

GEOGRAFICKÁ KARTOGRAFIE

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Otázky ze cvičení I

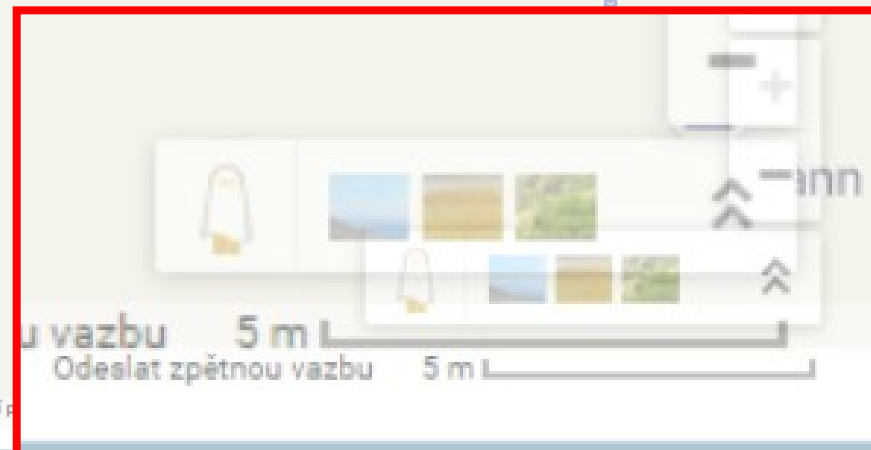
- Všechny náležitosti protokolu! (metodika!
Zdroje!)
 - ▣ Metodika = způsob práce; lépe rozvést
- Jen www odkaz není citace!
- Pravopis + formální způsob vyjadřování (pozor na neopodstatněné soudy)
- Měřítka
 - ▣ jedná o grafické měřítko a zobrazená grafická délka nese hodnotu...

Otázky ze cvičení II

- Tematická nadstavba (např. cyklo, doprava, apod.)
- Legenda
 - legenda v Google/Bing mapách až na výjimky (barvy provozu) se nevyskytuje. To, že využívají google mapy ikonické znaky, které mohou mít popis v pop-up okně, neznamená, že mají legendu
 - Do legendy nespadá měřítko a směrovka!

Měřítko

rozlišení (px)	rozlišení (cm)	počet px/1cm	velikost 1 pixelu (cm)	délka úsečky (cm) graf. měřítko v Google maps (5 m)	číselné měřítko 1:x	měřítko
1920x1080	40x22	48,00	0,0208	2,8	1,7857	1cm ≈ 48px ≈ 1,7857m
1366x768	40x22	34,15	0,0293	2,9	1,7241	1cm ≈ 34,15px ≈ 1,7241m
1280x720	40x22	32,00	0,0313	3,1	1,6129	1cm ≈ 32px ≈ 1,6129m
1024x768	40x22	25,60	0,0391	3,9	1,2821	1cm ≈ 25,6px ≈ 1,2821m
640x480	40x22	16,00	0,0625



Kontrolní otázky ArcGIS

- Jakým způsobem se přidá nová vrstva?
- Jakým způsobem změníte barvu liniového prvku?
- Jakým způsobem znázorníte kvantitativní data ploch pomocí barevné stupnice?
- Jakým způsobem znázorníte body, kdy velikost bodu bude udávat populační velikost sídla?
- Jakým způsobem zeditujete lomové body?

Algoritmy

- ArcGis nabízí využití různých generalizačních algoritmů
- Než nějaký algoritmus (ale i jiný nástroj) využijete, je nutné si nejprve zjistit na jakém principu funguje
 - ▣ K tomuto slouží help/nápověda přímo v programu
 - ▣ ArcGIS Help na stránkách ESRI
- Více se tématem zabývá předmět Analytická kartografie

□ <http://resources.arcgis.com/en/help/main/10.2/index.html#//00700000002r000000>



ArcGIS Help 10.2, 10.2.1, and 10.2.2

FEEDBACK | PRINT | EMAIL

Resource Center

- Desktop
 - Mapping
 - Editing
 - Geoprocessing
 - Introduction
 - Commonly used tools
 - Finding tools
 - Executing tools
 - Managing tools and toolboxes
 - Creating tools
 - ModelBuilder
 - Sharing geoprocessing workflows
 - Python
 - ArcPy
 - Environment settings
 - Tool reference
 - Introduction
 - Geoprocessing tools supplementary topics
 - 3D Analyst toolbox
 - Analysis toolbox
 - Aviation toolbox
 - Aviation Data Management toolbox
 - Aviation OIS toolbox
 - Bathymetry toolbox
 - Business Analyst toolbox
 - Cartography toolbox
 - An overview of the Cartography toolbox
 - Cartography toolbox licensing

An overview of the Generalization toolset

Desktop » Geoprocessing » Tool reference » Cartography toolbox

Contains tools that simplify or refine features for display at smaller scales.

	Description
Aggregate Points	Creates polygon features around clusters of proximate point features.
Aggregate Polygons	Combines polygons within a specified distance of each other into new polygons.
Collapse Dual Lines To Centerline	Derives centerlines from dual-line (or double-line) features, such as road casings, based on specified width tolerances.
Collapse Road Detail	Collapses small, open configurations of road segments that interrupt the general trend of a road network, such as traffic circles, for example, and replaces them with a simplified depiction.
Delineate Built-Up Areas	Creates polygons to represent built-up areas by delineating densely clustered arrangements of buildings on small-scale maps.
Create Cartographic Partitions	Creates a mesh of polygon features that cover the input feature class where each polygon encloses no more than a specified number of input features, determined by the density and distribution of the input features.
Merge Divided Roads	Generates single-line road features in place of matched pairs of divided road lanes.
Simplify Building	Simplifies the boundary or footprint of building polygons while maintaining their essential shape and size.
Simplify Line	Simplifies lines by removing extraneous bends while preserving essential shape.
Simplify Polygon	Simplifies polygons by removing extraneous bends while preserving essential shape.
Smooth Line	Smooths sharp angles in lines to improve aesthetic or cartographic quality.
Smooth Polygon	Smooths sharp angles in polygon outlines to improve aesthetic or cartographic quality.
Thin Road Network	Generates a simplified road network that retains connectivity and general character for display at a smaller scale.

Příklad: Simplify Line

□ <http://resources.arcgis.com/en/help/main/10.2/index.html#/Simplify-Line/0270000000100000>

Simplify Line (Cartography)

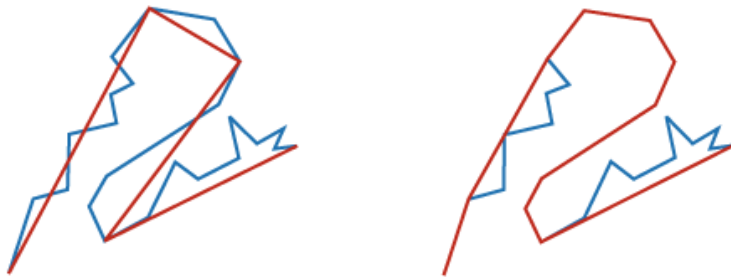
Desktop » Geoprocessing » Tool reference » Cartography toolbox

Summary

Simplifies lines by removing extraneous bends while preserving essential shape.

[Learn more about how Simplify Line works](#)

Illustration



POINT REMOVE

BEND SIMPLIFY

— ORIGINAL
— SIMPLIFIED

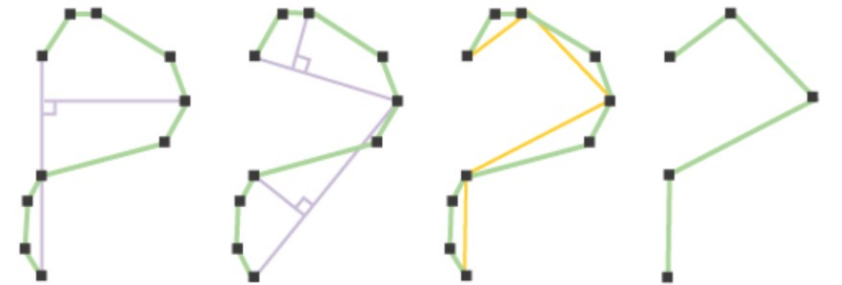
Usage

- There are two simplification methods:
 - The **point remove** method is faster but less refined. It removes redundant vertices. Use this method for data compression or more coarse simplification. The angularity of the resulting line increases significantly as the tolerance increases, so the result may be less aesthetically pleasing than the input.
 - The **bend simplify** method is slower but typically produces results that are more faithful to the original features. It operates by eliminating insignificant bends along lines. Use this method for more refined simplification.

Choosing which operator to use

Point remove

The point remove option applies a published algorithm (Douglas and Peucker, 1973) with enhancements a line and removes all other points. The algorithm begins by connecting the endpoints of a line with a trend line and removes all points that are farther from the trend line than the tolerance are eliminated. The line is then divided by the vertex farthest from the trend line, process continues until all vertices within the tolerance are eliminated.



1ST TREND LINE 2ND TREND LINE 3RD TREND LINE RESULTING ARC

— SIMPLIFICATION TOLERANCE

Point remove is efficient for data compression and for eliminating redundant details; however, the line the line. Use point remove for relatively small amounts of data reduction or compression and when you don't

Bend simplify

Bend simplify applies shape recognition techniques that detect bends, analyze their characteristics, and

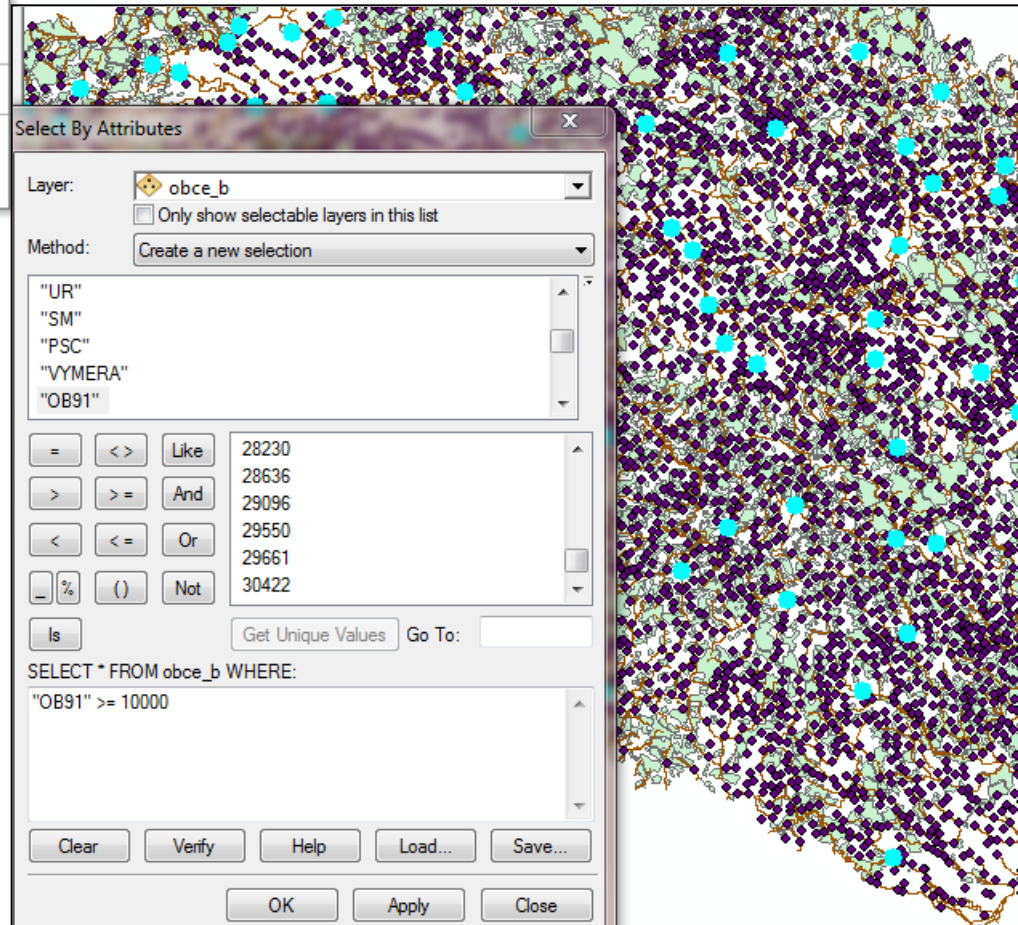
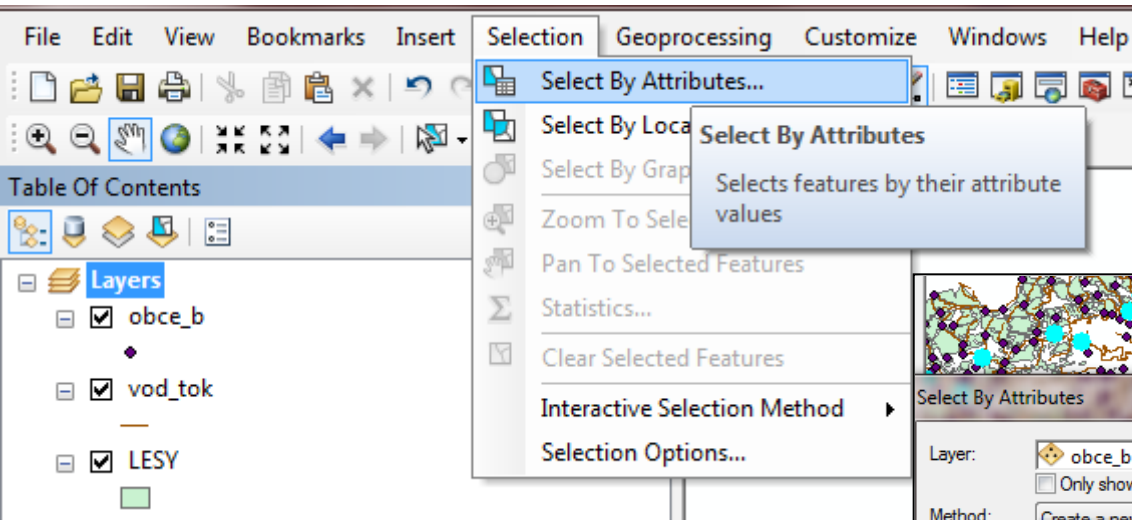
Funkčnost jednotlivých algoritmů

The image shows the ArcToolbox interface in ArcGIS. The 'Generalization' toolset is expanded and highlighted in yellow. The 'Simplify Line' tool is selected, and its dialog box is open. The dialog box shows the following settings:

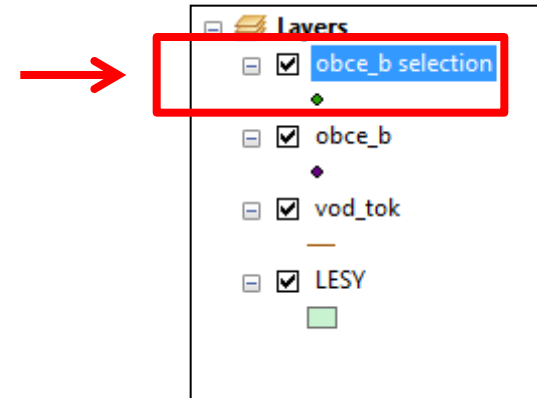
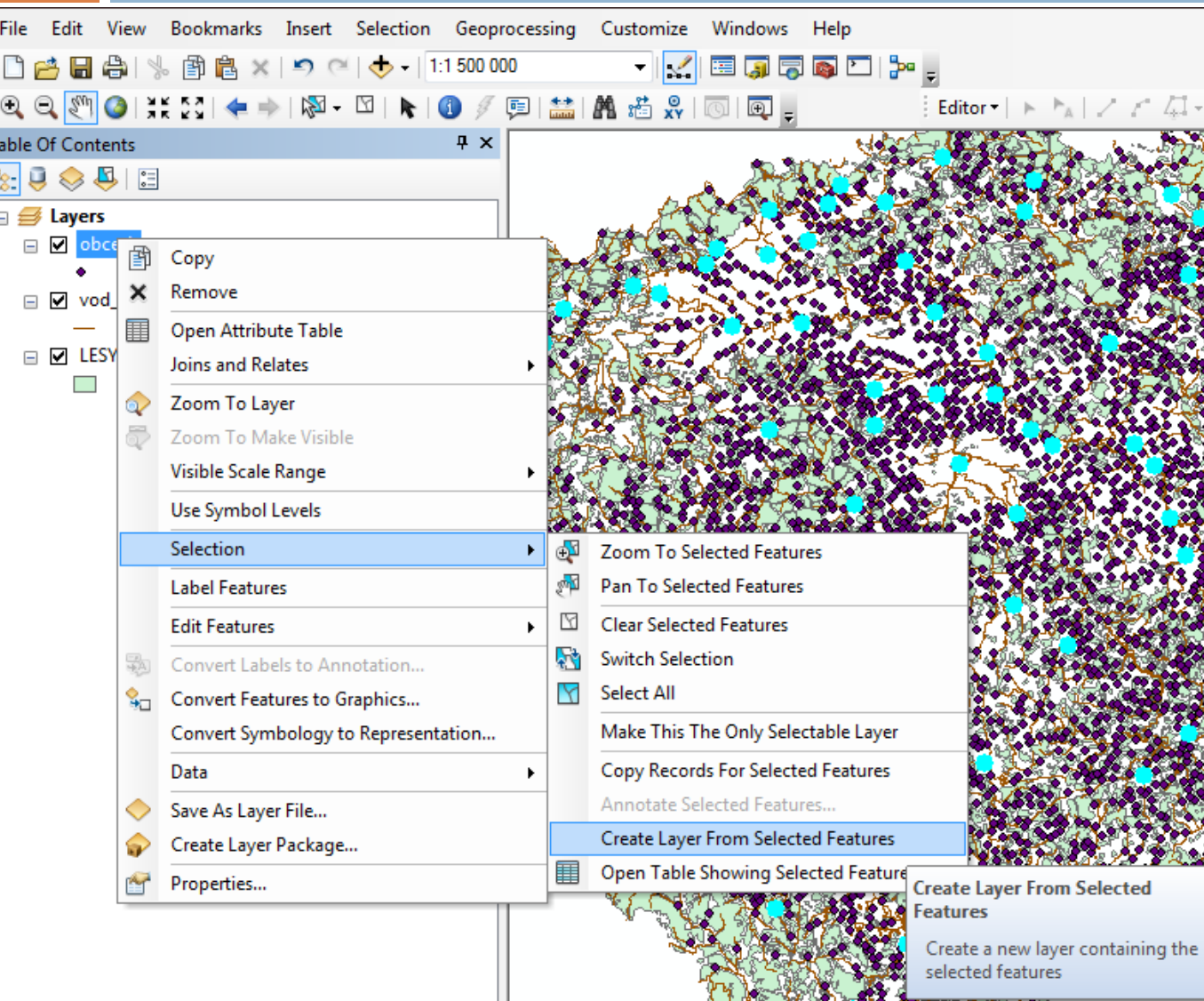
- Input Features: vod_tok
- Output Feature Class: C:\Users\Documents\ArcGIS\zjednodušená linie.shp
- Simplification Algorithm: POINT_REMOVE (selected)
- Maximum Allowable Offset: 500 Meters

The dialog box also shows a list of available algorithms: POINT_REMOVE, BEND_SIMPLIFY, and MAXIMUM_ALLOWABLE_OFFSET.

Select by...



Create layer from selected features



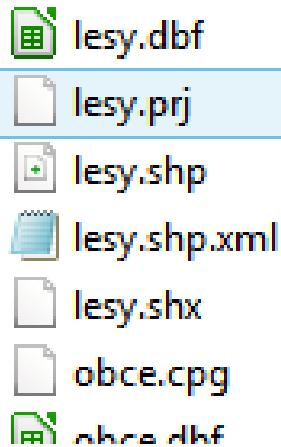
Export data

The screenshot shows the ArcGIS Desktop interface. The main map area displays a dense collection of purple and cyan points. A context menu is open over the 'obce_b' layer in the Table of Contents. The menu options include: Copy, Remove, Open Attribute Table, Joins and Relates, Zoom To Layer, Zoom To Make Visible, Visible Scale Range, Use Symbol Levels, Selection, Label Features, Edit Features, Convert Labels to Annotation..., Convert Features to Graphics..., Convert Symbolology to Representation..., Data, Save As Layer File..., Create Layer Package..., and Properties... The 'Data' option is highlighted, and a sub-menu is open showing: Repair Data Source..., Export Data..., Export To CAD, Make Permanent, View Item Details, and Review/Rematch Addresses... The 'Export Data...' option is highlighted in the sub-menu.

The 'Export Data' dialog box is shown. The 'Export:' dropdown is set to 'All features'. The 'Use the same data as' section has three radio buttons: 'this layer's source data' (selected), 'the data frame', and 'the feature dataset you export the data into (only applies if you export to a feature dataset in a geodatabase)'. The 'Output feature class:' text box contains the path 'F:\joc-geodata\Export_Output'. The 'OK' and 'Cancel' buttons are at the bottom.

The 'Saving Data' dialog box is shown. The 'Look in:' dropdown is set to 'Home - Documents\ArcGIS'. The 'Name:' text box contains 'Export_Output'. The 'Save as type:' dropdown is set to 'File and Personal Geodatabase feature classes'. A red box highlights the 'Shapefile' option in the dropdown menu. The 'Save' and 'Cancel' buttons are at the bottom.

Dílčí soubory vrstvy v ArcGIS



Každá vrstva v ArcGIS s sebou nese několik souborů:

.dbf – atributová tabulka

.prj – souřadnicový systém dat

.shp – geometrie prvků

.shp.xml – metadata vrstvy podle standardu XML

.shx – vazba mezi atributy a geometrií

...

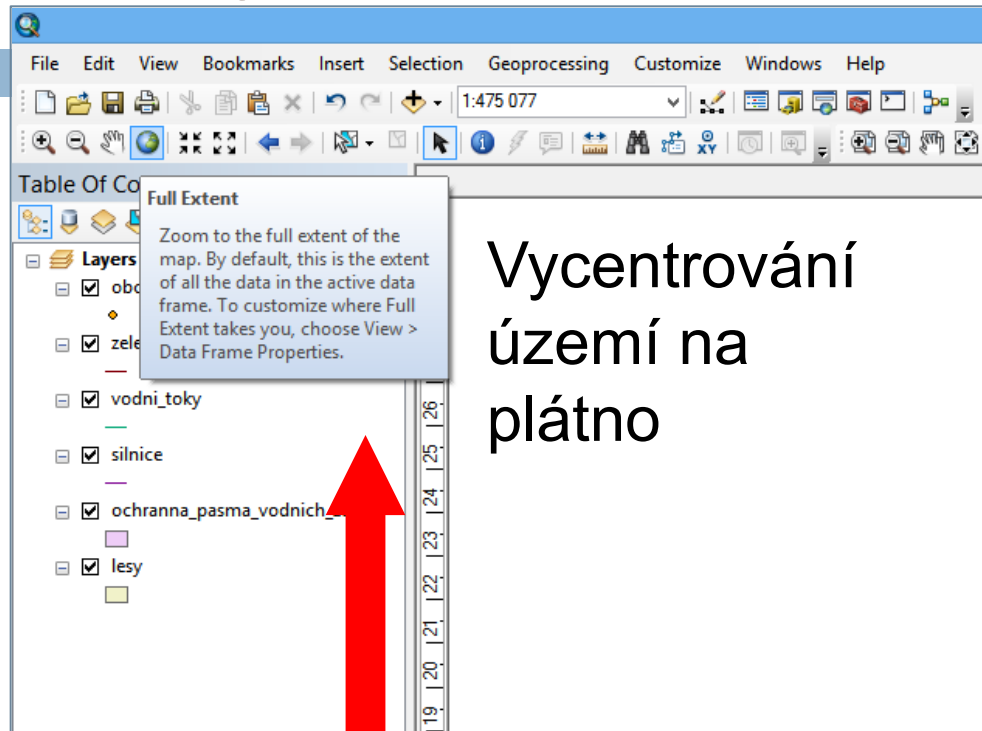
Export mapového výřezu I.

Měřítko podkladové mapy = 1:250 tis.

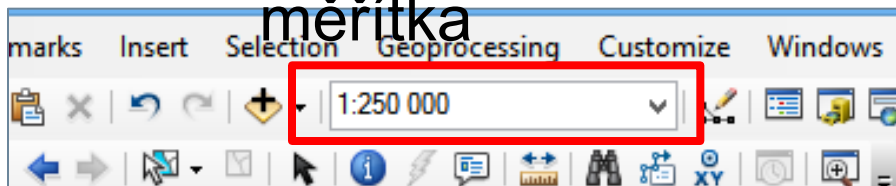
Generalizační postupy

Měřítko odvozené mapy = 1:500 tis.

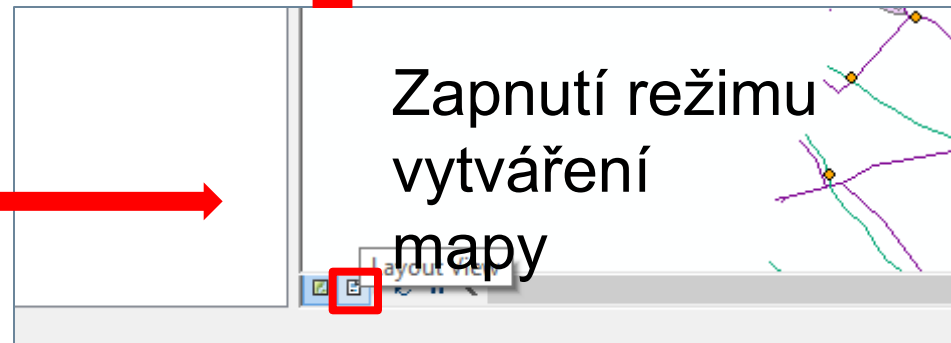
Export dat/mapového výřezu

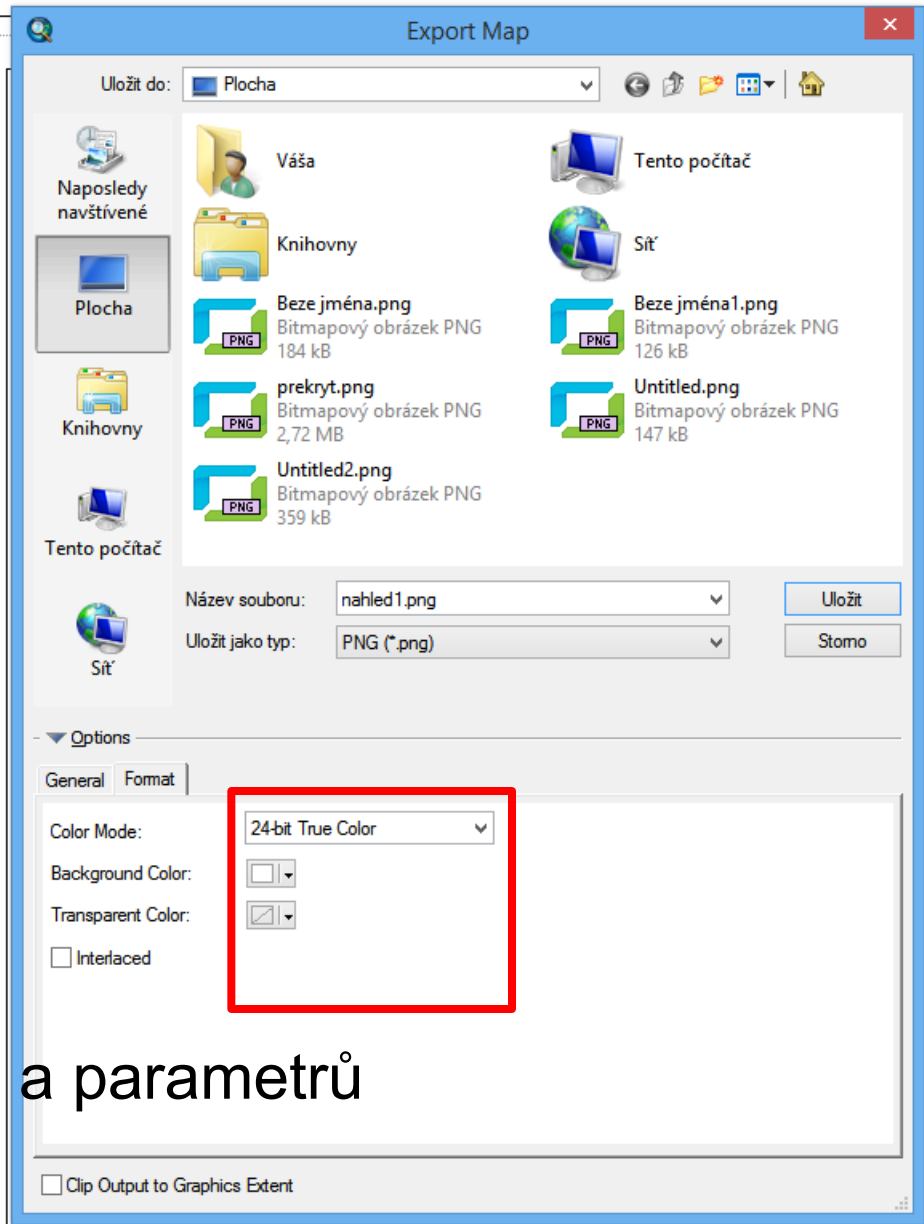
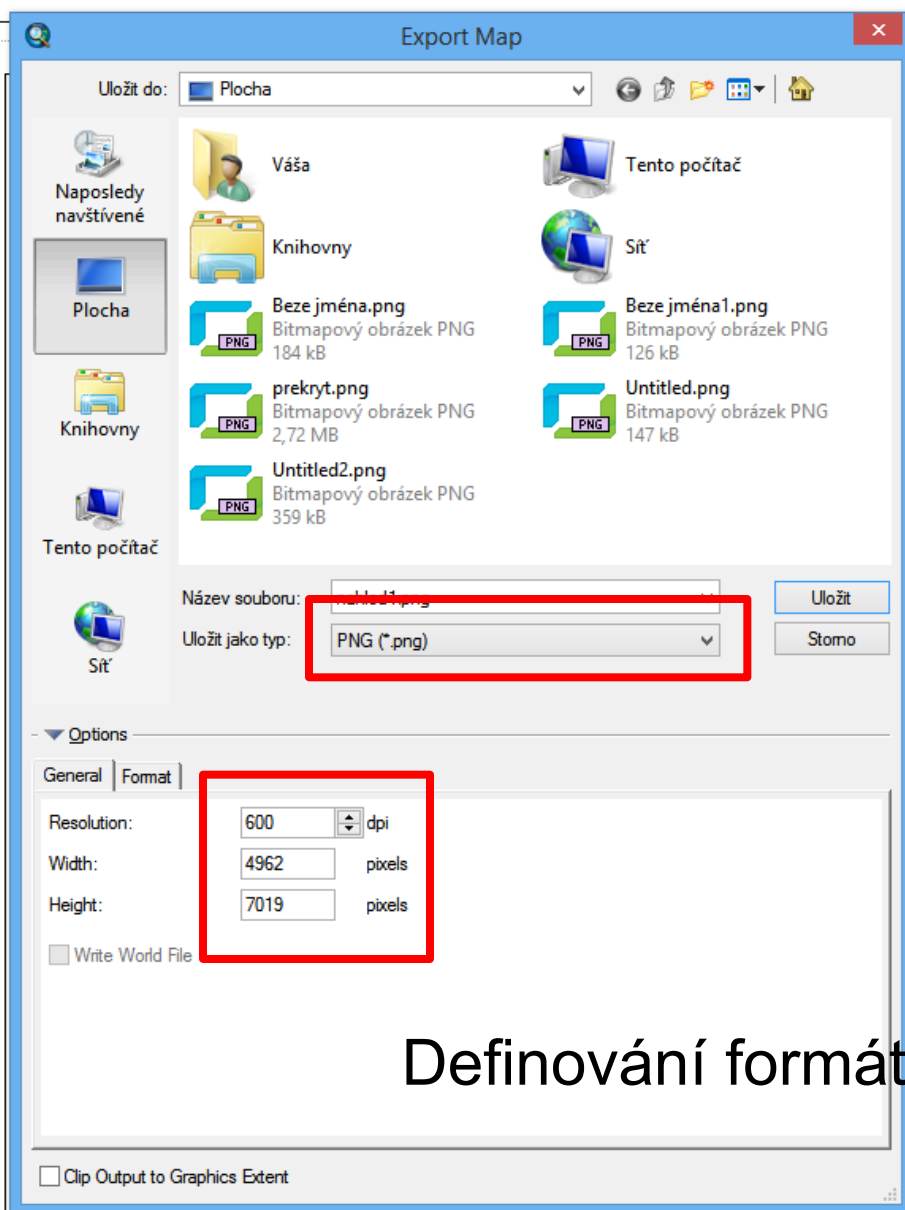
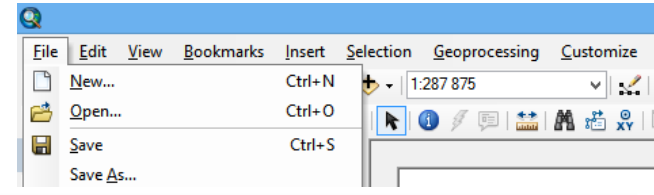
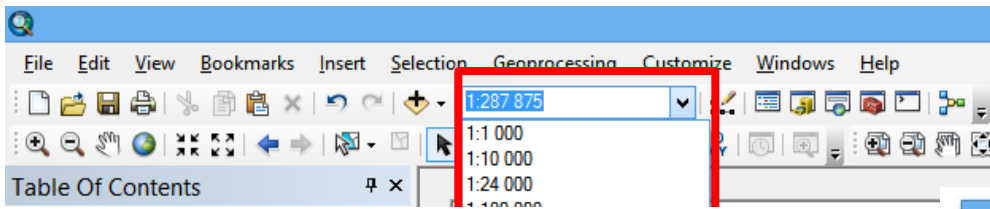


Nastavení měřítka



Zapnutí režimu vytváření mapy





Definování formátu a parametrů

Zadání cvičení

- Stáhněte si data za přidělený okres
 - ▣ Z nabídnutých vrstev (uložené v ISu)
 - ▣ viz seznam v ISu
- Proveďte generalizaci z 1:250 tis. na 1:500 tis. u níže uvedených druhů objektů:
 - Linie – alespoň dva druhy liniových vrstev
 - Bod – jeden druh
 - Polygon – alespoň dva druhy plošné vrstvy
(Druh=tématika)
- Účel mapy: všeobecný topografický podklad pro tvorbu tematické mapy

Zadání cvičení

- Vyzkoušejte minimálně od každého druhu:
 - ▣ Simplify.../Smooth ...
 - ▣ Aggregate ...
 - ▣ + ost. Metody (editace, výběr, ...)
- Použité území a použité generalizační nástroje musí spolu korespondovat

(tj. například: nebudete používat nástroj Aggregate Points pro dva body; využijete dostatečně různé nástroje tak, aby byla výsledná mapa správně zgeneralizovaná, apod.)

Zadání cvičení

- Zvolte **vhodné** generalizační metody a v protokolu je **popište**
 - ▣ Stačí jednoduše popsat princip, jaké proměnné jste zvolili a vysvětlete je (aby bylo jasné, že problematice rozumíte)
- Výsledkem jsou **2 mapové výřezy ve 2 měřítkách**
- + odevzdané generalizované mapové vrstvy (**ZIP**)
- Nezapomeňte na všechny **náležitosti protokolu!**