

List of Sensors

This document shows how to generate list of sensors using the Geostreaming API. Included are links to code and the output csv, as well as, a data dictionary.

To create a list of sensors, use the following code: https://opensource.ncsa.illinois.edu/bitbucket/projects/GEOD/repos/gltg-parsers-py/browse/scripts/sensors_to_csv

Download the output CSV file (<https://uofi.app.box.com/file/593176055855>)

The output CSV is generated by parsing the JSON response from API. Example of JSON follows.

Typical Sensor JSON

```
{'created': '2018-03-23T15:48:32Z',
'geoType': 'Feature',
'geometry': {'coordinates': [-84.44799549, 38.9203417, 0],
            'type': 'Point'},
'id': 1445,
'max_end_time': '2019-12-18T21:30:00Z',
'min_start_time': '2007-10-01T06:00:00Z',
'name': '03254520',
'parameters': ['discharge-ft3s',
               'discharge-ft3s-qc',
               'dissolved-oxygen-mgl',
               'dissolved-oxygen-mgl-qc',
               'nitrate-nitrite-as-n-mgl',
               'nitrate-nitrite-as-n-mgl-qc',
               'pH',
               'pH-qc',
               'specific-conductance-uScm',
               'specific-conductance-uScm-qc',
               'turbidity-fnu',
               'turbidity-fnu-qc',
               'water-temperature-c',
               'water-temperature-c-qc'],
'properties': {'huc': {'huc2': {'code': '05'},
                       'huc4': {'code': '0510'},
                       'huc6': {'code': '051001'},
                       'huc8': {'code': '05100101'},
                       'huc_name': 'Licking'},
               'location': 'LICKING RIVER AT HWY 536 NEAR ALEXANDRIA, KY',
               'name': '03254520',
               'online_status': 'online',
               'popupContent': '03254520',
               'region': '0510',
               'type': {'id': 'usgs',
                       'network': 'NWIS',
                       'title': 'United States Geological Survey'}}
```

Column Definitions

column name	definition
source	Name of Institution that provides the data.
name	Name of sensor provided by source. If no name is provided by the source, naming convention applied in parser.
location	Description of the location of the sensor provided by source.
max_end_time	Timestamp of most recent datapoint.

min_start_time	Timestamp of first chronological datapoint.
parameters	List of measurements collected by the sensor e.g., nitrate, phosphate, discharge.
huc8	Hydrological Unit Code at subbasin level.
huc_name	Name of HUC.
online_status	Typical available for continuous data. If the sensor data has been updated within the near past (~5 days), the sensor is designated 'online'. If there is no recent data, the sensor will be designated 'offline'. This is viewable in the UI.

Example Columns and Row

source	name	location	longitude	latitude	max_end_time	min_start_time	parameters	huc8	huc_name	online_status
United States Geological Survey	3254520	LICKING RIVER AT HWY 536 NEAR ALEXANDRIA, KY	-84.447995	38.9203417	2019-12-18T21:30:00Z	2007-10-01T06:00:00Z	discharge-ft3s, dissolved-oxygen-mgl, nitrate-nitrite-as-n-mgl, pH, specific-conductance-uScm, turbidity-fnu, water-temperature-c,	5100101	Licking	online

Issues with Data

Source	Issue	Pertinence?
USGS	A few locations show id instead of text	
Water Quality Portal	many missing start and end time (update?) many missing parameters	
several sources	missing location	
several sources	missing huc_name	
several sources	missing online status	