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# COMMON LAND UNIT BOUNDARIES

API Documentation 2020

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[API Portal](#)

[GitHub Repo](#)

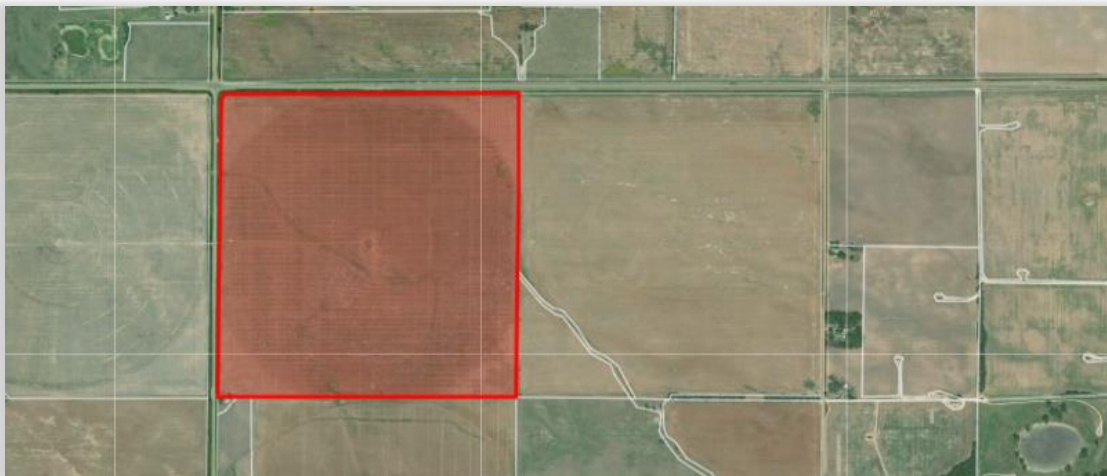
[Jupyter Notebook](#)

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## Service Overview

Common Land Unit (CLU) boundaries are farm or field boundaries used by the United States Department of Agriculture (USDA) in the delivery of certain farm programs. It is not uncommon for more than one crop to be grown on a CLU. These CLU boundaries are derived from the last publicly available USDA distribution from 2008. A single CLU is approximately interpreted as a "field". A Common Land Unit (CLU) is the smallest unit of land that has a permanent, contiguous boundary, a common land cover and land management, a common owner and a common producer in agricultural land associated with USDA farm programs.

The Ag-Analytics Common Land Unit Boundary API provides a service for which a user can pass a point (x, y coordinates pair), a line, an envelope (bounding box), or a polygon in geojson. The service will send back boundaries in geojson. To retrieve the desired level of boundary, user will need to pass a level parameter in the GET request.



*CLU Boundaries shown in FarmScope*

## GET Request

*GET Request Example – application/json*

### **Polygon CLU Level Search:**

```
{
  "Geometry": "{ \"geometryType\": \"esriGeometryPolygon\", \"features\": [{ \"geometry\": { \"rings\": [[ [-91.53900737389114, 34.55980772414722], [-91.53894861128936, 34.560481053757655], [-91.53892673258258, 34.56192576336332], [-91.53889249809026, 34.56325987524309], [-91.5388720178293, 34.564625711607334], [-91.53882557593954, 34.566462376337654], [-91.53913423046032, 34.566538207172584], [-91.53917447152463, 34.566730301462314], [-91.53962869840569, 34.566740245266146], [-91.54305890694297, 34.56681730907161], [-91.54305614512498, 34.566585087032195], [-91.54304565183531, 34.56613185570063], [-91.54306887772651, 34.56417543544802], [-91.54310131717199, 34.562940478320456], [-91.54309762365637, 34.56170736210515], [-91.54308258968973, 34.561319449433086], [-91.54285584362225, 34.56111836821816], [-91.54218857094577, 34.56094358497853], [-91.54135688960872, 34.560665392294084], [-91.54036096688509, 34.56031309277506], [-91.53965887605625, 34.560065743239534], [-91.53900737389114, 34.55980772414722]]], \"spatialReference\": { \"wkid\": 4326 } } ] } } }"
  "Geometry_type": "polygon",
}
```

### **Envelope County Level Search:**

```
{
  'Geometry': '{ \"xmin\": -101.79931640625, \"ymin\": 37.45741810262938, \"xmax\": -101.79931640625, \"ymax\": 41.16211393939692, \"spatialReference\": { \"wkid\": 4326 } }',
  'Geometry_type': 'envelope',
  'Level': 'County'
}
```

### **Point PLSS Level Search:**


```
{ 'Geometry': '{ \"x\": -91.53900737389114, \"y\": 34.55980772414722 }',
  'Geometry_type': 'point',
  'Level': 'PLSS' }
```



## Supported Boundary Level

Parameter	Source	Description
<b>Common Land Unit (CLU)</b>	USDA	Boundaries from this source are derived from the last publicly made 2008 Common Land Unit (CLU) boundaries distribution by the USDA.
<b>1 SQMI Grid</b>	-	Square mile grid
<b>Public Land Survey System (PLSS)</b>	USGS	The Public Land Survey System (PLSS) is the surveying method developed and used in the United States to plat, or divide, real property for sale and settling.
<b>Public Land Survey System (PLSS) - First Division</b>	USGS	This source provides the boundaries of first division when PLSS is not available.
<b>County</b>	-	County level US boundaries
<b>State</b>	-	State level US boundaries

## Header Parameters

Ocp-Apim-Subscription-Key: Subscription keys are given upon purchase - [Purchase APIs](#) 

## Request Parameters

Parameter	Type	Required?	Default	Options	Description
<b>Geometry</b>	GeoJSON /JSON	Yes	-	GeoJSON, JSON, envelope, point	The AOI used for searching boundaries. It can be a point (x,y coordinate pairs), a line or polygon in GeoJSON, or an envelope (bounding box with xmin, xmax, ymin, ymax).
<b>Geometry_type</b>	String	Yes	-	'envelope', 'point', 'line', 'polygon'	The geometry type of the geometry passed in the request.



<b>Level</b>	String	No	'CLU'	'CLU', 'County', 'State', 'PLSS', 'PLSS_FI', 'RSTDIVISION', '1SQMI_GRID'	Boundary searching level. See description above.
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## GET Response

GET Response Example (Snippet) – application/json

```
{'msg': 'Found 2 results',
  'results':
    {'crs': {'properties': {'name': 'EPSG:4326'}, 'type': 'name'},
     'features': [
       {'geometry': {'coordinates': [[[-91.52992284616238, 34.56657638609141], [-91.53092105316404, 34.56660643963551], [-91.53463674249161, 34.56668041337042], [-91.53826525963399, 34.566753229677886], [-91.54311329704097, 34.56686304319493], ...], 'type': 'Polygon'},
        'id': 1744,
        'properties': {'CALCACRES': 14.68000031, 'CALCACRES2': None, 'OBJECTID': 1744},
        'type': 'Feature'},
       {'geometry': {'coordinates': [[[-91.53900737389114, 34.55980772414722], [-91.53894861128936, 34.560481053757655], [-91.53892673258258, 34.56192576336332], [-91.53889249809026, 34.56325987524309], ...],
        'type': 'Polygon'},
        'id': 1,
        'properties': {'CALCACRES': 65.45999908, 'CALCACRES2': None, 'OBJECTID': 1},
        'type': 'Feature'}
     ],
     'type': 'FeatureCollection'},
  'status': 'SUCCEED'}
```

## Response Parameters

Parameter	Data Type	Description
<b>status</b>	String	Status of the API call: 1. SUCCEED: API call was successful. 2. FAILURE: API call was failed, see msg for error message. 3. NoFound: No boundaries found for current geometry
<b>msg</b>	String	Messages from the API call
<b>results</b>	GeoJSON	If the API call was successful, all boundaries will be returned in GeoJSON as a feature collection



## Citations:

- [USDA Common Land Unit Boundaries](#)
- [GeoJSON Specification](#)
- [ArcGIS Features and Geometries](#)
- [ArcGIS REST API Query Information](#)
- [ArcGIS Esri Geometry Types](#)
- Spatial Reference Information: World Geodetic System (WGS 84) - National Geospatial-Intelligence Agency – 1984



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