InsightCloud

API/Developer Documentation

Version 0.4 Beta

June 09, 2015

Contents

Revision Table

Version Number	Date	Description	Authors
0.0 Beta	08/15/2014	First Draft for initial release	DigitalGlobe
0.1 Beta	02/11/2015	Second Draft updated to include new features and updated widgets.	DigitalGlobe
0.2 Beta	04/21/2015	Third Draft updated to include new features and updated widgets.	DigitalGlobe
0.3 Beta	05/27/2015	Fourth Draft updated to include new features and updated widgets.	DigitalGlobe
0.4 Beta	06/09/2015	Fifth Draft updated to include new features and updated widgets.	DigitalGlobe

1 Scope

1.1 Identification

This document applies to InsightCloud Version 0.4 Beta Dated 06/09/2015.

1.2 System Overview

The DigitalGlobe InsightCloud combines an open data processing environment with powerful geospatial analytic algorithms and easy to use tools. The result is that our customers are able to cost effectively exploit massive amounts of location data in near real-time. The InsightCloud abstracts data management, application logic, and the user experience. Our customers can fuse DigitalGlobe Geospatial Big Data™ with their native and 3rd party sources. Experts can design custom Map Algebra algorithms within our framework and our Open APIs enable our analytics to integrate into end user workflows.

Insight Explorer	A portfolio of "easy button" analytic applications that enable interactive mission planning and collaborative mapping at global scale
GBD Analytic Toolkit	A portfolio of geospatial analytic tools that enable interactive analysis of massive volumes of raster and vector data to enable mission planning, predictive modeling, and real-time situational awareness. The GBD Analytic Toolkit leverages the core algorithms of Signature Analyst™ a patented tool that discover unseen patterns in spatial data.
Geospatial Data Hub	A big data processing and exploitation environment built on the Cloudera Enterprise Data Hub that has been adapted to process and exploit high resolution imagery, terrain, map features, human geography, movement tracks, and social media at global scale.

InsightCloud can be delivered via an On-Premise or Software as a Service (SaaS) model. Our On-Premise solution operates within the emerging IC ITE and DCGS Architectures. Our SaaS model runs in the Amazon Cloud and our Classified Datacenter in Herndon, VA.

1.3 Document Overview

The purpose of this document is to:
- Identify the REST service calls made by the software.

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- Provide example calls and example results for reference

2   Reference Documents

Document Name	Ver	Location
InsightCloud General Users Guide (GUG)	0.0 Beta	

3   CAS Authentication

The following is a sample Groovy script that walks through the authentication and access steps for users who want to access our data via direct calls through REST services. Before running the script, users may need to import the insightcloud.digitalglobe.der cert into the JRE cacerts file by downloading the cert and running this command:

```
sudo keytool -import -trustcacerts -alias insightcloud.digitalglobe.der -file
/home/<user>/insightcloud.digitalglobe.der -keystore /usr/lib/jvm/java-7-
oracle/jre/lib/security/cacerts
```

The sample Groovy script:

```
import java.io.IOException
import java.util.logging.Logger
import java.util.regex.Matcher
import java.util.regex.Pattern
import org.apache.commons.httpclient.HttpClient
import org.apache.commons.httpclient.NameValuePair
import org.apache.commons.httpclient.methods.PostMethod
import org.apache.commons.httpclient.methods.GetMethod
import org.apache.commons.httpclient.methods.DeleteMethod


@Grab("commons-httpclient:commons-httpclient:3.1")

class Client
{
  static final Logger LOG = Logger.getLogger(Client.class.getName())
  String getServiceTicket(String server, String ticketGrantingTicket, String service)
  {
    if (!ticketGrantingTicket)
      return null
```

```
  HttpClient client = new HttpClient()
  PostMethod post = new PostMethod("$server/$ticketGrantingTicket")
  post.setRequestBody([new NameValuePair("service", service)].toArray(new
NameValuePair[1]))
   try
   {
     client.executeMethod(post)
     String response = post.getResponseBodyAsString()
     switch (post.getStatusCode())
     {
       case 200:
         return response
       default:
         LOG.warning("Invalid response code ( $post.getStatusCode() ) from CAS server!")
         LOG.info("Response (1k): " + response.substring(0, Math.min(1024, response.length())))
         break
     }
   }
   catch (final IOException e)
   {
     LOG.warning(e.getMessage())
   }
   finally
   {
     post.releaseConnection()
   }
   return null
 }
 String getTicketGrantingTicket(String server, String username, String password)
 {
   HttpClient client = new HttpClient()
   PostMethod post = new PostMethod(server)
   post.setRequestBody([new NameValuePair("username", username),new
NameValuePair("password", password)].toArray(new NameValuePair[2]))
   try
   {
     client.executeMethod(post)
     String response = post.getResponseBodyAsString()
     switch (post.getStatusCode())
     {
       case 201:
         Matcher matcher = Pattern.compile(".*action=\".*/(.*?)\".*").matcher(response)
         if (matcher.matches())
           return matcher.group(1)
         LOG.warning("Successful ticket granting request, but no ticket found!")
         LOG.info("Response (1k): " + response.substring(0, Math.min(1024, response.length())))
         break
       default:
         LOG.warning("Invalid response code (${post.getStatusCode()}) from CAS server!")
         LOG.info("Response: $response")
         break
     }
   }
```

```
  catch (final IOException e)
  {
    LOG.warning(e.getMessage())
  }
  finally
  {
    post.releaseConnection()
  }
  return null
}
void notNull(Object object, String message)
{
  if (object == null)
    throw new IllegalArgumentException(message)
}
void getServiceCall(HttpClient client, String service, String serviceTicket) {
  GetMethod method = new GetMethod(service)
  method.setQueryString([new NameValuePair("ticket", serviceTicket)].toArray(new
NameValuePair[1]))
  try
  {
    client.executeMethod(method)
    String response = method.getResponseBodyAsString()
    switch (method.getStatusCode())
    {
      case 200:
        LOG.info("Response: $response")
        break
      default:
        LOG.warning("Invalid response code (" + method.getStatusCode() + ") from CAS
server!")
        LOG.info("Response: $response")
        break
    }
  }
  catch (final IOException e)
  {
    LOG.warning(e.getMessage())
  }
  finally
  {
    method.releaseConnection()
  }
}
void logout(String server, String ticketGrantingTicket) {
  HttpClient client = new HttpClient()
  DeleteMethod method = new DeleteMethod("$server/$ticketGrantingTicket")
  try
  {
    client.executeMethod(method)
    switch (method.getStatusCode())
    {
      case 200:
```

```
        LOG.info("Logged out")
        break
      default:
        LOG.warning("Invalid response code (" + method.getStatusCode() + ") from CAS
server!")
        LOG.info("Response: $response")
        break
    }
  }
  catch (final IOException e)
  {
    LOG.warning(e.getMessage())
  }
  finally
  {
      method.releaseConnection()
  }
}

public static void main(String[] args)
{

    String server = "https://insightcloud.digitalglobe.com/cas/v1/tickets"
    String username = "user.name"
    String password = "user.password"
    String authEndpoint = "https://insightcloud.digitalglobe.com/monocle-
3/j_spring_cas_security_check"
    String apiEndpoint = "https://insightcloud.digitalglobe.com/monocle-
3/app/broker/mrgeo/Comms/datasources"

    Client client = new Client()

    // get a ticket-granting ticket from CAS
    String ticketGrantingTicket = client.getTicketGrantingTicket(server, username, password)
    println "TicketGrantingTicket is $ticketGrantingTicket"

    // get a service ticket to access the app
    String serviceTicket = client.getServiceTicket(server, ticketGrantingTicket, authEndpoint)
    println "ServiceTicket is $serviceTicket"

    // CAS puts something in the client's store, so must reuse the client
    HttpClient http = new HttpClient()

    // authenticate with the ticket
    client.getServiceCall(http, authEndpoint, serviceTicket)

    // actually make the API call we want
    client.getServiceCall(http, apiEndpoint, serviceTicket)

    // logout from CAS
    client.logout(server, ticketGrantingTicket)
  }
}
```

4 External REST calls

The following are examples of the interaction between the UI and the external services REST calls that are triggered by each widget.

4.1 Terrain

4.1.1 Comms

The Comms widget provides the analyst with a visual output of radio frequency propagation using a set of criteria and an available DEM. It calculates radio frequency propagation loss against surrounding terrain based on Longley-Rice Irregular Terrain Model algorithm for radio frequency propagation loss. RF propagation result is filtered based on a supplied maximum path loss. The end result for each cell is the number of cells within a radius of interest below or equal to the maximum path loss.

4.1.1.1 Parameters

Parameters	Type	Default	Optional	Multiple	Description
BBOX	Float	<none>	False	False	Coordinates in decimal degrees, separated by commas, of the bounding box corners. In order, these coordinates are Lower Left Lon, Lower Left Lat, Upper Right Lon, Upper Right Lat; bbox always surrounds the origin point. BBOX=49.122,14.554,49.134,14.565 for example
Datasource	String	ASTER1	True	False	The analytic to operate on such as ASTER1
frequency	Float	300.0	False	False	The frequency of radio signal in MHz (20 MHz to 20 GHz)
outerRadius	Float	3000.0	False	False	The outer radius of the source transmission to consider for each cell

Parameters	Type	Default	Optional	Multiple	Description
					(meters).
transmitterHeight	Float	10.0	False	False	The height of the transmitting antenna above the terrain (meters).
transmitterCoord	Point2	<none>	True	True	An x/y coordinate pair for a transmitting tower's location. Repeat parameter for multiple transmitters. Can be substituted with inputPoints1 data source
receiverHeight	Float	10.0	False	False	The height of the receiving antenna above the terrain (meters).
confidence	Float	0.5	False	False	A measure used to describe the expected number of measurements be a given signal strength from multiple locations at a time t (0.0 to 1.0)
earthConductivity	Float	0.005	False	False	The Earth's conductivity for the terrain of the region of interest (Siemens per meter)
earthDialectric	Float	15.0	False	False	The Earth's dielectric constant for the terrain of the region of interest (Relative permittivity)
polarity	Integer	0	False	False	The polarity of the radio signal (0 = horizontal and 1 = vertical).
reliability	Float	0.5	False	False	A measure used to describe the expected percentage over a period of time at a target

Parameters	Type	Default	Optional	Multiple	Description
					location the signal will be at least a given signal strength (0.0 to 1.0)
radioClimate	Integer	5	False	False	A description of the environment of the region of interest (1 = Equatorial, 2 = Continental Subtropical, 3 = Maritime Subtropical, 4 = Desert, 5 = Continental Temperate, 6 = Maritime Temperate, Over Land, 7 = Maritime Temperate, Over Sea).
surfaceRefractivity	Float	301.0	False	False	The Atmospheric Bending Constant (N-Units).
colorType	String	COLORSCALE	True	False	Determines the type of color scheme (one of COLOR, COLORSCALE, COLORMAP)
colorString	String	204:215+48+39+148,153:252+141+89+148,102:254+224+139+148,51:145+207+96+148,0:26+152+80+148	True	False	Color values separated by '+' 1:255+0+0+148 for example
fileType	String	KMZ	True	False	The filetpye of the return, PNG, GeoTIFF, and KMZ are supported; DOWNLOAD only
fileName	String	<none>	True	False	Resulting filename; DOWNLOAD only

Table 4.1 Comms RFP Parameters

Origin Array String (transmitterCoord)

Origin Array String must be built in one of two ways. With only one Orgin point "ORIGINPOINT:-117.96122799195+38.019902697754" or with multiple points* "ORIGINPOINT:-117.96122799195+38.019902697754,originPoint:-117.97152767457+38.044965258789,originPoint:-117.9198576001+38.027627459717,originPoint:-117.97959575928+38.033807269287"

*User beware: Comms RFP multiple point Origin Array String has little testing; issues may be present.

Parameters	Limits
Longitude	Between -180 and 180 degrees inclusive
Latitude	Between -90 and 90 degrees inclusive
Datasource	One of: ASTER1, SRTM3, VRICON2M
OuterRadius	Between 1 and 50000 meters inclusive
TransmitterHeight	Between 0 and 5000 meters inclusive
ReceiverHeight	Between 0 and 5000 meters inclusive
Confidence	Between 0 and 1 inclusive
Reliability	Between 0 and 1 inclusive
Polarity	One of '0', '1' where 0=horizontal and 1=vertical
FrequencyMhz	Between 1 and 20000 inclusive
FrequencyGhz	Between 0.001 and 20 inclusive
outputType	One of 'MAX', 'SUM' (may be any case)
fileType	One of 'PNG', 'GEOTIFF', 'KMZ' (may be any case)

Table 4.2 Comms RFP Parameter Limits

4.1.1.2 Steps for REST View

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/mrgeo/Comms;REQUEST=Execute;DataSource={source};BBOX={LLLon,LLLat,URLon,URLat};Operation=LegionRfPropagationOperation;ColorType={type};ColorString={string};originPoint={Lon+Lat};outerRadius={value};transmitterHeight={value};receiverHeight={value};confidence={value};earthConductivity={value};earthDialectric={value};polarity={value};reliability={value};radioClimate={value};surfaceRefractivity={value};frequency={value}

1. Submit a GET request to view a Comms RFP analytic. The REST call via monocle-3 application will look similar to the following:

> https://iipbeta.digitalglobe.com/monocle-3/app/broker/mrgeo/Comms;REQUEST=Execute;DataSource=VRICON2M;BBOX=49.121966550803,14.553690517217,49.134085237527,14.565494088272;Operation=LegionRfPropagationOperation;ColorType=colorscale;ColorString=204:215+48+39+148,153:252+141+89+148,102:254+224+139+148,51:126+152+80+148,0.0001:26+152+80+148;originPoint=49.128025894165+14.55959230423;outerRadius=653;transmitterHeight=5;receiverHeight=5;confidence=.5;earthConductivity=0.005;earthDialectric=15;polarity=0;reliability=.5;radioClimate=1;surfaceRefractivity=301;frequency=15000

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:
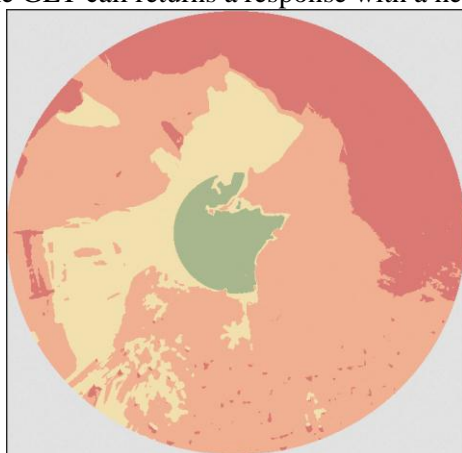

4.1.1.3 Steps for REST Download

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/mrgeo/Comms;REQUEST=Execute;DataSource={source};BBOX={LLLon,LLLat,URLon,URLat};Operation=LegionRfPropagationOperation;ColorType={type};ColorString={string};originPoint={Lon+Lat};outerRadius={value};transmitterHeight={value};receiverHeight={value};confidence={value};earthConductivity={value};earthDialectric={value};polarity={value};reliability={value};radioClimate={value};surfaceRefractivity={value};frequency={value};fileType={type};filename={string}

1. Submit a GET request to download a Comms RFP analytic. The REST call via monocle-3 application will look similar to the following:

> https://iipbeta.digitalglobe.com/monocle-3/app/broker/mrgeo/Comms/download;REQUEST=Execute;DataSource=VRICON2M;BBOX=49.121966550803,14.553690517217,49.134085237527,14.565494088272;Operation=LegionRfPropagationOperation;ColorType=colorscale;ColorString=204:215+48+39+148,153:252+141+89+148,102:254+224+139+148,51:126+152+80+148,0.0001:26+152+80+148;originPoint=49.128025894

165+14.55959230423;outerRadius=653;transmitterHeight=5;receiverHeight=
5;confidence=.5;earthConductivity=0.005;earthDialectric=15;polarity=0;relia
bility=.5;radioClimate=1;surfaceRefractivity=301;frequency=15000;fileType=
kmz;filename=CommsTEST

2. If this is the first request of the session, user will be redirected to the CAS authentication
page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call triggers a download; save or open at user discretion.

4.1.2 Cumulative Viewshed (Cumulative VS)

The Cumulative Viewshed analytic computes a viewshed within a given area of
interest from a specified observation point and a search radius. The resulting image
creates a Cumulative Exposure Grid (CEG) where each pixel represents the
percentage of the surrounding area that is viewable within the specified search
radius.

4.1.2.1 Parameters

Parameters	Type	Default	Optional	Multiple	Description
Left	Float	<none>	False	False	Longitude in decimal degrees of the lower left bounding box corner
Bottom	Float	<none>	False	False	Latitude in decimal degrees of the lower left bounding box corner
Right	Float	<none>	False	False	Longitude in decimal degrees of the upper right bounding box corner
Top	Float	<none>	False	False	Latitude in decimal degrees of the upper right bounding box corner
Datasource	String	ASTER1	True	False	The analytic to operate on such as ASTER1
ObserverHeight	Float	2	True	False	Height of the observer's view above the current elevation (meters)
TargetHeight	Float	0.01	True	False	Maximum height of the target above the elevation of its location (meters)

Parameters	Type	Default	Optional	Multiple	Description
InnerRadius	Float	0	True	False	Inner radius of region around observer cell to compute the viewshed (meters)
OuterRadius	Float	10000	True	False	Outer radius of region around observer cell to compute the viewshed (meters)
UpperVertAngle	Float	90	True	False	Upper angle of the observer's view above the horizon (degrees)
LowerVertAngle	Float	-90	True	False	Lower angle of the observer's view below the horizon (degrees)
sAzimuth	Float	0	True	False	Beginning azimuth angle of the observer's view in the horizontal plane with north equal to 0 (degrees)
eAzimuth	Float	360	True	False	Ending azimuth angle of the observer's view in the horizontal plane with north equal to 0 (degrees)
ColorType	String	COLORSCALE	True	False	Determines the type of color scheme (one of COLOR, COLORSCALE, COLORMAP)
Color	String	1:215+48+39+148,2:252+141+89+148,3:254+224+139+148, 4:217+239+139+148,5:145+207+96+148,6:26+152+80+148	True	False	Color values separated by '+' 1:255+0+0+148 for example
fileType	String	KMZ	True	False	The filetpye of the return, PNG, GeoTIFF, and KMZ are supported; DOWNLOAD only

Parameters	Type	Default	Optional	Multiple	Description
fileName	String	<none>	True	False	Resulting filename; DOWNLOAD only
normalize	String	RADIUS	True	False	Optional parameter to normalize results (RADIUS, or MINMAX). If not set then results are defaulted to RADIUS.
normalizeScaleValue	String	100	True	False	Optional parameter as the maximum of the linear scale range after normalizing.

Table 4.3 Cumulative Viewshed Parameters

Parameters	Limits
Left	Between -180 and 180 degrees inclusive
Right	Between -180 and 180 degrees inclusive
Bottom	Between -90 and 90 degrees inclusive
Top	Between -90 and 90 degrees inclusive
Datasource	One of: ASTER1, SRTM3, VRICON2M
ObHeight	Between 0.01 and 20000 meters inclusive
TargHeight	Between 0.01 and 20000 meters inclusive
InnerRadius	Between 0 and 50000 meters inclusive and ALSO less than OuterRadius
OuterRadius	Between 1 and 50000 meters inclusive
UVA	Between -90 and 90 degrees inclusive
LVA	Between -90 and 90 degress inclusive and ALSO is less than UpperVertAngle
sAzimuth	Between 0 and 360 degrees and ALSO is less than eAzimuth
eAzimuth	Between 0 and 360 degrees
normalize	One of 'RADIUS', 'MINMAX' (may be any case)
normalizeScaleValue	Between 1.0 and 1000 inclusive
fileType	One of 'PNG', 'GEOTIFF', 'KMZ' (may be any case)

Table 4.4 Cumulative Viewshed Parameter Limits

4.1.2.2   Steps for REST View

Basic Call: https://iipbeta.digitalglobe.com/monocle-3/app/broker/mrgeo/massvs;DataSource={source};Left={value};Bottom={value};Right={value};Top={value};ObHeight={value};TargHeight={value};InnerRadius={value};LVA={value};UVA={value};sAzimuth={value};eAzimuth={value};colorType={type};color={string};normalize={string};normalizeScaleValue={value};OuterRadius={value}

1. Submit a GET request to view a Cumulative Viewshed analytic. The REST call via monocle-3 application will look similar to the following:

> https://iipbeta.digitalglobe.com/monocle-3/app/broker/mrgeo/massvs;DataSource=ASTER1;Left=68.025135546875;Bottom=33.896753222656;Right=70.332264453125;Top=35.187646777344;ObHeight=2.00;TargHeight=0.01;InnerRadius=0;LVA=-90.0;UVA=90.0;sAzimuth=0;eAzimuth=360;colorType=Colorscale;color=80:26+152+80+148,60:145+207+96+148,40:254+224+139+148,20:252+141+89+148,0:215+48+39+148;normalize=MINMAX;normalizeScaleValue=100;OuterRadius=1000.0

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:
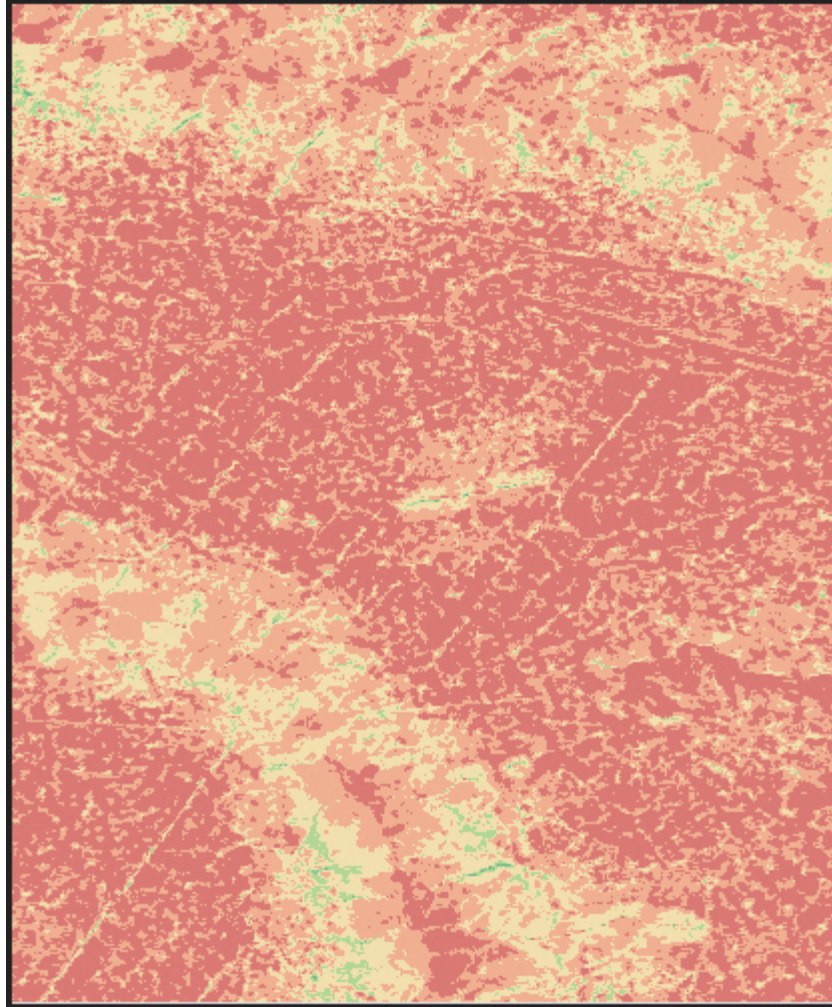
4.1.2.3   Steps for REST Download

Basic Call: https://iipbeta.digitalglobe.com/monocle-3/app/broker/mrgeo/massvs;DataSource={source};Left={value};Bottom={value};Right={value};Top={value};ObHeight={value};TargHeight={value};InnerRadius={value};LVA={value};UVA={value};sAzimuth={value};eAzimuth={value};colorType={type};color={string};normalize={string};normalizeScaleValue={value};OuterRadius={value};fileType={type};filename={string}

1. Submit a GET request to download a Cumulative Viewshed analytic. The REST call via monocle-3 application will look similar to the following:

https://iipbeta.digitalglobe.com/monocle-3/app/broker/mrgeo/massvs;DataSource=ASTER1;Left=68.025135546875;Bottom=33.896753222656;Right=70.332264453125;Top=35.187646777344;ObHeight=2.00;TargHeight=0.01;InnerRadius=0;LVA=-90.0;UVA=90.0;sAzimuth=0;eAzimuth=360;colorType=Colorscale;color=80:26+152+80+148,60:145+207+96+148,40:254+224+139+148,20:252+141+89+148,0:215+48+39+1

48;normalize=MINMAX;normalizeScaleValue=100;OuterRadius=1000.0;fileType=kmz;
filename=CumVSTEST

2. If this is the first request of the session, user will be redirected to the CAS authentication
page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call triggers a download; save or open at user discretion.

4.1.3 Sightline

The SightLine analytic provides the analyst with a visual line of sight output for any origin
point and a given elevation model. This ability to quickly identify areas of high/low visibility
provides a logistic advantage to analysts who need to ensure the success of a route where
concealment or exposure becomes an issue.

4.1.3.1 Parameters

Parameters	Type	Default	Optional	Multiple	Description
Left	Float	<none>	False	False	Longitude in decimal degrees of the lower left bounding box corner
Bottom	Float	<none>	False	False	Latitude in decimal degrees of the lower left bounding box corner
Right	Float	<none>	False	False	Longitude in decimal degrees of the upper right bounding box corner
Top	Float	<none>	False	False	Latitude in decimal degrees of the upper right bounding box corner
OrgArrayString	String	<none>	False	False	Can be built in one of two ways. With only one Origin point (See below)
Datasource	String	ASTER1	True	False	The analytic to operate on such as ASTER1
ObserverHeight	Float	2	True	False	Height of the observer's view above the current elevation (meters)
TargetHeight	Float	0.01	True	False	Maximum height of the target above the elevation of its location (meters)

Parameters	Type	Default	Optional	Multiple	Description
InnerRadius	Float	0	True	False	Inner radius of region around observer cell to compute the viewshed (meters)
OuterRadius	Float	10000	True	False	Outer radius of region around observer cell to compute the viewshed (meters)
UpperVertAngle	Float	90	True	False	Upper angle of the observer's view above the horizon (degrees)
LowerVertAngle	Float	-90	True	False	Lower angle of the observer's view below the horizon (degrees)
sAzimuth	Float	0	True	False	Beginning azimuth angle of the observer's view in the horizontal plane with north equal to 0 (degrees)
eAzimuth	Float	360	True	False	Ending azimuth angle of the observer's view in the horizontal plane with north equal to 0 (degrees)
outputType	String	MAX	True	False	Defines how viewsheds from multiple sources are aggregated. The default MAX simply overlaps the viewsheds while SUM will add 1 to an output pixel for each overlap.
colorType	String	COLORMAP	True	False	Determines the type of color scheme (one of COLOR, COLORSCALE, COLORMAP)
color	String	1:0+255+0+148, 0:255+0+0+148	True	False	Color values separated by '+' 1:255+0+0+148 for example
fileType	String	KMZ	True	False	The filetpye of the return, PNG, GeoTIFF, and KMZ are supported;

Parameters	Type	Default	Optional	Multiple	Description
					DOWNLOAD only
fileName	String	<none>	True	False	Resulting filename; DOWNLOAD only

Table 4.5 Sightline Parameters

Origin Array String

Origin Array String must be built in one of two ways. With only one Orgin point "ORIGINPOINT:-117.96122799195+38.019902697754" or with multiple points* "ORIGINPOINT:-117.96122799195+38.019902697754,originPoint:-117.97152767457+38.044965258789,originPoint:-117.9198576001+38.027627459717,originPoint:-117.97959575928+38.033807269287"

User beware: Sightline multiple point Origin Array String has little testing; issues may be present.

Parameters	Limits
Left	Between -180 and 180 degrees inclusive
Right	Between -180 and 180 degrees inclusive
Bottom	Between -90 and 90 degrees inclusive
Top	Between -90 and 90 degrees inclusive
Datasource	One of: ASTER1, SRTM3, VRICON2M
ObserverHeight	Between 0.01 and 20000 meters inclusive
TargetHeight	Between 0.01 and 20000 meters inclusive
InnerRadius	Between 0 and 50000 meters inclusive and ALSO less than OuterRadius
OuterRadius	Between 1 and 50000 meters inclusive
UpperVertAngle	Between -90 and 90 degrees inclusive
LowerVertAngle	Between -90 and 90 degress inclusive and ALSO is less than UpperVertAngle
sAzimuth	Between 0 and 360 degrees and ALSO is less than eAzimuth
eAzimuth	Between 0 and 360 degrees
outputType	One of 'MAX', 'SUM' (may be any case)
fileType	One of 'PNG', 'GEOTIFF', 'KMZ' (may be any case)

Table 4.6 Sightline Parameter Limits

4.1.3.2 Steps for REST View

Basic Call: https://iipbeta.digitalglobe.com/monocle-3/app/broker/mrgeo/sightline;
DataSource={source};Left={value};Bottom={value};Top={value};Right={value};OrgArrayString=ORIGINPOI
NT:{Lon+Lat};ObHeight={value};TargHeight={value};OuterRadius={value};LVA={value};UVA={value};sAzim
uth={value};eAzimuth={value};outputType={string};colorType={type};color={string}

> 1. Submit a GET request to view a Sightline analytic. The REST call via monocle-3
> application will look similar to the following:
>> https://iipbeta.digitalglobe.com/monocle-3/app/broker/mrgeo/sightline;
>> DataSource=ASTER1;Left=69.482239816957;Bottom=34.070273567385;Top=34.2
>> 50575106212;Right=69.699134183043;OrgArrayString=ORIGINPOINT:69.590687
>> +34.160425;ObHeight=2.00;TargHeight=0.01;OuterRadius=10000;LVA=-
>> 90.0;UVA=90.0;sAzimuth=0;eAzimuth=360;outputType=MAX;colorType=ColorM
>> ap;color=1:0+255+0+148,0:255+0+0+148

> 2. If this is the first request of the session, user will be redirected to the CAS authentication
> page; enter credentials and CAS will redirect to the response (see 3.)

> 3. The GET call returns a response with a header of 200 OK and a body of:

4.1.3.3 Steps for REST Download
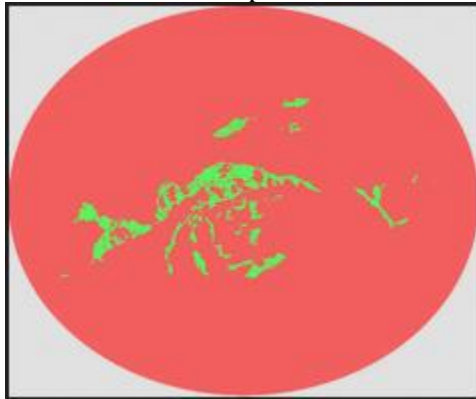
Basic Call: https://iipbeta.digitalglobe.com/monocle-3/app/broker/mrgeo/sightline;
DataSource={source};Left={value};Bottom={value};Top={value};Right={value};OrgArrayString=ORIGINPOI
NT:{Lon+Lat};ObHeight={value};TargHeight={value};OuterRadius={value};LVA={value};UVA={value};sAzim
uth={value};eAzimuth={value};outputType={string};colorType={type};color={string};fileType={type};filena
me={string}

> 1. Submit a GET request to download a Sightline analytic. The REST call via monocle-3
> application will look similar to the following:
>> https://iipbeta.digitalglobe.com/monocle-3/app/broker/mrgeo/sightline/download;
>> DataSource=ASTER1;Left=69.482239816957;Bottom=34.070273567385;Top=34.2

50575106212;Right=69.699134183043;OrgArrayString=ORIGINPOINT:69.590687
+34.160425;ObHeight=2.00;TargHeight=0.01;OuterRadius=10000;LVA=-
90.0;UVA=90.0;sAzimuth=0;eAzimuth=360;outputType=MAX;colorType=ColorM
ap;color=1:0+255+0+148,0:255+0+0+148;fileType=kmz;filename=SightlineTEST

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call triggers a download; save or open at user discretion.

4.1.4 Sitescan

The Sitescan analytic computes the Topographic Position Index (TPI). The TPI algorithm compares each target raster cell and an annular neighborhood defined between the inner and outer radii, and performs a basic landform classification to isolate the Ridge, Upper Slope, Middle Slope, Flat Slope, Lower Slope and Valley classes.

4.1.4.1   Parameters

Parameters	Type	Default	Optional	Multiple	Description
Left	Float	<none>	False	False	Longitude in decimal degrees of the lower left bounding box corner
Bottom	Float	<none>	False	False	Latitude in decimal degrees of the lower left bounding box corner
Right	Float	<none>	False	False	Longitude in decimal degrees of the upper right bounding box corner
Top	Float	<none>	False	False	Latitude in decimal degrees of the upper right bounding box corner
Datasource	String	ASTER1	True	False	The analytic to operate on such as ASTER1
InnerRadius	Float	0	True	False	The inner radius of the annular neighborhood around each cell (meters).

Parameters	Type	Default	Optional	Multiple	Description
outerRadius	Float	1000	True	False	The outer radius of the annular neighborhood around each cell (meters).
colorType	String	COLORMAP	True	False	Determines the type of color scheme (one of COLOR, COLORSCALE, COLORMAP)
Color	String	1:215+48+39+148,2:252+141+89+148,3:254+224+139+148, 4:217+239+139+148,5:145+207+96+148,6:26+152+80+148	True	False	Color values separated by '+' 1:255+0+0+148 for example
fileType	String	KMZ	True	False	The filetpye of the return, PNG, GeoTIFF, and KMZ are supported; DOWNLOAD only
fileName	String	<none>	True	False	Resulting filename; DOWNLOAD only

Table 4.7 Sitescan Parameters

Parameters	Limits
Left	Between -180 and 180 degrees inclusive
Right	Between -180 and 180 degrees inclusive
Bottom	Between -90 and 90 degrees inclusive
Top	Between -90 and 90 degrees inclusive
DataSource	One of: ASTER1, SRTM3
OuterRadius	Between 1 and 25000 inclusive
InnerRadius	Between 0 and 25000 inclusive and ALSO less than OuterRadius
fileType	One of 'PNG', 'GEOTIFF', 'KMZ' (may be any case)

Table 4.8 Sitescan Parameter Limits

4.1.4.2   Steps for REST View

Basic Call: https://iipbeta.digitalglobe.com/monocle-3/app/broker/mrgeo/sitescan;DataSource={source};Left={value};Bottom={value};Right={value};Top={value};ColorType={type};Color={string};OuterRadius={value};InnerRadius={value}

1. Submit a GET request to view a Cumulative Viewshed analytic. The REST call via monocle-3 application will look similar to the following:
https://iipbeta.digitalglobe.com/monocle-3/app/broker/mrgeo/sitescan;DataSource=ASTER1;Left=68.601917773438;Bottom=34.219476611328;Right=69.755482226563;Top=34.864923388672;ColorType=ColorMap;Color=1:215+48+39+148,2:252+141+89+148,3:254+224+139+148,4:217+239+139+148,5:145+207+96+148,6:26+152+80+148;OuterRadius=1000.00;InnerRadius=0.00

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:
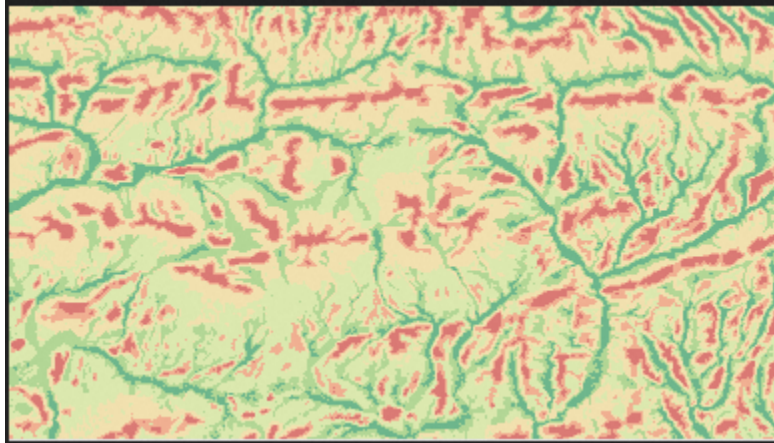
4.1.4.3   Steps for REST Download

Basic Call: https://iipbeta.digitalglobe.com/monocle-3/app/broker/mrgeo/sitescan;DataSource={source};Left={value};Bottom={value};Right={value};Top={value};ColorType={type};Color={string};OuterRadius={value};InnerRadius={value};fileType={type};filename={string}

1. Submit a GET request to download a Sitescan analytic. The REST call via monocle-3 application will look similar to the following:

https://iipbeta.digitalglobe.com/monocle-3/app/broker/mrgeo/sitescan;DataSource=ASTER1;Left=68.601917773438;Bottom=34.219476611328;Right=69.755482226563;Top=34.864923388672;ColorType=ColorMap;Color=1:215+48+39+148,2:252+141+89+148,3:254+224+139+148,4:217+239+139+148,5:145+207+96+148,6:26+152+80+148;OuterRadius=1000.00;InnerRadius=0.00;fileType=kmz;filename=SitescanTEST

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call triggers a download; save or open at user discretion.

4.1.5 Touchdown (HLZ)

The Touchdown (HLZ) identifies suitable landing pad locations for different helicopters based on an origin location (dropped on the map in the viewport), LiDAR/DEM elevation source, Helicopter Type, Time of Day and Environmental Conditions.

4.1.5.1 Parameters

Parameters	Type	Default	Optional	Multiple	Description
Left	Float	<none>	False	False	Longitude in decimal degrees of the lower left bounding box corner
Bottom	Float	<none>	False	False	Latitude in decimal degrees of the lower left bounding box corner
Right	Float	<none>	False	False	Longitude in decimal degrees of the upper right bounding box corner
Top	Float	<none>	False	False	Latitude in decimal degrees of the upper right bounding box corner
Datasource	String	<none>	False	False	The elevation dataset to operate on such as BUCKEYE
Color	String	0,255,0	True	False	RGB color to render the HLZ
HlzDiameter	Float	25	True	False	Diameter of the HLZ touchdown area (meters)
MaxHlzSlope	Float	7	True	False	Maximum slope of the HLZ touchdown area (percent)

Parameters	Type	Default	Optional	Multiple	Description
ObstacleRadius	Float	125	True	False	Radius of obstacle avoidance (meters)
ApproachAngle	Float	10	True	False	Angle of approach to the HLZ
HoverHeight	Float	0	True	False	Hover height above HLZ (meters)
fileType	String	KMZ	True	False	The filetpye of the return, PNG, GeoTIFF, and KMZ are supported; DOWNLOAD only
fileName	String	<none>	True	False	Resulting filename; DOWNLOAD only

Table 4.9 HLZ/Touchdown Parameters

Parameters	Limits
Left	Between -180 and 180 degrees inclusive
Right	Between -180 and 180 degrees inclusive
Bottom	Between -90 and 90 degrees inclusive
Top	Between -90 and 90 degrees inclusive
Datasource	One of: VRICON2m
hlzDiameter	Between 0 and 250 meters inclusive
maxHlzSlope	Between 0 and 90 degrees inclusive
obstacleRadius	Between 0 and 500 meters inclusive
approachAngle	Between 0 and 90 degrees inclusive
hoverHeight	Between 0 and 100 meters inclusive
fileType	One of 'PNG', 'GEOTIFF', 'KMZ' (may be any case)

Table 4.10 HLZ/Touchdown Parameter Limits

There are three pseudo-parameters in Touchdown (HLZ) that are used in the UI to quickly set the parameters for HLZ Diameter, Maximum HLZ Slope, Obstacle Radius, Approach Angle, and Hover Height. These pseudo-parameters are not involved in the REST calls to retrieve HLZ rasters.

Pseudo-Parameter	UI Name	REST Call Name
Helicopter Type	MH-6 / AH-6	MH-6%2520%252F%2520AH-6

Pseudo-Parameter	UI Name	REST Call Name
Helicopter Type	UH-72A / OH-58D	UH-72A%2520%252F%2520OH-58D
Helicopter Type	AH-1W/Z / AH-64 / UH-1Y/N	AH-1W%252FZ%2520%252F%2520AH-64%2520%252F%2520UH-1Y%252FN
Helicopter Type	UH-60A/L/M / SH-60	UH-60A%252FL%252FM%2520%252F%2520SH-60
Helicopter Type	MV-22B / CV-22B	MV-22B%2520%252F%2520CV-22B
Helicopter Type	CH-47(D/F)	CH-47(D%252FF)
Helicopter Type	CH-53(E/K)	CH-53(E%252FK)
Helicopter Type	Sling Load Aircraft	Sling%2520Load%2520Aircraft
Helicopter Type	Sling Load long lines	Sling%2520Load%2520long%2520lines
Time of Day	Day	DAY
Time of Day	Night	NIGHT
Environment	Desert/Snow	DESERT%252FSNOW
Environment	Mountain	MOUNTAIN
Environment	Jungle	JUNGLE
Environment	Urban	URBAN

Table 4.11 HLZ/Touchdown Pseudo-Parameters

4.1.5.2 Steps for Parameter REST call

1. Submit a GET request to see the set parameter values for the combined pseudo-parameters.
The REST call via monocle-3 application will look similar to the following:

> https://iipbeta.digitalglobe.com/monocle-
> 3/app/broker/mrgeo/hlz/parameters;HelicopterType=MH-6%2520%252F%2520AH-
> 6;TimeOfDay=DAY;Environment=URBAN

2. If this is the first request of the session, user will be redirected to the CAS authentication
page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a JSON response:
> {

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- "hlzDiameter": 10,
- "maxHlzSlope": 8,
- "obstacleRadius": 50,
- "approachAngle": 14

}

4.1.5.3   Steps for REST View

Basic Call: https://iipbeta.digitalglobe.com/monocle-3/app/broker/mrgeo/hlz;DataSource={source};Left={value};Bottom={value};Top={value};Right={value};Color={string};HlzDiameter={value};MaxHlzSlope={value};ObstacleRadius={value};ApproachAngle={value};HoverHeight={value}

1. Submit a GET request to view an HLZ/Touchdown analytic. The REST call via monocle-3 application will look similar to the following:

https://iipbeta.digitalglobe.com/monocle-3/app/broker/mrgeo/hlz;DataSource=VRICON2M;Left=49.36853232269257;Bottom=14.761829611770372;Top=14.772204077356609;Right=49.385784291076384;Color=64,215,39,148;HlzDiameter=25;MaxHlzSlope=15;ObstacleRadius=125;ApproachAngle=10;HoverHeight=0

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a raster response:

4.1.5.4   Steps for REST Download

Basic Call: https://iipbeta.digitalglobe.com/monocle-3/app/broker/mrgeo/hlz;DataSource={source};Left={value};Bottom={value};Top={value};Right={value};Color={string};HlzDiameter={value};MaxHlzSlope={value};ObstacleRadius={value};ApproachAngle={value};HoverHeight={value};fileType={type};filename={string}

1. Submit a GET request to download an HLZ/Touchdown analytic. The REST call via monocle-3 application will look similar to the following:

  https://insightcloud.digitalglobe.com/monocle-3/app/broker/mrgeo/hlz/download;DataSource=VRICON2M;Left=49.36853232269257;Bottom=14.761829611770372;Top=14.772204077356609;Right=49.385784291076384;Color=64,215,39,148;HlzDiameter=25;MaxHlzSlope=15;ObstacleRadius=125;ApproachAngle=10;HoverHeight=0;fileType=kmz;filename=HLZTEST

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call triggers a download; save or open at user discretion.

4.2 Text

SMA submits different calls for each of the sub-widgets, depending on the active sub-widgets.

4.2.1 Social Media Analytics

The InsightCloud Social Media widget provides the analyst with a visual output of up-to-the-second geolocated social media from Twitter and RSS feeds, based on user-defined queries.

General note: the GET call returns an application/json response that changes depending on if and what dimension is used. Below, sections have been divided by the dimensions to provide examples of each type of resulting response.

4.2.1.1 Parameters

Parameters	Type	Default	Optional	Multiple	Description
BBOX	Float	<none>	True	False	Coordinates in decimal degrees, separated by commas, of the bounding box corners. In order, these coordinates are Lower Left Lon, Lower Left Lat, Upper Right Lon, Upper Right Lat; bbox always surrounds the origin point. BBOX=49.122,14.554,4

Parameters	Type	Default	Optional	Multiple	Description
					9.134,14.565 for example
datetimerange	String	<none>	True	False	Date and time restriction on the range of data returned by the request. datetimerange=2015-02-11T08:33:46.812Z,2015-02-11T14:33:46.812Z for example
poly	String	<none>	True	True*	Coordinates in decimal degrees poly=%5B%5B%5B%5B-77.116721,39.002453%5D,%5B-77.514975,38.77156%5D,%5B-77.185385,38.587165%5D,%5B-76.82009,38.72872%5D,%5B-76.905234,39.01099%5D,%5B-77.116721,39.002453%5D%5D%5D%5D for example *Note: multiple polygons can be specified under poly
dimension	String	<none>	True	False	Additional filters for the analytic, displaying specific data in specific fashion. dimension=datetime, for example Possible dimensions are: For Timeline: datetime For Word Cloud values: term

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Parameters	Type	Default	Optional	Multiple	Description
					sigterm hashtag For Top Ten values: topten For Statistics: stats For Map Aggregations: geohash
query	String	<none>	True	True	Used for specifying search terms to narrow results. Query follows basic Elastisearch query logic. query=+dmvmusic+AND+positiveSentiment:%3E0.96, for example.
format	String	<none>	True	False	The filetype of the return, SHP packaged in ZIP is supported; DOWNLOAD only format=shp for example
stream-shape-file	String	<none>	True	False	Method of downloading the return, streaming is supported; DOWNLOAD only stream-shape-file=true for example

Table 4.12 Social Media Parameters

Parameters	Limits
Longitude	Between -180 and 180 degrees inclusive
Latitude	Between -90 and 90 degrees inclusive

Table 4.13 Social Media Parameter Limits

4.2.1.2   Differences in REST View - Map – Cluster vs Kernel Density

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Note: Sections detailing REST View for maps are capable of using Cluster or KD calls; the examples in later sections are given using Cluster calls.

4.2.1.2.1   Cluster, Cluster Sentiment

Note: Both Cluster and Cluster Sentiment are triggered via the same call; Sentiment makes use of the pos_sentiment_avg and neg_sentiment_avg.

1. InsightCloud Social Media submits a GET call

    https://iipbeta.digitalglobe.com/monocle-3/app/broker/sma/sma/twitter/tweets?bbox=-78.086426,38.470804,-75.88916,39.314123&datetimerange=2015-04-20T05:00:00.000Z,2015-04-20T17:00:00.000Z&dimensions=geohash

    And returns a response with a header of 200 OK and a body of

```
{
  "took": 288,
  "timed_out": false,
  "_shards": {
    "total": 5,
    "successful": 5,
    "failed": 0
  },
  "hits": {
    "total": 2123960,
    "max_score": 0,
    "hits": []
  },
  "aggregations": {
    "results": {
      "doc_count": 17443,
      "geohash": {
        "buckets": [
          {
            "key": "dqcjr3",
            "doc_count": 1035,
            "pos_sentiment_avg": {
              "value": 0.7295101769110421
            },
            "geo_lat_avg": {
              "value": 38.89866278000012
            },
            "geo_lon_avg": {
              "value": -77.01465590579697
            },
            "neg_sentiment_avg": {
              "value": 0.2704898230889579
            }
          },
          ...
          {
```

```
              "key": "dqbdbu",
              "doc_count": 1,
              "pos_sentiment_avg": {
                "value": 0.7105759793035298
              },
              "geo_lat_avg": {
                "value": 38.477259
              },
              "geo_lon_avg": {
                "value": -78.012127
              },
              "neg_sentiment_avg": {
                "value": 0.2894240206964702
              }
            }
          ]
        }
      }
    }
  }
}
```

4.2.1.2.2 Kernel Density, KD Sentiment

Note: Both Kernel Density and Kernel Density Sentiment are triggered via the same call; KD Sentiment makes use of the positiveSentiment and negativeSentiment.

Note: For any KD call be sure to include the pageSize=100000 in the call.

1. InsightCloud Social Media submits a GET call
   https://iipbeta.digitalglobe.com/monocle-3/app/broker/sma/sma/twitter/tweets?bbox=-78.086426,38.470804,-75.88916,39.314123&datetimerange=2015-04-20T05:00:00.000Z,2015-04-20T17:00:00.000Z&pageSize=100000

   And returns a response with a header of 200 OK and a body of
   ```
   {
     "took": 475,
     "timed_out": false,
     "_shards": {
       "total": 5,
       "successful": 5,
       "failed": 0
     },
     "hits": {
       "total": 17443,
       "max_score": 1,
       "hits": [
         {
           "_index": "orbit-2015-04-20",
           "_type": "tweet",
           "_id": "590116320173281280",
           "_score": 1,
   ```

```
      "_source": {
        "text": "@ThePlumLineGS none of that tells us if those people didn't have
insurance before Obamacare. 1/2",
        "screenName": "conncarroll",
        "loc_hash": "dqcj4wfs7tkwyp0cf777",
        "retweets": null,
        "gnipLanguage": "en",
        "friendsCount": 821,
        "actorDescription": "Communications Director for Sen. Mike Lee (R-UT)",
        "followersCount": 6946,
        "negativeSentiment": 0.5707486331604419,
        "favoritesCount": 0,
        "positiveSentiment": 0.429251366839558,
        "userMentions": [
          "20508720:Greg Sargent"
        ],
        "process_version": "20140909T120800Z",
        "twitterCountryCode": "US",
        "twitterLanguage": null,
        "device": "Twitter for iPhone",
        "created": "2015-04-20T11:34:29.000Z",
        "geo": {
          "lat": 38.885494,
          "lon": -77.230297
        },
        "actorDisplayName": "Conn Carroll",
        "listedCount": 332,
        "exactGeo": "true",
        "verb": "post",
        "countryCode": "United States",
        "statusesCount": 38557,
        "id": "590116320173281280",
        "actorLanguages": [
          "en"
        ],
        "actorId": "15739391",
        "placeGeoType": "Polygon"
      }
    },
    …
    {
      "_index": "orbit-2015-04-20",
      "_type": "tweet",
      "_id": "590197855345893376",
      "_score": 1,
      "_source": {
        "text": "@CoCoaaChanell_ Georgia ave nw",
        "screenName": "ICYUNVKAY",
        "loc_hash": "dqck2w9u2v9b34wvwzh2",
        "retweets": null,
```

```
        "gnipLanguage": "ht",
        "friendsCount": 1974,
        "actorDescription": null,
        "followersCount": 3695,
        "negativeSentiment": 0.14609735712941835,
        "favoritesCount": 0,
        "positiveSentiment": 0.8539026428705817,
        "userMentions": [
         "444059071:July12GloDay☺"
        ],
        "process_version": "20140909T120800Z",
        "twitterCountryCode": "US",
        "twitterLanguage": null,
        "device": "Twitter for Android",
        "created": "2015-04-20T16:58:28.000Z",
        "geo": {
         "lat": 38.752285,
         "lon": -76.967777
        },
        "actorDisplayName": "□Unapologetic□",
        "listedCount": 7,
        "exactGeo": "true",
        "verb": "post",
        "countryCode": "United States",
        "statusesCount": 332498,
        "id": "590197855345893376",
        "actorLanguages": [
         "en"
        ],
        "actorId": "274127760",
        "placeGeoType": "Polygon"
       }
      }
     ]
    }
   }
```

4.2.1.3   Steps for REST View - Map – Polygon

4.2.1.3.1   RSS

1. Submit a GET request to retrieve InsightCloud Social Media information. The REST call via monocle-3 application will look similar to the following for **RSS**:

    https://iipbeta.digitalglobe.com/monocle-3/app/broker/sma/sma/rss/sentences?bbox=-86.661093,33.797775,-68.204062,41.656827&datetimerange=2015-02-11T08:33:46.812Z,2015-02-11T14:33:46.812Z&dimensions=geohash&poly=%5B%5B%5B%5B-77.116721,39.002453%5D,%5B-77.514975,38.77156%5D,%5B-77.185385,38.587165%5D,%5B-76.82009,38.72872%5D,%5B-76.905234,39.01099%5D,%5B-77.116721,39.002453%5D%5D%5D%5D

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
 "took": 3,
 "timed_out": false,
 "_shards": {
  "total": 5,
  "successful": 5,
  "failed": 0
 },
 "hits": {
  "total": 10104,
  "max_score": 0,
  "hits": []
 },
 "aggregations": {
  "results": {
   "doc_count": 12,
   "geohash": {
    "buckets": [
      {
       "key": "dqcj",
       "doc_count": 11,
       "pos_sentiment_avg": {
        "value": 0.670301599842486
       },
       "geo_lat_avg": {
        "value": 38.91293973636363
       },
       "geo_lon_avg": {
        "value": -77.04957312727274
       },
       "neg_sentiment_avg": {
        "value": 0.3296984001575139
       }
      },
      {
       "key": "dqch",
       "doc_count": 1,
       "pos_sentiment_avg": {
        "value": 0.3507113975563318
       },
       "geo_lat_avg": {
        "value": 38.778515
       },
       "geo_lon_avg": {
        "value": -77.328831
       },
```

```
        "neg_sentiment_avg": {
          "value": 0.6492886024436682
          }
        }
      }
    ]
   }
  }
 }
}
```

4.2.1.3.2 Twitter

1. Submit a GET request to retrieve InsightCloud Social Media information. The REST call via monocle-3 application will look similar to the following for **Twitter**:

> https://iipbeta.digitalglobe.com/monocle-3/app/broker/sma/sma/twitter/tweets?bbox=-79.52822,37.422876,-74.913962,39.372867&datetimerange=2015-02-11T08:44:08.099Z,2015-02-11T14:44:08.099Z&dimensions=geohash&poly=%5B%5B%5B%5B-77.116721,39.002453%5D,%5B-77.514975,38.77156%5D,%5B-77.185385,38.587165%5D,%5B-76.82009,38.72872%5D,%5B-76.905234,39.01099%5D,%5B-77.116721,39.002453%5D%5D%5D%5D

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
  {
   "took": 71,
   "timed_out": false,
   "_shards": {
    "total": 5,
    "successful": 5,
    "failed": 0
   },
   "hits": {
    "total": 2711576,
    "max_score": 0,
    "hits": []
   },
   "aggregations": {
    "results": {
     "doc_count": 3408,
     "geohash": {
      "buckets": [
        {
         "key": "dqcjr",
         "doc_count": 799,
         "pos_sentiment_avg": {
           "value": 0.7422933619868444
         },
         "geo_lat_avg": {
```

```
      "value": 38.90321275043809
     },
     "geo_lon_avg": {
      "value": -77.01566461595745
     },
     "neg_sentiment_avg": {
      "value": 0.2577066380131556
     }
    },
    {
     "key": "dqcjq",
     "doc_count": 248,
     "pos_sentiment_avg": {
      "value": 0.7637154226459237
     },
     "geo_lat_avg": {
      "value": 38.908804034677416
     },
     "geo_lon_avg": {
      "value": -77.04847070967742
     },
     "neg_sentiment_avg": {
      "value": 0.23628457735407635
     }
    },
    {
     "key": "dqcm0",
     "doc_count": 205,
     "pos_sentiment_avg": {
      "value": 0.6561236585687696
     },
     "geo_lat_avg": {
      "value": 38.86956396097561
     },
     "geo_lon_avg": {
      "value": -76.97113467804878
     },
     "neg_sentiment_avg": {
      "value": 0.34387634143123036
     }
    },
    ...
    {
     "key": "dqc5z",
     "doc_count": 1,
     "pos_sentiment_avg": {
      "value": 0.8806847602460081
     },
     "geo_lat_avg": {
      "value": 38.651515
```

```
          },
          "geo_lon_avg": {
            "value": -77.033559
          },
          "neg_sentiment_avg": {
            "value": 0.11931523975399197
          }
        },
        {
          "key": "dqbvp",
          "doc_count": 1,
          "pos_sentiment_avg": {
            "value": 0.9699143364937929
          },
          "geo_lat_avg": {
            "value": 38.848734
          },
          "geo_lon_avg": {
            "value": -77.35278
          },
          "neg_sentiment_avg": {
            "value": 0.030085663506207064
          }
        },
        {
          "key": "dqbur",
          "doc_count": 1,
          "pos_sentiment_avg": {
            "value": 0.5915799026738225
          },
          "geo_lat_avg": {
            "value": 38.738652
          },
          "geo_lon_avg": {
            "value": -77.384079
          },
          "neg_sentiment_avg": {
            "value": 0.4084200973261774
          }
        }
      ]
    }
  }
}
```

4.2.1.4   Steps for REST View - Map – Viewport

4.2.1.4.1   RSS

1. Submit a GET request to retrieve InsightCloud Social Media information. The REST call via monocle-3 application will look similar to the following for **RSS**:

    https://iipbeta.digitalglobe.com/monocle-3/app/broker/sma/sma/rss/sentences?bbox=-77.262458,38.758259,-76.713142,39.029141&datetimerange=2015-01-06T08:40:49.189Z,2015-01-06T14:40:49.189Z&dimensions=geohash

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
  "took": 31,
  "timed_out": false,
  "_shards": {
    "total": 5,
    "successful": 5,
    "failed": 0
  },
  "hits": {
    "total": 31525,
    "max_score": 0,
    "hits": []
  },
  "aggregations": {
    "results": {
      "doc_count": 34,
      "geohash": {
        "buckets": [
          {
            "key": "dqcjqg",
            "doc_count": 25,
            "pos_sentiment_avg": {
              "value": 0.7983437071177996
            },
            "geo_lat_avg": {
              "value": 38.91033374
            },
            "geo_lon_avg": {
              "value": -77.04519927999999
            },
            "neg_sentiment_avg": {
              "value": 0.2016562928822006
            }
          },
          {
            "key": "dqcjq9",
            "doc_count": 3,
            "pos_sentiment_avg": {
              "value": 0.4121081723523579
```

```
    },
    "geo_lat_avg": {
      "value": 38.8992784
    },
    "geo_lon_avg": {
      "value": -77.0533106
    },
    "neg_sentiment_avg": {
      "value": 0.5878918276476421
    }
  },
  {
    "key": "dqcjqe",
    "doc_count": 2,
    "pos_sentiment_avg": {
      "value": 0.4998790527569388
    },
    "geo_lat_avg": {
      "value": 38.9131671
    },
    "geo_lon_avg": {
      "value": -77.0516438
    },
    "neg_sentiment_avg": {
      "value": 0.5001209472430611
    }
  },
  {
    "key": "dqcjqd",
    "doc_count": 2,
    "pos_sentiment_avg": {
      "value": 0.2991928639266216
    },
    "geo_lat_avg": {
      "value": 38.9053894
    },
    "geo_lon_avg": {
      "value": -77.0491438
    },
    "neg_sentiment_avg": {
      "value": 0.7008071360733784
    }
  },
  {
    "key": "dqcjmz",
    "doc_count": 2,
    "pos_sentiment_avg": {
      "value": 0.4167714925966823
    },
    "geo_lat_avg": {
```

```
              "value": 38.9315
            },
            "geo_lon_avg": {
              "value": -77.0816445
            },
            "neg_sentiment_avg": {
              "value": 0.5832285074033177
            }
          }
        }
      ]
    }
  }
 }
}
```

4.2.1.4.2   Twitter

1. Submit a GET request to retrieve InsightCloud Social Media information. The REST call via monocle-3 application will look similar to the following for **Twitter**:

> https://iipbeta.digitalglobe.com/monocle-3/app/broker/sma/sma/twitter/tweets?bbox=-77.262458,38.758259,-76.713142,39.029141&datetimerange=2015-01-06T08:27:41.613Z,2015-01-06T14:27:41.613Z&dimensions=geohash

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
  "took": 737,
  "timed_out": false,
  "_shards": {
   "total": 5,
   "successful": 5,
   "failed": 0
  },
  "hits": {
   "total": 5328188,
   "max_score": 0,
   "hits": []
  },
  "aggregations": {
   "results": {
     "doc_count": 6008,
     "geohash": {
       "buckets": [
         {
           "key": "dqcjr3",
           "doc_count": 439,
           "pos_sentiment_avg": {
             "value": 0.7361871467903729
```

```
      },
      "geo_lat_avg": {
        "value": 38.898663930296095
      },
      "geo_lon_avg": {
        "value": -77.01455421184524
      },
      "neg_sentiment_avg": {
        "value": 0.2638128532096273
      }
    },
    {
      "key": "dqcjpv",
      "doc_count": 66,
      "pos_sentiment_avg": {
        "value": 0.5885989451953397
      },
      "geo_lat_avg": {
        "value": 38.87530555151516
      },
      "geo_lon_avg": {
        "value": -76.99730191515152
      },
      "neg_sentiment_avg": {
        "value": 0.41140105480466016
      }
    },
    {
      "key": "dqcm18",
      "doc_count": 60,
      "pos_sentiment_avg": {
        "value": 0.6136319339400401
      },
      "geo_lat_avg": {
        "value": 38.85039603333334
      },
      "geo_lon_avg": {
        "value": -76.91875035833333
      },
      "neg_sentiment_avg": {
        "value": 0.3863680660599598
      }
    },
    ...
    {
      "key": "dqchd8",
      "doc_count": 1,
      "pos_sentiment_avg": {
        "value": 0.8467092769608828
      },
```

```
          "geo_lat_avg": {
            "value": 38.764113
          },
          "geo_lon_avg": {
            "value": -77.226845
          },
          "neg_sentiment_avg": {
            "value": 0.1532907230391172
          }
        },
        {
          "key": "dqchcg",
          "doc_count": 1,
          "pos_sentiment_avg": {
            "value": 0.6457682687943539
          },
          "geo_lat_avg": {
            "value": 38.821843
          },
          "geo_lon_avg": {
            "value": -77.260872
          },
          "neg_sentiment_avg": {
            "value": 0.3542317312056461
          }
        },
        {
          "key": "dqch6x",
          "doc_count": 1,
          "pos_sentiment_avg": {
            "value": 0.7930498893936041
          },
          "geo_lat_avg": {
            "value": 38.75835
          },
          "geo_lon_avg": {
            "value": -77.23079
          },
          "neg_sentiment_avg": {
            "value": 0.20695011060639587
          }
        }
      ]
    }
   }
  }
 }
}
```

4.2.1.5   Steps for REST View - Query – Simple Stats

4.2.1.5.1   RSS

1. Submit a GET request to retrieve InsightCloud Social Media information. The REST call via monocle-3 application will look similar to the following for **RSS**:

    https://iipbeta.digitalglobe.com/monocle-3/app/broker/sma/sma/rss/sentences?bbox=-77.262458,38.758259,-76.713142,39.029141&datetimerange=2015-01-06T08:40:49.189Z,2015-01-06T14:40:49.189Z&dimensions=stats

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
  "took": 5,
  "timed_out": false,
  "_shards": {
    "total": 5,
    "successful": 5,
    "failed": 0
  },
  "hits": {
    "total": 31525,
    "max_score": 0,
    "hits": []
  },
  "aggregations": {
    "results": {
      "doc_count": 34,
      "article_count": {
        "value": 7
      }
    }
  }
}
```

4.2.1.5.2   Twitter

1. Submit a GET request to retrieve InsightCloud Social Media information. The REST call via monocle-3 application will look similar to the following for **Twitter**:

    https://iipbeta.digitalglobe.com/monocle-3/app/broker/sma/sma/twitter/tweets?bbox=-77.262458,38.758259,-76.713142,39.029141&datetimerange=2015-01-06T08:59:59.395Z,2015-01-06T14:59:59.395Z&dimensions=stats

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
  "took": 405,
  "timed_out": false,
  "_shards": {
```

```
       "total": 5,
       "successful": 5,
       "failed": 0
      },
      "hits": {
       "total": 5328188,
       "max_score": 0,
       "hits": []
      },
      "aggregations": {
       "results": {
        "doc_count": 6985,
        "user_count": {
         "value": 2350
        }
       }
      }
     }
```

4.2.1.6   Steps for REST View - Query – Stats with Query

4.2.1.6.1   RSS

1. Submit a GET request to retrieve InsightCloud Social Media information. The REST call
    via monocle-3 application will look similar to the following for **RSS**:
    > https://iipbeta.digitalglobe.com/monocle-
    > 3/app/broker/sma/sma/rss/sentences?bbox=43.004092,16.155678,43.580874,1
    > 6.478058&dimensions=stats&query=category:"TOP+STORIES"

2. If this is the first request of the session, user will be redirected to the CAS authentication
page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:
```
     {
      "took": 227,
      "timed_out": false,
      "_shards": {
       "total": 5,
       "successful": 5,
       "failed": 0
      },
      "hits": {
       "total": 28981,
       "max_score": 0,
       "hits": []
      },
      "aggregations": {
       "results": {
        "doc_count": 34,
         "article_count": {
          "value": 7
```

```
        }
      }
    }
  }
```

4.2.1.6.2   Twitter

1. Submit a GET request to retrieve InsightCloud Social Media information. The REST call via monocle-3 application will look similar to the following for **Twitter**:

> https://iipbeta.digitalglobe.com/monocle-3/app/broker/sma/sma/twitter/tweets?bbox=-77.464757,38.300103,-77.455744,38.30514&dimensions=stats&query=hashtags:"fredericksburg"+AND+hashtags:"healthcare"

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
  {
    "took": 277,
    "timed_out": false,
    "_shards": {
      "total": 5,
      "successful": 5,
      "failed": 0
    },
    "hits": {
      "total": 12,
      "max_score": 0,
      "hits": []
    },
    "aggregations": {
      "results": {
        "doc_count": 0,
        "user_count": {
          "value": 0
        }
      }
    }
  }
```

4.2.1.7   Steps for REST Stored Query (Twitter)

4.2.1.7.1   Retrieve List of Stored Queries

1. Submit a GET request to retrieve InsightCloud Social Media information. The REST call via monocle-3 application will look similar to the following:

> https://iipbeta.digitalglobe.com/monocle-3/app/broker/userprofile/api/workspace

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. IF there is at least one saved query:

    Call returns a response with a header of 200 OK and a body of

```
[
 {
   "name": "dc poly + query",
   "date": 1429109533966,
   "widgetProperties": {
    "sma": {
     "timeline": [
       "2015-04-15T08:39:38.392Z",
       "2015-04-15T14:39:38.392Z"
      ],
      "query": " job",
      "exactGeo": false
     }
    },
    "zoom": 8,
    "map": {
     "bottom": 36.8230375524398,
     "left": -79.25097659375056,
     "top": 40.90573836891383,
     "right": -74.72460940625007
    },
    "polygon": [
     [
       {
        "x": -77.1306152656253,
        "y": 39.53000605266768
       },
       {
        "x": -77.63598635937566,
        "y": 38.93859246551812
       },
       {
        "x": -76.57580569531302,
        "y": 38.613124896049655
       },
       {
        "x": -76.35607913281257,
        "y": 39.16042422628807
       },
       {
        "x": -77.1306152656253,
        "y": 39.53000605266768
       }
     ]
    ]
   },
   …
   {
```

```
      "name": "fburg",
      "date": 1429109073328,
      "widgetProperties": {
       "sma": {
        "timeline": [
          "2015-04-15T08:39:38.392Z",
          "2015-04-15T14:39:38.392Z"
        ],
        "exactGeo": false
       }
      },
      "zoom": 15,
      "map": {
       "bottom": 38.28391651997817,
       "left": -77.48768112182604,
       "top": 38.3160799152471,
       "right": -77.45231887817316
      },
      "polygon": null
    }
  ]
```

ELSE (there is no saved query):
Call returns a response with a header of 204 No Content and an empty body.

4.2.1.7.2   Save New Query

1. Submit a POST request to retrieve InsightCloud Social Media information. The REST call via monocle-3 application will look similar to the following:

https://iipbeta.digitalglobe.com/monocle-3/app/broker/userprofile/api/workspace

With a source body

{"time":"","date":1429109073328,"map":{"left":-77.48768112182604,"right":-77.45231887817316,"top":38.3160799152471,"bottom":38.28391651997817},"zoom":15,"query":"","timeline":"","polygon":[],"widgetProperties":{"sma":{"timeline":["2015-04-15T08:39:38.392Z","2015-04-15T14:39:38.392Z"],"exactGeo":false}},"name":"fburg"}

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The POST call returns a response with a header of 200 OK and a body of:

```
  [
   {
    "name": "fburg",
    "date": 1429109073328,
    "widgetProperties": {
     "sma": {
      "timeline": [
        "2015-04-15T08:39:38.392Z",
        "2015-04-15T14:39:38.392Z"
```

```
          ],
          "exactGeo": false
        }
      },
      "zoom": 15,
      "map": {
        "bottom": 38.28391651997817,
        "left": -77.48768112182604,
        "top": 38.3160799152471,
        "right": -77.45231887817316
      },
      "polygon": null
    }
  ]
```

4.2.1.7.3   Load Query

1. Submit a GET request to retrieve InsightCloud Social Media information. The REST call via monocle-3 application will look similar to the following:

    https://iipbeta.digitalglobe.com/monocle-3/app/broker/userprofile/api/workspace

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
  [
    {
      "name": "dc poly + query",
      "date": 1429109533966,
      "widgetProperties": {
        "sma": {
          "timeline": [
            "2015-04-15T08:39:38.392Z",
            "2015-04-15T14:39:38.392Z"
          ],
          "query": " job",
          "exactGeo": false
        }
      },
      "zoom": 8,
      "map": {
        "bottom": 36.8230375524398,
        "left": -79.25097659375056,
        "top": 40.90573836891383,
        "right": -74.72460940625007
      },
      "polygon": [
        [
          {
            "x": -77.1306152656253,
            "y": 39.53000605266768
```

```
      },
      {
        "x": -77.63598635937566,
        "y": 38.93859246551812
      },
      {
        "x": -76.57580569531302,
        "y": 38.613124896049655
      },
      {
        "x": -76.35607913281257,
        "y": 39.16042422628807
      },
      {
        "x": -77.1306152656253,
        "y": 39.53000605266768
      }
    ]
  ]
  },
…
  {
    "name": "fburg",
    "date": 1429109073328,
    "widgetProperties": {
     "sma": {
      "timeline": [
        "2015-04-15T08:39:38.392Z",
        "2015-04-15T14:39:38.392Z"
      ],
      "exactGeo": false
     }
    },
    "zoom": 15,
    "map": {
      "bottom": 38.28391651997817,
      "left": -77.48768112182604,
      "top": 38.3160799152471,
      "right": -77.45231887817316
    },
    "polygon": null
  }
]
```

FOLLOWING THIS in the UI:
Various calls made to return the viewport, zoom level, etc to the values stored in the saved query (See: Map call, Query call, Timeline call, Top Ten call, Tweets call, Word Cloud call)

4.2.1.7.4   Delete Query from list

1. Submit a DELETE request to retrieve InsightCloud Social Media information. The REST call via monocle-3 application will look similar to the following:
    https://iipbeta.digitalglobe.com/monocle-3/app/broker/userprofile/api/workspace?name=fburg

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The DELETE call returns a response with a header of 200 OK and a body of:

```
[
 {
   "name": "dc poly + query",
   "date": 1429109533966,
   "widgetProperties": {
    "sma": {
      "timeline": [
        "2015-04-15T08:39:38.392Z",
        "2015-04-15T14:39:38.392Z"
       ],
       "query": " job",
       "exactGeo": false
     }
   },
   "zoom": 8,
   "map": {
     "bottom": 36.8230375524398,
     "left": -79.25097659375056,
     "top": 40.90573836891383,
     "right": -74.72460940625007
   },
   "polygon": [
    [
      {
        "x": -77.1306152656253,
        "y": 39.53000605266768
      },
      {
        "x": -77.63598635937566,
        "y": 38.93859246551812
      },
      {
        "x": -76.57580569531302,
        "y": 38.613124896049655
      },
      {
        "x": -76.35607913281257,
        "y": 39.16042422628807
      },
      {
        "x": -77.1306152656253,
```

```
      "y": 39.53000605266768
    }
   ]
  ]
 }
]
```

4.2.1.8   Steps for REST View - Timeline

4.2.1.8.1   RSS

1. Submit a GET request to retrieve InsightCloud Social Media information. The REST call via monocle-3 application will look similar to the following for **RSS**:

> https://iipbeta.digitalglobe.com/monocle-
> 3/app/broker/sma/sma/rss/sentences?bbox=-77.262458,38.758259,-
> 76.713142,39.029141&dimensions=datetime

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
  "took": 605,
  "timed_out": false,
  "_shards": {
   "total": 875,
   "successful": 875,
   "failed": 0
  },
  "hits": {
   "total": 2700261,
   "max_score": 0,
   "hits": []
  },
  "aggregations": {
   "results": {
    "doc_count": 7658,
    "datetime": {
     "buckets": [
       {
        "key_as_string": "2014-09-07T23:00:00.000+0000",
        "key": 1410130800000,
        "doc_count": 1,
        "articles": {
          "value": 1
        }
       },
       {
        "key_as_string": "2014-09-08T00:00:00.000+0000",
        "key": 1410134400000,
```

```
         "doc_count": 1,
         "articles": {
           "value": 1
         }
       },
       {
         "key_as_string": "2014-09-08T01:00:00.000+0000",
         "key": 1410138000000,
         "doc_count": 0,
         "articles": {
           "value": 0
         }
       },
       ...
       {
         "key_as_string": "2015-02-11T11:00:00.000+0000",
         "key": 1423652400000,
         "doc_count": 2,
         "articles": {
           "value": 2
         }
       },
       {
         "key_as_string": "2015-02-11T12:00:00.000+0000",
         "key": 1423656000000,
         "doc_count": 2,
         "articles": {
           "value": 1
         }
       },
       {
         "key_as_string": "2015-02-11T13:00:00.000+0000",
         "key": 1423659600000,
         "doc_count": 5,
         "articles": {
           "value": 1
         }
       }
     ]
   }
  }
 }
}
```

4.2.1.8.2   Twitter

1. Submit a GET request to retrieve InsightCloud Social Media information. The REST call via monocle-3 application will look similar to the following for **Twitter**:

> https://iipbeta.digitalglobe.com/monocle-
> 3/app/broker/sma/sma/twitter/tweets?bbox=41.426181,14.409367,46.040439,
> 16.988408&dimensions=datetime

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
  "took": 41807,
  "timed_out": true,
  "_shards": {
    "total": 2505,
    "successful": 2505,
    "failed": 0
  },
  "hits": {
    "total": 526626807,
    "max_score": 0,
    "hits": []
  },
  "aggregations": {
    "results": {
      "doc_count": 3007934,
      "datetime": {
        "buckets": [
          {
            "key_as_string": "2014-09-26T01:00:00.000+0000",
            "key": 1411693200000,
            "doc_count": 617
          },
          {
            "key_as_string": "2014-09-26T02:00:00.000+0000",
            "key": 1411696800000,
            "doc_count": 1091
          },
          {
            "key_as_string": "2014-09-26T03:00:00.000+0000",
            "key": 1411700400000,
            "doc_count": 796
          },
          ...
          {
            "key_as_string": "2015-02-11T11:00:00.000+0000",
            "key": 1423652400000,
            "doc_count": 372
          },
          {
            "key_as_string": "2015-02-11T12:00:00.000+0000",
            "key": 1423656000000,
            "doc_count": 730
          },
          {
```

```
          "key_as_string": "2015-02-11T13:00:00.000+0000",
          "key": 1423659600000,
          "doc_count": 420
        }
      ]
    }
   }
  }
}
```

4.2.1.9   Steps for REST View - Top Ten

4.2.1.9.1   RSS
1. Submit a GET request to retrieve InsightCloud Social Media information. The REST call
    via monocle-3 application will look similar to the following for **RSS**:
    > https://iipbeta.digitalglobe.com/monocle-
    > 3/app/broker/sma/sma/rss/sentences?bbox=-77.262458,38.758259,-
    > 76.713142,39.029141&datetimerange=2015-01-06T09:00:46.674Z,2015-01-
    > 06T15:00:46.674Z&dimensions=topten

2. If this is the first request of the session, user will be redirected to the CAS authentication
page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:
```
  {
   "took": 431,
   "timed_out": false,
   "_shards": {
    "total": 5,
    "successful": 5,
    "failed": 0
   },
   "hits": {
    "total": 31525,
    "max_score": 0,
    "hits": []
   },
   "aggregations": {
    "results": {
      "doc_count": 34,
      "neg_sentiment": {
       "value": 0.30509988195404286
      },
      "pos_sentiment": {
       "value": 0.6949001180459573
      },
      "categories": {
       "doc_count_error_upper_bound": 0,
       "sum_other_doc_count": 0,
```

```json
      "buckets": [
        {
          "key": "TOP STORIES",
          "doc_count": 34,
          "articles": {
            "value": 7
          }
        }
      ]
    },
    "sources": {
      "doc_count_error_upper_bound": 0,
      "sum_other_doc_count": 0,
      "buckets": [
        {
          "key": "WXIX",
          "doc_count": 20,
          "articles": {
            "value": 1
          }
        },
        {
          "key": "Business Standard",
          "doc_count": 5,
          "articles": {
            "value": 1
          }
        },
        {
          "key": "Reuters",
          "doc_count": 3,
          "articles": {
            "value": 1
          }
        },
        {
          "key": "BBC News",
          "doc_count": 2,
          "articles": {
            "value": 1
          }
        },
        {
          "key": "Daily Times",
          "doc_count": 2,
          "articles": {
            "value": 1
          }
        },
        {
```

```
                    "key": "Detroit Free Press",
                    "doc_count": 1,
                    "articles": {
                      "value": 1
                    }
                  },
                  {
                    "key": "Philly.com",
                    "doc_count": 1,
                    "articles": {
                      "value": 1
                    }
                  }
                }
              ]
            }
          }
        }
      }
    }
```

4.2.1.9.2   Twitter

1. Submit a GET request to retrieve InsightCloud Social Media information. The REST call via monocle-3 application will look similar to the following for **Twitter**:

> https://iipbeta.digitalglobe.com/monocle-3/app/broker/sma/sma/twitter/tweets?bbox=-77.262458,38.758259,-76.713142,39.029141&datetimerange=2015-01-06T08:59:59.395Z,2015-01-06T14:59:59.395Z&dimensions=topten

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
  "took": 5458,
  "timed_out": false,
  "_shards": {
    "total": 5,
    "successful": 5,
    "failed": 0
  },
  "hits": {
    "total": 5328188,
    "max_score": 0,
    "hits": []
  },
  "aggregations": {
    "results": {
      "doc_count": 6985,
      "neg_sentiment": {
        "value": 0.3182736035511819
      },
```

```
"users": {
 "doc_count_error_upper_bound": 20,
 "sum_other_doc_count": 6491,
 "buckets": [
   {
    "key": "PapiZachary",
    "doc_count": 65
   },
   {
    "key": "Septemberlovee_",
    "doc_count": 59
   },
   {
    "key": "badesammy",
    "doc_count": 56
   },
   {
    "key": "MistaLeVar",
    "doc_count": 55
   },
   {
    "key": "UrLesly",
    "doc_count": 46
   },
   {
    "key": "iDIKher",
    "doc_count": 46
   },
   {
    "key": "Chris301Tweets",
    "doc_count": 43
   },
   {
    "key": "crowneedqueen_",
    "doc_count": 43
   },
   {
    "key": "TheNames_Steven",
    "doc_count": 41
   },
   {
    "key": "BasedAaron92",
    "doc_count": 40
   }
 ]
},
"pos_sentiment": {
 "value": 0.6817263964488178
},
"userlangs": {
```

```
     "doc_count_error_upper_bound": 0,
     "sum_other_doc_count": 4,
     "buckets": [
       {
         "key": "en",
         "doc_count": 6836
       },
       {
         "key": "es",
         "doc_count": 50
       },
       {
         "key": "pt",
         "doc_count": 27
       },
       {
         "key": "fr",
         "doc_count": 22
       },
       {
         "key": "ja",
         "doc_count": 15
       },
       {
         "key": "ar",
         "doc_count": 12
       },
       {
         "key": "tr",
         "doc_count": 9
       },
       {
         "key": "gb",
         "doc_count": 8
       },
       {
         "key": "de",
         "doc_count": 5
       },
       {
         "key": "ru",
         "doc_count": 5
       }
     ]
   },
   "hashtags": {
     "doc_count_error_upper_bound": 5,
     "sum_other_doc_count": 1523,
     "buckets": [
       {
```

```
      "key": "closefcps",
      "doc_count": 128
    },
    {
      "key": "snow",
      "doc_count": 83
    },
    {
      "key": "dc",
      "doc_count": 82
    },
    {
      "key": "job",
      "doc_count": 63
    },
    {
      "key": "aneventnottobemissed",
      "doc_count": 52
    },
    {
      "key": "ourlivesmatter",
      "doc_count": 52
    },
    {
      "key": "jobs",
      "doc_count": 50
    },
    {
      "key": "dcsnow",
      "doc_count": 44
    },
    {
      "key": "snowday",
      "doc_count": 39
    },
    {
      "key": "tweetmyjobs",
      "doc_count": 24
    }
  ]
},
"countries": {
  "doc_count_error_upper_bound": 0,
  "sum_other_doc_count": 0,
  "buckets": [
    {
      "key": "us",
      "doc_count": 6985
    }
  ]
```

```
      },
      "devices": {
       "doc_count_error_upper_bound": 0,
       "sum_other_doc_count": 162,
       "buckets": [
        {
          "key": "Twitter for iPhone",
          "doc_count": 4214
        },
        {
          "key": "Twitter for Android",
          "doc_count": 961
        },
        {
          "key": "Twitter Web Client",
          "doc_count": 779
        },
        {
          "key": "Instagram",
          "doc_count": 384
        },
        {
          "key": "Tweetbot for iOS",
          "doc_count": 284
        },
        {
          "key": "Twitter for iPad",
          "doc_count": 55
        },
        {
          "key": "Foursquare",
          "doc_count": 44
        },
        {
          "key": "TweetMyJOBS",
          "doc_count": 41
        },
        {
          "key": "iOS",
          "doc_count": 35
        },
        {
          "key": "Tweetbot for Mac",
          "doc_count": 26
        }
       ]
      },
      "tweetlangs": {
       "doc_count_error_upper_bound": 0,
       "sum_other_doc_count": 133,
```

```
    "buckets": [
     {
      "key": "en",
      "doc_count": 6300
     },
     {
      "key": "und",
      "doc_count": 312
     },
     {
      "key": "es",
      "doc_count": 90
     },
     {
      "key": "tl",
      "doc_count": 44
     },
     {
      "key": "pt",
      "doc_count": 26
     },
     {
      "key": "ht",
      "doc_count": 21
     },
     {
      "key": "ja",
      "doc_count": 16
     },
     {
      "key": "tr",
      "doc_count": 15
     },
     {
      "key": "fr",
      "doc_count": 14
     },
     {
      "key": "in",
      "doc_count": 14
     }
    ]
   }
  }
 }
}
```

4.2.1.10   Steps for REST View - Tweets/Articles Panel

4.2.1.10.1   RSS – Articles

1. Submit a GET request to retrieve InsightCloud Social Media information. The REST call via monocle-3 application will look similar to the following for **RSS**:

    https://iipbeta.digitalglobe.com/monocle-3/app/broker/sma/sma/rss/sentences?bbox=-77.262458,38.758259,-76.713142,39.029141&datetimerange=2015-01-06T09:05:14.942Z,2015-01-06T15:05:14.942Z

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
  "took": 269,
  "timed_out": false,
  "_shards": {
    "total": 5,
    "successful": 5,
    "failed": 0
  },
  "hits": {
    "total": 34,
    "max_score": 1,
    "hits": [
      {
        "_index": "orbitrss-2015-01-06",
        "_type": "sentences",
        "_id":
"a48df4fc7d91ddbc6b3a43d3352f66672d733e323d0eb119f2b0cf62c90585e86e4162bf828f2f1e3008978",
        "_score": 1,
        "_source": {
          "postedTime": "2015-01-06T09:31:15.000Z",
          "text": "Strong currents force expanded search area for AirAsia plane - Cincinnati
```

News, FOX19-WXIX TV\nSITE SEARCH\nStrong currents force expanded search area for AirAsia plane\nPosted:\nTuesday, January 6, 2015 3:04 AM EST\nUpdated:\nTuesday, January 6, 2015 4:25 AM EST\n(AP Photo/Tatan Syuflana). Indonesian Armed Forces Chief, Gen. Moeldoko, center, walks upon arrival following a search operation for the victims of AirAsia Flight 8501 at the airport in Pangkalan Bun, Indonesia, Tuesday, Jan. 6, 2015. The search operat...\n(AP Photo/Achmad Ibrahim, Pool). Muslim clerics read Quran verses as they perform a prayer for the victims of AirAsia Flight 8501 inside an Indonesian Air Force NAS 332 Super Puma helicopter flying over the Java Sea off Pangkalan Bun, Central Borneo, I...\n(AP Photo/Achmad Ibrahim)AP Photo/Tatan Syuflana). A U.S. navy crew member walks out a helicopter upon arrival following their search operation for the victims of AirAsia Flight 8501 at the airport in Pangkalan Bun, Indonesia, Tuesday, Jan. 6, 2015. Th...\n(AP Photo/Achmad Ibrahim, Pool). A Muslim cleric pauses as he reads a book of Quran verses during a prayer for the victims of AirAsia Flight 8501 inside an Indonesian Air Force NAS 332 Super Puma helicopter flying over the Java Sea off Pangkalan Bun, C...\n(AP Photo/Achmad Ibrahim, Pool). Muslim clerics pray before embarking on a flight with Indonesian Air Force NAS 332 Super Puma helicopter to fly over the Java Sea where

AirAsia Flight 8501 went down and pray for the victims, at Iskandar Airport in Pang...\nAlso on FOX19.com More>>\nUpdated:\nTuesday, January 6 2015 4:14 AM EST2015-01-06 09:14:47 GMT\nAirAsia Flight 8501 crashed into the Java Sea with 162 people on board, halfway into a Dec. 28 flight from Surabaya, Indonesia, to Singapore. Dozens of bodies have been recovered, and search teams have detected... Full Story >\nAirAsia Flight 8501 crashed into the Java Sea with 162 people on board, halfway into a Dec. 28 flight from Surabaya, Indonesia, to Singapore. Dozens of bodies have been recovered, and search teams have detected what is... Full Story >\nUpdated:\nMonday, January 5 2015 9:05 PM EST2015-01-06 02:05:24 GMT\nHighlighting the depth of Indonesia's air safety problems, the transportation ministry announced harsh measures Monday against everyone who allowed AirAsia Flight 8501 to take off without proper permits -... Full Story >\nThe search operation for AirAsia Flight 8501 will spread slightly eastward on Tuesday as the weather and currents drag wreckage in that direction, the head of Indonesia's rescue agency said. Full Story >\nTuesday, January 6 2015 4:41 AM EST2015-01-06 09:41:36 GMT\nSnowfall totals expected by 9 a.m. Tuesday. (FOX19 NOW)\nThe first snow system of 2015 arrived across the Tri-State overnight, dropping the heaviest accumulations in the northern Cincinnati suburbs. Full Story >\nThe first snow system of 2015 arrived across the Tri-State overnight, dropping the heaviest accumulations in the northern Cincinnati suburbs. Full Story >\nEx-Virginia Gov. Bob McDonnell makes bid to avoid prison\nFormer Virginia Gov. Bob McDonnell, once a top Republican prospect for national office, faces sentencing Tuesday for selling the influence of his office to the CEO of a dietary supplements company. Full Story >\nFormer Virginia Gov. Bob McDonnell, once a top Republican prospect for national office, faces sentencing Tuesday for selling the influence of his office to the CEO of a dietary supplements company. Full Story >\n2 New York City police officers shot, wounded in the Bronx\nTwo New York City police officers responding to a robbery in the Bronx were shot and wounded Monday night, and a manhunt was underway for at least two suspects, authorities said. Full Story >\nTwo New York City police officers responding to a robbery in the Bronx were shot and wounded Monday night, and a manhunt was still underway hours later for a pair of suspects, authorities said. Full Story >\nUS says NKorea sanctions step 1 in Sony response\nThe United States says its new round of sanctions against North Korea is just the opening salvo in its response to an unprecedented cyberattack on Sony. Yet there may be little else the U.S. can do to further... Full Story >\nThe United States says its new round of sanctions against North Korea is just the opening salvo in its response to an unprecedented cyberattack on Sony. Yet there may be little else the U.S. can do to further isolate a... Full Story >\nSpaceX shoots for launch to station, rocket landing on barge\nSpaceX is making another supply run to the International Space Station for NASA. But it's the rocket's return - not its takeoff - that has space fans talking. Full Story >\nSpaceX is making another supply run to the International Space Station for NASA. But it's the rocket's return - not its takeoff - that has space fans talking. Full Story >\nSnow expected from Midwest to Northeast, then bitter cold\nA winter weather system expected to dump more than a foot of snow in some places has begun its trek east, with a separate blast of arctic air on its heels. Full Story >\nA winter weather system expected to dump more than a foot of snow in some places has begun its trek east, with a separate blast of arctic air right on its heels. Full Story >\n \n7-year-old crash survivor may be able to help investigators determine what brought plane down Full Story >\n7-year-old crash survivor may be able to help investigators determine what brought plane down Full Story >\nWith Mario Cuomo's death, Democrats lose a liberal lion who epitomized an older party Full Story >\nWith Mario Cuomo's death, Democrats lose a liberal lion who epitomized an older party Full

Story >\nRoad salt buries cars in Chicago after wall collapse at Morton Salt facility Full Story >\nRoad salt buries cars in Chicago after wall collapse at Morton Salt facility Full Story >\nMother of 2 US citizens seeks refuge in Philadelphia church to avoid deportation to Honduras Full Story >\nMother of 2 US citizens seeks refuge in Philadelphia church to avoid deportation to Honduras Full Story >\nRuling opens door for medical malpractice lawsuits over health care aboard cruise ships Full Story >\nRuling opens door for medical malpractice lawsuits over health care aboard cruise ships Full Story >\n   \nBy ACHMAD IBRAHIM\nAssociated Press\nPANGKALAN BUN, Indonesia (AP) - Strong currents forced Indonesia to expand the search area for the crashed AirAsia plane Tuesday, as rough seas and bad weather pushed debris and made it difficult to reach suspected chunks of the fuselage on the ocean floor.\nWith only 37 bodies recovered since Flight 8501 crashed Dec. 28, there are also concerns that it will become harder to find the remaining corpses.\n\"Time is of the essence,\" said the National Search and Rescue Agency's director of operation, Suryadi B. Supriyadi. \"But it seems like it is hard to beat the weather.\"\nThe search operation will expand by about 185 square kilometers (71 square miles), search and rescue chief Henry Bambang Soelistyo said.\nIndonesia has suffered a string of accidents in recent years. It deregulated its aviation industry in the 1990s, and dozens of new carriers have made air travel affordable for the first time for many in the world's fourth most populous nation.\nExperts say poor maintenance, rule-bending and a shortage of trained personnel are largely to blame. Infrastructure has also failed to keep pace with exploding demand.\nThe country's transportation ministry cracked down Monday after it was discovered that Flight 8501 did not have a permit to fly between Surabaya, Indonesia, and Singapore on the day of the crash. The ministry suspended several officials, including the airport operator and those who were in the control tower.\nAll AirAsia flights on that route also have been canceled, pending an investigation.\nIt is not known what caused the Airbus A320 to crash into the Java Sea 42 minutes after takeoff, though Indonesia's Meteorology, Climatology and Geophysics Agency says bad weather appears to have been a factor.\nJust before losing contact, the pilot told air traffic control he was approaching threatening clouds, but was denied permission to climb to a higher altitude because of heavy air traffic. No distress signal was issued.\nSonar has identified five large objects that are believed to be pieces of the fuselage on the ocean floor, but strong currents, silt and mud have kept divers from seeing or reaching the objects.\nNo pings have been detected from the plane's all-important cockpit voice and flight data recorders. That's because high waves have prevented the deployment of ships that drag ping locators. The batteries in the pingers on the black boxes are likely to go dead in about 20 more days.\n\"We are confident that rescuers would be able to locate them in time,\" said Nurcahyo Utomo, an investigator for Indonesia's National Committee on Transportation Safety.\nThe search for the remaining 125 bodies has been exhausting for family members anxiously waiting to identify and bury their loved ones.\nEight Islamic clerics flew in a helicopter over the site Monday and scattered rice into the sea, a local tradition, and prayed for those who perished.\nAssociated Press writers Niniek Karmini and Ali Kotarumalos in Jakarta contributed to this report.\nCopyright 2015 The Associated Press. All rights reserved. This material may not be published, broadcast, rewritten or redistributed.\nSearching for Malaysian Airlines Flight 370 More>>\n",

        "titleNegative": 0.08136906873976942,
        "loc_hash": "dqcjqg2v2n29ppn2ykd7",
        "descriptionPositive": 0.999209798049941,
        "luceneScore": 0.2857142857142857,
        "negativeSentiment": 0.20764616598326996,

```
      "ccScore": 0.447294319294809,
      "positiveSentiment": 0.7923538340167301,
      "author": "",
      "gazIndexId": "300897",
      "nerScore": 0.9990962622238176,
      "sentence": "More>>\nUpdated:\nTuesday, January 6 2015 4:14 AM EST2015-01-
06 09:14:47 GMT\nAirAsia Flight 8501 crashed into the Java Sea with 162 people on
board, halfway into a Dec. 28 flight from Surabaya, Indonesia, to Singapore.",
      "process_version": "20140909T120800Z",
      "articleId": "05125d1b3c1b12faf3b055cf2bc03ddf83ff3848",
      "language": null,
      "title": "Strong currents force expanded search area for AirAsia plane",
      "locName": "Indonesia",
      "url": "http://www.fox19.com/story/27768085/strong-currents-force-expanded-
search-area-for-airasia-plane",
      "geo": {
       "lat": 38.9103893,
       "lon": -77.0460882
      },
      "descriptionNegative": 0.0007902019500588576,
      "provCode": "not_defined",
      "sentenceNum": 8,
      "countryCode": "us",
      "source": "WXIX",
      "ghbScore": 0.75,
      "titlePositive": 0.9186309312602307,
      "description": "<table border=\"0\" cellpadding=\"2\" cellspacing=\"7\"
style=\"vertical-align:top;\"><tr><td width=\"80\" align=\"center\" valign=\"top\"><font
style=\"font-size:85%;font-family:arial,sans-serif\"><a
href=\"http://news.google.com/news/url?sa=t&amp;fd=R&amp;ct2=us&amp;usg=AFQj
CNHbcC0hxjHKXl6gEMATWVUQkHmufg&amp;clid=c3a7d30bb8a4878e06b80cf16b
898331&amp;cid=52778701371572&amp;ei=ArOrVMjNCIPDggf5dg&amp;url=http://
www.independent.ie/world-news/asia-pacific/airasia-plane-recovery-team-shift-search-
area-as-bad-weather-continues-30885303.html\"><img
src=\"//t2.gstatic.com/images?q=tbn:ANd9GcRD2fGXd8uecbTPSvrGgctvOGTsXDa_Of
vgupVvkVKoXDuhfwzlqNY2Hx9z3ANaGgOJYfhG5YsE\" alt=\"\" border=\"1\"
width=\"80\" height=\"80\"><br><font size=\"-2\">Irish
Independent</font></a></font></td><td valign=\"top\" class=\"j\"><font style=\"font-
size:85%;font-family:arial,sans-serif\"><br><div style=\"padding-top:0.8em;\"><img
alt=\"\" height=\"1\" width=\"1\"></div><div class=\"lh\"><a
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898331&amp;cid=52778701371572&amp;ei=ArOrVMjNCIPDggf5dg&amp;url=http://
www.fox19.com/story/27768085/strong-currents-force-expanded-search-area-for-airasia-
plane\"><b>Strong currents force expanded search area for AirAsia
plane</b></a><br><font size=\"-1\"><b><font
color=\"#6f6f6f\">WXIX</font></b></font><br><font size=\"-1\">(AP Photo/Tatan
Syuflana). Indonesian Armed Forces Chief, Gen. Moeldoko, center, walks upon arrival
following a search operation for the victims of AirAsia Flight 8501 at the airport in
Pangkalan Bun, Indonesia, Tuesday, Jan. 6, 2015. The search operat.</font><br><font
```

```
size=\"-1\"><a
href=\"http://news.google.com/news/url?sa=t&amp;fd=R&amp;ct2=us&amp;usg=AFQj
CNFYl2JmfsU-
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778701371572&amp;ei=ArOrVMjNCIPDggf5dg&amp;url=http://timesofindia.indiatime
s.com/world/rest-of-world/AirAsia-crash-Search-to-continue-with-waves-forecast-2-3-
metres/articleshow/45771078.cms\">AirAsia crash: Search to continue with waves
forecast 2-3 metres</a><font size=\"-1\" color=\"#6f6f6f\"><nobr>Times of
India</nobr></font></font><br><font size=\"-1\" class=\"p\"></font><br><font
class=\"p\" size=\"-1\"><a class=\"p\"
href=\"http://news.google.com/news/more?ncl=dYDGKnH4fUX_FTMcwBrDUJ7S7YR
QM&amp;authuser=0&amp;ned=us&amp;topic=h\"><nobr><b>all 6,478 news
articles &raquo;</b></nobr></a></font></div></font></td></tr></table>",
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      "category": "TOP STORIES"
    }
  },
  ...
  {
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    "_type": "sentences",
    "_id":
"43623c5a582fbc5cde03165259864c27aa24cf5c42b88c6459b683b6f3405c65a406a10ca
105c1752999420",
    "_score": 1,
    "_source": {
      "postedTime": "2015-01-06T10:06:49.000Z",
      "text": "US concerns over rising Pak-India tension\nPasaki encourages dialogue
between Pakistan, India\nTweet\nWASHINGTON – The United States on Monday
expressed concern over rising Pakistan-India tensions and the exchange of fire along the
working boundary, which has claimed four Pakistani civilian lives.\nState Department
spokesperson Jen Psaki said that Washington encourages Islamabad and New Delhi to
engage in a dialogue. "We certainly remain concerned and watch over tensions along the
border. We encourage dialogue between the (two) countries," Psaki said, when the issue
of flare-up in border tensions between Pakistan and India was raised at the daily
briefing.\nWhen her attention was drawn to the reports of four Pakistanis deaths in Indian
fire in Sialkot sector, the spokesperson said that she did not have any confirmation but
added the US would obviously sympathise with families on loss of any lives. "Our hearts
will go out to the families for any lives lost," he added. In response to another question,
the spokesperson noted that Washington has been supporting dialogue between
Islamabad and New Delhi.\nShe said that there have been some steps in the past and
positive exchanges over the years but obviously more work needs to be done. On US-
Pakistan Strategic Dialogue, she said that the two sides work on a range of issues
including counterterrorism and security issues.\n \n",
      "titleNegative": 0.5001209472430611,
      "loc_hash": "dqcjqeutws45mqjs8j7v",
      "descriptionPositive": 0.9996588865990833,
      "luceneScore": 0.5,
      "negativeSentiment": 0.009471888063340072,
      "ccScore": 0.5981308411214954,
```

"positiveSentiment": 0.99052811193666,
"author": "",
"gazIndexId": "299942",
"nerScore": 0.9954744977517948,
"sentence": "US concerns over rising Pak-India tension\nPasaki encourages dialogue between Pakistan, India\nTweet\nWASHINGTON – The United States on Monday expressed concern over rising Pakistan-India tensions and the exchange of fire along the working boundary, which has claimed four Pakistani civilian lives.",
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"articleId": "b6b2cf3b512eb8cb8f222469cd91b76b58769849",
"language": null,
"title": "US concerns over rising Pak-India tension",
"locName": "Pakistan",
"url": "http://www.dailytimes.com.pk/national/06-Jan-2015/us-concerns-over-rising-pak-india-tension",
"geo": {
 "lat": 38.9131671,
 "lon": -77.0516438
},
"descriptionNegative": 0.00034111340091674065,
"provCode": "not_defined",
"sentenceNum": 0,
"countryCode": "us",
"source": "Daily Times",
"ghbScore": 0.3333333333333333,
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Daily Times</td><td valign=\"top\" class=\"j\">
<div style=\"padding-top:0.8em;\"><img alt=\"\" height=\"1\" width=\"1\"></div><div class=\"lh\">US concerns over rising Pak-India tension
Daily Times
WASHINGTON – The United States on Monday expressed concern over rising Pakistan-India tensions and the exchange of fire along the working boundary, which has claimed four Pakistani civilian lives. State Department spokesperson Jen Psaki said that ...
<a

href=\"http://news.google.com/news/url?sa=t&fd=R&ct2=us&usg=AFQj
CNGoXacz3Bafbi0Bb7_prLw0gn3t2A&clid=c3a7d30bb8a4878e06b80cf16b89833
1&cid=52778702951678&ei=3birVJCAGoXngAf0-
4GgDQ&url=http://time.com/3655351/india-pakistan-kashmir-border-clashes-
flee/\">Thousands Flee Homes as Clashes by India-Pakistan Border Escalate<nobr>TIME</nobr>
<font size=\"-
1\"><a
href=\"http://news.google.com/news/url?sa=t&fd=R&ct2=us&usg=AFQj
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331&cid=52778702951678&ei=3birVJCAGoXngAf0-
4GgDQ&url=http://indianexpress.com/photos/picture-gallery-others/thousands-flee-
their-homes-as-pakistani-shelling-intensifies-in-j-k/\">Thousands flee their homes as
Pakistani shelling intensifies in JK<nobr>The
Indian Express</nobr>
<a
href=\"http://news.google.com/news/url?sa=t&fd=R&ct2=us&usg=AFQj
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8331&cid=52778702951678&ei=3birVJCAGoXngAf0-
4GgDQ&url=http://nation.com.pk/national/06-Jan-2015/people-forced-to-vacate-
homes-midst-of-india-pakistan-clashes\">People forced to vacate homes midst of India
Pakistan clashes<nobr>The
Nation</nobr>
<a
href=\"http://news.google.com/news/url?sa=t&fd=R&ct2=us&usg=AFQj
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331&cid=52778702951678&ei=3birVJCAGoXngAf0-
4GgDQ&url=http://www.ptinews.com/news/5542777_Pak-Rangers-not-accepting-
protest-notes-over-ceasefire--BSF-.html\"><nobr>Press Trust of
India</nobr> -<a
href=\"http://news.google.com/news/url?sa=t&fd=R&ct2=us&usg=AFQj
CNFHDTrRlVOkLRPIB71ZLImadKrTsg&clid=c3a7d30bb8a4878e06b80cf16b898
331&cid=52778702951678&ei=3birVJCAGoXngAf0-
4GgDQ&url=http://tribune.com.pk/story/817341/counter-terrorism-the-cost-of-war-
for-pakistan/\"><nobr>The Express Tribune</nobr>
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size=\"-1\"><a class=\"p\"
href=\"http://news.google.com/news/more?ncl=dqyTJtRrGMbpJbMgizUHD5bdJQcfM&
amp;authuser=0&ned=us&topic=h\"><nobr>all 408 news
articles »</nobr></div></td></tr></table>",
        "locType": "Building",
        "category": "TOP STORIES"
      }
    }
  ]
 }
}

4.2.1.10.2   Twitter – Tweets
1. Submit a GET request to retrieve InsightCloud Social Media information. The REST call
   via monocle-3 application will look similar to the following for **Twitter**:
   > https://iipbeta.digitalglobe.com/monocle-
   > 3/app/broker/sma/sma/twitter/tweets?bbox=-77.262458,38.758259,-

71

76.713142,39.029141&datetimerange=2015-01-06T09:06:07.397Z,2015-01-06T15:06:07.397Z

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
 "took": 1317,
 "timed_out": false,
 "_shards": {
  "total": 5,
  "successful": 5,
  "failed": 0
 },
 "hits": {
  "total": 7160,
  "max_score": 1,
  "hits": [
   {
    "_index": "orbit-2015-01-06",
    "_type": "tweet",
    "_id": "552392722808832000",
    "_score": 1,
    "_source": {
     "text": "Finally home Zzzzzzz",
     "screenName": "PrettiLilLiiar",
     "loc_hash": "dqcm89cvbmvz57n4m7tk",
     "retweets": null,
     "gnipLanguage": "en",
     "friendsCount": 817,
     "actorDescription": "Jamaican || Tourism & Social Media",
     "followersCount": 539,
     "negativeSentiment": 0.12350527515535029,
     "favoritesCount": 0,
     "positiveSentiment": 0.8764947248446497,
     "process_version": "20140909T120800Z",
     "twitterCountryCode": "US",
     "twitterLanguage": null,
     "device": "Twitter for iPhone",
     "created": "2015-01-06T09:14:22.000Z",
     "geo": {
      "lat": 38.946179,
      "lon": -76.967793
     },
     "actorDisplayName": "Shea Powell",
     "listedCount": 10,
     "exactGeo": "true",
     "verb": "post",
     "countryCode": "United States",
```

```
      "statusesCount": 59149,
      "id": "552392722808832000",
      "actorLanguages": [
       "en"
      ],
      "actorId": "97049501",
      "placeGeoType": "Polygon"
     }
    },
    …
    {
     "_index": "orbit-2015-01-06",
     "_type": "tweet",
     "_id": "552394727916859394",
     "_score": 1,
     "_source": {
      "text": "Tonight a theater became a classroom for youth & leaders to
experience & discuss the \"masterful\"… http://t.co/GFHYJWP6b6",
      "screenName": "jonctaylor",
      "loc_hash": "dqcjr374rg8jb2vq1muw",
      "retweets": null,
      "gnipLanguage": "en",
      "friendsCount": 780,
      "actorDescription": "#lifetogether",
      "followersCount": 874,
      "negativeSentiment": 0.15185095588180453,
      "favoritesCount": 0,
      "positiveSentiment": 0.8481490441181956,
      "process_version": "20140909T120800Z",
      "twitterCountryCode": "US",
      "twitterLanguage": null,
      "device": "Instagram",
      "created": "2015-01-06T09:22:20.000Z",
      "geo": {
       "lat": 38.898874,
       "lon": -77.020694
      },
      "actorDisplayName": "jt",
      "listedCount": 21,
      "exactGeo": "true",
      "verb": "post",
      "countryCode": "United States",
      "statusesCount": 11229,
      "id": "552394727916859394",
      "actorLanguages": [
       "en"
      ],
      "actorId": "14708751",
      "placeGeoType": "Polygon"
     }
```

```
        }
      ]
    }
  }
```

4.2.1.11   Steps for REST View - Word Cloud

The Word Cloud has two primary options for dimensions settings, plus an extra dimension option for Twitter. The three dimension options are: *term*, *sigterm*, and the Twitter-only option of *hashtag*.

4.2.1.11.1   RSS

1. Submit a GET request to retrieve InsightCloud Social Media information. The REST call via monocle-3 application will look similar to the following for **RSS**:

   https://iipbeta.digitalglobe.com/monocle-3/app/broker/sma/sma/rss/sentences?bbox=-77.262458,38.758259,-76.713142,39.029141&datetimerange=2015-01-06T09:00:46.674Z,2015-01-06T15:00:46.674Z&dimensions=sigterm

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
  "took": 355,
  "timed_out": false,
  "_shards": {
    "total": 5,
    "successful": 5,
    "failed": 0
  },
  "hits": {
    "total": 31525,
    "max_score": 0,
    "hits": []
  },
  "aggregations": {
    "results": {
      "doc_count": 34,
      "term": {
        "doc_count": 34,
        "buckets": [
          {
            "key": "currents",
            "doc_count": 20,
            "score": 48.42048205295751,
            "bg_count": 233
          },
          {
            "key": "expanded",
            "doc_count": 20,
```

```
                "score": 44.192278987719654,
                "bg_count": 255
            },
            {
                "key": "area",
                "doc_count": 20,
                "score": 43.162841877792374,
                "bg_count": 261
            },
            ...
            {
                "key": "2",
                "doc_count": 8,
                "score": 1.29361381766588,
                "bg_count": 1195
            },
            {
                "key": "over",
                "doc_count": 3,
                "score": 0.6137543252595157,
                "bg_count": 366
            },
            {
                "key": "as",
                "doc_count": 8,
                "score": 0.6020317222699723,
                "bg_count": 2182
            }
        ]
      }
    }
  }
}
```

4.2.1.11.2   Twitter

1. Submit a GET request to retrieve InsightCloud Social Media information. The REST call via monocle-3 application will look similar to the following for **Twitter**:

> https://iipbeta.digitalglobe.com/monocle-3/app/broker/sma/sma/twitter/tweets?bbox=-77.262458,38.758259,-76.713142,39.029141&datetimerange=2015-01-06T09:01:57.051Z,2015-01-06T15:01:57.051Z&dimensions=hashtag

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
  "took": 745,
  "timed_out": false,
  "_shards": {
```

```
  "total": 5,
  "successful": 5,
  "failed": 0
},
"hits": {
  "total": 5328188,
  "max_score": 0,
  "hits": []
},
"aggregations": {
  "results": {
    "doc_count": 7029,
    "term": {
      "doc_count_error_upper_bound": 5,
      "sum_other_doc_count": 1308,
      "buckets": [
        {
          "key": "closefcps",
          "doc_count": 129
        },
        {
          "key": "snow",
          "doc_count": 83
        },
        {
          "key": "dc",
          "doc_count": 82
        },
        ...
        {
          "key": "weather",
          "doc_count": 8
        },
        {
          "key": "closeacps",
          "doc_count": 7
        },
        {
          "key": "fail",
          "doc_count": 7
        }
      ]
    }
  }
}
}
```

4.2.1.12   Steps for REST Download

4.2.1.12.1   RSS

1. Submit a GET request to download the results of an InsightCloud Social Media query. The REST call via monocle-3 application will look similar to the following for **RSS**:

    https://iipbeta.digitalglobe.com/monocle-3/app/broker/sma/sma/rss/sentences?bbox=-77.262458,38.758259,-76.713142,39.029141&datetimerange=2015-01-06T09:05:14.942Z,2015-01-06T15:05:14.942Z&pageSize=22&format=shp&stream-shape-file=true

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call triggers a response with a header of 200 OK, a Content-Type of application/octet-stream, and downloads a zip file containing a shapefile; save or open at user discretion.

4.2.1.12.2   Twitter

1. Submit a GET request to download the results of an InsightCloud Social Media query. The REST call via monocle-3 application will look similar to the following for **Twitter**:

    https://iipbeta.digitalglobe.com/monocle-3/app/broker/sma/sma/twitter/tweets?bbox=-77.262458,38.758259,-76.713142,39.029141&datetimerange=2015-01-06T09:06:07.397Z,2015-01-06T15:06:07.397Z&pageSize=22&format=shp&stream-shape-file=true

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call triggers a response with a header of 200 OK, a Content-Type of application/octet-stream, and downloads a zip file containing a shapefile; save or open at user discretion.

4.2.2 Unified Vector Index

The Unified Vector Index (UVI) provides the analyst with a tool for visually mapping all available vectors within a given aoi. Analysts may then refine the resulting vectors into a desired selection. These quickly polled and returned arrays of points, polylines, and polygons may then be used in further analytical studies of the area.

4.2.2.1   Aggregation Queries

4.2.2.1.1   Parameters

Parameters	Data Type	Parameter Type	Description
left	String	Query	Longitude in decimal degrees of the lower left bounding box corner
lower	String	Query	Latitude in decimal degrees of the lower left bounding box corner

Parameters	Data Type	Parameter Type	Description
right	String	Query	Longitude in decimal degrees of the upper right bounding box corner
upper	String	Query	Latitude in decimal degrees of the upper right bounding box corner
binCountX	Integer	Query	The number of horizontal partitions of the bounding box; total bins limited to 20 *Note: total bins = binCountX x binCountY*
binCountY	Integer	Query	The number of vertical partitions of the bounding box; total bins limited to 20 *Note: total bins = binCountX x binCountY*

Table 4.14 Aggregation UVI Parameters

Parameters	Limits
Left	Between -180 and 180 degrees inclusive
Right	Between -180 and 180 degrees inclusive
Lower	Between -90 and 90 degrees inclusive
Upper	Between -90 and 90 degrees inclusive
Source	Current source options are: ACLED, Anthrometer, Gazetteer, GDB, GDELT, HGIS, IIP-SA-Raster, ImageMining, InsightCloudMR, MASS Service, OSM, SETD, Tomnod *Note: Less in Staging

Table 4.15 Aggregation UVI Parameter Limits

4.2.2.1.2   List Available Sources

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/aggs/sources?left={value}&right={value}&upper={value}&lower={value}

1. Submit a GET request to retrieve InsightCloud Anthrometer information. The REST call via monocle-3 application will look similar to the following:

    https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/aggs/sources?north=42.631&east=37.2633&south=34.7208&west=32.3964

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
  "data": [
    {
      "name": "SETD",
      "count": 76063
    },
    {
      "name": "HGIS",
      "count": 58492
    },
    ...
    {
      "name": "OSM",
      "count": 2
    }
  ],
  "shards": 535
}
```

4.2.2.1.3   List Available Sources (binned)

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/aggs/sources/binned?north={value}&east={value}&south={value}&west={value}&binCountX={value}&binCountY={value}

1. Submit a GET request to retrieve InsightCloud ESRI UVI information. The REST call via monocle-3 application will look similar to the following:

    https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/aggs/sources/binned?north=42.631&east=37.2633&south=34.7208&west=32.3964&binCountX=1&binCountY=2

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
  "data": [
    {
      "xIndex": 0,
      "yIndex": 0,
      "north": 42.631,
      "east": 37.2633,
      "south": 38.6759,
      "west": 32.3964,
      "geom": {
        "type": "Polygon",
        "coordinates": [
          [
            [
              32.3964,
              42.631
```

```
      ],
      [
        37.2633,
        42.631
      ],
      [
        37.2633,
        38.6759
      ],
      [
        32.3964,
        38.6759
      ],
      [
        32.3964,
        42.631
      ]
    ]
  ]
},
"data": [
  {
    "name": "Gazeteer",
    "count": 11895
  },
  {
    "name": "Anthrometer",
    "count": 3
  }
]
},
{
"xIndex": 0,
"yIndex": 1,
"north": 38.6759,
"east": 37.2633,
"south": 34.7208,
"west": 32.3964,
"geom": {
  "type": "Polygon",
  "coordinates": [
    [
      [
        32.3964,
        38.6759
      ],
      [
        37.2633,
        38.6759
      ],
```

```
        [
          37.2633,
          34.7208
        ],
        [
          32.3964,
          34.7208
        ],
        [
          32.3964,
          38.6759
        ]
      ]
    ]
  },
  "data": [
    {
      "name": "SETD",
      "count": 76063
    },
    {
      "name": "HGIS",
      "count": 58492
    },
    {
      "name": "Gazeteer",
      "count": 23292
    },
    ...
    {
      "name": "OSM",
      "count": 2
    },
    {
      "name": "Anthrometer",
      "count": 1
    }
  ]
 }
],
"shards": 535
}
```

4.2.2.2   UVI in ESRI ArcMap Add-In

Note: Sources are subject to rapid change, and both the list of available sources as well as the vector count within each listed source may be different than the given examples. Basic principles still apply.

4.2.2.2.1   Parameters

Parameters	Data Type	Parameter Type	Description
left	String	Query	Longitude in decimal degrees of the lower left bounding box corner
lower	String	Query	Latitude in decimal degrees of the lower left bounding box corner
right	String	Query	Longitude in decimal degrees of the upper right bounding box corner
upper	String	Query	Latitude in decimal degrees of the upper right bounding box corner
geometry	String	Path	The geometry type for which to list items or types (e.g. "Point")
type	String	Path	The vector item type for which to list items (e.g. "Road" or "Media Outlet")
ttl	String	Query	The time to live for the Elasticsearch paging session.
count	Integer	Query	The number of records to return per shard per page request.
fields	String	Path	The comma-separated list of fields to return for the items.
source	String	Path	The source for which to list items or types.
pagingId	String	Form	The paging session ID for which to retrieve a page.

Table 4.16 ESRI UVI Parameters

Parameters	Limits
Left	Between -180 and 180 degrees inclusive
Right	Between -180 and 180 degrees inclusive
Lower	Between -90 and 90 degrees inclusive
Upper	Between -90 and 90 degrees inclusive
Fields	Possible field options are: id, itemDate, ingestDate, ingestSource, name, itemType, format, source, geomType, geom, originalCrs, text, attributes, ingestAttributes
Source	Current source options are: ACLED, Anthrometer, Gazetteer, GDB,

Parameters	Limits
	GDELT, HGIS, IIP-SA-Raster, ImageMining, InsightCloudMR, MASS Service, OSM, SETD, Tomnod
	*Note: Less in Staging

Table 4.17 ESRI UVI Parameter Limits

4.2.2.2.2 List Available Sources

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/sources?left={value}&right={value}&upper={value}&lower={value}

2. Submit a GET request to retrieve InsightCloud ESRI UVI information. The REST call via monocle-3 application will look similar to the following:

> https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/sources?left=32.3964&right=37.2633&upper=42.631&lower=34.7208

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
  "shards": 175,
  "data": [
    {
      "name": "OSM",
      "count": 127599
    },
    {
      "name": "HGIS",
      "count": 58493
    }
  ]
}
```

4.2.2.2.3 List Available Geometries for a Given Source

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/{source}/geometries?left={value}&right={value}&upper={value}&lower={value}

1. Submit a GET request to retrieve InsightCloud ESRI UVI information. The REST call via monocle-3 application will look similar to the following:

> https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/HGIS/geometries?left=32.3964&right=37.2633&upper=42.631&lower=34.7208

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
  "shards": 175,
  "data": [
    {
      "name": "Polygon",
      "count": 23635
    },
    {
      "name": "PolyLine",
      "count": 8091
    },
    {
      "name": "Point",
      "count": 26766
    }
  ]
}
```

4.2.2.2.4   List Available Item Types for a Given Geometry and Source

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/{source}/{geometry}/types?left={value}&right={value}&upper={value}&lower={value}

1. Submit a GET request to retrieve InsightCloud ESRI UVI information. The REST call via monocle-3 application will look similar to the following:

    https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/HGIS/Polygon/types?left=32.3964&right=37.2633&upper=42.631&lower=34.7208

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
  "shards": 175,
  "data": [
    {
      "name": "Cropland",
      "count": 23137
    },
    {
      "name": "Religions",
      "count": 119
    },
    {
      "name": "Languages",
```

```
   "count": 59
  },
  {
   "name": "Admin2",
   "count": 27
  },
  …
  {
   "name": "Admin1 Unemployment",
   "count": 6
  },
  {
   "name": "Political Party",
   "count": 6
  },
  {
   "name": "Admin0",
   "count": 1
  }
 ]
}
```

4.2.2.2.5   List Available Vector Items for Given Item Type, Geometry, and Source (Returns Default Fields)

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/{source}/{geometry}/{type}?left={value}&right={value}&upper={value}&lower={value}&count={value}

1. Submit a GET request to retrieve InsightCloud ESRI UVI information. The REST call via monocle-3 application will look similar to the following:

    https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/HGIS/Polygon/Admin0?left=32.3964&right=37.2633&upper=42.631&lower=34.7208&count=100

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
 "displayFieldName": "",
 "features": [
  {
   "attributes": {
    "vector_name": "SYRIAN ARAB REPUBLIC",
    "item_NAME_FAO": "Syrian Arab Republic",
    "item_VALIDTO": "Present",
    "item_NAME_VARIA": "Syrian Arab Republic|Alaouites|United Arab Republic",
    "item_Shape_Length": "24.598553",
    "item_ISO3": "SYR",
    "item_NAME_LOCAL": "Suriyah",
```

85

```
  "item_Shape_Area_dbl": 18.423695,
  "vector_itemType": "Admin0",
  "item_ISO2": "SY",
  "item_ISON": "760.0",
  "item_Shape_Length_dbl": 24.598553,
  "item_SOURCE": "www.gadm.org",
  "item_FIPS": "SY",
  "item_ISON_dbl": 760,
  "item_VALIDFR": "Unknown",
  "item_NAME_ENGLI": "Syria",
  "vector_source": "www.gadm.org",
  "item_NAME_FRENC": "Syrienne, République Arabe",
  "item_NAME_ISO": "SYRIAN ARAB REPUBLIC",
  "item_Shape_Area": "18.423695"
},
"geometry": {
  "rings": [
    [
      [
        35.859859467000035,
        34.85949707000009
      ],
      [
        35.859859467000035,
        34.85930633500004
      ],
      [
        35.86071777300009,
        34.85931396500007
      ],
      ...
      [
        35.859859467000035,
        34.85949707000009
      ]
    ],
    ...
    [
      [
        42.220829010000045,
        37.27747726400008
      ],
      ...
      [
        42.220829010000045,
        37.27747726400008
      ]
    ]
  ],
  "spatialReference": {
```

```
        "wkid": 4326
      }
    }
  }
],
"spatialReference": {
  "wkid": 4326
},
"geometryType": "esriGeometryPolygon",
"fields": [
  {
    "alias": "Name",
    "name": "vector_name",
    "length": 32,
    "type": "esriFieldTypeString"
  },
  {
    "alias": "Item Type",
    "name": "vector_itemType",
    "length": 22,
    "type": "esriFieldTypeString"
  },
  ...
  {
    "alias": "NAME_FAO",
    "name": "item_NAME_FAO",
    "length": 34,
    "type": "esriFieldTypeString"
  }
 ]
}
```

4.2.2.2.6 List Available Vector Items for Given Item Type, Geometry, and Source (Returns Selected Fields)

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/{source}/{geometry}/{type}/{fields}?left={value}&right={value}&upper={value}&lower={value}&count={value}

1. Submit a GET request to retrieve InsightCloud ESRI UVI information. The REST call via monocle-3 application will look similar to the following:

   https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/HGIS/Polygon/Political%20Party/ingestDate%2CingestSource?left=32.3964&right=37.2633&upper=42.631&lower=34.7208&count=100

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

   {

```
    "displayFieldName": "",
    "features": [
     {
       "attributes": {
        "vector_ingestSource": "HGIS",
        "vector_ingestDate": "2015-03-09T21:53:13Z"
       },
       "geometry": {
        "rings": [
         [
          [
            36.73624420200008,
            36.31853103600008
          ],
          [
            36.754726410000046,
            36.29829025300006
          ],
          …
          [
            36.193588257000044,
            35.214267731000064
          ]
         ]
        ],
        "spatialReference": {
         "wkid": 4326
        }
       }
     }
    ],
    "spatialReference": {
     "wkid": 4326
    },
    "geometryType": "esriGeometryPolygon",
    "fields": [
     {
       "alias": "Ingest Date",
       "name": "vector_ingestDate",
       "length": 38,
       "type": "esriFieldTypeDate"
     },
     {
       "alias": "Ingest Source",
       "name": "vector_ingestSource",
       "length": 24,
       "type": "esriFieldTypeString"
     }
    ]
}
```

4.2.2.2.7 List Available Geometries Matching A Given Query

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/query/geometries?q={query}&left={value}&right={value}&upper={value}&lower={value}

1. Submit a GET request to retrieve InsightCloud ESRI UVI information. The REST call via monocle-3 application will look similar to the following:

   https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/query/geometries?q=highway&left=32.3964&right=37.2633&upper=42.631&lower=34.7208

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
  "data": [
    {
      "name": "PolyLine",
      "count": 106
    }
  ],
  "shards": 540
}
```

4.2.2.2.8 List Available Vector Item Types Matching Given Geometry and Query

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/query/{geometry}/types?q={query}&left={value}&right={value}&upper={value}&lower={value}

1. Submit a GET request to retrieve InsightCloud ESRI UVI information. The REST call via monocle-3 application will look similar to the following:

   https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/query/PolyLine/types?q=highway&left=32.3964&right=37.2633&upper=42.631&lower=34.7208

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
  "data": [
    {
      "name": "Roads",
      "count": 102
    },
    {
      "name": "Roads Local",
```

```
      "count": 4
    }
  ],
  "shards": 540
}
```

4.2.2.2.9 List Available Vector Items Matching Given Query, Geometry Type, and Item Type

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/query/{geometry}/{type}/{fields}?q={query}&left={value}&right={value}&upper={value}&lower={value}&count={value}

1. Submit a GET request to retrieve InsightCloud ESRI UVI information. The REST call via monocle-3 application will look similar to the following:

   https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/query/PolyLine/Roads%20Local/itemDate%2CingestSource%2Cname%2Ctext?q=highway&left=32.3964&right=37.2633&upper=42.631&lower=34.7208&count=100

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
  "displayFieldName": "",
  "features": [
    {
      "attributes": {
        "vector_name": "Road Highway Tartus - Arida",
        "vector_ingestSource": "HGIS-with-raw",
        "vector_text": "SYR | Road Highway Tartus - Arida | No | MapCruzin | 0.05605598 |
Secondary",
        "vector_itemDate": "2015-06-01T18:57:02Z"
      },
      "geometry": {
        "paths": [
          [
            [
              35.99193040000006,
              34.732430700000066
            ],
            [
              35.99178280000007,
              34.73246640000008
            ],
            [
              35.99085780000007,
              34.73273130000007
            ],
            [
```

```
      35.989278600000034,
      34.73321210000006
    ],
    [
      35.98748530000006,
      34.73374680000006
    ],
    [
      35.98499730000009,
      34.73449690000007
    ],
    [
      35.97952370000007,
      34.73615950000004
    ],
    [
      35.97637960000009,
      34.73708350000004
    ],
    [
      35.973414700000035,
      34.737972900000045
    ],
    [
      35.97197680000005,
      34.73839670000007
    ],
    [
      35.97028460000007,
      34.73890360000007
    ],
    [
      35.96821860000006,
      34.739517500000034
    ],
    [
      35.964500000000044,
      34.74065450000006
    ],
    [
      35.96286370000007,
      34.741061700000046
    ],
    [
      35.961689000000035,
      34.74116140000007
    ],
    [
      35.96024270000004,
      34.741293100000064
```

],
[
  35.958588200000065,
  34.741428900000074
],
[
  35.956250700000055,
  34.74159690000005
],
[
  35.95441620000008,
  34.74177230000004
],
[
  35.95279810000005,
  34.74248200000005
],
[
  35.950802500000066,
  34.74349140000004
],
[
  35.94768160000007,
  34.74503180000005
],
[
  35.94519400000007,
  34.74622160000007
],
[
  35.94390150000004,
  34.74684110000004
],
[
  35.94301020000006,
  34.74727270000005
],
[
  35.942315800000074,
  34.74760770000006
],
[
  35.94151970000007,
  34.74803630000008
],
[
  35.940456700000084,
  34.74855050000008
],
[

```
              35.939428500000076,
              34.74902290000006
            ],
            [
              35.93917110000007,
              34.74916230000008
            ],
            [
              35.938868900000045,
              34.74923170000005
            ]
          ]
        ],
        "spatialReference": {
          "wkid": 4326
        }
      }
    },
    ...
  ],
  "spatialReference": {
    "wkid": 4326
  },
  "geometryType": "esriGeometryPolyline",
  "fields": [
    {
      "alias": "Name",
      "name": "vector_name",
      "length": 1,
      "type": "esriFieldTypeString"
    },
    {
      "alias": "Ingest Source",
      "name": "vector_ingestSource",
      "length": 1,
      "type": "esriFieldTypeString"
    },
    {
      "alias": "Text",
      "name": "vector_text",
      "length": 1,
      "type": "esriFieldTypeString"
    },
    {
      "alias": "Item Date",
      "name": "vector_itemDate",
      "length": 1,
      "type": "esriFieldTypeDate"
    }
```

```
        ]
    }
```

4.2.2.2.10   Retrieve Page of Vector Items by Type and Query (GET)

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/query/{geometry}/{type}/paging?q={query}&left={value}&right={value}&upper={value}&lower={value}&ttl={value}&count={value}

1. Submit a GET request to retrieve InsightCloud ESRI UVI information. The REST call via monocle-3 application will look similar to the following:

> https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/query/PolyLine/Roads%20Local/paging?q=highway&left=32.3964&right=37.2633&upper=42.631&lower=34.7208&ttl=5m&count=500

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
 "pagingId":
"c2Nhbjs1NDA7NTkyNzY1ODp2YV8tc2pLdFNndWVEVzQzdVhmWlJ3OzU5MjQ1MjQ6VmVxUVhVa
mpRWnk1dUVlM3ppcXN6QTs1OTI0NTI1OlZlcVFYVWpqUVp5NXVFZTN6aXFzekE7NTkyNjExMDp0
TWZsVUZoX1QzV21BQmJmek5ppYWVROzU5MjQ1MjY6VmVxUVhVampRWnk1dUVlM3ppcXN6QTs1
OTI2MTg5OlpiaHpiS3YwU0JtREJQaWWs1MDUxX0E7NTkyNzY2MDp2YV8tc2pLdFNndWVEVzQzdVh
mWlJ3OzU5MjQ1Mjc6VmVxUVhVampRWnk1dUVlM3ppcXN6QTs1OTI3NjU5OnZhXy1zakt0U2d1ZU
RXNDN1WGZaUnc7NTkyNDUyOTpWZXFRWFVqalFaeTV1RWUzemlxc3pBOzU5MjY0NTA6ZkhzZU1
RuT19RLVdzRF9WZTdTY0paUTs1OTI0NTI4OlZlcVFYVWpqUVp5NXVFZTN6aXFzekE7NTkyNjExM
Tp0TWZsVUZoX1QzV21BQmJmek5ppYWVROzU5MjQ1MzA6VmVxUVhVampRWnk1dUVlM3ppcXN6Q
Ts1OTI2MTEyOnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7NTkyNjExMzp0TWZsVUZoX1QzV21BQm
Jfek5ppYWVROzU5Mjc2NjI6dmFfLXNqS3RTZ3VlRFc0M3VYZlpSdzs1OTI3NjYxOnZhXy1zakt0U2d1Z
URXNDN1WGZaUnc7NTkyNDUzMTpWZXFRWFVqalFaeTV1RWUzemlxc3pBOzU5MjQ1MzI6VmVx
UVhVampRWnk1dUVlM3ppcXN6QTs1OTI2MTE0OnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7NTkyN
DUzMzpWZXFRWFVqalFaeTV1RWUzemlxc3pBOzU5MjQ1MzQ6VmVxUVhVampRWnk1dUVlM3ppc
XN6QTs1OTI3NjYzOnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7NTkyNjE5MDpaYmh6Ykt2MFNCbUR
CUGlrNTA1MV9BOzU5MjQ1MzU6VmVxUVhVampRWnk1dUVlM3ppcXN6QTs1OTI2NDUxOmZIc1N
Ubk9fUS1Xc0RfVmU3U2NKWlE7NTkyNzY2NDp2YV8tc2pLdFNndWVEVzQzdVhmWlJ3OzU5MjQ1M
zY6VmVxUVhVampRWnk1dUVlM3ppcXN6QTs1OTI2MTkxOlpiaHpiS3YwU0JtREJQaWWs1MDUxX0E7
NTkyNjE5MjpaYmh6Ykt2MFNCbURCUGlrNTA1MV9BOzU5MjYxMTU6dE1mbFVGaF9UM1dtdQUJiX3
pOaWFlUTs1OTI2MTE2OnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7NTkyNDUzNzpWZXFRWFVqalF
aeTV1RWUzemlxc3pBOzU5MjQ1Mzg6VmVxUVhVampRWnk1dUVlM3ppcXN6QTs1OTI0NTM5OlZlc
VFYVWpqUVp5NXVFZTN6aXFzekE7NTkyNjExNzp0TWZsVUZoX1QzV21BQmJmek5ppYWVROzU5Mj
c2OTc6dmFfLXNqS3RTZ3VlRFc0M3VYZlpSdzs1OTI0NTg5OlZlcVFYVWpqUVp5NXVFZTN6aXFzekE
7NTkyNjIyMzpaYmh6Ykt2MFNCbURCUGlrNTA1MV9BOzU5Mjc2NjU6dmFfLXNqS3RTZ3VlRFc0M3
VYZlpSdzs1OTI2MTE4OnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7NTkyNjE5MzpaYmh6Ykt2MFNCb
URCUGlrNTA1MV9BOzU5MjYxOTU6WmJoemJLdjBTQm1EQlBazUwNTFfQTs1OTI2MTk0OlpiaHpi
S3YwU0JtREJQaWWs1MDUxX0E7NTkyNjQ4NzpmSHNlTVG5PX1EtV3NEX1ZlN1NjSlpROzU5Mjc3MD
Y6dmFfLXNqS3RTZ3VlRFc0M3VYZlpSdzs1OTI3Njc2OnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7NT
kyNjE0NTp0TWZsVUZoX1QzV21BQmJmek5ppYWVROzU5MjY0NTM6ZkhzZU1RuT19RLVdzRF9WZTd
TY0paUTs1OTI0NTQyOmZIc1NUbk9fUS1Xc0RfVmU3U2NKWlE7NTkyNzY2Y2Nzp2YV8tc2pLdFNndW
VEVzQzdVhmWlJ3OzU5MjQ1NDA6VmVxUVhVampRWnk1dUVlM3ppcXN6QTs1OTI2NDU0OmZIc1
NUbk9fUS1Xc0RfVmU3U2NKWlE7NTkyNDU0MTpWZXFRWFVqalFaeTV1RWUzemlxc3pBOzU5Mjc
2Njg6dmFfLXNqS3RTZ3VlRFc0M3VYZlpSdzs1OTI2MTE5OnRNZmxVRmhfVDNXbUFCYl96TmlhZV
E7NTkyNjQ5NjpmSHNlTVG5PX1EtV3NEX1ZlN1NjSlpROzU5MjQ1NDI6VmVxUVhVampRWnk1dUVl
M3ppcXN6QTs1OTI3Njk4OnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7NTkyNDU0MzpWZXFRWFVqal
FaeTV1RWUzemlxc3pBOzU5MjYxOTY6WmJoemJLdjBTQm1EQlBazUwNTFfQTs1OTI0NTQ0OlZlcV
FYVWpqUVp5NXVFZTN6aXFzekE7NTkyNjQ1NTpmSHNlTVG5PX1EtV3NEX1ZlN1NjSlpROzU5Mjc2
```

Njk6dmFfLXNqS3RTZ3VlRFc0M3VYZlpSdzs1OTI0NTkwOlZlcVFYVWpqUVp5NXVFZTN6aXFzekE7
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OnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7NTkyNjI5MzpaYmh6Ykt2MFNCbURCUGlrNTA1MV9BO
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lM3ppcchXN6QTs1OTI2MjAzOnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7MTt0b3RhbF9oaXRzOjQ7"
}

4.2.2.2.11   Retrieve Page of Vector Items by Type (GET)

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/{source}/{geometry}/{type}/paging?left={value}&right={value}&upper={value}&lower={value}&ttl={value}&count={value}

1. Submit a GET request to retrieve InsightCloud ESRI UVI information. The REST call
    via monocle-3 application will look similar to the following:

    https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/OSM/Point/Tower/paging?left=32.3964&right=37.2633&upper=42.631&lower=34.7208&ttl=5m&count=500

2. If this is the first request of the session, user will be redirected to the CAS authentication
    page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:
    {
      "pagingId":
    "c2NhbjsxNzU7MTc1OTczMjpWZXFRWFFqalFaeTV1RWUzemlxc3pBOzE3NjA2MTI6dE1mbFVGaF9
    UM1dtQUJiX3pOaWFlUTsxNzYwNTk0OnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7MTc2MTg1NDp2
    YV8tc2pLdFNndWVEVzQzdVhmWlJ3OzE3NTk3NTI6VmVxUVhVampRWnk1dUVlM3ppcchXN6TsxNz
    YwNjI0OnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7MTc2MTQ4NDpmSHNTVG5PX1EtV3NEX1ZlN1
    NjSlpROzE3NjE4Njc6dmFfLXNqS3RTZ3VlRc0M3VYZlpSdzszNzU5NzMzOlZlcVFYVWpqUVp5NXV
    FZTN6aXFzekE7MTc1OTc0NDpWZXFRWFFqalFaeTV1RWUzemlxc3pBOzE3NjE1MTA6ZkhzU1RuT1
    9RLVdzRF9WZTdTY0paUTsxNzYwNTk1OnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7MTc1OTczNDp
    WZXFRWFFqalFaeTV1RWUzemlxc3pBOzE3NjE4NTU6dmFfLXNqS3RTZ3VlRc0M3VYZlpSdzsxNzU
    5NzYwOlZlcVFYVWpqUVp5NXVFZTN6aXFzekE7MTc2MTg3Mzp2YV8tc2pLdFNndWVEVzQzdVhm
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    bUFCYl96TmlhZVE7MTc2MTQ4NTpmSHNTVG5PX1EtV3NEX1ZlN1NjSlpROzE3Tk3NTM6VmVxU
    VhVampRWnk1dUVlM3ppcchXN6QTsxNzU5NzM2OlZlcVFYVWpqUVp5NXVFZTN6aXFzekE7MTc1OTc
    0NjpWZXFRWFFqalFaeTV1RWUzemlxc3pBOzE3NjE4NTY6dmFfLXNqS3RTZ3VlRc0M3VYZlpSdzsx
    NzYxODgxOnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7MTc2MDU5Njp0TWZsVUZoX1QzV21BQmJfek
    5pYWVROzE3NjE4NTc6dmFfLXNqS3RTZ3VlRc0M3VYZlpSdzsxNzYxODY4OnZhXy1zakt0U2d1ZU
    RXNDN1WGZaUnc7MTc2MTg1ODp2YV8tc2pLdFNndWVEVzQzdVhmWlJ3OzE3NjA2MTM6dE1mbF
    VGaF9UM1dtQUJiX3pOaWFlUTsxNzU5NzM3OlZlcVFYVWpqUVp5NXVFZTN6aXFzekE7MTc2MTg3
    Mjp2YV8tc2pLdFNndWVEVzQzdVhmWlJ3OzE3NTk3NjE6VmVxUVhVampRWnk1dUVlM3ppcchXN6QT
    sxNzU5NzM4OlZlcVFYVWpqUVp5NXVFZTN6aXFzekE7MTc2MDYyMjpaYmh6Ykt2MFNCbURCCUGlr
    NTA1MV9BOzE3NjE4NTk6dmFfLXNqS3RTZ3VlRc0M3VYZlpSdzsxNzYxODgyOnZhXy1zakt0U2d1Z
    URXNDN1WGZaUnc7MTc2MDU5Nzp0TWZsVUZoX1QzV21BQmJfek5pYWVROzE3NjA2MjE6dE1mb
    FVGaF9UM1dtQUJiX3pOaWFlUTsxNzYxODYwOnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7MTc2MTg
    3MDp2YV8tc2pLdFNndWVEVzQzdVhmWlJ3OzE3NjA1OTg6dE1mbFVGaF9UM1dtQUJiX3pOaWFlUTs
    xNzU5NzU0OlZlcVFYVWpqUVp5NXVFZTN6aXFzekE7MTc2MTg2MTp2YV8tc2pLdFNndWVEVzQzd

VhmWlJ3OzE3NTk3Mzk6VmVxUVhVampRWnk1dUVlM3ppcXN6QTsxNzU5NzQ5OlZlcVFYVWpqUV
p5NXVFZTN6aXFzekE7MTc2MDU5MjpaYmh6Ykt2MFNCbURCCUGlrNTA1MV9BOzE3NjA2MTY6Wm
JoemJLdjBTQm1EQlBBpazUwNTFfQTsxNzU5NzQzOlZlcVFYVWpqUVp5NXVFZTN6aXFzekE7MTc1O
Tc2NTpWZXFRWFVqalFaeTV1RWUzemlxc3pBOzE3NjE4Nzc6dmFfLXNqS3RRZ3VlRFc0M3VYZlpSd
zsxNzU5NzQwOlZlcVFYVWpqUVp5NXVFZTN6aXFzekE7MTc2MTg2Mzp2YV8tc2pLdFFndWVEVzQz
zdVhmWlJ3OzE3NjA2MDI6WmJoemJLdjBTQm1EQlBBpazUwNTFfQTsxNzYxNDk3OmZIc1NUbk9fUS1
Xc0RfVmU3U2NKWlE7MTc1OTc1NzpWZXFRWFVqalFaeTV1RWUzemlxc3pBOzE3NjA2MDY6dE1m
bFVGaF9UM1dtQUJiX3pOaWFlUTsxNzNzYODg1OnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7MTc2MTg
2Mjp2YV8tc2pLdFFndWVEVzQzdVhmWlJ3OzE3NTk3NDE6VmVxUVhVampRWnk1dUVlM3ppcXN6XN6
QTsxNzYxODcxOnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7MTc2MTg2NTp2YV8tc2pLdFFndWVEVz
QzdVhmWlJ3OzE3NTk3NDg6VmVxUVhVampRWnk1dUVlM3ppcXN6QTsxNzU5NzQyOlZlcVFYVWp
qUVp5NXVFZTN6aXFzekE7MTc1OTc2MzpWZXFRWFVqalFaeTV1RWUzemlxc3pBOzE3NjE4Nzg6dm
FfLXNqS3RRZ3VlRFc0M3VYZlpSdHNzMTc2MTg4ODk0OnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7MTc2M
Tg4OTp2YV8tc2pLdFFndWVEVzQzdVhmWlJ3OzE3NTk3NDU6VmVxUVhVampRWnk1dUVlM3ppcX
N6QTsxNzYxODc3OnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7MTc1OTc1NTpWZXFRWFVqalFaeTV1
RWUzemlxc3pBOzE3NjA1OTg6WmJoemJLdjBTQm1EQlBBpazUwNTFfQTsxNzYxNDg2OmZIc1NUbk9f
US1Xc0RfVmU3U2NKWlE7MTc2MDU5NTpaYmh6Ykt2MFNCbURCCUGlrNTA1MV9BOzE3NjE1MDk6
ZkhzU1RuT19RLVdzRF9WZTdTWTdY0paUTsxNzYxNDg3OmZIc1NUbk9fUS1Xc0RfVmU3U2NKWlE7MTc
2MTUxMzpmSHNTVG5PX1EtV3NEX1ZlN1NjSlpROzE3NjA2MTk6WmJoemJLdjBTQm1EQlBBpazUwN
TFfQTsxNzYxNTAzOmZIc1NUbk9fUS1Xc0RfVmU3U2NKWlE7MTc2MTQ5ODpmSHNTVG5PX1EtV3
NEX1ZlN1NjSlpROzE3NjA2MDQ6WmJoemJLdjBTQm1EQlBBpazUwNTFfQTsxNzYxODgzOnZhXy1zakt
0U2d1ZURXNDN1WGZaUnc7MTc2MTg2Njp2YV8tc2pLdFFndWVEVzQzdVhmWlJ3OzE3NjA2MTQ6
WmJoemJLdjBTQm1EQlBBpazUwNTFfQTsxNzYxNDg4OmZIc1NUbk9fUS1Xc0RfVmU3U2NKWlE7MTc
2MTg3OTp2YV8tc2pLdFFndWVEVzQzdVhmWlJ3OzE3NjA1OTk6dE1mbFVGaF9UM1dtQUJiX3pOa
WFlUTsxNzYwNTk0OlpiaHpiS3YwU0JtREJQQWs1MDUxX0E7MTc2MTg2OTp2YV8tc2pLdFFndWVE
VzQzdVhmWlJ3OzE3NTk3NTk6VmVxUVhVampRWnk1dUVlM3ppcXN6QTsxNzYxNTA1OmZIc1NUb
k9fUS1Xc0RfVmU3U2NKWlE7MTc2MTQ4OTpmSHNTVG5PX1EtV3NEX1ZlN1NjSlpROzE3NjE4MT
Q6dE1mbFVGaF9UM1dtQUJiX3pOaWFlUTsxNzU5NzQ3OlZlcVFYVWpqUVp5NXVFZTN6aXFzekE7M
Tc2MTUxODpmSHNTVG5PX1EtV3NEX1ZlN1NjSlpROzE3NjE1MDA6ZkhzU1RuT19RLVdzRF9WZTd
TY0paUTsxNzYwNjAwOnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7MTc2MTQ5OTpmSHNTVG5PX1
EtV3NEX1ZlN1NjSlpROzE3NjA2Mjc6dE1mbFVGaF9UM1dtQUJiX3pOaWFlUTsxNzYxNDkwOmZIc1N
Ubk9fUS1Xc0RfVmU3U2NKWlE7MTc2MDYwMzpaYmh6Ykt2MFNCbURCCUGlrNTA1MV9BOzE3NjA
1OTc6WmJoemJLdjBTQm1EQlBBpazUwNTFfQTsxNzYwNjIwOlpiaHpiS3YwU0JtREJQQWs1MDUxX0E7
MTc2MTUxMTpmSHNTVG5PX1EtV3NEX1ZlN0OTE6ZkhzU1RuT19RLVdzRF9WZTdTWTdYOpaQWs1MDUxX0E7
MTc2MDYyNTp0TWZsVUZoX1QzV21BQmJfek5pYWVROzE3NjA2Mjg2WmJoemJLdjBTQm1EQlBBpa
zUwNTFfQTsxNzU5NzUwOlZlcVFYVWpqUVp5NXVFZTN6aXFzekE7MTc2MDYwNTk0OlZlcVFYVWpqUVp5
NXVFZTN6aXFzekE7MTc2MDYwNzp0TWZsVUZoX1QzV21BQmJfek5pYWVROzE3NjA2MDE6dE1mbF
VGaF9UM1dtQUJiX3pOaWFlUTsxNzYwNTk0Nk0OlpiaHpiS3YwU0JtREJQQWs1MDUxX0E7MTc1OTc2N
DpWZXFRWFVqalFaeTV1RWUzemlxc3pBOzE3NjA2MDM6dE1mbFVGaF9UM1dtQUJiX3pOaWFlUTsxMDUxX0E7
MTc2MDYwNjp0TWZsVUZoX1QzV21BQmJfek5pYWVROzE3NjA1OTQ6WmJoemJLdjBTQm1EQlBBpazU
wNTFfQTsxNzYxNTA3OmZIc1NUbk9fUS1Xc0RfVmU3U2NKWlE7MTc2MTQ5MzpmSHNTVG
5PX1EtV3NEX1ZlN1NjSlpROzE3NjE1MTY6ZkhzU1RuT19RLVdzRF9WZTdTWTdYOpaUTsxNzYwNjA4Om
ZIc1NUbk9fUS1Xc0RfVmU3U2NKWlE7MTc2MDU5OTpaYmh6Ykt2MFNCbURCCUGlrNTA1MV9BOzE
3NjA2MDQ6dE1mbFVGaF9UM1dtQUJiX3pOaWFlUTsxNzYxNTAxOmZIc1NUbk9fUS1Xc0RfVmU3U2
NKWlE7MTc2MDU5NDpmSHNTVG5PX1EtV3NEX1ZlN1NjSlpROzE3NjA2NjA3OlpiaHpiS3YwU0JtREJQ
QWs1MDUxX0E7MTc1OTc1NjpWZXFRWFVqalFaeTV1RWUzemlxc3pBOzE3NjE0OTU6ZkhzU1RuT19RLVdz
RF9WZTdTWTdYOpaUTsxNzYwNjA3OlpiaHpiS3YwU0JtREJQQWs1MDUxX0E7MTc2MDYyNDpaYmh6Ykt
2MFNCbURCCUGlrNTA1MV9BOzE3NjA2MTU6WmJoemJLdjBTQm1EQlBBpazUwNTFfQTsxMTg4NDp2YV8tc2pLdGF
NndWVEVzQzdVhmWlJ3OzE3NTk3Tg6VmVxUVhVampRWnk1dUVlM3ppcXN6QTsxNzYwNjA4Olpi
aHpiS3YwU0JtREJQQWs1MDUxX0E7MTc2MDYyNjp0TWZsVUZoX1QzV21BQmJfek5pYWVROzE3Nj

E1MDQ6ZkhzU1RuT19RLVdzRF9WZTdTY0paUTsxNzYwNjEyOlpiaHpiS3YwU0JtREJQaWs1MDUxX0
E7MTc2MDYyMjp0TWZsVUZoX1QzV21BQmMJfek5pYWVROzE3NjE1MTc6ZkhzU1RuT19RLVdzRF9
WZTdTY0paUTsxNzYxODc2OnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7MTc2MTQ5NjpmSHNTVG5P
X1EtV3NEX1ZlN1NjSlpROzE3NjA2MDk6dE1mbFVGaF9UM1dtQUJiX3pOaWFFlUTsxNzYwNjExOnRN
ZmxVRmhfVDNXbUFCYl96TmlhZVE7MTc2MDYxNzp0TWZsVUZoX1QzV21BQmMJfek5pYWVROzE3
NjA2MTA6dE1mbFVGaF9UM1dtQUJiX3pOaWFFlUTsxNzYxODkxOnZhXy1zakt0U2d1ZURXNDN1WG
ZaUnc7MTc2MDYxMzpaYmh6Ykt2MFNCbURCUGlrNTA1MV9BOzE3NjA2MTg6dE1mbFVGaF9UM1
dtQUJiX3pOaWFFlUTsxNzU5NzUxOlZlcVFYVWpqUVp5NXVFZTN6aXpekE7MTc2MTg4MDp2YV8tc
2pLdFNndWVEVzQzdVhmWlJ3OzE3NjA2MjA6dE1mbFVGaF9UM1dtQUJiX3pOaWFFlUTsxNzYxNTA2
OmZIc1NUbk9fUS1Xc0RfVmU3U2NKWlE7MTc2MDYyMzpaYmh6Ykt2MFNCbURCUGlrNTA1MV9B
OzE3NjA2MTA6WmJJoemJLdjBTQm1EQlBpazUwNTFfQTsxNzYxODg2OnZhXy1zakt0U2d1ZURXNDN
1WGZaUnc7MTc2MDYwMTpaYmh6Ykt2MFNCbURCUGlrNTA1MV9BOzE7dG90YWxfaGl0czo2Ow=
="
}

4.2.2.2.12 Retrieve Page of Vector Items (POST)

1. Submit a POST request to retrieve InsightCloud ESRI UVI information. The REST call via monocle-3 application will look similar to the following:

> https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/esri/paging

With a header Content-type:application/x-www-form-urlencoded and a body of the paging ID generated in Section: Retrieve Page of Vector Items by Type (GET) or in Section: Retrieve Page of Vector Items by Type and Query (GET)

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
[
 {
  properties: {
  id: "OSM-node-1612839439",
  ingestDate: "2015-04-10T00:14:21Z",
  test: "tower",
  ingestAttributes:
    {
     "osm.host": "10.0.65.150",
     "osm.database": "osm"
    },
  source: null,
  originalCrs: "EPSG:4326",
  ingestSource: "OSM",
  name: null,
  itemType: "Tower",
  format: "OSM",
  asstributes:
  {
    "_osm.user.id.dbl": 196617,
    "_osm.version.int": 1,
    "_osm.user.name": "venerdi",
    "_osm.changeset.dbl": 10547383,
```

```
           "_osm.changeset.int": 10547383,
           "power": "tower",
           "_osm.version.dbl": 1,
           "_osm.changeset": "10547383",
           "_osm.user.id": "196617",
           "_osm.version": "1",
           "_osm.user.id.int": 196617
          },
         "itemDate": "2012-01-31T09:27:41Z"
         },
        "type": "Feature",
        "geometry": {
        "type": "Point",
        "coordinates":
         [
           34.051577,
           31.16638
          ]
         }
       },
      …
      ]
```

4.2.2.3 UVI in Web application

4.2.2.3.1 Parameters

Parameters	Data Type	Parameter Type	Description
left	String	Query	Longitude in decimal degrees of the lower left bounding box corner
lower	String	Query	Latitude in decimal degrees of the lower left bounding box corner
right	String	Query	Longitude in decimal degrees of the upper right bounding box corner
upper	String	Query	Latitude in decimal degrees of the upper right bounding box corner
type	String	Path	The vector item type for which to list items (e.g. "Road" or "Media Outlet")
ttl	String	Query	The time to live for the Elasticsearch paging session.
count	Integer	Query	The number of records to return per shard per page request.
fields	String	Path	The comma-separated list of fields to return for the

Parameters	Data Type	Parameter Type	Description
			items.
source	String	Path	The source for which to list items or types.
pagingId	String	Form	The paging session ID for which to retrieve a page.

Table 4.18 Web UVI Parameters

Parameters	Limits
Left	Between -180 and 180 degrees inclusive
Right	Between -180 and 180 degrees inclusive
Lower	Between -90 and 90 degrees inclusive
Upper	Between -90 and 90 degrees inclusive
Fields	Possible field options are: id, itemDate, ingestDate, ingestSource, name, itemType, format, source, geomType, geom*, originalCrs, text, attributes, ingestAttributes *Note: geom will always display, even if not specified
Source	Current source options are: ACLED, Anthrometer, Gazetteer, GDB, GDELT, HGIS, IIP-SA-Raster, ImageMining, InsightCloudMR, MASS Service, OSM, SETD, Tomnod *Note: less in Staging

Table 4.19 Web UVI Parameter Limits

4.2.2.3.2 List Available Sources

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/vectors/sources?left={value}&right={value}&upper={value}&lower={value}

1. Submit a GET request to retrieve InsightCloud UVI information. The REST call via monocle-3 application will look similar to the following:
   https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/vectors/sources?left=32.3964&right=37.2633&upper=42.631&lower=34.7208

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
 "shards": 175,
 "data": [
   {
    "name": "OSM",
    "count": 127599
   },
   {
    "name": "HGIS",
    "count": 58493
   }
  ]
 }
```

4.2.2.3.3   List Available Vector Types for a Given Source

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/vectors/{source}/types?left={value}&right={value}&upper={value}&lower={value}

1. Submit a GET request to retrieve InsightCloud UVI information. The REST call via monocle-3 application will look similar to the following:

> https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/vectors/HGIS/types?left=32.3964&right=37.2633&upper=42.631&lower=34.7208

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
 "data": [
   {
    "name": "GNDB",
    "count": 25065
   },
   {
    "name": "Cropland",
    "count": 23137
   },
   {
    "name": "Roads Local",
    "count": 7608
   },
   {
    "name": "Peaks",
    "count": 529
   },
   {
```

```
     "name": "Earthquakes",
     "count": 469
    },
    {
     "name": "Roads",
     "count": 326
    },
    {
     "name": "Religious Institutions",
     "count": 291
    },
    {
     "name": "Springs",
     "count": 140
    },
    {
     "name": "Religions",
     "count": 119
    },
    {
     "name": "Water Lines 1993",
     "count": 112
    },
    {
     "name": "Tourist Locations",
     "count": 98
    },
    {
     "name": "Languages",
     "count": 59
    },
    {
     "name": "Bus Rail Stops",
     "count": 39
    },
    {
     "name": "Military Inst",
     "count": 38
    },
    {
     "name": "Admin2",
     "count": 27
    },
    {
     "name": "Admin2 Education",
     "count": 27
    },
    {
     "name": "Admin2 Employment",
     "count": 27
```

```
    },
    {
      "name": "Admin2 Mortality",
      "count": 27
    },
    {
      "name": "Admin2 Population",
      "count": 27
    },
    {
      "name": "Admin2 Poverty",
      "count": 27
    },
    {
      "name": "Admin2 Services",
      "count": 27
    },
    {
      "name": "Admin2 Unemployment",
      "count": 27
    },
    {
      "name": "Powerlines",
      "count": 25
    },
    {
      "name": "Rail Lines",
      "count": 19
    },
    {
      "name": "2012 Crisis External Camps",
      "count": 15
    },
    {
      "name": "Irrigation Zones 2008",
      "count": 15
    },
    {
      "name": "Mines",
      "count": 13
    },
    {
      "name": "Water Poly 1993",
      "count": 12
    },
    {
      "name": "Ethnicity",
      "count": 9
    },
    {
```

```
  "name": "Oil Gas",
  "count": 9
},
{
  "name": "Embassy",
  "count": 8
},
{
  "name": "Internet Cafes",
  "count": 8
},
{
  "name": "2012 Crisis Conflict Areas",
  "count": 7
},
{
  "name": "Ports",
  "count": 7
},
{
  "name": "2012 Crisis External Refugee Registration",
  "count": 6
},
{
  "name": "Admin1",
  "count": 6
},
{
  "name": "Admin1 Education",
  "count": 6
},
{
  "name": "Admin1 Employment",
  "count": 6
},
{
  "name": "Admin1 Mortality",
  "count": 6
},
{
  "name": "Admin1 Population",
  "count": 6
},
{
  "name": "Admin1 Poverty",
  "count": 6
},
{
  "name": "Admin1 Services",
  "count": 6
```

```
    },
    {
      "name": "Admin1 Unemployment",
      "count": 6
    },
    {
      "name": "Political Party",
      "count": 6
    },
    {
      "name": "Substations",
      "count": 6
    },
    {
      "name": "Airfields",
      "count": 5
    },
    {
      "name": "Media Outlets",
      "count": 5
    },
    {
      "name": "Powerplants",
      "count": 5
    },
    {
      "name": "Palestinian Refugee Camps",
      "count": 4
    },
    {
      "name": "2012 Crisis Border Crossings",
      "count": 3
    },
    {
      "name": "Dams 2008",
      "count": 3
    },
    {
      "name": "Free Trade Zones",
      "count": 3
    },
    {
      "name": "Mineral Resources",
      "count": 2
    },
    {
      "name": "Admin0",
      "count": 1
    },
    {
```

```
        "name": "Oil Gas Pipelines",
        "count": 1
      },
      {
        "name": "Volcanoes",
        "count": 1
      }
    ],
    "shards": 540
}
```

4.2.2.3.4   List Available Vector Items For Given Source and Item type

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/vectors/{source}/{type}?left={value}&right={value}&upper={value}&lower={value}&count={value}

1. Submit a GET request to retrieve InsightCloud UVI information. The REST call via monocle-3 application will look similar to the following:

    https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/vectors/HGIS/GNDB?left=32.3964&right=37.2633&upper=42.631&lower=34.7208&count=100

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
[
  {
    "geometry": {
      "coordinates": [
        36.13333300000005,
        34.93333300000006
      ],
      "type": "Point"
    },
    "properties": {
      "ingestDate": "2015-05-12T00:36:34Z",
      "id": "496065da-cf1e-45da-923f-aa026b84d587",
      "text": "SY | 345600.0 | 360800.0 | PPL | Beït Nâflé | UNK | SYR | NI37-05 |
34.933334 | 36.13333 | 37SBU3816269403 | 3.0 | BEITNAFLE | http://earth-
info.nga.mil/gns/html/namefiles.htm | -2540360.0 | -3487572.0",
      "ingestAttributes": {
        "filePath": "/home/jeffrey.erikson/HGIS2/unzipped/Syria.gdb",
        "originalLayer": "SYR_GNDB_120904_WGS84"
      },
      "source": "http://earth-info.nga.mil/gns/html/namefiles.htm",
      "originalCrs": "EPSG:4326",
      "itemType": "GNDB",
      "name": "Beït Nâflé",
      "ingestSource": "HGIS",
```

```
    "attributes": {
     "DSG": "PPL",
     "DMS_LONG.dbl": 360800,
     "RC.dbl": 3,
     "RC": "3.0",
     "MGRS": "37SBU3816269403",
     "GENERIC": "UNK",
     "SORT_NAME_": "BEITNAFLE",
     "ISO3": "SYR",
     "DMS_LAT": "345600.0",
     "UNI.dbl": -3487572,
     "DMS_LAT.dbl": 345600,
     "UFI.dbl": -2540360,
     "LAT": "34.933334",
     "SOURCE": "http://earth-info.nga.mil/gns/html/namefiles.htm",
     "LAT.dbl": 34.933334,
     "LONG.dbl": 36.13333,
     "JOG": "NI37-05",
     "UNI": "-3487572.0",
     "LONG": "36.13333",
     "DMS_LONG": "360800.0",
     "FULL_NAME_": "Beït Nâflé",
     "CC1": "SY",
     "UFI": "-2540360.0"
    },
    "format": "FileGDB",
    "access": {
     "users": [
       "_ALL_"
     ],
     "groups": [
       "_ALL_"
     ]
    },
    "itemDate": "2015-05-12T00:36:34Z"
   },
   "type": "Feature"
  },
  ...
  {
   "geometry": {
    "coordinates": [
     36.929786000000036,
     35.96984400000008
    ],
    "type": "Point"
   },
   "properties": {
    "ingestDate": "2015-05-12T00:36:36Z",
    "id": "5bf40bc5-c5d7-42a2-a6b4-f4a8c8fd2b35",
```

      "text": "SY | 355811.0 | 365547.0 | AREA | Sahm al Misrad | UNK | SYR | NI37-01 |
35.969845 | 36.929787 | 37SCV1333382585 | 3.0 | SAHMALMISRAD | http://earth-
info.nga.mil/gns/html/namefiles.htm | -2546956.0 | -3506944.0",
      "ingestAttributes": {
        "filePath": "/home/jeffrey.erikson/HGIS2/unzipped/Syria.gdb",
        "originalLayer": "SYR_GNDB_120904_WGS84"
      },
      "source": "http://earth-info.nga.mil/gns/html/namefiles.htm",
      "originalCrs": "EPSG:4326",
      "itemType": "GNDB",
      "name": "Sahm al Misrad",
      "ingestSource": "HGIS",
      "attributes": {
        "DSG": "AREA",
        "DMS_LONG.dbl": 365547,
        "RC.dbl": 3,
        "RC": "3.0",
        "MGRS": "37SCV1333382585",
        "GENERIC": "UNK",
        "SORT_NAME_": "SAHMALMISRAD",
        "ISO3": "SYR",
        "DMS_LAT": "355811.0",
        "UNI.dbl": -3506944,
        "DMS_LAT.dbl": 355811,
        "UFI.dbl": -2546956,
        "LAT": "35.969845",
        "SOURCE": "http://earth-info.nga.mil/gns/html/namefiles.htm",
        "LAT.dbl": 35.969845,
        "LONG.dbl": 36.929787,
        "JOG": "NI37-01",
        "UNI": "-3506944.0",
        "LONG": "36.929787",
        "DMS_LONG": "365547.0",
        "FULL_NAME_": "Sahm al Misrad",
        "CC1": "SY",
        "UFI": "-2546956.0"
      },
      "format": "FileGDB",
      "access": {
        "users": [
          "_ALL_"
        ],
        "groups": [
          "_ALL_"
        ]
      },
      "itemDate": "2015-05-12T00:36:36Z"
    },
    "type": "Feature"
  }

]

4.2.2.3.5　　　List Available Vector Item Types Matching A Query

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/vectors/query/types?left={value}&right={value}&upper={value}&lower={value}

1. Submit a GET request to retrieve InsightCloud UVI information. The REST call via monocle-3 application will look similar to the following:

> https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/vectors/query/types?q=building&left=32.3964&right=37.2633&upper=42.631&lower=34.7208

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:
```
{
  "data": [
   {
     "name": "Mines",
     "count": 6
   }
  ],
  "shards": 540
}
```

4.2.2.3.6　　　List Available Vector Items for Given Item Type and Query

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/vectors/query/{type}?q={query}&left={value}&right={value}&upper={value}&lower={value}&count={value}

1. Submit a GET request to retrieve InsightCloud UVI information. The REST call via monocle-3 application will look similar to the following:

> https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/vectors/query/Mines?q=building&left=32.3964&right=37.2633&upper=42.631&lower=34.7208&count=100

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:
```
[
  {
    "geometry": {
     "coordinates": [
       35.88300000000004,
       34.88300000000004
     ],
     "type": "Point"
```

```
      },
    "properties": {
      "ingestDate": "2015-06-01T18:56:17Z",
      "id": "882849e6-dc5e-463a-9023-84ddb3be1cc6",
      "text": "1,800 | Cement | Tartous Company for Cement & Building Materials | Syria |
Plant | -16 | SYR | 34.883 | 35.883 | UNK | Mining method is not known or is not
applicable because the operation is a processing plant rather than a mine | Tartous | USGS
| Active | The operation was producing in 2004 | t / yr",
      "ingestAttributes": {
        "filePath": "/home/jeffrey.erikson/HGIS2/unzipped/Syria.gdb",
        "originalLayer": "SYR_Mines_120905_WGS84"
      },
      "source": "USGS",
      "originalCrs": "EPSG:4326",
      "itemType": "Mines",
      "name": null,
      "ingestSource": "HGIS-with-raw",
      "attributes": {
        "SITE.raw": "Tartous",
        "METHOD.raw": "UNK",
        "LATITUDE.dbl": 34.883,
        "STATUS.raw": "Active",
        "CAPACITY": "1,800",
        "ID.raw": "-16",
        "ID.int": -16,
        "LONGITUDE.raw": "35.883",
        "ISO3": "SYR",
        "STATUS": "Active",
        "LATITUDE": "34.883",
        "SITE": "Tartous",
        "LATITUDE.raw": "34.883",
        "SOURCE": "USGS",
        "SOURCE.raw": "USGS",
        "COMMODITY.raw": "Cement",
        "ID": "-16",
        "COMMODITY": "Cement",
        "COUNTRY.raw": "Syria",
        "FACILITY.raw": "Plant",
        "COMPANY": "Tartous Company for Cement & Building Materials",
        "STATUS_1": "The operation was producing in 2004",
        "UNITS": "t / yr",
        "ID.dbl": -16,
        "ISO3.raw": "SYR",
        "UNITS.raw": "t / yr",
        "COUNTRY": "Syria",
        "FACILITY": "Plant",
        "LONGITUDE.dbl": 35.883,
        "COMPANY.raw": "Tartous Company for Cement & Building Materials",
        "METHOD_1": "Mining method is not known or is not applicable because the
operation is a processing plant rather than a mine",
```

```
      "STATUS_1.raw": "The operation was producing in 2004",
      "METHOD_1.raw": "Mining method is not known or is not applicable because the
operation is a processing plant rather than a mine",
      "CAPACITY.raw": "1,800",
      "LONGITUDE": "35.883",
      "METHOD": "UNK"
     },
     "format": "FileGDB",
     "access": {
      "users": [
       "_ALL_"
      ],
      "groups": [
       "_ALL_"
      ]
     },
     "itemDate": "2015-06-01T18:56:20Z"
    },
   "type": "Feature"
   },
  ...
   {
    "geometry": {
     "coordinates": [
      37.15900000000005,
      36.20300000000009
     ],
     "type": "Point"
    },
    "properties": {
     "ingestDate": "2015-05-12T00:42:31Z",
     "id": "9eb61b90-9a03-4cc6-9998-efbf3f7c8d1f",
     "text": "920 | Cement | al-Chaba Cement & Building Materials (GOCBM, 100%) |
Syria | Plant | -22 | SYR | 36.203 | 37.159 | UNK | Mining method is not known or is not
applicable because the operation is a processing plant rather than a mine | Aleppo | USGS
| Active | The operation was producing in 2004 | t / yr",
     "ingestAttributes": {
      "filePath": "/home/jeffrey.erikson/HGIS2/unzipped/Syria.gdb",
      "originalLayer": "SYR_Mines_120905_WGS84"
     },
     "source": "USGS",
     "originalCrs": "EPSG:4326",
     "itemType": "Mines",
     "name": null,
     "ingestSource": "HGIS",
     "attributes": {
      "COMPANY": "al-Chaba Cement & Building Materials (GOCBM, 100%)",
      "STATUS_1": "The operation was producing in 2004",
      "UNITS": "t / yr",
      "LATITUDE.dbl": 36.203,
```

```
            "ID.dbl": -22,
            "COUNTRY": "Syria",
            "CAPACITY": "920",
            "CAPACITY.dbl": 920,
            "ID.int": -22,
            "FACILITY": "Plant",
            "LONGITUDE.dbl": 37.159,
            "ISO3": "SYR",
            "STATUS": "Active",
            "LATITUDE": "36.203",
            "SITE": "Aleppo",
            "SOURCE": "USGS",
            "CAPACITY.int": 920,
            "METHOD_1": "Mining method is not known or is not applicable because the
    operation is a processing plant rather than a mine",
            "ID": "-22",
            "COMMODITY": "Cement",
            "METHOD": "UNK",
            "LONGITUDE": "37.159"
          },
          "format": "FileGDB",
          "access": {
            "users": [
              "_ALL_"
            ],
            "groups": [
              "_ALL_"
            ]
          },
          "itemDate": "2015-05-12T00:42:33Z"
        },
        "type": "Feature"
      }
    ]
```

4.2.2.3.7 List Available Vector Items by Source, Type, and Matching A Query, Returning Only Specified Fields

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/vectors/query/{type}/{fields}?q={query}&left={value}&right={value}&upper={value}&lower={value}&count={value}

2. Submit a GET request to retrieve InsightCloud UVI information. The REST call via monocle-3 application will look similar to the following:

> https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/vectors/query/Mines/geomType%2Csource?q=building&left=32.3964&right=37.2633&upper=42.631&lower=34.7208&count=100

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
[
  {
    "properties": {
     "source": "USGS",
     "access": {
       "users": [
         "_ALL_"
        ],
        "groups": [
         "_ALL_"
        ]
      }
    },
    "type": "Feature",
    "geometry": {
     "type": "Point",
     "coordinates": [
       35.88300000000004,
       34.88300000000004
      ]
    }
  },
   ...
  {
    "properties": {
     "source": "USGS",
     "access": {
       "users": [
         "_ALL_"
        ],
        "groups": [
         "_ALL_"
        ]
      }
    },
    "type": "Feature",
    "geometry": {
     "type": "Point",
     "coordinates": [
       37.15900000000005,
       36.20300000000009
      ]
    }
  }
]
```

4.2.2.3.8   List Available Vector Items Matching A Query

Basic call format: https://iipbeta.digitalglobe.com/monocle-
3/app/broker/vector/api/vectors/query/items?q={query}&left={value}&right={value}&upper={v
alue}&lower={value}&count={value}

3. Submit a GET request to retrieve InsightCloud UVI information. The REST call via
    monocle-3 application will look similar to the following:

    > https://iipbeta.digitalglobe.com/monocle-
    > 3/app/broker/vector/api/vectors/query/items?q=building&left=32.3964&ri
    > ght=37.2633&upper=42.631&lower=34.7208&count=100

2. If this is the first request of the session, user will be redirected to the CAS authentication
page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
[
  {
    "geometry": {
     "coordinates": [
       36.73300000000006,
       34.91700000000009
      ],
      "type": "Point"
    },
    "properties": {
     "ingestDate": "2015-05-12T00:42:31Z",
     "id": "0d3f6a01-0ce6-468c-9334-433430660262",
     "text": "120 | Cement | Rastan Co. for Cement and Building Materials (GOCBM,
100%) | Syria | Plant | -17 | SYR | 34.917 | 36.733 | UNK | Mining method is not known
or is not applicable because the operation is a processing plant rather than a mine | Rastan
| USGS | Active | The operation was producing in 2004 | t / yr",
     "ingestAttributes": {
       "filePath": "/home/jeffrey.erikson/HGIS2/unzipped/Syria.gdb",
       "originalLayer": "SYR_Mines_120905_WGS84"
     },
     "source": "USGS",
     "originalCrs": "EPSG:4326",
     "itemType": "Mines",
     "name": null,
     "ingestSource": "HGIS",
     "attributes": {
       "COMPANY": "Rastan Co. for Cement and Building Materials (GOCBM, 100%)",
       "STATUS_1": "The operation was producing in 2004",
       "UNITS": "t / yr",
       "LATITUDE.dbl": 34.917,
       "ID.dbl": -17,
       "COUNTRY": "Syria",
       "CAPACITY": "120",
       "CAPACITY.dbl": 120,
       "ID.int": -17,
       "FACILITY": "Plant",
```

```
      "LONGITUDE.dbl": 36.733,
      "ISO3": "SYR",
      "STATUS": "Active",
      "LATITUDE": "34.917",
      "SITE": "Rastan",
      "SOURCE": "USGS",
      "CAPACITY.int": 120,
      "METHOD_1": "Mining method is not known or is not applicable because the
operation is a processing plant rather than a mine",
      "ID": "-17",
      "COMMODITY": "Cement",
      "METHOD": "UNK",
      "LONGITUDE": "36.733"
     },
     "format": "FileGDB",
     "access": {
      "users": [
       "_ALL_"
      ],
      "groups": [
       "_ALL_"
      ]
     },
     "itemDate": "2015-05-12T00:42:33Z"
   },
   "type": "Feature"
  },
  ...
  {
   "geometry": {
    "coordinates": [
     37.15900000000005,
     36.20300000000009
    ],
    "type": "Point"
   },
   "properties": {
    "ingestDate": "2015-05-12T00:42:31Z",
    "id": "9eb61b90-9a03-4cc6-9998-efbf3f7c8d1f",
    "text": "920 | Cement | al-Chaba Cement & Building Materials (GOCBM, 100%) |
Syria | Plant | -22 | SYR | 36.203 | 37.159 | UNK | Mining method is not known or is not
applicable because the operation is a processing plant rather than a mine | Aleppo | USGS
| Active | The operation was producing in 2004 | t / yr",
    "ingestAttributes": {
     "filePath": "/home/jeffrey.erikson/HGIS2/unzipped/Syria.gdb",
     "originalLayer": "SYR_Mines_120905_WGS84"
    },
    "source": "USGS",
    "originalCrs": "EPSG:4326",
    "itemType": "Mines",
```

```
        "name": null,
        "ingestSource": "HGIS",
        "attributes": {
          "COMPANY": "al-Chaba Cement & Building Materials (GOCBM, 100%)",
          "STATUS_1": "The operation was producing in 2004",
          "UNITS": "t / yr",
          "LATITUDE.dbl": 36.203,
          "ID.dbl": -22,
          "COUNTRY": "Syria",
          "CAPACITY": "920",
          "CAPACITY.dbl": 920,
          "ID.int": -22,
          "FACILITY": "Plant",
          "LONGITUDE.dbl": 37.159,
          "ISO3": "SYR",
          "STATUS": "Active",
          "LATITUDE": "36.203",
          "SITE": "Aleppo",
          "SOURCE": "USGS",
          "CAPACITY.int": 920,
          "METHOD_1": "Mining method is not known or is not applicable because the
operation is a processing plant rather than a mine",
          "ID": "-22",
          "COMMODITY": "Cement",
          "METHOD": "UNK",
          "LONGITUDE": "37.159"
        },
        "format": "FileGDB",
        "access": {
          "users": [
            "_ALL_"
          ],
          "groups": [
            "_ALL_"
          ]
        },
        "itemDate": "2015-05-12T00:42:33Z"
      },
      "type": "Feature"
    }
  ]
```

4.2.2.3.9 List Available Vector Items Matching A Query, Returning Only Specified Fields

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/vectors/query/items/{fields}?q={query}&left={value}&right={value}&upper={value}&lower={value}&count={value}

4. Submit a GET request to retrieve InsightCloud UVI information. The REST call via monocle-3 application will look similar to the following:

https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/vectors/query/items/name%2Csource?q=building&left=32.3964&right=37.2633&upper=42.631&lower=34.7208&count=100

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
[
  {
    "properties": {
     "source": "USGS",
     "name": null,
     "access": {
      "users": [
        "_ALL_"
      ],
      "groups": [
        "_ALL_"
      ]
     }
    },
    "type": "Feature",
    "geometry": {
     "type": "Point",
     "coordinates": [
       36.73300000000006,
       34.91700000000009
     ]
    }
  },
  ...
  {
    "properties": {
     "source": "USGS",
     "name": null,
     "access": {
      "users": [
        "_ALL_"
      ],
      "groups": [
        "_ALL_"
      ]
     }
    },
    "type": "Feature",
    "geometry": {
     "type": "Point",
     "coordinates": [
```

```
        37.15900000000005,
        36.20300000000009
      ]
    }
  }
]
```

4.2.2.3.10   Retrieve Page of Vector Items by Type and Query (GET)

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/vectors/query/{type}/paging?q={query}&left={value}&right={value}&upper={value}&lower={value}&ttl={value}&count={value}

1. Submit a GET request to retrieve InsightCloud UVI information. The REST call via monocle-3 application will look similar to the following:

> https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/vectors/query/Roads/paging?q=highway&left=32.3964&right=37.2633&upper=42.631&lower=34.7208&ttl=5m&count=500

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
{
  "pagingId":
"c2Nhbjs1NDA7NTg5MTg5NjpWZXFRWFVqalFaeTV1RWUzemlxc3pBOzU4OTE4NzI6VmVxUVhVamp
pRWnk1dUVlM3ppcXN6QTs1ODkxODk4OlZlcVFYVWpqUVp5NXVFZTN6aXFzekE7NTg5MTg3NzpW
ZXFRWFVqalFaeTV1RWUzemlxc3pBOzU4OTE4MzU6VmVxUVhVampRWnk1dUVlM3ppcXN6QTs1O
DkzNDA4OnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7NTg5MTg1NDpWZXFRWFVqalFaeTV1RWUze
mlxc3pBOzU4OTUwMDg6dmFfLXNqS3RTZ3VlRFc0M3VZZlpSdzs1ODkxODk3OlZlcVFYVWpqUVp5
NXVFZTN6aXFzekE7NTg5MzQ2MDp0TWZsVUZoX1QzV21BQmJfek5pYWVROzU4OTE4NzQ6VmVx
UVhVampRWnk1dUVlM3ppcXN6QTs1ODkzNDQ0OnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7NTg5
MzU3MTpaYmh6Ykt2MFFNCbURCUGlrNTA1MV9BOzU4OTM1Mjc6WmJoemJLdjBTQm1EQlBpazUw
NTFfQTs1ODk0OTg3OnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7NTg5MzM5NDp0TWZsVUZoX1QzV
21BQmJfek5pYWVROzU4OTM3NzY6ZkhzU1RuT19RLVdzRF9WZTdTY0paUTs1ODkxOTA2OlZlcVF
YVWpqUVp5NXVFZTN6aXFzekE7NTg5MTg3ODpWZXFRWFVqalFaeTV1RWUzemlxc3pBOzU4OTE4
MzY6VmVxUVhVampRWnk1dUVlM3ppcXN6QTs1ODkzNDIyOnRNZmxVRmhfVDNXbUFCYl96Tmlh
ZVE7NTg5NTAxMDp2YV8tc2pLdFNndWVEVzQzdVhmWlJ3OzU4OTE5MTM6VmVxUVhVampRWnk1
dUVlM3ppcXN6QTs1ODk1MDU5OnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7NTg5MzU3NDpaYmh6Y
kt2MFFNCbURCUGlrNTA1MV9BOzU4OTM0NjQ6dE1mbFVGaF9UM1dtQUJiX3pOaWFlUTs1ODkzODI
3OmZIc1NUbk9fUS1Xc0RfVmU3U2NKWlE7NTg5NTAyNzp2YV8tc2pLdFNndWVEVzQzdVhmWlJ3Oz
U4OTE5MTM6VmVxUVhVampRWnk1dUVlM3ppcXN6QTs1ODkzODA1OmZIc1NUbk9fUS1Xc0RfVm
U3U2NKWlE7NTg5MzUzNDpaYmh6Ykt2MFFNCbURCUGlrNTA1MV9BOzU4OTM3NTk6ZkhzU1RuT1
9RLVdzRF9WZTdTY0paUTs1ODkzNDE0OnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7NTg5MzQ2MT
p0TWZsVUZoX1QzV21BQmJfek5pYWVROzU4OTE4NzU6VmVxUVhVampRWnk1dUVlM3ppcXN6QT
s1ODkxOTA0OlZlcVFYVWpqUVp5NXVFZTN6aXFzekE7NTg5MzQ0Njp0TWZsVUZoX1QzV21BQmJf
ek5pYWVROzU4OTE4NzY6VmVxUVhVampRWnk1dUVlM3ppcXN6QTs1ODk0OTk6OnZhXy1zakt0U2
d1ZURXNDN1WGZaUnc7NTg5MzM5NTp0TWZsVUZoX1QzV21BQmJfek5pYWVROzU4OTUwMDk6
dmFfLXNqS3RTZ3VlRFc0M3VYZlpSdzs1ODkxODM3OlZlcVFYVWpqUVp5NXVFZTN6aXFzekE7NTg
5MzU1OTpaYmh6Ykt2MFFNCbURCUGlrNTA1MV9BOzU4OTM1ODY6WmJoemJLdjBTQm1EQlBpazU
wNTFfQTs1ODkxODU2OlZlcVFYVWpqUVp5NXVFZTN6aXFzekE7NTg5Mzc5MTpmSHNTVG5PX1Et
V3NEX1ZlN1NjSlpROzU4OTE5MTQ6VmVxUVhVampRWnk1dUVlM3ppcXN6QTs1ODkxODczOlZlcV
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NDYzOnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7MTt0b3RhbF9oaXRzOjEwMjs="
}

4.2.2.3.11   Retrieve Page of Vector Items by Query (GET)

Basic call format: https://iipbeta.digitalglobe.com/monocle-
3/app/broker/vector/api/vectors/query/paging?q={query}&left={value}&right={value}&upper={
value}&lower={value}&ttl={value}&count={value}

2.   Submit a GET request to retrieve InsightCloud UVI information. The REST call via
     monocle-3 application will look similar to the following:

    https://iipbeta.digitalglobe.com/monocle-
    3/app/broker/vector/api/vectors/query/paging?q=building&left=32.3964&r
    ight=37.2633&upper=42.631&lower=34.7208&ttl=5m&count=500

2. If this is the first request of the session, user will be redirected to the CAS authentication
page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

{
  "pagingId":
"c2Nhbjs1MzU7NzMyMTY0NjpWZXFRWFFVqalFaeTV1RWUzemlxc3pBOzczMjE1NTg6VmVxUVhVam
pRWnk1dUVVlM3ppcXN6QTs3MzIxNTc4OlZlcVFYYVpqcUVp5NXVFZTN6aXFzekE7NzMyMzY2MTp0
TWZsVUZoX1QzV21BQmJfek5pYWVROzczMjM1NjU6ZkhzU1RuT19RLVdzRF9WZTdTY0paUTs3MzI
zNTgxOnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7NzMyMTU1NTpWZXFRWFFVqalFaeTV1RWUzeml
xc3pBOzczMjE1NzM6VmVxUVhVampRWnk1dUVVlM3ppcXN6QTs3MzIxNTU2OlZlcVFYYVpqcUVp5N
XVFZTN6aXFzekE7NzMyMTY0NzpWZXFRWFFVqalFaeTV1RWUzemlxc3pBOzczMjE1NTk6VmVxUV
hVampRWnk1dUVVlM3ppcXN6QTs3MzIxNTk3OlZlcVFYYVpqcUVp5NXVFZTN6aXFzekE7NzMyMzU3
Mjp0TWZsVUZoX1QzV21BQmJfek5pYWVROzczMjMzNDk6WmJoemJLdjBTQm1EQlBBpazUwNTFfQT
s3MzI0NjcxOnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7NzMyMzU5Nzp0TWZsVUZoX1QzV21BQmJfe
k5pYWVROzczMjQ3NDY6dmFfLXNqS3RZ3VlRFc0M3VYZlpSdzs3MzIxNTU3OlZlcVFYYVVwpqUVp5
NXVFZTN6aXFzekE7NzMyMzU3MTp0TWZsVUZoX1QzV21BQmJfek5pYWVROzczMjMzNTA6WmJJo
emJMZGjBTQm1EQlBBpazUwNTFfQTs3MzIzNjYyOnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7NzMyND
Y3Mjp2YV8tc2pLdFNndWVEVzQzdVhmWlJ3OzczMjQ3NjU6dmFfLXNqS3RZ3VlRFc0M3VYZlpSdzs
3MzI0Njc0OnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7NzMyMTU3MjpWZXFRWFFVqalFaeTV1RWUze

mlxc3pBOzczMjM1ODI6dE1mbFVGaF9UM1dtQUJiX3pOaWFlUTs3MzIzNTk5OnRNZmxVRmhfVDNX
bUFCYl96TmlhZVE7NzMyMzU3Mzp0TWZsVUZoX1QzV21BQmJfek5pYWVROzczMjM1OTg6dE1mbF
VGaF9UM1dtQUJiX3pOaWFlUTs3MzIxNTg5OlZlcVFYVWpxUVp5NXVFZTN6aXFzekE7NzMyMzY2
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Ts3MzIxNTc0OlZlcVFYVWpxUVp5NXVFZTN6aXFzekE7NzMyMzYwOTp0TWZsVUZoX1QzV21BQm
Jfek5pYWVROzczMjE2MTk6VmVxUVhVampRWnk1dUVlM3ppcXN6QTs3MzIzNjY3OnRNZmxVRmhf
VDNXbUFCYl96TmlhZVE7NzMyMTU2MDpXZXFFRWFqcFFaeTV1RWUzemlxc3pBOzczMjE1ODg6V
mVxUVhVampRWnk1dUVlM3ppcXN6QTs3MzIzNDE5OlpiaHpiS3YwU0JtREJQaWQ1MDUxX0E7NzMy
NDY4Nzp2YV8tc2pLdFNndWVEVzQzdVhmWllJ3OzczMjE1ODY2VmVxUVhVampRWnk1dUVlM3ppc
XN6QTs3MzIzNjxExOnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7NzMyMzM1MTpaYmh6Ykt2MFNCb
URCUGlrNTA1MV9BOzczMjE1NzU6VmVxUVhVampRWnk1dUVlM3ppcXN6QTs3MzIzNTY2OmZIc1
NUbk9fUS1Xc0RfVmU3U2NKWlE7NzMyMTYxODpWZXFFRWFqcFFaeTV1RWUzemlxc3pBOzczMjE
2NDg6VmVxUVhVampRWnk1dUVlM3ppcXN6QTs3MzIzMzU2OlpiaHpiS3YwU0JtREJQaWQ1MDUxX0
E7NzMyNDc2MTp2YV8tc2pLdFNndWVEVzQzdVhmWllJ3OzczMjE1NjQ6VmVxUVhVampRWnk1dUVl
M3ppcXN6QTs3MzIzNDgwOmZIc1NUbk9fUS1Xc0RfVmU3U2NKWlE7NzMyMzU4Nzp0TWZsVUZoX
1QzV21BQmJfek5pYWVROzczMjE1OTg6VmVxUVhVampRWnk1dUVlM3ppcXN6QTs3MzIxNTc5OlZl
cVFYVWpxUVp5NXVFZTN6aXFzekE7NzMyMzU2NzpmSHNTVG5PX1EtV3NEX1ZlN1NjSlpROzczMj
M1ODQ6dE1mbFVGaF9UM1dtQUJiX3pOaWFlUTs3MzI0NzQ3OnZhXy1zakt0U2d1ZURXNDN1WGZa
Unc7NzMyMTU3NjpWZXFRWFRWXFqdlFaeTV1RWUzemlxc3pBOzczMjQ2Nzk6dmFfLXNqS3RTZ3VlRFc0
M3VYZlpsSdzs3MzIzNjEwOnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7NzMyMzU3NDp0TWZsVUZoX
1QzV21BQmJfek5pYWVROzczMjM2MTI6dE1mbFVGaF9UM1dtQUJiX3pOaWFlUTs3MzIxNjQ5OlZlcV
FYVWpxUVp5NXVFZTN6aXFzekE7NzMyMTU2MTpXZXFFRWFqcFFaeTV1RWUzemlxc3pBOzczMj
Q2ODk6dmFfLXNqS3RTZ3VlRFc0M3VYZlpsSdzs3MzI0NjczOnZhXy1zakt0U2d1ZURXNDN1WGZaUnc
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ZTdTY0paUTs3MzI0NzAxOnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7NzMyMzM1ODpaYmh6Ykt2MF
NCbURCUGlrNTA1MV9BOzczMjQ2OTE6dmFfLXNqS3RTZ3VlRFc0M3VYZlpsSdzs3MzIxNTc3OlZlcV
FYVWpxUVp5NXVFZTN6aXFzekE7NzMyNDc1Nzp2YV8tc2pLdFNndWVEVzQzdVhmWllJ3OzczMjM1
MDA6ZmhzU1RuT19RLVdzRF9WZTdTY0paUTs3MzIwNjc1OnZhXy1zakt0U2d1ZURXNDN1WGZaUnc
7NzMyMTYwMDpXZXFFRWFqcFFaeTV1RWUzemlxc3pBOzczMjMzNjE6Wm1Joem1KLdjBTQm1EQlBpazUwNTFfQTs3MzI0NzAyOnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7NzMyMTQ5Mjp2YV8tc2pLdF
NndWVEVzQzdVhmWllJ3OzczMjM1MDA6ZmhzU1RuT19RLVdzRF9WZTdTY0paUTs3MzIwNjc1OnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7NzMyMTYwMDpXZXFFRWFqcFFaeTV1RWUzemlxc3pBOzczMjMzNjE6Wm1Joem1KLdjBTQm1EQlBpazUwNTFfQTs3MzIxNTg3OlZlcVFYVWpxUVp5NXVFZTN6aXFzekE7NzMyMTU4MTpWZXFFRWFqcFFaeTV1RWUzemlxc3pBOzczMjM1NTI6Wm1Joem1KLdjBTQm1
EQlBpazUwNTFfQTs3MzIxNTg3OlZlcVFYVWpxUVp5NXVFZTN6aXFzekE7NzMyMTU4MTpWZXFFR
WFqcFFaeTV1RWUzemlxc3pBOzczMjM1ODg6dE1mbFVGaF9UM1dtQUJiX3pOaWFlUTs3MzI0NzU5
OnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7NzMyMTYyNDpXZXFFRWFqcFFaeTV1RWUzemlxc3pBO

zczMjM2MjQ6dE1mbFVGaF9UM1dtQUJiX3pOaWFlUTs3MzIxNjUwOlZlcVFYVWpqqUVp5NXVFZTN6
aXFzekE7NzMyMzU3ODp0TWZsVUZoX1QzV21BQmJJfek5pYWVROzczMjM1OTA6dE1mbFVGaF9U
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ZsVUZoX1QzV21BQmJJfek5pYWVROzczMjM1Nzk6dE1mbFVGaF9UM1dtQUJiX3pOaWFlUTs3MzIxN
TYzOlZlcVFYVWpqqUVp5NXVFZTN6aXFzekE7NzMyMTYwMjpWZXFRWFVqalFaeTV1RWxzemlxc3
pBOzczMjM2MTY6dE1mbFVGaF9UM1dtQUJiX3pOaWFlUTs3MzIzNDg4OmZIc1NUbk9fUS1Xc0RfVm
U3U2NKWlE7NzMyMTU4NTpWZXFRWFVqalFaeTV1RWxzemlxc3pBOzczMjM1OTE6dE1mbFVGaF9
UM1dtQUJiX3pOaWFlUTs3MzIxNTgyOlZlcVFYVWpqqUVp5NXVFZTN6aXFzekE7NzMyMzM2MDpaY
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NTgwOnRNZmxVRmhfVDNYbUFCYl96TmlhZVE7NzMyMTYyMzpWZXFRWFVqalFaeTV1RWx6eml
xc3pBOzczMjMzNjQ6WmJoemJKdGlBBTQm1EQlBpazUwNTFfQTs3MzIxNjUxOlZlcVFYVWpqqUVp5NXV
FZTN6aXFzekE7NzMyMTU3MDpWZXFRWFVqalFaeTV1RWxzemlxc3pBOzczMjQ2ODI6dmFfLXNqS
3RZVlRFc0M3VYZlpTdzs3MzIzNjI2OnRNZmxVRmhfVDNYbUFCYl96TmlhZVE7NzMyMzQ1NjpaY
mh6Ykt2MFNCbURCUGlyNTA1MV9BOzczMjE1Njk6VmVxUVhWampRWnk1dUVsM3ppcXN6QTs3MzI
0NzA0OnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7NzMyMTYyNTpWZXFRWFVqalFaeTV1RWxzemlx
c3pBOzczMjM1MDM6ZkhzU1RuT19RLVdzRF9WZTdTY0paUTs3MzIzNjE3OnRNZmxVRmhfVDNYbU
FCYl96TmlhZVE7NzMyMzUyMDpmSHNTVG5PX1EtV3NEX1ZlN1NjSlpROzczMjM1OTU6dE1mbFVG
aF9UM1dtQUJiX3pOaWFlUTs3MzIzNjI3OnRNZmxVRmhfVDNYbUFCYl96TmlhZVE7NzMyMTYyNjp
WZXFRWFVqalFaeTV1RWxzemlxc3pBOzczMjM1ODI6ZkhzU1RuT19RLVdzRF9WZTdTY0paUTs3Mz
IzNTkyOnRNZmxVRmhfVDNYbUFCYl96TmlhZVE7NzMyMzQ4MzpmSHNTVG5PX1EtV3NEX1ZlN1N1
NjSlpSOzczMjMzNjU6WmJoemJKdGlBBTQm1EQlBpazUwNTFfQTs3MzIzMzg2OlppaHHpiS3YwU0JtREJQa
Ws1MDUxX0E7NzMyMzUxNDpmSHNTVG5PX1EtV3NEX1ZlN1NjSlpSOzczMjE1NjY6VmVxUVhWVa
mpRWnk1dUVsM3ppcXN6QTs3MzIzNDU3OlpiaHpiS3YwU0JtREJQaWs1MDUxX0E7NzMyMzQ4OTp
mSHNTVG5PX1EtV3NEX1ZlN1NjSlpSOzczMjM2Njk6dE1mbFVGaF9UM1dtQUJiX3pOaWFlUTs3MzIz
NjM5OnRNZmxVRmhfVDNYbUFCYl96TmlhZVE7NzMyMzM2MjpaYmh6Ykt2MFNCbURCUGlyNTA1
MV9BOzczMjM1Mjc6ZkhzU1RuT19RLVdzRF9WZTdTY0paUTs3MzIzNjMxOnRNZmxVRmhfVDNYbU
FCYl96TmlhZVE7NzMyMzQzODpaYmh6Ykt2MFNCbURCUGlyNTA1MV9BOzczMjQ2OTg6dmFfLXN
qS3RZVlRFc0M3VYZlpTdzs3MzIzNTMyOmZIc1NUbk9fUS1Xc0RfVmU3U2NKWlE7NzMyMzU4Njp
0TWZsVUZoX1QzV21BQmJJfek5pYWVROzczMjMzNTM2OmZIc1NUbk9fUS1Xc0RfVmU3U2NKWlE7
MzIzNTcwOmZIc1NUbk9fUS1Xc0RfVmU3U2NKWlE7NzMyMzQ4NDpmSHNTVG5PX1EtV3NEX1ZlN1
NjSlpSOzczMjM1MTU6ZkhzU1RuT19RLVdzRF9WZTdTY0paUTs3MzI0NzUyOnZhXy1zakt0U2d1ZUR
XNDN1WGZaUnc7NzMyMzQ5MTpmSHNTVG5PX1EtV3NEX1ZlN1NjSlpSOzczMjE2MDU6VmVxU
VhWampRWnk1dUVsM3ppcXN6QTs3MzIzNTI4OmZIc1NUbk9fUS1Xc0RfVmU3U2NKWlE7NzMyNDY
4Mzp2YV8tc2pLdFNndWVEVzQzdVhmWmlJ3OzczMjE1OTA6VmVxUVhWampRWnk1dUVsM3ppcXN6Q
Ts3MzIxNTk0OlZlcVFYVWpqqUVp5NXVFZTN6aXFzekE7NzMyMzU0MjpmSHNTVG5PX1EtV3NEX1Z
lN1NjSlpSOzczMjM2MTg6dE1mbFVGaF9UM1dtQUJiX3pOaWFlUTs3MzI0NzY3OnZhXy1zakt0U2d1Z
URXNDN1WGZaUnc7NzMyNDY4NTp2YV8tc2pLdFNndWVEVzQzdVhmWmlJ3OzczMjIzMjY2OlZlcVFYV
VhVampRWnk1dUVsM3ppcXN6QTs3MzIzMzY2OlpiaHpiS3YwU0JtREJQaWs1MDUxX0E7NzMyMMTY1
MjpWZXFRWFVqalFaeTV1RWxzemlxc3pBOzczMjM1OTY6dE1mbFVGaF9UM1dtQUJiX3pOaWFlUTs
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zemlxc3pBOzczMjQ3MTA6dmFfLXNqS3RZVlRFc0M3VYZlpTdzs3MzIzNTcyOmZIc1NUbk9fUS1Xc
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pmSHNTVG5PX1EtV3NEX1ZlN1NjSlpSOzczMjMzMzkwOlpiaHpiS3YwU0JtREJQaWs1MDUxX0E7N
zMyMzNjk2OmZIc1NUbk9fUS1Xc0RfVmU3U2NKWlE7NzMyNTkxOlZlcVFYVWpqqUVp5NXVFZTN6
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c0M3VYZlpTdzs3MzIzNTkzOnRNZmxVRmhfVDNYbUFCYl96TmlhZVE7NzMyMzYxOTp0TWZzs
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MjM2NzQ6dE1mbFBVGaF9UM1dtQUJiX3pPaWFFlUTs3MzIzNDg3OmZIc1NUbk9fUS1Xc0RfVmU3U2N
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MjM2NzQ6dE1mbFVGaF9UM1dtQUJiX3pPaWFFlUTs3MzIzNTk0OnRNZmxfVDNmbhfVDNXbUFCYl96T
mlhZVE7NzMyMzYyMDp0TWZsVUZoX1QzV21BQmJfek5pYWVVROzczMjM2Njk6WmJoemJJLdjBTQm
1EQlBpazUwNTFfQTs3MzIxNjE3OlZlcVFFVWFWcpqUVp5NXVFVZTN6aXFzekE7NzMyMzQ1MjpaYmh6Y
kt2MFNCbURCUGlrNTA1MV9BOzczMjMzNTU6WmJoemJJLdjBTQm1EQlBpazUwNTFfQTs3MzIzNDk
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BOzczMjMzOTc6WmJoemJJLdjBTQm1EQlBpazUwNTFfQTs3MzIzNDI5OlpiaHpiS3YwU0JtREVKQaWs1M
DUxX0E7NzMyMzUzMTpmSHNTVG5PX1EtV3NEX1ZlN1NjSlpROzczMjE1OTI6VmVxUVhVampRWn
k1dUVlM3ppcXN6QTs3MzIzMzczOlpiaHpiS3YwU0JtREVKQaWs1MDUxX0E7NzMyMzQ0NjpaYmh6Ykt
2MFNCbURCUGlrNTA1MV9BOzczMjM2MDI6dE1mbFVGaF9UM1dtQUJiX3pPaWFFlUTs3MzIzNTQzO
mZIc1NUbk9fUS1Xc0RfVmU3U2NKWlE7NzMyNDcwODp2YV8tc2pLdFNndWVEVzQzdVhmWlJ3Ozc
zMjM1ODE6ZkhzU1RuT19RLVdzdDRF9WZTdTY0paUTs3MzIzNzU5OlpiaHpiS3YwU0JtREVKQaWs1MDU
xX0E7NzMyMzM3MDpYmh6Ykt2MFNCbURCUGlrNTA1MV9BOzczMjQ3MjI6dmFFfLXNqS3RTZ3Vl
RFc0M3VYZlpSdzs3MzIzMzkxOlpiaHpiS3YwU0JtREVKQaWs1MDUxX0E7NzMyMzQ5MDpmSHNTVG5
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}

4.2.2.3.12   Retrieve Page of Vector Items by Type (GET)

Basic call format: https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/vectors/{source}/{type}/paging?left={value}&right={value}&upper={value}&lower={value}&ttl={value}&count={value}

1. Submit a GET request to retrieve InsightCloud UVI information. The REST call via monocle-3 application will look similar to the following:

         https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/vectors/OSM/Tower/paging?left=32.3964&right=37.2633&upper=42.631&lower=34.7208&ttl=5m&count=500

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

{
  "pagingId":
"c2Nhbjs1NDA7NTg4Njc2NjpwZXXFRWFVqalFaeTV1RWUzemlxc3pBOzU4ODY4MDk6VmVxUVhVampRWnk1dUVlM3ppcXN6QTs1ODg2NzY3OlZlcVFYVWpxUVp5NXVFZTN6aXFzekE7NTg4Njg0MDpWZXRRWFVqalFaeTV1RWUzemlxc3pBOzU4ODY3Njg6VmVxUVhVampRWnk1dUVlM3ppcXN6QTs1

ODg4MzQwOnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7NTg4NjgzNjpWZXFRWFVFVqalFaeTV1RWUze
mlxc3pBOzU4ODk5MDY6dmFfLXNqS3RTZ3VlRFc0M3YZlpSdzs1ODg2NzcyOlZlcVFYVWpqUVp5N
XVFZTN6aXFzekE7NTg4ODM2Mjp0TWZsVUZoX1QzV21BQmJmek5pYWVROzU4ODY4MDc6VmVVx
UVhVampRWnk1dUVlM3ppcXN6QTs1ODg4MzQ1OnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7NTg4
ODQ3NzpaYmh6Ykt2MFNCbURCCUGlrNTA1MV9BOzU4ODg1MzE6WmJoemJLdjBTQm1EQlBpazUw
NTFfQTs1ODg5OTQ1OnZhXy1zakt0U2d1ZURXXNDN1WGZaUnc7NTg4ODxNjp0TWZsVUZoX1QzV2
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NCbURCCUGlrNTA1MV9BOzU4ODgzgNjg6ZGhzU1RuT19RLVdzRF9WZTdTdTY0paUTs1ODg4NzA4OmZI
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ndWVEVzQzdVhmWlJ3O3OzU4ODk5MTE6dmFfLXNqS3RTZ3VlRFc0M3YZlpSdzs1ODg2NzcxOlZlcVF
YVWpqUVp5NXVFZTN6aXFzekE7NTg4ODczMzpmSHNTVG5PX1EtV3NEX1ZlN1NjSlpROzU4ODgz
NzA6dkE1bbFVGaF9VM1dtQUJiX3pOaWFlUTs1ODg5OTgzOnZhXy1zakt0U2d1ZURXXNDN1WGZaUnc
7NTg4NjgzODpWZXFRWFVFVqalFaeTV1RWUzemlxc3pBOzU4ODgzNDQ6dE1mbFVGaF9VM1dtQUJiX3
pOaWFlUTs1ODg2Nzc1OlZlcVFYVWpqUVp5NXVFZTN6aXFzekE7NTg4NjgxMDpWZXFRWFVFVqalFae
TV1RWUzemlxc3pBOzU4ODk5MDk6dmFfLXNqS3RTZ3VlRFc0M3YZlpSdzs1ODg2NzgwOlZlcVFYV
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4ODk5MzA6dmFfLXNqS3RTZ3VlRFc0M3YZlpSdzs1ODg4NDE5OnRNZmxVRmhfVDNXbUFCYl96T
mlhZVE7NTg4ODU0OTpaYmh6Ykt2MFNCbURCCUGlrNTA1MV9BOzU4ODgzOTA6dkE1bbFVGaF9VM
1dtQUJiX3pOaWFlUTs1ODg5OTYzOnZhXy1zakt0U2d1ZURXXNDN1WGZaUnc7NTg4Njg1MTpWZXFR
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NTVG5PX1EtV3NEX1ZlN1NjSlpROzU4ODk5MTQ6dmFfLXNqS3R

3RTZ3VlRFc0M3VYZlpSdzs1ODg2NzgyOlZlcVFYVWpqUVp5NXVFZTN6aXFzekE7NTg4ODQxMDp0
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NDp0TWZsVUZoX1QzV21BQmpJfek5pYWVROzU4ODg3Nzg6ZkhzU1RuT19RLVdzRF9WZTdTY0paU
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p5NXVFZTN6aXFzekE7NTg4Njg3NzpWZXFRWFVqalFaeTV1RWUzemlxc3pBOzU4ODg1Njk6WmJoe
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Dp2YV8tc2pLdFNndWVEVzQzdVhmWlJ3OzU4ODg0NDU6dE1mbFVGaF9UM1dtQUJiX3pOaWFlUTs1
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V9BOzU4ODg1MDU6WmJvemlMJLdjBTQm1EQlBbpazUwNTFfQTs1ODg2ODA2OlZlcVFYVWpqUVp5NX
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qS3RTZ3VlRFc0M3VYZlpSdzs1ODg4MzYxOnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7NTg4ODU2
MzpaYmh6Ykt2MFNCbURCUCGGlrNTA1MV9BOzU4ODg3Mjg6ZkhzU1RuT19RLVdzRF9WZTdTY0paU
Ts1ODg5OTkxOnZhXy1zakt0U2d1ZURXNDN1WGZaUnc7NTg4Njg3NDpWZXFRWFVqalFaeTV1RWU
zemlxc3pBOzU4ODg0Mzg6dE1mbFVGaF9UM1dtQUJiX3pOaWFlUTs1ODg5OTQyOnZhXy1zakt0U2d1
ZURXNDN1WGZaUnc7NTg4ODM5ODp0TWZsVUZoX1QzV21BQmpJfek5pYWVROzU4ODg3NzU6Zkh
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s1ODg4NzY4OmZIc1NUbk9fUS1Xc0RfVmU3U2NKWlE7NTg5MDAxNDp2YV8tc2pLdFNndWVEVzQz
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DNXbUFCYl96TmlhZVE7NTg4OTk1OTp2YV8tc2pLdFNndWVEVzQzdVhmWlJ3OzU4ODY4MTc6Vm
VxUVhVampRWnk1dUVlM3ppcXN6QTs1ODg4NTI3OlpiaHpiS3YwU0JtREJQaWs1MDUxX0E7NTg4Nj
g1NDpWZXFRWFVqalFaeTV1RWUzemlxc3pBOzU4ODk5OTY6dmFfLXNqS3RTZ3VlRFc0M3VYZlpS
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M3ppcXN6QTs1ODg4NDA1OnRNZmxVRmhfVDNXbUFCYl96TmlhZVE7MTt0b3RhbF9oaXRzOjA7"
}

4.2.2.3.13   Retrieve Page of Vector Items (POST)

1. Submit a POST request to retrieve InsightCloud UVI information. The REST call via monocle-3 application will look similar to the following:

> https://iipbeta.digitalglobe.com/monocle-3/app/broker/vector/api/vectors/paging

With a header Content-type:application/x-www-form-urlencoded and a body of the paging ID generated in Section: Retrieve Page of Vector Items by Type (GET) or in Section: Retrieve Page of Vector Items by Type and Query (GET)

2. If this is the first request of the session, user will be redirected to the CAS authentication page; enter credentials and CAS will redirect to the response (see 3.)

3. The GET call returns a response with a header of 200 OK and a body of:

```
[
 {
   properties: {
   id: "OSM-node-1612839439",
   ingestDate: "2015-04-10T00:14:21Z",
   test: "tower",
   ingestAttributes:
    {
      "osm.host": "10.0.65.150",
      "osm.database": "osm"
    },
    source: null,
    originalCrs: "EPSG:4326",
    ingestSource: "OSM",
    name: null,
    itemType: "Tower",
    format: "OSM",
    asstributes:
    {
      "_osm.user.id.dbl": 196617,
      "_osm.version.int": 1,
      "_osm.user.name": "venerdi",
      "_osm.changeset.dbl": 10547383,
      "_osm.changeset.int": 10547383,
      "power": "tower",
      "_osm.version.dbl": 1,
      "_osm.changeset": "10547383",
      "_osm.user.id": "196617",
      "_osm.version": "1",
      "_osm.user.id.int": 196617
    },
    "itemDate": "2012-01-31T09:27:41Z"
   },
  "type": "Feature",
  "geometry": {
  "type": "Point",
  "coordinates":
   [
     34.051577,
     31.16638
   ]
  }
```

```
        },
        …
        ]
```

5   Appendix A - Acronyms

Acronym	Description
AOI	Area of Interest
CEG	Cumulative Exposure Grid
DEM	Digital Elevation Model
GIS	Geographic Information System
GPU	Graphics Processing Unit
HLZ	Helicopter Landing Zone
IED	Improvised Explosive Device
Lat/Lon	Latitude/Longitude
TPI	Topographic Position Index
UI	User Interface
UVI	Unified Vector Index
VS	Viewshed