

# New Jersey Geocoding Service

\*Questions about this document can be directed to [njgin@oit.state.nj.us](mailto:njgin@oit.state.nj.us)



## **NJ\_Geocode Service URL:**

[https://geo.nj.gov/arcgis/rest/services/Tasks/NJ\\_Geocode/GeocodeServer](https://geo.nj.gov/arcgis/rest/services/Tasks/NJ_Geocode/GeocodeServer)

## **Purpose:**

To provide a single, comprehensive, statewide geocoding service that meets the needs of the New Jersey GIS community. It is regularly updated with address information from NJ Office of GIS (NJOGIS) address points and road centerlines data. The service can be used within ArcMap, ArcGIS Pro, ArcGIS Online or integrated into custom web applications. It supports complex geocoding capabilities such as interactive search, batch geocoding and reverse geocoding.

## **Outline:**

1. Adding the service to an ArcGIS Online organization
2. Using the service in ArcGIS Pro
  - a. Adding the service
  - b. Interactive geocoding
  - c. Batch geocoding tips
3. Setting as a default service in ArcMap
4. Making REST calls
  - a. Find address candidates
  - b. Reverse geocoding
  - c. Batch geocoding

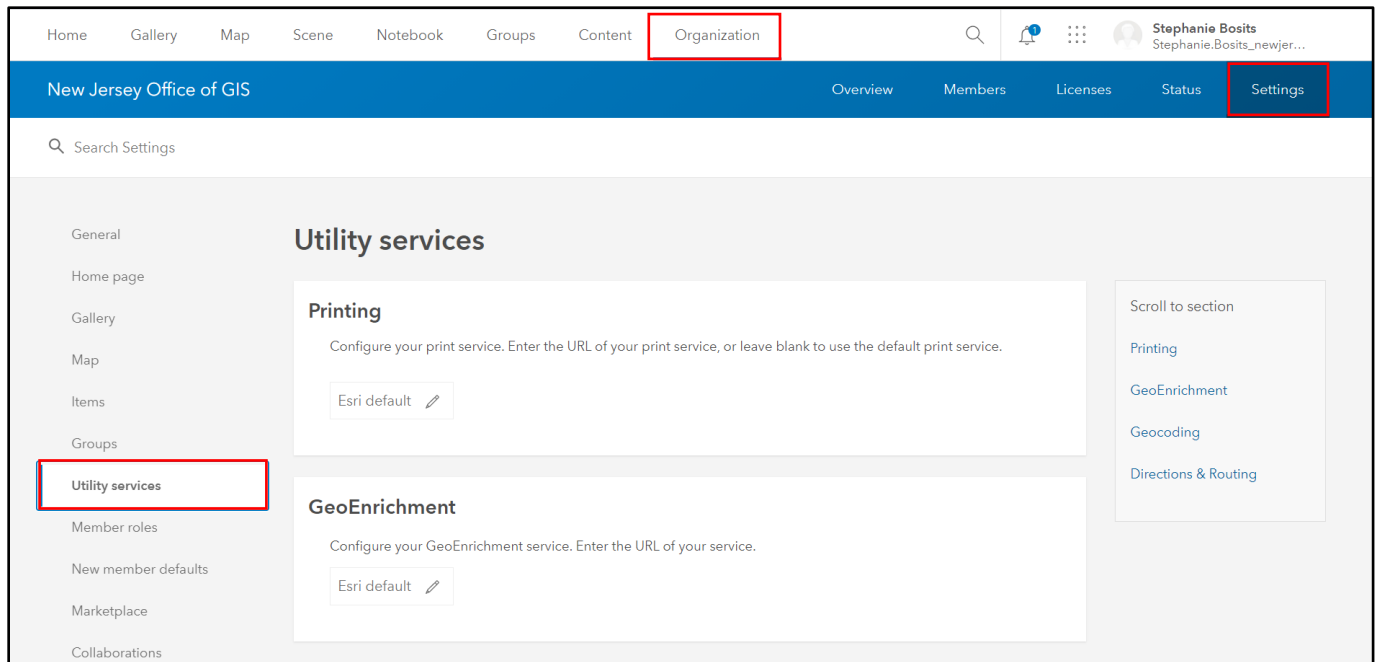
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## 1. Adding the service to an ArcGIS Online organization:

- Once a locator is defined it can be accessed by all members of an organization.
- Log into ArcGIS Online and click the Organization tab at the top followed by the settings tab. Click Utility services on the left and scroll down to the Geocoding Section.



- Click the Add button and choose “From URL.”
- Enter the above service URL in the “Locator URL” box:
- The locator will now be available as a search source in web maps and can be configured as a search source for application widgets. It will also be available in ArcGIS Pro.

Add Locator

From URL  
 From Existing Locator

Locator URL

Locator Name

Placeholder Text

Allow geosearch   
Allow batch geocoding

Save Cancel

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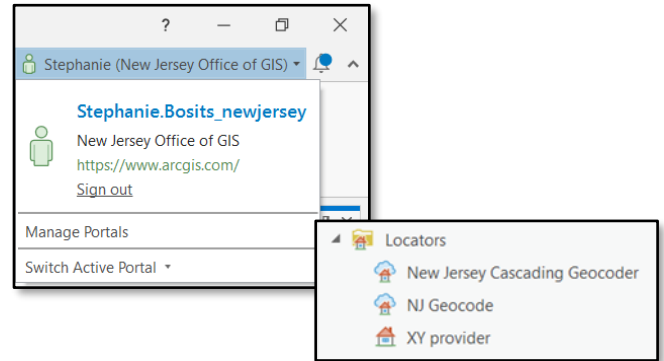
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## 2. Using the locator in ArcGIS Pro

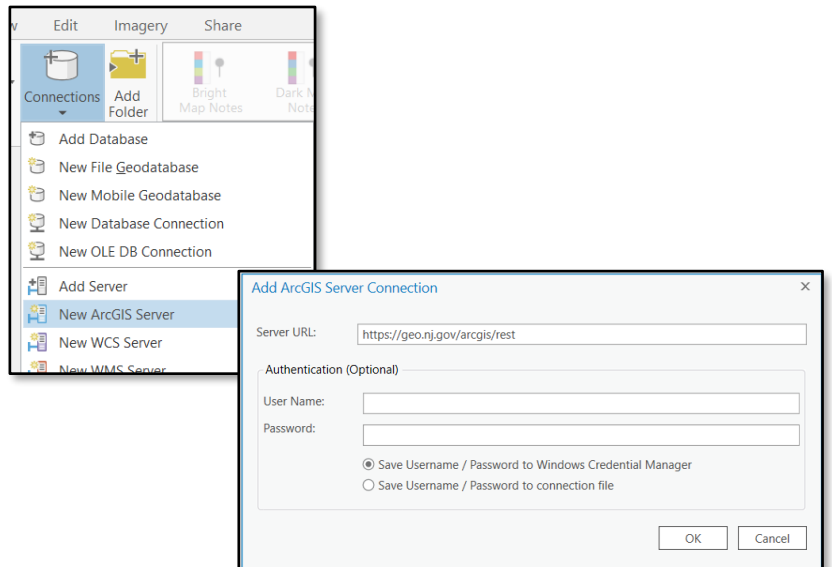
### a) Adding the service:

**Note:** If the locator has already been added to an ArcGIS Online organization, setting that organization as the active portal in ArcGIS Pro will make the service automatically available in all projects.

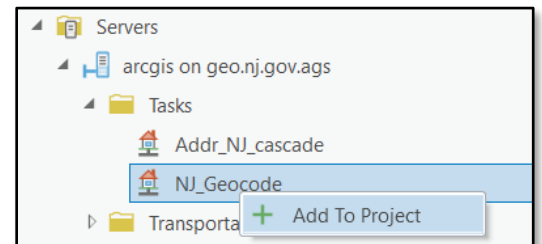


If this is not a possibility, follow the steps below:

- From the “Insert tab” go to “Connections” and choose “New ArcGIS Server Connection.”
- Enter the following server URL: <https://geo.nj.gov/arcgis/rest>



- From the server connection navigate to the “Tasks” folder and right-click “NJ\_Geocode” then “Add to Project.”



- The service will now be accessible via the locate tool for interactive searches as well as via the geocode addresses tool for performing batch processing

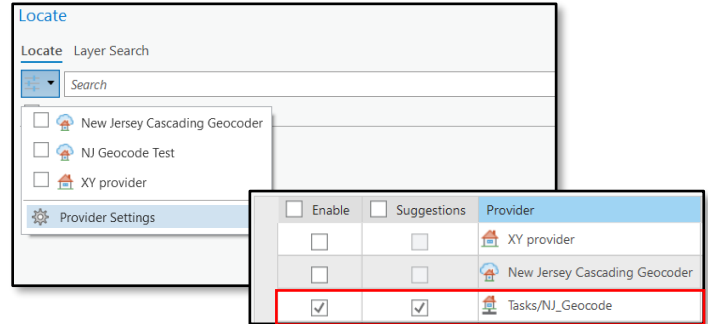
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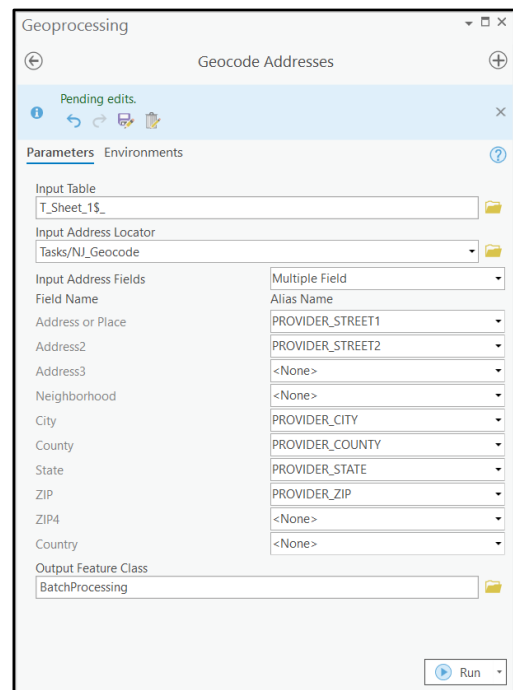
## b) Interactive Geocoding

- In order to use the suggest capabilities in the locate tool, make sure that the NJ\_Geocode service is enabled and that suggestions are turned on



## c) Batch Geocoding

- Field Mapping in the Geocode Addresses Tool.
  - Enter jurisdictional information in the city field.
  - Information does not need to be entered in the neighborhood field or the country field.



- Output Review
  - Make sure to carefully review any output locations where the Addr\_type value is returned as StreetName
  - This means that the input location was only matched to a street name within the input city, it did not match to an address number.

Match_addr	Addr_type
Nottingham Way, Trenton, NJ, 08619	StreetName
Harrison Avenue, Kearny, NJ, 07032	StreetName
Oxford Road, Oxford, NJ, 07863	StreetName
200 Example Road, Belmar, NJ, 07719	StreetAddress
698 Main Street, Glassboro, NJ, 08028	StreetAddress

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## 3. Setting the service as a Default locator in ArcMap:

- By adding a default locator, the locator will always appear as an optional locator in ArcMap sessions. This must be applied on a user-by-user basis.
- Open Windows Explorer and type **%appdata%** (with the percent signs) into the address bar at the top, and it will open your user profile directory.
- From there, navigate to **ESRI\Desktop10.7\Locators**. If running a different 10.x version, use that folder name instead.
- Find **DefaultLocators.xml** in that folder.
- Save a copy of this file for backup.
- Open the DefaultLocators.xml file in a text editor, such as NotePad or NotePad++.
- Paste the following code in between the **<default\_locators>** tags:

```
<locator_ref>
  <name>Tasks/NJ_Geocode</name>
  <display_name>NJOGIS NJ_Geocode</display_name>
  <workspace_properties>
    <factory_progid>esriGISClient.AGSServerConnectionFactory</factory_progid>
    <ags_connection_properties>
      <url>https://geo.nj.gov/arcgis/rest/services</url>
    </ags_connection_properties>
  </workspace_properties>
</locator_ref>
```

- Launch ArcMap and confirm that it works. There should now be an entry for the locator as “NJOGIS NJ\_Geocode” in the Find locations window and Geocoding toolbar.

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## 4. Making REST Calls

a) **Find Address Candidates** - Find possible address candidates for a single address

[https://geo.nj.gov/arcgis/rest/services/Tasks/Addr\\_NJ\\_cascade/GeocodeServer/findAddressCandidates](https://geo.nj.gov/arcgis/rest/services/Tasks/Addr_NJ_cascade/GeocodeServer/findAddressCandidates)

Useful documentation from ESRI -

<https://developers.arcgis.com/rest/geocode/api-reference/geocoding-find-address-candidates.htm>

- Enter the search address either by using parsed address variables (Address, City, Region, Postal) or a concatenated address (SingleLine).
- Out Fields (outFields) - Use \* as the input to ensure all output fields are returned.
- Output Spatial Reference (outSR) - All addresses are returned by default in NJ State Plane coordinates. If Latitude/Longitude coordinates are required, use the code 4269.
- Format (f) - Use JSON to return candidates in JSON.

ArcGIS REST Services Directory  
Home > services > Tasks > NJ\_Geocode (GeocodeServer) > findAddressCandidates

**Find Address Candidates: (Tasks/NJ\_Geocode)**

Address:

Address2:

Address3:

Neighborhood:

City:

Subregion:

Region:

Postal:

PostalExt:

CountryCode:

SingleLine:

Out Fields:

Max Locations:

Match out of range:  True  False

Language Code:

Location Type:

Source Country:

Category:

Location:

Distance in Meters:

Search Extent:

Output Spatial Reference:

Magic Key:

Format:

### Example using URL Parameters:

[https://geo.nj.gov/arcgis/rest/services/Tasks/NJ\\_Geocode/GeocodeServer/findAddressCandidates?Address=125+W+State+St&Address2=&Address3=&Neighborhood=&City=Trenton&Subregion=&Region=NJ&Postal=08608&PostalExt=&CountryCode=&SingleLine=&outFields=\\*&maxLocations=&matchOutOfRange=true&langCode=&locationType=&sourceCountry=&category=&location=&distance=&searchExtent=&outSR=&magicKey=&f=pjson](https://geo.nj.gov/arcgis/rest/services/Tasks/NJ_Geocode/GeocodeServer/findAddressCandidates?Address=125+W+State+St&Address2=&Address3=&Neighborhood=&City=Trenton&Subregion=&Region=NJ&Postal=08608&PostalExt=&CountryCode=&SingleLine=&outFields=*&maxLocations=&matchOutOfRange=true&langCode=&locationType=&sourceCountry=&category=&location=&distance=&searchExtent=&outSR=&magicKey=&f=pjson)

### Example JSON request body:

```
{
  "SingleLine": "125 W State St Trenton, NJ 08608",
  "outFields": "*",
  "outSR": "4269",
  "f": "pjson"
}
```

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## Searching for Road Intersections:

- Use the SingleLine parameter as input.
- At a minimum include a city or zip code after the intersection name.
- The following are acceptable intersection connectors: **& @ | and at**
- Example: "SingleLine": "Vandeventer Ave & Nassau St, Princeton, NJ 08542"

## Response Information:

- Candidates are returned in order of scoring hierarchy.
- Location (X/Y) – gives the coordinates in the requested output coordinate system.
- Score – score of the candidate (0-100). 85 is required as a minimum match score.
- See ESRI documentation for further explanation of response output fields:  
<https://pro.arcgis.com/en/pro-app/latest/help/data/geocoding/what-is-included-in-the-geocoded-results-.htm>

**b) Reverse Geocode** - Enter a location in x/y coordinates and receive the closest address with coordinates.

[https://geo.nj.gov/arcgis/rest/services/Tasks/Addr\\_NJ\\_cascade/GeocodeServer/reverseGeocode](https://geo.nj.gov/arcgis/rest/services/Tasks/Addr_NJ_cascade/GeocodeServer/reverseGeocode)

Useful documentation from ESRI –

<https://developers.arcgis.com/rest/geocode/api-reference/geocoding-reverse-geocode.htm>

- Location - Input location with coordinates and associated coordinate system.
- Distance - Radius threshold around input coordinates in which to look for addresses. Units are in feet.
- FeatureTypes - Limits the possible match types returned by the operation, see ESRI documentation provided above.

The screenshot shows a web form for the Reverse Geocode service. It includes the following fields and controls:

- Location:** A text input field containing the coordinates "418633.2457386248, 499778.18520598585".
- Distance:** An empty text input field.
- Language Code:** An empty text input field.
- Location Type:** An empty text input field.
- Feature Types:** An empty text input field.
- Output Spatial Reference:** An empty text input field.
- Return Intersection:** Radio buttons for "True" and "False", with "False" selected.
- Format:** A dropdown menu currently set to "HTML".
- At the bottom, there are two buttons: "Reverse Geocode (GET)" and "Reverse Geocode (POST)".

- Output Spatial Reference (outSR) - All addresses are returned by default in NJ State Plane coordinates. If Latitude/Longitude coordinates are required, use the code 4269 in the Output Spatial Reference.
- Format (f) - For JSON output, use 'pjson' in the format parameter.

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## **Example JSON request body:**

```
{
  "location": { "x": -74.65722696392,
                "y": 40.350405203324,
  "spatialReference": { "wkid": 4269  } }
  "distance": "100",
  "outSR": "4269",
  "f": "pjson"
}
```

## **Response Information**

- See ESRI documentation for further explanation of response output fields:  
<https://pro.arcgis.com/en/pro-app/latest/help/data/geocoding/what-is-included-in-the-geocoded-results-.htm>

- c) **Geocode Addresses** - Batch geocode one or many addresses at one time (up to 1,000)  
[https://geo.nj.gov/arcgis/rest/services/Tasks/Addr\\_NJ\\_cascade/GeocodeServer/geocodeAddresses](https://geo.nj.gov/arcgis/rest/services/Tasks/Addr_NJ_cascade/GeocodeServer/geocodeAddresses)

**Note - When batch geocoding a large number of records outside of ArcMap or ArcGIS Pro, the client application must account for the maximum batch size limit by dividing the input address records into lists of 1000 or less.**

Useful documentation from ESRI –

<https://developers.arcgis.com/rest/geocode/api-reference/geocoding-geocode-addresses.htm>

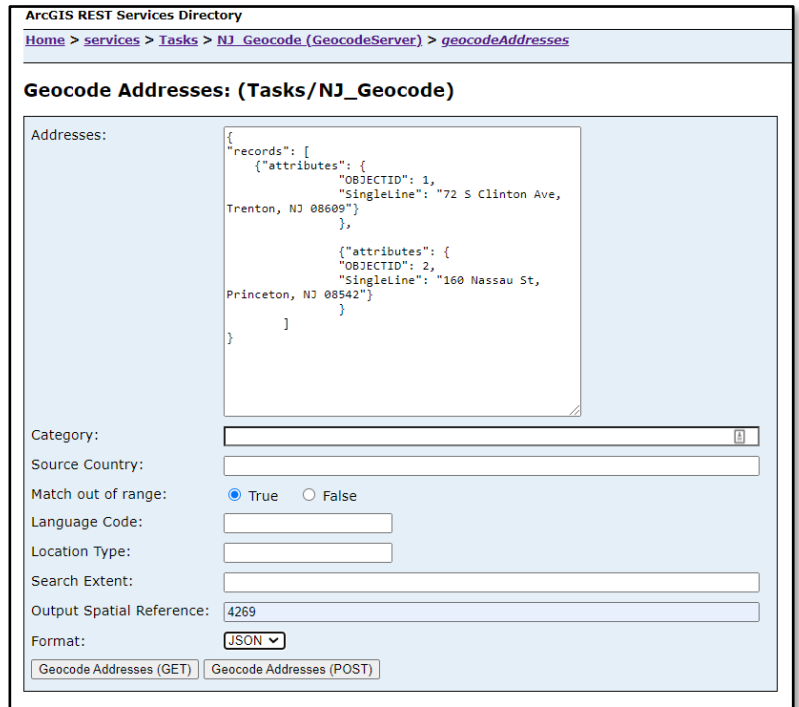


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- Addresses - Input address records to be geocoded.
- For each record, use either the input fields: Address, City, Region, Postal, or SingleLine for address attributes.
- Output Spatial Reference (outSR) - All addresses are returned by default in NJ State Plane coordinates. If Latitude/Longitude coordinates are required, use the code 4269 in the Output Spatial Reference.
- Format (f) - For JSON output, use 'pjson' in the format parameter.
- Optional - Use the OBJECTID attribute and pass a unique ID for each input address.



## Example JSON request body:

```
{
  "records": [
    { "attributes": { "OBJECTID": 1,
                     "SingleLine": "72 S Clinton Ave, Trenton, NJ 08609" } },
    { "attributes": { "OBJECTID": 2,
                     "SingleLine": "160 Nassau St, Princeton, NJ 08542" } } ]
  "outSR": "4269",
  "f": "pjson"
}
```

## Response Information

- All input addresses are returned regardless of whether they have matched.
- See ESRI documentation for further explanation of response output fields: <https://pro.arcgis.com/en/pro-app/latest/help/data/geocoding/what-is-included-in-the-geocoded-results-.htm>