Data Editing&Processing&Topology

SuperMap Software Co., Ltd.

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TO BE THE GLOBAL LEADING GIS

Overview

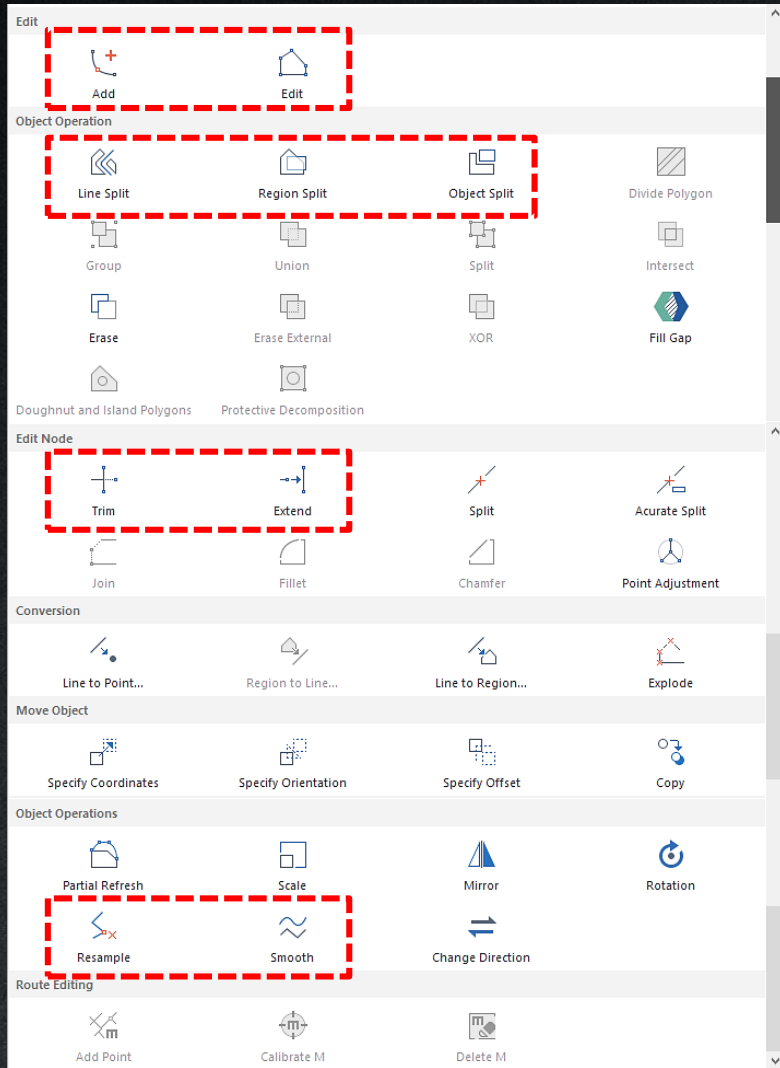## Data editing

- Object Editing
- Attribute Editing

Data processing

- Dataset Append
- Dataset Dissolve
- Raster Mosaic
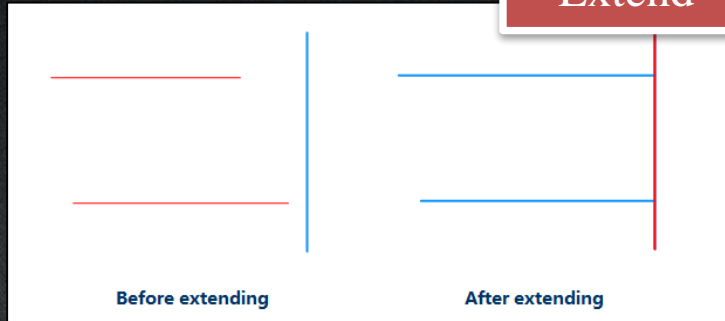- Dataset Resampling
- Map Clip

Topology

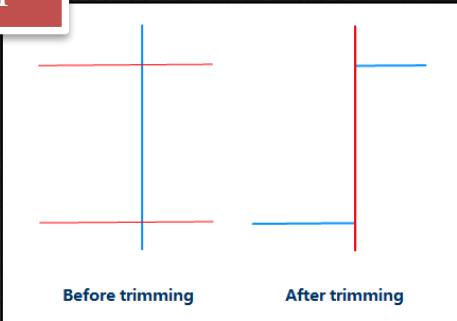- Concepts in Topology
- Check Topology
- Topology processing

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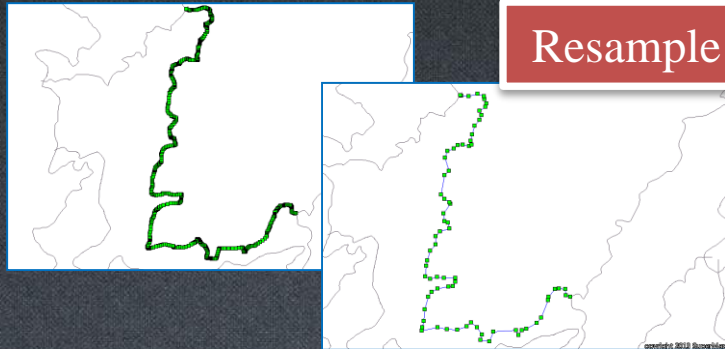
Object editing

Attribute editing

Data processing

1. **Dataset Append**
   – Append Rows
   – Append Columns
2. **Dataset Dissolve**
3. **Raster Mosaic**

4. **Dataset Resampling**
   – Vector Resampling
   – Raster Resampling
5. **Map Clip**
6. More…

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Dataset Append

- ## Append Rows
  - Merge two datasets.
  - Append data from a source dataset to a target dataset or a new dataset.

- ## Append Columns
  - Appends fields from a source dataset to a target dataset based on the same field value of a certain field.

Dataset Dissolve

Raster Mosaic

Figure 1
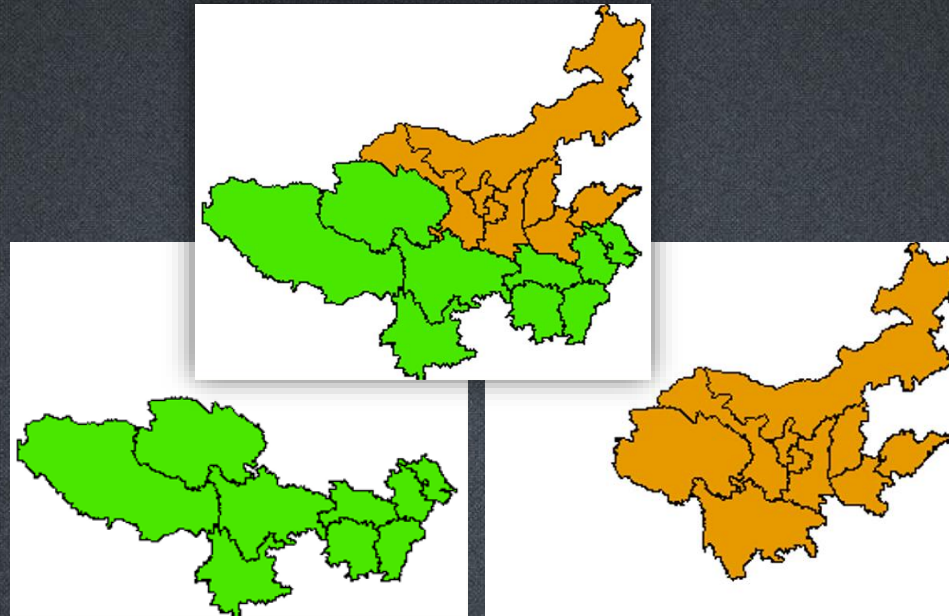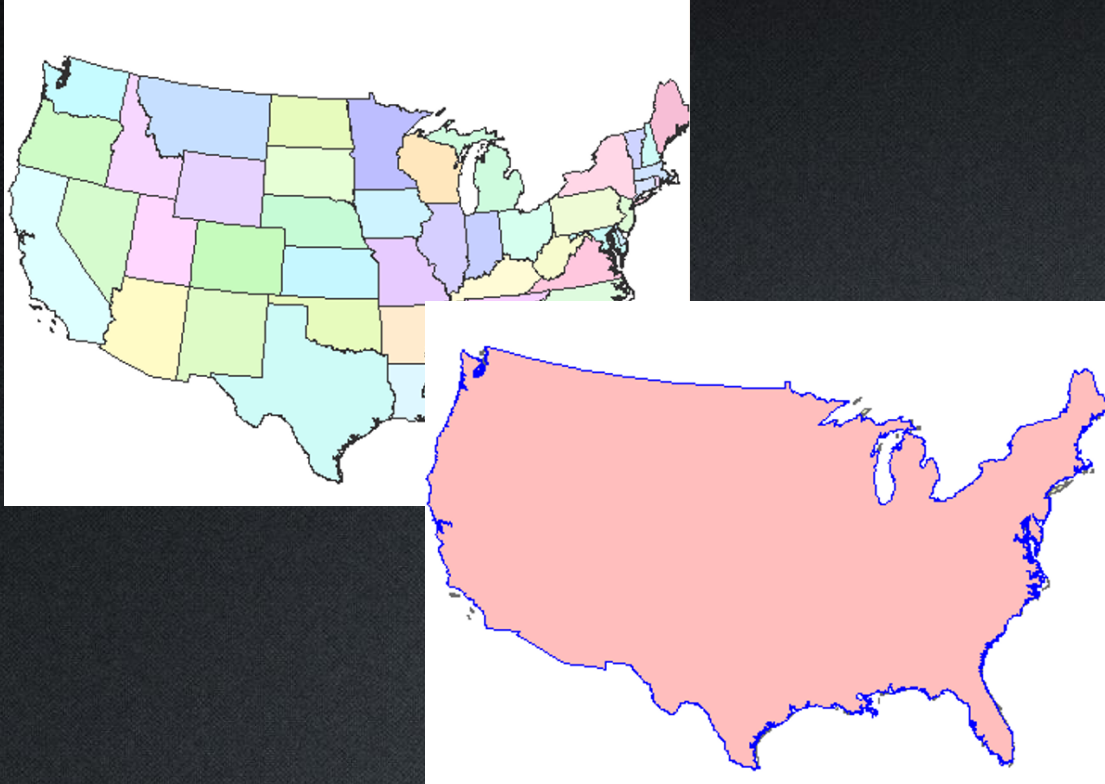
- Dissolve features with the same specified field values.

- Combine two or more raster datasets into one dataset based on its geographic coordinate system.

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Vector Resampling

Raster Resampling

- Remove vertices from the line or the boundary of the region while trying to keep the original shape.
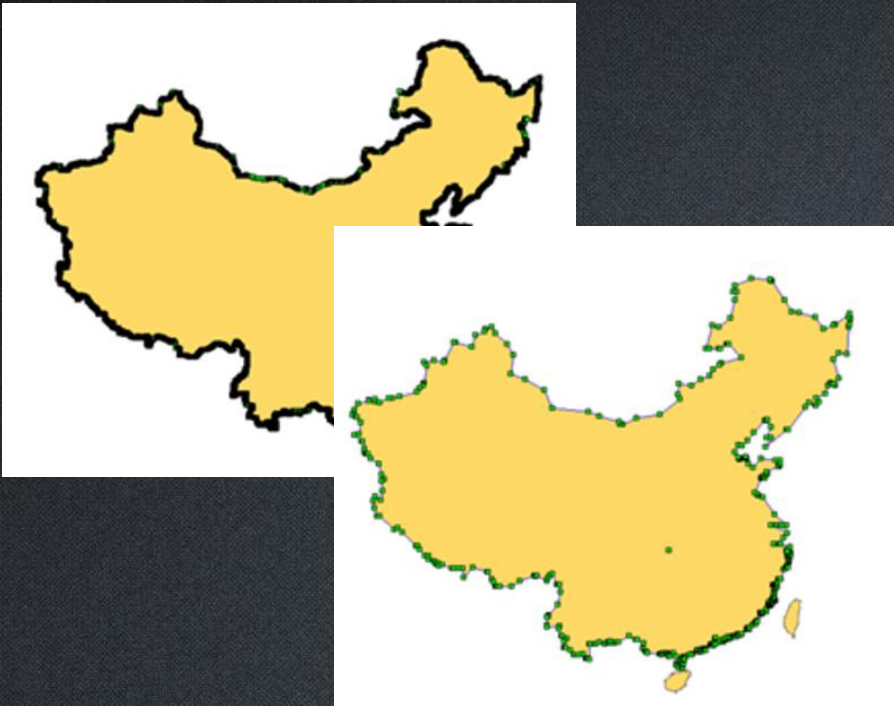
- Create a new raster dataset and assign the cell value or deduction value of original raster dataset to the pixel of it.

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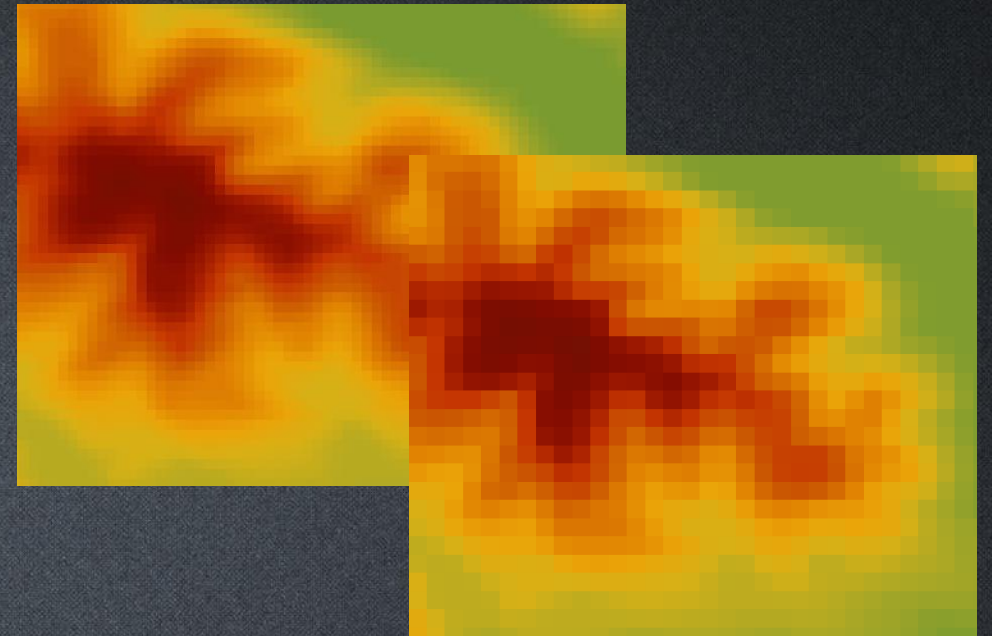
Map Clip

- Clip part of the map in current map window, the clipped features will be save as a new dataset.
  - Clip by Rectangle, Circle, Polygon or Selected Objects
  - Clip either vector or raster data

What is Topology?

- Topology studies the property of remaining unchanged when geometric objects were bended or stretched.

- It describes the relative positions of features
  - Connectivity
  - Adjacency
  - Containment
  - Intersection
  - ……

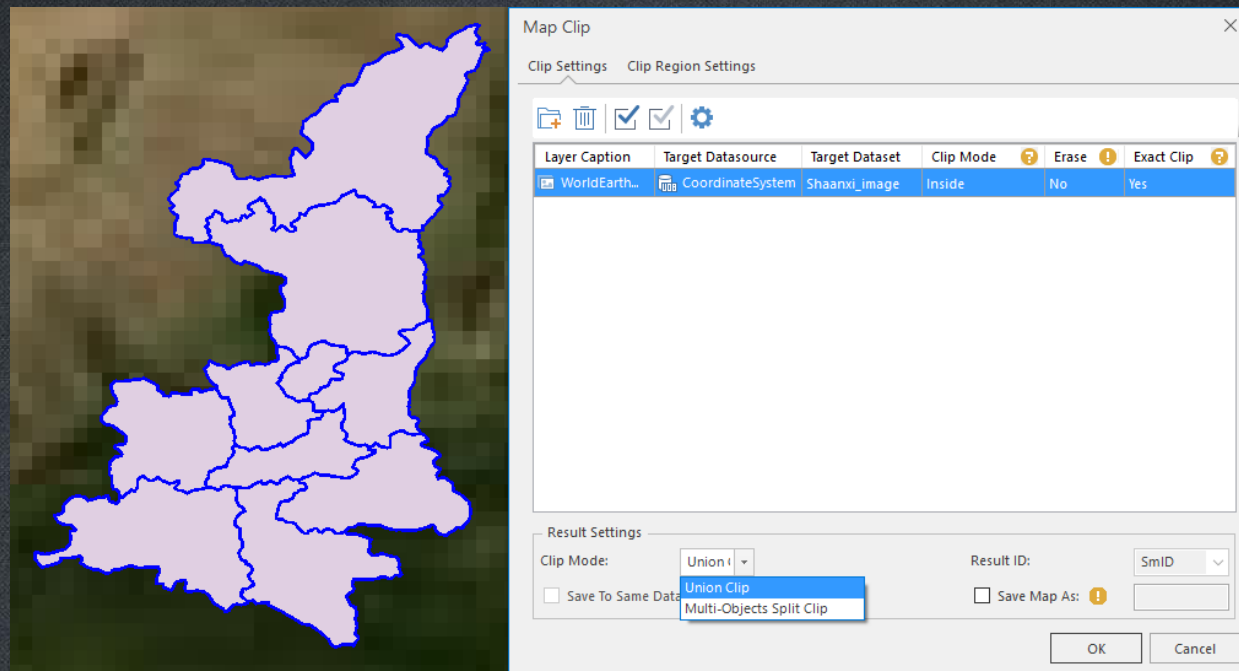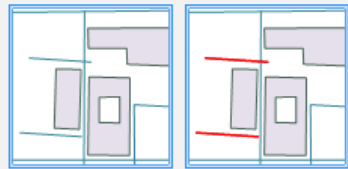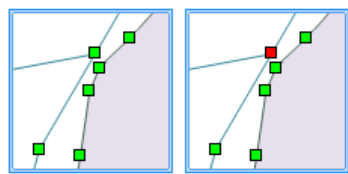| ID	Description	Illustration
ID	Requires that points in a point dataset fall on the lines in a line dataset.	
ID	Description	Illustration
	Requires lines in one line dataset must not intersect with lines in another	
ID	Description	Illustration
	Requires that the interior of regions in one region dataset not overlap.	
ID	Description	Illustration
Line or region must be single object.	Checks whether line or region dataset itself has complex object (A object that contains one or more subobjects, such as parallel lines). The complex objects will be returned in the result dataset as errors. Error dataset type: Line dataset or region dataset.	
The Vertex Distance has to be greater than the tolerance.	Checks whether the the distance between the node of line, point, region dataset itself or in two types of datasets are less than or equal to the given tolerance. The points whose distance are not larger than the tolerance will be returned in the result dataset as errors. Error dataset type: Point dataset. Note: This rule is get by extend the topology preprocessing operation. It is recommended not the check the "Topology Preprocessing" when check the topology rules, otherwise the errors find by this rule will be repaired automatically and you can get the expected result.	
There must be point on the intersection of	Check line, region dataset itself or the two datasets, whether the intersection of lines has a node, and whether the node exists on both of the two lines, two line objects with the end points connect to each other is considered as the correct topological relationship. Note: If the two lines connect, it won't break the rule. If there are no node at the intersection, the system will compute the node and return it as topology error in the result dataset.	

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Why need Topology Processing?

- Lighten manpower in data checking
  - Find topology errors
  - Fix with topology editing tools

- Generate polygon dataset
  - Generate polygon dataset from a line dataset with enclosed areas, such as to generate dataset of administrative region from the line dataset of their boundary.

- Create network dataset for network analysis
  - A dataset contains not only arcs but also nodes, such as traffic network, power transmission network, pipeline network.
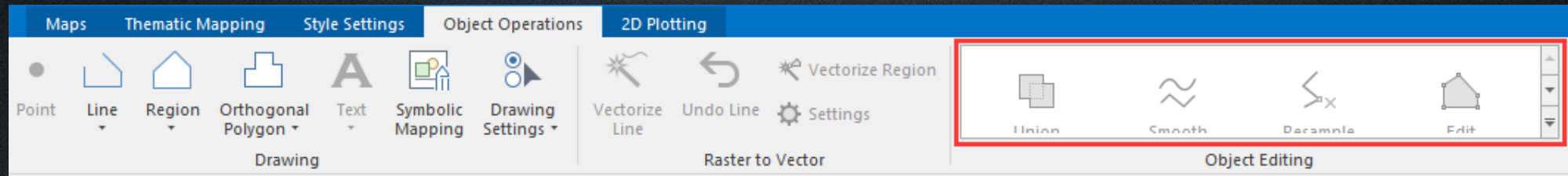
Check Topology

- Check the objects that don't conform to the specific topology rule in point, line, region datasets and different datasets.
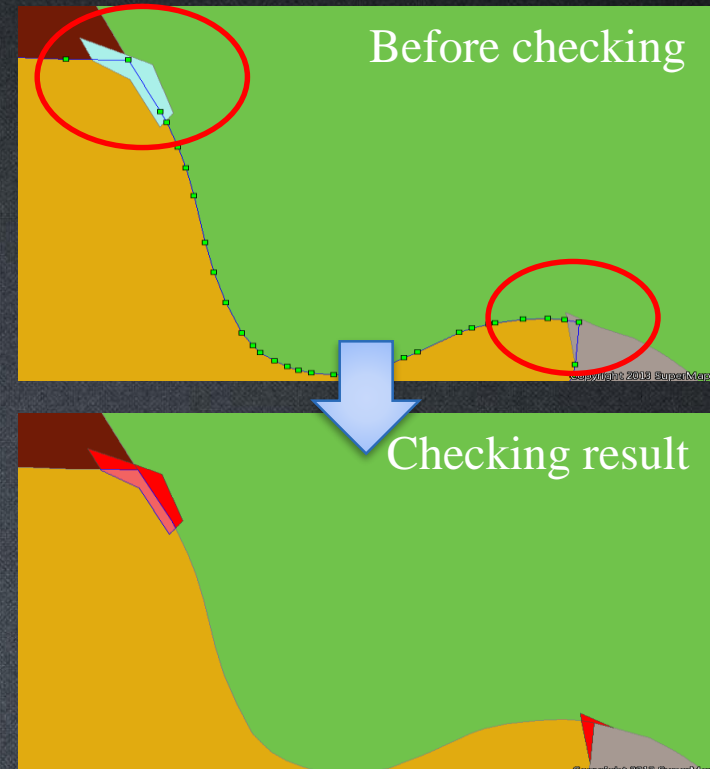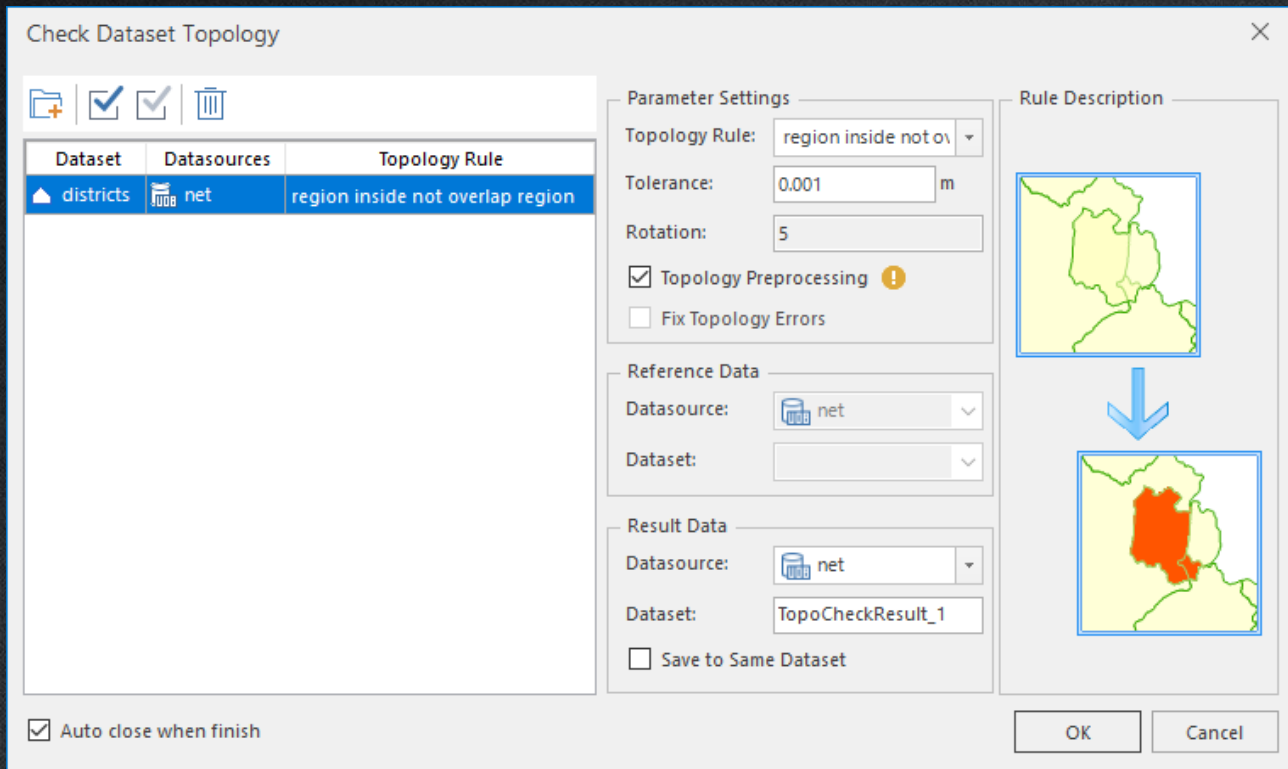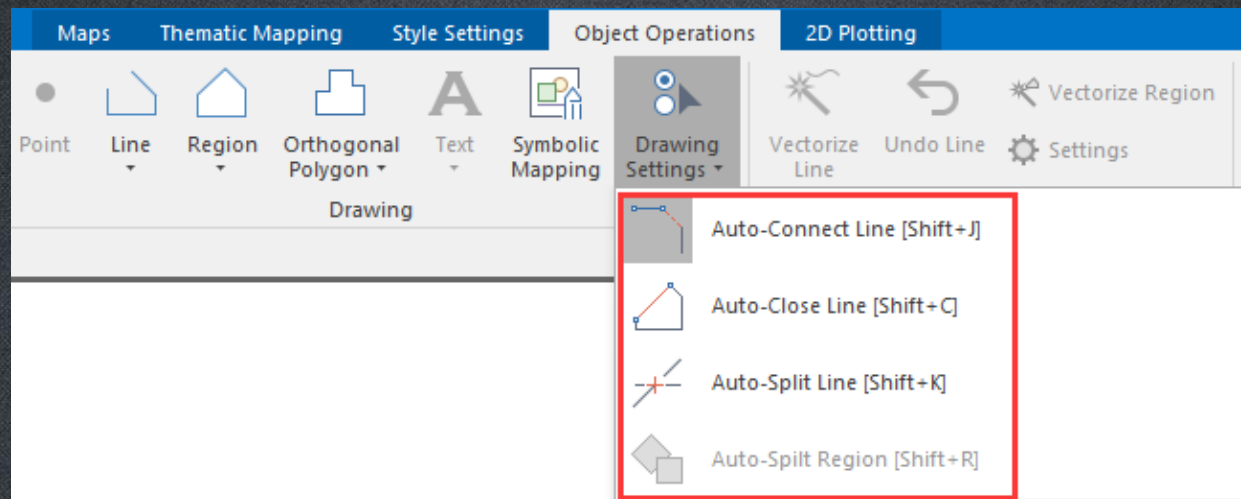
How to Fix Errors?
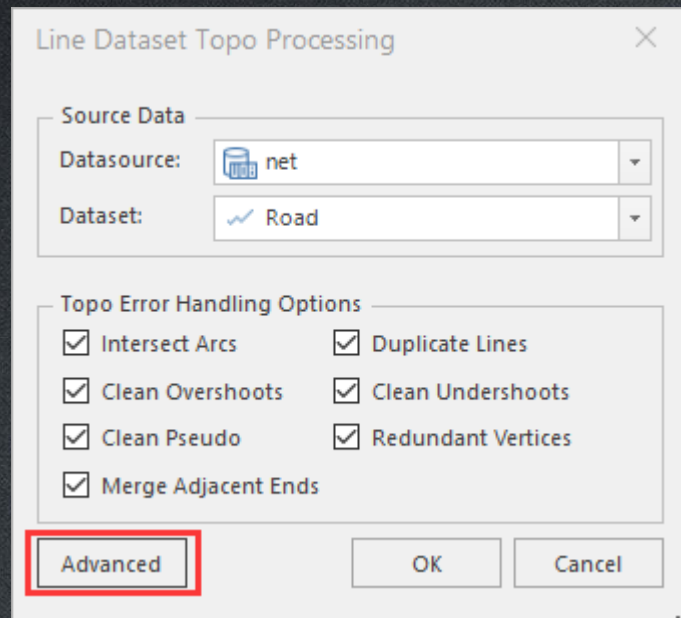
- Fixing Error Manually
  - Object Editing

  - Auto Connect Line/ Auto Close Line/ Auto Split Line/ Auto Split Region

Validate Line Topology

- Validate and repair the topology errors of line dataset automatically with the selected topology rules.
  - Set the NoBreak Object by entering the SQL filter expression, the system will not break the line objects that meet the expression.
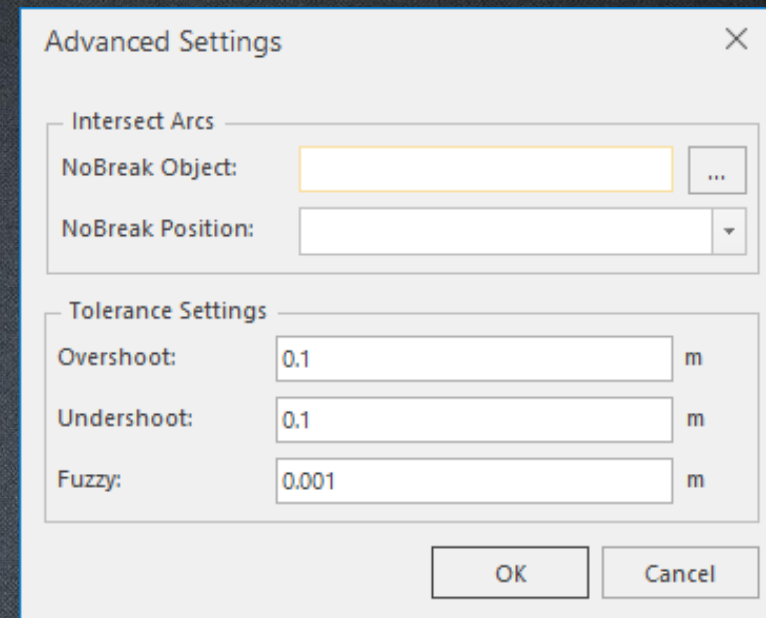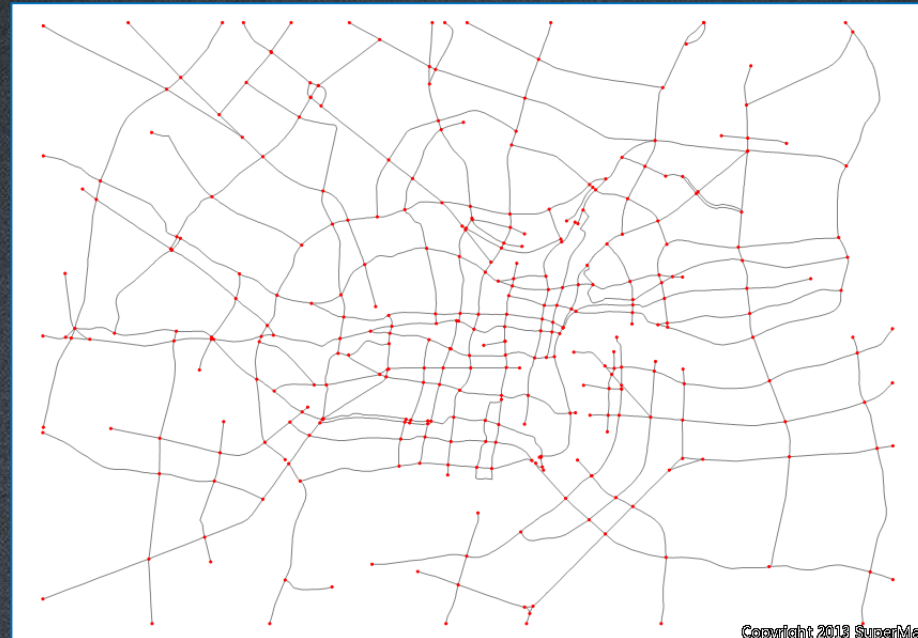
Region by Topology

- Create a region dataset based on line dataset "road".
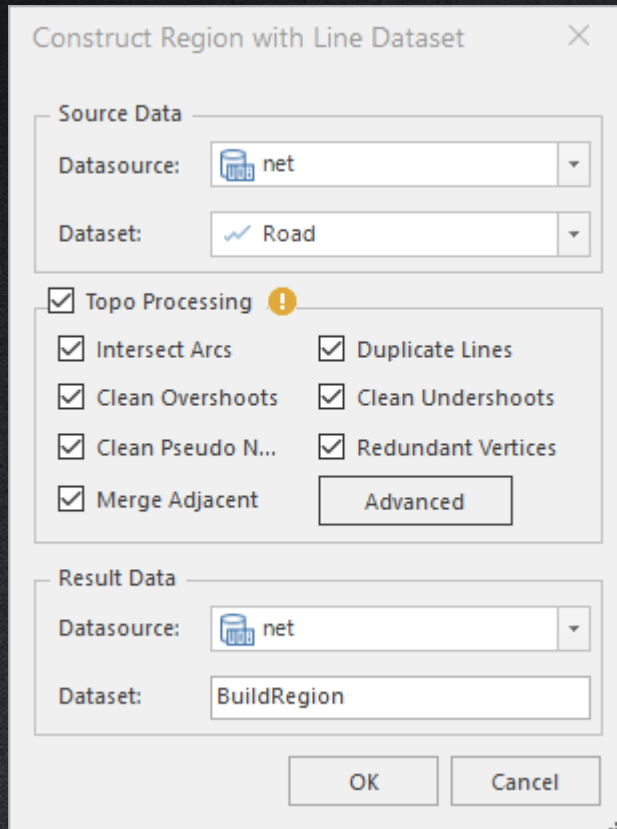
Network by Topology

- ## What's network model?
  - A dataset contains not only arcs but also nodes, and topologic relationship exists between node-node, node-arc and arc-arc.
  - Network examples: The Traffic network, power transmission network, pipeline network.
  - Network dataset is used in Network Analysis

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Thank You!

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