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
Demo: Finding Addresses

- Interactive
- Batch
- Reverse
Ways to find locators for geocoding

Geocoding can be done with locators or geocode services from various sources

- ArcGIS Online Geocode Services
- StreetMap Premium Products from Esri
- Users’ locators shared at Arcgis.com (will be supported with ArcGIS 10.1)
- Build your own locators with ArcGIS Desktop
Geocoding Components

Table of Addresses

Address Locator Styles

Address Locator

Features
Geocoding Work Flow

1. Build or obtain reference data
2. Determine address locator style
3. Build an address locator
4. Locate addresses & rematch remaining addresses
Reference Data

• Many sources
  - StreetMap data
  - Government data
  - Data shared on ArcGIS.com
  - Data vendors
Geocoding Work Flow

1. Build or obtain reference data
2. Determine address locator style
3. Build an address locator
4. Locate addresses & rematch remaining addresses
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

Locator styles can be customized to support international addresses
### US Address - Single House
Reference Data = Points or Polygons

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Alias Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feature ID</td>
<td>FID</td>
</tr>
<tr>
<td>*House Number</td>
<td>HOUSE_NUM</td>
</tr>
<tr>
<td>Prefix Direction</td>
<td>PRE_DIR</td>
</tr>
<tr>
<td>Prefix Type</td>
<td>PRE_TYPE</td>
</tr>
<tr>
<td>*Street Name</td>
<td>STREET_NAM</td>
</tr>
<tr>
<td>Suffix Type</td>
<td>ST_TYPE</td>
</tr>
<tr>
<td>Suffix Direction</td>
<td>SUF_DIR</td>
</tr>
<tr>
<td>City or Place</td>
<td>CITY</td>
</tr>
<tr>
<td>ZIP Code</td>
<td>ZIP</td>
</tr>
<tr>
<td>State</td>
<td>STATE_ABBR</td>
</tr>
<tr>
<td>Additional Field</td>
<td>&lt;None&gt;</td>
</tr>
<tr>
<td>Altname JoinID</td>
<td>&lt;None&gt;</td>
</tr>
</tbody>
</table>
Locator Style Example

General - Gazetteer
Reference Data = Points or Polygons
Geocoding Work Flow

1. Build or obtain reference data
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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
Demonstration

- Create an address locator
Composite Locator

- Combines multiple locators
  - Geocode against multiple datasets
  - Cascade/Fallback geocoding
  - Spatially disjointed datasets
Demonstration

- Create a composite address locator
Geocoding Work Flow

1. Build or obtain reference data
2. Determine address locator style
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4. Locate addresses & rematch remaining addresses
Geocoding Toolbar

- Manage Address Locators (List of default locators)
- Address Input box (Find address in a single-line format)
- Geocode Addresses
- Address Inspector
- Review/Rematch
Find Tool

- Choose locator
  - Specify address
  - Show all candidates
  - My Places
Geocoding an address in ArcMap

1. Add Address Locator to ArcMap
2. Specify address table
3. Specify output type and location
4. Change geocoding options if needed
5. Geocode addresses
6. Review/Rematch
Additional Fields in Output Feature Class

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

- Geocode Addresses
Review/Rematch

Output with attributes

Review or rematch

- Automatic change settings
- Interactively edit components
- Interactively match address to pick location
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
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?

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Thank you for attending

Please fill out and submit your evaluation form

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