



Esri International User Conference | San Diego, CA
Technical Workshops | July 11 – 15, 2011

Geocoding – An Introduction

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Agenda

- **What is geocoding?**
- **ArcGIS geocoding components**
- **Geocoding workflow**

What is Geocoding?

- **Geocoding**: A GIS operation to transform a description of a location—such as a pair of coordinates, an address, or a name of a place—to a location on a map.

Ways to do Geocoding

Interactive



Batch



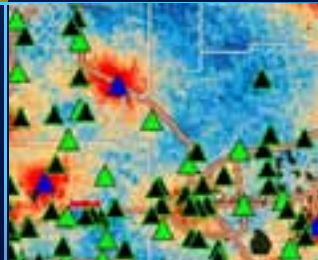
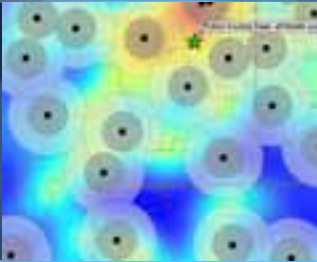
Reverse



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Demo: Finding Addresses

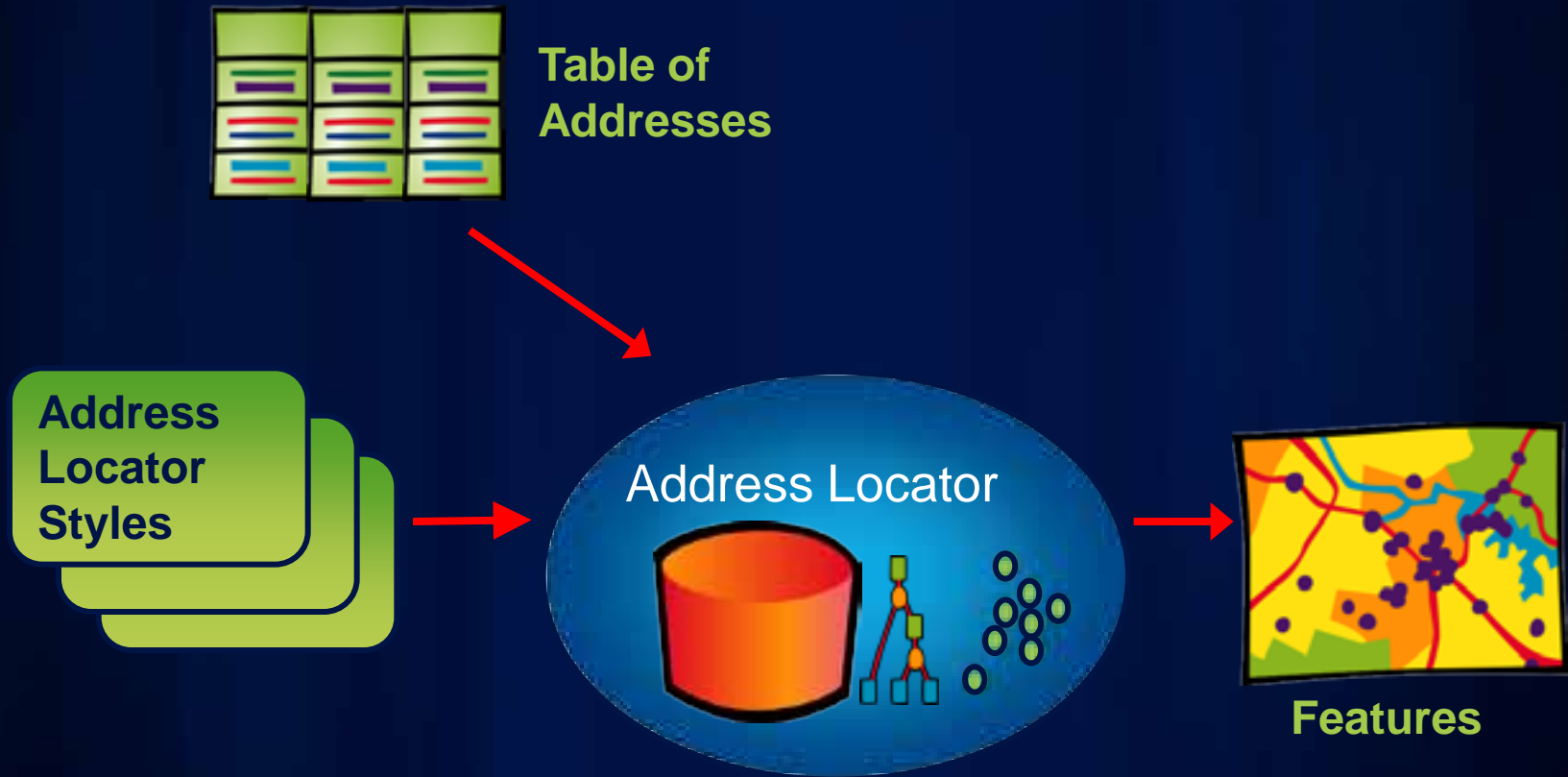
- Interactive
- Batch
- Reverse



Ways to find locators for geocoding



Geocoding Components



Geocoding Work Flow

**Build or obtain
reference data**



**Determine address
locator style**



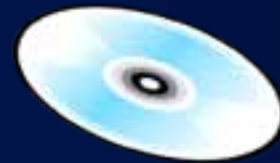
**Build an
address locator**



**Locate addresses
& rematch remaining
addresses**

Reference Data

- **Many sources**
 - StreetMap data
 - Government data
 - Data shared on ArcGIS.com
 - Data vendors



Geocoding Work Flow

**Build or obtain
reference data**



**Determine address
locator style**



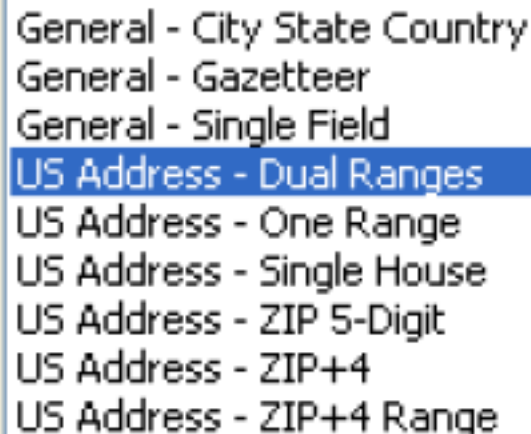
**Build an
address locator**



**Locate addresses
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What is an Address Locator Style

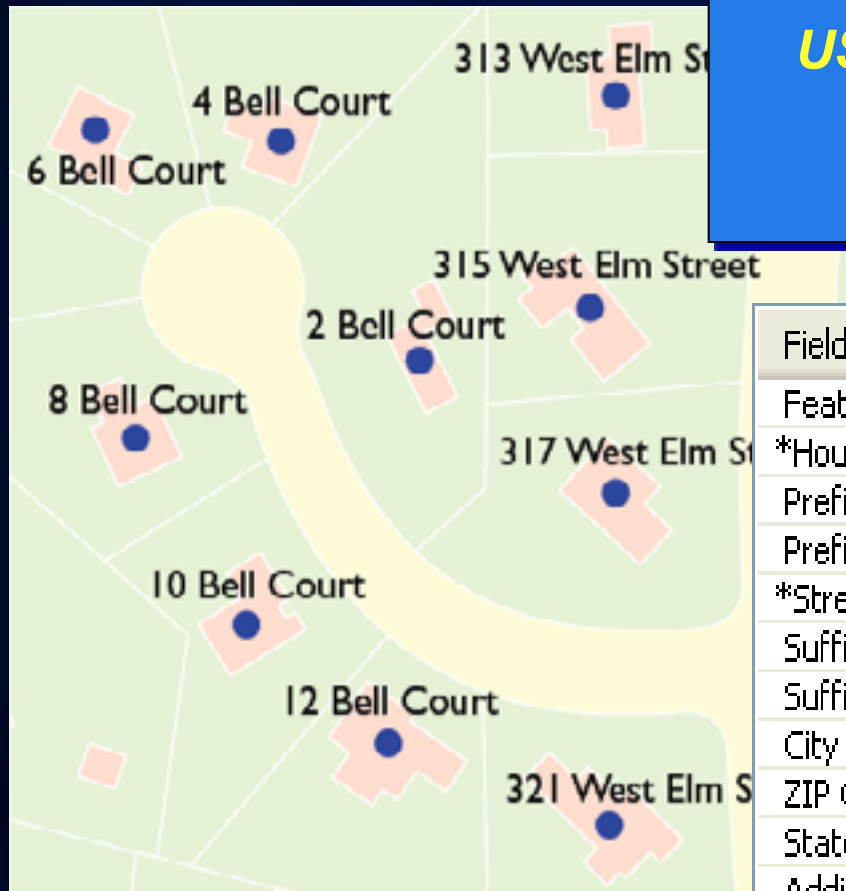
- Template containing geocoding properties
- Choose style based on properties of:
 - Address data: address information to geocode
 - Reference data: geometry and attribute values



General - City State Country
General - Gazetteer
General - Single Field
US Address - Dual Ranges
US Address - One Range
US Address - Single House
US Address - ZIP 5-Digit
US Address - ZIP+4
US Address - ZIP+4 Range

Locator styles can be customized to support international addresses

Locator Style Example

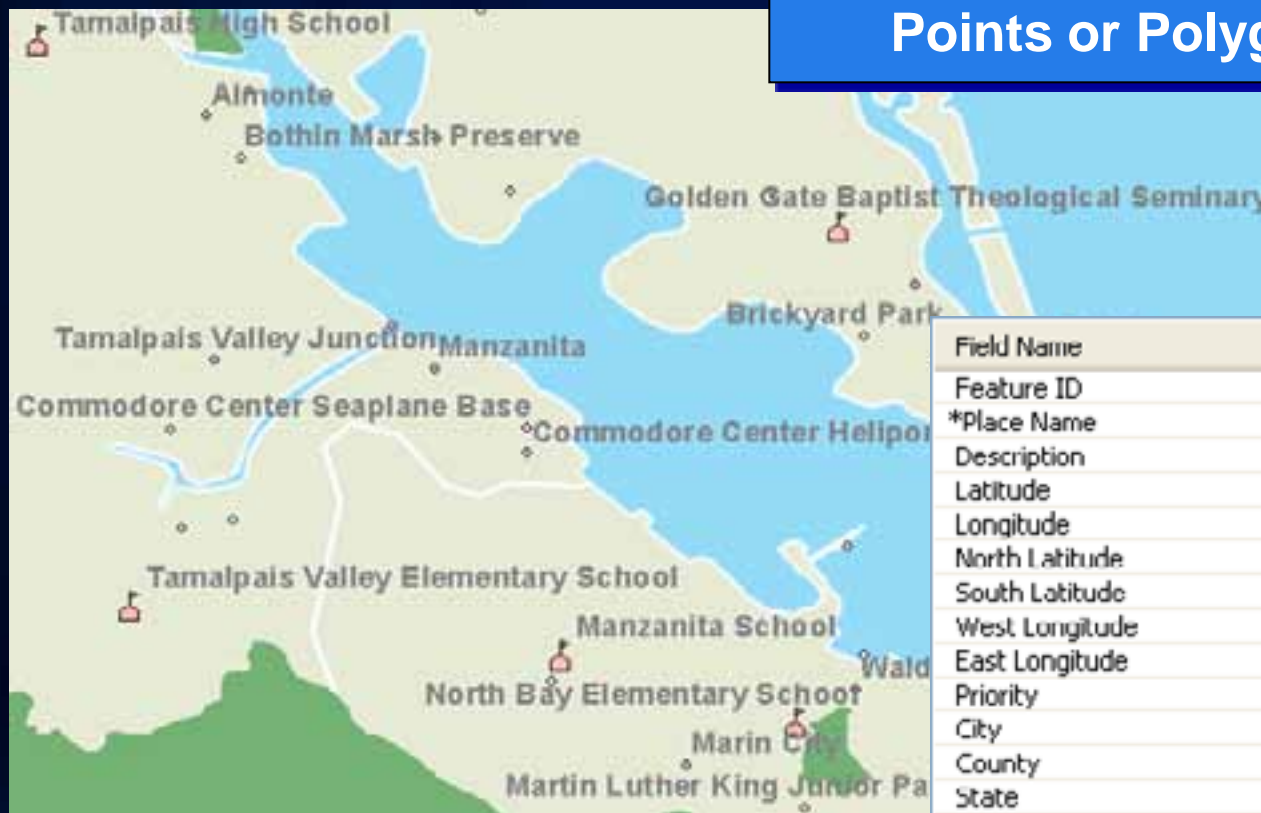


US Address - Single House
Reference Data =
Points or Polygons

Field Name	Alias Name
Feature ID	FID
*House Number	HOUSE_NUM
Prefix Direction	PRE_DIR
Prefix Type	PRE_TYPE
*Street Name	STREET_NAM
Suffix Type	ST_TYPE
Suffix Direction	SUF_DIR
City or Place	CITY
ZIP Code	ZIP
State	STATE_ABBR
Additional Field	<None>
Altname JoinID	<None>

Locator Style Example

General - Gazetteer
Reference Data =
Points or Polygons



Field Name	Alias Name
Feature ID	GeonameID
*Place Name	ASCIINAME
Description	DISP_NAME
Latitude	LATITUDE
Longitude	LONGITUDE
North Latitude	LL_Y
South Latitude	LR_Y
West Longitude	UL_X
East Longitude	LR_X
Priority	RANK
City	CITY_NAME
County	ADMIN2
State	AD1_ASCIIN

Geocoding Work Flow

**Build or obtain
reference data**



**Determine address
locator style**



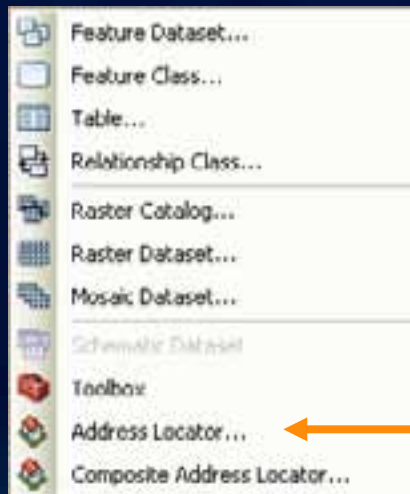
**Build an
address locator**



**Locate addresses
& rematch remaining
addresses**

Address Locators in ArcGIS

- Defines the process for geocoding
- Self-contained dataset
 - stores address attributes, indexes, and queries
 - independent from the reference data
- Stored in a File folder or geodatabase



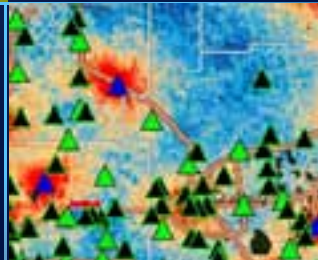
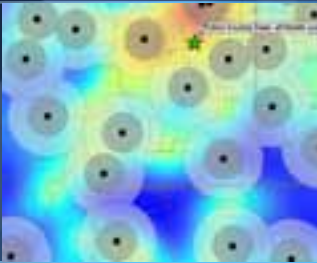
Create new address locator

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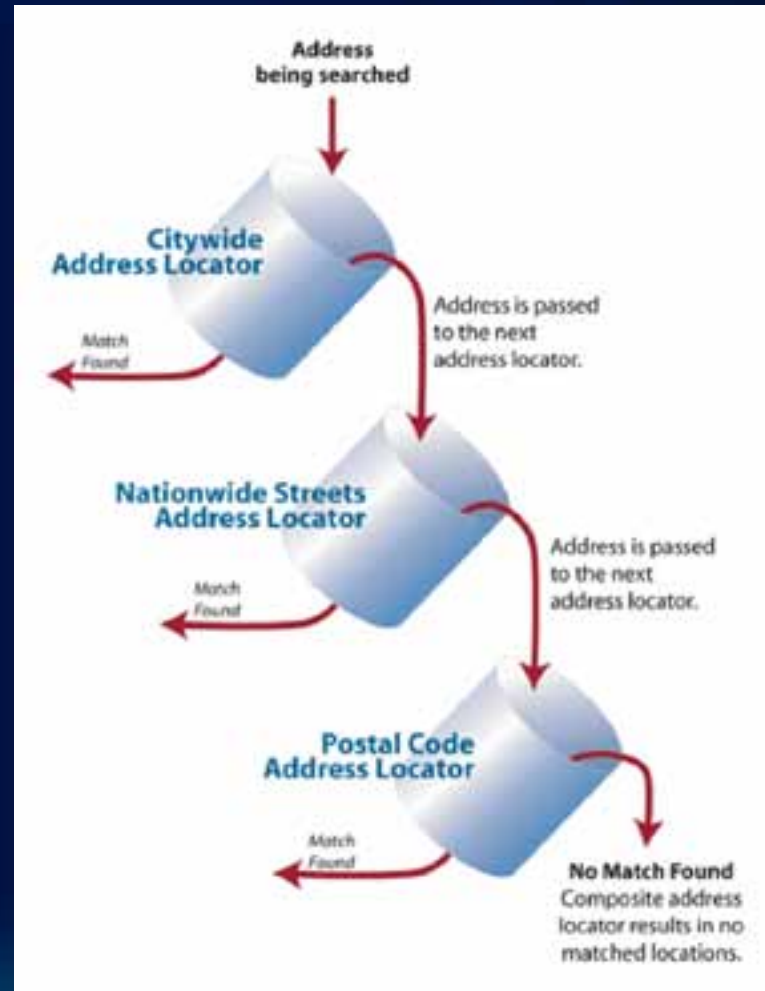
Demonstration

- Create an address locator



Composite Locator

- **Combines multiple locators**
 - **Geocode against multiple datasets**
 - **Cascade/Fallback geocoding**
 - **Spatially disjoint datasets**

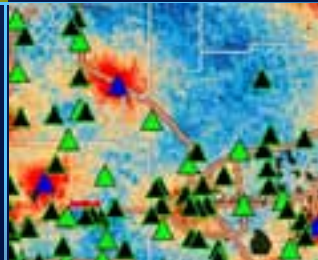
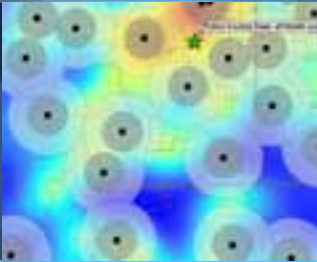


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Demonstration

- Create a composite address locator



Geocoding Work Flow

**Build or obtain
reference data**



**Determine address
locator style**

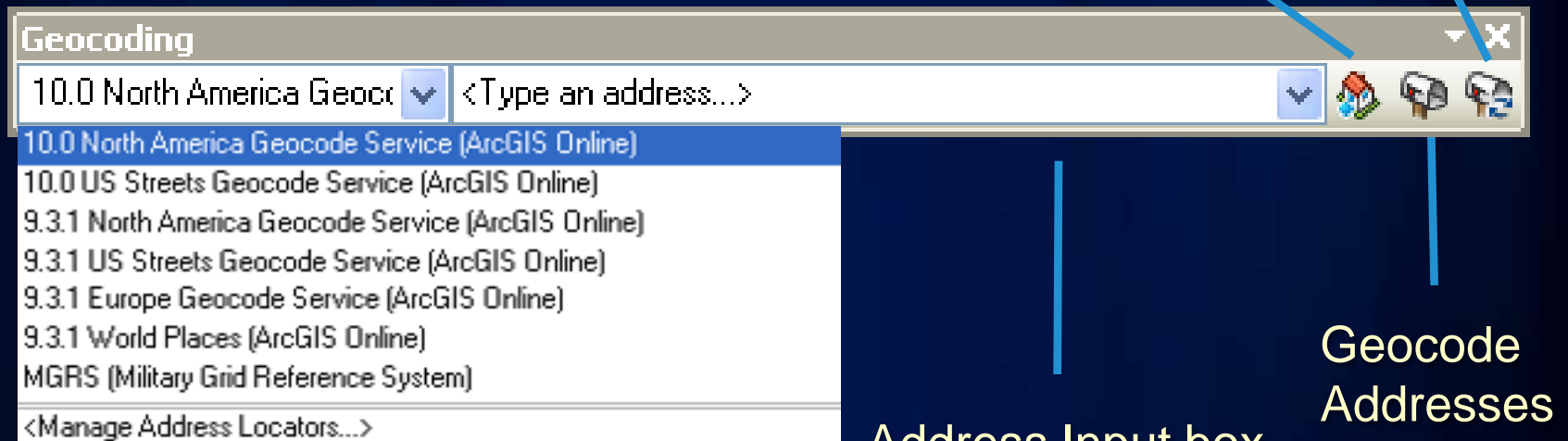


**Build an
address locator**



**Locate addresses
& rematch remaining
addresses**

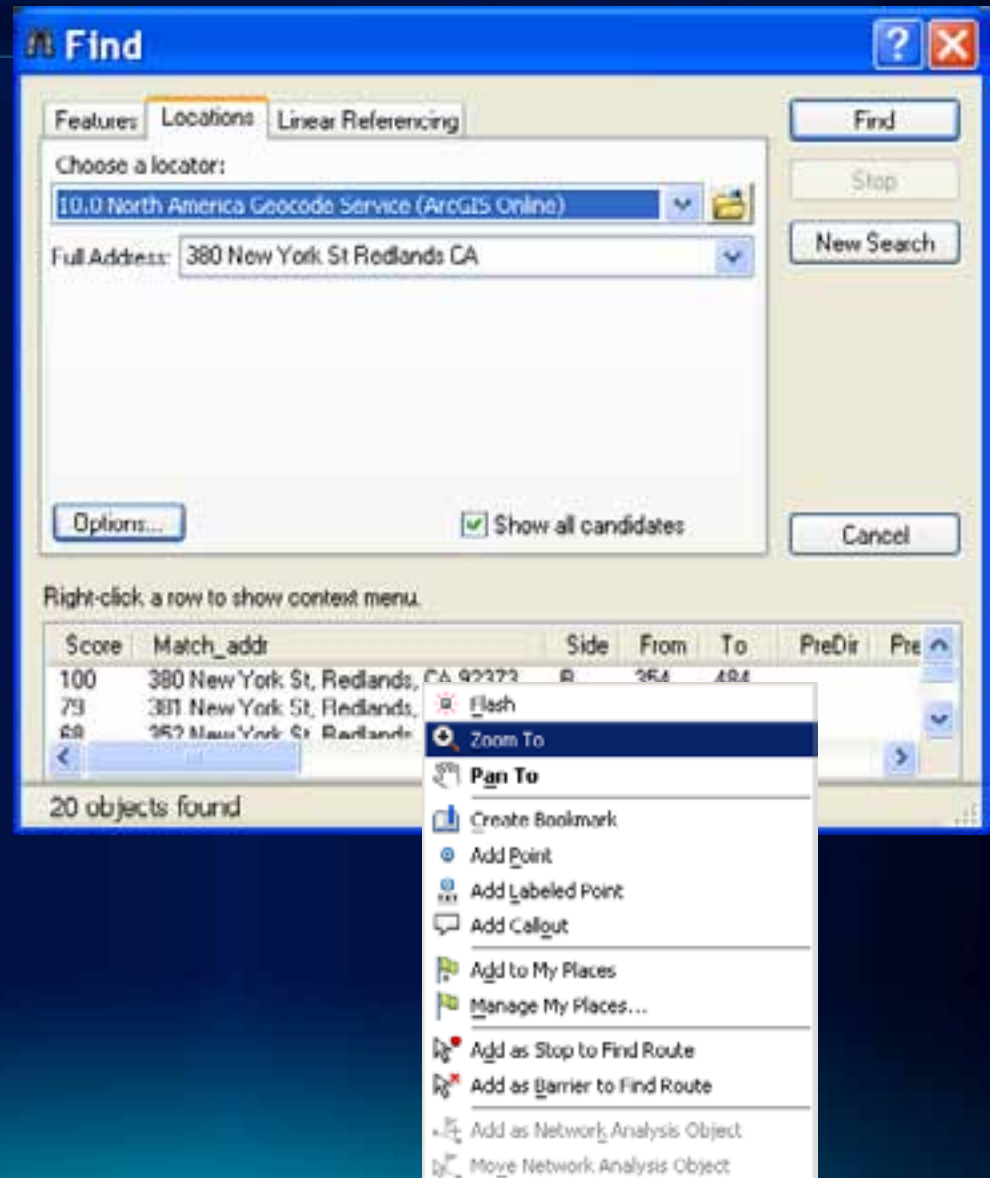
Geocoding Toolbar



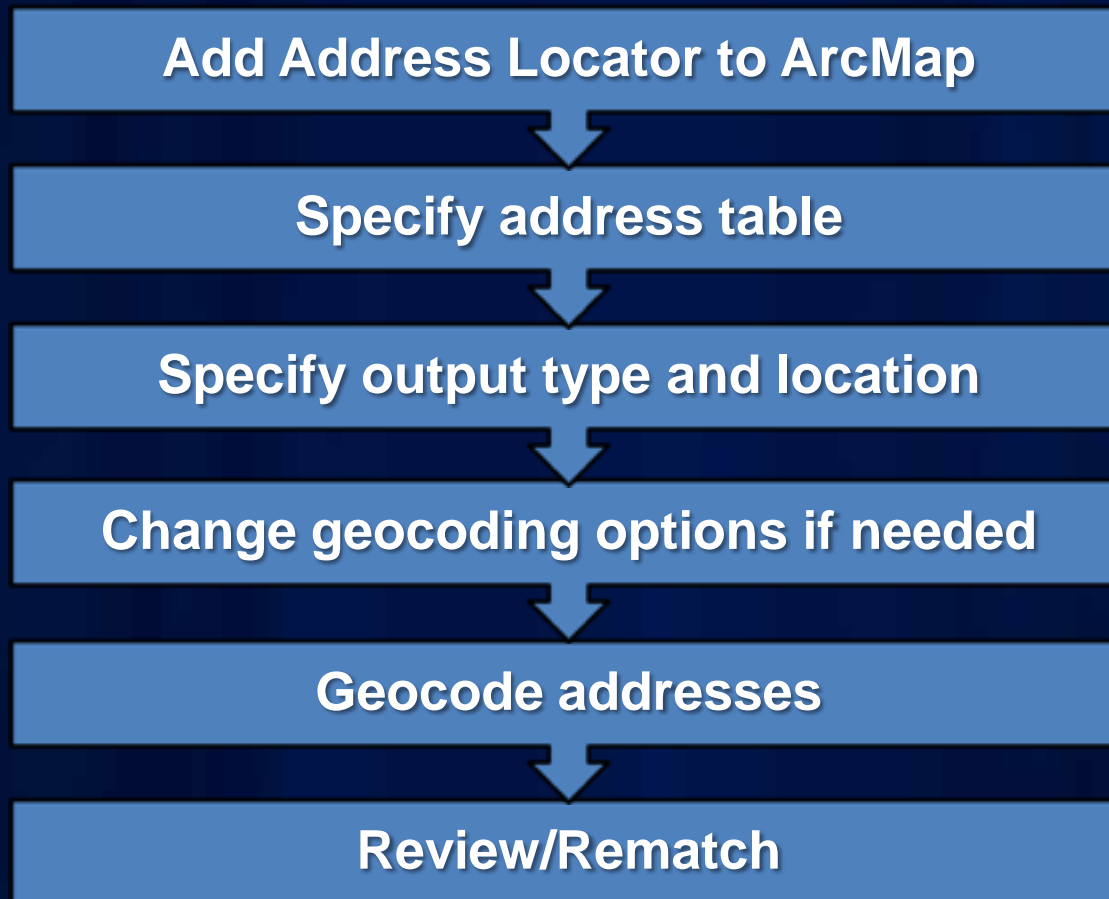
Manage Address Locators
(List of default locators)

Find Tool

- **Choose locator**
 - Specify address
 - Show all candidates
 - My Places



Geocoding an address in ArcMap



Additional Fields in Output Feature Class

- Status
- Score
- Match_type
- Addr_type
- Side
- Match_addr
- Arc_Street / Arc_ZIP



FID	Shape	Status	Score	Match_type	Side	Addr_type	Match_addr	ARC_Street
0	Point	M	100	A	R	Address	1171 Piedmont Ave NE, Atlanta, GA 30309	1171 PIEDMONT AVE NE
1	Point	M	100	M	L	Intersection	0th St NE & Cypress St NE, Atlanta, GA 30309	0TH ST NE & CYPRESS ST NE
2	Point	I	0	A				4505 BEVERLY RD NE
3	Point	M	100	A	R	Address	241 16th St NW, Atlanta, GA 30318	241 16TH ST NW

Why Won't Some Addresses Match

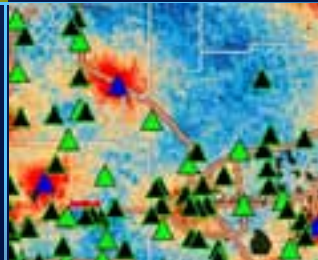
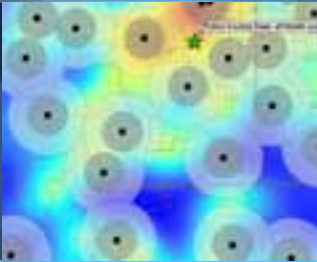
- **Reference Data**
 - Not current
 - Missing address ranges
- **Address Data**
 - Spelling errors
 - Incorrect information (e.g. zone, address out of range)
 - Too much info, such as PO Box, company names etc.

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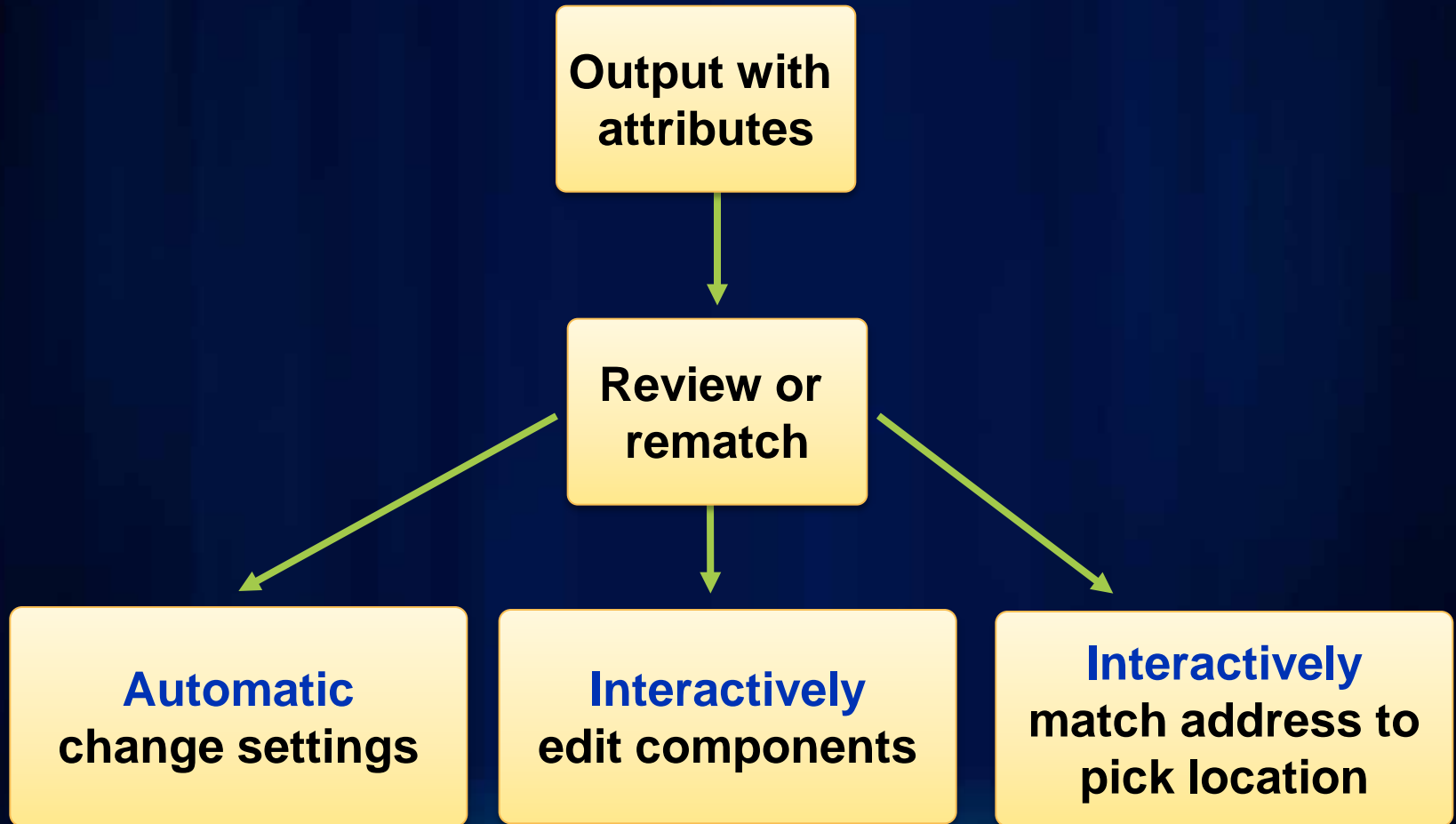
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Demonstration

- Geocode Addresses



Review/Rematch

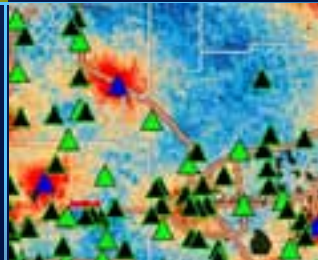
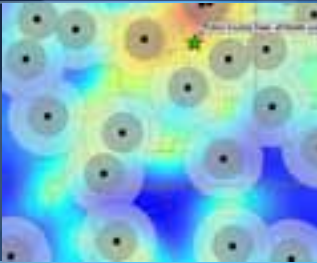


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Demonstration

- Rematch Addresses



Summary – Geocoding in ArcGIS 10

- **What is geocoding?**
- **ArcGIS geocoding components**
- **Geocoding work flow**

Resources and References

- **ESRI Resource Centers**

<http://resources.arcgis.com>



The screenshot displays the ArcGIS Resource Center website interface. At the top, there is a navigation bar with links for 'Content management', 'User management', and 'Help'. The main header features the 'ArcGIS Resource Center' logo, followed by 'Help', 'Blogs', and 'Forums' links. A search bar is located on the right side of the header. Below the header, a green banner indicates the current page is 'Home » Geocoding' and shows the 'Version: 10.0'. A 'toggle tools' link is visible on the right. The left sidebar contains a 'Geocoding' section with sub-links for 'Locators', 'Finding Locations', and 'Geoprocessing'. Below this, there are links for 'Help', 'Forums', 'Gallery', 'Videos', and 'Knowledge Base', along with a 'Get Support' button. The main content area is titled 'What is Geocoding?' and provides a definition: 'Geocoding is the process of transforming a description of a location—such as an address or a place name—to a location on a map. You can geocode by entering one location description at a time or by providing many at once in a table. The resulting locations are output as geographic features with attributes, which can be used for mapping and spatial analysis.' A link to 'See What's new in geocoding in ArcGIS 10.' is also present. To the right of the text is a small map showing a residential area with red buildings and green trees.

Additional Geocoding Sessions

- ***Geocoding - Advanced Techniques***
 - ***Tuesday 10:15 AM, (Room 14B) – Offering I***
 - ***Wednesday 3:15 PM, (Room 14B) – Offering II***
- ***ESRI Showcase Software Island Demo Theater***
 - ***Road Ahead – Geocoding (Tuesday 5:00 PM)***
 - ***From a table of addresses to locations on the map (Thursday 11:30 AM)***
- ***Visit the Spatial Analysis Island in the Exhibit Hall***

Questions ?

&

Thank you for attending

Please fill out and submit your evaluation form

www.esri.com/sessionevals



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