

Data Registration

SuperMap Software Co., Ltd.

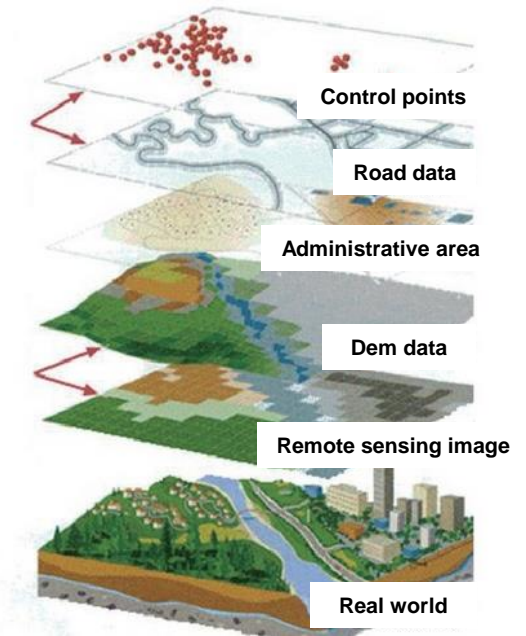


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Definition

- **Data registration** is the process of correcting and transforming the spatial position of the source data according to a certain algorithm and a set of control points.
 - The source data
 - The result data
 - The control points



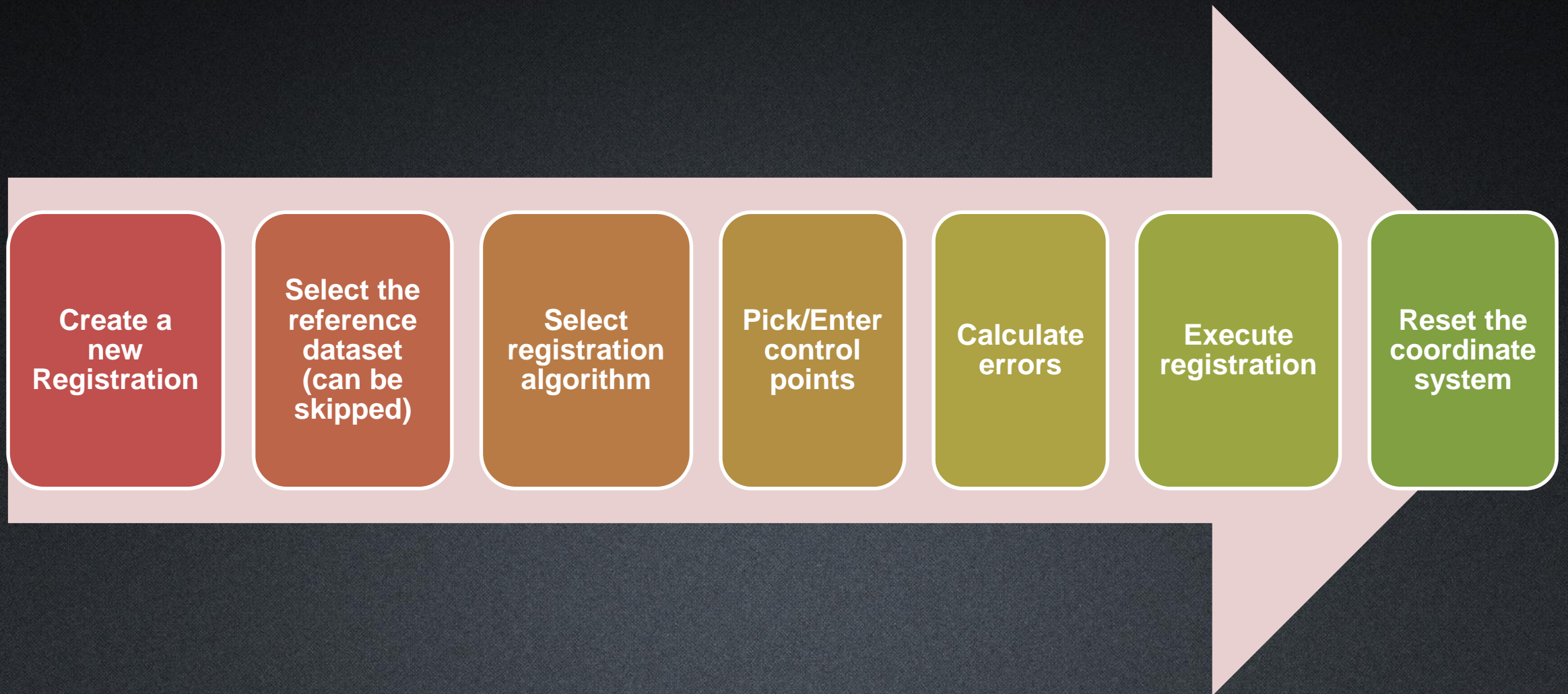
Registration methods in iDesktop

1 Registration by inputting the coordinates of control points

2 Registration by picking control points from the reference layer

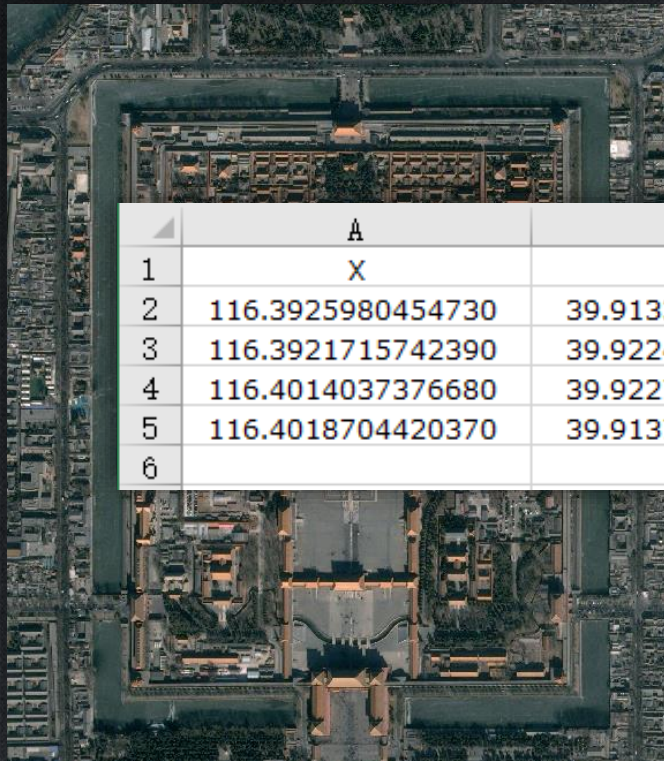
3 Batch fast registration

Steps of the first two methods



Exercise

- Registration for the Forbidden City image
 - Import the Control_Point excel as a point dataset which will be the reference dataset
 - Register the image by picking the 4 control points from reference layer



	A	B
1	X	Y
2	116.3925980454730	39.9133995413123
3	116.3921715742390	39.9224448694590
4	116.4014037376680	39.9227781063990
5	116.4018704420370	39.9137492805529
6		



Exercise

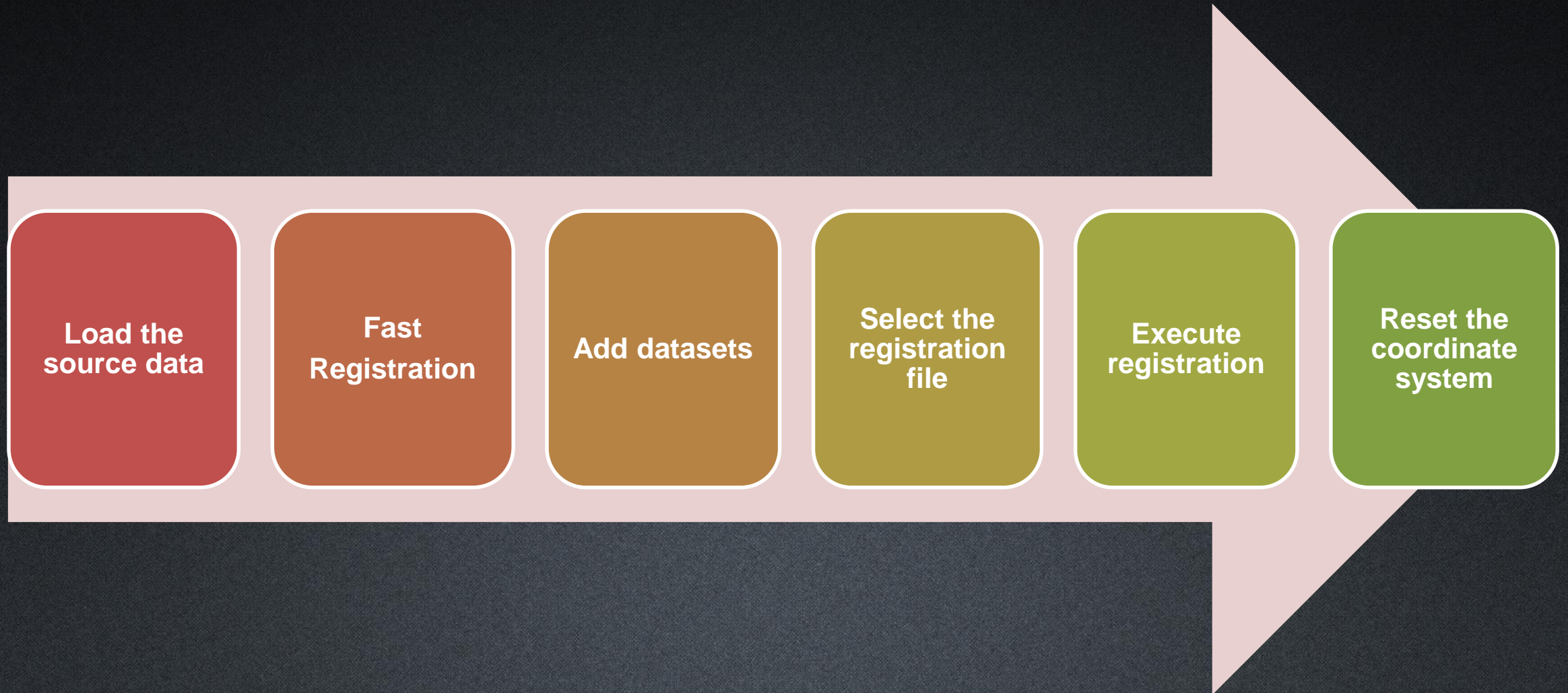
- Register the image by picking the 4 control points from the reference layer

The screenshot shows the SuperMap iDesktop software interface. The main window is titled "SuperMap iDesktop .NET 9D(2019)". The menu bar includes File, Start, Data, 3DData, Analysis, Traffic Analysis, View, and Online. The Registration toolbar contains buttons for Pick, Edit, Mark Color, Highlight Color, Zoom In, Pan, Zoom Out, Full Extent, Registration Window, Reference Window, Associated Browsing, Registration Layer, Reference Layer, Image Stretch, Algorithm, Calculate Error, and Registration. The Algorithm dropdown menu is open, showing options: Linear (4 at least), Linear (4 at least), Polynomial (7 at least), Rectangular (2 at least), and Offset (1 at least). The workspace manager on the left shows a tree view with folders for Datasources, Maps, Diagrams, Layouts, Scenes, and Resources. The layer manager at the bottom shows "Control_Point_Sheet1@ForbiddenCity". The main canvas displays the Registration Layer (aerial image) and the Reference Layer (a grid). Four control points are marked on the image with red crosses and numbered 1 through 4. A table at the bottom displays the registration parameters and results.

	Source Point X	Source Point Y	Target Point X	Target Point Y	Residual X	Residual Y	RMSE
1	1,280.685435	1,365.395053	116.392598	39.9134	0.000008	0.000005	0.000009
2	1,279.11735972159	3,290.85474658694	116.392171574239	39.922444869459	7.9166914019879187E-06	5.2592756105696026E-06	9.5044191144036617E-05
3	2,774.202436	3,303.543273	116.401404	39.922778	0.000008	0.000005	0.000009
4	2,777.121687	1,377.065655	116.40187	39.913749	0.000008	0.000005	0.000009

Mouse Position: X:116.392823, Y:39.929045 Coordinate System: Planar Coordinate System—m Scale: 1:0.130316787173279 Total root mean square error: 0.0000094976

Steps of batch fast registration



Batch fast registration

The screenshot shows the SuperMap registration interface. The main window is titled "Registration" and contains a map of a city with four red registration points. The map is divided into two panes: "Registration Layer" and "Reference Layer". Below the map is a table with the following data:

	Source Point X	Source Point Y	Target Point X	Target Point Y	Residual X	Residual Y	RMSE
1	1280.53921380981	1364.78735918171	116.386325	39.911986	13670283754152	0.0041538143193449173	19.013670737484887
2	1,285.083711	3,282.454369	116.385881	39.921031	117751	0.004177	19.117751
3	2,774.960695	3,303.985913	116.395131	39.921386	119732	0.004155	19.019733
4	2,778.590455	1,376.50031	39.921386	39.929003	115652	0.004132	18.915653

Below the table, there is a context menu with options: Edit, Delete, Import..., and Export... (highlighted with a red arrow). The status bar at the bottom shows: Mouse Position: X:2615.472332, Y:1106.583868; Coordinate System: Planar Coordinate System; Scale: 1:13378.899650323; Total root mean square error: 19.0168361...

The screenshot shows the "Fast Registration" dialog box. It has a toolbar with icons for adding, checking, and deleting. Below the toolbar is a table with the following data:

Source Dataset	Datasource	Save As	Result Dataso...	Result Dataset
		<input checked="" type="checkbox"/>		

Below the table are several settings sections:

- Parameter Settings:** Registration File: [text box] [icon]; Algorithm: [text box]
- Unified Settings:** Save To: [dropdown menu] ForbiddenCity
- Resample Result:** Resample Result; Resample Mode: [dropdown menu]; Size: [text box]

At the bottom, there is a checkbox for "Auto close when finish" and "OK" and "Cancel" buttons. A red arrow points to the "Registration File" text box.

Thank You!

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The SuperMap logo features the brand name in a white, italicized serif font. A thin white arc curves over the top of the letters 'M' and 'a'. A small white dot is positioned above the 'a'. The logo is set against a background of a red sunburst pattern that originates from the bottom right corner of the slide.

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