to

Field 2

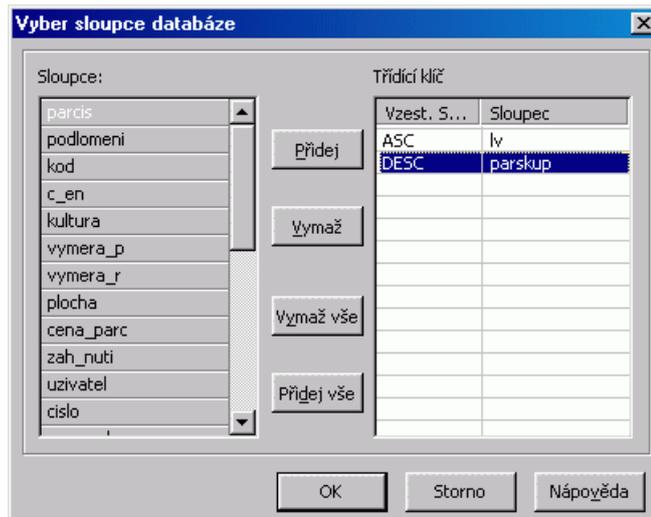
A list box with names of all database table fields. The second field figures in the right operand part.

**Note**

For a succesful dialog confirmation it's necessary for the selected columns to be of an identical basic type.

## 3.3. Sort

After the command confirmation a dialog displays in which you can arrange sorting criteria for table records - you can add or remove items of the key and simultaneously to set for individual items whether the sorting by them will be upward or downward.



Db fields dialog

#### Fields

In the left part of the dialog there is a rolling list with names of all database table fields. By doubleclick with mouse on a field label in the list you can include the field into a sort key.

#### Add

With this button you can include a current column into a sort key.

#### Delete

With this button you can remove a current column from a sort keys list.

#### Clear

With this button you can empty a sort keys list.

#### All

With this button you can include all fields into a sort key.

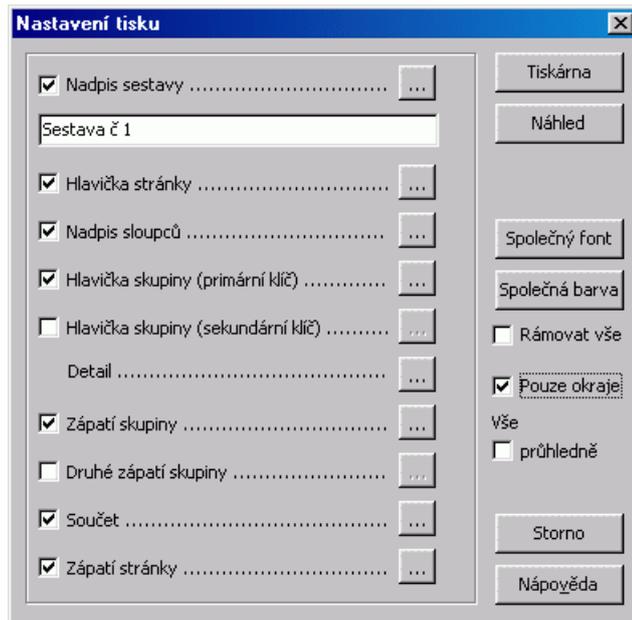
#### Sort key

In the right part of the dialog there is a rolling list with names of sort key fields. By doubleclick with the mouse on a field label within the list you can change a character of sorting considering this field - it's switched from upward sorting to downward sorting and vice versa. This character is independent on other sort key items.

After the dialog confirmation the table is sorted and refreshed.

## 3.4. Print

After the command confirmation a dialogue is displayed in which you can set parameters of a report for the active database table and print it. Always only the fields displayed in the table are printed. Their width within a report is proportional to width of the table field on screen. A complete report may consist of several basic components that can be individually set via other dialogs. *Some parts of the report can be printed only if the table is sorted. Then we talk about groups that correspond to table records with identical sort keys. In the report you can set parameters for groups at two levels - for primary and for secondary component of the sort key.*



Report setup dialog

#### Report title

A switch enabling to switch on and off a printing of the report title. You can set a text of the report directly into an edit line. Graphic parameters can be set in a standard dialog after activation of the button on the right. A title is printed in the beginning of the report only, though it can be reprinted with other graphic parameters in footers of individual pages.

#### Page header

A switch enabling to switch on and off printing of individual page headers. Graphic parameters can be set in a standard dialog after activation of the button on the right. A content of the header can be set in a special dialog. It can include:

- Date
- Image (\*.wmf, \*.emf, \*.bmp, \*.ico, \*.gif, \*.jpg)
- Page Number

#### Page column header

A switch enabling to switch on and off printing of page column headers. Graphic parameters can be set in a standard dialog after activation of the button on the right. As column headers the labels of individual fields are printed, set in a dialog for table fields setup. There is a possibility to make-up multiword labels.

#### Group header (primary key)

A switch enabling to switch on and off printing of header of individual report groups. Graphic parameters can be set in a standard dialog after activation of the button on the right. A header content can be set in a special dialog. It can include:

- Value of selected field
- The first letter from value of selected field
- Expression consisting of values of selected fields and a text

#### Group header (secondary key)

A switch enabling to switch on and off printing of header of the second level groups corresponding to a secondary sort key. Graphic parameters can be set in a standard dialog after activation of the button on the right. A header content can be set as with the primary groups.

#### Detail

Content of actual displayed table records. Only the selected or highlighted records can be printed, if a table display is set in this way. Graphic parameters can be set in a standard dialog after activation of the button on the right.

#### Group footer

A switch enabling to switch on and off print of group footers. It's a summary of specific statistics for the given group which are printed immediately after group records. If a group header for the secondary key is activated, this footer refers to secondary groups (subgroups of primary groups). Otherwise it refers to primary groups. *This first footer is always printed before the second footer, so if you want to display a statistics also for secondary subgroups, the first footer has to be set.* Graphic parameters can be set in a standard dialog after activation of the button on the right. A footer content can be set in a special dialog. It can include:

- Sum of the selected field values in the given group
- Average from values of the selected field of the given group
- Count of records in the given group
- The minimum from values of the selected field of the given group
- The maximum from values of the selected field of the given group

#### Group footer 1

A switch enabling to switch on and off printing of another group footers. It is always a footer of a primary group. It can be already a second footer of a primary group. If a table is sorted only by a single key, it's possible to use the next row of the report for the second footer defined independently of the first one. Graphic parameters can be set in a standard dialog after activation of the button on the right. A footer content can be set in a special dialog as with the first footer.

#### Summary

A switch enabling to switch on and off printing of summary information from the whole report. Graphic parameters can be set in a standard dialog after activation of the button on the right. A summary information content can be set in a special dialog as with the primary group.

#### Page footer

A switch enabling to switch on and off printing of an individual page footer. Graphic parameters can be set in a standard dialog after activation of the button on the right. A footer content can be set in a special dialog. It can include:

- Date
- Title
- Page number

#### Printer setup

With click on the button a standard dialog is activated for setting of printer properties, resp. for printer change. It's especially important to set a printing size.

#### Preview

After setting of all report parameters you can check out the result via a report preview dialog, resp. to correct parameters. From this dialog you can execute a report export into one of the following formats:

- file of the QuickReport sort (\*.QRP) - internal format of printing manager
- text file (\*.TXT)

- text separated with comas (\*.CSV)
- HTML document (\*.HTM)

#### Common font

With the command you can set a common font for all the components within the given print report.

#### Common colour

With the command you can set a common colour for all the components within the given print report.

#### All frames on

With the command you can set a common frame for all components within the given print report.

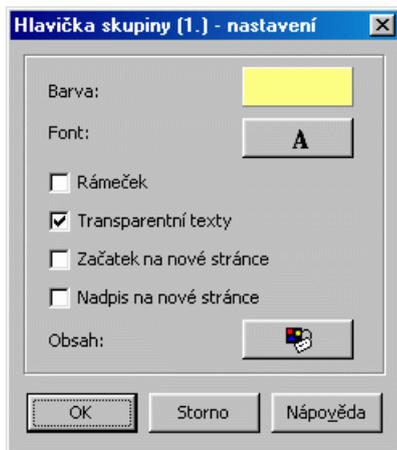
#### Outer only

With the command you can set a common frame for all components within the given print report so that a whole page is framed at edges.

#### All texts transparent

With the command you can set a common print for all components within the given print report so that all printed data are transparent except letters, i.e. they are on a colour background of individual strips. Otherwise there is a white rectangle around the printed values from individual table records.

### 3.4.1. Graphic parameters setting of print report components



Dialog for graphic parameters setting of print report components

After activation of the dialog with one of the buttons in a dialog for report creating you can set the following parameters individually for each report component.

#### Colour

By click on a colour rectangle a standard dialog is activated for setting of a background colour for the given report component.

#### Font

By click on the button a standard dialog is activated for setting of a font properties (type, subtype, colour, size) for the given report component.

#### Frame

A switch by which it's specified whether the given report component will be framed.

#### Transparent texts

A switch with which you can set printing for the given report component so that all printed data are transparent except letters, i.e. are on a colour background of individual strips. Otherwise there is a white rectangle around printed values from individual records.

#### Force new page

A switch by which it's specified whether the given report component will start allways on a new report page. It's appropriate particularly for setting of individual group heads (corresponding to sorting criteria) where you can achieve printing of each group on a separate page.

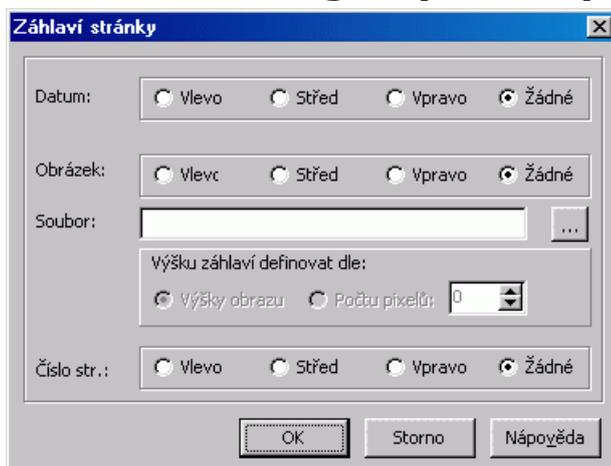
#### Reprint on a new page

A switch with which you can set that a group header will be repeated on every new page if the group is printed on more pages.

#### Content

By click on the button a dialog is activated for detailed setting of individual report components.

### 3.4.2. Content setting of print report page header



Dialog for Content setting of print report page header

After activation of the dialog with the "Content" button in a dialog for individual component setting you can set a content of printing report page header.

#### Date

By one of the switches you can set whether, resp. where a current date will be printed in a header of every page.

#### Image (\*.wmf, \*.emf, \*.bmp, \*.ico, \*.gif, \*.jpg)

By one of the switches you can set whether, resp. where the given image will be printed in a header of every page.

#### File image

Set a name of file for display into the edit line, resp. you can use the right button for activating of a standard dialog for file selection.

#### Band height defined by

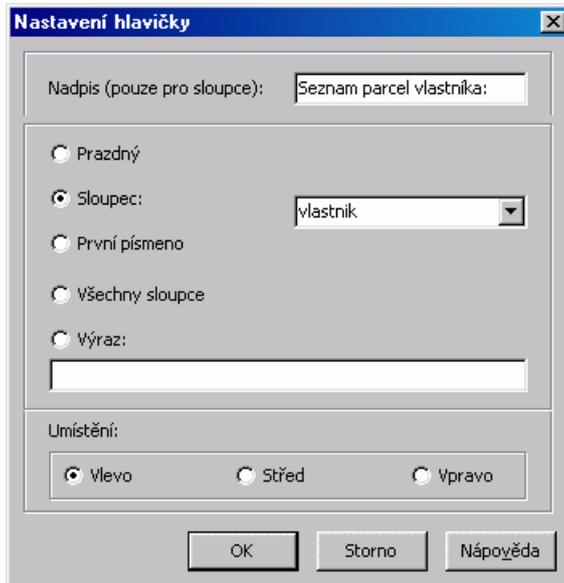
A pair of switches with which you can set a height of the selected image file to which the given image will be extended. You can set one of the following:

- Image height - a real height is derived from an image height in pixels
- Screen pixels - a real height is set in pixels via edit line.

Page No.

By one of switches you can set whether, resp. where a page number will be printed in a header of every page.

### 3.4.3. Content setting of print report groups header



Dialog for Content setting of print report groups header

After activation of the dialog with the "Content" button in a dialog for individual component setting you can set a content of printing report group header.

Title

Into the edit line you can set a text that will be a prefix for a whole group header. It's considered only for a combination with a value of a selected field or its first letter.

Empty

A header will be an empty row.

Field

From the list box select a table field values of which will form a group header or its part. You can select any field although practically it's sensible only for its setting from a sort key corresponding to dividing of records into groups for which the header is set.

First letter

From the list box select a table field. The group header will be formed allways by the first letter of a selected field value from the first group record. You can select any field although practically it's sensible only for its setting from a sort key corresponding to dividing of records into groups for which the header is set. It works only for string items.

All fields

A group header will be allways formed by names (not labels) of all table fields. It's appropriate if you want to display field names not at the beginning of a page but at the beginning of main record groups and subgroups.

Expression

Into the edit line you can set an expression that will form a group header consisting of selected fields values and of a text in apostrophes.

#### **Example 7.1.**

Příklad: 'Oddělení: ' + oddeleni + 'porost: '+ porost

#### Position

An position for group headers is selected from the switches. It's possible to select left, right and centre of print row. In case of header setting to all fields there's no point in it.

#### Clear after print

A switch with which you can set that set expressions are computed only for a given group of records. If the switch isn't activated, printed expressions have a meaning of continuous sums for example, where all so far printed records without regard to groups.

### 3.4.4. Content setting of print report groups (Sum) footer

Dialog for Content setting of printing report groups footer

After activation of the dialog with the "Content" button in a dialog for one report component setting you can set a content of group footers of print report, resp. content for sum of all report.

#### None

The footer will be an empty row.

#### Title

You can set a text into the edit line that will be a prefix for the whole group footer. It is combined with a value of the set expression.

#### Function

In the combo box you can select a function for an expression computation that will be printed in a group header. You can use:

- SUM - sum of the selected field values within the given group
- AVERAGE - an average from the selected field values within the given group
- COUNT - count of records within the given group
- MIN - minimum value from the selected field of the given group
- MAX - maximum value from the selected field of the given group

#### Field

A table field is selected from the combo box. From its values an expression for group footer will be computed. It works for numeric items only.

#### Expression

Into the edit line you can set an expression that will form a group footer consisting of expressions above values of the selected field and of texts in apostrophes.

#### Example 7.2.

Example: 'Součty za oddělení: ' + SUM(plocha) + '' + COUNT(plocha)

#### Position

An position for group footers is selected from the switches. Its possible to select left, right and centre of a printing row.

### 3.4.5. Content setting of print report page footer



Dialog for Content setting of print report page footer

After the dialog activation with the "Content" button in a dialog for setting of one report component you can set a content of a printing report page footer.

#### Date

By one of the switches you can set whether, resp. where the current date will be printed in a footer of every page.

#### Title

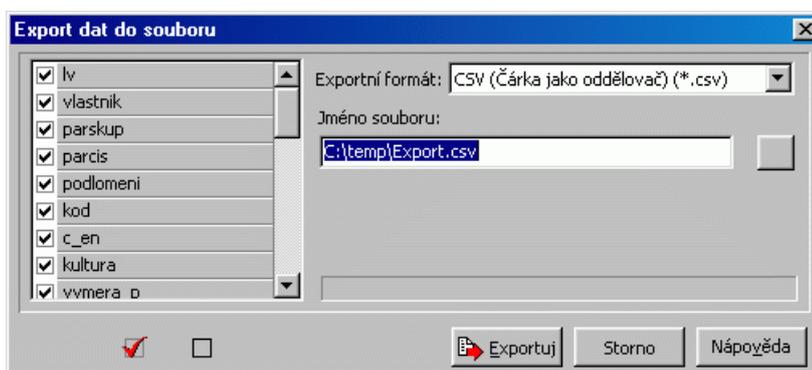
By one of the switches you can set whether, resp. where a printing report title, defined in the main dialog for a printing report setting, will be printed in a footer of every page.

#### Page No.

By one of the switches you can set whether, resp. where a page number will be printed in a footer of every page.

## 3.5. Export

After the command confirmation a dialog is displayed in which you can set parameters for export of table content into a text file.



Data export to file dialog

Fields list

In the left part of the dialog there is a rolling list with names of all the database table fields with checking fields which serve to switch on and off fields for export. If you click with mouse on a checking field next to a field name, you can insert or remove the field out of export. For multiple switching of all fields use the buttons under the list.

Export format

From a combo box select one of the available formats for export. These differ mainly by used delimiters.

- Formated text (space delimited) (file has the \*.prn extension)
- Text (tab delimited) (file has the \*.txt extension)
- CSV (comma delimited) (file has the \*.csv extension)

File name

An edit line for setting of output file name into which a table content will be exported. It's better to use the button on the right next to the line for activating of a standard dialog for a file name setting.

Export

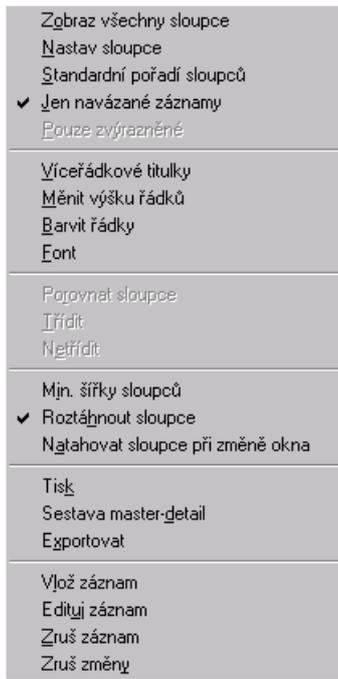
An export is ran. Its process can be monitored on a bar in the bottom part of the dialog. Then you can set new parameters and repeat the whole process.

## 4. Database window for joined table handling - model

If a primary database table has a so called database model defined, the command "External table" becomes accesible in the "Database table" submenu. For its activation a database window is established which is handled similarly to the window for primary tables. In the upper part of the dialog a list box is displayed with names of distant joined database tables. At first entry into this dialog only the selected records are displayed which correspond to key items in the primary database table. In this list you can select with the mouse or arrows on keyboard another distant joined database tables from the same database model level. If a joined database window is active, the "External table" command refers to this window. It can open a database window for another level - a database model subtree.

After activation of a local popup menu by right mouse button click anywhere within the selected table column a local popup menu for given column handling is activated similar to primary tables menu.

Working with joined tables has its own specifics. Therefore an offer for main local dialog menu differs. You can find some specific commands in here, on contrary other commands are skipped, another are accesible under specific conditions only.



Local popup menu for joined database table handling

After activation of a local popup menu with the left mouse button (click on the black triangle symbol in the top left corner of the table) you can select one of commands for table handling.

#### Show all columns

Displays all the table columns.

#### Customize fields

Via the database display setting dialog you can switch on and off a display of individual columns. Simultaneously you can set labels for a header of individual table columns.

#### Standard columns order

A columns order is set as defined directly in the database file.

#### Joined records only

A switch enabling to display a whole table and not only selected records corresponding to key items in the primary database. Standardly the switch is active. If you display joined records only, some commands of the main menu become inaccessible as well as commands from a menu for columns handling - these are mainly commands incidental to database sorting. A joined table must be sorted by key items that correspond to items from key items pairs for joining of table records.

#### Highlighted only

The command enables to display for the selected database table highlighted records only, i.e. hand-picked records coloured in blue. The command works as a switch, i.e. after its reselection its effect is suppressed.

#### Multiline titles

The command enables to set make-up of header titles of individual columns. If a title consists of more words, it is divided into more lines, if it doesn't fit in the given column width. The command works as a switch, i.e. after its reselection its effect is suppressed.

#### Row sizing allowed

The command enables to set a nonstandard row size. After its confirmation you can modify the size by dragging with the left mouse button above a gray edge of two rows. The command works as a switch, i.e. after its reselection its effect is suppressed.

#### Rows colours

The command serves to better orientation in tables with long rows. All odd database records are coloured, all even records stay coloured in an original colour. The command works as a switch, i.e. after its reselection its effect is suppressed.

#### Grid font

After confirmation a standard dialog is displayed in which you can select from the offer another font for display within a table.

#### Compare fields

The command for the active database table enables to set a simple query for records selection by set criteria. The query takes a form of value comparing of two selected table fields.

#### Sort

The command enables to set a sort key for the current database table. A dialog, which appears after an activation, enables to select sort keys and setting of the sorting by individual key items (upwards - downwards).

#### Unsorted

The command cancels a sort key setting. Records are displayed unsorted.

#### Auto size

All the table columns are displayed with a minimum available width so that a content of the given item is fully visible. If an item is of a string sort, possible contained spaces aren't detected.

#### Auto width

Into the active database window area all table columns are displayed so that they are all fully visible without use of a horizontal scrollbar. Column widths are computed so that their aspect ratio is proportional considering minimum widths of individual columns.

#### Auto width on resize

The command works as a switch which, if it's active and the "Auto width" command is active as well, evokes that columns are extended at change of a database window width considering a new width of a window.

#### Print

The command enables to set and print a printing report for the current database table.

#### Master report - detail

The command enables to set and print a printing report which combines records from primary database with corresponding joined records from the active table. After an activation a report parameters setting dialog is activated.

#### Export

The command enables to set parameters for export and to save a table content into a text file.

#### Insert

The command enables to insert another record into a joined table. If you are in a joined records display mode, key items for joining of tables are filled automatically - pursuant to primary database table record.

#### Edit

A standard database current record editing dialog is activated in which individual items are displayed under themselves.

#### Delete record

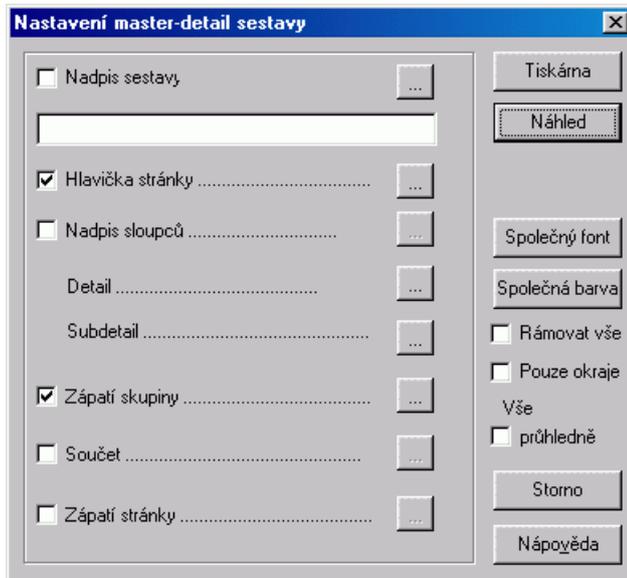
The command enables to delete an active table record.

#### Cancel changes

The command enables to cancel executed changes by editing of an active record.

## 4.1. Master report - detail

After the command confirmation a dialog is displayed for the active database table in which you can set parameters of a Master printing report - detail and print it. Always only whole columns displayed in a table are printed. Their width within the report is proportional to a table column on screen. The whole report can consist of several basic components which can be individually set via other dialogs. In the report current table rows are combined with rows of a primary table from which the current table was joined. Behind one row of primary table several rows succeed with corresponding joined records to a primary record.



Dialog for setting of Master printing report - detail

### Report title

A switch enabling to switch on and off printing of whole report title. Into the edit line you can directly set a text of printing report title. Graphic parameters can be set in a standard dialog after the right button activation. A title is printed only at the beginning of a report but it can be eventually reprinted with other graphic parameters in individual page footers.

### Page header

A switch enabling to switch on and off printing of individual pages header. Graphic parameters can be set in a standard dialog after the right button activation. A header content can be set in a special dialog. It can include:

- Date
- Image (\*.wmf, \*.emf, \*.bmp, \*.ico, \*.gif, \*.jpg)
- Page number

### Column title

A switch enabling to switch on and off printing of columns titles. Graphic parameters can be set in a standard dialog after activation of the right button. This is a question of column titles from *primary* database table. As columns titles the labels of individual columns are printed, set in a for dialog table columns setting. There is a possibility to make-up multiword titles.

### Detail

Content of actual displayed *primary* table records. You can print only the selected or highlighted records, if a table display is set in this way. Graphic parameters can be set in a standard dialog after activation of the right button.

#### Subdetail

A content of *sekundární (navázané)* table. Names of secondary table columns are standardly printed above a group of joined records. Graphic parameters can be set in a standard dialog after activation of the right button.

#### Summary

A switch enabling to switch on and off summary information from the whole report. Graphic parameters can be set in a standard dialog after activation of the right button. A summary information content can be set in a special dialog as with a primary group.

#### Page footer

A switch enabling to switch on and off printing of individual page footers. Graphic parameters can be set in a standard dialog after the right button activation. A footer content can be set in a special dialog. It can include:

- Date
- Title
- Page number

#### Printer

With click on the button a standard dialog is activated for printer setup, resp. for printer change. It's important in particular to set a printing height or width.

#### Preview

After setting of all report parameters you can check a result via report preview dialog, eventually to correct parameters. From the dialog you can carry out a report export into one of the following formats:

- File of the QuickReport sort (\*.QRP) - internal printing manager format
- Text file (\*.TXT)
- Text separated with comas (\*.CSV)
- HTML document (\*.HTM)

#### Common font

With the command you can set a common font for all components within the given report.

#### Common colour

With the command you can set a common colour for all components within the given report.

#### Frame all

With the command you can set a common frame for all components within the given report.

#### Edges only

With the command you can set a common frame for all components within the given report so that a whole page is framed at edges.

#### All transparent

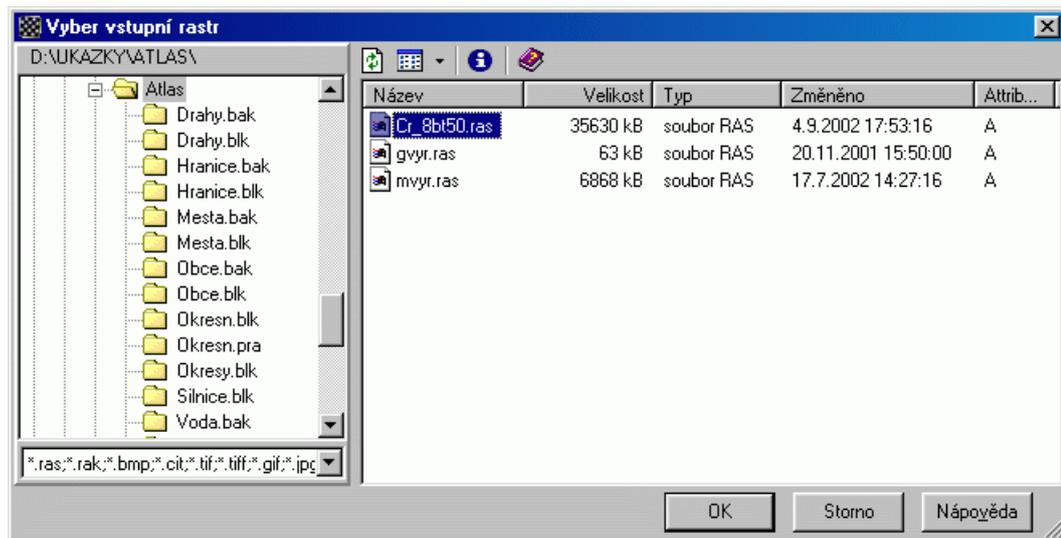
With the command you can multiset a printing for all components within the given printing report so that all printed data are transparent except letters, i.e. they are on a colour background of individual strips. Otherwise there is a white rectangle around printed values from individual table records.

# Chapter 8. Operations with raster data

The Raster submenu contains several groups of operations with raster data in many supported formats. Most of the operations works with one or two rasters only. To set an input raster use a standard dialog for one raster opening. If you want to work with more rasters, use a dialog for raster group selection.

## 1. Raster selection dialog

The dialog serves for selection of one input raster for a specific operation with the given raster. Confirmation of the selection is carried out by doubleclick on a raster name or by raster selection with a click and depression of OK button.



Dialog for one raster selection from directory

The dialog is divided into two basic fields. In the left part there is a tree structure displayed of directories on discs in your computer. In the right part there is a list of rasters accessible in the selected directory. In this field select a raster that will be opened. Confirm either with doubleclick or with the OK button. In the dialog you can also use control by buttons:

	F5	Refreshes a list of rasters accessible in the selected directory.
		Enables to change a presentation of individual rasters in the list (large, small icons, details)
		Opens a dialog for information display on selected raster.
	F1	Runs the help.

A list of list rasters can be sorted by a content of individual columns. With click on a column header the list is sorted, after another click a sorting direction is reversed. A list content can be also filtered by using of list box under a directories tree structure. Here you can limit a raster selection to one raster data format only.

### Note

If an operation requires working with a raster of specific colour depth only, a raster which doesn't meet the criteria can't be confirmed as a selected raster. So for example neither transfer change nor palette editing can be executed with binary or True Color raster.

## 2. Information on raster



Dialog for display of one raster characteristics

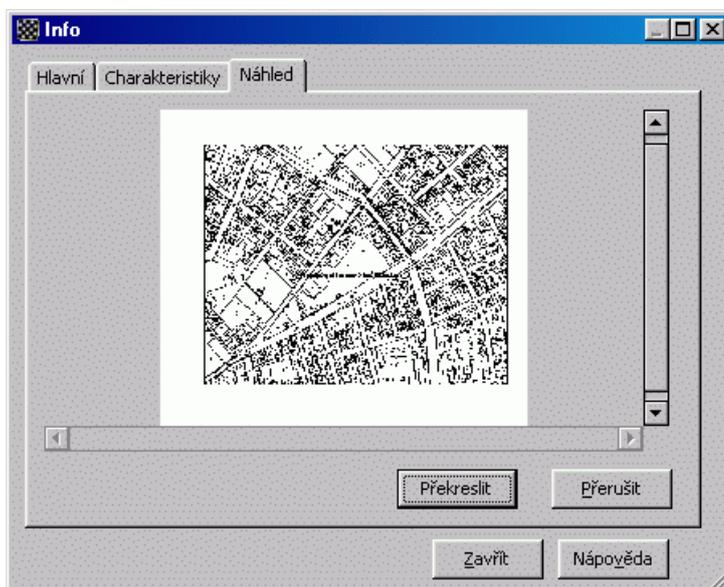
The dialog consists of several pages. On the first page there are file characteristics of the selected raster displayed, on the second page there are information on raster as such. On the third page you can view a minimized raster preview. The second page contains the following characteristics:

- Version - stripped or tiled
- Type - binary, grayscaled, colour, True Color, DEM
- Compression type - used method of raster compression
- Condition - coordinate allocated, coordinate allocated
- Min Y - minimum Y (horizontal) raster coordinate
- Max Y - maximum Y (horizontal) raster coordinate
- Min X - minimum X (vertical) raster coordinate
- Max X - maximum X (vertical) raster coordinate
- Pixels/horizontal- count of pixels in the Y axis (horizontal), i.e. columns count
- Pixels/vertical - count of pixels in the X axis (vertical), i.e. rows count
- Pixel/width - size of pixels in the Y direction (horizontal)
- Pixel/height - size of pixels in the X direction (vertical)
- Generalization - data on possible generalized raster version for a quick display (pixel counts are in brackets)
- Compression- compression ratio of raster version and noncompressed version in percents

### Note

Minimum and maximum coordinates respect the set raster coordinate system, so that for example in the S-JTSK system minimum coordinates correspond to the top right corner of the raster and the maximum bottom left corner of the raster. In all other systems its vice versa.

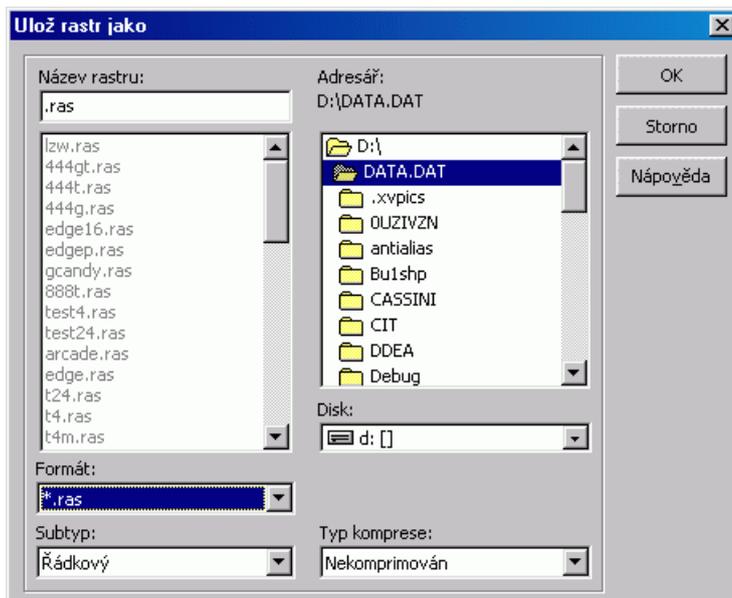
After switch over to the third page of the dialog a creating of raster preview starts which for some large rasters can take some time depending on the used compression method. In such case it's possible to use the "Abort" button. If you want to have the preview in a larger detail, you can extend the dialog and then use the "Redraw" button. After generation of a preview you can still zoom in or zoom out with mouse wheel. To move a viewport of zoomed raster you can use either a moving bar or dragging with left mouse button.



Raster preview display dialog

### 3. Save raster as

In this TopoL version you can select the RAS, TIFF and BMP as output formats. The TIFF and BMP formats are entirely equal to the internal RAS format. These raster types can be created even at operations as e.g. masking, mosaic creating, raster transformation etc. With the TIFF format you can also use all types of supported internal compressions of this format. Thus you can directly work with these highly compressed rasters without the necessity of decompression on the disc.



Dialog for setting of output raster name

This dialog is divided into several parts. Except basic buttons for confirmation and canceling there is an edit line in the top left part of the dialog, in which you can set a name of a new raster from the

keyboard (even without an extension). Under this edit line a list of set format rasters is displayed. In the right dialog part there is a window with directory structure displayed in which you can move in standard way to other directories. Under this window there is a list box with connected logical disc units. With click or arrows you can select another disc unit.

A raster format can be selected in a list box in the bottom left part of the dialog which is titled "Format". The set format takes precedence over the name set in an edit line. So if you set a full name with extension, this extension changes by a set format. Under the formats list there is one more list box in which you can set a subtype for the given format. A subtype means whether image pixels will be saved in whole strips or in "tiles", i.e. in the same way as for the RAS format version 2. This subtype can be used with the TIFF and RAS formats. It's recommended to use a tile raster subtype for rasters which will be transformed or rotated in the next phase. Otherwise it's more suitable to set the raster subtype as a row subtype because of quickness of the raster displaying.

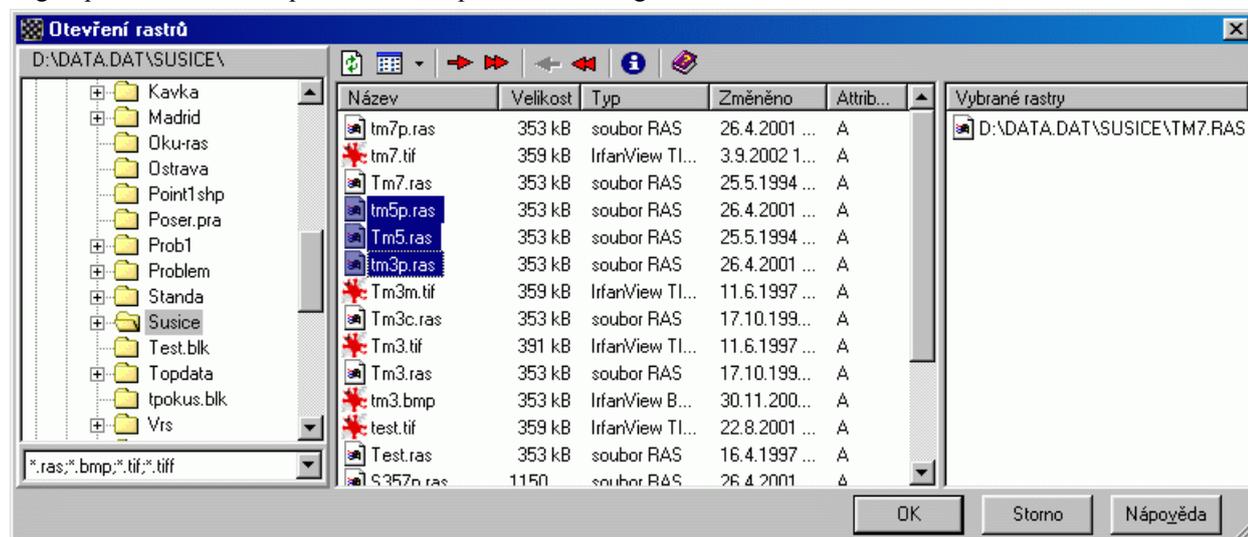
In the bottom right part there is one more list box in which you can select a compression type for the TIFF and RAS formats. With the TIFF format an offer of available compressions depends on a raster type (binary, resp. colour and grayscaled rasters are meant here). As for a binary type of the TIFF raster we can say in general that offered compression types are ordered upwards in term of compression degree. The larger a compression degree is, the longer it takes to load a raster, for displaying for example. With the RAS format there is only a noncompressed version or a simple compression which is identical for all its types. However only a tile subtype of the format can be compressed. The BMP format can be used in a noncompressed form only.

### Note

The above described dialog is used for example with raster export into various formats. In this and similar cases a list box of available formats contains only the corresponding format (for ex. the TIFF).

## 4. Opening of more rasters

A group of raster data is opened via the Open rasters dialog.



Open rasters dialog

The dialog is divided into three fields. In the left part there is a tree structure of directories on discs of your computer. In the middle part of the dialog all the rasters are displayed available within the selected directory. With doubleclick the selected rasters are moved into the right part of the dialog where the to be opened rasters are displayed. Deselection from the list of rasters for opening is carried out with doubleclick on a corresponding raster.

The dialog can be controlled also with buttons:

	Refreshes a list of rasters accessible within the selected directory.
	Enables to change individual rasters presentation in the list (large, small icons, details).
	Moves a raster (rasters) selected in the middle part of the dialog into a list of to be opened rasters.
	Moves all rasters from the middle part of the dialog into a list of to be opened rasters.
	Removes a selected raster from a list of to be opened rasters.
	Removes all rasters from a list of to be opened rasters.
	Displays information on raster in a selected field of accessible rasters or in a list of to be opened rasters.
	Runs the help.

Raster list in the list can be sorted by content of individual columns. With click on column header the list is sorted, after another click a sort direction is reversed. The list content can be also filtered by use of a list box under a tree structure of directories. Here you can limit a raster selection to one raster data format only.

## 5. Geometric operation

Geometric operations with rasters are allways related to rasters allocation (location) in coordinate system and thus also to coordinate system in which the given raster is localized. Either location of rasters input to the operation is created resp. canceled, or the result raster (rasters) location depends on input rasters location. As an input raster file we can select any file through browsing of accessible directories after activating. If the required one isn't yet included in the project, the system supposes that its coordinate system corresponds to coordinate system set by default in project properties. If the required raster is already included in the project, the system respects setting of its coordinate system. If it's necessary for the given operation to display a raster in a map window (viewport, masking), the system displays raster in a map window (event. newly opened) with a coordinate system identical to the raster. The operation result is then included into the project again with the same coordinate system.

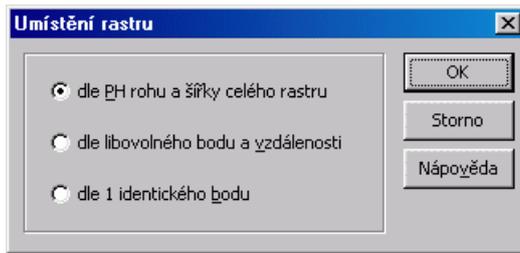
### 5.1. Raster transformation

### 5.2. Raster transformation in parts

### 5.3. Raster location

After raster selection in a standard way the system enables to select one of Location types and next depending on the selection it proceeds in one of the following methods for location parameters setting:

- by selected corner and width
- by point and distance
- by reference point



Dialog for selection of one of basic allocation options

#### By selected corner and width

This option means moving of raster and change of its scale so that its distortion is avoided. It means that apex ratio of pixel in X and Y axis is retained. The system enables to set a raster allocation via one reference point, which can be any raster corner. Coordinates in a coordinate system and width are set numerically. The raster is located so that distance of raster top left and right corner centres is equal to the given width.

#### By point and distance

This option enables to set a raster allocation via one reference point and a distance measured from this point. Coordinates in the coordinate system and a distance are set numerically. Then you detach a reference point in standard way and next another point which serves to distance measuring from it. A raster is located so that a centre of detached reference pixel has the set coordinates and if a distance between the two detached points - pixels is measured, it corresponds to the set distance.

#### By reference point

This option de facto means moving. It can't be used in case of coordinate not allocated rasters. The raster is consequently moved so that a source point-pixel centre has coordinates equal to the target point coordinates.

### Note

The TopoL works with and displays only coordinate allocated data. If you locate a not allocated raster into a map window legend, the system makes you to allocate the raster into the top right corner and width of the whole file.

### Note

The command is often used at raster image vectorization when it's not necessary to retain relationship resp. a relationship to already existing data doesn't exist. In this case you can, instead of slow raster transformation and its consequent vectorization, allocate the raster only and vectorize and transform the result vector data. The command can be also used for correction of already transformed raster.

### 5.3.1. Corner and width of raster file

Dialog for setting of raster coordinates of corner and width

The dialog serves to numeric setting of coordinate of one raster corner in the coordinate system and of raster width. All data relate to coordinate system of the given raster. If it's stated in the project, that it's allocated for example in geographic coordinate system, the set values are understood in geographic coordinates.

#### East

Into edit line set a number specifying a new East (horizontal) coordinate of the selected raster corner.

#### North

Into edit line set a number specifying a new North (vertical) coordinate of the selected raster corner.

#### Point corresponds to

From the switches select one of raster corners which the set East, North coordinates correspond to:

- Top left
- Top right
- Bottom left
- Bottom right

#### Width

Into edit line set a new raster width.

#### Compute width from

With the button you can activate computing of raster width from the set values of scanning density and original scale (of map, photo).

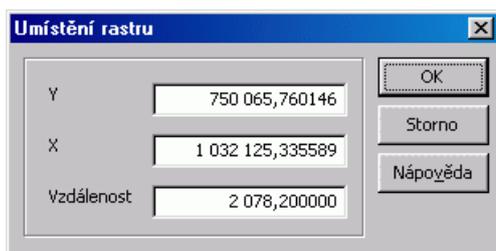
#### Scanning resolution

Into edit line set a number specifying a scanning density in DPI.

#### Scale

Into the edit line set a number specifying the original scale of a scanned map or aerial photo.

### 5.3.2. Point and distance



Dialog for coordinates setting of point and distance

The dialog serves to numerical setting of reference point coordinates in the coordinate system and of a distance. A raster is located so that a centre of detached reference pixel has the set coordinates and if a distance between two detached points - pixels is measured, it corresponds to the set distance. All data relate to coordinate system of the given raster. If it's said in the project, that it's located for example in geographic coordinate system, the set values are understood in geographic coordinates.

#### North

Into the edit line set a number specifying a new North (horizontal) coordinate of the reference point.

#### East

Into the edit line set a number specifying a new East (vertical) coordinate of the reference point.

#### Distance

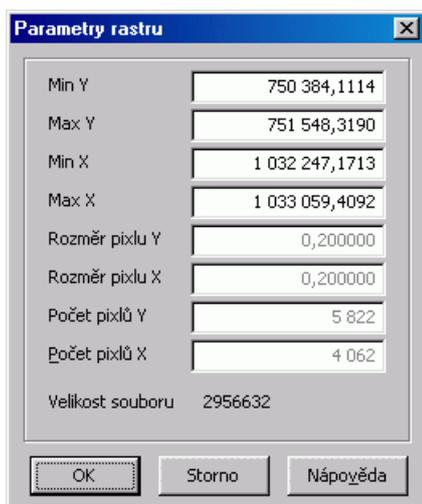
Into the edit line set a distance between two consequently detached points.

## 5.4. Raster rotating

At first you must select an input raster in a standard way and next to set a name of an output raster. For confirmation set an angle size of which a raster needs to be rotated. Then the operation is carried out. It's result is an unlocated raster which is rotated through a corresponding angle with regard to input raster.

## 5.5. Raster copy

The command copies the selected part of a specified raster file and saves it under a given name. The command doesn't change a pixel size. Location of the result raster is computed so that egosyntonic pixels are displayed in the same place at displaying of original raster and a cut-out. After confirmation of an input raster and its display in a map window via the selecting rectangle select graphically a part of the raster for a cut-out. After its confirmation a dialog appears for possible numerical editing of the selected cut-out.



Specify raster parameters dialog

**Min East**

Into the edit line set a number specifying a minimum East (horizontal) coordinate of the result raster.

**Max East**

Into the edit line set a number specifying a maximum East (horizontal) coordinate of the result raster.

**Min North**

Into the edit line set a number specifying a minimum North (vertical) coordinate of the result raster.

**Max North**

Into the edit line set a number specifying a maximum North (vertical) coordinate of the result raster.

Other edit lines (not editable) contain information data on pixel size in both directions and counts of columns and rows in a raster. In the bottom part of the dialog there is also an information on a supposed size of noncompressed output raster.

## 5.6. Mirror horizontal

At first you must select an input raster in a standard way and next to set an output raster name. After confirmation the operation is carried out. Its result is an unlocated raster which is side-inversed considering the input raster by vertical axis.

## 5.7. Mirroring vertical

At first you must select an input raster in a standard way and next to set an output raster name. After confirmation the operation is carried out. Its result is an unlocated raster which is side-inversed considering the input raster by horizontal axis. The first raster row becomes the last one and vice versa.

## 5.8. Raster masking

The command serves to transparency of the given area of input raster.



Dialog for selection of the way of an area border selection for masking and masking method

## Mas Area

### S-JTSK

An area for masking is selected by setting of map sheet name of the S-JTSK map layout in standard dialog.

### Gusterberg

An area for masking is selected by setting of map sheet name of the Gusterberg (sc. 1:2,880) cadastral map layout in standard dialog.

### Gusterberg 2500

An area for masking is selected by setting of map sheet name of the Gusterberg (sc. 1:2,500) cadastral map layout in standard dialog.

### St. Stephan

An area for masking is selected by setting of map sheet name of the St. Stephan (sc. 1:2,880) cadastral map layout in standard dialog.

### St. Stephan 2500

An area for masking is selected by setting of map sheet name of the St. Stephan (sc. 1:2,500) cadastral map layout in standard dialog.

### Gellertheyy

An area for masking is selected by setting of map sheet name of the Gellertheyy (sc. 1:2,800) cadastral map layout in standard dialog.

### Gellertheyy 2500

An area for masking is selected by setting of map sheet name of the Gellertheyy (sc. 1:2,500) map layout in standard dialog.

### ČR + SR map

An area for masking is selected by setting of map sheet name of the basic maps of CZ and SR layout in standard dialog.

**Gauss-Krüger**

An area for masking is selected by setting of map sheet name of the Gauss-Krüger map layout in standard dialog.

**LHP 1: 10 000**

An area for masking is selected by setting of map sheet name of the LHP 1: 10,000 forestry map layout in standard dialog.

**OPRL 1: 25 000**

An area for masking is selected by setting of map sheet name of the OPRL 1: 25,000 forestry map layout in standard dialog.

**Rectangle**

An area for masking is selected numerically by setting of rectangle in a standard dialog.

**Polygon**

An area for masking is selected so that the system switches into mode of detaching of the border line which will determine the masking area.

**Block**

After confirmation of the described dialog a dialog for masking by block is opened in which you can set all the corresponding parameters and after its confirmation the system directly carries out masking.

**Mask****Polygon**

The switch specifies whether the masking will be carried out inside a polygon-determined area.

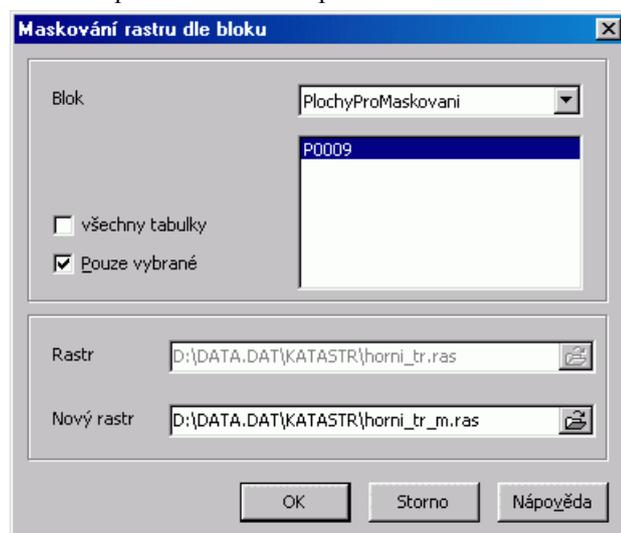
**Complement**

The switch specifies whether the masking will be carried out outside the polygon-determined area.

After the dialog confirmation an input raster is selected resp. a dialog is activated for parameters setting at masking according to block. Then an area for masking is specified by one of the methods. In the end you have to set name of an output raster.

### 5.8.1. Raster masking according to areas

The command serves to transparency of input raster areas that are determined by areas of a table either from a TopoL block or a ShapeFile.



Masking by areas dialog

**Block**

A combo box containing all blocks or ShapeFiles with areal tables - groups.

**Tables**

A list with all area tables of the selected block or ShapeFile.

**All tables**

If this switch is activated, a table list is grayed and all area tables within a block are considered for an operation.

**Selected only**

With this switch you can limit masking to areas selected by a selecting tool.

**Raster**

Informative item with displayed input file name.

**New raster**

An edit line for output raster name setting. It's possible to use an icon on the right, then you can set a raster by selection via a standard dialog.

## 5.9. Mosaic

The command creates a new raster file of the set name by bringing together raster images displayed in a map window resp. their selected part only. Raster files from which a mosaic will be created, can be of any type. A result raster type will depend on the files as follows:

- binary + grayscaled = grayscaled
- binary + colour = colour
- grayscaled + colour = colour
- If a raster of the TrueColor type is in the point of interest, then at the command execution an output raster file type is a TrueColor as well.

In case you want to create a mosaic from binary rasters only, a dialog for result file type setting is opened before specification of a new file parameters.

The Mosaic command is carried out only if at least one raster is displayed in the active map window. After its activating the following dialog appears.



Dialog for a method setting of area for mosaic selection

#### S-JTSK

An area for mosaic is selected by setting of map sheet name of the S-JTSK map layout in standard dialog.

#### Gusterberg

An area for mosaic is selected by setting of map sheet name of the Gusterberg (sc. 1:2,880) cadastral map layout in standard dialog.

#### Gusterberg 2500

An area for mosaic is selected by setting of map sheet name of the Gusterberg (sc. 1:2,500) cadastral map layout in standard dialog.

#### St. Stephan

An area for mosaic is selected by setting of map sheet name of the St. Stephan (sc. 1:2,880) cadastral map layout in standard dialog.

#### St. Stephan 2500

An area for mosaic is selected by setting of map sheet name of the St. Stephan (sc. 1:2,500) cadastral map layout in standard dialog.

#### Gellerthey

An area for mosaic is selected by setting of map sheet name of the Gellerthey (sc. 1:2,800) cadastral map layout in standard dialog.

#### Gellerthey 2500

An area for mosaic is selected by setting of map sheet name of the Gellerthey (sc. 1:2,500) map layout in standard dialog.

#### ČR + SR map

An area for mosaic is selected by setting of map sheet name of the basic maps of CZ and SR layout in standard dialog.

#### Gauss-Krüger

An area for mosaic is selected by setting of map sheet name of the Gauss-Krüger map layout in standard dialog.

**LHP 1: 10 000**

An area for mosaic is selected by setting of map sheet name of the LHP 1: 10,000 forestry map layout in standard dialog.

**OPRL 1: 25 000**

An area for mosaic is selected by setting of map sheet name of the OPRL 1: 25,000 forestry map layout in standard dialog.

**Rectangle**

An area for mosaic is selected graphically by setting of rectangle in a standard dialog.

**Polygon**

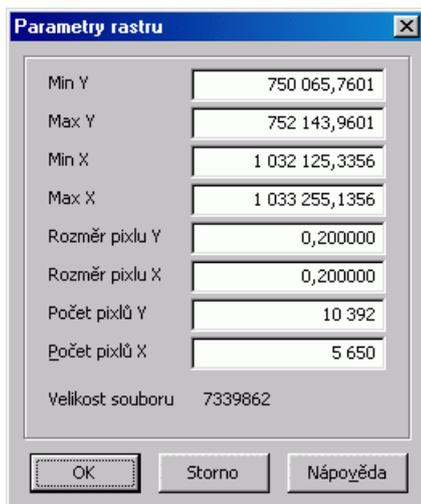
An area for mosaic is selected so that the system switches into mode of detaching of the border line which will determine the masking area.

**All rasters**

An area for mosaic will include a summary of all bounding boxes of individual rasters.

After you close the previous dialog by confirmation of the OK button and select an area for mosaic, a dialog for parameters setting of new raster file is opened. After its confirmation and setting of a name and subtype of an output raster in a standard dialog the system begins to create a mosaic.

### 5.9.1. Raster parameters



Dialog for possible numeric editing of geometric parameters of result raster

**Min East**

Into the edit line set a number specifying the minimum East (horizontal) coordinate of a result raster.

**Max East**

Into the edit line set a number specifying the maximum East (horizontal) coordinate of a result raster.

**Min North**

Into the edit line set a number specifying the minimum North (vertical) coordinate of a result raster.

**Max North**

Into the edit line set a number specifying the maximum North (vertical) coordinate of a result raster.

**Pixel/width**

Into the edit line set a number specifying a pixel size within Y (horizontal) axis of a result raster.

Pixel/height

Into the edit line set a number specifying a pixel size within X (vertical) axis of a result raster.

Pixels/horiz.

Into the edit line set a number specifying a count of pixels within Y (horizontal) axis of a result raster.

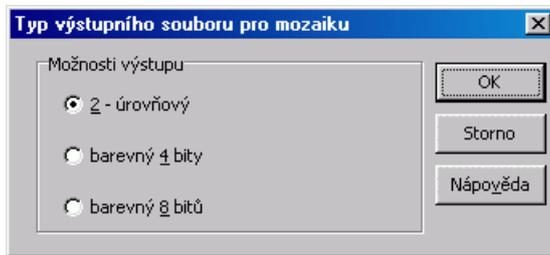
Pixels/vertical

Into the edit line set a number specifying a count of pixels within X (vertical) axis of a result raster.

In case of change of a parameter and confirmation of the change by move to another edit line the other parameters are recalculated automatically. In case of change of pixel size a counts of pixels are changed. In case of change of pixels count the minimum and maximum coordinates are changed in the corresponding axis and vice versa.

In the bottom part of the dialog there is also an information on supposed size of noncompressed output raster.

## 5.9.2. Raster file type



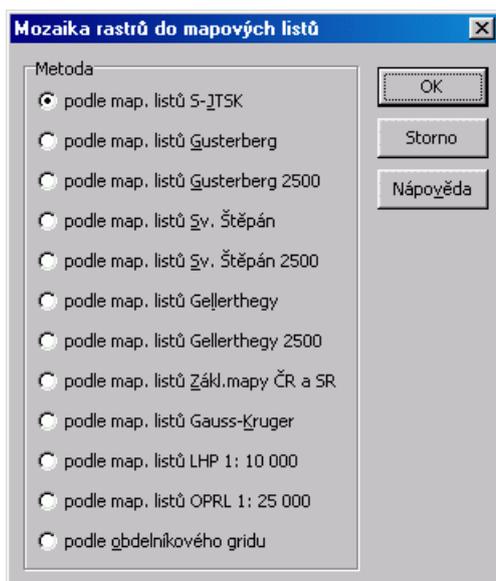
Dialog for raster file type setting

In this dialog you can select a type of a result mosaic raster witch click on one of the following control switches:

- Binary  
Result raster file will be binary.
- Colour/four-bit  
Result raster file will be coulour, four-bit.
- Colour/eight-bit  
Result raster file will be colour, eight-bit.

## 5.10. Mosaic to map sheets

The command executes creating of raster mosaics similarly to the Mosaic command except an output is not a single raster but a series of rasters. Thereby an output is a group of rasterw that correspond by border or nonmasked part to a supported map layout resp. rectangle grid. After activating of the command the system asks you how to select an area for executing of the operation (either by rectangle on screen or via all rasters) and then the following dialog displays:



Dialog for map layout(grid) selection

**S-JTSK**

Output rasters result from creating of input raster mosaics and correspond to the set S-JTSK map layout. A layout scale number is set in a standard dialog.

**Gusterberg**

Output rasters result from creating of input raster mosaics and their nonmasked parts correspond to the set Gusterberg (sc. 1:2,880) map layout.

**Gusterberg 2500**

Output rasters result from creating of input raster mosaics and their nonmasked parts correspond to the set Gusterberg (sc. 1:2,500) map layout.

**St. Stephan**

Output rasters result from creating of input raster mosaics and their nonmasked parts correspond to the set St. Stephan (sc. 1:2,880) map layout.

**St. Stephan 2500**

Output rasters result from creating of input raster mosaics and their nonmasked parts correspond to the set St. Stephan (sc. 1:2,500) map layout.

**Gellertheyy**

Output rasters result from creating of input raster mosaics and their nonmasked parts correspond to the set Gellertheyy (sc. 1:2,8800) map layout.

**Gellertheyy 2500**

Output rasters result from creating of input raster mosaics and their nonmasked parts correspond to the set Gellertheyy (sc. 1:2,500) map layout.

**ČR + SR map**

Output rasters result from creating of input raster mosaics and their nonmasked parts correspond to the set ČR and SR map layout. A layout scale number is set in a standard dialog.

**Gauss-Krüger**

Output rasters result from creating of input raster mosaics and their nonmasked parts correspond to the set Gauss-Krüger map layout. A layout scale number is set in a standard dialog.

**LHP 1: 10 000**

Output rasters result from creating of input raster mosaics and correspond to the set LHP 1: 10,000 map layout in standard dialog.

OPRL 1: 25 000

Output rasters result from creating of input raster mosaics and correspond to the set OPRL 1: 25,000 forestry map layout.

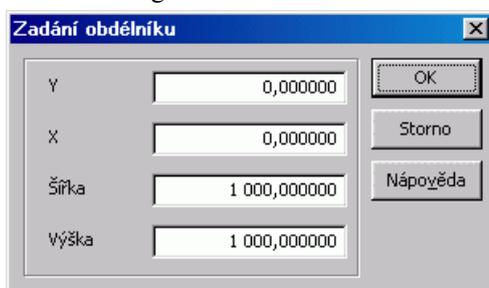
Rectangle

Output rasters result from creating of input raster mosaics and correspond to the set rectangle grid. Its origin and horizontal and vertical pitch are set numerically by a dialog for rectangle definition.

Names of output rasters are generated automatically by the corresponding name of map sheet of a selected layout. Therefor only an output directory is set mostly in a standard dialog. The method - setting by grid is an exception, were names of individual rasters are generated from sequence numbers of grid rows and columns. Here you must set a complement name of a raster. Result rasters will be saved int the same directory and strings corresponding to grid rows and columns are attached to the given name.

### 5.10.1. Rectangle setting

Dialog serves to numeric parameters setting of a rectangle in the coordinate system. It's set by origin, width and height.



Dialog for rectangle parameters setting

East

Into the edit line set a number specifying an original East (horizontal) coordinate of the required rectangle.

North

Into the edit line set a number specifying an original North (vertical) coordinate of the required rectangle.

Width

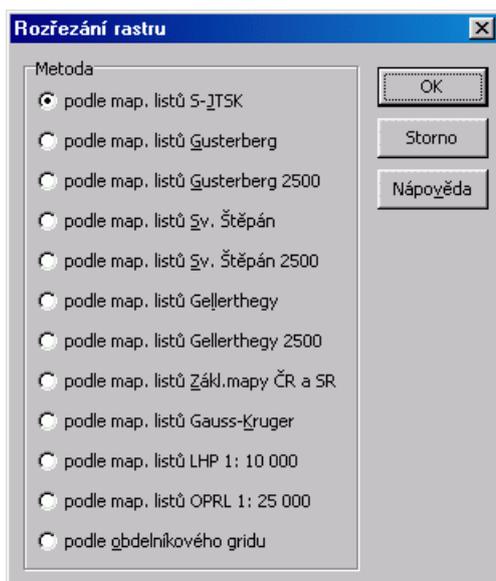
Into the edit line set a width of the required rectangle.

Height

Into the edit line set a height of the required rectangle.

## 5.11. Cut raster by map sheets

The operation executes dividing of existing raster, an output is a whole group of rasters that correspond by their border or nonmasked part to a supported map layout, resp. rectangle grid. After activating of the command the following dialog appears.



Dialog for map layout (grid) selection

**S-JTSK**

Output rasters result from cutting of input raster and correspond to the set S-JTSK map layout. A layout scale number is set in a standard dialog.

**Gusterberg**

Output rasters result from cutting of input raster and their nonmasked parts correspond to the set Gusterberg (sc. 1:2,880) map layout.

**Gusterberg 2500**

Output rasters result from cutting of input raster and their nonmasked parts correspond to the set Gusterberg (sc. 1:2,500) map layout.

**St. Stephan**

Output rasters result from cutting of input raster and their nonmasked parts correspond to the set St. Stephan (sc. 1:2,880) map layout.

**St. Stephan 2500**

Output rasters result from cutting of input raster and their nonmasked parts correspond to the set St. Stephan (sc. 1:2,500) map layout.

**Gellerttheyy**

Output rasters result from cutting of input raster and their nonmasked parts correspond to the set Gellerttheyy (sc. 1:2,8800) map layout.

**Gellerttheyy 2500**

Output rasters result from cutting of input raster and their nonmasked parts correspond to the set Gellerttheyy (sc. 1:2,500) map layout.

**ČR and SR map**

Output rasters result from cutting of input raster and their nonmasked parts correspond to the set ČR and SR map layout. A layout scale number is set in a standard dialog.

**Gauss-Krüger**

Output rasters result from cutting of input raster and their nonmasked parts correspond to the set Gauss-Krüger map layout. A layout scale number is set in a standard dialog.

**LHP 1: 10 000**

Output rasters result from cutting of input raster and correspond to the set LHP 1: 10,000 map layout in standard dialog.

OPRL 1: 25 000

Output rasters result from cutting of input raster and correspond to the set OPRL 1: 25,000 forestry map layout.

Rectangle

Output rasters result from cutting of input raster and correspond to the set rectangle grid. Its origin and horizontal and vertical pitch are set numerically by a dialog for rectangle definition.

Names of output rasters are generated automatically by the corresponding name of map sheet of a selected layout. Therefor only an output directory is set mostly in a standard dialog. The method - setting by grid is an exception, where names of individual rasters are generated from sequence numbers of grid rows and columns. Here you must set a complement name of a raster. Result rasters will be saved int the same directory and strings corresponding to grid rows and columns are attached to the given name.

## 6. Image processing

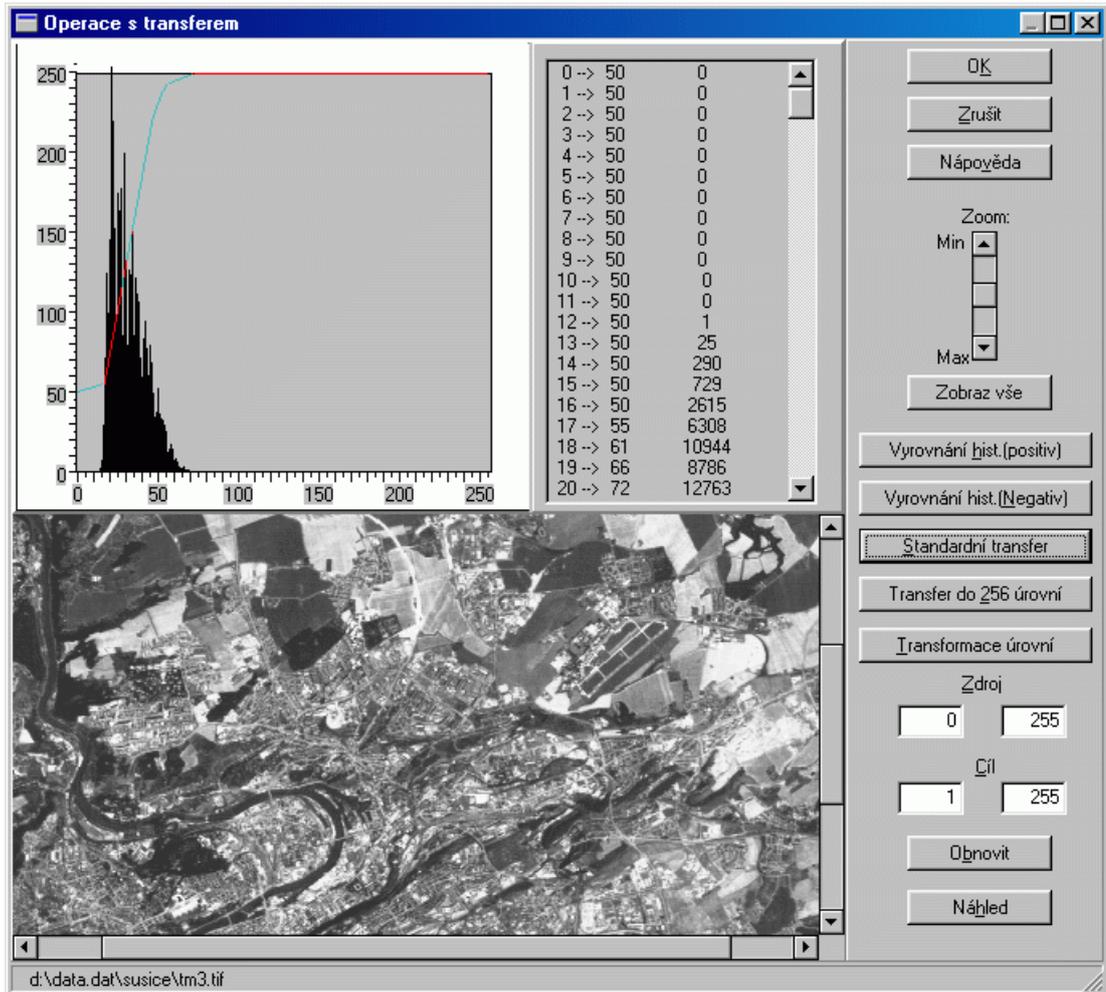
Image processing is a group of raster operations that doesn't change geometric properties of a raster, as for examble its location or pixel size. They serve mainly to change of raster colour rendering, resp. to colour comparison of several rasters. They include also arithmetic operations with grayscaled rasters and logical and morphological operations with binary rasters.

### 6.1. Look Up Table

The command carries out operations that will change the way of pixel values display within a selected raster image (they change a transfer file), resp. change a dividing of its pixel values as well (Levels transformation). The top left part of the dialog contains a chart, which represents a histogram (black lines), and a graphic representation of gray level change (red line). The right part contains a table of gray levels, in which you can see (from the left):

- source (original) gray level
- target (new) gray level
- count of pixels with this value

In the bottom left part of the dialog there is a preview of the given raster you can work in a standard way with.



Dialog for raster image transfer handling

#### Histogram equalization (positive)

The operation changes a transfer of the selected grayscaled raster by prescribed transformation relationship so that at display a representation of individual gray levels will be approximately the same (in other words at application of so created transfer a histogram of the selected raster file is a constant function).

#### Histogram equalization (negative)

The operation changes a transfer of the selected grayscaled raster by prescribed transformation relationship so that at display a representation of individual gray levels will be approximately the same, the raster is interpreted as a negative to the original raster.

#### By default

The operation changes a transfer of the selected grayscaled raster so that it's interpreted on the screen as best by empiric experiences.

#### 256 - Look Up Table

The operation creates an identical transfer for the selected grayscaled raster image. Displayed gray levels correspond to pixel values of the given file. Thus there are no changes between original pixel values and gray levels on the screen.

#### Apply Look Up Table

The operation changes a gray levels of the selected grayscaled or colour raster by the current setting (levels transformations) and saves them together with the raster under a new set name.

### gray levels hand-setting

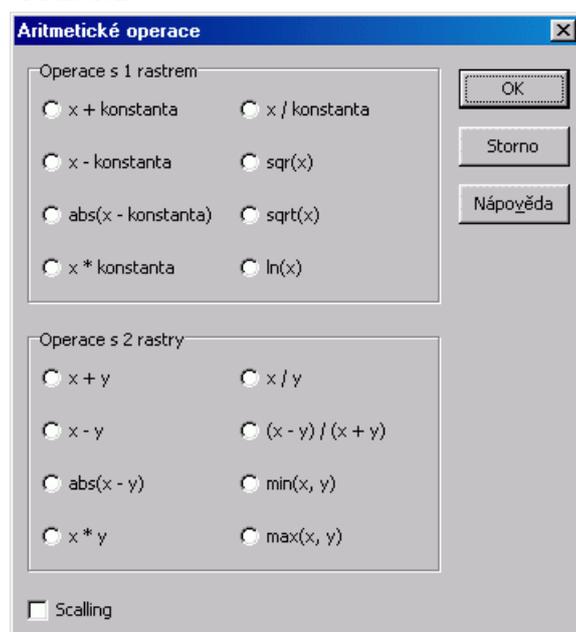
The operation enables to set in parts a linear function which will be interpreted as the given raster transfer. It's also possible after an application of some of the previous functions, which create the whole transfer, to correct automatically only a specific part of the transfer. Via four edit lines one linear part of the transfer is set in each. Unlike the previous transfer definition variants here the set values must be confirmed with the "Preview" button.

- Source - via two edit lines set the lower and the upper border of the domain of definition of the defined transfer part range.
- Target - via two edit lines set the lower and the upper border of the defined transfer part values range.

After any transfer modification it's possible to return to the original transfer values with "Restore" button.

## 6.2. Arithmetic operations

The command creates a new raster file by change of a pixel value of the selected grayscaled raster image, resp. two grayscaled images by application of an arithmetic operation or function. After the command activating a dialog window is opened with control switches for type setting of an operation or function.



Dialog for selection of type of arithmetic operation with rasters

The upper part of the dialog contains operations that create a new raster image based on pixel values of a single raster only.

#### X + constant

Use, if you want to add an identical constant to each pixel value of the selected raster file.

#### X - constant

Use, if you want to subtract an identical constant to each pixel value of the selected raster file.

#### ABS (X - constant)

Use, if each pixel value of the selected raster file is to be changed to a difference absolute value of a pixel and a constant.

#### X \* constant

Use, if each pixel value of the selected raster file is to be multiplied by a constant.

X / constant

Use, if each pixel value of the selected raster file is to be divided by a constant.

SQR ( X )

Use, if each pixel value of the selected raster file is to be squared.

SQRT ( X )

Use, if each pixel value of the selected raster file is to be square rooted.

LN ( X )

Use, if each pixel value of the selected raster file is to be logarithmic calculated.

In the bottom part of the dialog there are control switches for operations that create a new image based on pixel values of two raster images.

X + Y

Use, if pixel values of the result raster file are to be a sum of corresponding pixel values (in coordinates) of two selected rasters.

X - Y

Use, if pixel values of the result raster file are to be a difference of corresponding pixel values (in coordinates) of two selected rasters.

ABS ( X - Y )

Use, if pixel values of the result raster file are to be an absolute difference value of corresponding pixel values (in coordinates) of two selected rasters.

X \* Y

Use, if pixel values of the result raster file are to be a product of corresponding pixel values (in coordinates) of two selected rasters.

X / Y

Use, if pixel values of the result raster file are to be a quotient of corresponding pixel values (in coordinates) of two selected rasters.

( X - Y ) / ( X + Y )

Use, if pixel values of the result raster file are to be calculated by the displayed instruction i.e. as a quotient of difference and sum of corresponding values (in coordinates) of two selected rasters. This operation is used for calculating of vegetation index (NDVI) where X raster corresponds to a photo in the visible part of spectrum and Y raster in near infrared spectrum strip.

- for NOAA satellite the X = 1. channel and the Y = 2. channel
- for Landsat the TM X = 3. channel and the Y = 4. channel

MIN ( X, Y )

Use, if pixel values of the result raster file are to be the minimum from values of corresponding pixels (in coordinates) of two selected rasters.

MAX ( X, Y )

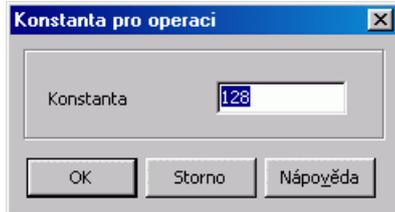
Use, if pixel values of the result raster file are to be the maximum from values of corresponding pixels (in coordinates) of two selected rasters.

Scaling

The switch switches the way of gray levels transformation, if a pixel's level value exceeds at an operation the interval (0-255). If Scaling is activated, the system at first detects minimum (even negative) and maximum value of gray level. Then it recalculates by linear transformation the individual values so that they fit in the interval (0-255). If Scaling isn't activated, values of gray level outside the interval (0-255) are ignored and maximum (255) resp. minimum (0) is assigned to the related pixels.

After confirmation of the dialog with arithmetic operation selections a standard dialog is opened for setting of a raster file name you want to work with. If you select an arithmetic operation for two rasters (lower part of the dialog for selections), a dialog for raster file name setting is opened twice consequently.

If you select an operation for one raster, a dialog for constant setting is opened consequently. Failing which the system starts to create a new raster saved under a required name on the disc.



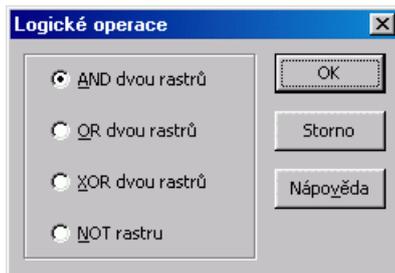
Constant setting for one raster operation dialog

### Note

In case of operation with two rasters both the rasters must have an equal size. The command can't be applied on colour raster files.

## 6.3. Logical operations with rasters

The command creates a raster image, its pixel value is a result of logical operation between two selected binary rasters. After the command activating a dialog window is opened containing control switches for selection of a logical operation by which a pixel value of the result raster will be calculated.



Logical operation selection dialog

### AND

Confirm if values of the result raster are to be a logical product of corresponding pixel values of two selected rasters. Logical product means an operation operands of which have the 0 or 1 value and the result has the following value depending on operands:

- 0 AND 0 = 0
- 0 AND 1 = 0
- 1 AND 0 = 0
- 1 AND 1 = 1

### OR

Confirm if values of the result raster are to be a logical sum of corresponding pixel values of two selected rasters. Logical sum means an operation operands of which have the 0 or 1 value and the result has the following value depending on operands:

- 0 OR 0 = 0
- 0 OR 1 = 1
- 1 OR 0 = 1

- $1 \text{ OR } 1 = 1$

#### XOR

Confirm if values of the result raster are to be a logical exclusive sum of corresponding pixel values of two selected rasters. A logical exclusive sum means an operation operands of which have the 0 or 1 value and the result has the following value depending on operands:

- $0 \text{ XOR } 0 = 0$
- $0 \text{ XOR } 1 = 1$
- $1 \text{ XOR } 0 = 1$
- $1 \text{ XOR } 1 = 0$

#### NOT

Confirm if values of the result raster are to be a negation of corresponding pixel values of two selected rasters. A negation means an operation operands of which have the 0 or 1 value and the result has the following value depending on operands:

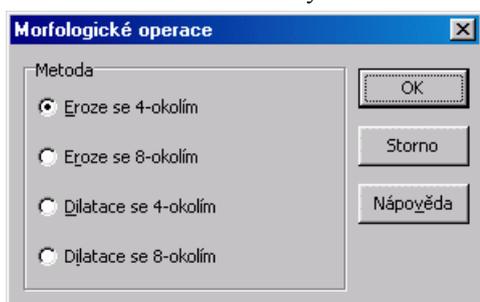
- $\text{NOT } 0 = 1$
- $\text{NOT } 1 = 0$

After confirmation of the dialog with an operation selections a dialog is opened for setting of the raster file name you want to work with. If the selected logical operation has two operands (AND, OR, XOR), the dialog for raster file name setting is opened twice consequently.

After name setting of a raster resp. rasters a dialog is opened for setting of a name under which the newly created raster image will be saved. Next a new file is created saved by the system under a set name on the disc.

## 6.4. Morphology

The function enables to carry out the erosion and dilatation morphological operations.



Dialog for morphological operation selection

#### Erosion with 4-neighbourhood

Confirm if a result raster file values are to be created by application of the erosion operation with so called 4-neighbourhood of pixel, i.e. with a structural element which, except of the given point, consists of pixels neighbouring up, down, on the left and on the right only. The result is an even drawing attenuation - binary raster foreground.

#### Erosion with 8-neighbourhood

Confirm if a result raster file values are to be created by application of the erosion operation with so called 8-neighbourhood of pixel, i.e. with a structural element which is composed of the given point and all neighbouring pixels. The result is an even drawing attenuation - binary raster foreground.

#### Dilatation with 4-neighbourhood

Confirm if a result raster file values are to be created by application of dilatation operation with so called 4-environment of pixel, i.e. with a structural element which is composed of the given point and pixels neighbouring above, down, on the left and on the right only. The result is an even drawing reinforcement- binary raster foreground.

#### Dilatation with 8-neighbourhood

The operation is appropriate for example for binary rasters preprocessing before an automatic vectorization. You can use an erosion where a drawing lines are attenuated and made even simultaneously with fine noise clearance. The operation can be used consequently several times. A dilatation can be used to reinforce drawing lines and to fill missing drawing pixels.

#### Note

Operaci je možno použít např. pro předzpracování binárních rastrů před automatickou vektorizací. Může se použít buď jen eroze, kdy dojde ke ztenčení a zestejnování čar kresby a zároveň se odstraní drobný šum. Operace se může použít několikrát za sebou. Dilataci je možno použít k selílení čar kresby a k vyplnění chybějících pixelů kresby.

## 6.5. Balance colours of rasters

The operation ensures fluent transition of colours or gray levels for a specific photo group. Any number of grayscale rasters, resp. TrueColor rasters can form an input for the operation, but allways of the same type. Input rasters should be masked. For this operation photos shouldn't contain any disruptive information as for example aerial photo edges etc. It's also supposed that they will have overlays large enough, so that there is a sufficient amount of information for an analysis. Input rasters can have various pixel size. If more rasters are overlaying in the same part, the system considers them all. Though it's more appropriate to carry out individual rasters masking so that this phenomenon is avoided. You can suppress parts of rasters in which there is an excess information or of poor quality - an image quality degradation has taken place. After analysis of overlaying parts of individual rasters the system makes effort to correct individual rasters brightness and colour so that they are consistent as much as possible and at the same time it extrapolates proposed changes even into the parts of rasters that don't overlay.

Input rasters are selected at the start of the operation in a standard dialog for raster selection. Individual rasters can be located in various directories but they must have different names. Input rasters must be located geometrically.

After selection of inputs it's necessary to set an output directory which has the ".EQR" extension predefined. Output rasters will be located into this directory under names identical to input rasters. Therefore it's necessary to ensure a sufficient place for saving of output rasters. After setting of an output directory name input rasters are loaded in the first phase and output rasters are created in the second phase.

#### Note

In some cases it's appropriate at TrueColor rasters processing to use before the operation special functions that change brightness, contrast or tone and whole dynamics of values in individual colour components of raster. Not allways differences are automatically balanced among rasters with different colour characteristics, for example if more different rasters are overlaying in the same part. Another problematic case can be also a situation when two in colour and brightness quite different rasters are overlaying at edge of raster row. Part of outer raster, which doesn't overlay any other raster, can't be compared with other rasters and possible correction is mostly executed outside this raster part. A very edge of the given raster would then stay different from the rest of the raster. Even this situation can be solved with colour or brightness correction of problematic rasters via one of the following operations:

- Raster gamma correction
- Brightness and contrast of TrueColor raster

- Change colour of TrueColor raster
- Balance TrueColor raster

## 6.6. Balance colour of 2 rasters along polyline

The operation ensures fluent transition of colours or gray levels for two selected rasters. The operation can be defined as any combination from colour balancing operations, transition blurring, masking and raster mosaic of both rasters. The three first mentioned suboperations are carried out with respect to the set line which will create a transition border between both rasters. Target of the operation is to achieve a perfect transition between both rasters as for colouring, resp. consequent masking of one of the rasters which was selected as a foreground raster. Finally it's possible to put both the rasters together into a single output raster. First phase - colour balancing is carried out within the set stripe along the entering line so that colour change is maximum next to the line and decreases with increasing distance. In the second phase - with blurring of rasters a permeation of both the rasters is done within the stripe along the line (here a recommended stripe width is small, it should correspond to only a few pixels), thus if the details on both the rasters doesn't match accurately, a defocusing of individual rasters within the stripe takes place. However a result is that the transition between individual rasters after possible masking along the line is almost imperceptible.

After activating of the operation two rasters are selected in a standard way and next a line for edit is set with an editing tool, which should intersect the overlaying area of both the rasters and along which a balancing, resp. blurring of the rasters will be executed. If you want to mask the raster in foreground, you must set a closed polygon. After its confirmation the following dialog appears:



Dialog for parameters setting of "Colour equalization of two rasters along line" operation

### 1. input raster (background)

An edit line into which is written name of the first raster either directly or with the adjoining button for file selection in standard dialog.

### 2. input raster (foreground)

An edit line into which is written name of the second raster either directly or with the adjoining button for file selection in standard dialog. This raster is understood as a raster in foreground which can be eventually masked.

#### Colour equalization

With this switch you can set whether the two rasters will be colour-corrected in the set stripe.

#### Buffer width for colour equalization (m)

Into the edit line write, resp. set with arrows, a width of the stripe, in which colour equalization of both rasters will be executed. Change of colourfulness is the highest along the given polyline and the lowest on a stripe edge.

#### Blurring

By this switch you can set whether both the rasters will be blurred in the set strip.

#### Buffer width for blurring (m)

Into the edit line write, resp. set with arrows, a width of the stripe, in which blurring of both rasters will be executed. The data is in meters.

#### Buffer width for blurring (pixels)

Into the edit line write, resp. set with arrows, a width of the stripe, in which blurring of both rasters will be executed. The data is in pixels. After its setting also a width of the stripe in meters is recalculated and vice versa.

#### Mask foreground raster

With this switch you can set whether the raster in foreground will be masked along the set polyline.

### **Mask**

- Polygon - an area is masked corresponding to interior of the set polygon.
- Complement - an area is masked corresponding to complement of the set polygon.

#### Mosaic

With this switch you can set whether both rasters will be joined into a result mosaic. If the switch is on, an edit line for a second output is inaccessible.

#### 1. Output raster (mosaic)

An edit line into which you can write a name of the output raster either directly or with the adjoining button for file selection in a standard dialog.

#### 2. Output raster

An edit line into which you can write a name of the second output raster either directly or with the adjoining button for file selection in a standard dialog.

First phase - colour equalization is executed in the set stripe along the entering line so that a colour change is maximum next to the line and decreases with increasing distance. In the second phase -blurring of rasters a permeation of both the rasters is done within the stripe along the polyline (here a recommended stripe width is low, it should correspond to only a few pixels), thus if the details on both the rasters doesn't match accurately, a defocusing of individual rasters within the stripe takes place. However a result is that the transition between individual rasters after possible masking along the line is almost imperceptible.

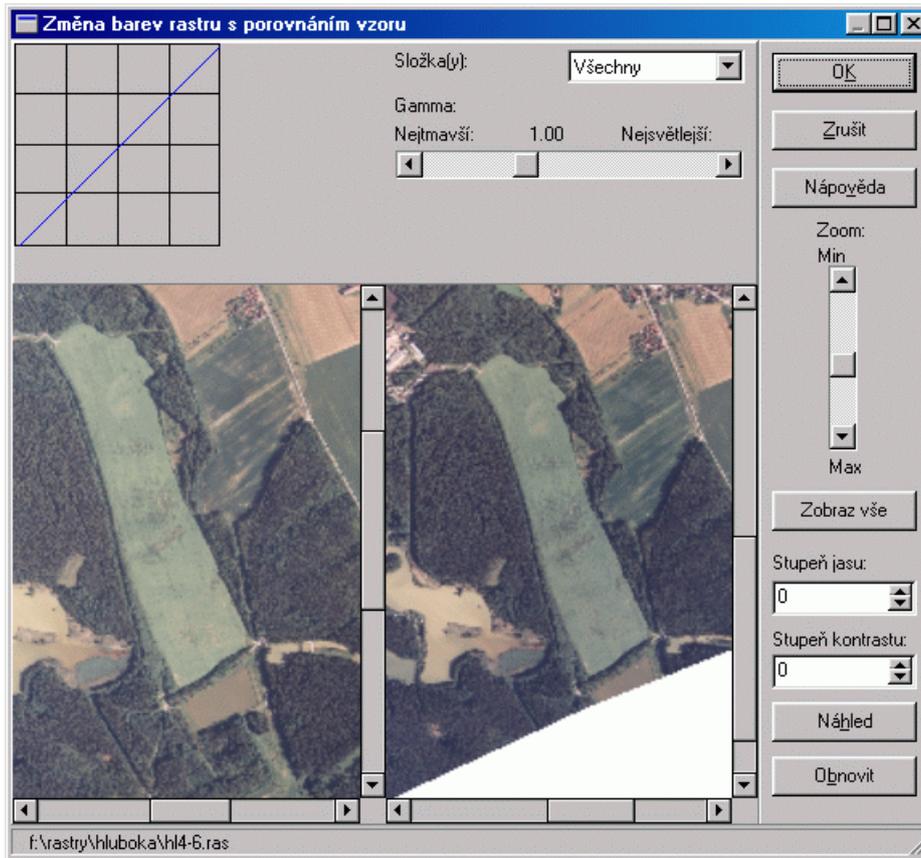
### **Note**

If you process a higher number of rasters in this way, the most effective is to apply to individual pairs (one raster is already processed, the other is added into processing) only a colour equalization, blurring and masking. The result mosaic is carried in the end in a standard way.

## **6.7. Adjustment of raster colours by sample**

The command is a combination of the "Raster gamma correction" and "Raster brightness and contrast" commands. It serves to colour equalization of the selected raster to the selected sample, which can be

compared continuously in the preview. After selection of two input raster files in a standard dialog a dialog appears with both the rasters preview.

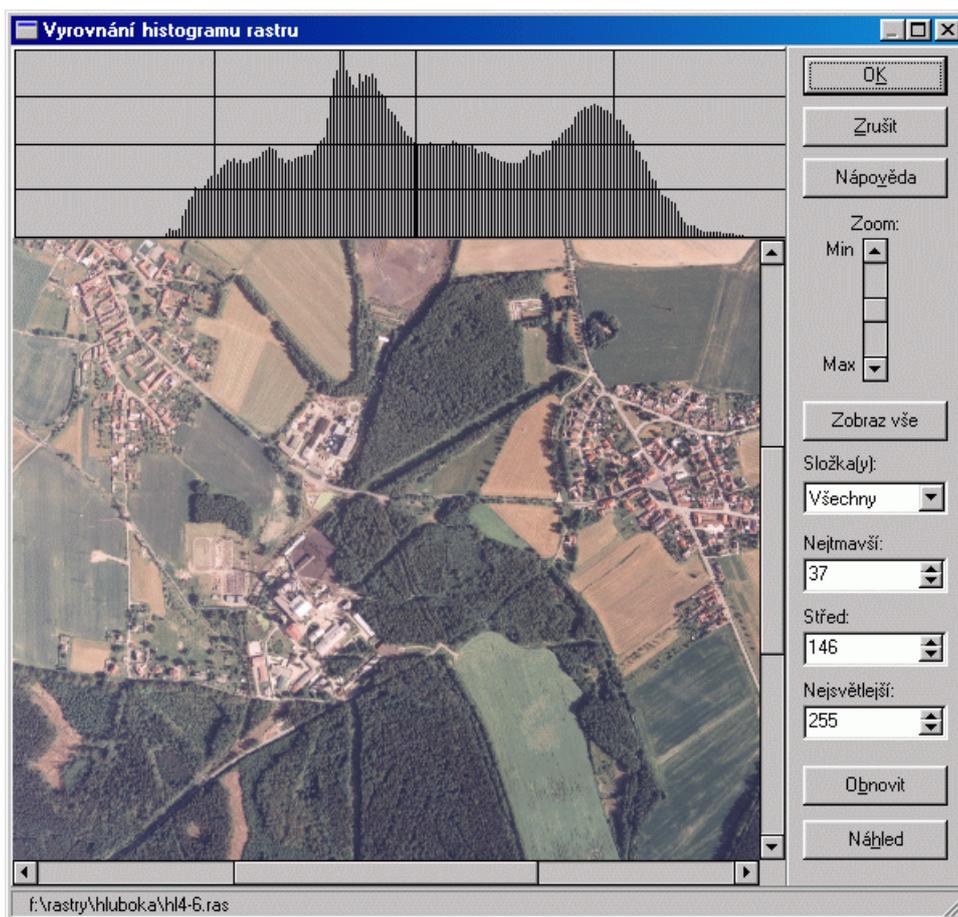


Dialog for setting of raster colours change by sample

In the right preview panel there is a raster file displayed, that we want to tune to the pattern. Its name is stated in the bottom dialog panel. In the left preview panel there is a sample raster displayed. Both previews are maximized and minimized simultaneously. Moves of individual bit maps with scrollbars or mouse wheel are independent on each other.

## 6.8. Histogram equalization

After selection of a raster file a dialog appears in which a minimized preview of the selected raster is displayed. This preview can be minimized down to the size where a whole raster is displayed in the display panel. By return the raster display can be maximized up to original display size at most.



Dialog for raster histogram equalization

The method consists in a selection of colour component (besides basic components it contains also the "All" and "Brightness" variants) from the "Channel" list box. After selection of a component a histogram of the selected component appears in the upper dialog panel, resp. histogram corresponding to raster brightness component distribution. In edit lines the minimum (darkest), maximum (brightest) and medium values within the given component are displayed.

It's possible to change values in this edit lines, the minimum value can't be set more than 127 and the maximum value can't be set lesser than 127. At the operation executing values of the set component are changed by linear function so that the original interval of values from the minimum to the medium value is transformed into the 0..127 interval. In the same time the original interval of values from the medium to the maximum value is transformed into the 128..255 interval. By moving of the medium set value you can maximize a dynamics of brightness levels within individual components either more in the darker or the brighter part of the raster. By shifting of minimum and maximum value to the medium value a degree of the set dynamics modification is maximized. Original values within the given raster component, that drop under the minimum, resp. rise above the maximum set value fuse into a single 0 resp. 255 value. On contrary if you set the minimum resp. maximum value far from the centre then was originally suggested by the programm, the degree of set dynamics change is minimised.

The result can be displayed with the "Preview" button. The set changes aren't additive applied to the previous intermediate result. With the "Restore" button you can return to the original state. In case of confirmation of the dialog with the "OK" button you can set a name of an output raster into which the result is written.

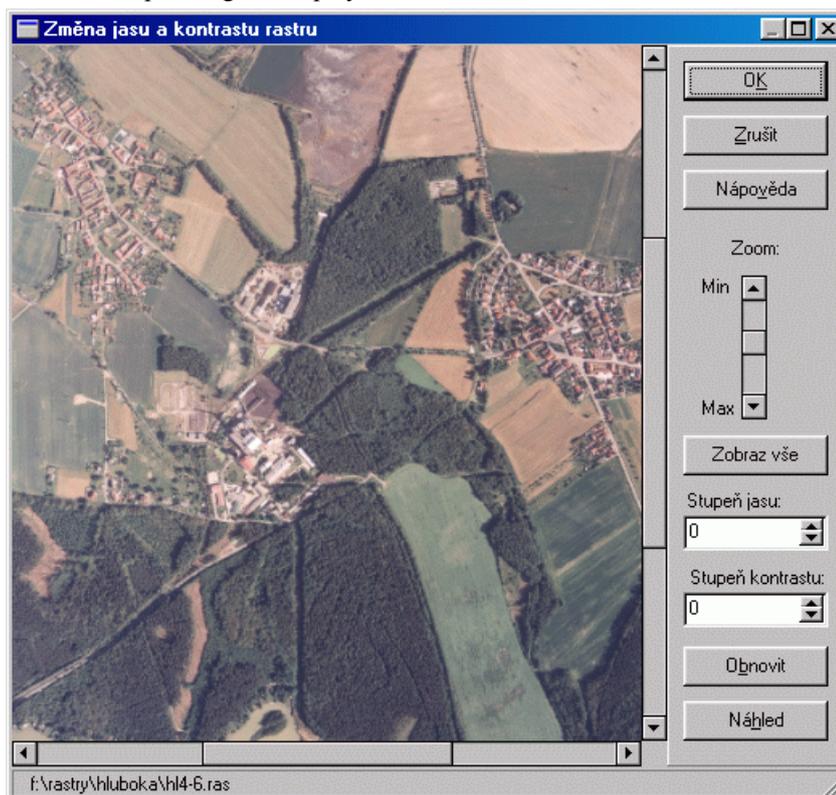
### Note

The operation can be carried out for all raster types except binary rasters. Unlike TrueColor rasters, for which it's necessary after confirmation of colour rendering change to create a new raster (recalculate R, G, B channels of all pixels), for grayscaled and indexed colour rasters

the change is solved in the same way as for grayscaled raster transfer change or for colour raster palette editing. Always only a transfer or a palette is changed. If the given raster is displayed, the change is executed only in the memory and saving is executed only at removal of a raster from a legend.

## 6.9. Brightness and contrast

The function enables to change brightness and contrast of a colour, grayscaled, resp. TrueColor raster. Brightness and contrast can be changed simultaneously. After raster file selection a dialog is displayed, in which a minimized preview of the selected raster is displayed. The preview can be minimized down to a size where the whole raster is displayed in the display panel. By return the raster display can be maximized up to original display size at most.



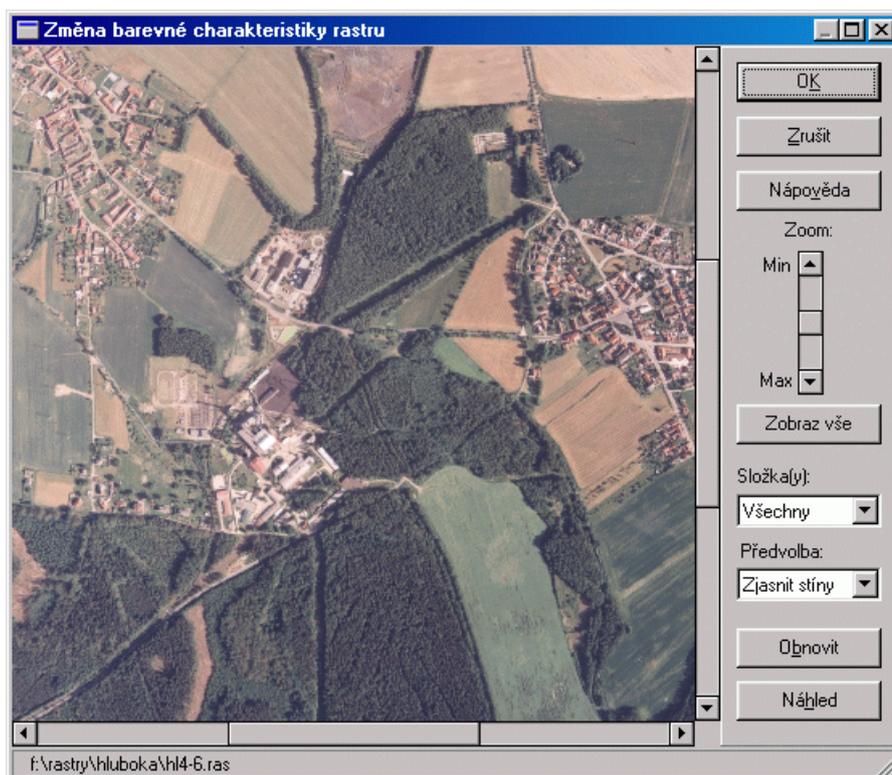
Dialog for raster brightness and contrast setting

The process consists in setting of of brightness or contrast change degree, resp. of both, via edit lines. Even negative numbers can be set, in such case brightness and contrast decrease.

The result can be displayed with the "Preview" button. Set changes aren't additive applied to previous intermediate result. With the "Restore" button you can return to original state.

## 6.10. Change response curve

The function enables to change colouring of colour, grayscaled, resp. TrueColor raster. It's possible to change a brightness of whole raster or you can influence only its individual colour channels (red, green, blue) wherewith you can achieve change of a colour tone. After selection of a raster file a dialog appears in which a minimized preview of the selected raster is displayed. The preview can be minimized down to a size where the whole raster is displayed in the display panel. By return the raster display can be maximized up to original display size at most.



Dialog for raster colours change

The process consists in selection of a colour channels (besides basic components it contains also the "All" variant for brightness change) from the "Channel" list box. Next one of the preset functions for colour change is selected via the "Preset" list. Three options are available:

- Enhance shadows - causes total lightening of a raster with emphasis on darker parts.
- Darken midtones - causes total darkening of a raster with emphasis on medium-bright parts.
- Lighten midtones - causes total lightening of a raster with emphasis on medium-bright parts.

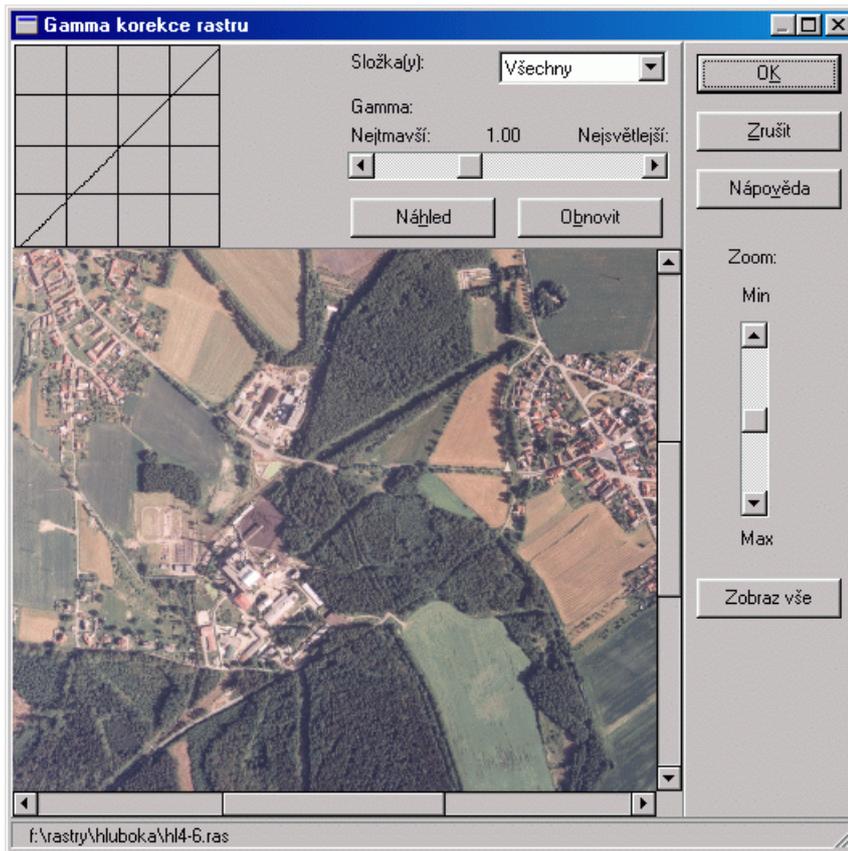
The result can be displayed with the "Preview" button. Raster colouring can be changed subsequently (for example item-by-item), which means that individual changes are additive applied to previous intermediate result. With "Restore" button you can return to original state.

### Note

With TrueColor raster it's necessary to create a new result raster where R, G, B channels of all pixels are recalculated. For colour and grayscaled rasters a change is executed only by change of palette resp. transfer.

## 6.11. Gamma correction

The function enables to change colouring of all raster types except binari. rasters. It can be carried out for any colour channel, thereby a colour tone can be changed - one of the basic colours can be added or removed. Another option is to execute changes for all items at once - in principle brightness and contrast are changed then. With this operation you can carry out additive changes of colour channels, which means to correct one item at first, then correct another one.

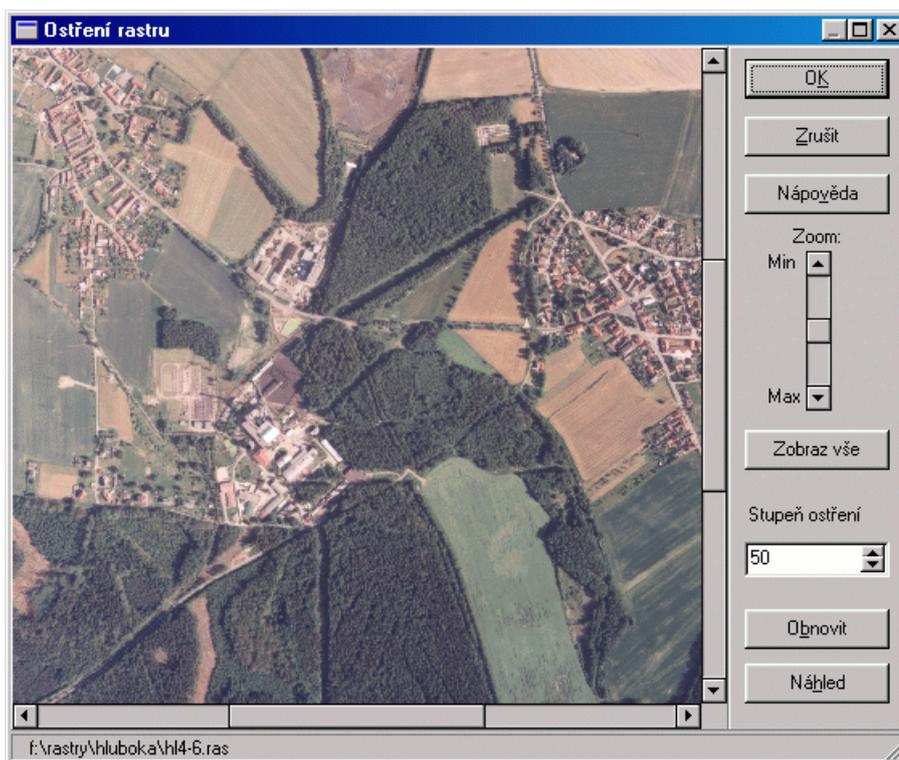


Dialog for setting of raster gamma correction

In the upper part of the dialog there is a scrollbar by which you can be set a selected colour channel value of gamma correction from 0.05 to 6.99. A standard value is 1.0. In the top left part of the dialog there is also a graphic representation of transfer function which is then applied to the given component. For RGB channels the correction values higher than 1.0 mean adding of the given component (values maximizing). With this operation you can execute additive changes of colour channels, which means to correct one component at first and then to correct another one. If a change is applied to all components at once, correction values higher than 1.0 mean brightening of image and minimizing of contrast, correction values lesser than 1.0 mean darkening of image and maximizing of contrast.

## 6.12. Sharpening

The command executes sharpening of TrueColor or grayscaled raster by the set degree.



Dialog for raster sharpening

Into the "Sharpening level" edit line set the required coefficient within the range of 0-100. The result can be viewed in a preview panel after use of the "Preview" button.

### Note

Allways it's necessary to create a new output file. The operation isn't appropriate for elimination of noises in image, it can be used succesfully to defocused raster removal only.

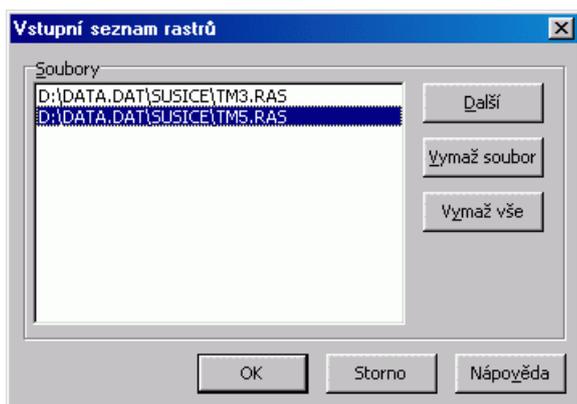
## 7. Spectral analysis

Spectral analysis is a group of operations for multispectral image data handling, i.e. geometrically identical raster data displaying the given territory in various parts of the spectrum.

### 7.1. Colour composite

The command creates 8-bit colour or TrueColor raster image from the three set grayscale images (channels) each of which is assigned to one of the basic colours (R, G, B). This raster file is set under a set name.

In the first phase it's necessary to select three grayscale rasters of identical size and locaton. After the command activating a dialog is opened for setting of input raster images (channels) that represent R, G, B channels.



Dialog for setting of input channels for colour synthesis

#### Files

This dialog part contains a list of files which the system will work with. Within the file list move in a standard way (i.e. with mouse or with keys).

#### Add

Use this button if you want to open a dialog for selection of a raster you want to add into the file list. In this dialog you can add files in a standard way, i.e. to specify more files all at once for selection. If the required number of files is selected, the button becomes inactive.

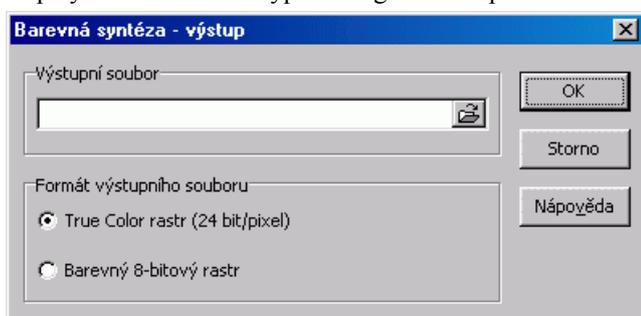
#### Remove

Use this button to remove the current (highlighted) file from the files list.

#### Remove all

Use this button to delete all files from the list.

After confirmation of the dialog, in which input files for colour synthesis were selected, a dialog is displayed for name and type setting of an output file.



Dialog for name and type setting of colour synthesis output file

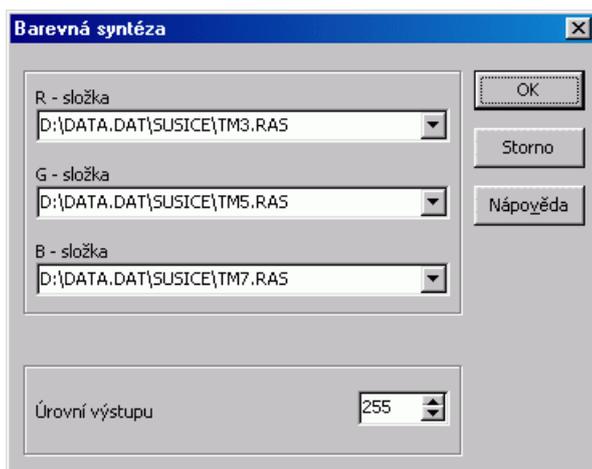
#### Output file

A standard edit line in which you can set name of an output file. Instead of a direct record to the edit line it's better to use an attached standard dialog for selection of an output raster in which you can set even a raster subtype.

#### Output raster format

With one of the switches select an output raster type. In this case you can choose between TrueColor and 8-bit colour raster.

If TrueColor is selected as an output type, in a subsequent dialog individual input files are assigned to R, G, B channels and a count of colours within a palette is set (serves only for displaying in the Windows 256 colours regime).



Dialog for individual input files assignment to R, G, B channels

#### Red

In the combo box select an input file which will represent the red channel (colour).

#### Green

In combo box select an input file which will represent the green channel (colour).

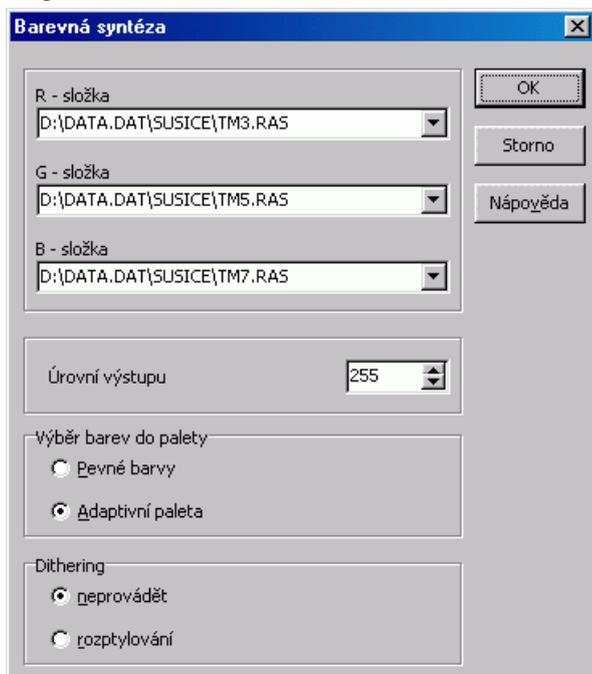
#### Blue

In list box select an input file which will represent the blue channel (colour).

#### Output levels

Via the edit line with buttons set number of colours in auxilliary palette which serves for quick raster display in the 256 colours regime.

If you select 8-bit raster as a synthesis output type, in the next dialog individual input files are assigned to R, G, B channels and count of colours within a palette is set. But you must also set parameters here for TrueColor raster conversion to a 256-coloured raster - dithering and the way of colour selection for palette.



Dialog for individual input files assignment to R, G, B channels

#### Red

In the combo box select an input file which will represent the red channel (colour).

#### Green

In the combo box select an input file which will represent the green channel (colour).

#### Blue

In the combo box select an input file which will represent the blue channel (colour).

#### Output levels

Via the edit line with buttons set a number of colours in palette of an output 8-bit raster.

#### Selection of colours for palette

In the section check one of the control switches.

- Fixed palette - a palette of the result image is preset. The selection is used if you want the result raster palette to coincide with palettes of rasters already created in the same process. The palette equally covers the whole area of R, G, B channels.
- Adaptive palette - a palette of the result image is created on basis of individual colours representation in input images.

#### Dithering

The section concerns a pixel colours correction of the result raster image in case of conversion of TrueColor type raster into 8-bit. If you select a dithering, the raster areas, for which a combination of R, G, B channels isn't present in the result palette, a colour approximation of neighbouring pixels colour combination can be done.

- Not to do - a pixel colour corresponding to specific R, G, B channels combination, absent in the result palette, is replaced by the next colour from palette.
- Dispersion - the system executes a so called dithering in a dispersion method.

## 8. DEM

Operations for working with raster digital terrain model - creation, display etc.

### 8.1. Creating from points

The command serves to construction of raster digital terrain model based on points with given height coordinate (altitude). Pixels of the result DEM raster on coordinates of these points (either points or vertexes) will have values according to content of the related vector object attribute. According to so specified ("known") pixel values the system approximate height coordinates also for other raster pixels. After activating of the command the following dialog appears which serves for input data specification and for setting of parameters for model creating as well. It's possible to set compulsory edges alias junctions between individual points which have to stay retained during a triangle network creating. DEM raster creating can be limited under specific conditions to a specific area with bordering lines. Number of input points isn't limited on principle.

Dialog for parameters setting of DEM creating from polylines and points

Points to be used by the system for crating a digital terrain model are set in the top left nad middle part of the dialog. You can use points or polylines with attached database with which an attribute represents a height coordinate of point or polyline (contour). The points must be of the same type, whereas for polylines you can set one or two various types.

#### Block

Combo box contains an offer of data from the project with possible vector objects for creating of a digital terrain model. Those are for example Topol blocks containing some tables of points resp. polylines.

#### Points

With checking of the control button you can set whether you want to use points for digital terrain model creating.

#### Selected only

With checking of the control button you can set whether all the selected point objects will be worked with or the selected only.

#### Point tables

A list containing an offer of tables with points in the selected data "bolck".

#### Height item DB

From an offer allways activated after a change of point table selection select an item bearing an information on height coordinate.

#### Required edges

By checking of the control button you can set whether you want to use polylines for a digital terrain model creating, which means all polyline tables from the selected data "block". The system attempts to ensure that the result digital model respects these polylines as obligatory edges. These obligatory edges represent polylines or their segments which connect points for DEM creating (vertexes have the same coordinates as network points). This selection for technical reasons disenables to set working with polylines as points and also to set some polylines as bounding.

#### Only selected

By checking of the control button you can set whether all polyline objects or only the selected will be understood as obligatory edges.

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#### 1. Vertex to triangle net

With checking of the control button you can set for a digital terrain model creating whether you want to use polylines from a specific table which can be selected from a list containing offer of tables with polylines in the selected data "block". Two independent tables can be selected - this switch can be combined with the following one.

#### 2. Vertex to triangle net

By checking of the control button you can set for a digital terrain model creating whether you want to use another polyline table, which can be selected from the other list containing offer of tables with polylines in the selected data "block".

#### Only selected lines

With checking of the control button you can set whether you will work either with all the selected polyline objects from tables 1 and 2 or with the selected polylines only.

#### Polylines and breaklines

With checking of the control button you can set for a digital terrain model creating whether you want to use the polylines as obligatory edges and not as isolated points only. This selection (if the Delaunay triangulation is selected as a method of creating) for technical reasons disenables to set some polylines as bounding.

#### Block with boundary

The list box contains an offer of data from the project with polyline vector objects. The same data "block" can be selected from which a source data are taken for terrain model creating.

### **Note**

If you use boundary with bounding polylines, it's necessary that the edge has enough of height identifications. Practically it means that it must be intersected in two points at least by the polyline used for creating.

#### Boundary

By checking of the control button you can set whether you want to limit a digital terrain model creating to a specific area with polyline objects. Polylines creating closed polygons will represent a border of the area in which you want to create a digital terrain model.

#### Only selected

By checking of the control button you can set whether all the polyline objects from the selected table or the selected polylines only will be handled as bounding polylines.

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#### Calculate grid DEM

By the group of switches select an appropriate method of digital model creating.

- T by triangle network - at this selection a 3D network is created above points and vertexes, which assigns to pixels the value based on knowledge of height coordinates of the related triangular corners.
- Delaunay triangulation - a similar method as the previous one; except the mentioned technical limitations, mostly not so important, this method is the most appropriate namely for its speed. With this method you can process hundreds of thousands of points.
- Export to DEM Atlas - at this selection a raster of digital terrain model isn't created in the TopoL, but a text file of point field prescript is created from which a triangle network of the digital ATLAS DEM terrain model can be generated in the ATLAS program.

#### Optimize triangle network

If "T by triangle network" option is selected as a method of digital model creating, it's possible to select a method of triangle network optimalization with a group of buttons. The optimalization means that the created triangle network tests in parts which of the possible combinations of neighbouring points connection is the best for the selected condition. If a partial optimum network is different from the suggested one, triangular edges are changed. Then a testing of another part continues and the process is carried out as long as there are another changes.

- 2D equilateral triangle - at this selection the system proceeds so that a shape of triangle projections into the coordinate plane resembles an equilateral triangle as much as possible (sides aspect ratio approaches 1).
- Minimize perimeter - at this selection the system proceeds so that the sides sum of triangles is as low as possible within the given alternatives.
- Minimize perimeter + Area - at this selection the system proceeds so that the product of triangles perimeter and area is as low as possible.
- 3D Equilateral triangle - at this selection the system proceeds so that the real shape of triangles within space was as close as possible to an equilateral triangle (relationship of sides approaches 1).

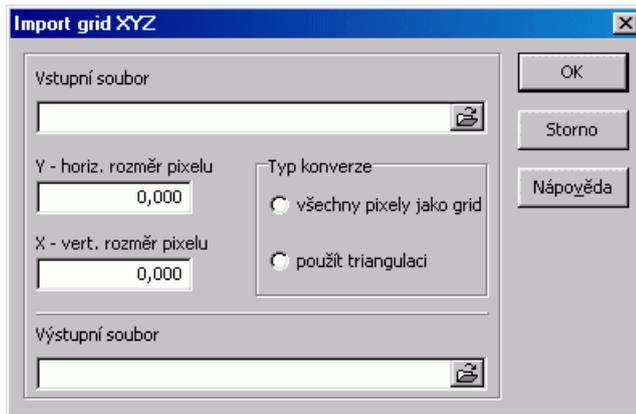
#### Note

Not all the edges of triangles can be selected arbitrarily. So called obligatory edges may exist, i.e. edges of triangle network that were specified beforehand in data source for DEM creating (s. following). Obligatory edges also create individual segments of polylines used for DEM creating and segments of border polylines.

After confirmation of all the parameters setting for DEM creating with the "OK" button a dialog for setting of result raster parameters is opened. Next a digital terrain model raster is created.

## 8.2. Import grid XYZ

The command creates a digital terrain model raster from the information saved in a text file. Each row of the text file represents information on a single pixel of the digital terrain model, namely Y coordinate, X coordinate of pixel centre and height value of pixel. It's supposed that coordinates of individual points create a network with regular pitch which corresponds to pixel size in the Y, resp. X direction. Another variant of import supposes the same input format but the points don't have to be in a regular network and in such case the digital model is created via triangulation. After activating of the command the following dialog appears for setting of the command parameters.



Dialog for DEM import from grid

**Input file**

A standard edit line into which you can set name of an input file. Instead of a direct record into the edit line it's better to use an attached standard dialog for selection of an input raster.

**Y - horizontal pixel size**

Size of pixel in the Y (horizontal) direction of the result raster file. This value should correspond to a division of input file point network.

**X - vertical pixel size**

Size of pixel in the Y (vertical) direction of the result raster file. This value should correspond to a pitch of input file point net.

**Conversion type**

A group of switches for selection of digital model creating.

- All values as pixels - the system transfers only an information from a text file into a raster grid

**Note**

If pixel sizes in the Y and X direction will not correspond to a pitch of imported point network in the corresponding directions, an explicit assignment of points toward pixels may not happen. Thereby the information may be lost at import. Points order within the text file doesn't matter. But it's supposed that points with equal coordinates will not be included in the file. If no input text file record corresponds to coordinates of a pixel, the 0 value (nill) will be assigned to the pixel.

- Use triangulation - the system enables to resolve cases when a different pixel size of an output raster is set from the real pitch of input data, resp. when input data don't create a regular grid. The system at first creates a triangle network from input data, next it interpolates all the necessary pixel values from this network.

**Output file**

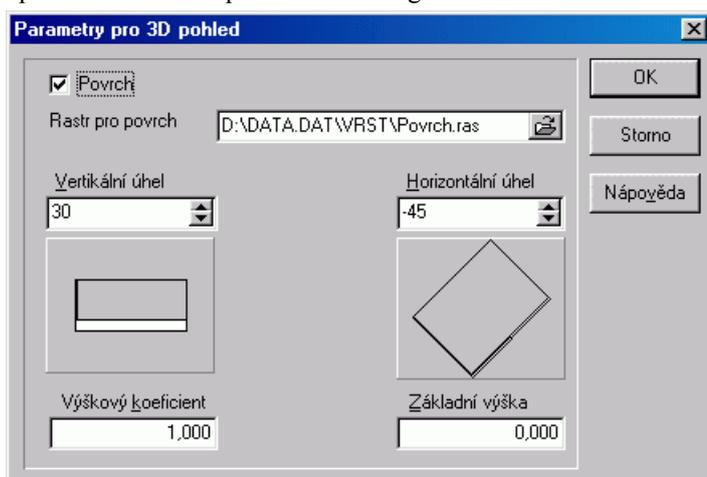
A name of the selected digital terrain model raster. A standard edit line in which you can set a name of an output file. Instead of a direct record into the edit line it's better to use an attached standard dialog for output file selection.

After confirmation with the OK button a raster is created in 4-byte format.

## 8.3. Display 3D

The command serves for display of 3D view to a rectangular viewport of a raster terrain model. In a standard way a digital terrain model raster is selected which we will work with. After selection of a raster and its display in map window a selecting rectangle appears with which it's necessary to select

a viewport for display. After confirmation of location and size of the selecting rectangle a dialog is opened for 3D view parameters setting.



Dialog for 3D view parameters setting

#### Surface

If you the control button a selected coordinate located raster is displayed on a terrain model surface.

#### Raster for surface

A standard edit line in which you can set name of a raster which is mapped on a digital terrain model. Instead of a direct record into the edit line it's better to use an attached standard dialog for selection of an input file.

#### Vertical angle

A view angle toward a horizontal plain. The 0 angle (nill) means a view parallel with horizontal plain, the 90°angle means a view perpendicular to a horizontal plain (floor plan). At change of the value a view angle can be viewed in a small preview window with rotating panel.

#### Horizontal angle

A view angle towards a coordinate system. 0 angle (nill) means a view in direction from the South to the North, the angle value is increased with rotating of the viewer counterclockwise (90 degrees means a view from the East to the West). With value change the view angle can be checked in a small preview window with rotating panel.

#### Height coefficient

A coefficient with which a height scale ratio is modified (in Z axis) towards width and length scale in Y and X axis. With too flat terrain model you can emphasize an elevation in this way.

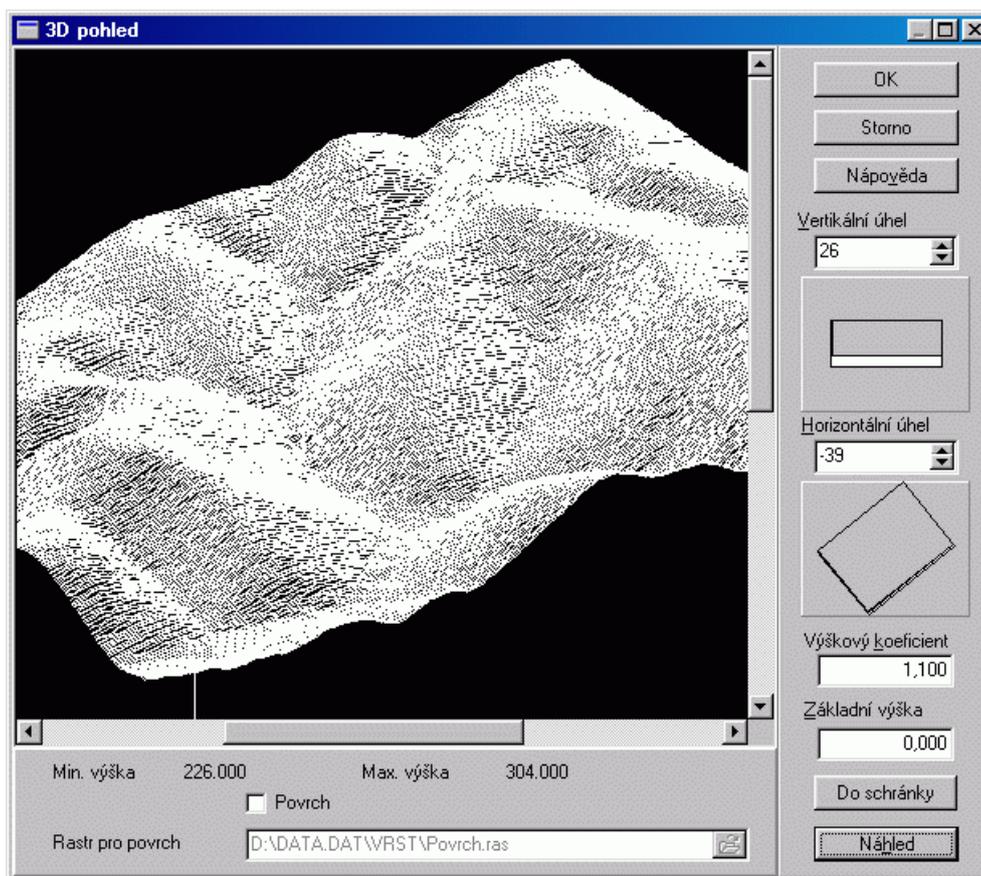
#### Basic height

Base height of 3D terrain model. The terrain is drawn above resp. under this base. The displayed model can be moved up and down in a preview window in this way.

### Note

It's necessary to pay attention to display parameters setting, particularly to basic height and height scale. Otherwise the relief could happen to be too flat, too steep or it could even exceed a preview of the selected window.

After setting, resp. modification of display parameters and confirmation with the OK button the system creates a 3D view and displays it into a new dialog window in which parameters for 3D display setting can be corrected.



Dialog for 3D view to digital raster terrain model and setting of its parameters.

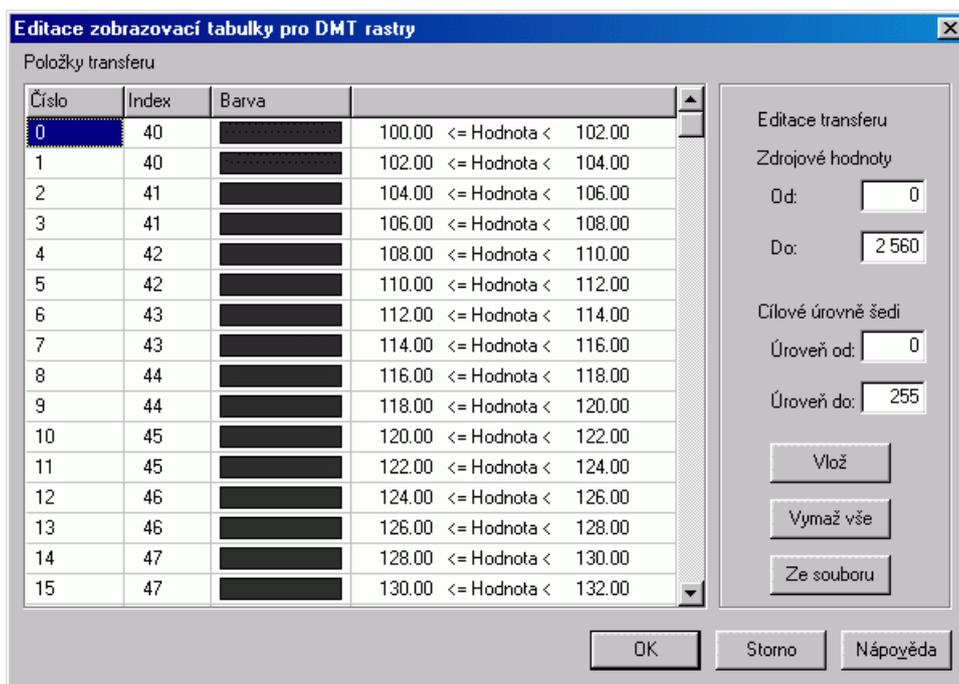
Besides of identical controlling elements as for a dialog for 3D view parameters setting the "To clipboard" button is here as well with which you can copy a created bit map into a clipboard after terrain model display. After possible correction of model display parameters the "Preview" button can be used. After its use a new view is generated by the changed parameters. On the bottom edge of a preview panel there are information displayed on a minimum and maximum height of the selected digital model viewport.

### Note

All preview parameters can be changed, an input raster model and the selected viewport stay unchanged.

## 8.4. 2D display setting

In the dialog the way of pixel (height) values display of a raster digital terrain model in a map window. is set A table of transfer is created or changed with which an auxiliary display file (grayscaled raster with the .IMG extension) is created from an original 2 or 4-byte raster.



Dialog for DEM rasters 2D display setting in map windows

The dialog enables to set a linear function in parts which will be interpreted as a transfer for all DEM rasters. It's also possible, after application of any previous function creating whole raster, to correct only a specific part of the transfer. Via four edit lines a linear transfer part is set one for each line.

#### Transfer items

Rolling list with individual transfer items - tables converting real height values of rasters of the DEM type to gray levels, with which the raster is displayed in map windows. There are four columns in the list:

- Row number
- Gray level index (0-255)
- Colour
- Range of real values displayed in the given colour - gray level

#### Source values

Via two edit lines set a domain of definition lower and the upper border of the defined transfer part - real values.

#### Target gray levels

Via two edit lines (Level from and Level to) set a domain of value lower and the upper border of the defined transfer part - lower and upper grey levels in which the corresponding interval of real values is displayed.

#### Insert

The set target and source values must be confirmed with the button. Individual values of pixels within the source interval are assigned to a grey level of a target interval. It's possible to set even such source intervals that don't link up accurately to previous defined subintervals. Thus some parts of the transfer can be refined gradually.

#### Delete all

The whole list - transfer is emptied and can be reset.

From file

To load transfers created in the TopoL for Windows (16-bit) and save them in the project, you can use this button and select a file with the \*.trf extension.

### **Note**

2D display setting is saved in the project. Thus it's necessary in case of change in setting of DEM rasters transfer to confirm also saving of changes within the given project.

## **9. Supplement**

The supplement operations serve either to specific information obtaining on displayed rasters or to individual raster formats conversion. They include also a palette editing of indexed colour rasters and creating of generalized miniatures of rasters intended for their faster display. Here a resampling of a single raster by another raster and bit map creating of all elements displayed in a map window have specific features of geometric operations.

### **9.1. Export**

Commands in this submenu serve to raster data conversion from any raster to a selected format.

#### **9.1.1. Export to TIFF format**

After confirmation of the command an input raster file is selected in a standard dialog. Next a name and directory of an output \*.tif file is set in a standard dialog. You can select a subtype and compression method for the output raster as well. Next the system enquires whether to create a so called "world file" by the ArcView convention with raster locating (with the .tfw extension). If needed the raster is then resampled so that a pixel value in both directions is equal and the output file is created.

#### **9.1.2. Export to TIFF format with JPEG compression**

After confirmation of the command an input raster file is selected in a standard dialog. It must be a TrueColor raster. Next a name and directory of an output \*.tif file is set in a standard dialog. You can select a subtype and compress method for the output raster as well. The JPEG compression is a loss one - corresponding pixels of input and output raster can differ. Next the system enquires whether to create a so called "world file" by the ArcView convention with raster locating (with the .tfw extension). If needed the raster is then resampled so that a pixel value in both directions is equal and the output file is created.

#### **9.1.3. Export to Geotiff format**

After confirmation of the command an input raster file is selected in a standard dialog. Next a name and directory of an output \*.tif file is set in a standard dialog. You can select a subtype and compress method for the output raster as well. Next the output file is created. Raster location is written directly in the raster file.

#### **9.1.4. Export to BMP format**

After confirmation of the command an input raster file is selected in a standard dialog. Next a name and directory of an output \*.bmp file is set in a standard dialog. Next the system enquires whether to create a so called "world file" by the ArcView convention with raster locating (with the .bpw extension). If needed the raster is then resampled so that a pixel value in both directions is equal and the output file is created.

### **9.1.5. Export to GIF format**

After confirmation of the command an input raster file is selected in a standard dialog. Next a name and directory of an output \*.gif file is set in a standard dialog. Next the system enquires whether to create a so called "world file" by the ArcView convention with raster locating (with the .gfw extension). If needed the raster is then resampled so that a pixel value in both directions is equal and the output file is created.

### **9.1.6. Export to JPG format**

After confirmation of the command a grayscaled or a TrueColour input raster file is selected in a standard dialog. Next a name and directory of an output \*.jpg file is set in a standard dialog. You can select a subtype and compress quality for the output raster as well. The JPEG compression is a loss one - corresponding pixels of input and output raster can differ. Next the system enquires whether to create a so called "world file" by the ArcView convention with raster locating (with .jgw extension). If needed the raster is then resampled so that a pixel value in both directions is equal and the output file is created.

### **9.1.7. Export to CIT format**

After confirmation of the command an input binari raster file is selected in a standard dialog. Next a name and directory of an output \*.cit file is set in a standard dialog. If needed the raster is then resampled so that a pixel value in both directions is equal and the output file is created.

### **9.1.8. Export to COT format**

After confirmation of the command a grayscaled or indexed colour input raster file is selected in a standard dialog. Next a name and directory of an output \*.cot file is set in a standard dialog. If needed the raster is then resampled so that a pixel value in both directions is equal and the output file is created.

### **9.1.9. Export to RGB format**

After confirmation of the command a TrueColor raster file is selected in a standard dialog. Next a name and directory of an output \*.rgb file is set in a standard dialog. If needed the raster is then resampled so that a pixel value in both directions is equal and the output file is created.

### **9.1.10. Export toRLE format**

After confirmation of the command an binary input raster file is selected in a standard dialog. Next a name and directory of an output \*.rle file is set in a standard dialog. If needed the raster is then resampled so that a pixel value in both directions is equal and the output file is created.

### **9.1.11. Export to ECW format**

After confirmation of the command a grayscaled or a TrueColor input raster file is selected in a standard dialog. Next a name and directory of an output \*.ecw file is set in a standard dialog. If needed the raster is then resampled so that a pixel value in both directions is equal and the output file is created.

### **9.1.12. Export to PCX format**

After confirmation of the command an input raster file is selected in a standard dialog. Next a name and directory of an output \*.pcx file is set in a standard dialog. Next the system enquires whether to create a so called "world file" by the ArcView convention with raster locating (with .pxw extension). If needed the raster is then resampled so that a pixel value in both directions is equal and the output file is created.

## 9.2. Import

Commands in this submenu serve to conversion of raster data from other formats to the TopoL for Windows sytem format - RAS format.

### Note

If it's possible, the TopoL attempts to locate the being imported raster geometrically. Not allways it's executable - this concerns mostly situations when raster pixels are saved differently from saving in rows and the raster must be rotated during import.

### 9.2.1. Import from TIFF format

After confirmation of the command a input raster file in TIFF format is selected in a standard dialog. Next a name and directory of a \*.ras output file is set in a standard dialog . You can select a subtype and compression method for the output raster as well. In case of TrueColor raster the result raster type can be changed during import to a 8-bit colour raster (s. dialog) or it can be decomposed into R, G, B channels - three grayscaled rasters (s. dialog). In case of indexed colour raster import a palette size of the \*.ras output file can be changed and in the same time the original palette is saved in the \*.pam auxiliary file (s. dialog). At other export of the \*.ras file you can use this auxiliary file and "return" to the raster file its original palette. Finally the \*.ras output file(s) is created.

### 9.2.2. Import from BMP format

After confirmation of the command an input raster file in the BMP format is selected in a standard dialog. Next a name and directory of a \*.ras output file is set in a standard dialog. You can select a subtype and compression method for the output raster as well. In case of a TrueColor raster the result raster type can be changed during import to an 8-bit colour raster (s. dialog) or it can be decomposed into R, G, B channels - three grayscaled rasters (s. dialog). In case of indexed colour raster import a palette size of the \*.ras output file can be changed and in the same time the original palette is saved in the \*.pam auxiliary file (s. dialog). At next export of the \*.ras file you can use this auxiliary file and "return" to the raster file its original palette. Finally the \*.ras output file(s) is created.

### 9.2.3. Import from GIF format

After confirmation of the command an input raster file in the GIF format is selected in a standard dialog. Next a name and directory of a \*.ras output file is set in a standard dialog . You can select a subtype and compression method for the output raster as well. With another dialog you can change a palette size of the output \*.ras file and in the same time to save the original palette in the \*.pam auxiliary file (s. dialog). At next export of the \*.ras file you can use this auxiliary file and "return" to the raster file its original palette. Finally the \*.ras output file(s) is created.

### 9.2.4. Import from JPG format

After confirmation of the command an input raster file in the JPG format is selected in a standard dialog. Next a name and directory of a \*.ras output file is set in a standard dialog. You can select a subtype and compression method for the output raster as well. In case of a TrueColor raster the result raster type can be changed during import to an 8-bit colour raster (s. dialog) or it can be decomposed into R, G, B channels - three grayscaled rasters (s. dialog). Finally the \*.ras output file(s) is created.

### 9.2.5. Import from SID format

After confirmation of the command an input raster file in the SID format is selected in a standard dialog. Next a name and directory of a \*.ras output file is set in a standard dialog. You can select a subtype and compression method for the output raster as well. In case of a TrueColor raster the result raster type can be changed during import to an 8-bit colour raster (s. dialog) or it can be decomposed into R, G, B channels - three grayscaled rasters (s. dialog). Finally the \*.ras output file(s) is created.

## 9.2.6. Import from CIT format

After confirmation of the command an input raster file in the CIT format is selected in a standard dialog. Next a name and directory of a \*.ras output file is set in a standard dialog. You can select a subtype and compression method for the output raster as well. Finally the \*.ras output file(s) is created.

## 9.2.7. Import from COT format

After confirmation of the command an input raster file in the COT format is selected in a standard dialog. Next a name and directory of a \*.ras output file is set in a standard dialog. You can select a subtype and compression method for the output raster as well. With another dialog you can change a palette size of the output \*.ras file and in the same time to save the original palette in the \*.pam auxiliary file (s. dialog). At next export of the \*.ras file you can use this auxiliary file and "return" to the raster file its original palette. Finally the \*.ras output file(s) is created.

## 9.2.8. Import from RGB format

After confirmation of the command a input raster file in the RGB format is selected in a standard dialog. Next a name and directory of a \*.ras output file is set in a standard dialog. You can select a subtype and compression method for the output raster as well. At import the result raster type can be changed during import to an 8-bit colour raster (s. dialog) or it can be decomposed into R, G, B channels - three grayscaled rasters (s. dialog). Finally the \*.ras output file(s) is created.

## 9.2.9. Import from RLE format

After confirmation of the command an input raster file in the RLE format is selected in a standard dialog. Next a name and directory of a \*.ras output file is set in a standard dialog. You can select a subtype and compression method for the output raster as well. Finally the \*.ras output file(s) is created.

## 9.2.10. Import from PCX format

After confirmation of the command an input raster file in the PCX format is selected in a standard dialog. Next a name and directory of a \*.ras output file is set in a standard dialog. You can select a subtype and compression method for the output raster as well. In case of a TrueColor raster the result raster type can be changed during import to an 8-bit colour raster (s. dialog) or it can be decomposed into R, G, B channels - three grayscaled rasters (s. dialog). In case of indexed colour raster import a palette size of the \*.ras output file can be changed and in the same time the original palette is saved in the \*.pam auxiliary file (s. dialog). At next export of the \*.ras file you can use this auxiliary file and "return" to the raster file its original palette. Finally the \*.ras output file(s) is created.

## 9.2.11. Import from ECW format

After confirmation of the command an input raster file in the ECW format is selected in a standard dialog. Next a name and directory of a \*.ras output file is set in a standard dialog. You can select a subtype and compression method for the output raster as well. In case of a TrueColor raster the result raster type can be changed during import to an 8-bit colour raster (s. dialog) or it can be decomposed into R, G, B channels - three grayscaled rasters (s. dialog). Finally the \*.ras output file(s) is created.

## 9.2.12. Import from HRF format

After confirmation of the command an input raster file in the HRF format is selected in a standard dialog. Next a name and directory of a \*.ras output file is set in a standard dialog. You can select a subtype and compression method for the output raster as well. Finally the \*.ras output file(s) is created.

### Note

If you want to open the file created with this command in the TopoL, the system will first ask you to its locating by a position of its top right corner and its width.

## 9.2.13. Import from IMG

format

The command serves for conversion of data from a nonstandard IMG file to the RAS format. After the command confirmation a dialog is displayed in which you can set an input raster and its parameters. The raster is supposed to be a grayscale raster. Next a name and directory of a \*.ras output file is set in a standard dialog. You can select a subtype and compression method for the output raster as well. Finally the \*.ras output file(s) is created that is not located.

### Note

If you want to open the file created with this command in the TopoL, the system will first ask you to its locating according to a position of its top right corner and its width.

## 9.2.14. Selection for TrueColor raster import

In case of a TrueColor raster import an output raster type can be converted to 8-bit colour raster or it can be decomposed into R, G, B channels - three grayscale rasters. To select from available possibilities use the following dialog.



Dialog for selection of output type at TrueColor raster import

True Color raster (24 bit/pixel)

The type of input raster stays unchanged.

Colour (8-bit) raster

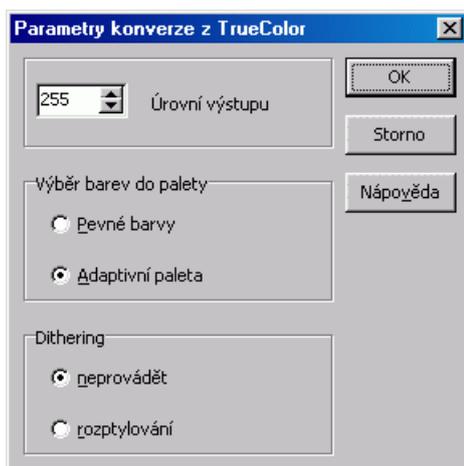
Input raster is converted to colour indexed raster with palette. Parameters for conversion are set with the related dialog for TrueColor raster conversion.

Split to R, G, B channels (grayscale)

Input raster is split to R, G, B channels - three grayscale rasters. Their names are set in another dialog.

## 9.2.15. Parameters of conversion from TrueColor raster

In case of TrueColor raster import a type of an output raster can be converted to 8-bit colour raster. At this selection a colour reduction takes part, its method can be selected. Parameters for conversion are set in the following dialog for a TrueColor raster conversion.



Dialog for conversion parameters setting from TrueColor raster at import

#### Output levels

At TrueColor raster conversion you can set a palette size of the output file. Write a value from the interval (1-225) which specifies a number of colours in palette of the result colour \*.RAS file.

#### Palette

In this section check one of the control switches

- Fixed - palette of the result image is preset. Use this option if you want the result raster palette to coincide with palettes of the rasters created before in the same way. The palette equally covers all the R, G, B channels area.
- Adaptive - palette of the result image is created on basis of individual colours representation within input images.

#### Dithering

This section is related to colour correction of the result raster image pixels in case of conversion of raster of the TrueColor type to 8-bit raster. If you select the dithering, the raster parts, in palette of which the R, G, B channels combination isn't contained, can be colour approximated with combination of neighbouring pixel colours.

- No Dither - pixel colour corresponding to a specific R, G, B channels combination, not contained in the palette, is replaced with the next palette colour.
- Diffusion - the system carries out a so called dithering by a diffusion method.

#### Note

It's appropriate if you work with greater amount of colour rasters on systems, where the graphic regime is set to other colour depth than the TrueColor.

## 9.2.16. Split RGB TrueColor

In case of a TrueColor raster import the raster can split to R, G, B channels. Those are geometrically identical grayscaled rasters. Name setting of output channels is executed in the following dialog.



Dialog for name setting of output channels at TrueColor raster splitting

#### R - channel

Into the edit line set a name of an output raster for the "red" channel of the TrueColor input raster. It's possible to use the button to produce a standard selecting dialog.

#### G - channel

Into the edit line set a name of an output raster for the "green" channel of the TrueColor input raster. It's possible to use the button to produce a standard selecting dialog.

#### B - channel

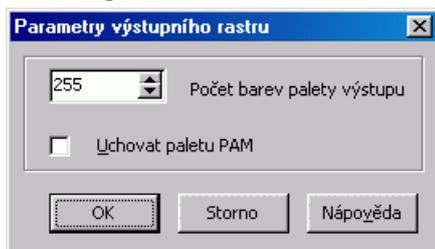
Into the edit line set a name of an output raster for the "blue" channel of the TrueColor input raster. It's possible to use the button to produce a standard selecting dialog.

### Note

From these three files a TrueColor raster can be generated consequently by "Colour synthesis" operation. The result of this operation will be the same as at a raster import executed by TrueColor raster selection, if the transfers of input channels were set by the Operation with transfer command ("Transfer to 256 levels" selection).

## 9.2.17. Parameters for import of indexed colour raster

During import of indexed colour raster a palette size of an output raster can be changed. Appropriate if you work with greater amount of colour rasters on systems where the graphic regim is set to different colour depth from the TrueColor. Parameters for conversion are set in the following dialog:



Dialog for parameters setting at indexed colour raster import

#### Number of colours in output palette

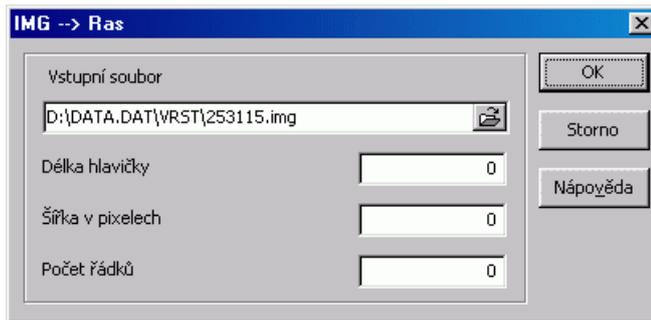
At import of indexed colour raster an output file palette size can be set - number of colours in palette.

#### Save PAM palette

The original palette can be saved in the \*.pam auxiliary file. At the next possible export of the \*.ras file you can use this auxiliary file and "return" the original palette to the exported raster file.

## 9.2.18. Import of IMG raster

The command serves for raster data conversion from a nonstandard IMG file to the RAS format. A grayscale raster is supposed. After activation a dialog is displayed in which you can set parameters of an input raster.



Dialog for parameters setting of IMG raster import

#### Input file

Set an input raster name into the edit line. It's possible to use the button for activation of a standard selecting dialog.

#### Header length

Set a length of header of the imported \*.IMG file.in bytes

#### Width in pixels

Set a width in bytes - pixel count of the imported \*.IMG file.

#### Nuber of rows

Set height - number of rows of the imported \*.IMG rows.

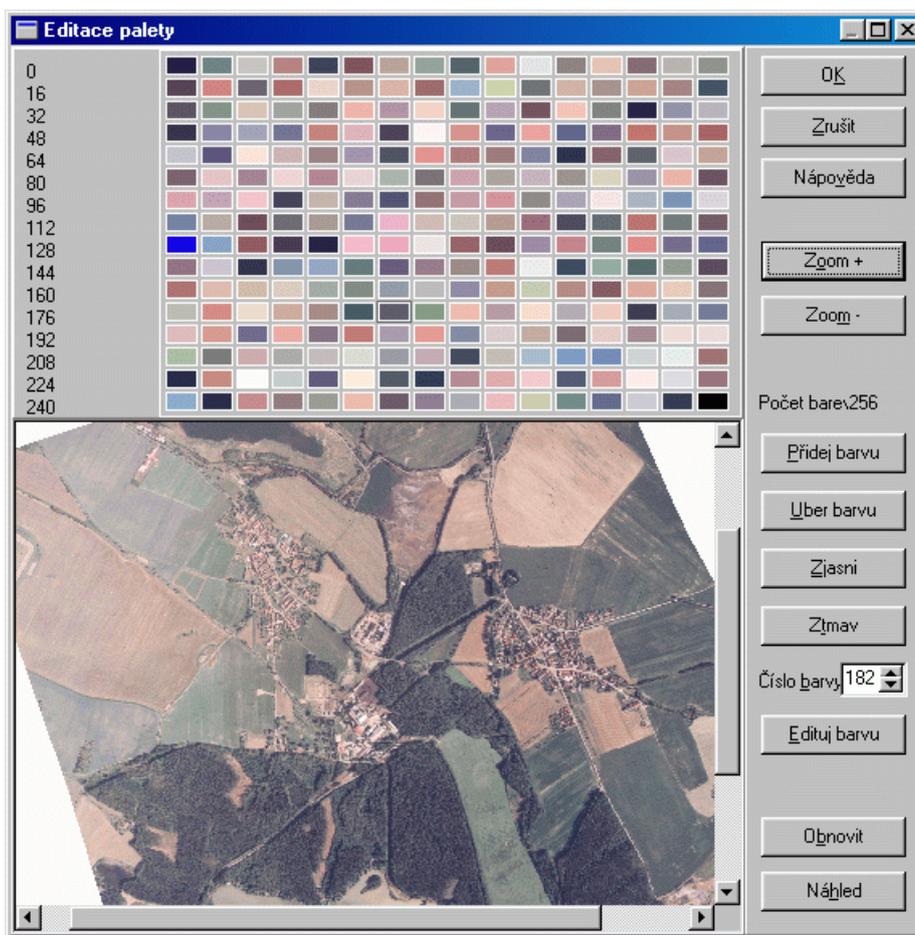
After the confirmation a dialog window is closed and the system starts to import the selected file.

### Note

If you want to open the imported file in the TopoL by this command, the system will first ask you to its locating by the position of its top right corner and its width.

## 9.3. Palette editing

The command displays a colour palette of the selected raster file and enables to change its setting. Thus it is an operation with colour indexed 8-bit or 4-bit rasters. Possible changes can be viewed in a preview. After raster selection in a standard way a dialog is displayed with the raster preview and its palette. With click on a pixel in the preview you can set the index of the corresponding colour in palette and consequently to edit this colour.



Dialog for raster palette setting

In the top left part there is the corresponding colour palette displayed. The active colour, i.e. colour that can be set, is emphasized with a frame. In the right dialog part there are informative data and controlling elements.

#### Zoom +

After the button confirmation a raster maximization in the preview panel is executed. A number of the executed raster maximizations is limited depending on the raster size.

#### Zoom -

After the button confirmation a raster preview, that respects the current palette setting, is redisplayed. Previous palette modifications show themselves in a small palette raster window only, not in the preview.

#### Total of

Number of colours contained in a palette.

#### Add

After confirmation of the button another colour, RGB channels of which are nill (i.e. black), is added behind the last colour of palette. Colour adding and removing are active only during working with the RAS format, where the palette doesn't have to contain a minimum number of possible colours.

#### Delete

After the button confirmation the last colour in palette is deleted.

**Brighten**

After the button confirmation an RGB setting of all colours is changed so that the result colours are brighter.

**Darken**

After the button confirmation an inverse operation to the "Brighten" is executed - the result colours in palette are darker.

**Colour**

Into the edit line write a number (index in palette) of colour you want to work with. The frame of the colour will be emphasized. You can similarly change a content of the Item cell upwards or downwards with arrow buttons or with keys "up" and "down".

**Edit**

After confirmation of the button a standard dialog is opened for change of the RGB channels setting of the active (thickened frame) colour.

**Restore**

After confirmation of the button the original content of a raster palette is displayed and the raster preview is redisplayed. All so far made changes are ignored and the palette is set as in the moment of the dialog opening.

**Preview**

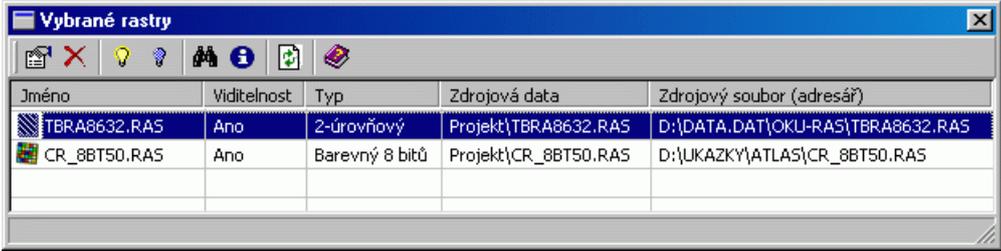
After confirmation of the button a raster preview is redisplayed to the one which respects the current setting of a palette. So far made modifications of palette are shown only in a small raster palette window, not in the preview.

**Note**

If a raster corresponding to the being edited palette file is displayed in a map window, changes aren't saved directly either in the \*.PAL file or in a raster file, but they stay only in the memory (raster is displayed in the memory by the palette). Only at removing of this raster from a map window the system enquires, whether to save the executed changes in palette on the disc.

## 9.4. Raster names Info

After activating of the function a cross-tool displays. If you move with it atop a raster, its short name appears in the bottom information panel. Simultaneously you can switch into any map window; name of the corresponding raster, in which the cursor is momentarily placed, is continuously displayed in the information panel on the bottom edge of the application. During the operation you can change a viewport in a standard way. The system works even if you have a window in a different coordinate system from the data coordinate system. If rasters overlay, a name of the raster, which is atop from a "plan view", is displayed. If there are more rasters in the point of interest and the orientation is hard because of overlays, it's appropriate to use raster outlines at a display. If you click with the left button on a raster, a dialog is displayed with names of all the rasters interfering in the given point. In the dialog you can modify a display of this rasters and display their characteristics.



Jméno	Viditelnost	Typ	Zdrojová data	Zdrojový soubor (adresář)
TBRA8632.RAS	Ano	2-úrovňový	Projekt\TBRA8632.RAS	D:\DATA.DAT\OKU-RAS\TBRA8632.RAS
CR_8BT50.RAS	Ano	Barevný 8 bitů	Projekt\CR_8BT50.RAS	D:\UKAZKY\ATLAS\CR_8BT50.RAS

Dialog for raster display parameters setting and their characteristics display

You can change setting of items in the map window legend part related to rasters with the tool bar and context menu. Individual actions are made accessible with click on one of the displayed rows corresponding to individual rasters within the given window.

Properties			Activates a dialog for setting of the given raster display.
Delete		Del	Deletes the selected items (even more at once).
Display			The given raster display in legend is switched on.
Do not display			The given raster display in legend is switched off.
Zoom to raster			A map window is redisplayed so that the viewport covers the selected raster.
Info			Opens a dialog for display of information on the selected raster.
Refresh		ALT+O	Přezobrazí se mapové okno.
Nápověda		F1	A map window is redisplayed.
Rename in legend		F2	Renames the corresponding item in legend of the given map window.

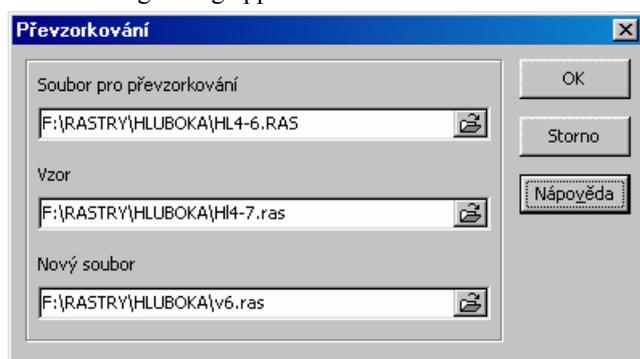
## 9.5. Levels Info

The command for the selected raster displays a value of any pixel within this raster, resp. values of R, G, B channels for the given pixel for a TrueColor raster. With a grayscaled raster for any pixel its index of grey level is displayed, with colour raster its index of colour in palette is displayed. With the DEM rasters a recalculated pixel value in meters is displayed and also an index of grey level in which it's presented in a map window.

After activating of the command a standard dialog is displayed for selecting of a raster. Next the given raster is displayed in a map window (unless it has been displayed) and eventually it's extended to the whole visible area of a map window. Next you can move with a hair cross atop the raster and detect a value of individual pixels. During the operation you can change a viewport in a standard way.

## 9.6. Resampling

The command creates a mosaic from the set raster file and saves such created image under a set name. Parameters of the result mosaic (pixel size, file size and its location) follow the sample file. This operation is aimed to reach a geometrical unification of two rasters to which arithmetic or logical operations can be applied. The operation can be used as a preparation for a synthesis creating because this operation requires three geometrically identical rasters as an input. After the command activating the following dialog appears:



Dialog for parameters setting of raster resampling

File to resample

Into the edit line write a name of the file you want to modify. The name can be also searched after the button confirmation in a dialog for input raster setting.

**Sample**

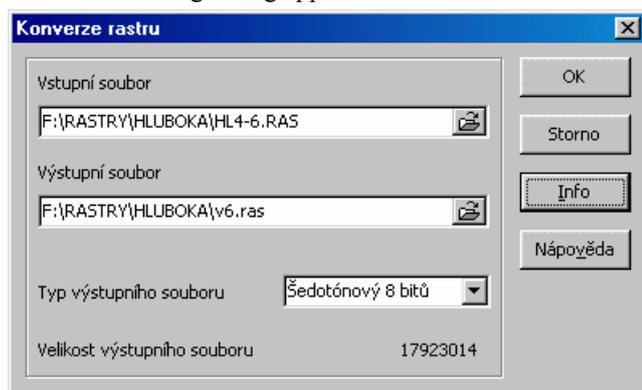
Into the edit line write a name of the file by which you want to change the above set raster image. The name can be also searched after the button confirmation in a dialog for raster setting.

**New file**

Into the edit line write a name under which you want to save the newly created image. The name can be also set in a dialog for name setting which is opened after the button confirmation.

## 9.7. Raster conversion

The command enables to carry out a transfer among any raster files types in RAS, BMP and TIFF formats. The modifications are related particularly to depth of rasters, resp. to change of tile rasters into row rasters and vice versa. After the command activating in a standard way select an input raster, next the following dialog appears:



Dialog for parameters setting of raster conversion

**Input file**

In the edit line you can change a name of the file you want to modify. The name can be also searched after confirmation of a button in a dialog for input raster setting.

**Output file**

Into the edit line write a name under which you want to save the newly created image. The name can be also set in a standard dialog for name and raster subtype setting which is opened after the button confirmation. Name of input raster must differ from name of output raster.

**Type of output file**

From a list box you can select a required type of output raster acceptable for the given input.

**Info**

With this button you can reach a standard dialog for characteristics display and for input raster preview.

If a TrueColor raster is an input, it can be split to R, G, B colour channels as with TrueColor rasters import from other formats. In this case a name of output file can't be set in a dialog. After the dialog confirmation a dialog is displayed for name setting of R, G, B colour channels, the same as with TrueColor rasters import.

If a TrueColor raster is converted to colour 4-bit or 8-bit raster, then after the dialog confirmation another dialog for parameters setting of this conversion is displayed, i.e. of dithering, type of colour selection and count of colours in palette.

## 9.8. Ras for TopoL DOS

The command changes the \*.MEZ transfer file, resp. the \*.PAL palette file of the selected colour or grayscale raster in the RAS format so that you can work with it in the TopoL for DOS system. The

TopoL for DOS enables to work only in the 16-colours regime. Output file of the command can be identical to input file.

After the command activating a dialog opens for name setting of the raster file you want to work with later in the TopoL for DOS system. After confirmation the operation is executed.

## 9.9. Delete raster

The command cancels (deletes) selected rasters including their auxiliary files.

After its activating a standard dialog is displayed for a raster group selection. You can select from various directories. After confirmation of the dialog the operation is executed with a query if the specific rasters are to be truly deleted with no return.

## 9.10. Raster generalization

This command enables to create a generalized raster part for a faster display. It means that for a raster of any type and version a minimized generalized raster can be created (approximately 1/16 of the original raster size). The generalized raster is attached either to the RAS file end or to auxiliary files of other formats.

After the command activating a standard dialog is displayed for raster group selection. You can select from various directories. After the dialog confirmation the operation is executed.

## 9.11. Compress

The command compresses one or more selected raster files in the RAS format into the RAK format. Name of the result raster including the path is always identical to the name of an input.

After the command activating a standard dialog appears for selecting of raster group. You can select from various directories. After the dialog confirmation the operation is executed.

## 9.12. Decompress

The command decompresses one or more selected RAK raster files. After the selection of input files those are decompressed and saved on the disc under the same name but with the RAS extension.

After the command activating a standard dialog appears for selecting of raster group. You can select from various directories. After the dialog confirmation the operation is executed.

## 9.13. Convert Area of Interest into Raster

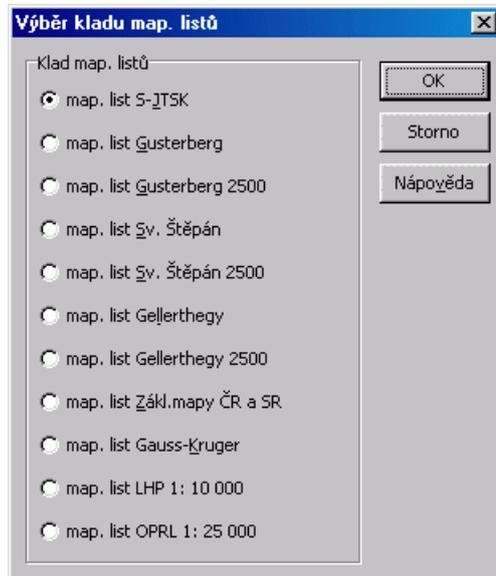
The command convertes the selected map window viewport (including all the displayed vector and raster files) into a raster file of a set name, size and type.

After the command activating an approximate area is selected in a standard way via a flexible selecting rectangle, that will be converted to a raster. Next a standard dialog for output raster name and subtype setting is displayed. Finally a dialog for geometrical parameters of output raster is displayed in which you particularly set size of a new raster file in the horizontal and vertical direction in both the coordinate system and pixel counts. After the dialog confirmation the operation is executed.

---

# Chapter 9. Dialogs for map sheets handling

## 1. Výběr kladu map. listů

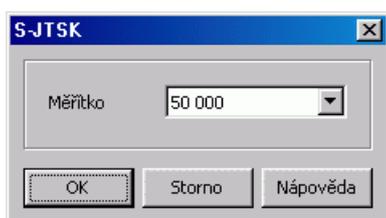


Dialog pro výběr kladu mapových listů

Dialog slouží k výběru kladu mapových listů se kterým budeme dále pracovat. Jedním z následujících kontrolních přepínačů zaktivujeme jednu z možností:

- map. list S-JTSK
- map. list Gusterberg
- map. list Gusterberg 2500
- map. list Sv. Štěpán
- map. list Sv. Štěpán 2500
- map. list Gellertheygy
- map. list Gellertheygy 2500
- map- list Zákl. mapy ČR a SR
- map. list Gauss-Krüger
- map. list LHP 1: 10 000
- map. list OPRL 1: 25 000

## 2. Měřítko kladu S\_JTSK

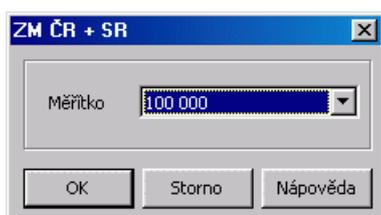


Dialog pro výběr měřítkového čísla kladu map S-JTSK.

Dialog slouží k výběru měřítku kladu S-JTSK, se kterým se bude pracovat. Výběr se provede pomocí výklopného seznamu. Pro tento klad se nabízí následující možnosti.

- 50 000
- 5 000
- 2 000
- 1 000
- 500

## 3. Měřítko kladu základní mapa ČR a SR



Dialog pro výběr měřítkového čísla kladu základních map ČR a SR.

Dialog slouží k výběru měřítku kladu základních map ČR + SR, se kterým se bude pracovat. Výběr se provede pomocí výklopného seznamu. Pro tento klad se nabízí následující možnosti.

- 1: 200 000
- 1: 100 000
- 1: 50 000
- 1: 25 000
- 1: 10 000

## 4. Měřítko kladu Gauss-Krüger

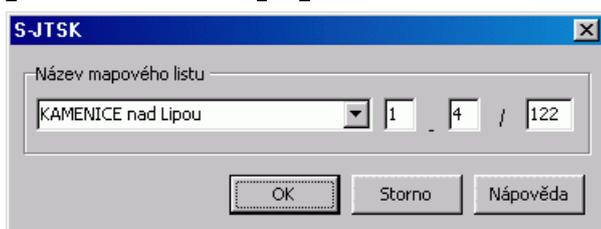


Dialog pro výběr měřítkového čísla kladu map Gauss-Krüger.

Dialog slouží k výběru měřítka kladu Gauss-Krüger, se kterým se bude pracovat. Výběr se provede pomocí výklopného seznamu. Pro tento klad se nabízí následující možnosti.

- 1: 1 000 000
- 1: 100 000
- 1: 50 000
- 1: 25 000
- 1: 10 000

## 5. Výběr mapy S-JTSK názvem



Dialog pro výběr mapy S-JTSK názvem.

Dialog obsahuje výklopný seznam pro výběr názvu mapy v S-JTSK systému. Standardně vyhledáme v seznamu sídel požadovaný název mapy. V dalších editačních prvcích zadáme čísla sloupce a řádku pro listy v měřítku 1 : 5 000. Hodnoty těchto editačních prvků jsou v rozsahu 0 až 9. Poslední editační prvek slouží ke společnému zadání sekcí pro listy v měřítcích 1 : 2 000, 1 : 1 000 a 1 : 500. Hodnoty v jednotlivých sekcích se mohou pohybovat v rozmezí 1 až 4.

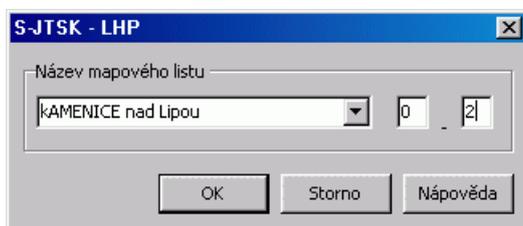
Příklad :

- Mapový list v měř. 1 : 5 000 může mít název MOST 0, 3.
- Mapový list v měř. 1 : 2 000 může mít název MOST 0, 3 / 4.
- Mapový list v měř. 1 : 500 může mít název MOST 0, 3 / 114.

### Note

Systém nedovolí zadat jméno mapového listu neexistující nomenklatury.

## 6. Výběr mapy kladu lesnických map LHP 1: 10 000 názvem



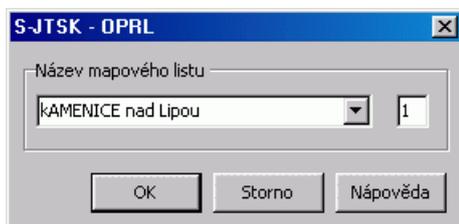
Dialog pro výběr mapy kladu lesnických map LHP 1: 10 000 názvem.

Dialog obsahuje výklopný seznam pro výběr názvu mapy v S-JTSK systému. Standardně vyhledáme v seznamu sídel požadovaný název mapy. V dalších editačních prvcích zadáme čísla sloupce a řádku pro listy v měřítku 1 : 10 000. Hodnoty těchto editačních prvků mohou nabývat hodnot 0, 2, 4, 6, 8. Každý list odpovídá čtyřem listům kladu S-JTSK 1: 5 000.

**Note**

Systém nedovolí zadat jméno mapového listu neexistující nomenklatury.

## 7. Výběr mapy kladu lesnických map OPRL 1: 25 000 názvem



Dialog pro výběr mapy kladu lesnických map OPRL 1: 25 000 názvem.

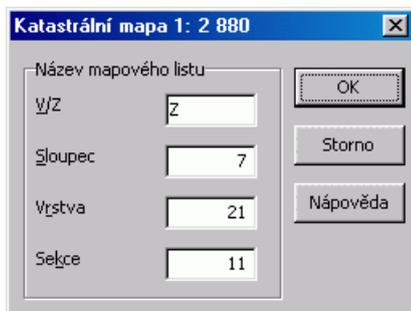
Dialog obsahuje výklopný seznam pro výběr názvu mapy v S-JTSK systému. Standardně vyhledáme v seznamu sídel požadovaný název mapy. V dalších editačním prvku zadáme číslo listu v měřítku 1 : 25 000. Hodnota tohoto editačního prvku může nabývat hodnot 1, 2, 3, 4. Každý list odpovídá čtvrtině listu kladu S-JTSK 1: 50 000. Schema listů v rámci jednoho listu 1: 50 000 je toto:

1	2
3	4

**Note**

Systém nedovolí zadat jméno mapového listu neexistující nomenklatury.

## 8. Výběr katastrální mapy v měřítku 1: 2880 názvem.



Dialog pro výběr katastrální mapy v měřítku 1: 2880 názvem

Dialog slouží k výběru katastrální mapy (Gusterberg, Svatý Štěpán, Gellerthey) v měřítku 1: 2880 názvem. Dialog obsahuje editační linky:

- V/Z - sekce východ - západ možné hodnoty Z, V
- Sloupec
- Vrstva
- Sekce

**Note**

U sloupců se zadávají místo římských číslic číslice arabské. Označení sekce v rámci triangulačního listu se v TopoLu zadává pomocí číselného označení. Někdy však je k dispozici

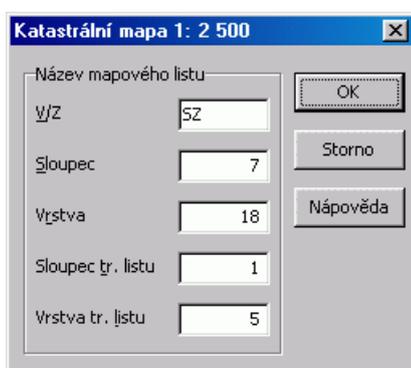
pouze označení vyjádřené dvojicí malých písmen "a" až "i". Pro úplnost je zde proto uvedena tabulka, ve které je uvedeno obojí značení. Například označení sekce bf odpovídá číslu 7. Možné značení sekcí kladu katastrálních map 1: 2880:

	d	c	b	a
e	1	2	3	4
f	5	6	7	8
g	9	10	11	12
h	13	14	15	16
i	17	18	19	20

### Note

System nedovolí zadat jméno mapového listu neexistující nomenklatury.

## 9. Výběr katastrální mapy v měřítku 1: 2500 názvem.



Dialog pro výběr katastrální mapy v měřítku 1: 2500 názvem

Dialog slouží k výběru katastrální mapy (Gusterberg, Svatý Štěpán, Gellerthegey) v měřítku 1: 2500 názvem. Dialog obsahuje editační linky:

- V/Z - sekce východ - západ možné hodnoty SZ, SV, JZ, JV
- Sloupec
- Vrstva
- Sloupec tr.listu
- Vrstva tr.listu

### Note

U sloupců se zadávají místo římských číslic číslice arabské. Označení sekce v rámci triangulačního listu se v TopoLu zadává pomocí číselného označení. Značení sekcí kladu katastrálních map 1: 2500 (sloupec a vrstva triangulačního listu):

	1	2	3	4	5
8	8/1	8/2	8/3	8/4	8/5
7	7/1	7/2	7/3	7/4	7/5
6	6/1	6/2	6/3	6/4	6/5
5	5/1	5/2	5/3	5/4	5/5

4	4/1	4/2	4/3	4/4	4/5
3	3/1	3/2	3/3	3/4	3/5
2	2/1	2/2	2/3	2/4	2/5
1	1/1	1/2	1/3	1/4	1/5

**Note**

Systém nedovolí zadat jméno mapového listu neexistující nomenklatury.

## 10. Výběr základní mapy ČR A SR názvem.

Dialog pro výběr základní mapy ČR A SR názvem

Dialog slouží k výběru základní mapy ČR A SR názvem. Dialog obsahuje editační linky:

- Sekce 200
- Sekce 100
- Sekce 50
- Sekce 25
- Sekce 10

Sekce 200 až 10 vyjadřuje mapové dílo měřítka 1: 200 000 až 1: 10 000. Jako příklad je uvedena nomenklatura Základní mapy měřítka 1: 10 000 12-33-23.

**Note**

Sekce 50 se dělí buď na klad 1: 25 000 nebo 1: 10 000. Proto musí být vždy alespoň jeden z těchto údajů roven 0.

Příklad :

Mapový list v měř. 1 : 100 000 může mít název 12 - 4.

Mapový list v měř. 1 : 50 000 může mít název 12 - 4 - 1. Sekce 25 a Sekce 10 jsou 0.

Odpovídající listy v měř. 1 : 25 000 mají pak název 12 - 4 - 1 - 1 až 12 - 4 - 1 - 4. Sekce 10 je rovna 0.

Odpovídající listy v měř. 1 : 10 000 mají pak název 12 - 4 - 1 - 01 až 12 - 4 - 1 - 25. Sekce 25 je rovna 0.

**Note**

Systém nedovolí zadat jméno mapového listu neexistující nomenklatury.

## 11. Výběr mapy Gauss-Krüger názvem.



Dialog pro výběr mapy Gauss-Krüger názvem

Dialog slouží k výběru mapy Gauss-Krüger názvem. Dialog obsahuje editační linky:

- Sekce názvu listu 1: 1 000 000 - (hodnoty M-33, M-34, L-33, L-34)
- Sekce listu 1: 100 000 - (rozsah 1 - 144)
- Sekce listu 1: 50 000 - (rozsah A - D, a - d)
- Sekce listu 1: 25 000 - (rozsah A - D, a - d)
- Sekce listu 1: 10 000 - (rozsah 1 - 4)

### Note

Systém nedovolí zadat jméno mapového listu neexistující nomenklatury.

## 12. Informace o mapovém listu

Údaj	Hodnota
Klad mapového listu	5-JTSK
Levý horní roh X	1140000.000
Levý horní roh Y	650000.000
Pravý horní roh X	1140000.000
Pravý horní roh Y	625000.000
Pravý dolní roh X	1160000.000
Pravý dolní roh Y	625000.000
Levý dolní roh X	1160000.000
Levý dolní roh Y	650000.000
Sousední list vlevo	TREBIC
Sousední list nahoře	VELKE MEZIRICI
Sousední list vpravo	TISNOV
Sousední list dole	HROTOVICE

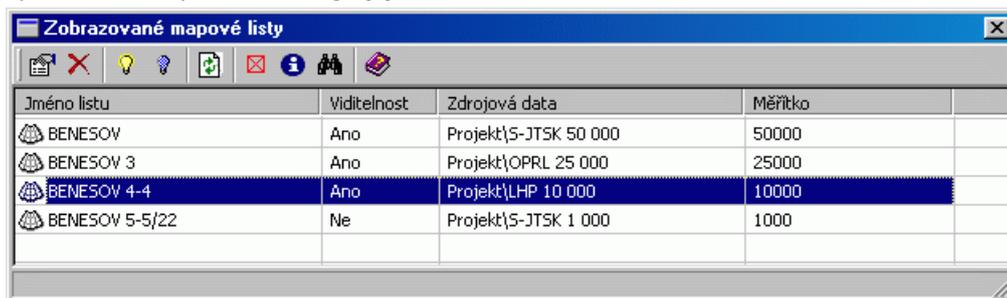
Dialog s informacemi o vybraném mapovém listu

Dialog obsahuje informace o vybraném mapovém listu, jehož jméno je uvedeno v titulku dialogu, jako jsou souřadnice všech rohů v souřadném systému S-JTSK a názvy sousedních listů v odpovídajícím kladu mapových listů.

## 13. Výběr mapy kurzorem

Příkaz slouží jednak ke zjištění mapového listu vybraného kladu, jehož polohu zadáme kurzorem a dále ke zjištění informací o zobrazených kladcích mapových listů v různých mapových oknech, případně k nastavení zobrazovacích parametrů kladů mapových listů v legendách jednotlivých oken. Nejprve je třeba pomocí standardního dialogu vybrat základní klad mapových listů, se kterým chceme pracovat. Po potvrzení kladu, v němž chceme nalézt mapový list, systém otevře v případě volby S-JTSK, Základní

mapa ČR+SR a Gauss-Krüger dialogy pro výběr měřítka mapového listu. Po potvrzení dialogového okna s nastaveným měřítkem mapového listu, se na obrazovce objeví výběrový kurzor pro zadání polohy mapového listu. Přitom se můžeme přepínat do libovolného mapového okna, přičemž v informačním panelu na spodním okraji okna aplikace se průběžně zobrazuje jméno příslušného mapového listu vybraného kladu, v němž se momentálně kurzor nachází. Během operace můžeme měnit výřez standardním způsobem. Systém pracuje i pokud máme některé z oken v jiném souřadném systému než je S-JTSK. Jakmile zadáme polohu mapového listu kliknutím myši, systém zobrazí do mapového okna obrys nalezeného mapového listu. Pokud nejsou v mapovém okně, kde došlo k potvrzení polohy kurzoru, zobrazeny některé kladu mapových listů, systém po potvrzení dotazu případně změní výřez tak, aby mapový list pokrýval celou zobrazovací plochu okna. Pokud jsou v mapovém okně, kde došlo k potvrzení polohy kurzoru zobrazeny některé kladu mapových listů, objeví se zároveň s vykreslením obrysu listu dialog s jejich seznamem.



Dialog pro práci s kladu mapových listů v mapovém okně.

Změnu nastavení položek části legendy mapového okna týkající se mapových kladů, lze také provádět pomocí panelu nástrojů a kontextového menu. Jednotlivé akce se zpřístupní poklepnutím na jeden ze zobrazených řádků, které odpovídají mapovým kladům v daném okně.

Vlastnosti			Spustí dialog pro nastavení zobrazení daného mapového kladu.
Odstranit		Del	Odstranění vybraných položek (i více najednou).
Zobrazovat			Zapne se zobrazení daného kladu v legendě.
Nezobrazovat			Vypne se zobrazení daného kladu v legendě.
Překreslit		ALT+O	Přezobrazí se mapové okno.
Zvýraznit mapový list			V okně se vykreslí přeškrtnutý obrys vybraného mapového listu.
Info			Otevře dialog pro zobrazení informací o vybraném mapovém listu.
Roztáhnout mapový list			Mapové okno se přezobrazí tak aby výřez pokryl vybraný mapový list.
Nápověda		F1	Spustí tuto nápovědu.
Přejmenování v legendě		F2	Přejmenování odpovídající položky v legendě daného mapového okna.

---

# Chapter 10. Glossary

## 1. A

### Content

Affine transformation

Affine transformation

At transformation by this method the system carries out a shifting, rotating and different scale change in both directions. This transformation type needs at least three pairs of identical points.

## 2. B

### Obsah

Colour raster

Binary raster

BMP

Colour raster

Each pixel of coloured raster is understood as an index to table with individual raster colours. The pixel is then displayed on screen in the related colour. The colour is selected from a palette which is for most raster formats saved directly in the given file. RAS format uses for this purpose an auxiliary file of the \*.PAL palette (Color Look Up Table). With this format a pixel value isn't a direct pointer to palette table. That is a modified value via so called transfer table saved in another \*.MEZ auxiliary file. Colour rasters can be 4-bit or 8-bit. It means that pixel values can be within the range 0-15 resp. 0-255 to which sizes of colour tables - palettes correspond to. It is 16 resp. 256 colours. All the supported formats except RAS have exactly these palette sizes, with RAS format there are maximum colours count.

Binární rastr

Binary raster (two-level) contains pixels of a single bit size which bears information whether either a background is involved or a drawing. Thus binary raster pixels have 0 or 1 value. However a raster drawing may be at display in map window interpreted by any colour set in the application.

BMP

The BMP format is a format of raster data mostly in noncompressed form. Used compression is mostly labeled as BI\_RLE8, resp. BI\_RLE4 for 4-bit rasters. Its structure is quite close to the structure of bit maps used in the Microsoft Windows © systems (device-independent bitmap - DIB - it means that bitmap pixels have a colour specified in a format independent of the display device). Values saved in the raster file are always in so called Intel format. Each row must be aligned to four bytes. Raster rows are saved from the last to the first. A raster can be two-colour, 16-colour, 256-colour and with 16 millions colours (TrueColor). In heading of variable raster length information are recorded on raster type, size, layout, resp. on a palette.

For location record (localizing in the coordinate system) an auxiliary file with BPW extension is used - it is a convention used by ARCView systems (so called worldfile).

As another auxiliary file a file with BPE extension is used. Here an additive information on raster are recorded, particularly information on masking and generalized raster version.

## 3. C

### Content

CIT  
COT

CIT

CIT format is a raster data format of the INTERGRAPH Corporation © company. Its header contains basic data on raster image. It also contains information on a file localization within the coordinate system. Most often it's used for saving of binary raster data. Very effective compression is used according to the CCITT Group 4 norm. For reading of any raster part it's necessary to decompress the whole raster from its origin up to the required viewport.

A file with CTE extension is used as a auxiliary file. Here the generalized version of raster is recorded.

Pixels of this raster can be saved either in rows or in columns. An origin of data saving can be any raster corner. Thus in some cases the raster can be rotated compared to a standard way of rows saving from top to bottom by  $\pm 90$  degrees. TopoL is able to import all the variants, though it transfers a localization only in some cases. For direct working with such a raster only the variants with rows horizontally from top to bottom are appropriate. Data origin can be in the top left or right corner.

COT

CIT format is a raster data format of the INTERGRAPH Corporation © company. Its header contains basic data on raster image. It also contains information on a file localization within the coordinate system. Most often it's used for saving of binary raster data.

A file with COE extension is used as a auxiliary file. Here the additive information on raster are recorded, particularly information on grayscaled raster transfer and generalized raster version.

Pixels of this raster can be saved either in rows or in columns. An origin of data saving can be any raster corner. Thus in some cases the raster can be rotated compared to a standard way of rows saving from top to bottom by  $\pm 90$  degrees. TopoL is able to import all the variants, though it transfers a localization only in some cases. For direct working with such a raster only the variants with rows horizontally from top to bottom are appropriate. Data origin can be in the top left or right corner.

### Note

There is also a variant of this format where pixels are saved in tiles. However in this case only those types of rows and columns saving in TopoL, which don't need carrying out transformation to standard pixel saving in rows from top to bottom.

## 4. Č

### Content

Four-bit raster

Four-bit raster

This is a grayscaled or colour raster file pixels of which have a size of four bits. Thus pixels can get values from 0 to 15 and a raster image can have 16 tones of gray or 16 colours.

## 5. D

### Obsah

Database model

Child map windows

Dithering

Tile rasters

DEM rasters

#### Database model

Each object table is connected to a database table called a primary database table. Here is a unique connection between graphic objects and records of this table. To each such table a so called database model can be defined within the project which define connections to attached secondary (external) database tables. It is saved into the TopoL project with description of database model. For each attached database connections can be created to other database tables and thus to string connections between tables.

Vazba mezi databázemi je definována pomocí jednoho nebo více klíčových atributů. K záznamu v primární databázi jsou připojeny ty záznamy ze sekundární databáze, které mají stejnou hodnotu zadaných klíčových atributů. Při zadávání těchto atributů se určují jejich názvy v primární i sekundární tabulce.

#### Child map windows

Each map window can have several child windows. If a map window viewport is modified with a selecting rectangle with fixed aspect ratio (Zoom + and Zoom - commands from Display menu), the viewport can be modified in child windows as well. It depends on pressed keys for viewport modification confirmation:

Pressed keys	Carried viewport modification
	If no button is pressed, viewport modification is carried out in standard way within the current map window.
Ctrl	Viewport modification is carried out only in child map windows. If the current map window doesn't have any child windows, a child window is created.
Shift	Viewport modification is carried out in the current and in child map windows. If the current map window doesn't have any child windows, a child window is created.

### Note

Administration of child windows is carried out in Child windows dialog accessible from Map window menu, Child windows command.

#### Dithering

This is a process of correction of some colours from indexed raster file to reach an apparent larger extent of colour palette than it's available. Thus a correction of colour raster pixel colours takes place. It's used for example at TrueColor rasters conversion to 8-bit or 4-bit colour rasters.

#### Tile rasters

Řada rastrových formátů, např. TIFF, RAS, COT podporují tzv. dlaždicové uspořádání rastrů. Jde o fyzické uspořádání jednotlivých pixelů rastru. Ty nejsou uloženy v souboru po celých řádcích ale v obdélníkových dlaždicích, které si můžeme představit jako subrastry, které při vhodném

poskládání vytvoří výsledný rastr. Toto uspořádání je výhodné zejména pro velmi velké rastry, kdy při zobrazování pouze určitého malého výřezu systém nemusí načítat tak velký objem dat z disku. Je to též výhodnější uspořádání pro některé komprese rastru. Pokud však pracujeme s celým rastrem, např. export do jiného formátu a pod., musí se vytvořit celé řádky rastru, což operaci časově prodlužuje. Při zobrazování tento nedostatek lze obejít použitím generalizovaných rastrů. Pak je zobrazování rychlé jak v celku tak v detailu. Někdy je proto vhodné použít toto uspořádání dat pouze u rastrů se kterými nebudeme dále pracovat nebo naopak jako pracovní kopie rastrových dat pro některé speciální operace jako je otočení nebo transformace rastru, kdy je značnou výhodou tohoto subformátu rastrů podstatné snížení paměťových nároků systému.

### **Note**

U formátu RAS dlaždicové uspořádání otevírá možnost použití komprimovaných variant RASu, což je výhodné zejména pro binární rastry.

Pokud při jakékoli operaci vzniká nový rastr, jeho dlaždicové uspořádání lze zadat v dialogu pro výběr výstupního rastru a jeho subtypu.

#### DEM rasters

Each pixel of a raster file represents an information on a single point of digital terrain model, namely Y coordinate, X coordinate of pixel centre and height pixel value. It's supposed that points of such model create a regular square (rectangle) net. To each pixel two or four bytes are reserved in which an information on height is recorded.

## **6. E**

### **Content**

ECW

#### ECW

The ECW is a raster data format developed by Earth Resource Mapping Ltd. © company. It's used primarily for ER Mapper™ software. Data are compressed by so called "wavelet" compression. This involves grayscale and TrueColor raster images. Raster localization in the coordinate system is saved directly in the raster file.

A file with EWE extension is used as an auxiliary file. Here additive information on raster are recorded, particularly information on grayscale raster transfer and generalized raster version.

## **7. G**

### **Content**

Generalized raster  
GeoTIFF  
GIF

#### Generalized raster

For any type except DMT rasters a minimized generalized raster can be created (approximately 1/16 of original raster size). This generalized raster is attached either to RAS file end or to auxiliary files of other formats. This help raster serves only for quick display in scales, where the raster is displayed as whole in a part of map window only. Some formats, TIFF for example, support even multiple generalized rasters. With RAS format a generalization is supported in two levels at most. Raster display acceleration is apparent particularly for tile rasters.

At creation of any new raster the system creates automatically the raster generalized version, but only at fulfilling of specific conditions. The being created raster must be a raster of 2 version a size of which doesn't exceed the empirically set border. Generalization can be carried out with the Generalization command in help operations with rasters.

#### GeoTIFF

This is a variant of TIFF format that saves information on coordinate raster connection - localization directly in the raster file (its heading). A set of special tags (TAGs) contains as far as possible all the cartographic information attached to image, which may be a satellite or air photo, scanned map etc. These information describe in detail a space model or map projection which is connected with the given raster. There are described all parameters of geographical and projection systems. It's specified whether the numeric data are related to centres of pixels or to a single corner. Finally a transformation relation is described here between world and pixel coordinates via transformation matrix.

#### GIF

GIF - Graphics Interchange Format <sup>TM</sup> is a standard format of the CompuServe Incorporated © company. It's mostly an 8-bit indexed raster compressed with LZW modified compression. The first six symbols (bytes) of the file are "G I F 8 7 a" symbols. The three last of the mentioned, "8 7 a" are understood as a number of the given GIF file version.

For a record on location (localization within the coordinate system) a help fiel with GFW extension can be used - this represents a convention used by ARCVIEW systems (so called worldfile).

As another auxiliary file a file with GFE extension is used. Here the additive information on raster are recorded, particularly information on raster masking and a generalized raster version.

#### Note

Files with LZW compression have to be allways decompressed from the beginning - it's a uninterrupted bit flow. Thus this formate isn't quite appropriate for a direct access to all the raster rows, particularly as for larger lasters. If you want to read only the part of a raster near the file end, it's necessary to decompress all previous rows of the raster.

## 8. H

### Content

Histogram  
HRF

#### Histogram

Histogram is a graphical representation of gray values layout of individual pixels, resp. their colours or clarity levels. The horizontal axis represents gray level and the vertical number of pixels. The histogram serves for comprehensive information on image contrast and gray levels range.

#### HRF

HRF (HITACHI RASTER FORMAT) is a format of binary raster data. Their pixels are saved in tiles which are compressed in a packbits compression variant. In the TopoL only reading of this format is supported. It is used mostly as a format for scanning and vectorizing software of the mentioned trademark.

For a record on location (localization within the coordinate system) a help fiel with HFW extension can be used - this represents a convention used by ARCVIEW systems (so called worldfile).

As another auxiliary file a file with HFE extension is used. Here a generalized raster version is recorded.

## 9. I

### Content

Implicit project template  
Indexed

#### Implicit project template

An implicit template of projects is used for a new project creating when the template isn't set - for example if a new project creating is selected with New project button on the Project toolbar.

You can select an implicit template in a Templates dialog which serves to administration of template list. This dialog is accessible from the Tools menu, the Templates command.

#### Indexed

A raster type - s. also a colour raster. It is a raster with palette where pixels values are in fact indexes into colour table - palette.

## 10. J

### Content

JPEG compression  
JPG

#### JPEG compression

The JPEG is a sophisticated data compression based on the ISO (International Standards organization) commission and PEG (Photographics Expert Group) works. These commissions were founded to create standards for graphic formats transfer via communicating networks. JPEG is a shortcut from an English name Joint Photographic Expert Group. In 1988 a single method was selected which at compression achieved the best results. It was based on Discreet Cosine transformation. Between 1988 and 1990 this method was defined in detail, documented, tested and certificated.

A standard JPEG is created for a compression of colour TrueColor and grayscaled rasters. It process photos and real scenes in a good quality but this method isn't very useful for images containing inscriptions or more straight lines. JPEG is a loss compression which means that a decompressed image isn't identical to the original (there is also a JPEG compression without any loss). JPEG algorithm is designed so that it use the known limitation of human eye alias the fact that small colour changes are sensed not so exactly as small clarity changes. If you want to process an image with calculator, the image compressed by JPEG method will cause errors that can be a problem within further process. A ratio of compression quality to result image quality can usually be set by the user (in application). The compression ratio depends on the selected loss degree though in general it's better than with LZW compression.

JPEG compression is used in JPG and TIFF formats. With TIFF format you can use to advantage deviding of raster into smaller stripes, resp. tiles. Thus for reading of a specific viewport only it's not necessary to decompress all rows from the beginning of the raster.

#### JPG

JPG - raster files that are compressed with JPEGcompression, which is an international standard. JPG rasters are used to specific implementation of this standard, called JFIF. The first two bytes

of this format are hexadecimal \$ff, \$d8. The JPG format supports grayscale 8-bit rasters and TrueColor rasters. An advantage of this format is its spread and rather easy portability.

For a record on location (localization within the coordinate system) a help file with JGW extension can be used - this represents a convention used by ARCView systems (so called worldfile).

As another auxiliary file a file with JGE extension is used. Here the additive information on raster are recorded, particularly information on raster masking and a generalized raster version.

### Note

Files with JPG compression have to be always decompressed from the beginning - it's a uninterrupted bit flow. Thus this format isn't quite appropriate for a direct access to all the raster rows, particularly as for larger rasters. If you want to read only the part of a raster near the file end, it's necessary to decompress all previous rows of the raster. JPEG is a loss compression which means that a decompressed image isn't identical to the original one. It's a problem in the TopoL particularly if masked rasters are to be compressed. Because a masking in the TopoL is carried via reserved indexes of a gray level or palette, resp. via reserved R-channel level for TrueColor raster, after the decompression a šumy appear on interface of masked and non masked part even at minimum compression loss setting.

## 11. K

### Content

Cadastral maps  
Colinear transformation  
Compression  
KTP - descriptive file for Vtx, Vkm, Dkm export/Import

#### Cadastral maps

Podkladem pro vytvoření kladů katastrálních map byla data získaná z odd. Triangulační dokumentace Zeměměřického úřadu (ZÚ). Těmito daty jsou souřadnice S-JTSK rohů mapových listů měřítka 1:2880 souřadnicových systémů gusterbergského a svatoštěpánského. Původem těchto dat jsou tzv. mílové tabulky.

Protože vytvořené mapové listy nejsou na rozdíl od listů map bývalého pozemkového katastru absolutně stejné vykazuje jednotně připravená buňka s palcovým dělením oproti rozměru mapového listu rozdíl do 1 cm (ve skutečnosti). Tyto rozdíly by však neměly mít podstatný vliv na přesnost práce s kladem katastrálních map, které vznikly na podkladě údajů považovaných za jediný standard (z hlediska stanovení správných rozměrů mapových listů).

#### Kolineární transformace

At this transformation method angles aren't retained. A scale is changed in both directions independently. This transformation type requires at least four pairs of identical points. It's appropriate to use it for example for scanned air photos transformation.

#### Komprimace

It's a process at which a file size is reduced in one of the known methods. Raster compression can be loss or without loss where we get a raster identical to original after recompression of the file.

#### KTP - popisový soubor pro export/import Vtx, Vkm, Dkm.

Stručný popis syntaxe .Ktp souboru. Věty začínají znakem "ampersand", z klíčového slova je závazný jen první znak. Následuje seznam typu vět.

&*	Komentář
&Font	Převod čísel fontu
&Line	Převod kreslicích klíčů linií/Kokeš na atributy linií/TopoL

&Symbol	Převod čísel symbolů/Kokeš na barvy a značky/TopoL
&End	Konec souboru

Syntaxe parametrů vět Font, Line, Symbol je : <cislo>=<cislo> kde: <cislo> := [K/T]cislo t.j. číslo může předcházet (bez mezery) znak K nebo T, kde K ="Kokes" a T = "TopoL". Může se uvádět tvar "Ki = Tj" i "Tj = Ki", jedno i obě písmena mohou být vynechána, chybí-li obě, platí posledně zadaný "směr" přiřazení, Implicitní směr (na začátku souboru) je K = T.

Na straně TopoL může být 1 az 3 čísla, oddělená čárkou, tedy formálně: [T]j[j2[,j3]] význam j, j2, j3 je vysvětlen dále. Je-li výstupní hodnota daného přiřazení nulová znamená to, že příslušné grafické elementy nejsou vůbec do výstupu generovány. Na začátku každé věty je vynulována příslušná tabulka, takže do výstupu se uplatní pouze explicitně zadané transformace. Není-li některá věta uvedena, je naopak příslušná tabulka naplněna vhodnými implicitními hodnotami - zpravidla ve tvaru 1=1, 2=2 ,atd. Významy čísel i,j,j2,j3 pro jednotlivé typy vět:

&Font	i/j čísla fontu Kokeš/TopoL
&Line	i = kreslicí klíč/Kokes, j = barva/TopoL, j2 = značka (typ čáry), j3 = liniový symbol
&Symbol	i = č.symb./Kokes{S=...}, j = barva/TopoL, j2 = značka (č.symbolu)

## 12. L

### Content

Localization in coordinate system  
LZW compression

Localization in coordinate system  
S. Raster location

LZW compression

LZW is a sophisticated data compression based on work of the Lempel-Ziv & Welch. It provides an effective single-pass coding and decoding. This enables to decompress and simultaneously to display the given raster. The LZW algorithm transforms indexes of individual pixels into codes of variable distance that can be original values or codes of specific pixel sequence.

## 13. M

### Content

Masking

MEZ

Mozaic

MrSID compression

Multispectral (Multidimensional) image

Masking

The raster masking is an operation during which the set area of input raster is made transparent. An area for masking can be set with polygon of any shape, resp. with several polygons. At binary raster masking the masked areas are rewritten only with a value for the standardly transparent background. For other raster types masking a specific reserved level is used that doesn't appear

anywhere else within the raster. For 8-bit colour and grayscale rasters the 255 value is used, for 4-bit rasters the 0 value. For TrueColor rasters the R (red) channel of each pixel is crucial for transparency assessment. The masked part have the R channel value allways 0. With all formats except RAS there is an information on whether the raster is masked explicitly allways recorded in a auxiliary file (TFE for TIF, BPE for BMP etc.). With RAS format the reserved levels shouldn't appear even in nonmasked rasters.

#### MEZ

The file with \*.MEZ extension is a transfer file (Look Up Table). It is a auxiliary file of RAS format. It contains a table function for transfer of 256 possible pixel values into 1-255 levels. These result levels are interpreted either as gray tones or as indexes into raster palette. The file size is allways 256 bytes.

#### Mosaic

The mosaic is a composition of several mutually overlaying raster images into a single one without redundant information creating. The mosaic represents a "projection" of several rasters into a single one. The result raster imag should be identical to that in a map window, thus on several rasters overlay a pixel of the topmost displayed raster is impeached in the result raster. During mosaic-making even a resampling (pixel size modification) can take place.

#### MrSID compression

The MrSID are raster files compressed by so called "wavelet" compression with differentiation ability on several levels. This property enables to read raster data in a required differentiation with selective decompression of the required raster part only. The method was developed by the LizardTech © company the SDK developing tool of which was used for work in the TopoL. With using of this method the data can be read even in the best differentiation without necessity to decompress the whole raster. Thus you can avoid a memory and time demands at the whole raster decompression. Even very large rasters can be viewed in this way with satisfying answer at any differentiation. Compression ratio is mostly much better than with other compression methods, for example the JPEG compression.

#### Multispectral (Multidimensional) image

These are raster images which characterize the earth surface in several areas of the spectrum. Each point of the multispectral image is defined by arranged n-tuple  $(x_1, x_2, \dots, x_n)$  where  $x_i$  represents gray level value within  $i$  channal and a channel represent a specified part of the spectrum. Actually these are several geometrically identical rasters involving the given territory within different spectrum parts.

## 14. N

### Content

New features within TopoL in working with rasters

New features within TopoL in working with rasters

In the TopoL there are many new elements for working with rasters. These include new functions, extension of the existing operations utility, extended scale of the supported formats.

### Summary of new features

Raster in coordinate systems

To each raster an information on the coordinate system is assigned to which it's related - important particularly for an interpreting of coordinate location connected with the given raster. The raster can be now displayed in any map window without regard to its coordinate system. If need be, the raster is in the real time transformed into the map window coordinate system.

#### Raster borders

Border of rasters can be set individually for individual rasters or for their groups. Any line symbol can be selected.

#### Local menu for raster

If a raster is submitted into the project, it still bears an information on its coordinate system. It's also available to use the local menu with click of the right mouse button on the corresponding project element. Here the information on the given raster are accessible - "Properties" and also an offer of operations for the given raster. Those are geometric operations, image processing and help operations including a raster export.

#### Minimum and maximum scale for raster display

In legend of each map window you can define minimum and maximum scale of a map window in which the raster will be displayed.

#### New raster operations

- Vertical mirroring
- Mosaic according to map-sheets
- Raster cut along map sheets
- Change Colours of Raster by Sample
- Raster sharpening

#### Upgraded raster operations

- In general

All raster operations can be carried out with extended palette of input formats.

- Working with larger rasters

With all the raster operations rasters in the TIF and BMP formats can be created that don't have any limitation relevant to raster size as far as rows and columns number, even for TrueColor rasters.

- Raster transformation and Raster transformation in parts

At collection of control points for transformation key it's available to combine collection of points from different sources, for example from screen, from existing transformation table or from database table. In the same time the system begins automatically set a viewport for source coordinate reading after setting of the second control point.

- Raster localizing according to selected corner and width of whole file

Coordinates of *any* raster corner within the coordinate system can be set and a raster width can be specified automatically from the set density of scanning and original raster scale.

- Mozaic

An area for masking can be set via map-sheet of any supported mapsheet.

- Image processing - an operation modifying a colour presentation of raster

With all the dialogs for these operations (Gamma correction, Brightness and Contrast etc.) a window with raster preview is upgraded - it enables a fluent maximizing and shifting. Working with mouse wheel is supported.

- Display 3D

In the dialog for parameters setting of 3D view it's available to check setting at modification of vertical and horizontal view angle in a small preview window with rotating panel. The 3D view display is solved as a dialog in which you can tune the set display parameters and to carry out a redisplay.

- Palette editing and Transfer operation

Both the operations enable the immediate control of a result in the preview panel. With transfer operation you can immediately control a result of transfer standard setting. With palette editing you can with click on a pixel in the preview window set an index of the corresponding colour in palette and edit the colour later.

- Raster names reading

The system works even if you have some windows in a different coordinate system from the data coordinate system. If you click with the left button on a raster, a dialog appears with display of names of all the rasters that interfere in the given point. In the dialog you can modify the display of this rasters and display its characteristics.

- Raster operations and vector data

Raster operations related to vector data can be carried even with other supported formats then the TopoL block is. Those are for example operations as DMT raster creating from points and lines or raster masking according to areas. Thus for example data in the ShapeFile format can be used.

- Import XYZ grid

The new variant of import from text file doesn't suppose points to create a net with regular pitch which corresponds to pixel size in the Y, resp. X direction. A digital raster model is created via triangulation where values for raster pixels, for which any height information isn't recorded in the file, are extrapolated.

#### Newly supported raster formats

The TopoL newly supports, i.e. can *directly workwith*, many other standard formats:

- Geotiff
- Other TIFF format subtypes

Particularly a support of other compression methods as JPEG and ZIP. Further the raster files with higher number of components for a single pixel than R, G, B and files with different components colour interpreting as for example YcbCr.

- HRF
- SID
- COT
- RGB
- RLE
- ECW
- PCX

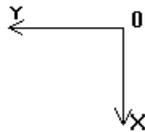
# 15. O

## Content

Orientation of coordinate system axis  
Eight-bit raster

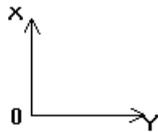
### Orientation of coordinate system axis

The TopoL supports many projection and geographical systems in which vector data and raster data are localized. Some data entail an information on the coordinate system, to other data the information is assigned by application from outside. Also map windows can be set into any supported system. It's important to know that the S-JTSK coordinate system differs from the others in coordinate axis orientation.



Axis orientation in S-JTSK

In this system an origin of axis and minimum values of coordinates are in the top right.



Axis orientation in other systems than S-JTSK, for example Gauss-Krueger

In this system an origin of axis and minimum values of coordinates are in the bottom left.

### Eight-bit raster

It is a grayscale or colour raster file pixels of which have the 8-bit size, i.e. 1 byte. Pixels can reach values from 0 to 255 and a raster image can have 256 tones of gray resp. colours.

# 16. P

## Obsah

PAL

Palette

PAM

PCX

Pixel

Similarity transformation

Named viewports

Secondary polynomial transformation

Tertiary polynomial transformation

Colour transfers

Symbol transfers

Attached files

### PAL

The \*.PAL file is a palette file (Color Look Up Table) that is characterized by a colour raster. It is a auxiliary file of the RAS format. It contains RGB channels for individual colours. Its size depends on number of colours of which there can be up to 255.

### Palette

With a palette we understand a table - filed that define individual colours within its items. The application refers to this items via index as a sequence number of colour in palette. Graphical devices have a palette as well. Number of colours in the Windows system palette depends on the system software setting and on hardware possibilities. At 8-bit colour depth it is 256 colours.

### PAM

The PAM is a file containing an original palette of imported raster file (for example BMP, TIFF) that is contained in a heading. The \*.PAM file serves for reset of this palette, if you export such raster file back into its original format. The PAM is created only if the "Retain palette" control button is checked at the import of the given file.

### PCX

The PCX format is a raster data format with quite simple bytes compression (so called run/length alias pacbits). It is a formate developed by the Zsoft Corporation © comp. Used mainly by PC Paintbrush software <sup>TM</sup>. There are two-colour, 16-colour, 256-colour and 16 millions-colour (TrueColor) types.

For a record on location (localization within the coordinate system) a auxiliary file with PXW extension is used - it is a convention used by ARCView systems (so called worldfile).

As another auxiliary file a file with PXE extension is used. Here the additive information on raster are recorded, particularly information on masking and raster generalized version.

## Pixel

The pixel represents an image point. It's the least discrete element encountered in a raster image. It's also an element of matrix creating a digitalized image.

In case of binary images one pixel corresponds to one bit and have two states background/drawing. In case of raster grayscale and colour images the pixel can reach a value from 1 to 255 (resp. 0-15), i.e. it occupies one byte (resp. 4 bytes). In case of TrueColor rasters for one pixel 3 bytes are reserved that bear an information on R, G, B channels. Some raster formats support another colour models as well, for example CMYK, YCbCr etc.

## Similarity transformation

At a transformation by this method the system carries shifting, rotating and modification of the scale in both the directions. This transformation type requires at least two pairs of identical points. It's used for digitalized map transformation.

## Named viewports

The named viewports are "views" in map windows defined by name, size, location and coordinate system. They serve to easy transition among views of the data in map windows.

Administration of the named viewports is carried out in the Viewports dialog, that is accessible from the View menu, Named viewports administration command.

## Secondary polynomic transformation

The method requires at least six pairs of identical points. Doesn't retain lines.

## Tertiary polynomic transformation

The method requires at least ten pairs of identical points. Doesn't retain lines. It's appropriate for transformations of distorted satellite photos.

## Colour transfers

The colour transfers are tables which transfer a value from the database of vector objects into colour. They serve for colour obtaining of vector objects at their display. The colour transfers are a part of the project.

Colour transfers can be created for the data of the integral number, real number and text sort and for logical values (Yes-No). In transfers created according to the text values capital letters and small letters are recognized. The colour transfers can be either tables of individual values or tables of intervals (s. Transfer types). A special transfer is the Colour transfer according to TopoL.

Administration of the colour transfers in the project is carried via the Colour transfers dialog accessible from the Tools menu, Colour transfers command.

## Symbol transfers

The colour transfers are tables which transfer a value from the database of vector objects into a symbol. They serve for symbol obtaining of vector objects at their display. The symbol transfers are a part of the project.

Colour transfers can be created for the data of the integral number, real number and text sort and for logical values (Yes-No). In transfers created according to the text values capital letters and small letters are recognized. The colour transfers can be either tables of individual values or tables of intervals (s. Transfer types). A special transfer is the Symbol transfer according to TopoL.

Administration of the symbol transfers in the project is carried via the Symbol transfers dialog accessible from the Tools menu, Symbol transfers command.

## Attached files

External files can be attached to the project. These files aren't a direct part of the project, there is only a reference to them in the project. For references creating a directories substitution is used.

Administration of the files attached to the project is carried in the PfAttached files dialog accessible from the Project menu, Attached files submenu, Modify list of attached files command.

## 17. R

### Content

RAK

RAS

Raster

RGB

RLE

### RAK

The compressed version of the RAS internal format. The TopoL 2001 enables to work directly with the RAK format without decompression to the disc space. However the RAK format isn't appropriate for a direct access to the file that is needed to raster rotating or transformation. Then a temporarily decompressed copy of the raster is created automatically. The compression is effective particularly for binary raster data. For a mass conversion from and into the RAK format the "Compression" and "Decompression" operations in the "Help operations" can be used.

### RAS

The internal raster format of the TopoL used as well by software products of ATLAS and GEPRO companies (Kokes etc.). It can be arranged in rows or in tiles. The tile variant can be compressed with the "packbits" compression. Because of compatibility it's not possible to create rasters larger than with 65,520 rows or columns. The RAS format has a contingent generalized variant of raster for quick display saved directly in the RAS file. The format uses many auxiliary files, particularly PAL, PAM, HST and MEZ. The RAS have its location (localization in the coordinate system) saved directly in the RAS file. The RAS heading has a fixed length of 512 bytes size.

At creation of any new raster the system automatically creates a generalized raster version, though only at fulfilling of certain conditions. The created raster must be a 2 version raster size of which empirically exceeded the set limit. Generalization can be carried out with the Generalization command in the auxiliary operations with rasters.

The RAS format supports all raster subtypes, i.e. binary, grayscaled (four and eight-bit), colour (four and eight-bit), TrueColor and moreover DMT (two and four-bytes).

### Raster

The raster is a set of image data in the matrix of rows and columns. Each cell of the matrix is uniquely defined by its coordinates and bears an information on colour resp. gray value in the given point. We differentiate these following types of raster images:

- binary
- grayscaled
- colour
- True Color
- DEM

The TopoL uses its own RAS (resp. RAK) raster format. Besides it supports many other standard formats (which means it can work with them):

- TIFF
- BMP
- CIT
- JPG
- GIF
- PCX
- HRF
- SID
- COT
- RGB
- RLE
- ECW

Most of the existing formats is connected to a software or hardware maker who adapted the given format to his needs as much as possible. However all formats have a specific header that uniquely identifies the given format and in which the basic data on a raster are, as for example colour depth, number of rows and columns, pixels saving method (tiles, stripes etc.), used compression method, resp. palette of raster coordinate location. Besides there are vlastní pixels in the raster file that can be saved in various ways - in rows, columns, tiles, compressed, noncompressed etc.

With some formats a raster size is limited because of specific reasons, for example a compatibility with older software versions. With the RAS and PCX formats the rows and columns number is limited to 65,520. Most of other rasters don't have a limited size, though in the TopoL you can create rasters size of which as a file don't exceed 2GB.

## RGB

The RGB format is a raster data format of the INTERGRAPH Corporation ©. Its heading contains basic data on raster image. It also contains information on a file localization in the coordinate system. It is used for TrueColor raster data saving. It's not compressed.

As an auxiliary file the file with RBE extension is used. Here the additive information on raster are recorded, particularly information on auxiliary palette for display in regimes with lower colour depth than the HiColor one and raster generalized version.

Pixels of the raster can be then saved in rows or in columns. An origin, from which data are saved, can be any raster corner. The raster can be in some cases rotated on  $\pm 90$  degrees compared to a standard way of saving rows from top to bottom. The TopoL is able to import all variants, but it transfers a localization only in some cases. For direct working with such raster only the variants are available with rows saved horizontally from top to bottom. A data origin can be either in left or in right corner.

## Note

There is also a variant of the format where pixels are saved in tiles. However in this case only those types of rows and columns saving are supported that don't require transformation to standard saving of pixels in rows from top to bottom.

**RLE**

The RLE format is a raster data format of the INTERGRAPH Corporation ©. Its heading contains basic data on raster image. It also contains information on a file localization in the coordinate system. It is used for binary raster data saving. It uses a packbits compression variant.

As an auxiliary file the file with RBE extension is used. Here the raster generalized version is recorded.

Pixels of the raster can be then saved in rows or in columns. An origin, from which data are saved, can be any raster corner. The raster can be in some cases rotated on  $\pm 90$  degrees compared to a standard way of saving rows from top to bottom. The TopoL is able to import all variants, but it transfers a localization only in some cases. For direct working with such raster only the variants are available with rows saved horizontally from top to bottom. A data origin can be either in left or in right corner.

## 18. S

**Content****SID**

Coordinate attached raster

Spectral band (channel)

Standard projects template

Raster state

Directories substitution

Synchronized map windows

**SID**

The SID is an extension of raster data in the MrSID format for compressed grayscaled and TrueColor raster images. These are rasters compressed in so called "wavelet" compression with differentiation ability on several levels.

For a record on location (localization in the coordinate system) an auxiliary file with SDW extension is used - this is a convention used by ARCView systems (so called worldfile).

As an auxiliary file a file with SDE extension is used. Here the additive information on raster are recorded, particularly information on grayscaled raster transfer.

**Coordinate attached raster**

The coordinate attached raster is a raster location of which in the coordinate system we know. The raster we want to open in the TopoL must be coordinate attached. Failin which the system at first requires its locating. Coordinate attachment of the raster can be found from the information on given raster where the minimum and maximum coordinates are recorded in directions of both the axis. These data are always related to the corresponding corner pixels of the raster centres.

**Spectral band (channel)**

This is a part of the multispectral (multidimensional) image, that characterise the earth surface in a spectrum part. It's represented by a single raster grayscaled file.

### Standard projects template

The standard projects template is a template, which is a component of the TopoL 2001 program, is used as default for an installation and can't be eliminated from the project templates list.

### Stav rastru

We differentiate the following raster states:

- coordinate attached - raster location in the coordinate system is known
- coordinate unattached - the raster isn't position specified

V systému TopoL je možno zobrazit jen souřadnicově připojený rastr. Připojení rastru je charakterizováno minimální a maximální hodnotou souřadnic, které odpovídají ploše pokryté daným rastrem.

### Directories substitution

The directory substitution is a replacement of part of a path to file (directory) with a symbolic name. The substitution contains unique name and path or part of path to file (directory).

The directories substitution serves to data portability - instead of the real path to all files (directories) only the paths, parts of which are replaced with a symbolic name closed by I symbols, are saved into the project. It then the project is transferred into another directory (for example at transfer into another calculator), it's enough to change a value of the substitution and the whole data structure can be reloaded without any problem from another directory without change of the setting on many places.

Substitution name: sample, replaced path d:\Data\

Path d:\Data\TopoL2001\Sample.xml will be saved in the project as |sample|TopoL2001\Sample.xml

Substitution of directories are set in the *Environment setting* dialog in the *Directories substitution* section. The dialog is accessible from the *Tools* menu, the *Options...* command.

### Synchronized map windows

Synchronized map windows "retain" a constant viewport - if a viewport is modified within one of the synchronized map windows, this viewport is at the same time set in all the other map windows synchronized with it.

Synchronized map windows can be divided into several groups - viewport modification will prove only within a single group.

## Note

Administration of groups of synchronized map windows is carried in the Windows synchronization dialog, accessible from the Map window menu, the Synchronization command.

# 19. Š

## Obsah

Project template  
Grayscaled raster

### Project template

The project template is used for a new project creating. The template can be any project within TopoL 2001 included in the template list. The list of project templates is a part of the program, it's not a part of any project.

## Note

Administration of templates is carried out in the Templates dialog. This is accessible from the Tools menu, the Templates command.

Creating of a new project based on a template is carried out so that the related template is opened as if it was a project (all the project components are loaded - data, transfers, libraries of symbols and styles etc.) and the project is labeled as a new, unsaved on the disc.

There are special kinds of templates: standard template and default template.

### Šedotónový rastr

The grayscaled raster contains pixels of 1 byte (resp. 4-bits) size which bear an information on gray tone (level 0-255, resp. 0-15). An interpretation of such raster in the TopoL depends on the content of auxiliary transfer file (\*.MEZ for the RAS format, \*.TFE, \*.GFE, \*.SDE etc.) that transforms pixel values on gray levels.

## 20. T

### Obsah

TIF  
Transfer  
TrueColor raster  
Transfer types

#### TIF

The TIFF(TAG IMAGE FILE FORMAT) is a format of raster data for compressed and noncompressed binary, grayscaled, colour and TrueColor raster images. All files of the TIFF format (\*.TIFF) have a header of variable length in which one of several supported compression types is recorded. Values stored in a raster file doesn't have to be in the Intel format. The TopoL supports also reading of this variant. The pixels are saved either in tiles or in stripes that contain a specific number of rows. It's one of the most widespread raster formats. There are many subtypes of this format that differ in combination of used compression method, colour pixel depth and other factors, which may be sometimes a setback at data transfer from one system into another. The TopoL supports quite wide scale of TIFF format variants that include compressions from packbits, CCITT Group 3, 4, LZW, ZIP and JPEG. They are supported even for a record, tile and row forms of pixels saving. Also the rasters with different components number for pixel (like CMYK) can be loaded, resp. with different colour model than RGB - YcbCr.

For a record on location (localization in the coordinate system) an auxiliary file with SDW extension is used - this is a convention used by ARCView systems (so called worldfile).

As an auxiliary file a file with SDE extension is used. Here the additive information on raster are recorded, particularly information on masking and raster generalized version.

#### Transfer

An auxiliary file of the transfer with MEZ extension saves a transfer table of pixel values on gray levels or sequence number of a colour in raster palette.

#### TrueColor raster

In case of TrueColor rasters 3 bytes are reserved for one pixel, that bear an information on R, G, B channels.

#### Transfer types

Transfers are of two kinds:

Transfer according unique values

In the transfers according to unique values a single colour (symbol, style) is assigned to each concrete value that have to be unique within the transfer. To each transfer item of this type its description can be assigned as well.

### **Note**

Because of rounding this transfer type isn't appropriate for real numbers.

Transfer according to interval

In the transfers according to intervals a single colour (symbol, style) is assigned to each value interval. Intervals are closed from the left, opened from the right and must not overlay. To each transfer item according to interval two descriptions can be assigned - one for each interval border.

### **Note**

This transfer type can't be used for logical values - intervals make no sense in this case.

## **21. U**

### **Content**

Raster location

Raster location

By raster location (localization) considering the coordinate system we understand the minimum and maximum coordinate in both the axis direction. These data allways relate to centres of the corresponding corner pixels of the raster. The location of each raster pixel to the coordinate system is uniquely specified for the coordinate located raster. Types of the raster location record differs for different formats of raster data. Except a small fraction of the standard formats (GeoTiff for example) no information on the coordinate system to which the location relates to are recorded in the raster, thus an interpretation of these data depends on a specific coordinate system to which the raster was assigned in the TopoL project. The raster can be located via raster transformation and "Raster location" operation.

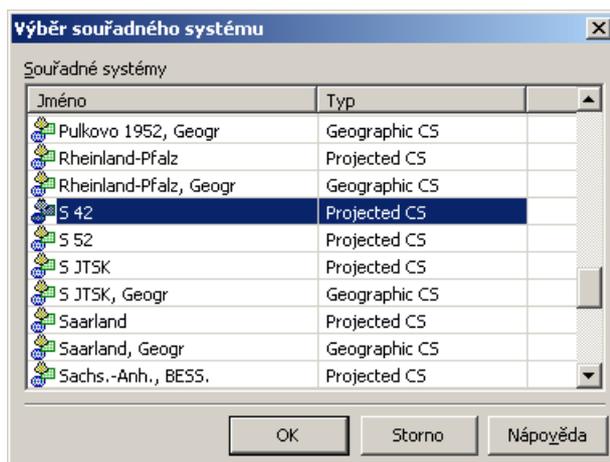
## **22. V**

### **Obsah**

Selection of coordinate system  
Selecting rectangle with fixed aspect ratio  
Selecting rectangle with variable aspect ratio  
New rasters creating

Selection of coordinate system

The selection of a coordinate system is carried out in this dialog.



Selection of coordinate system dialog

In the first column of the *Coordinate systems* table names of the supported coordinate systems are shown, in the second column you can find their type - *Geographic CS* (geographic coordinate system) or *Projected CS* (projection coordinate system).

You can select a coordinate system with its tagging in the table and with pressing of OK button, resp. with doubleclick on the required coordinate system.

## Note

The coordinate systems can be classified according to its name or type with click on a header of the table column with coordinate systems.

### Selecting rectangle with fixed aspect ratio

It is a graphic tool - rectangle, sides of which have the same aspect ratio as sides of the display area of the map window. A selecting rectangle with unfixed aspect ratio is used mostly for graphically set modification of a viewport within the map window (Zoom + and Zoom - commands from View menu).

The selecting rectangle can be controlled with mouse and keyboard:

Key/mouse button	Meaning
Esc	Canceling of the selection with rectangle command.
Enter/Left button	Confirming of the selection with rectangle.
Insert/Middle button	Switch between the size modification mode and the rectangle shift.
Right button	Local menu - context menu.

### Selecting rectangle with variable aspect ratio

It is a graphic tool - rectangle sides of which have a variable aspect ratio. The selecting rectangle with variable aspect ratio is used mostly for selectin of graphic objects in the map window (for example Object attributes command from Map window menu).

The selecting rectangle can be controlled with mouse and keyboard:

Key/mouse button	Meaning
Esc	Canceling of the selection with rectangle command.
Enter/Left button	Confirming of the selection with rectangle.

<b>Key/mouse button</b>	<b>Meaning</b>
Insert/Middle button	Switch between the size modification mode and the rectangle shift.
Right button	Local menu - context menu.

New rasters creating

At almost all operations with raster data an input raster can be saved in one of the RAS, TIFF or BMP formates. The raster format, its name, subtype and compression are set in a dialog for input raster selecting

The TIFF and BMP formats are so quite equivalent formats with internal RAS format. These raster typec can be created even at such operations as masking, mosaic creating, raster transformation etc. At the TIFF format you can also use all types of the supported internal compression of this format. Thus you can directly work with this highly compressed rasters without need to decompress them on the disc.