Coordinate Systems in GIS Software
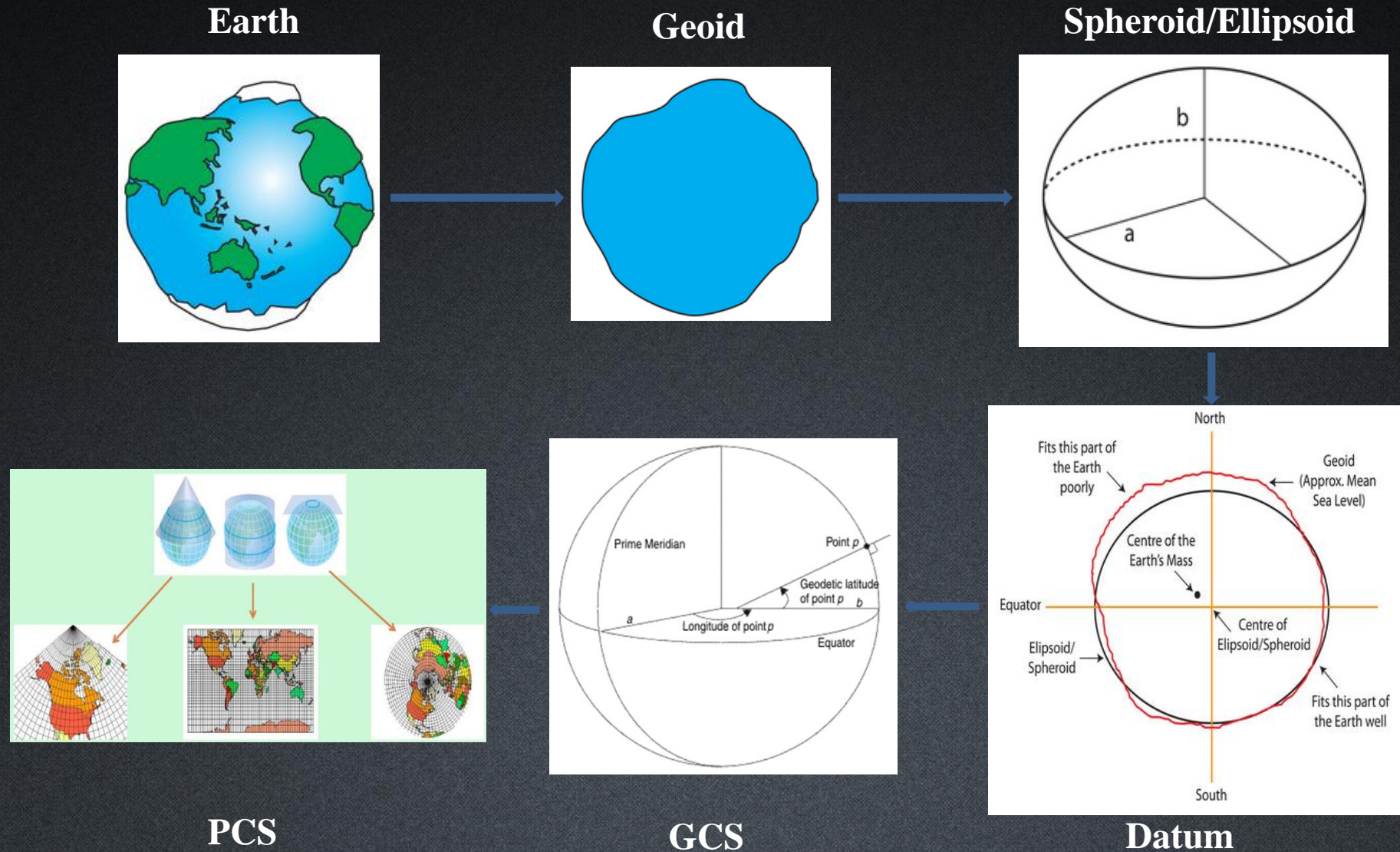
SuperMap Software Co., Ltd.
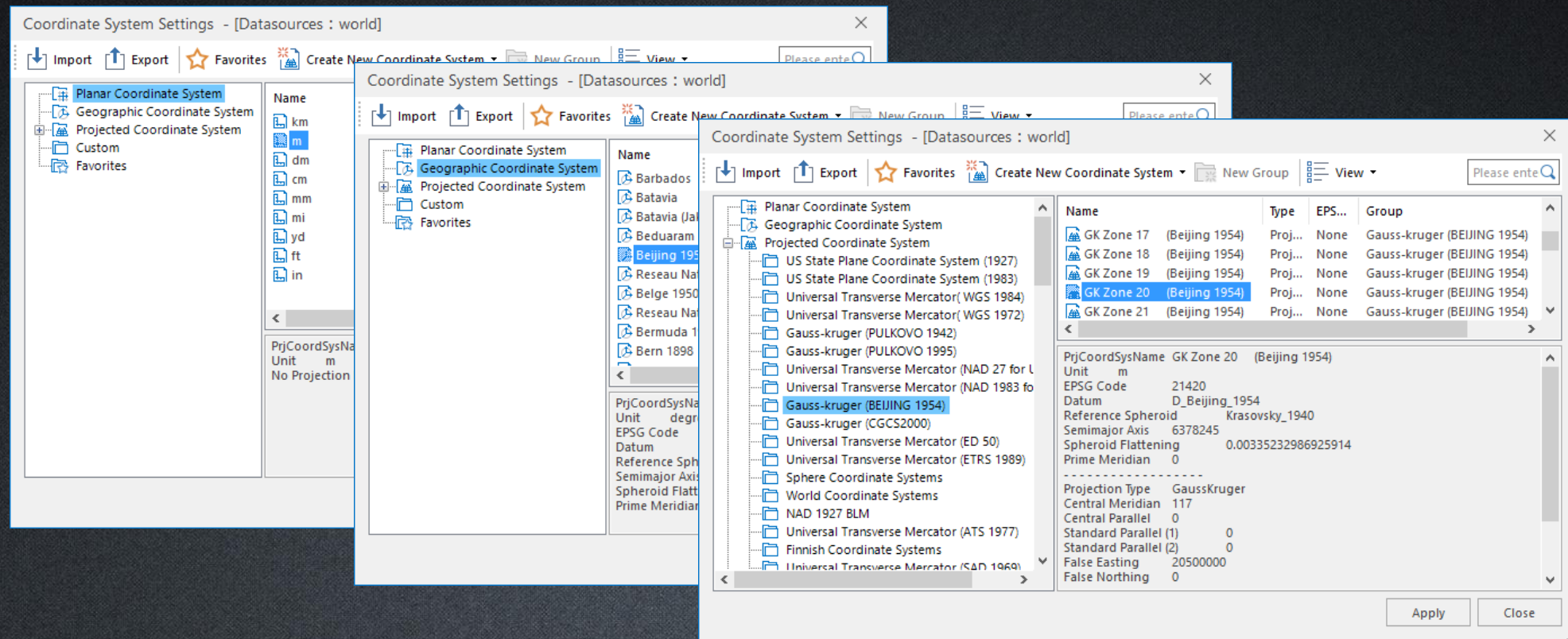
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Knowledge for Coordinate Systems

Earth

Geoid

Spheroid/Ellipsoid

PCS

GCS

Datum

Coordinate Systems

- Types of Coordinate Systems of data in GIS software:
  - Planar Coordinate System、Geographic Coordinate System、Projected Coordinate System.

Coordinate Systems

- **Datasources, Datasets, and Maps** have their own Coordinate Systems
  - We can view their coordinate system information by **Right click -> Properties -> Coordinate.**
  - A newly created **dataset** has the same coordinate system with its datasource by default.
  - The coordinate system of a new **map** is identical to the first dataset added into it.
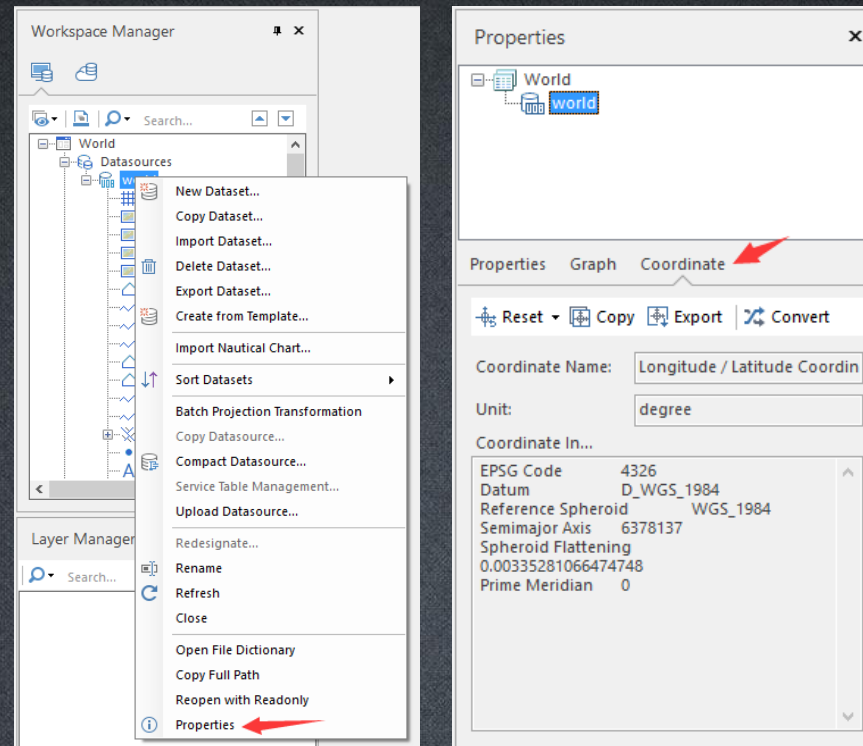
Exercise

- Create a new datasource to see what its default coordinate system is.
- Create a new dataset and set its coordinate system to be the same as the WorldEarth.
- Create a new map, add the new dataset into it, and check the coordinate system of the map.

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Check the coordinates of the data

- Whether coordinate values of the data is correct?
- Whether the coordinate information of the dataset is correct?
  - Both are correct. 🙂
  - Coordinate values are correct, while the coordinate system information is not. ➡️ **Reset**
  - Coordinates of the data are not correct. ➡️ **Registration**
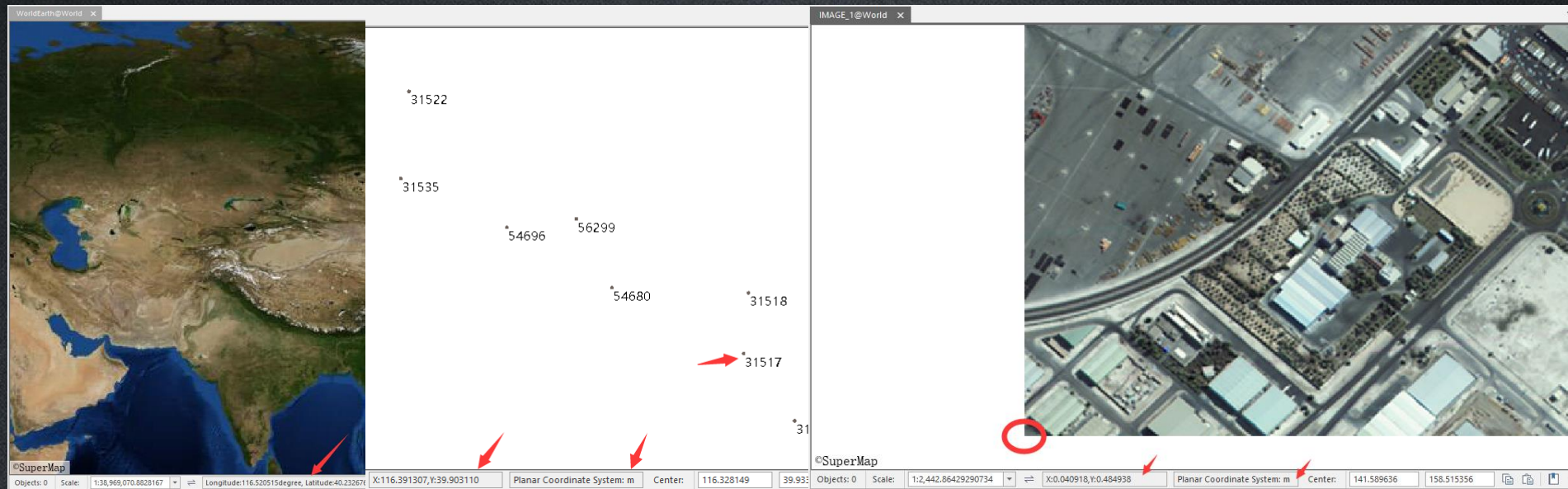
Projection Settings

- Right Click on dataset -> Properties -> Coordinate -> Reset

The data in different coordinate systems

- How to put two or more datasets in different coordinate systems together?
  - If the datasets only used for displaying on the map. ➡ **Dynamic Projection**
  - If the datasets will be used for data processing,

    e.g. Append Row, Overlay Analysis, Structure Network, etc. ➡ **Projection Transformation**
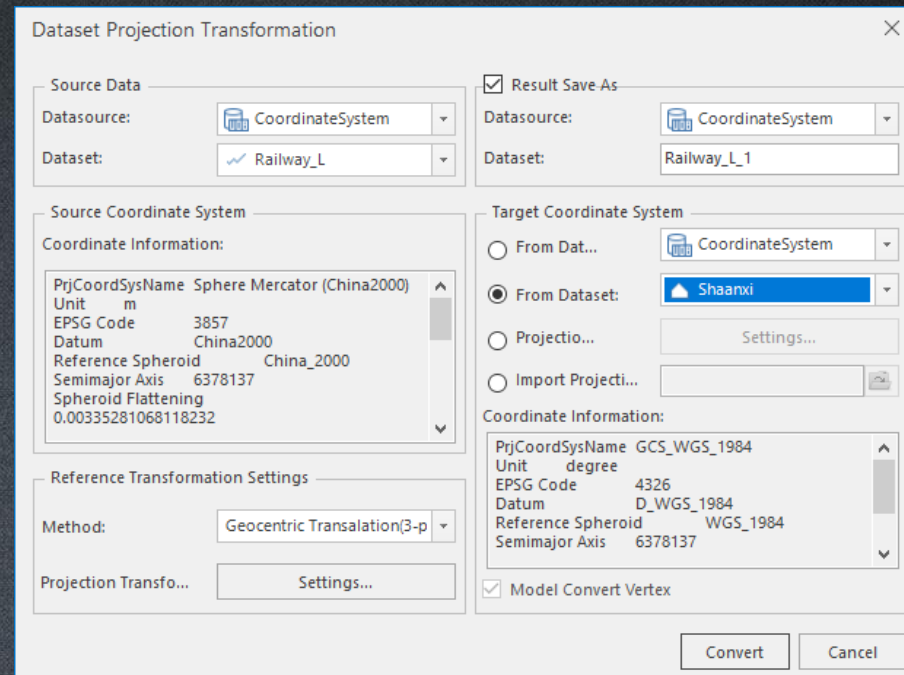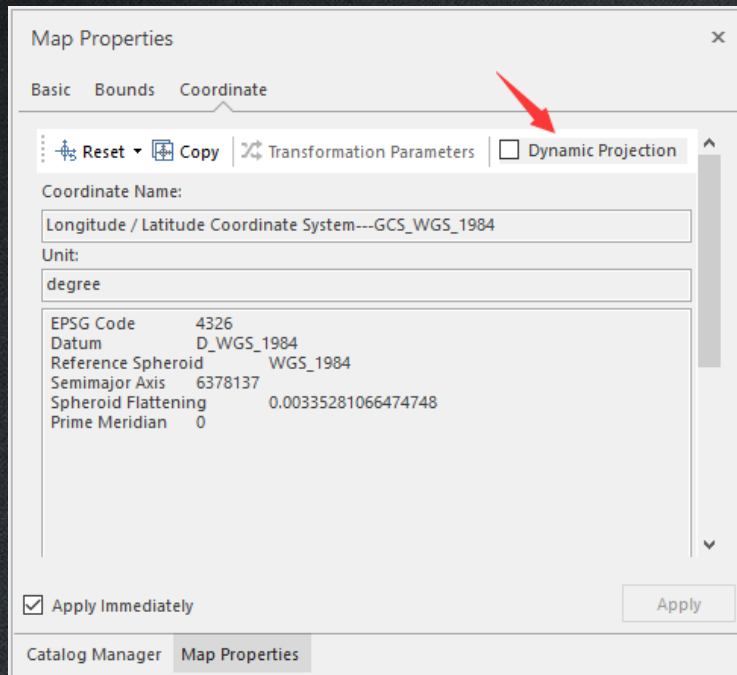
Exercise

- How many railways there are in Shaanxi Province?
  - Step 1: Coordinate Transformation
  - Step 2: Spatial Query
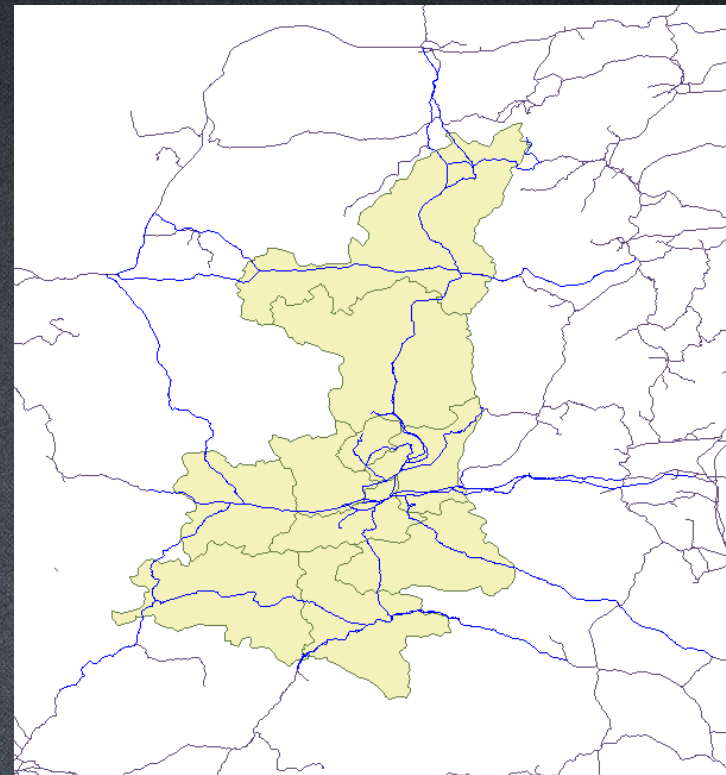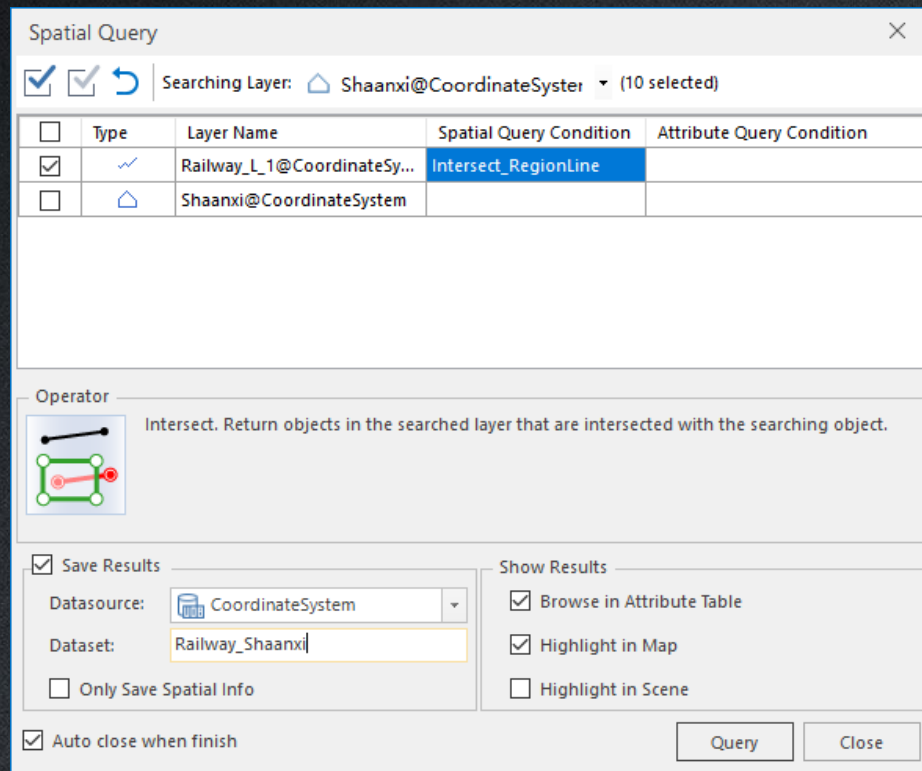
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Thank You!

Website: www.supermap.com

Email: globalsupport@supermap.com

Skype: supermapsupport

MSN: globalsupport@supermap.com

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