Batch Geocoding with ArcGIS

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Agenda

• Overview

• Ways to Batch Geocode
  - CSV Data, Web Map Viewer, Item Publishing
  - Insights for ArcGIS
  - Geocode Table and Geocode Addresses
  - Enterprise Batch Geocoding
    - Architecture
    - Geocode Locations from Table
    - GeoAnalytics

• Q & A
Batch Geocoding
Finding Locations From Descriptions

- High value process
- Addresses hard to control as a data type
- Addresses change
- Reference data changes
- Approaches must fit any need for scale
ArcGIS Online Batch Geocoding
Create Item Content

- **Interactive Workflow**
  - Add CSV Layer to Web Map
  - Limited to 1000 Features
    - 250 anonymously
  - Can be saved as a hosted layer

- **Add Item & Publish Workflow**
  - Upload CSV Item
  - Publish immediately or later
  - Unlimited Feature Count
  - ...Web Map displays 1000 only
  - ...ArcGIS Pro displays any number

Two workflows for small scale CSV workflows
Insights for ArcGIS
Enterprise & Online

- Data analytics powered by location
- Bring in your data
  - Geocode!
- Apply spatial thinking
- Share your work
CSV & Insights

Bruce
Geocoding in ArcGIS Pro
Locate Pane and Improved Performance

• Pro ships with default locators
  - XY provider for coordinate and grid handling
  - Esri World Geocoder (requires internet)

• Locate pane defines available locators
  - Add more to your project

• Build your own locators

• 64bit memory headroom improves performance

• New locator technology available
  - StreetMap Premium 2018 R2
  - Pro 2.3 Early Adopters 2018
  - Pro 2.3 Release 2018 & 2019
Geocode Table
ArcGIS Pro 2.2

• Guided workflow steps you through batch geocoding

• More batch geocoding options
  - Location Type
  - Category filtering
  - Country filtering

• Works with local locators and Portal geocoding services

• Geocode Addresses can be used for automation
Geocode Table & Geocode Addresses (Local & World Locators)

Bruce
Portal Geocoding
Victor
BatchGeocode API
A Portal endpoint for Batch Geocoding

- Accepts Portal CSV, XLSX and tables as input
- Outputs a Feature Service, CSV or XLS to the Portal
- Fully utilizes backend geocoding resources
Portal Batch Geocoding: How it works

Architecture

ArcGIS Portal

Geocode Server

GIS Servers

World Locator Service
SMP Locator Service(s)
Portal Batch Geocoding: How it works

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Hosting Server
Portal Batch Geocoding: How it works

Architecture

“NumBatchThreads”: 4

ArcGIS Portal

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Portal Batch Geocoding: How it works

Architecture

- ArcGIS Portal
- Geocode Server
- GIS Servers
- World Locator Service
- SMP Locator Service(s)
- Batch Geocode API
- Hosting Server
NumBatchThreads: A Closer Look

Architecture

“NumBatchThreads”: 4

Geocoding Services

GeocodingTools
Geoprocessing Service
NumBatchThreads with Multiple Users

Architecture

```
“NumBatchThreads”: 2
```

Geocoding Services

Geocoding Tools
Geoprocessing Service
Portal Batch Geocoding: Advantages

Summary

- Get the most performance out of your enterprise geocoding services
- Manage backend resources
- Perform batch geocoding behind your organizational firewall
- Has chunking and retry logic built-in
Clients for Portal Geocoding

Victor
Clients that use the Batch Geocode API
A pattern for batch geocoding
Geocode Locations from Table

On-Premises Map Viewer

- Map Viewer analysis tool for geocoding large tables located on your Portal
  - Recommended way to geocode large tables quickly
  - Returns all output fields from the geocoding service

- Works using geocoding services that are federated with your portal
  - Including Esri’s World Geocoding Service and locator services hosted by your organization

- Allows your administrator to optimize geocoding
  - Administrators can configure the system to deliver increased performance while still managing load
Geocode Locations from Table

Large Batch Geocoding in ArcGIS Enterprise

• Supports multiple input formats
  - CSV
  - XLSX
  - Portal table

• Geocoding jobs run asynchronously in the background

• Supports multiple output formats and writes geocoding results to the portal
  - CSV
  - XLS
  - Feature Layer
Portal Geocoding:
Geocode Locations from Table
Configure “Geocode Locations from Table”

- **How to Publish locators and add them as Utility Services**

- **Scale the Geocoding Service and the GP Service based on server resources** via Server Manager

- **Set the number of threads per geocoder** via the Sharing API

- **Learn more at the Configure Portal to Geocode Addresses** online help
Configuring Parallelized Batch Geocoding

Portal Demo:
Configuring Parallelized Batch Geocoding
Leverages new pattern and provides increased performance

Works using geocoding services that are federated with your portal
- Including Esri’s World Geocoding Service and locator services hosted by your organization

Uploads your table to the portal and geocodes all the records into an output feature service
Geoanalytics - Geocode Locations from Table

On-Premises Map Viewer with the Geoanalytics Extension

- **Requirements**
  - Requires data to be in a BDFS
  - Requires the Geoanalytics extension
- **Works using geocoding services that are federated with your portal**
  - Including Esri’s World Geocoding Service and Locator Services hosted by your organization
- **Good for 10+ million record batch geocoding**
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