



Geoc

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geoc is a geospatial command line application that follows the unix philosophy. Each command does one thing well (buffer a layer, crop a raster) by reading a vector layer as a CSV text stream or a raster layer as an ASCII grid, processing the layer or raster, and then writing out the vector layer as a CSV or a raster layer as an ASCII grid. Individual commands can be chained together with unix pipes.

# Core Commands

## List

List all command names.

Short Name	Long Name	Description
-d	--description	Include the description
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc list
```

```
carto map
filter cql2xml
geometry convert
geometry dd2pt
geometry geohash bounds
geometry geohash decode
geometry geohash encode
geometry geohash neighbors
geometry greatcirclearc
geometry offset
...
```

List all commands names with a short description.

```
geoc list -d
```

```
carto map = Create a cartographic map
filter cql2xml = Convert a CQL statement to an OCG XML Filter
geometry convert = Convert a geometry from one format to another
geometry dd2pt = Convert a decimal degrees formatted string into a Point
geometry geohash bounds = Calculate the geohashes for the given bounds
geometry geohash decode = Decode a GeoHash to a Geometry.
geometry geohash encode = Encode a Geometry as a GeoHash
geometry geohash neighbors = Get a geohash's neighbors
geometry greatcirclearc = Create a great circle arc.
geometry offset = Create a Geometry offset from the input Geometry
...
...
```

## Version

Get the current version.

Short Name	Long Name	Description
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc version
```

```
0.20.0-SNAPSHOT
```

## Help

You can get help from any subcommand.

```
geoc vector buffer --help
```

geoc vector buffer: Buffer the features of the input Layer and save them to the output Layer

--help	: Print the help message (default: true)
--web-help	: Open help in a browser (default: false)
-c (--capstyle) VAL	: The cap style (default: round)
-d (--distance) VAL	: The buffer distance
-i (--input-workspace) VAL	: The input workspace
-l (--input-layer) VAL	: The input layer
-o (--output-workspace) VAL	: The output workspace
-q (--quadrantsegments) N	: The number of quadrant segments (default: 8)
-r (--output-layer) VAL	: The output layer
-s (--singlesided)	: Whether buffer should be single sided or not (default: false)

## Pipe

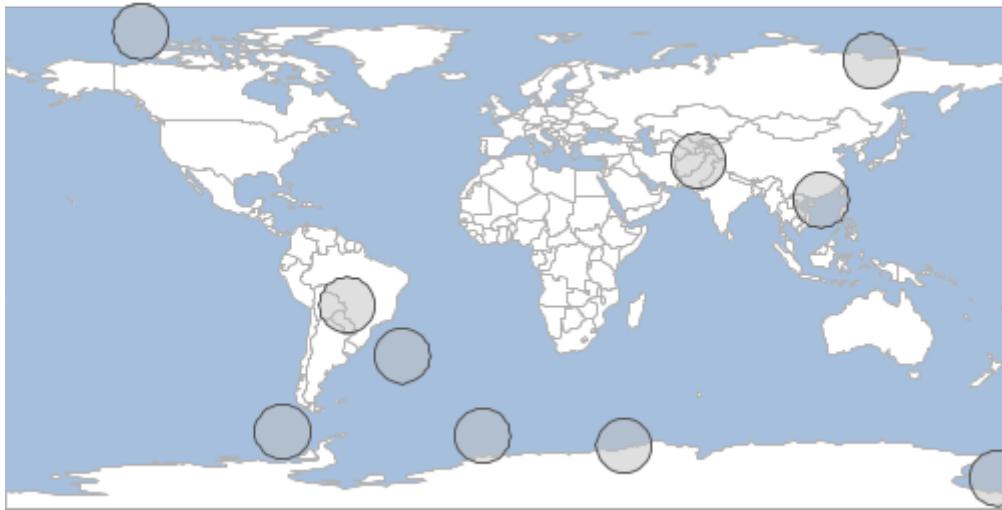
Combine multiple commands together with a pipe.

Short Name	Long Name	Description
-c	--commands	Commands separate by pipe
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc pipe -c vector randompoints -n 10 -g -180,-90,180,90 | vector buffer -d 10
```

```
"id:Integer","the_geom:Polygon:EPSG:4326"
"0","POLYGON ((186.76628500179737 -79.37971056957868, 186.57413780582968
-81.33061378973996, 186.00508032691025 -83.20654489322958, 185.0809811248228
-84.9354128997747, 183.83735281366285 -86.45077838144415, 182.3219873319934
-87.69440669260413, 180.59311932544827 -88.61850589469154, 178.71718822195865
-89.18756337361098, 176.76628500179737 -89.37971056957868, 174.8153817816361
-89.18756337361098, 172.93945067814647 -88.61850589469154, 171.21058267160134
-87.69440669260413, 169.6952171899319 -86.45077838144415, 168.45158887877193
-84.9354128997747, 167.5274896766845 -83.20654489322958, 166.95843219776506
-81.33061378973996, 166.76628500179737 -79.37971056957868, 166.95843219776506
-77.4288073494174, 167.5274896766845 -75.55287624592778, 168.45158887877193
-73.82400823938266, 169.6952171899319 -72.3086427577132, 171.21058267160134
-71.06501444655322, 172.93945067814647 -70.14091524446582, 174.8153817816361
-69.57185776554637, 176.76628500179737 -69.37971056957868, 178.71718822195865
-69.57185776554637, 180.59311932544827 -70.14091524446582, 182.3219873319934
-71.06501444655322, 183.83735281366285 -72.3086427577132, 185.0809811248228
-73.82400823938265, 186.00508032691025 -75.55287624592778, 186.57413780582968
-77.42880734941738, 186.76628500179737 -79.37971056957868))"
```

...



## Shell

Run commands in an interactive shell.

Short Name	Long Name	Description
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc shell
```

The screenshot shows a terminal window with the following details:

- Title Bar:** jericks — java < geoc shell — 80x24
- Current Directory:** ~ — java < geoc shell
- Last Login:** Wed Oct 5 18:18:54 on ttys002
- User:** [jericks@Jareds-MacBook-Pro-2 ~ % geoc shell
- Content:** A large, complex ASCII art logo consisting of various symbols like slashes, parentheses, and underscores, forming a stylized tree or forest.
- Prompt:** geoc> [cursor]

You can now type commands in the interactive shell.

If you hit the **tab** key you can get command line completion.

You can use the tab key again to cycle through the suggested values and hit the **return** key to select one.

```
Last login: Wed Oct  5 18:18:54 on ttys002
[jericks@Jareds-MacBook-Pro-2 ~ % geoc shell

[geoc> [carto      geometry    map        proj       shell       tile       version
filter     list        pipe       raster      style

```

In this example, we are looking for the vector contains command, so after typing vector c and hitting tab, we get a list of all vector commands that begin with the letter c.

```
[geoc> vector c] ]  
centroid contains coordinates create  
clip convexhull copy  
compareschemas convexhulls count
```

Once we have found our command, the shell will also provide completion for options.

```
[geoc> vector buffer -]
--capstyle           --output-workspace   -i
--distance          --quadrantsegments -l
--help              --singlesided        -o
--input-layer       --web-help           -q
--input-workspace   -c                  -r
--output-layer      -d                  -s
```

# Carto Commands

## Map

Create a cartographic map from a JSON or XML definition file.

Short Name	Long Name	Description
-t	--type	The type of the carto file (json, xml)
-c	--carto-file	The input carto definition file
-o	--output-file	The output file
	--help	Print the help message
	--web-help	Open help in a browser

## JSON

Create a cartographic map from a JSON definition file.

```
geoc carto map -t json -c src/test/resources/carto/simple.json -o  
target/carto_simple_json.png
```

```
{
  "type": "png",
  "width": 792,
  "height": 612,
  "items": [
    {
      "x": 0,
      "y": 0,
      "width": 792,
      "height": 612,
      "type": "rectangle",
      "fillColor": "white",
      "strokeColor": "black"
    },
    {
      "x": 30,
      "y": 50,
      "width": 742,
      "height": 20,
      "type": "text",
      "text": "Map Title",
      "color": "Black",
      "horizontalAlign": "center",
      "verticalAlign": "middle",
      "font": {
        "name": "Arial",
        "style": "Bold",
        "size": 36
      }
    },
    {
      "x": 30,
      "y": 120,
      "width": 742,
      "height": 470,
      "type": "map",
      "name": "mainMap",
      "layers": [
        {"layertype": "layer", "file": "src/test/resources/data.gpkg", "layername": "ocean", "style": "src/test/resources/ocean.sld"},  

        {"layertype": "layer", "file": "src/test/resources/data.gpkg", "layername": "countries", "style": "src/test/resources/countries.sld"}
      ]
    }
  ]
}
```

# Map Title



## XML

Create a cartographic map from an XML definition file.

```
geoc carto map -t xml -c src/test/resources/carto/simple.xml -o  
target/carto_simple_xml.png
```

```
<carto>  
  <type>png</type>  
  <width>792</width>  
  <height>612</height>  
  <items>  
    <item>  
      <x>0</x>  
      <y>0</y>  
      <width>792</width>  
      <height>612</height>  
      <type>rectangle</type>  
      <fillColor>white</fillColor>  
      <strokeColor>black</strokeColor>  
    </item>  
    <item>
```

```

<x>30</x>
<y>50</y>
<width>742</width>
<height>20</height>
<type>text</type>
<text>Map Title</text>
<color>black</color>
<horizontalAlign>center</horizontalAlign>
<verticalAlign>middle</verticalAlign>
<font>
    <name>Arial</name>
    <style>bold</style>
    <size>36</size>
</font>
</item>
<item>
    <x>30</x>
    <y>120</y>
    <width>742</width>
    <height>470</height>
    <type>map</type>
    <name>mainMap</name>
    <layers>
        <layer>
            <layertype>layer</layertype>
            <file>src/test/resources/data.gpkg</file>
            <layername>ocean</layername>
            <style>src/test/resources/ocean.sld</style>
        </layer>
        <layer>
            <layertype>layer</layertype>
            <file>src/test/resources/data.gpkg</file>
            <layername>countries</layername>
            <style>src/test/resources/countries.sld</style>
        </layer>
    </layers>
</item>
</items>
</carto>

```

# Map Title



## Elements

The geocarto map command takes either a JSON or XML document made up of one or more elements.

### Map

Draw a map.

### JSON

```
{  
    "x": 10,  
    "y": 10,  
    "width": 380,  
    "height": 280,  
    "type": "map",  
    "name": "mainMap",  
    "imageType": "png",  
    "backgroundColor": "white",  
    "fixAspectRatio": true,  
    "proj": "EPSG:4326",  
    "bounds": {  
        "minX": -180,  
        "minY": -90,  
        "maxX": 180,  
        "maxY": 90  
    },  
    "layers": [  
        {"layertype": "layer", "file": "src/test/resources/data.gpkg", "layername": "ocean", "style": "src/test/resources/ocean.sld"},  
        {"layertype": "layer", "file": "src/test/resources/data.gpkg", "layername": "countries", "style": "src/test/resources/countries.sld"}  
    ]  
}
```



XML

```
<item>
  <x>10</x>
  <y>10</y>
  <width>380</width>
  <height>280</height>
  <type>map</type>
  <name>mainMap</name>
  <imageType>png</imageType>
  <backgroundColor>white</backgroundColor>
  <fixAspectRatio>true</fixAspectRatio>
  <proj>EPSG:4326</proj>
  <bounds>
    <minX>-180</minX>
    <minY>-90</minY>
    <maxX>180</maxX>
    <maxY>90</maxY>
    <proj>EPSG:4326</proj>
  </bounds>
  <layers>
    <layer>
      <layertype>layer</layertype>
      <file>src/test/resources/data.gpkg</file>
      <layername>ocean</layername>
      <style>src/test/resources/ocean.sld</style>
    </layer>
    <layer>
      <layertype>layer</layertype>
      <file>src/test/resources/data.gpkg</file>
      <layername>countries</layername>
      <style>src/test/resources/countries.sld</style>
    </layer>
  </layers>
</item>
```



## Overview Map

Draw a overview map.

JSON

```
{
  "x": 10,
  "y": 10,
  "width": 580,
  "height": 240,
  "type": "map",
  "name": "mainMap",
  "fixAspectRatio": false,
  "bounds": {
    "minX": -108.917446,
    "minY": 43.519820,
    "maxX": -89.229946,
    "maxY": 50.137433
  },
  "layers": [
    {"layertype": "layer", "file": "src/test/resources/data.gpkg", "layername": "ocean", "style": "src/test/resources/ocean.sld"},
    {"layertype": "layer", "file": "src/test/resources/data.gpkg", "layername": "countries", "style": "src/test/resources/countries.sld"},
    {"layertype": "layer", "file": "src/test/resources/data.gpkg", "layername": "states", "style": "src/test/resources/states.sld"}
  ]
},
{
  "x": 10,
  "y": 260,
  "width": 580,
  "height": 240,
  "type": "overViewMap",
  "zoomIntoBounds": false,
  "scaleFactor": 2.0,
  "linkedMap": "mainMap",
  "layers": [
    {"layertype": "layer", "file": "src/test/resources/data.gpkg", "layername": "ocean", "style": "src/test/resources/ocean.sld"},
    {"layertype": "layer", "file": "src/test/resources/data.gpkg", "layername": "countries", "style": "src/test/resources/countries.sld"}
  ]
}
```



## XML

```
<item>
  <x>10</x>
  <y>10</y>
  <width>580</width>
  <height>240</height>
  <type>map</type>
  <name>mainMap</name>
  <imageType>png</imageType>
  <backgroundColor>white</backgroundColor>
  <fixAspectRatio>true</fixAspectRatio>
  <proj>EPSG:4326</proj>
  <bounds>
    <minX>-108.917446</minX>
    <minY>43.519820</minY>
    <maxX>-89.229946</maxX>
    <maxY>50.137433</maxY>
    <proj>EPSG:4326</proj>
  </bounds>
  <layers>
    <layer>
      <layertype>layer</layertype>
      <file>src/test/resources/data.gpkg</file>
    </layer>
  </layers>
</item>
```

```

<layername>ocean</layername>
<style>src/test/resources/ocean.sld</style>
</layer>
<layer>
    <layertype>layer</layertype>
    <file>src/test/resources/data.gpkg</file>
    <layername>countries</layername>
    <style>src/test/resources/countries.sld</style>
</layer>
<layer>
    <layertype>layer</layertype>
    <file>src/test/resources/data.gpkg</file>
    <layername>states</layername>
    <style>src/test/resources/states.sld</style>
</layer>
</layers>
</item>
<item>
    <x>10</x>
    <y>260</y>
    <width>580</width>
    <height>240</height>
    <type>overviewMap</type>
    <zoomToBounds>false</zoomToBounds>
    <scaleFactor>2.0</scaleFactor>
    <linkedMap>mainMap</linkedMap>
    <layers>
        <layer>
            <layertype>layer</layertype>
            <file>src/test/resources/data.gpkg</file>
            <layername>ocean</layername>
            <style>src/test/resources/ocean.sld</style>
        </layer>
        <layer>
            <layertype>layer</layertype>
            <file>src/test/resources/data.gpkg</file>
            <layername>countries</layername>
            <style>src/test/resources/countries.sld</style>
        </layer>
    </layers>
</item>

```



## Text

Draw text.

## JSON

```
{  
  "x": 10,  
  "y": 10,  
  "width": 140,  
  "height": 30,  
  "type": "text",  
  "text": "Map Text",  
  "horizontalAlign": "center",  
  "verticalAlign": "middle",  
  "color": "black",  
  "font": {  
    "name": "Arial",  
    "style": "plain",  
    "size": 14  
  }  
}
```

Map Text

XML

```
<item>
    <x>10</x>
    <y>10</y>
    <width>140</width>
    <height>30</height>
    <type>text</type>
    <text>Map Text</text>
    <horizontalAlign>center</horizontalAlign>
    <verticalAlign>middle</verticalAlign>
    <color>black</color>
    <font>
        <name>Arial</name>
        <style>plain</style>
        <size>14</size>
    </font>
</item>
```

Map Text

## Rectangle

Draw a rectangle.

JSON

```
{
    "x": 10,
    "y": 10,
    "width": 30,
    "height": 30,
    "type": "rectangle",
    "fillColor": "white",
    "strokeColor": "black"
}
```



XML

```
<item>
  <x>10</x>
  <y>10</y>
  <width>30</width>
  <height>30</height>
  <type>rectangle</type>
  <fillColor>white</fillColor>
  <strokeColor>black</strokeColor>
</item>
```



## North Arrow

Draw a north arrow.

JSON

```
{
  "x": 10,
  "y": 10,
  "width": 130,
  "height": 130,
  "type": "northarrow",
  "style": "North",
  "fillColor1": "black",
  "fillColor2": "white",
  "strokeColor1": "black",
  "strokeColor2": "black",
  "strokeWidth": 1,
  "drawText": true,
  "textColor": "black",
  "font": {
    "name": "Arial",
    "style": "plain",
    "size": 24
  }
}
```



## XML

```
<item>
  <x>10</x>
  <y>10</y>
  <width>130</width>
  <height>130</height>
  <type>northarrow</type>
  <style>NorthEastSouthWest</style>
  <fillColor1>black</fillColor1>
  <fillColor2>white</fillColor2>
  <strokeColor1>black</strokeColor1>
  <strokeColor2>black</strokeColor2>
  <strokeWidth>1</strokeWidth>
  <drawText>true</drawText>
  <textColor>black</textColor>
  <font>
    <name>Arial</name>
    <style>plain</style>
    <size>24</size>
  </font>
</item>
```



## Legend

Draw a legend.

JSON

```
{
  "x": 10,
  "y": 10,
  "width": 380,
  "height": 190,
  "type": "map",
  "name": "mainMap",
  "layers": [
    {"layertype": "layer", "file": "src/test/resources/data.gpkg", "layername": "ocean", "style": "src/test/resources/ocean.sld"},
    {"layertype": "layer", "file": "src/test/resources/data.gpkg", "layername": "countries", "style": "src/test/resources/countries.sld"}
  ]
}, {
  "x": 10,
  "y": 210,
  "width": 380,
  "height": 70,
  "type": "legend",
  "map": "mainMap",
  "backgroundColor": "white",
  "title": "Legend",
  "titleFont": {
    "name": "Arial",
    "style": "bold",
    "size": 18
  },
  "titleColor": "black",
  "textColor": "black",
  "textFont": {
    "name": "Arial",
    "style": "plain",
    "size": 12
  },
  "numberFormat": "#.##",
  "legendEntryWidth": "50",
  "legendEntryHeight": "30",
  "gapBetweenEntries": "10"
}
```



## Legend

Ocean   Countries

XML

```
<item>
    <x>10</x>
    <y>10</y>
    <width>380</width>
    <height>190</height>
    <type>map</type>
    <name>mainMap</name>
    <layers>
        <layer>
            <layertype>layer</layertype>
            <file>src/test/resources/data.gpkg</file>
            <layername>ocean</layername>
            <style>src/test/resources/ocean.sld</style>
        </layer>
        <layer>
            <layertype>layer</layertype>
            <file>src/test/resources/data.gpkg</file>
            <layername>countries</layername>
            <style>src/test/resources/countries.sld</style>
        </layer>
        <layer>
            <layertype>layer</layertype>
            <file>src/test/resources/data.gpkg</file>
            <layername>states</layername>
            <style>src/test/resources/states.sld</style>
        </layer>
    </layers>
</item>
<item>
    <x>10</x>
    <y>210</y>
    <width>380</width>
```

```
<height>70</height>
<type>legend</type>
<map>mainMap</map>
<backgroundColor>white</backgroundColor>
<title>Legend</title>
<titleFont>
    <name>Arial</name>
    <style>bold</style>
    <size>14</size>
</titleFont>
<titleColor>black</titleColor>
<textColor>black</textColor>
<textFont>
    <name>Arial</name>
    <style>plain</style>
    <size>12</size>
</textFont>
<numberFormat># .##</numberFormat>
<legendEntryWidth>50</legendEntryWidth>
<legendEntryHeight>30</legendEntryHeight>
<gapBetweenEntries>10</gapBetweenEntries>
</item>
```



### Legend

<span style="background-color: #4682B4; width: 15px; height: 15px; display: inline-block;"></span>	Ocean	<span style="width: 15px; height: 15px; border: 1px solid black; display: inline-block;"></span>	Countries	<span style="width: 15px; height: 15px; border: 1px solid black; display: inline-block;"></span>	States
--	-------	--	-----------	--	--------

### Date

Draw a date.

JSON

```
{  
    "x": 10,  
    "y": 10,  
    "width": 140,  
    "height": 30,  
    "type": "datetext",  
    "date": "1/22/2022",  
    "format": "MM/dd/yyyy",  
    "horizontalAlign": "center",  
    "verticalAlign": "middle",  
    "color": "black",  
    "font": {  
        "name": "Arial",  
        "style": "plain",  
        "size": 14  
    }  
}
```

01/22/2022

XML

```
<item>  
    <x>10</x>  
    <y>10</y>  
    <width>140</width>  
    <height>30</height>  
    <type>dateText</type>  
    <date>1/22/2022</date>  
    <format>MM/dd/yyyy</format>  
    <horizontalAlign>center</horizontalAlign>  
    <verticalAlign>middle</verticalAlign>  
    <color>black</color>  
    <font>  
        <name>Arial</name>  
        <style>plain</style>  
        <size>14</size>  
    </font>  
</item>
```

01/22/2022

## Scale Text

Draw scale text.

## JSON

```
{  
    "x": 10,  
    "y": 10,  
    "width": 380,  
    "height": 280,  
    "type": "map",  
    "name": "mainMap",  
    "layers": [  
        {"layertype": "layer", "file": "src/test/resources/data.gpkg", "layername": "ocean", "style": "src/test/resources/ocean.sld"},  
        {"layertype": "layer", "file": "src/test/resources/data.gpkg", "layername": "countries", "style": "src/test/resources/countries.sld"}  
    ]  
}, {  
    "x": 10,  
    "y": 250,  
    "width": 380,  
    "height": 40,  
    "type": "scaletext",  
    "map": "mainMap",  
    "format": "#",  
    "prefixText": "Scale: ",  
    "horizontalAlign": "center",  
    "verticalAlign": "middle",  
    "color": "black",  
    "font": {  
        "name": "Arial",  
        "style": "plain",  
        "size": 14  
    }  
}
```



Scale: 1:376644894

## XML

```
<item>
    <x>10</x>
    <y>10</y>
    <width>580</width>
    <height>240</height>
    <type>map</type>
    <name>mainMap</name>
    <layers>
        <layer>
            <layertype>layer</layertype>
            <file>src/test/resources/data.gpkg</file>
            <layername>ocean</layername>
            <style>src/test/resources/ocean.sld</style>
        </layer>
        <layer>
            <layertype>layer</layertype>
            <file>src/test/resources/data.gpkg</file>
            <layername>countries</layername>
            <style>src/test/resources/countries.sld</style>
        </layer>
        <layer>
            <layertype>layer</layertype>
            <file>src/test/resources/data.gpkg</file>
            <layername>states</layername>
            <style>src/test/resources/states.sld</style>
        </layer>
    </layers>
</item>
<item>
    <x>10</x>
    <y>250</y>
    <width>380</width>
    <height>40</height>
    <type>scaletext</type>
    <map>mainMap</map>
    <format>#</format>
    <prefixText>Scale :</prefixText>
    <horizontalAlign>center</horizontalAlign>
    <verticalAlign>middle</verticalAlign>
    <color>black</color>
    <font>
        <name>Arial</name>
        <style>plain</style>
        <size>14</size>
    </font>
</item>
```



Scale :1:298177207

### Scale Bar

Draw scale bar.

JSON

```
{
  "x": 10,
  "y": 10,
  "width": 380,
  "height": 280,
  "type": "map",
  "name": "mainMap",
  "layers": [
    {"layertype": "layer", "file": "src/test/resources/data.gpkg", "layername": "ocean", "style": "src/test/resources/ocean.sld"},
    {"layertype": "layer", "file": "src/test/resources/data.gpkg", "layername": "countries", "style": "src/test/resources/countries.sld"}
  ]
}, {
  "x": 10,
  "y": 250,
  "width": 380,
  "height": 40,
  "type": "scalebar",
  "map": "mainMap",
  "strokeColor": "black",
  "strokeWidth": 1,
  "border": 5,
  "units": "METRIC",
  "fillColor": "white",
  "font": {
    "name": "Arial",
    "style": "plain",
    "size": 14
  }
}
```



XML

```

<item>
    <x>10</x>
    <y>10</y>
    <width>580</width>
    <height>240</height>
    <type>map</type>
    <name>mainMap</name>
    <layers>
        <layer>
            <layertype>layer</layertype>
            <file>src/test/resources/data.gpkg</file>
            <layername>ocean</layername>
            <style>src/test/resources/ocean.sld</style>
        </layer>
        <layer>
            <layertype>layer</layertype>
            <file>src/test/resources/data.gpkg</file>
            <layername>countries</layername>
            <style>src/test/resources/countries.sld</style>
        </layer>
        <layer>
            <layertype>layer</layertype>
            <file>src/test/resources/data.gpkg</file>
            <layername>states</layername>
            <style>src/test/resources/states.sld</style>
        </layer>
    </layers>
</item>
<item>
    <x>10</x>
    <y>250</y>
    <width>380</width>
    <height>40</height>
    <type>scalebar</type>
    <map>mainMap</map>
    <strokeColor>black</strokeColor>
    <strokeWidth>1</strokeWidth>
    <border>5</border>
    <units>US</units>
    <fillColor>white</fillColor>
    <font>
        <name>Arial</name>
        <style>plain</style>
        <size>14</size>
    </font>
</item>

```



20000 miles

## Line

Draw a line.

### JSON

```
{  
  "x": 10,  
  "y": 10,  
  "width": 180,  
  "height": 0,  
  "type": "line",  
  "strokeColor": "black",  
  "strokeWidth": 2  
}
```

### XML

```
<item>  
  <x>10</x>  
  <y>10</y>  
  <width>180</width>  
  <height>0</height>  
  <type>line</type>  
  <strokeColor>black</strokeColor>  
  <strokeWidth>2</strokeWidth>  
</item>
```

---

## Grid

Draw a grid to make it easier to place other items.

JSON

```
{  
  "x": 0,  
  "y": 0,  
  "width": 100,  
  "height": 100,  
  "type": "grid",  
  "size": 10,  
  "strokeColor": "black",  
  "strokeWidth": 0.5  
}
```



XML

```
<item>  
  <x>0</x>  
  <y>0</y>  
  <width>100</width>  
  <height>100</height>  
  <type>grid</type>  
  <size>10</size>  
  <strokeColor>black</strokeColor>  
  <strokeWidth>0.5</strokeWidth>  
</item>
```



## Paragraph

Draw paragraph.

## JSON

```
{  
  "x": 10,  
  "y": 10,  
  "width": 240,  
  "height": 140,  
  "type": "paragraph",  
  "text": "The Carto package contains classes for creating cartographic documents. All  
  items are added to the document with x and y coordinates whose origin is the upper  
  left and width and a height.",  
  "color": "black",  
  "font": {  
    "name": "Arial",  
    "style": "plain",  
    "size": 14  
  }  
}
```

The Carto package contains  
classes for creating cartographic  
documents. All items are added to  
the document with x and y  
coordinates whose origin is the  
upper left and width and a height.

## XML

```
<item>  
  <x>10</x>  
  <y>10</y>  
  <width>240</width>  
  <height>140</height>  
  <type>paragraph</type>  
  <text>The Carto package contains classes for creating cartographic documents. All  
  items are added to the document with x and y coordinates whose origin is the upper  
  left and width and a height.t</text>  
  <color>black</color>  
  <font>  
    <name>Arial</name>  
    <style>plain</style>  
    <size>14</size>  
  </font>  
</item>
```

The Carto package contains classes for creating cartographic documents. All items are added to the document with x and y coordinates whose origin is the upper left and width and a height.t

## Image

Draw an image.

JSON

```
{  
  "x": 10,  
  "y": 10,  
  "width": 512,  
  "height": 431,  
  "type": "image",  
  "path": "src/main/docs/static/images/geoc.png"  
}
```



XML

```
<item>
  <x>10</x>
  <y>10</y>
  <width>512</width>
  <height>431</height>
  <type>image</type>
  <path>src/main/docs/static/images/geoc.png</path>
</item>
```



## Table

Draw a table of data.

JSON

```
{  
  "x": 10,  
  "y": 10,  
  "width": 280,  
  "height": 80,  
  "type": "table",  
  "columns": ["ID", "Name", "Abbreviation"],  
  "rows": [  
    {"ID": 1, "Name": "Washington", "Abbreviation": "WA"},  
    {"ID": 2, "Name": "Oregon", "Abbreviation": "OR"},  
    {"ID": 3, "Name": "California", "Abbreviation": "CA"}  
  ]  
}
```

ID	Name	Abbreviation
1	Washington	WA
2	Oregon	OR
3	California	CA

XML

```

<item>
  <x>10</x>
  <y>10</y>
  <width>280</width>
  <height>80</height>
  <type>table</type>
  <columns>
    <column>ID</column>
    <column>Name</column>
    <column>Abbreviation</column>
  </columns>
  <rows>
    <row>
      <ID>1</ID>
      <Name>Washington</Name>
      <Abbreviation>WA</Abbreviation>
    </row>
    <row>
      <ID>2</ID>
      <Name>Oregon</Name>
      <Abbreviation>OR</Abbreviation>
    </row>
    <row>
      <ID>3</ID>
      <Name>California</Name>
      <Abbreviation>CA</Abbreviation>
    </row>
  </rows>
</item>

```

ID	Name	Abbreviation
1	Washington	WA
2	Oregon	OR
3	California	CA

## Filter Commands

### CQL to XML

Convert a CQL statement to an OCG XML Filter.

Short Name	Long Name	Description
-c	--cql	The CQL statement
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc filter cql2xml -c name=wa
```

```
<ogc:Filter xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:gml="http://www.opengis.net/gml" xmlns:ogc="http://www.opengis.net/ogc">
  <ogc:PropertyIsEqualTo>
    <ogc:PropertyName>name</ogc:PropertyName>
    <ogc:PropertyName>wa</ogc:PropertyName>
  </ogc:PropertyIsEqualTo>
</ogc:Filter>
```

# Geometry Commands

## Convert

Convert a geometry from one format to another.

Short Name	Long Name	Description
-i	--input	The input geometry
-f	--format	The output format (wkt, geojson, gml2, gml3, kml, georss, gpx, csv, wkb)
-p	--format-options	The output format options
-t	--type	The output type (geometry, feature, layer)
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc geometry convert -i "POINT(-122.386371 47.581154)" -f geojson -t feature
```

```
{"type": "Feature", "geometry": {"type": "Point", "coordinates": [-122.3864, 47.5812]}, "properties": {}, "id": "1"}
```

## Decimal Degrees to Point

Convert a decimal degrees formatted string into a Point.

Short Name	Long Name	Description
-d	--decimaldegrees	The decimal degrees
-t	--type	The output type (xy, wkt, json)

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc geometry dd2pt -d "122d 31m 32.23s W, 47d 12m 43.28s N" -t wkt
```

```
POINT (-122.5256194444444 47.212022222222224)
```

## GeoHash Bounds

Calculate the geohashes for the given bounds.

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-b	--bounds	The input geometry
-t	--type	The encoding type (string or long). The default is string.
-n	--number-of-chars	The number of characters. The default is 9.
-d	--bit-depth	The bit depth. The default is 52.
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc geometry geohash bounds -b "120, 30, 120.0001, 30.0001" -t long -d 45
```

```
28147497671064
28147497671068
28147497671112
28147497671066
28147497671070
28147497671114
28147497671088
28147497671092
28147497671136
```

## GeoHash Decode

Decode a GeoHash to a Geometry.

Short Name	Long Name	Description
-i	--input	The input geohash
-t	--type	Whether the geohash is a point or bounds
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc geometry geohash decode -i uf8vk6wjr -t point
```

```
POINT (35.0001668930054 60.0000715255737)
```

## GeoHash Encode

Encode a Geometry as a GeoHash.

Short Name	Long Name	Description
-i	--input	The input geometry
-t	--type	The encoding type (string or long). The default is string.
-n	--number-of-chars	The number of characters. The default is 9.
-d	--bit-depth	The bit depth. The default is 52.
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc geometry geohash encode -i "POINT(-122.386371 47.581154)"
```

```
c22yxjbuq
```

## GeoHash Neighbors

Get a geohash's neighbors.

Short Name	Long Name	Description
-i	--input	The input geometry
-n	--number-of-chars	The number of characters. The default is 9.

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-d	--bit-depth	The bit depth. The default is 52.
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc geometry geohash neighbors -i uf8vk6wj
```

NORTH,uf8vk6wjx  
 NORTHEAST,uf8vk6wm8  
 EAST,uf8vk6wm2  
 SOUTHEAST,uf8vk6wm0  
 SOUTH,uf8vk6wjp  
 SOUTHWEST,uf8vk6wjn  
 WEST,uf8vk6wjq  
 NORTHWEST,uf8vk6wjw

## Great Circle Arc

Create a great circle arc.

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-e	--ellipsoid	The ellipsoid
-p	--start-point	The start point
-t	--end-point	The end point
-n	--num-points	The number of points
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc geometry greatcirclearc -p POINT (-122 48) -t POINT (-0.102938 51.498749) -e
wgs84 -n 20
```

```
LINESTRING (-119.07040273132067 50.67129040608734, -115.79405787410982
53.25898813815459, -112.10566632488812 55.74416257443563, -107.93031121546862
58.102903619395605, -103.18586832746001 60.30516464523606, -97.78964326539094
62.313702219535685, -91.67188919322786 64.08357246715578, -84.79846274611634
65.56300075396796, -77.20148714844558 66.69673003845362, -69.00888413693454
67.4327000137296, -60.454039139748815 67.73150516117609, -51.847144661724116
67.57568999780139, -43.51024818547282 66.97446827309976, -35.70614774738105
65.96118559566465, -28.596592724101157 64.58499988892942, -22.24128289210202
62.90104269692094, -16.623473379491926 60.96269894447343, -11.681762264482387
58.81725900451406, -7.335682843452773 56.50439016948547, -3.501944007479139
54.05631263013969)
```



## Offset

Create a Geometry offset from the input Geometry.

Short Name	Long Name	Description
-i	--input	The input geometry
-d	--offset	The offset distance
-s	--quadrant-segments	The number of quadrant segments (defaults to 8)
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc geometry offset -i LINESTRING (-120.41362631285119 47.87883318858252,
-3.9909723099333974 39.24424611524387) -d 5 -s 8
```

```
LINestring (-120.0438126769743 52.86513822084032, -3.621158674056503  
44.23055114750167)
```



## Orthodromic Distance

Calculate the orthodromic distance between two points..

Short Name	Long Name	Description
-e	--ellipsoid	The ellipsoid
-p	--start-point	The start point
-t	--end-point	The end point
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc geometry orthodromicdistance -p POINT (-122 48) -t POINT (-0.102938 51.498749) -e  
wgs84
```

```
7674355.352400642
```

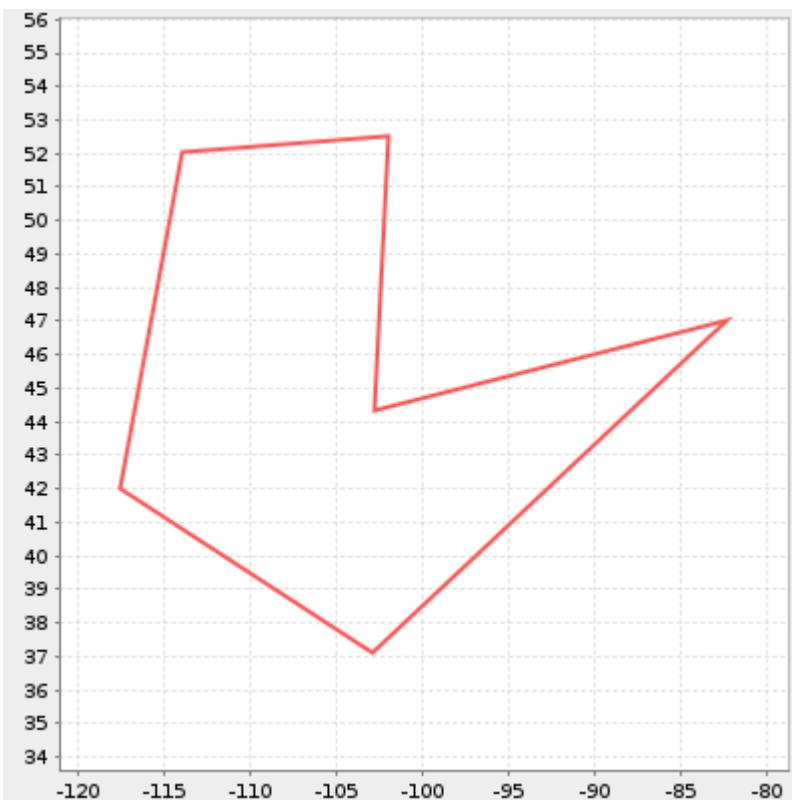
## Plot

Draw a geometry to a plot.

Short Name	Long Name	Description
-i	--input	The input geometry
-f	--file	The output file

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-w	--width	The image width
-h	--height	The image height
-l	--legend	Whether to show the legend
-r	--fill-coords	Whether to fill coordinates
-p	--fill-polys	Whether to fill polygons
-d	--draw-coords	Whether to draw coordinates
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc geometry plot -i "POLYGON ((-113.98365269610397 52.04260423559353,
-117.55190821991903 41.99216856357597, -102.82940482544078 37.1267755781612,
-82.26457660787091 47.05513909003821, -102.75935045963138 44.33220905070587,
-101.89775634863287 52.5472919646931, -113.98365269610397 52.04260423559353))" -f
target/geometry_plot.png
```



## Point to Decimal Degrees

Format a Point in Decimal Degrees.

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-p	--point	The Point

Short Name	Long Name	Description
-t	--type	The output type (dms, dms_char, ddm, ddm_char)
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc geometry pt2dd -p "POINT (-122 48)" -t dms
```

```
-122° 0' 0.0000" W, 48° 0' 0.0000" N
```

# Map Commands

## Map Layers

Map layer is a simple string format that allows you to pass in information about a map layer.

It can contain the following properties:

- **layertype** = The type of layer (layer, raster, tile)
  - For layer layertype, you can use the same key value pairs used to specify a Workspace.
  - For raster layertype, you specify a source=file key value pair.
  - For tile layertype, you use the same key value pairs used to specify a Tile layer.
- **layername** = The name of the Layer/Raster/Tile
- **layerprojection** = The Projection
- **style** = The SLD, CSS, or other style

Examples:

- **Vector Layer**
  - **layertype=layer**      **dbtype=geopkg**      **database=/Users/user/Desktop/countries.gpkg**  
**layername=countries** **style=/Users/user/Desktop/countries.sld**
  - **layertype=layer**      **file=/Users/user/Desktop/geoc/polylines.csv**      **layername=polylines**  
**style=/Users/user/Desktop/geoc/polylines.sld**
  - **layertype=layer**                                    **file=/Users/user/Desktop/geoc/points.properties**  
**style=/Users/user/Desktop/geoc/points.sld**
  - **layertype=layer** **file=/Users/user/Projects/geoc/src/test/resources/polylines.shp**
  - **layertype=layer**      **directory=/Users/user/Projects/geoc/src/test/resources/points.properties**  
**layername=points**
- **Raster**

- **layertype=raster** **source=rasters/earth.tif**
- **Tile**
  - **layertype=tile** **file=world.mbtiles**
  - **layertype=tile** **type=geopackage** **file=states.gpkg**

## Draw

Draw a map.

Short Name	Long Name	Description
-l	--layer	The map layer
-f	--file	The output image file
-t	--type	The type of document
-w	--width	The width
-h	--height	The height
-b	--bounds	The bounds
-g	--background-color	The background color
-p	--projection	The projection
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc map draw -l "layertype=layer file=src/test/resources/data.gpkg layername=ocean
style=src/test/resources/ocean.sld" -l "layertype=layer
file=src/test/resources/data.gpkg layername=countries
style=src/test/resources/countries.sld" -f target/map.png
```



## Map Cube

Draw a map cube.

Short Name	Long Name	Description
-l	--layer	The map layer
-f	--file	The output image file
-o	--draw-outline	The flag to whether to draw outlines or not
-t	--draw-tabs	The flag to whether to draw tabs or not
-s	--tab-size	The tab size
-i	--title	The title
-c	--source	The data source or credits
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc map cube -l "layertype=layer file=src/test/resources/data.gpkg layername=ocean  
style=src/test/resources/ocean.sld" -l "layertype=layer  
file=src/test/resources/data.gpkg layername=countries  
style=src/test/resources/countries.sld" -o -f target/cube.png
```



Draw a blank map cube.

```
geoc map cube -o -f target/cube_blank.png
```



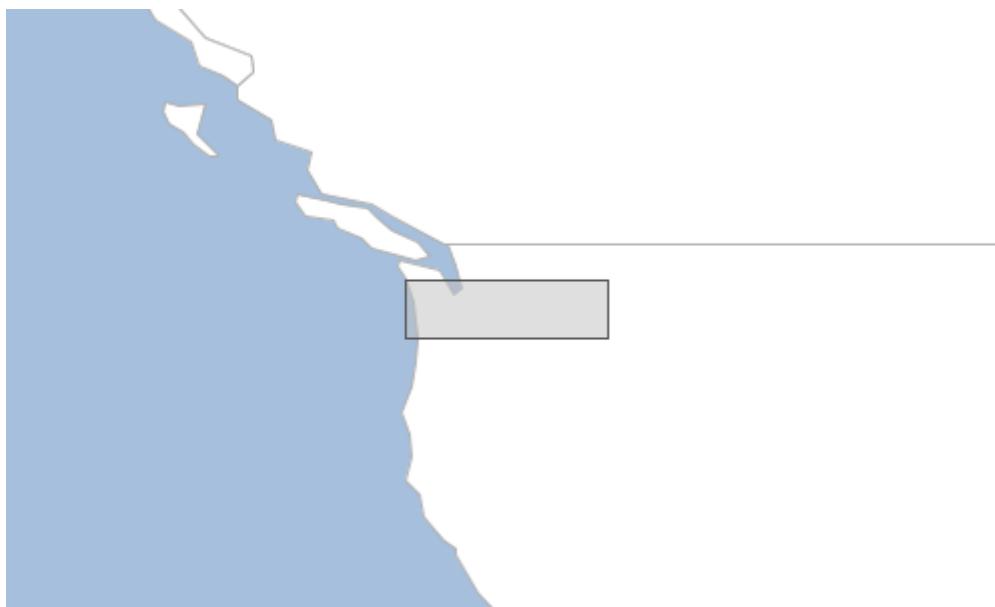
# Projection Commands

## Envelope

Get a Projection's envelope.

Short Name	Long Name	Description
-e	--epsg	The EPSG Projection code
-g	--geo-bounds	The flag for whether to use geo bounds or not
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc proj envelope -e EPSG:2927 -g -o target/envelope.shp
```



## WKT

Get the WKT of a Projection

Short Name	Long Name	Description
-e	--epsg	The EPSG Projection code
-f	--file	The output File
-c	--citation	The citations (epsg or esri)
-i	--indentation	The number of spaces to indent
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc proj wkt -e EPSG:2927
```

```

PROJCS["NAD83(HARN) / Washington South (ftUS)",
GEOGCS["NAD83(HARN)",
    DATUM["NAD83 (High Accuracy Reference Network)",
        SPHEROID["GRS 1980", 6378137.0, 298.25722101, AUTHORITY["EPSG","7019"]],
        TOWGS84[0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0],
        AUTHORITY["EPSG","6152"]]],
PRIMEM["Greenwich", 0.0, AUTHORITY["EPSG","8901"]],
UNIT["degree", 0.017453292519943295],
AXIS["Geodetic longitude", EAST],
AXIS["Geodetic latitude", NORTH],
AUTHORITY["EPSG","4152"]],
PROJECTION["Lambert Conic Conformal (2SP)", AUTHORITY["EPSG","9802"]],
PARAMETER["Longitude of natural origin", -120.5],
PARAMETER["Latitude of false origin", 45.33333333333336],
PARAMETER["Latitude of 1st standard parallel", 47.33333333333336],
PARAMETER["False easting", 1640416.667],
PARAMETER["False northing", 0.0],
PARAMETER["Scale factor at natural origin", 1.0],
PARAMETER["Latitude of 2nd standard parallel", 45.83333333333336],
UNIT["ft_survey_us", 0.3048006096012192],
AXIS["Easting", EAST],
AXIS["Northing", NORTH],
AUTHORITY["EPSG","2927"]]

```

# Raster Commands

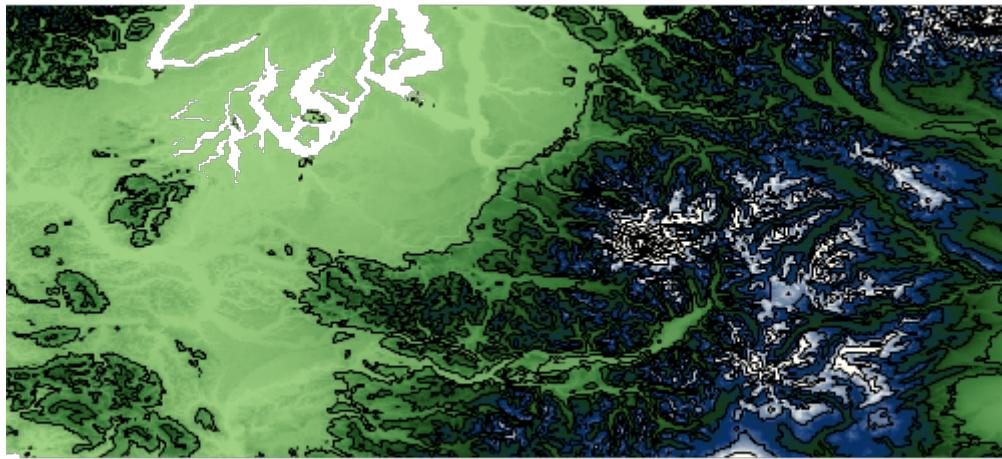
## Contour

Create contours from a Raster.

Short Name	Long Name	Description
-b	--band	The band
-v	--level	A level or interval
-s	--simplify	Whether to simplify
-m	--smooth	Whether to smooth
-n	--bounds	The bounds
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-raster	The input raster
-l	--input-raster-name	The input raster name
-p	--input-projection	The input projection
	--help	Print the help message

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
	--web-help	Open help in a browser

```
geoc raster contour -i src/test/resources/pc.tif -b 0 -v 300 -s -m -o
target/contours.shp
```

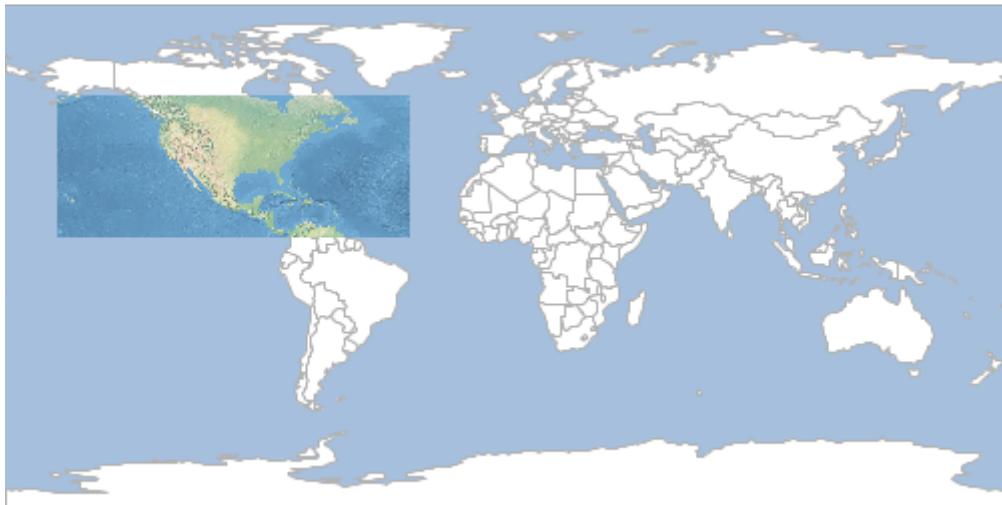


## Crop

Crop a Raster.

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-b	--bound	The Bounds
-x	--pixel	Whether the Bounds is pixel or geographic
-o	--output-raster	The output raster
-f	--output-raster-format	The output raster format
-i	--input-raster	The input raster
-l	--input-raster-name	The input raster name
-p	--input-projection	The input projection
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc raster crop -i src/test/resources/earth.tif -b -160.927734,6.751896,
-34.716797,57.279043 -o target/earth_cropped.tif
```

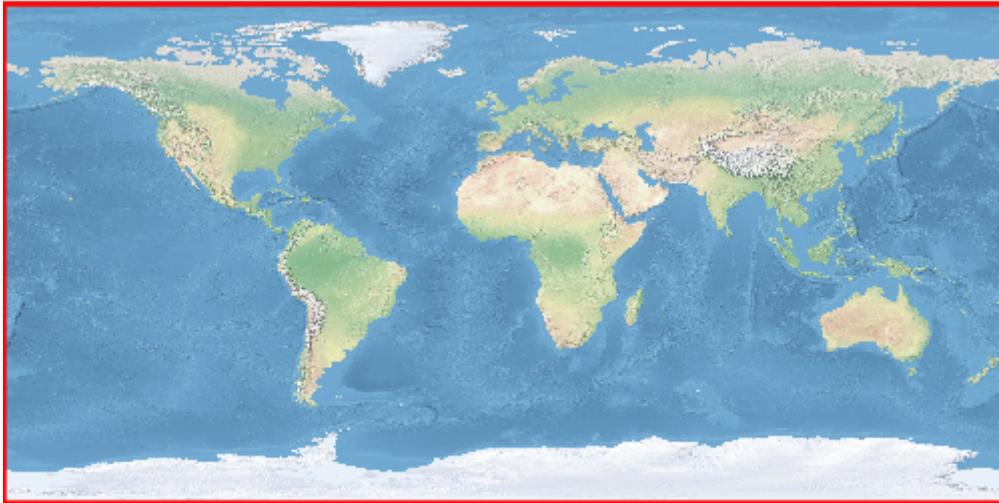


## Envelope

Get the Envelope of a Raster as a Vector Layer.

Short Name	Long Name	Description
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-raster	The input raster
-l	--input-raster-name	The input raster name
-p	--input-projection	The input projection
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc raster envelope -i src/test/resources/earth.tif -o target/earth_envelope.shp
```



## Info

Get information about a Raster.

Short Name	Long Name	Description
-i	--input-raster	The input raster
-l	--input-raster-name	The input raster name
-p	--input-projection	The input projection
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc raster info -i src/test/resources/earth.tif
```

Format: GeoTIFF  
 Size: 800, 400  
 Projection ID: EPSG:4326  
 Projection WKT: GEOGCS["WGS 84",  
     DATUM["World Geodetic System 1984",  
         SPHEROID["WGS 84", 6378137.0, 298.257223563, AUTHORITY["EPSG", "7030"]],  
         AUTHORITY["EPSG", "6326"]],  
     PRIMEM["Greenwich", 0.0, AUTHORITY["EPSG", "8901"]],  
     UNIT["degree", 0.017453292519943295],  
     AXIS["Geodetic longitude", EAST],  
     AXIS["Geodetic latitude", NORTH],  
     AUTHORITY["EPSG", "4326"]]  
 Extent: -179.99999999999997, -89.99999999998205, 179.99999999996405, 90.0  
 Pixel Size: 0.4499999999999505, 0.4499999999999551  
 Block Size: 800, 8  
 Bands:  
     RED\_BAND  
         Min Value: 56.0 Max Value: 255.0  
     GREEN\_BAND  
         Min Value: 84.0 Max Value: 255.0  
     BLUE\_BAND  
         Min Value: 91.0 Max Value: 255.0

## Get Projection

Get the Raster Projection.

Short Name	Long Name	Description
-t	--type	The output type (epsg, id, srs, wkt)
-i	--input-raster	The input raster
-l	--input-raster-name	The input raster name
-p	--input-projection	The input projection
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc raster projection -i src/test/resources/earth.tif
```

EPSG:4326

# Get Size

Get the Raster size (width,height).

Short Name	Long Name	Description
-i	--input-raster	The input raster
-l	--input-raster-name	The input raster name
-p	--input-projection	The input projection
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc raster size -i src/test/resources/earth.tif
```

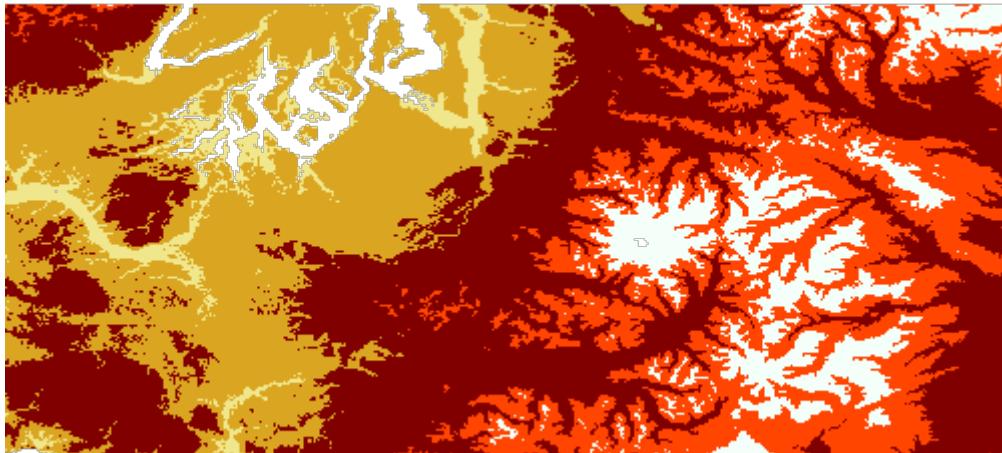
800,400

# Reclassify

Reclassify a Raster.

Short Name	Long Name	Description
-b	--band	The band
-n	--nodata	The NODATA value
-r	--range	A range: from-to=value or 1-10=5
-o	--output-raster	The output raster
-f	--output-raster-format	The output raster format
-i	--input-raster	The input raster
-l	--input-raster-name	The input raster name
-p	--input-projection	The input projection
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc raster reclassify -i src/test/resources/pc.tif -o target/pc_reclass.tif -r 0-0=1  
-r 0-50=2 -r 50-200=3 -r 200-1000=5 -r 1000-1500=4 -r 1500-4000=6
```



## World File

Create a Raster world file

Short Name	Long Name	Description
-b	--bounds	The bounds
-s	--size	The size
-f	--file	The world file
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc raster worldfile -b 10,11,20,21 -s 800,751
```

```
0.0125  
0.0  
0.0  
-0.013315579227696404  
10.00625  
20.993342210386153
```

## Style Commands

### Create

Create a simple style.

Short Name	Long Name	Description
-s	--style-options	A style options
-t	--type	The output type (sld or ysld)
-w	--writer-options	The StyleWriter options
-o	--output	The output file
	--help	Print the help message
	--web-help	Open help in a browser

## Style Options:

- Fill properties
  - **fill** (color)
  - **fill-opacity** (0-1)
- Stroke properties
  - **stroke** (color)
  - **stroke-width** (double)
  - **stroke-opacity** (0-1)
- Shape properties
  - **shape** (color)
  - **shape-size** (double)
  - **shape-type** (circle, square, triangle, star, cross, or x)
- Label properties
  - **label** The field name (ID, NAME)
  - **label-size** (12)
  - **label-style** (normal, italic, oblique)
  - **label-weight** (normal, bold)
  - **label-family** (serif, Arial, Verdana)

```
geoc style create -s stroke=navy -s stroke-width=0.5 -t sld -o target/boundaries.sld
```

```

<?xml version="1.0" encoding="UTF-8"?><sld:StyledLayerDescriptor xmlns=
"http://www.opengis.net/sld" xmlns:sld="http://www.opengis.net/sld" xmlns:gml=
"http://www.opengis.net/gml" xmlns:ogc="http://www.opengis.net/ogc" version="1.0.0">
  <sld:UserLayer>
    <sld:LayerFeatureConstraints>
      <sld:FeatureTypeConstraint/>
    </sld:LayerFeatureConstraints>
    <sld:UserStyle>
      <sld:Name>Default Styler</sld:Name>
      <sld:FeatureTypeStyle>
        <sld:Name>name</sld:Name>
        <sld:Rule>
          <sld:LineSymbolizer>
            <sld:Stroke>
              <sld:CssParameter name="stroke">#000080</sld:CssParameter>
              <sld:CssParameter name="stroke-width">0.5</sld:CssParameter>
            </sld:Stroke>
          </sld:LineSymbolizer>
        </sld:Rule>
      </sld:FeatureTypeStyle>
    </sld:UserStyle>
  </sld:UserLayer>
</sld:StyledLayerDescriptor>

```

```

geoc style create -s fill=white -s stroke=black -s stroke-width=1.5 -t ysld -o
target/boundaries.ysld

```

```

name: Default Styler
feature-styles:
- name: name
  rules:
  - scale: [min, max]
    symbolizers:
    - polygon:
        fill-color: '#FFFFFF'
        fill-opacity: 0.6
    - line:
        stroke-color: '#000000'
        stroke-width: 1.5

```

## CSS to SLD

Convert CSS to SLD.

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-i	--input	The input file or url
-o	--output	The output file
-w	--writer-options	The StyleWriter options
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc style css2sld -i target/points.css -o target/points.sld
```

*points.css*

```
* {
  mark: symbol(circle);
  mark-size: 6px;
}

:mark {
  fill: red;
}
```

*points.sld*

```

<?xml version="1.0" encoding="UTF-8"?><sld:StyledLayerDescriptor xmlns=
"http://www.opengis.net/sld" xmlns:sld="http://www.opengis.net/sld" xmlns:gml=
"http://www.opengis.net/gml" xmlns:ogc="http://www.opengis.net/ogc" version="1.0.0">
  <sld:UserLayer>
    <sld:LayerFeatureConstraints>
      <sld:FeatureTypeConstraint/>
    </sld:LayerFeatureConstraints>
    <sld:UserStyle>
      <sld:Name>Default Styler</sld:Name>
      <sld:FeatureTypeStyle>
        <sld:Rule>
          <sld:PointSymbolizer>
            <sld:Graphic>
              <sld:Mark>
                <sld:WellKnownName>circle</sld:WellKnownName>
                <sld:Fill>
                  <sld:CssParameter name="fill">#ff0000</sld:CssParameter>
                </sld:Fill>
              </sld:Mark>
              <sld:Size>6</sld:Size>
            </sld:Graphic>
          </sld:PointSymbolizer>
        </sld:Rule>
        <sld:VendorOption name="ruleEvaluation">first</sld:VendorOption>
      </sld:FeatureTypeStyle>
    </sld:UserStyle>
  </sld:UserLayer>
</sld:StyledLayerDescriptor>

```

## SLD to Ysld

Convert SLD to Ysld

Short Name	Long Name	Description
-i	--input	The input file or url
-o	--output	The output file
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc style sld2ysld -i target/points.sld -o target/points.ysld
```

*points.sld*

```

<?xml version="1.0" encoding="UTF-8"?><sld:StyledLayerDescriptor xmlns=
"http://www.opengis.net/sld" xmlns:sld="http://www.opengis.net/sld" xmlns:gml=
"http://www.opengis.net/gml" xmlns:ogc="http://www.opengis.net/ogc" version="1.0.0">
  <sld:UserLayer>
    <sld:LayerFeatureConstraints>
      <sld:FeatureTypeConstraint/>
    </sld:LayerFeatureConstraints>
    <sld:UserStyle>
      <sld:Name>Default Styler</sld:Name>
      <sld:FeatureTypeStyle>
        <sld:Rule>
          <sld:PointSymbolizer>
            <sld:Graphic>
              <sld:Mark>
                <sld:WellKnownName>circle</sld:WellKnownName>
                <sld:Fill>
                  <sld:CssParameter name="fill">#ff0000</sld:CssParameter>
                </sld:Fill>
              </sld:Mark>
              <sld:Size>6</sld:Size>
            </sld:Graphic>
          </sld:PointSymbolizer>
        </sld:Rule>
        <sld:VendorOption name="ruleEvaluation">first</sld:VendorOption>
      </sld:FeatureTypeStyle>
    </sld:UserStyle>
  </sld:UserLayer>
</sld:StyledLayerDescriptor>

```

*points.ysld*

```

name: Default Styler
feature-styles:
- name: name
  rules:
    - scale: [min, max]
      symbolizers:
        - point:
            size: 6
            symbols:
              - mark:
                  shape: circle
                  fill-color: '#FF0000'
  x-ruleEvaluation: first

```

# Ysld to SLD

Convert Ysld to SLD.

Short Name	Long Name	Description
-i	--input	The input file or url
-o	--output	The output file
-w	--writer-options	The StyleWriter options
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc style ysld2sld -i target/points.ysld -o target/points.sld
```

*points.ysld*

```
name: Default Styler
feature-styles:
- name: name
  rules:
  - scale: [min, max]
    symbolizers:
    - point:
        size: 6
        symbols:
        - mark:
            shape: circle
            fill-color: '#FF0000'
  x-ruleEvaluation: first
```

*points.sld*

```

<?xml version="1.0" encoding="UTF-8"?><sld:StyledLayerDescriptor xmlns=
"http://www.opengis.net/sld" xmlns:sld="http://www.opengis.net/sld" xmlns:gml=
"http://www.opengis.net/gml" xmlns:ogc="http://www.opengis.net/ogc" version="1.0.0">
  <sld:UserLayer>
    <sld:LayerFeatureConstraints>
      <sld:FeatureTypeConstraint/>
    </sld:LayerFeatureConstraints>
    <sld:UserStyle>
      <sld:Name>Default Styler</sld:Name>
      <sld:FeatureTypeStyle>
        <sld:Name>name</sld:Name>
        <sld:Rule>
          <sld:PointSymbolizer>
            <sld:Graphic>
              <sld:Mark>
                <sld:WellKnownName>circle</sld:WellKnownName>
                <sld:Fill>
                  <sld:CssParameter name="fill">#FF0000</sld:CssParameter>
                </sld:Fill>
              </sld:Mark>
              <sld:Size>6</sld:Size>
            </sld:Graphic>
          </sld:PointSymbolizer>
        </sld:Rule>
        <sld:VendorOption name="ruleEvaluation">first</sld:VendorOption>
      </sld:FeatureTypeStyle>
    </sld:UserStyle>
  </sld:UserLayer>
</sld:StyledLayerDescriptor>

```

## Unique Values from Text

Create a Style from reading values in the unique values format.

Short Name	Long Name	Description
-f	--field	The field
-g	--geometry-type	The geometry type (point, linestring, polygon)
-i	--input	The input file or url
-t	--type	The output type (sld or ysld)
-o	--output	The output file
-w	--writer-options	The StyleWriter options
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc style uniquevaluesfromtext -i target/units.txt -f UNIT -g polygon -t sld -o target/units.sld
```

*units.txt*

```
AHa=#aa0c74
AHat=#b83b1f
AHcf=#964642
AHh=#78092e
AHpe=#78092e
AHt=#5f025a
AHt3=#e76161
Aa1=#fcfedcd
Aa2=#94474b
```

*units.sld*

```
<?xml version="1.0" encoding="UTF-8"?><sld:StyledLayerDescriptor xmlns=
"http://www.opengis.net/sld" xmlns:sld="http://www.opengis.net/sld" xmlns:gml=
"http://www.opengis.net/gml" xmlns:ogc="http://www.opengis.net/ogc" version="1.0.0">
  <sld:UserLayer>
    <sld:LayerFeatureConstraints>
      <sld:FeatureTypeConstraint/>
    </sld:LayerFeatureConstraints>
    <sld:UserStyle>
      <sld:Name>Default Styler</sld:Name>
      <sld:FeatureTypeStyle>
        <sld:Name>name</sld:Name>
        <sld:Rule>
          <ogc:Filter>
            <ogc:PropertyIsEqualTo>
              <ogc:PropertyName>UNIT</ogc:PropertyName>
              <ogc:Literal>AHa</ogc:Literal>
            </ogc:PropertyIsEqualTo>
          </ogc:Filter>
          <sld:PolygonSymbolizer>
            <sld:Fill>
              <sld:CssParameter name="fill">#aa0c74</sld:CssParameter>
            </sld:Fill>
          </sld:PolygonSymbolizer>
          <sld:LineSymbolizer>
            <sld:Stroke>
              <sld:CssParameter name="stroke">#760851</sld:CssParameter>
              <sld:CssParameter name="stroke-width">0.5</sld:CssParameter>
            </sld:Stroke>
          </sld:LineSymbolizer>
        </sld:Rule>
        <sld:Rule>
```

```

<ogc:Filter>
  <ogc:PropertyIsEqualTo>
    <ogc:PropertyName>UNIT</ogc:PropertyName>
    <ogc:Literal>AHat</ogc:Literal>
  </ogc:PropertyIsEqualTo>
</ogc:Filter>
<sld:PolygonSymbolizer>
  <sld:Fill>
    <sld:CssParameter name="fill">#b83b1f</sld:CssParameter>
  </sld:Fill>
</sld:PolygonSymbolizer>
<sld:LineSymbolizer>
  <sld:Stroke>
    <sld:CssParameter name="stroke">#802915</sld:CssParameter>
    <sld:CssParameter name="stroke-width">0.5</sld:CssParameter>
  </sld:Stroke>
</sld:LineSymbolizer>
</sld:Rule>
<sld:Rule>
  <ogc:Filter>
    <ogc:PropertyIsEqualTo>
      <ogc:PropertyName>UNIT</ogc:PropertyName>
      <ogc:Literal>AHcf</ogc:Literal>
    </ogc:PropertyIsEqualTo>
  </ogc:Filter>
  <sld:PolygonSymbolizer>
    <sld:Fill>
      <sld:CssParameter name="fill">#964642</sld:CssParameter>
    </sld:Fill>
  </sld:PolygonSymbolizer>
  <sld:LineSymbolizer>
    <sld:Stroke>
      <sld:CssParameter name="stroke">#69312e</sld:CssParameter>
      <sld:CssParameter name="stroke-width">0.5</sld:CssParameter>
    </sld:Stroke>
  </sld:LineSymbolizer>
</sld:Rule>
<sld:Rule>
  <ogc:Filter>
    <ogc:PropertyIsEqualTo>
      <ogc:PropertyName>UNIT</ogc:PropertyName>
      <ogc:Literal>AHh</ogc:Literal>
    </ogc:PropertyIsEqualTo>
  </ogc:Filter>
  <sld:PolygonSymbolizer>
    <sld:Fill>
      <sld:CssParameter name="fill">#78092e</sld:CssParameter>
    </sld:Fill>
  </sld:PolygonSymbolizer>
  <sld:LineSymbolizer>
    <sld:Stroke>

```

```

        <sld:CssParameter name="stroke">#540620</sld:CssParameter>
        <sld:CssParameter name="stroke-width">0.5</sld:CssParameter>
    </sld:Stroke>
</sld:LineSymbolizer>
</sld:Rule>
<sld:Rule>
<ogc:Filter>
<ogc:PropertyIsEqualTo>
    <ogc:PropertyName>UNIT</ogc:PropertyName>
    <ogc:Literal>AHpe</ogc:Literal>
</ogc:PropertyIsEqualTo>
</ogc:Filter>
<sld:PolygonSymbolizer>
<sld:Fill>
    <sld:CssParameter name="fill">#78092e</sld:CssParameter>
</sld:Fill>
</sld:PolygonSymbolizer>
<sld:LineSymbolizer>
<sld:Stroke>
    <sld:CssParameter name="stroke">#540620</sld:CssParameter>
    <sld:CssParameter name="stroke-width">0.5</sld:CssParameter>
</sld:Stroke>
</sld:LineSymbolizer>
</sld:Rule>
<sld:Rule>
<ogc:Filter>
<ogc:PropertyIsEqualTo>
    <ogc:PropertyName>UNIT</ogc:PropertyName>
    <ogc:Literal>AHT</ogc:Literal>
</ogc:PropertyIsEqualTo>
</ogc:Filter>
<sld:PolygonSymbolizer>
<sld:Fill>
    <sld:CssParameter name="fill">#5f025a</sld:CssParameter>
</sld:Fill>
</sld:PolygonSymbolizer>
<sld:LineSymbolizer>
<sld:Stroke>
    <sld:CssParameter name="stroke">#42013e</sld:CssParameter>
    <sld:CssParameter name="stroke-width">0.5</sld:CssParameter>
</sld:Stroke>
</sld:LineSymbolizer>
</sld:Rule>
<sld:Rule>
<ogc:Filter>
<ogc:PropertyIsEqualTo>
    <ogc:PropertyName>UNIT</ogc:PropertyName>
    <ogc:Literal>AHT3</ogc:Literal>
</ogc:PropertyIsEqualTo>
</ogc:Filter>
<sld:PolygonSymbolizer>

```

```

<sld:Fill>
  <sld.CssParameter name="fill">#e76161</sld.CssParameter>
</sld:Fill>
</sld:PolygonSymbolizer>
<sld:LineSymbolizer>
  <sld:Stroke>
    <sld.CssParameter name="stroke">#a14343</sld.CssParameter>
    <sld.CssParameter name="stroke-width">0.5</sld.CssParameter>
  </sld:Stroke>
</sld:LineSymbolizer>
</sld:Rule>
<sld:Rule>
  <ogc:Filter>
    <ogc:PropertyIsEqualTo>
      <ogc:PropertyName>UNIT</ogc:PropertyName>
      <ogc:Literal>Aa1</ogc:Literal>
    </ogc:PropertyIsEqualTo>
  </ogc:Filter>
<sld:PolygonSymbolizer>
  <sld:Fill>
    <sld.CssParameter name="fill">#fcedcd</sld.CssParameter>
  </sld:Fill>
</sld:PolygonSymbolizer>
<sld:LineSymbolizer>
  <sld:Stroke>
    <sld.CssParameter name="stroke">#b0a58f</sld.CssParameter>
    <sld.CssParameter name="stroke-width">0.5</sld.CssParameter>
  </sld:Stroke>
</sld:LineSymbolizer>
</sld:Rule>
<sld:Rule>
  <ogc:Filter>
    <ogc:PropertyIsEqualTo>
      <ogc:PropertyName>UNIT</ogc:PropertyName>
      <ogc:Literal>Aa2</ogc:Literal>
    </ogc:PropertyIsEqualTo>
  </ogc:Filter>
<sld:PolygonSymbolizer>
  <sld:Fill>
    <sld.CssParameter name="fill">#94474b</sld.CssParameter>
  </sld:Fill>
</sld:PolygonSymbolizer>
<sld:LineSymbolizer>
  <sld:Stroke>
    <sld.CssParameter name="stroke">#673134</sld.CssParameter>
    <sld.CssParameter name="stroke-width">0.5</sld.CssParameter>
  </sld:Stroke>
</sld:LineSymbolizer>
</sld:Rule>
</sld:FeatureTypeStyle>
</sld:UserStyle>

```

```

</sld:UserLayer>
</sld:StyledLayerDescriptor>

```

# Style Repository Commands

Style Repositories are useful for storing styles for layers in a directories or databases.

## Style Repository Types

Name	Type	Arguments
Flat Directory	-t directory	-p file=path/styles
Nested Directory	-t nested-directory	-p file=path/styles
SQLite Database (GeoPackage)	-t sqlite	-p file=path/data.gpkg
H2 Database	-t h2	-p file=path/data.db
PostGIS Database	-t postgres	<ul style="list-style-type: none"> <li>• -p server=localhost</li> <li>• -p database=naturalearth</li> <li>• -p port=5432</li> <li>• -p userName=uzer</li> <li>• -p password=secr3t</li> </ul>

## Save a Style

Save a Style to a Style Repository.

Short Name	Long Name	Description
-t	--type	The type of style repository (directory, nested-directory, h2, sqlite, postgres)
-o	--options	The style repository options
-l	--layer-name	The layer name
-s	--style-name	The style name
-f	--style-file	The style file (sld or css)
	--help	Print the help message
	--web-help	Open help in a browser

```

geoc style repository save -t sqlite -o file=target/layers.gpkg -l locations -s
circles -f target/location_circles.sld

```

# Delete a Style

Delete a Style from a Style Repository.

Short Name	Long Name	Description
-t	--type	The type of style repository (directory, nested-directory, h2, sqlite, postgres)
-o	--options	The style repository options
-l	--layer-name	The layer name
-s	--style-name	The style name
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc style repository delete -t sqlite -o file=target/layers.gpkg -l locations -s circles
```

# Get a Style

Get a Style in a Style Repository.

Short Name	Long Name	Description
-t	--type	The type of style repository (directory, nested-directory, h2, sqlite, postgres)
-o	--options	The style repository options
-l	--layer-name	The layer name
-s	--style-name	The style name
-f	--output-file	The output file
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc style repository get -t sqlite -o file=target/layers.gpkg -l locations -s circles
```

```

<?xml version="1.0" encoding="UTF-8"?><sld:StyledLayerDescriptor xmlns=
"http://www.opengis.net/sld" xmlns:sld="http://www.opengis.net/sld" xmlns:gml=
"http://www.opengis.net/gml" xmlns:ogc="http://www.opengis.net/ogc" version="1.0.0">
  <sld:UserLayer>
    <sld:LayerFeatureConstraints>
      <sld:FeatureTypeConstraint/>
    </sld:LayerFeatureConstraints>
    <sld:UserStyle>
      <sld:Name>Default Styler</sld:Name>
      <sld:FeatureTypeStyle>
        <sld:Name>name</sld:Name>
        <sld:Rule>
          <sld:PointSymbolizer>
            <sld:Graphic>
              <sld:Mark>
                <sld:WellKnownName>circle</sld:WellKnownName>
                <sld:Fill>
                  <sld:CssParameter name="fill">#6495ed</sld:CssParameter>
                </sld:Fill>
                <sld:Stroke>
                  <sld:CssParameter name="stroke">#4668a5</sld:CssParameter>
                  <sld:CssParameter name="stroke-width">0.1</sld:CssParameter>
                </sld:Stroke>
              </sld:Mark>
              <sld:Size>6</sld:Size>
            </sld:Graphic>
          </sld:PointSymbolizer>
        </sld:Rule>
      </sld:FeatureTypeStyle>
    </sld:UserStyle>
  </sld:UserLayer>
</sld:StyledLayerDescriptor>

```

## List Styles

List all Styles in a Style Repository.

Short Name	Long Name	Description
-t	--type	The type of style repository (directory, nested-directory, h2, sqlite, postgres)
-o	--options	The style repository options
-l	--layer-name	The layer name
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc style repository list -t sqlite -o file=target/layers.gpkg -l locations
```

```
locations blue  
locations red
```

## Copy a Style

Copy styles from one repository to another/

Short Name	Long Name	Description
-t	--input-type	The type of style repository (directory, nested-directory, h2, sqlite, postgres)
-p	--input-options	The style repository options
-o	--output-type	The type of style repository (directory, nested-directory, h2, sqlite, postgres)
-r	--output-options	The style repository options
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc style repository copy -t sqlite -p file=target/layers.gpkg -o directory -r  
file=target/layer_styles
```

```
red.sld  
blue.sld
```

## Tile Commands

### Tile Layers

All of the tile commands work with a tile layer.

Supported Tile Layers include:

- MBTiles
- GeoPackage
- TMS
- OSM

- UTFGrid
- Vector Tiles

**Tile layer configuration strings** are similar to layer and map layer configuration strings.

- **pyramid** = Several tile layers can take a pyramid attribute. You can use one of several well known pyramid names:
  - globalmercator
  - mercator
  - globalmercatorbottomleft
  - globalgeodetic
  - geodetic
  - file that contains pyramid metadata in csv, xml, or json format.
- **type** = The type of image layer.
  - mbtiles
  - geopackage
  - tms
  - osm

## **mbtiles**

- type=mbtiles file=states.mbtiles
- type=mbtiles file=states.mbtiles name=states description='The united states'
- states.mbtiles

## **geopackage**

- type=geopackage file=states.gpkg name=states pyramid=globalmercator
- states.gpkg

## **tms**

- type=tms file=/Users/you/tms format=jpeg
- type=tms file=/Users/you/tms format=png name=tms pyramid=geodetic

## **osm**

- type=osm url=http://a.tile.openstreetmap.org
- type=osm urls=http://a.tile.openstreetmap.org,http://b.tile.openstreetmap.org

## **utfgrid**

- type=utfgrid file=/Users/me/tiles/states

## **vectortiles**

- type=vector tiles name=states file=/Users/me/tiles/states format=mvt pyramid=GlobalMercator
- type=vector tiles name=states url=http://vectortiles.org format=pbf pyramid=GlobalGeodeti

## **Delete**

Delete tiles from a tile layer

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-l	--tile-layer	The tile layer
-i	--tile	The Tile Z/X/Y coordinates
-b	--bounds	The bounds
-z	--zoom-level	The tile zoom level
-x	--minx	The min x or col
-y	--miny	The min y or row
-c	--maxx	The max x or col
-u	--maxy	The max y or row
-w	--width	The raster width
-h	--height	The raster height
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc tile delete -l "type=mbtiles file=target/world.mbtiles" -z 2
```

## **Generate**

Generate tiles.

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-l	--tile-layer	The tile layer
-f	--field	A field
-d	--layer-fields	A List of sub fields for a layer
-m	--layer	The map layer
-s	--start-zoom	The start zoom level
-e	--end-zoom	The end zoom level
-b	--bounds	The bounds
-t	--metatile	The metatile width,height

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-i	--missing	Whether to generate only missing tiles
-v	--verbose	The verbose flag
	--help	Print the help message
	--web-help	Open help in a browser

## MBTiles

```
geoc tile generate -l "type=mbtiles file=target/world.mbtiles" -m "layertype=layer
file=src/test/resources/data.gpkg layername=ocean style=src/test/resources/ocean.sld"
-m "layertype=layer file=src/test/resources/data.gpkg layername=countries
style=src/test/resources/countries.sld" -s 0 -e 2 --verbose
```

```
Zoom Level 0
0). Tile(x:0, y:0, z:0)
    Bounds(-2.003639514788131E7, -
2.0037471205137067E7, 2.003639514788131E7, 2.0037471205137067E7, EPSG:3857)
    Generating 1 tile took 0.114321963 seconds
Zoom Level 1
0). Tile(x:0, y:0, z:1)
    Bounds(-2.003639514788131E7, -2.0037471205137067E7, 0.0, -3.725290298461914E-
9, EPSG:3857)
1). Tile(x:1, y:0, z:1)
    Bounds(0.0, -2.0037471205137067E7, 2.003639514788131E7, -3.725290298461914E-
9, EPSG:3857)
2). Tile(x:0, y:1, z:1)
    Bounds(-2.003639514788131E7, -3.725290298461914E-
9, 0.0, 2.0037471205137067E7, EPSG:3857)
3). Tile(x:1, y:1, z:1)
    Bounds(0.0, -3.725290298461914E-
9, 2.003639514788131E7, 2.0037471205137067E7, EPSG:3857)
    Generating 4 tiles took 0.417082552 seconds
Zoom Level 2
0). Tile(x:0, y:0, z:2)
    Bounds(-2.003639514788131E7, -2.0037471205137067E7, -1.0018197573940655E7, -
1.0018735602568535E7, EPSG:3857)
1). Tile(x:1, y:0, z:2)
    Bounds(-1.0018197573940655E7, -2.0037471205137067E7, 0.0, -
1.0018735602568535E7, EPSG:3857)
2). Tile(x:2, y:0, z:2)
    Bounds(0.0, -2.0037471205137067E7, 1.0018197573940655E7, -
1.0018735602568535E7, EPSG:3857)
3). Tile(x:3, y:0, z:2)
    Bounds(1.0018197573940653E7, -2.0037471205137067E7, 2.0036395147881307E7, -
1.0018735602568535E7, EPSG:3857)
4). Tile(x:0, y:1, z:2)
```

```

    Bounds(-2.003639514788131E7,-1.0018735602568535E7,-1.0018197573940655E7,-
3.725290298461914E-9,EPNG:3857)
5). Tile(x:1, y:1, z:2)
    Bounds(-1.0018197573940655E7,-1.0018735602568535E7,0.0,-3.725290298461914E-
9,EPNG:3857)
6). Tile(x:2, y:1, z:2)
    Bounds(0.0,-1.0018735602568535E7,1.0018197573940655E7,-3.725290298461914E-
9,EPNG:3857)
7). Tile(x:3, y:1, z:2)
    Bounds(1.0018197573940653E7,-1.0018735602568535E7,2.0036395147881307E7,-
3.725290298461914E-9,EPNG:3857)
8). Tile(x:0, y:2, z:2)
    Bounds(-2.003639514788131E7,-3.725290298461914E-9,-
1.0018197573940655E7,1.0018735602568528E7,EPNG:3857)
9). Tile(x:1, y:2, z:2)
    Bounds(-1.0018197573940655E7,-3.725290298461914E-
9,0.0,1.0018735602568528E7,EPNG:3857)
10). Tile(x:2, y:2, z:2)
    Bounds(0.0,-3.725290298461914E-
9,1.0018197573940655E7,1.0018735602568528E7,EPNG:3857)
11). Tile(x:3, y:2, z:2)
    Bounds(1.0018197573940653E7,-3.725290298461914E-
9,2.0036395147881307E7,1.0018735602568528E7,EPNG:3857)
12). Tile(x:0, y:3, z:2)
    Bounds(-2.003639514788131E7,1.001873560256853E7,-
1.0018197573940655E7,2.003747120513706E7,EPNG:3857)
13). Tile(x:1, y:3, z:2)
    Bounds(-
1.0018197573940655E7,1.001873560256853E7,0.0,2.003747120513706E7,EPNG:3857)
14). Tile(x:2, y:3, z:2)

Bounds(0.0,1.001873560256853E7,1.0018197573940655E7,2.003747120513706E7,EPNG:3857)
15). Tile(x:3, y:3, z:2)

Bounds(1.0018197573940653E7,1.001873560256853E7,2.0036395147881307E7,2.003747120513706
E7,EPNG:3857)
Generating 16 tiles took 1.361965484 seconds

```



## GeoPackage

```
geoc tile generate -l "type=geopackage file=target/world.gpkg name=world
pyramid=geodetic" -m "layertype=layer file=src/test/resources/data.gpkg
layername=ocean style=src/test/resources/ocean.sld" -m "layertype=layer
file=src/test/resources/data.gpkg layername=countries
style=src/test/resources/countries.sld" -s 0 -e 2 --verbose
```

### Zoom Level 0

```
0). Tile(x:0, y:0, z:0)
    Bounds(-179.99,-89.99,0.0,89.99,EPSG:4326)
1). Tile(x:1, y:0, z:0)
    Bounds(0.0,-89.99,179.99,89.99,EPSG:4326)
```

Generating 2 tiles took 0.134627727 seconds

### Zoom Level 1

```
0). Tile(x:0, y:0, z:1)
    Bounds(-179.99,0.0,-89.995,89.99,EPSG:4326)
1). Tile(x:1, y:0, z:1)
    Bounds(-89.995,0.0,0.0,89.99,EPSG:4326)
2). Tile(x:2, y:0, z:1)
    Bounds(0.0,0.0,89.995,89.99,EPSG:4326)
3). Tile(x:3, y:0, z:1)
```

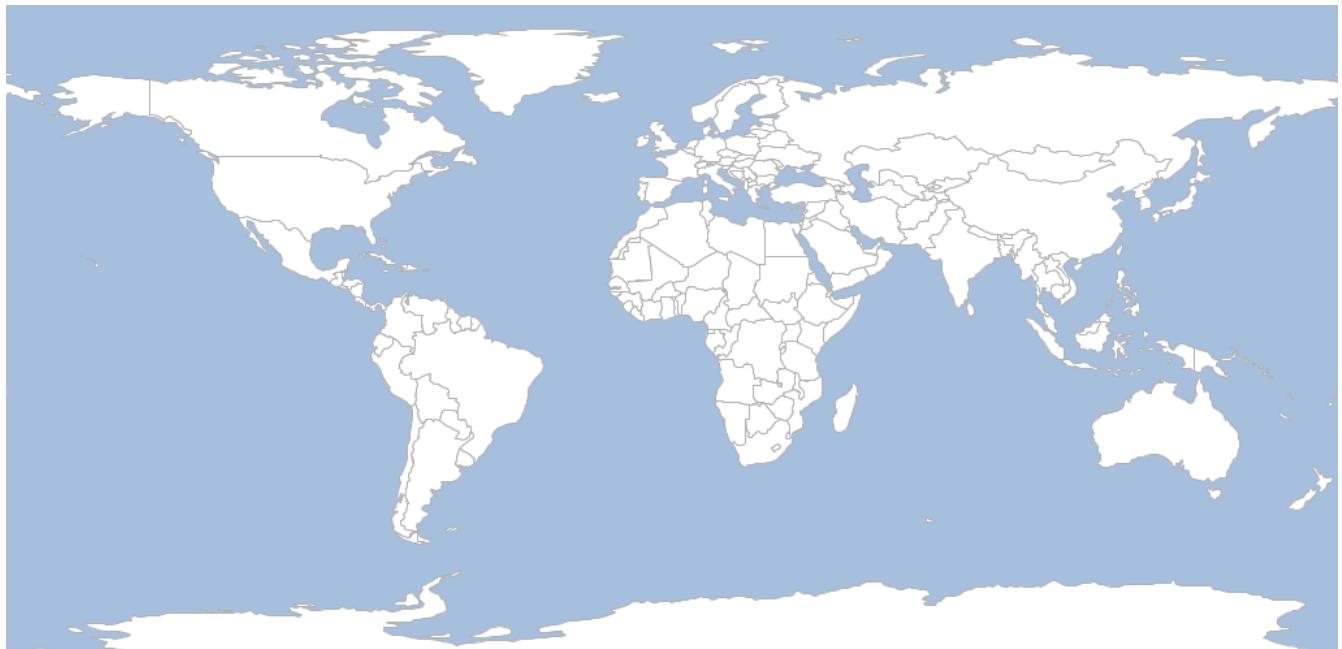
```

    Bounds(89.995,0.0,179.99,89.99,EPSG:4326)
4). Tile(x:0, y:1, z:1)
    Bounds(-179.99,-89.99,-89.995,0.0,EPSG:4326)
5). Tile(x:1, y:1, z:1)
    Bounds(-89.995,-89.99,0.0,0.0,EPSG:4326)
6). Tile(x:2, y:1, z:1)
    Bounds(0.0,-89.99,89.995,0.0,EPSG:4326)
7). Tile(x:3, y:1, z:1)
    Bounds(89.995,-89.99,179.99,0.0,EPSG:4326)
Generating 8 tiles took 0.334340035 seconds
Zoom Level 2
0). Tile(x:0, y:0, z:2)
    Bounds(-179.99,44.995,-134.9925,89.99,EPSG:4326)
1). Tile(x:1, y:0, z:2)
    Bounds(-134.9925,44.995,-89.995,89.99,EPSG:4326)
2). Tile(x:2, y:0, z:2)
    Bounds(-89.995,44.995,-44.9975,89.99,EPSG:4326)
3). Tile(x:3, y:0, z:2)
    Bounds(-44.9975,44.995,0.0,89.99,EPSG:4326)
4). Tile(x:4, y:0, z:2)
    Bounds(0.0,44.995,44.9975,89.99,EPSG:4326)
5). Tile(x:5, y:0, z:2)
    Bounds(44.9975,44.995,89.995,89.99,EPSG:4326)
6). Tile(x:6, y:0, z:2)
    Bounds(89.995,44.995,134.9925,89.99,EPSG:4326)
7). Tile(x:7, y:0, z:2)
    Bounds(134.9925,44.995,179.99,89.99,EPSG:4326)
8). Tile(x:0, y:1, z:2)
    Bounds(-179.99,-7.105427357601002E-15,-134.9925,44.99499999999999,EPSG:4326)
9). Tile(x:1, y:1, z:2)
    Bounds(-134.9925,-7.105427357601002E-15,-89.995,44.99499999999999,EPSG:4326)
10). Tile(x:2, y:1, z:2)
    Bounds(-89.995,-7.105427357601002E-15,-44.9975,44.99499999999999,EPSG:4326)
11). Tile(x:3, y:1, z:2)
    Bounds(-44.9975,-7.105427357601002E-15,0.0,44.99499999999999,EPSG:4326)
12). Tile(x:4, y:1, z:2)
    Bounds(0.0,-7.105427357601002E-15,44.9975,44.99499999999999,EPSG:4326)
13). Tile(x:5, y:1, z:2)
    Bounds(44.9975,-7.105427357601002E-15,89.995,44.99499999999999,EPSG:4326)
14). Tile(x:6, y:1, z:2)
    Bounds(89.995,-7.105427357601002E-15,134.9925,44.99499999999999,EPSG:4326)
15). Tile(x:7, y:1, z:2)
    Bounds(134.9925,-7.105427357601002E-15,179.99,44.99499999999999,EPSG:4326)
16). Tile(x:0, y:2, z:2)
    Bounds(-179.99,-44.995,-134.9925,0.0,EPSG:4326)
17). Tile(x:1, y:2, z:2)
    Bounds(-134.9925,-44.995,-89.995,0.0,EPSG:4326)
18). Tile(x:2, y:2, z:2)
    Bounds(-89.995,-44.995,-44.9975,0.0,EPSG:4326)
19). Tile(x:3, y:2, z:2)
    Bounds(-44.9975,-44.995,0.0,0.0,EPSG:4326)

```

```
20). Tile(x:4, y:2, z:2)
    Bounds(0.0,-44.995,44.9975,0.0,EPSG:4326)
21). Tile(x:5, y:2, z:2)
    Bounds(44.9975,-44.995,89.995,0.0,EPSG:4326)
22). Tile(x:6, y:2, z:2)
    Bounds(89.995,-44.995,134.9925,0.0,EPSG:4326)
23). Tile(x:7, y:2, z:2)
    Bounds(134.9925,-44.995,179.99,0.0,EPSG:4326)
24). Tile(x:0, y:3, z:2)
    Bounds(-179.99,-89.99,-134.9925,-44.995,EPSG:4326)
25). Tile(x:1, y:3, z:2)
    Bounds(-134.9925,-89.99,-89.995,-44.995,EPSG:4326)
26). Tile(x:2, y:3, z:2)
    Bounds(-89.995,-89.99,-44.9975,-44.995,EPSG:4326)
27). Tile(x:3, y:3, z:2)
    Bounds(-44.9975,-89.99,0.0,-44.995,EPSG:4326)
28). Tile(x:4, y:3, z:2)
    Bounds(0.0,-89.99,44.9975,-44.995,EPSG:4326)
29). Tile(x:5, y:3, z:2)
    Bounds(44.9975,-89.99,89.995,-44.995,EPSG:4326)
30). Tile(x:6, y:3, z:2)
    Bounds(89.995,-89.99,134.9925,-44.995,EPSG:4326)
31). Tile(x:7, y:3, z:2)
    Bounds(134.9925,-89.99,179.99,-44.995,EPSG:4326)
```

Generating 32 tiles took 0.939891696 seconds



TMS

```
geoc tile generate -l "type=tms file=target/tiles" -m "layertype=layer  
file=src/test/resources/data.gpkg layername=ocean style=src/test/resources/ocean.sld"  
-m "layertype=layer file=src/test/resources/data.gpkg layername=countries  
style=src/test/resources/countries.sld" -s 0 -e 2 --verbose
```

```
Zoom Level 0  
0). Tile(x:0, y:0, z:0)  
    Bounds(-2.003639514788131E7,-  
2.0037471205137067E7,2.003639514788131E7,2.0037471205137067,EPSG:3857)  
Generating 1 tile took 0.152895202 seconds  
Zoom Level 1  
0). Tile(x:0, y:0, z:1)  
    Bounds(-2.003639514788131E7,-2.0037471205137067E7,0.0,-3.725290298461914E-  
9,EPSG:3857)  
1). Tile(x:1, y:0, z:1)  
    Bounds(0.0,-2.0037471205137067E7,2.003639514788131E7,-3.725290298461914E-  
9,EPSG:3857)  
2). Tile(x:0, y:1, z:1)  
    Bounds(-2.003639514788131E7,-3.725290298461914E-  
9,0.0,2.0037471205137067,EPSG:3857)  
3). Tile(x:1, y:1, z:1)  
    Bounds(0.0,-3.725290298461914E-  
9,2.003639514788131E7,2.0037471205137067,EPSG:3857)  
Generating 4 tiles took 0.346364115 seconds  
Zoom Level 2  
0). Tile(x:0, y:0, z:2)  
    Bounds(-2.003639514788131E7,-2.0037471205137067E7,-1.0018197573940655E7,-  
1.0018735602568535E7,EPSG:3857)  
1). Tile(x:1, y:0, z:2)  
    Bounds(-1.0018197573940655E7,-2.0037471205137067E7,0.0,-  
1.0018735602568535E7,EPSG:3857)  
2). Tile(x:2, y:0, z:2)  
    Bounds(0.0,-2.0037471205137067E7,1.0018197573940655E7,-  
1.0018735602568535E7,EPSG:3857)  
3). Tile(x:3, y:0, z:2)  
    Bounds(1.0018197573940653E7,-2.0037471205137067E7,2.0036395147881307E7,-  
1.0018735602568535E7,EPSG:3857)  
4). Tile(x:0, y:1, z:2)  
    Bounds(-2.003639514788131E7,-1.0018735602568535E7,-1.0018197573940655E7,-  
3.725290298461914E-9,EPSG:3857)  
5). Tile(x:1, y:1, z:2)  
    Bounds(-1.0018197573940655E7,-1.0018735602568535E7,0.0,-3.725290298461914E-  
9,EPSG:3857)  
6). Tile(x:2, y:1, z:2)  
    Bounds(0.0,-1.0018735602568535E7,1.0018197573940655E7,-3.725290298461914E-  
9,EPSG:3857)  
7). Tile(x:3, y:1, z:2)  
    Bounds(1.0018197573940653E7,-1.0018735602568535E7,2.0036395147881307E7,-  
3.725290298461914E-9,EPSG:3857)
```

```
8). Tile(x:0, y:2, z:2)
    Bounds(-2.003639514788131E7,-3.725290298461914E-9,-
1.0018197573940655E7,1.0018735602568528E7,EPNG:3857)
9). Tile(x:1, y:2, z:2)
    Bounds(-1.0018197573940655E7,-3.725290298461914E-
9,0.0,1.0018735602568528E7,EPNG:3857)
10). Tile(x:2, y:2, z:2)
    Bounds(0.0,-3.725290298461914E-
9,1.0018197573940655E7,1.0018735602568528E7,EPNG:3857)
11). Tile(x:3, y:2, z:2)
    Bounds(1.0018197573940653E7,-3.725290298461914E-
9,2.0036395147881307E7,1.0018735602568528E7,EPNG:3857)
12). Tile(x:0, y:3, z:2)
    Bounds(-2.003639514788131E7,1.001873560256853E7,-
1.0018197573940655E7,2.003747120513706E7,EPNG:3857)
13). Tile(x:1, y:3, z:2)
    Bounds(-
1.0018197573940655E7,1.001873560256853E7,0.0,2.003747120513706E7,EPNG:3857)
14). Tile(x:2, y:3, z:2)

Bounds(0.0,1.001873560256853E7,1.0018197573940655E7,2.003747120513706E7,EPNG:3857)
15). Tile(x:3, y:3, z:2)

Bounds(1.0018197573940653E7,1.001873560256853E7,2.0036395147881307E7,2.003747120513706
E7,EPNG:3857)
```

Generating 16 tiles took 1.200398759 seconds



## Vector Tiles (PBF)

```
geoc tile generate -l "type=vectortiles format=pbf file=target/vectortiles" -m  
"layertype=layer file=src/test/resources/data.gpkg layername=countries" -d  
countries=NAME,TYPE,LEVEL -s 0 -e 2 --verbose
```

### Zoom Level 0

```
0). Tile(x:0, y:0, z:0)  
    Bounds(-2.003639514788131E7, -  
2.0037471205137067E7, 2.003639514788131E7, 2.0037471205137067E7, EPSG:3857)
```

```
Generating 1 tile took 1.11622925 seconds
```

### Zoom Level 1

```
0). Tile(x:0, y:0, z:1)  
    Bounds(-2.003639514788131E7, -2.0037471205137067E7, 0.0, -3.725290298461914E-  
9, EPSG:3857)
```

```
1). Tile(x:1, y:0, z:1)  
    Bounds(0.0, -2.0037471205137067E7, 2.003639514788131E7, -3.725290298461914E-  
9, EPSG:3857)
```

```
2). Tile(x:0, y:1, z:1)  
    Bounds(-2.003639514788131E7, -3.725290298461914E-  
9, 0.0, 2.0037471205137067E7, EPSG:3857)
```

```
3). Tile(x:1, y:1, z:1)
```

```

    Bounds(0.0,-3.725290298461914E-
9,2.003639514788131E7,2.003747120513706E7,EPG:3857)
    Generating 4 tiles took 1.261695073 seconds
Zoom Level 2
    0). Tile(x:0, y:0, z:2)
        Bounds(-2.003639514788131E7,-2.003747120513706E7,-1.0018197573940655E7,-
1.0018735602568535E7,EPG:3857)
    1). Tile(x:1, y:0, z:2)
        Bounds(-1.0018197573940655E7,-2.003747120513706E7,0.0,-
1.0018735602568535E7,EPG:3857)
    2). Tile(x:2, y:0, z:2)
        Bounds(0.0,-2.003747120513706E7,1.0018197573940655E7,-
1.0018735602568535E7,EPG:3857)
    3). Tile(x:3, y:0, z:2)
        Bounds(1.0018197573940653E7,-2.003747120513706E7,2.0036395147881307E7,-
1.0018735602568535E7,EPG:3857)
    4). Tile(x:0, y:1, z:2)
        Bounds(-2.003639514788131E7,-1.0018735602568535E7,-1.0018197573940655E7,-
3.725290298461914E-9,EPG:3857)
    5). Tile(x:1, y:1, z:2)
        Bounds(-1.0018197573940655E7,-1.0018735602568535E7,0.0,-3.725290298461914E-
9,EPG:3857)
    6). Tile(x:2, y:1, z:2)
        Bounds(0.0,-1.0018735602568535E7,1.0018197573940655E7,-3.725290298461914E-
9,EPG:3857)
    7). Tile(x:3, y:1, z:2)
        Bounds(1.0018197573940653E7,-1.0018735602568535E7,2.0036395147881307E7,-
3.725290298461914E-9,EPG:3857)
    8). Tile(x:0, y:2, z:2)
        Bounds(-2.003639514788131E7,-3.725290298461914E-9,-
1.0018197573940655E7,1.0018735602568528E7,EPG:3857)
    9). Tile(x:1, y:2, z:2)
        Bounds(-1.0018197573940655E7,-3.725290298461914E-
9,0.0,1.0018735602568528E7,EPG:3857)
    10). Tile(x:2, y:2, z:2)
        Bounds(0.0,-3.725290298461914E-
9,1.0018197573940655E7,1.0018735602568528E7,EPG:3857)
    11). Tile(x:3, y:2, z:2)
        Bounds(1.0018197573940653E7,-3.725290298461914E-
9,2.0036395147881307E7,1.0018735602568528E7,EPG:3857)
    12). Tile(x:0, y:3, z:2)
        Bounds(-2.003639514788131E7,1.001873560256853E7,-
1.0018197573940655E7,2.003747120513706E7,EPG:3857)
    13). Tile(x:1, y:3, z:2)
        Bounds(-
1.0018197573940655E7,1.001873560256853E7,0.0,2.003747120513706E7,EPG:3857)
    14). Tile(x:2, y:3, z:2)

Bounds(0.0,1.001873560256853E7,1.0018197573940655E7,2.003747120513706E7,EPG:3857)
    15). Tile(x:3, y:3, z:2)

```

```
Bounds(1.0018197573940653E7,1.001873560256853E7,2.0036395147881307E7,2.003747120513706  
E7, EPSG:3857)
```

```
Generating 16 tiles took 1.140384333 seconds
```

## Tile Bounds

Get the Bounds of a tile.

Short Name	Long Name	Description
-p	--pyramid	The tile pyramid
-z	--zoom-level	The tile zoom level
-x	--column	The tile x or column
-y	--row	The tile y or row
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc tile get bounds -p mercator -z 3 -x 2 -y 1
```

```
POLYGON ((-10018197.573940655 -15028103.403852802, -10018197.573940655  
-10018735.602568537, -5009098.786970328 -10018735.602568537, -5009098.786970328  
-15028103.403852802, -10018197.573940655 -15028103.403852802))
```

## List Tiles

Get a list of tiles for a given geometry

Short Name	Long Name	Description
-p	--pyramid	The tile pyramid
-b	--bounds	The bounds
-z	--zoom-level	The tile zoom level
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc tile list tiles -p mercator -z 10 -b  
2315277.538707974,4356146.199006655,2534193.2172859586,4470343.227121928
```

```
10/571/623
10/572/623
10/573/623
10/574/623
10/575/623
10/576/623
10/571/624
10/572/624
10/573/624
10/574/624
10/575/624
10/576/624
10/571/625
10/572/625
10/573/625
10/574/625
10/575/625
10/576/625
10/571/626
10/572/626
10/573/626
10/574/626
10/575/626
10/576/626
```

## Pyramid

Get a Pyramid from a TileLayer.

Short Name	Long Name	Description
-l	--tile-layer	The tile layer
-o	--output-type	The output type (text, xml, json)
	--help	Print the help message
	--web-help	Open help in a browser

Text

```
geoc tile pyramid -l "type=geopackage file=src/test/resources/data.gpkg name=world" -o
text
```

```
EPSG:4326
-179.99,-89.99,179.99,89.99,EPGS:4326
TOP_LEFT
256,256
0,2,1,0.703125,0.703125
1,4,2,0.3515625,0.3515625
2,8,4,0.17578125,0.17578125
3,16,8,0.087890625,0.087890625
4,32,16,0.0439453125,0.0439453125
5,64,32,0.02197265625,0.02197265625
6,128,64,0.010986328125,0.010986328125
7,256,128,0.0054931640625,0.0054931640625
8,512,256,0.00274658203125,0.00274658203125
9,1024,512,0.001373291015625,0.001373291015625
10,2048,1024,6.866455078125E-4,6.866455078125E-4
11,4096,2048,3.4332275390625E-4,3.4332275390625E-4
12,8192,4096,1.71661376953125E-4,1.71661376953125E-4
13,16384,8192,8.58306884765625E-5,8.58306884765625E-5
14,32768,16384,4.291534423828125E-5,4.291534423828125E-5
15,65536,32768,2.1457672119140625E-5,2.1457672119140625E-5
16,131072,65536,1.0728836059570312E-5,1.0728836059570312E-5
17,262144,131072,5.364418029785156E-6,5.364418029785156E-6
18,524288,262144,2.682209014892578E-6,2.682209014892578E-6
19,1048576,524288,1.341104507446289E-6,1.341104507446289E-6
```

## JSON

```
geoc tile pyramid -l "type=geopackage file=src/test/resources/data.gpkg name=world" -o json
```

```
{
  "proj": "EPSG:4326",
  "bounds": {
    "minX": -179.99,
    "minY": -89.99,
    "maxX": 179.99,
    "maxY": 89.99
  },
  "origin": "TOP_LEFT",
  "tileSize": {
    "width": 256,
    "height": 256
  },
  "grids": [
    {
      "z": 0,
      "width": 2,
      "height": 1,
```

```
        "xres": 0.703125,
        "yres": 0.703125
    },
    {
        "z": 1,
        "width": 4,
        "height": 2,
        "xres": 0.3515625,
        "yres": 0.3515625
    },
    {
        "z": 2,
        "width": 8,
        "height": 4,
        "xres": 0.17578125,
        "yres": 0.17578125
    },
    {
        "z": 3,
        "width": 16,
        "height": 8,
        "xres": 0.087890625,
        "yres": 0.087890625
    },
    {
        "z": 4,
        "width": 32,
        "height": 16,
        "xres": 0.0439453125,
        "yres": 0.0439453125
    },
    {
        "z": 5,
        "width": 64,
        "height": 32,
        "xres": 0.02197265625,
        "yres": 0.02197265625
    },
    {
        "z": 6,
        "width": 128,
        "height": 64,
        "xres": 0.010986328125,
        "yres": 0.010986328125
    },
    {
        "z": 7,
        "width": 256,
        "height": 128,
        "xres": 0.0054931640625,
        "yres": 0.0054931640625
    }
}
```

```
},
{
  "z": 8,
  "width": 512,
  "height": 256,
  "xres": 0.00274658203125,
  "yres": 0.00274658203125
},
{
  "z": 9,
  "width": 1024,
  "height": 512,
  "xres": 0.001373291015625,
  "yres": 0.001373291015625
},
{
  "z": 10,
  "width": 2048,
  "height": 1024,
  "xres": 6.866455078125E-4,
  "yres": 6.866455078125E-4
},
{
  "z": 11,
  "width": 4096,
  "height": 2048,
  "xres": 3.4332275390625E-4,
  "yres": 3.4332275390625E-4
},
{
  "z": 12,
  "width": 8192,
  "height": 4096,
  "xres": 1.71661376953125E-4,
  "yres": 1.71661376953125E-4
},
{
  "z": 13,
  "width": 16384,
  "height": 8192,
  "xres": 8.58306884765625E-5,
  "yres": 8.58306884765625E-5
},
{
  "z": 14,
  "width": 32768,
  "height": 16384,
  "xres": 4.291534423828125E-5,
  "yres": 4.291534423828125E-5
},
```

```

        "z": 15,
        "width": 65536,
        "height": 32768,
        "xres": 2.1457672119140625E-5,
        "yres": 2.1457672119140625E-5
    },
    {
        "z": 16,
        "width": 131072,
        "height": 65536,
        "xres": 1.0728836059570312E-5,
        "yres": 1.0728836059570312E-5
    },
    {
        "z": 17,
        "width": 262144,
        "height": 131072,
        "xres": 5.364418029785156E-6,
        "yres": 5.364418029785156E-6
    },
    {
        "z": 18,
        "width": 524288,
        "height": 262144,
        "xres": 2.682209014892578E-6,
        "yres": 2.682209014892578E-6
    },
    {
        "z": 19,
        "width": 1048576,
        "height": 524288,
        "xres": 1.341104507446289E-6,
        "yres": 1.341104507446289E-6
    }
]
}

```

XML

```
geoc tile pyramid -l "type=geopackage file=src/test/resources/data.gpkg name=world" -o
xml
```

```

<pyramid>
    <proj>EPSG:4326</proj>
    <bounds>
        <minX>-179.99</minX>
        <minY>-89.99</minY>
        <maxX>179.99</maxX>
        <maxY>89.99</maxY>

```

```
</bounds>
<origin>TOP_LEFT</origin>
<tileSize>
    <width>256</width>
    <height>256</height>
</tileSize>
<grids>
    <grid>
        <z>0</z>
        <width>2</width>
        <height>1</height>
        <xres>0.703125</xres>
        <yres>0.703125</yres>
    </grid>
    <grid>
        <z>1</z>
        <width>4</width>
        <height>2</height>
        <xres>0.3515625</xres>
        <yres>0.3515625</yres>
    </grid>
    <grid>
        <z>2</z>
        <width>8</width>
        <height>4</height>
        <xres>0.17578125</xres>
        <yres>0.17578125</yres>
    </grid>
    <grid>
        <z>3</z>
        <width>16</width>
        <height>8</height>
        <xres>0.087890625</xres>
        <yres>0.087890625</yres>
    </grid>
    <grid>
        <z>4</z>
        <width>32</width>
        <height>16</height>
        <xres>0.0439453125</xres>
        <yres>0.0439453125</yres>
    </grid>
    <grid>
        <z>5</z>
        <width>64</width>
        <height>32</height>
        <xres>0.02197265625</xres>
        <yres>0.02197265625</yres>
    </grid>
    <grid>
        <z>6</z>
```

```
<width>128</width>
<height>64</height>
<xres>0.010986328125</xres>
<yres>0.010986328125</yres>
</grid>
<grid>
<z>7</z>
<width>256</width>
<height>128</height>
<xres>0.0054931640625</xres>
<yres>0.0054931640625</yres>
</grid>
<grid>
<z>8</z>
<width>512</width>
<height>256</height>
<xres>0.00274658203125</xres>
<yres>0.00274658203125</yres>
</grid>
<grid>
<z>9</z>
<width>1024</width>
<height>512</height>
<xres>0.001373291015625</xres>
<yres>0.001373291015625</yres>
</grid>
<grid>
<z>10</z>
<width>2048</width>
<height>1024</height>
<xres>6.866455078125E-4</xres>
<yres>6.866455078125E-4</yres>
</grid>
<grid>
<z>11</z>
<width>4096</width>
<height>2048</height>
<xres>3.4332275390625E-4</xres>
<yres>3.4332275390625E-4</yres>
</grid>
<grid>
<z>12</z>
<width>8192</width>
<height>4096</height>
<xres>1.71661376953125E-4</xres>
<yres>1.71661376953125E-4</yres>
</grid>
<grid>
<z>13</z>
<width>16384</width>
<height>8192</height>
```

```
<xres>8.58306884765625E-5</xres>
<yres>8.58306884765625E-5</yres>
</grid>
<grid>
<z>14</z>
<width>32768</width>
<height>16384</height>
<xres>4.291534423828125E-5</xres>
<yres>4.291534423828125E-5</yres>
</grid>
<grid>
<z>15</z>
<width>65536</width>
<height>32768</height>
<xres>2.1457672119140625E-5</xres>
<yres>2.1457672119140625E-5</yres>
</grid>
<grid>
<z>16</z>
<width>131072</width>
<height>65536</height>
<xres>1.0728836059570312E-5</xres>
<yres>1.0728836059570312E-5</yres>
</grid>
<grid>
<z>17</z>
<width>262144</width>
<height>131072</height>
<xres>5.364418029785156E-6</xres>
<yres>5.364418029785156E-6</yres>
</grid>
<grid>
<z>18</z>
<width>524288</width>
<height>262144</height>
<xres>2.682209014892578E-6</xres>
<yres>2.682209014892578E-6</yres>
</grid>
<grid>
<z>19</z>
<width>1048576</width>
<height>524288</height>
<xres>1.341104507446289E-6</xres>
<yres>1.341104507446289E-6</yres>
</grid>
</grids>
</pyramid>
```

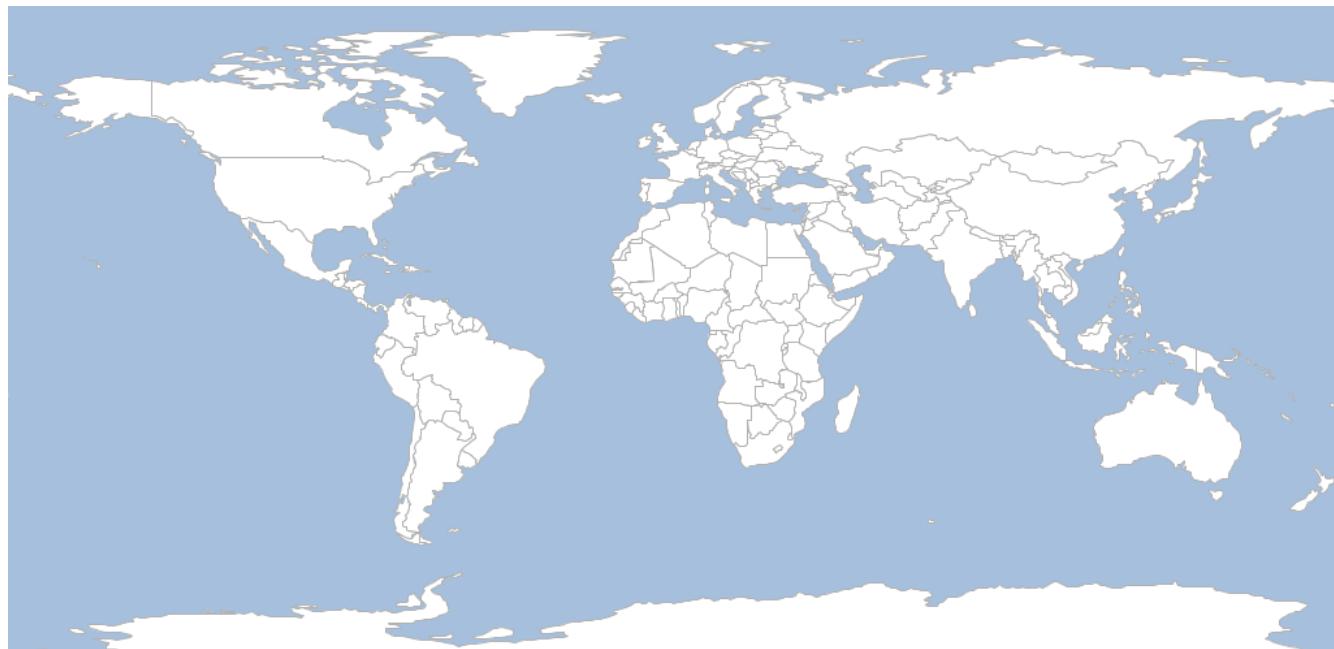
# Stitch Raster

Stitch image tiles together to create a Raster.

Short Name	Long Name	Description
-l	--tile-layer	The tile layer
-b	--bounds	The bounds
-w	--width	The raster width
-h	--height	The raster height
-z	--zoom-level	The tile zoom level
-x	--minx	The min x or col
-y	--miny	The min y or row
-c	--maxx	The max x or col
-u	--maxy	The max y or row
-o	--output-raster	The output raster
-f	--output-raster-format	The output raster format
	--help	Print the help message
	--web-help	Open help in a browser

Zoom Level

```
geoc tile stitch raster -l "type=geopackage file=src/test/resources/data.gpkg  
name=world" -o target/world_1.png -z 1
```



# Stitch Vector

Stitch vector tiles together to create a one or more Layers.

Short Name	Long Name	Description
-l	--tile-layer	The tile layer
-b	--bounds	The bounds
-w	--width	The raster width
-h	--height	The raster height
-z	--zoom-level	The tile zoom level
-x	--minx	The min x or col
-y	--miny	The min y or row
-c	--maxx	The max x or col
-u	--maxy	The max y or row
-o	--output-workspace	The output workspace
	--help	Print the help message
	--web-help	Open help in a browser

Zoom Level

```
geoc tile stitch vector -l "type=vectortiles format=pbf file=target/vectortiles" -o  
"type=geopackage file=target/world.gpkg name=world" -z 1
```

*Layers*

countries

*Schema*

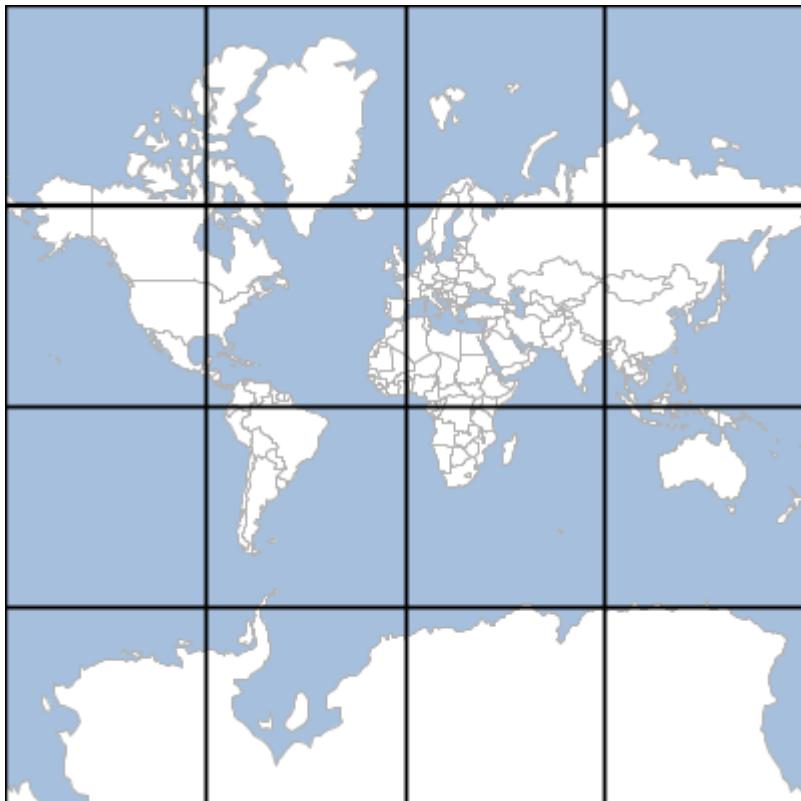
Name	Type
geometry	Polygon
TYPE	String
LEVEL	Long
NAME	String

# Vector Grid

Create a vector grid of a tile layers cells.

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-l	--tile-layer	The tile layer
-b	--bounds	The bounds
-z	--zoom-level	The tile zoom level
-x	--minx	The min x or col
-y	--miny	The min y or row
-c	--maxx	The max x or col
-u	--maxy	The max y or row
-w	--width	The raster width
-h	--height	The raster height
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc tile vector grid -l "type=geopackage file=src/main/resources/data.gpkg
name=world" -o target/world_grid_1.shp -z 2
```



## Vector Commands

# Add

Add a Feature to a Layer.

Short Name	Long Name	Description
-v	--value	A value 'field=value'
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector add -i target/locations.shp -v id=1 -v name=Seattle -v "the_geom=POINT (-122.334758 47.578364)"
```

the_geom	name	id
POINT (-122.334758 47.578364)	Seattle	1



# Add Fields

Add one or more Fields to a Layer

Short Name	Long Name	Description
-f	--field	A Field in the format 'name=type'
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector addfields -i target/locations.shp -o target/locations_idname.shp -f id=int
-f name=string
```

### Schema

<b>Name</b>	<b>Type</b>
the_geom	Point
name	String
id	Integer

## Add Area Field

Add an area Field.

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-f	--area-fieldname	The name for the area Field
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector addareafield -i src/test/resources/states.shp -o target/states_area.shp
```

### Schema

<b>Name</b>	<b>Type</b>
the_geom	MultiPolygon
STATE_NAME	String
SUB_REGION	String
STATE_ABBR	String
AREA	Double

## Values

STATE_NAME	SUB_REGION	STATE_ABBR	AREA
Illinois	E N Cen	IL	15.396467068063995
District of Columbia	S Atl	DC	0.017769720828999
Delaware	S Atl	DE	0.553317799081003
West Virginia	S Atl	WV	6.493194953114009
Maryland	S Atl	MD	2.625116892757991

## Add Length Field

Add an Length Field.

Short Name	Long Name	Description
-f	--length-fieldname	The name for the length Field
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector addlengthfield -i src/test/resources/data.gpkg -l rivers -o target/rivers_length.shp -f length
```

## Schema

Name	Type
the_geom	MultiLineString
name	String
label	String
length	Double

## Values

name	label	length
Brahmaputra	Brahmaputra	25.21241966609205
Mekong	Mekong	34.97738061177052
Ob	Ob	48.39570358268261

<b>name</b>	<b>label</b>	<b>length</b>
Peace	Peace	44.84258394589285
Donau	Donau	26.67902946932429

## Add ID Field

Add an ID Field.

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-f	--id-fieldname	The name for the ID Field
-s	--start	The number of start at
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector addidfield -i src/test/resources/data.gpkg -l places -o
target/places_id.shp
```

*Schema*

<b>Name</b>	<b>Type</b>
the_geom	Point
NAME	String
ID	Integer

*Values*

<b>NAME</b>	<b>ID</b>
Vatican City	1
San Marino	2
Vaduz	3
Lobamba	4
Luxembourg	5

# Add XY Fields

Add XY Fields.

Short Name	Long Name	Description
-x	--x-fieldname	The name for the X Field
-y	--y-fieldname	The name for the Y Field
-a	--algorithm	The XY generation algorithm (centroid or interiorpoint)
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector addxyfields -i src/test/resources/data.gpkg -l places -o
target/places_xy.shp -x x_coord -y y_coord -a centroid
```

## Schema

Name	Type
the_geom	Point
NAME	String
x_coord	Double
y_coord	Double

## Values

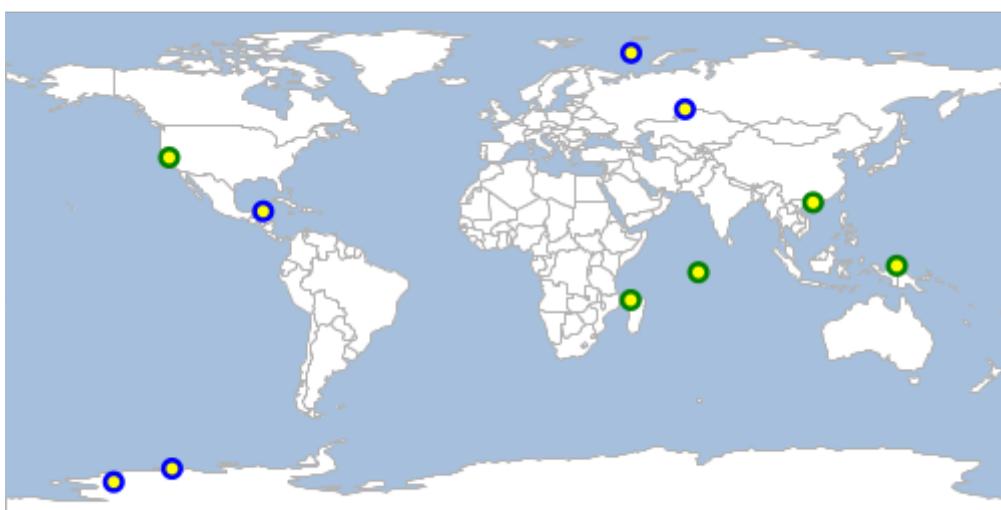
NAME	x_coord	y_coord
Vatican City	12.4533865	41.9032822
San Marino	12.4417702	43.9360958
Vaduz	9.5166695	47.1337238
Lobamba	31.1999971	-26.4666675
Luxembourg	6.1300028	49.6116604

# Append

Add a Features from one layer to another Layer.

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-k	--other-workspace	The other workspace
-y	--other-layer	The other layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector append -i target/points1.shp -k target/points2.shp
```



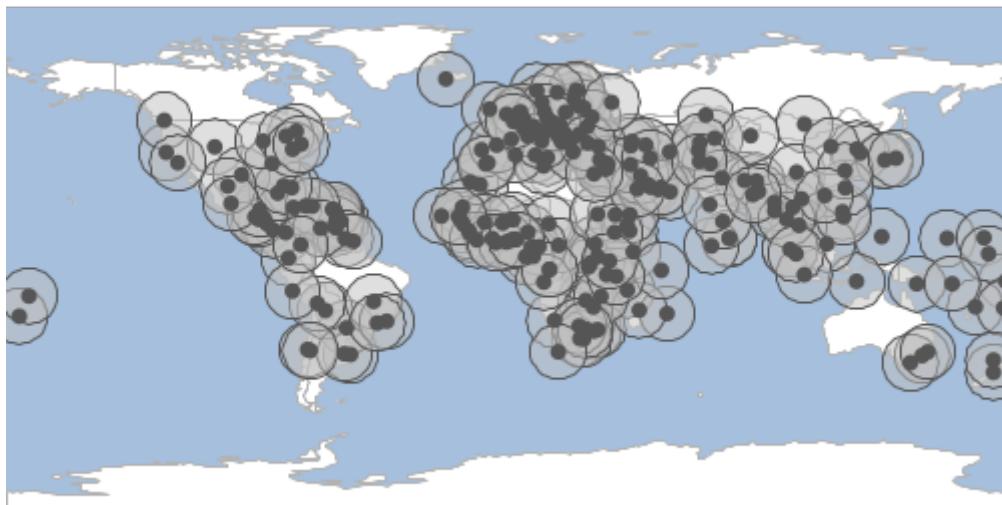
## Buffer

Buffer all of the features in a Layer.

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-d	--distance	The buffer distance
-q	--quadrantsegments	The number of quadrant segments
-s	--singlesided	Whether buffer should be single sided or not
-c	--capstyle	The cap style
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector buffer -i src/test/resources/data.gpkg -l places -o
target/places_buffer.shp -d 10
```

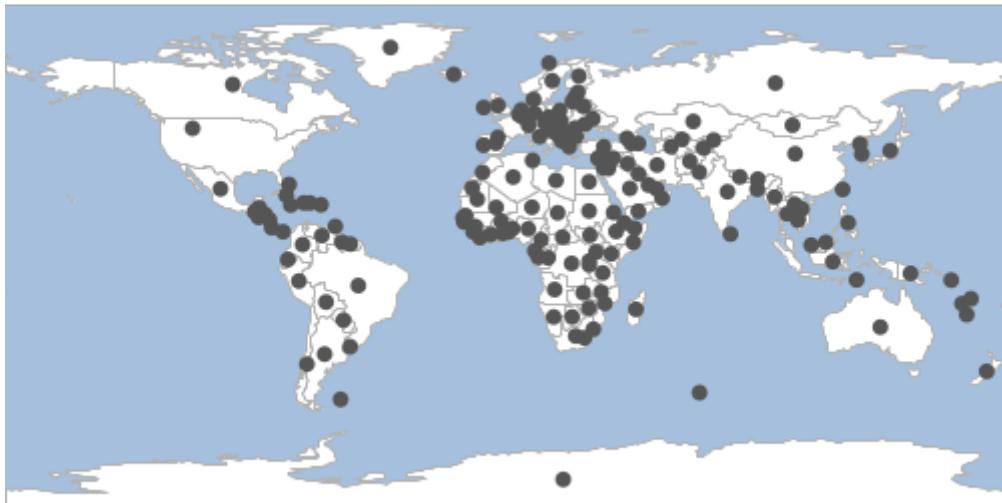


## Centroid

Calculate the centroid of all the features in a Layer.

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector centroid -i src/test/resources/data.gpkg -l countries -o
target/countries_centroids.shp
```

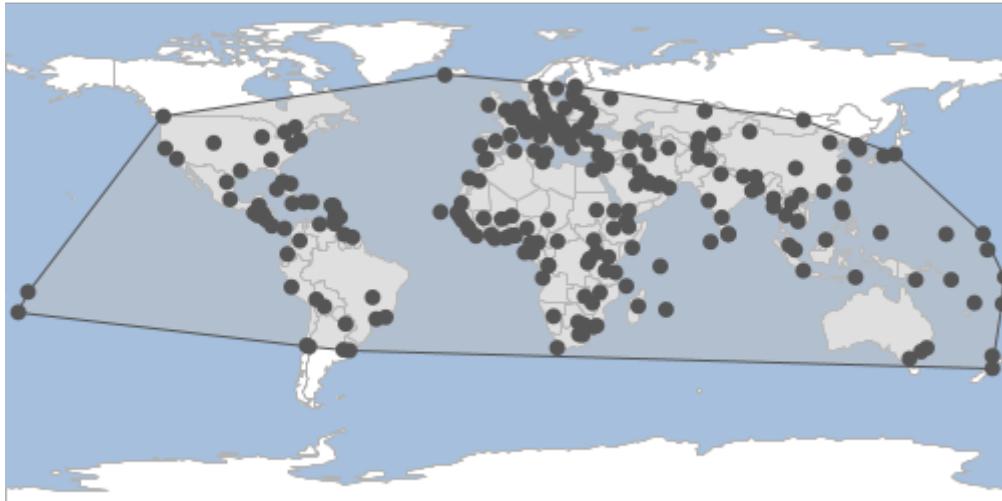


## Convexhull

Calculate the convexhull of all the features in a Layer.

Short Name	Long Name	Description
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector convexhull -i src/test/resources/data.gpkg -l places -o  
target/convexhull.shp
```

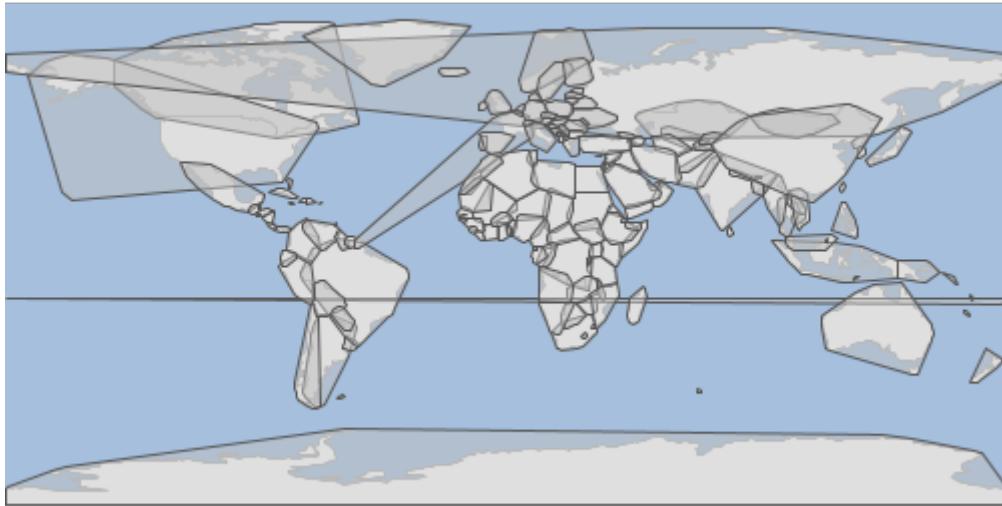


## Convexhulls

Calculate the convexhulls for each feature in a Layer.

Short Name	Long Name	Description
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector convexhulls -i src/test/resources/data.gpkg -l countries -o target/convexhulls.shp
```

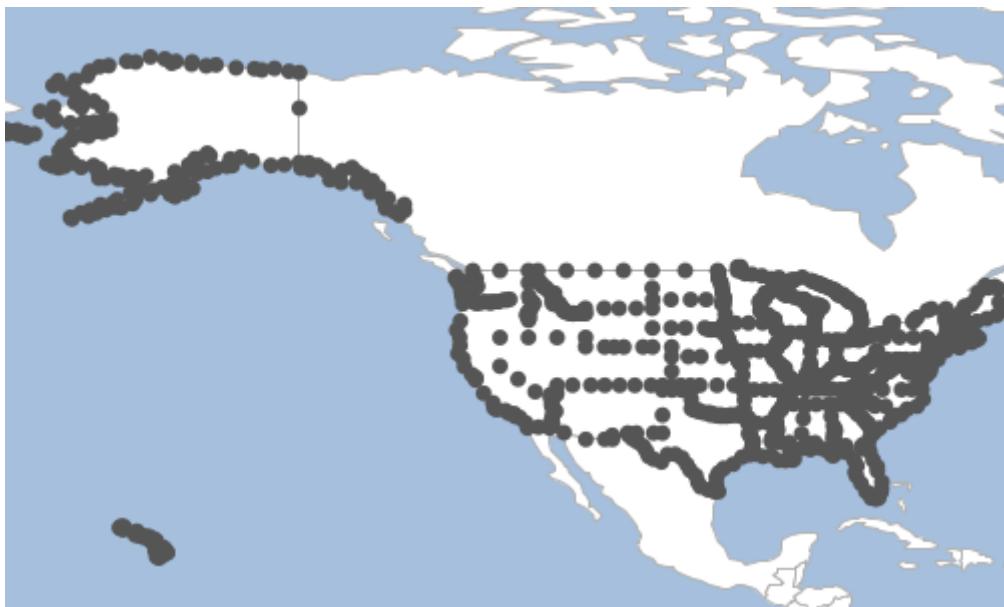


## Coordinates

Extract coordinates from the input Layer and save them to the output Layer.

Short Name	Long Name	Description
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector coordinates -i src/test/resources/data.gpkg -l states -o  
target/coordinates.shp
```



## Count

Count the Features in a Layer.

Short Name	Long Name	Description
-t	--type	Count features, geometries, or points
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector count -i src/test/resources/data.gpkg -l places
```

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## Create

Create a new Layer.

Short Name	Long Name	Description
-f	--field	A Field in the format 'name=type'
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
	--help	Print the help message

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
	--web-help	Open help in a browser

```
geoc vector create -o target/locations.shp -f "the_geom=POINT EPSG:4326" -f id=integer
-f name=string
```

<b>Name</b>	<b>Type</b>
the_geom	Point
name	String
id	Integer

## Default Style

Get the default style for a Layer.

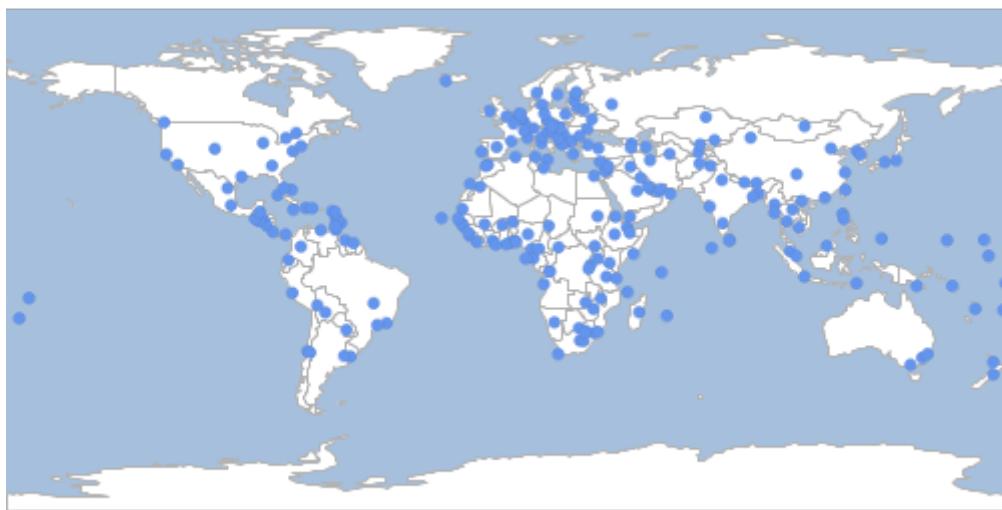
<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-g	--geometry-type	The geometry type
-c	--color	The base color
-o	--opacity	The opacity (defaults to 1.0)
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector defaultstyle -i src/test/resources/data.gpkg -l places -c cornflowerblue
```

```

<?xml version="1.0" encoding="UTF-8"?><sld:StyledLayerDescriptor xmlns=
"http://www.opengis.net/sld" xmlns:sld="http://www.opengis.net/sld" xmlns:gml=
"http://www.opengis.net/gml" xmlns:ogc="http://www.opengis.net/ogc" version="1.0.0">
  <sld:UserLayer>
    <sld:LayerFeatureConstraints>
      <sld:FeatureTypeConstraint/>
    </sld:LayerFeatureConstraints>
    <sld:UserStyle>
      <sld:Name>Default Styler</sld:Name>
      <sld:FeatureTypeStyle>
        <sld:Name>name</sld:Name>
        <sld:Rule>
          <sld:PointSymbolizer>
            <sld:Graphic>
              <sld:Mark>
                <sld:WellKnownName>circle</sld:WellKnownName>
                <sld:Fill>
                  <sld:CssParameter name="fill">#6495ed</sld:CssParameter>
                </sld:Fill>
                <sld:Stroke>
                  <sld:CssParameter name="stroke">#4668a5</sld:CssParameter>
                  <sld:CssParameter name="stroke-width">0.1</sld:CssParameter>
                </sld:Stroke>
              </sld:Mark>
              <sld:Size>6</sld:Size>
            </sld:Graphic>
          </sld:PointSymbolizer>
        </sld:Rule>
      </sld:FeatureTypeStyle>
    </sld:UserStyle>
  </sld:UserLayer>
</sld:StyledLayerDescriptor>

```

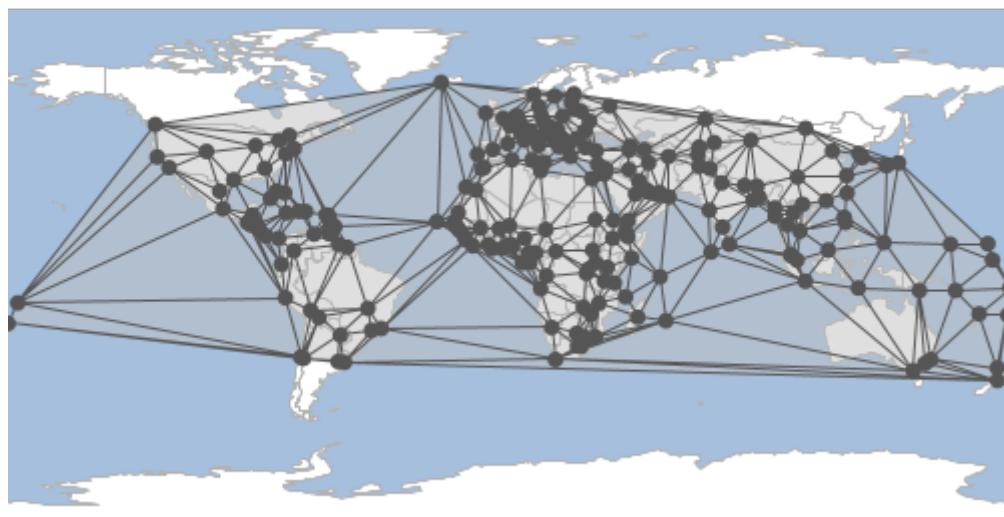


# Delaunay

Calculate a delaunay diagram of all the features in a Layer.

Short Name	Long Name	Description
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector delaunay -i src/test/resources/data.gpkg -l places -o target/delaunay.shp
```



# Geometry Reader

Convert a text stream of WKT geometries to a Layer.

Short Name	Long Name	Description
-t	--text	The text
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
	--help	Print the help message
	--web-help	Open help in a browser

places.txt

```
POINT (95.93096088300103 -21.052562876111054)
POINT (108.68699242651462 31.906673138178704)
POINT (67.21295358024213 37.71179581778536)
POINT (134.80355671499728 -81.23567389016853)
POINT (140.6972351264812 63.79594874701479)
```

```
cat places.txt | geoc vector geomr -o target/places.shp
```



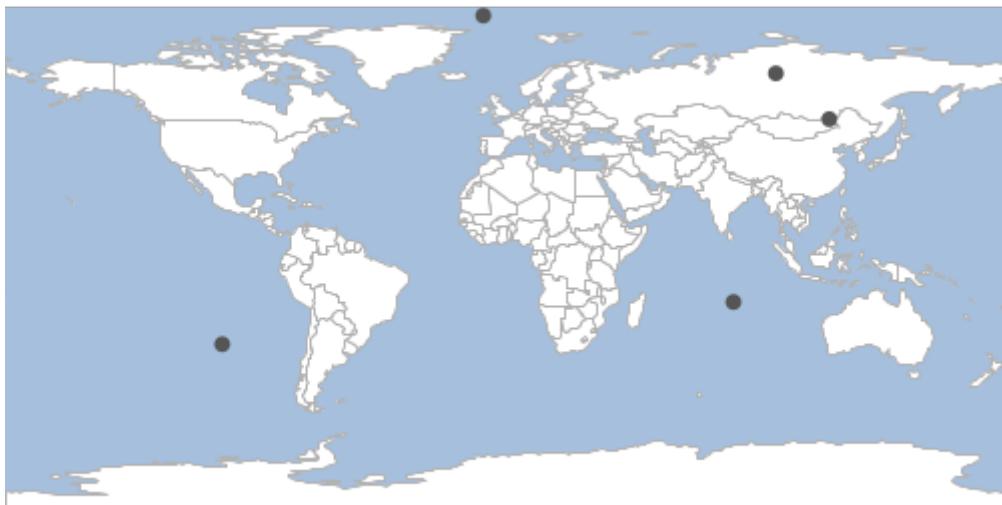
## Geometry Writer

Convert the input layer to a text stream of WKT geometries that can be read by the [geom commands](#).

Short Name	Long Name	Description
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector geomw -i target/locations.shp
```

```
POINT (-101.95042307162927 -31.178262939552468)
POINT (-8.143171830346688 86.94528458885901)
POINT (116.1548297506298 49.73603796911118)
POINT (81.72583460781794 -16.012283095956718)
POINT (96.95947497904126 66.1781910310543)
```

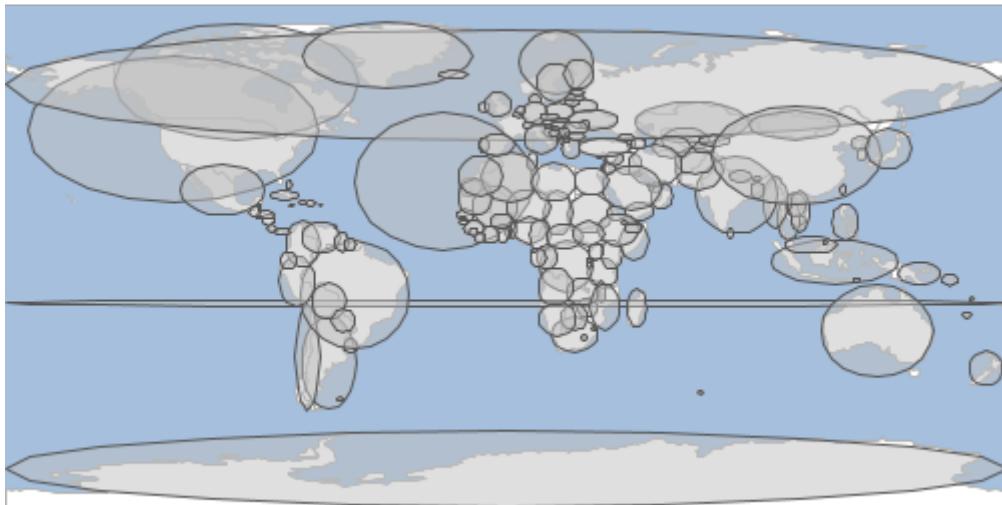


## Ellipse

Calculate the ellipse around each feature in a Layer.

Short Name	Long Name	Description
-g	--geometry	The geometry expression
-w	--width	The width of the bounds
-h	--height	The height of the bounds
-p	--num-points	The number of points
-a	--rotation	The angle of rotation
-u	--unit	The unit can either be degrees(d) or radians(r). The default is degrees.
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector ellipse -i src/test/resources/data.gpkg -l countries -o target/ellipse.shp
```

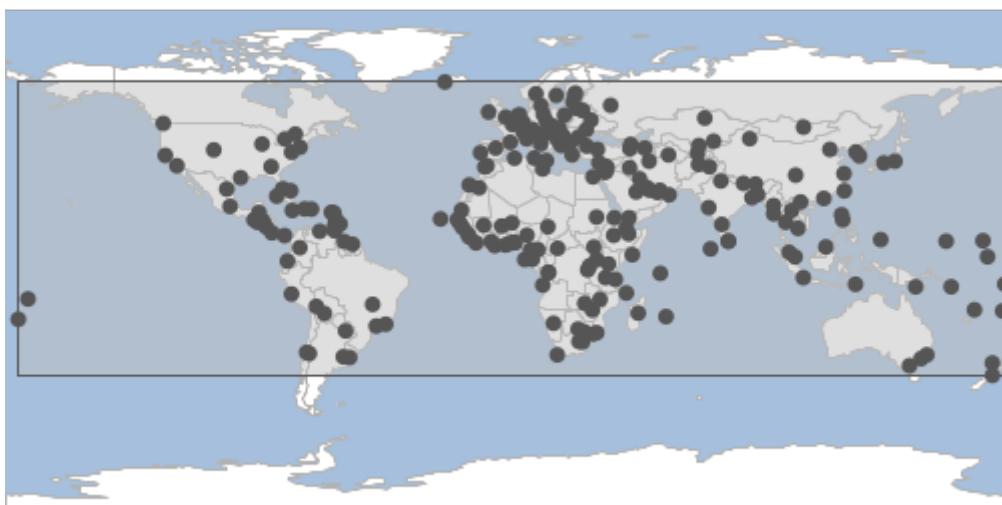


## Envelope

Calculate the envelope of all the features in a Layer.

Short Name	Long Name	Description
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector envelope -i src/test/resources/data.gpkg -l places -o target/envelope.shp
```

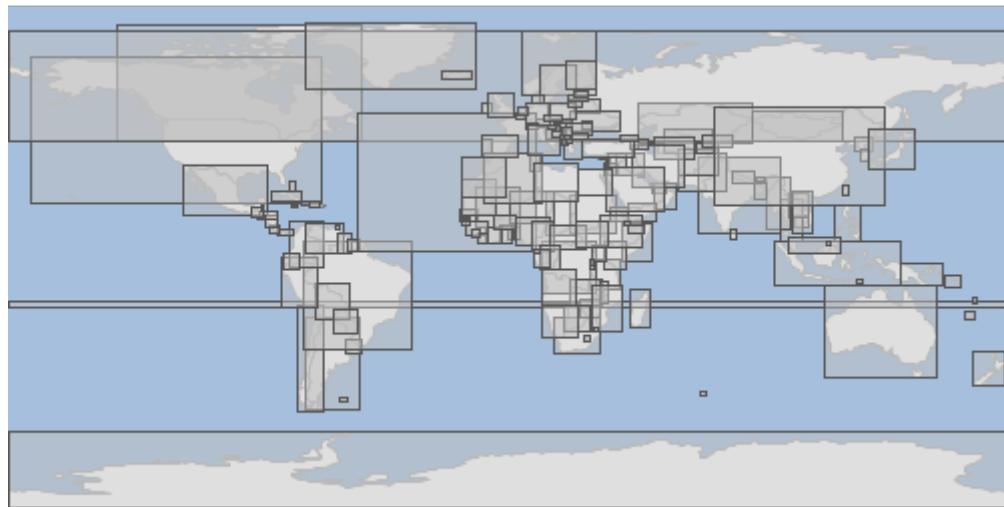


# Envelopes

Calculate the envelopes for each feature in a Layer.

Short Name	Long Name	Description
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector envelopes -i src/test/resources/data.gpkg -l countries -o  
target/envelopes.shp
```



# From

Create a Layer from a string of KML, CSV, GML, GEORSS, GEOBUF, GPX or GeoJSON.

Short Name	Long Name	Description
-t	--text	The text
-f	--format	The string format (CSV, GeoJSON, KML, GML)
-g	--geometry-type	The geometry type
-p	--format-options	A format options 'key=value'
-o	--output-workspace	The output workspace

Short Name	Long Name	Description
-r	--output-layer	The output layer
	--help	Print the help message
	--web-help	Open help in a browser

*GeoJSON*

*points.json*

```
{"type": "FeatureCollection", "features": [{"type": "Feature", "geometry": {"type": "Point", "coordinates": [-153.5772, 6.5246]}, "properties": {"id": 0, "id": "randompoints.1"}, {"type": "Feature", "geometry": {"type": "Point", "coordinates": [-20.1044, -75.0523]}, "properties": {"id": 1, "id": "randompoints.2"}, {"type": "Feature", "geometry": {"type": "Point", "coordinates": [7.4944, -32.6365]}, "properties": {"id": 2, "id": "randompoints.3"}, {"type": "Feature", "geometry": {"type": "Point", "coordinates": [33.4565, 7.3167]}, "properties": {"id": 3, "id": "randompoints.4"}, {"type": "Feature", "geometry": {"type": "Point", "coordinates": [169.5289, -62.6828]}, "properties": {"id": 4, "id": "randompoints.5"}]}
```

```
cat points.json | geoc vector from -f csv
```



*CSV*

*points.csv*

```

"the_geom:Point:EPSG:4326","id:Integer"
"POINT (-130.5746382311777 40.29307470133844)","0"
"POINT (-160.66494628921032 -15.817933544852607)","1"
"POINT (-167.16562582446275 34.73003777073235)","2"
"POINT (95.83887180574465 -21.32343648531294)","3"
"POINT (-174.9758695028724 -62.4955039926686)","4"

```

```
cat points.csv | geoc vector from -f csv
```

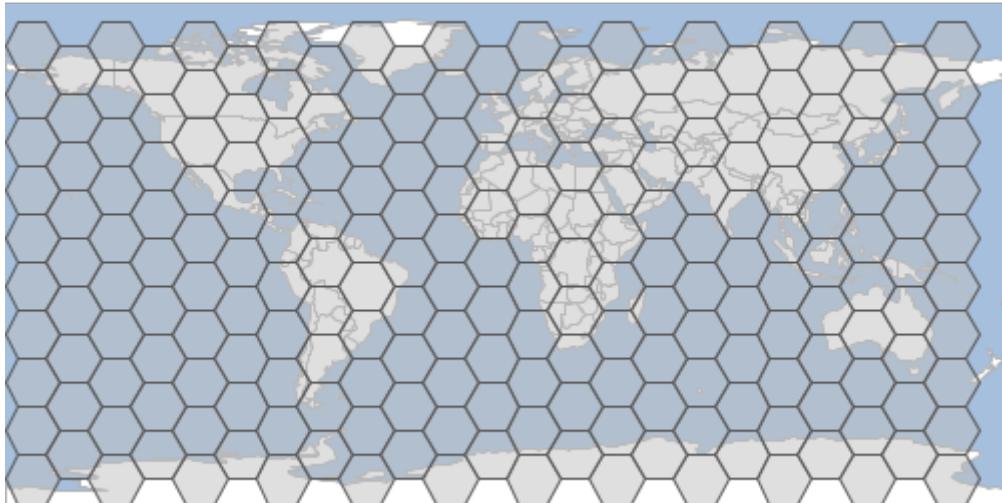


## Graticule - Hexagon

Create hexagon graticules.

Short Name	Long Name	Description
-g	--geometry	The geometry
-l	--length	The length
-s	--spacing	The spacing (defaults to -1)
-t	--orientation	The orientation (flat or angled).
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector graticule hexagon -g -180,-90,180,90 -l 10 -o target/hexagons.shp
```

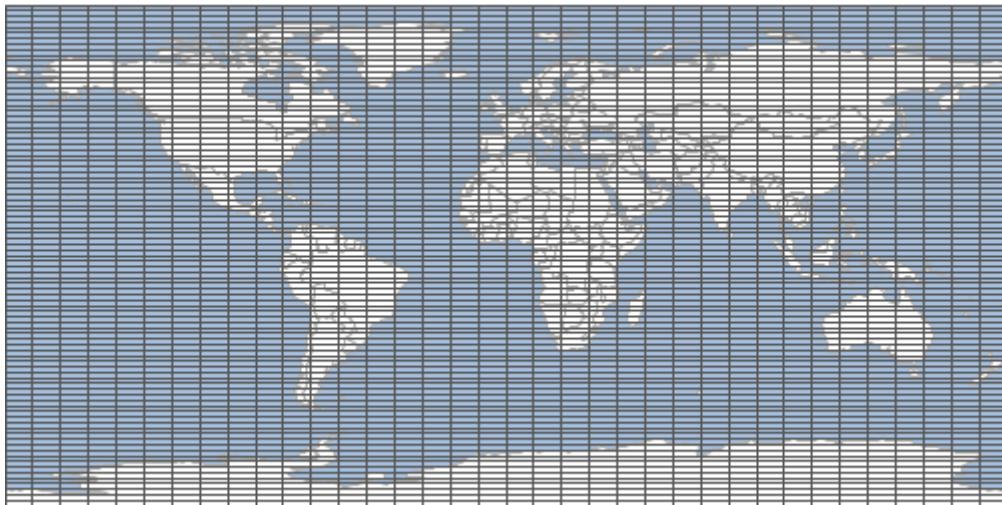


## Graticule - Line

Create line graticules.

Short Name	Long Name	Description
-g	--geometry	The geometry
-s	--spacing	The spacing (defaults to -1)
-l	--line-definition	Each line definition has comma delimited orientation (vertical or horizontal), level, and spacing)
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector graticule line -g -180,-90,180,90 -l vertical,2,10 -l horizontal,1,2 -o target/lines.shp
```

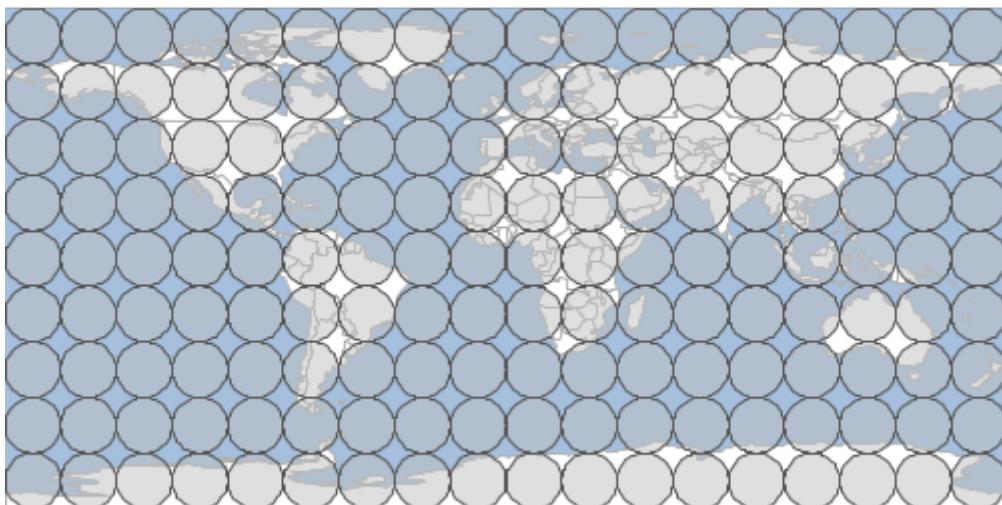


## Graticule - Oval

Create oval graticules.

Short Name	Long Name	Description
-g	--geometry	The geometry
-l	--length	The length
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector graticule oval -g -180,-90,180,90 -l 20 -o target/ovals.shp
```

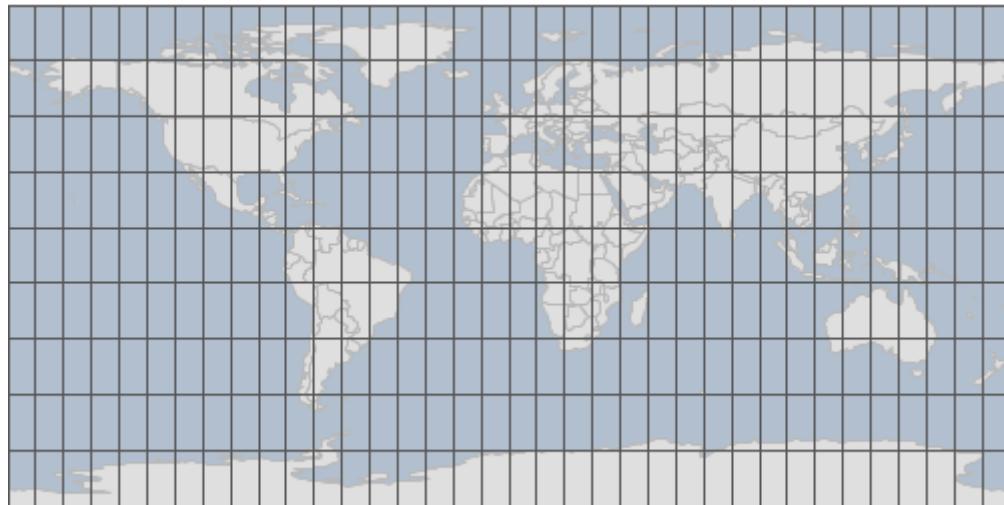


## Graticule - Rectangle

Create rectangle graticules.

Short Name	Long Name	Description
-g	--geometry	The geometry
-w	--width	The width
-h	--height	The height
-s	--spacing	The spacing (defaults to -1)
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector graticule rectangle -g -180,-90,180,90 -w 10 -h 20 -o  
target/rectangles.shp
```



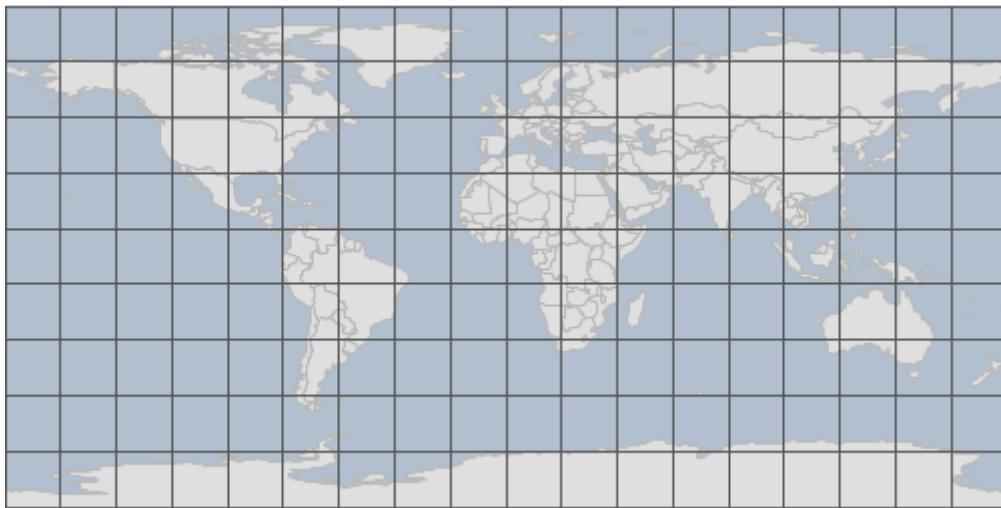
## Graticule - Square

Create square graticules.

Short Name	Long Name	Description
-g	--geometry	The geometry
-l	--length	The length
-s	--spacing	The spacing (defaults to -1)
-o	--output-workspace	The output workspace

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-r	--output-layer	The output layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector graticule square -g -180,-90,180,90 -l 20 -o target/squares.shp
```



## Info

Get information about a Layer.

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector info -i src/test/resources/data.gpkg -l countries
```

```

Name: countries
Geometry: MultiPolygon
Extent: -180.0, -90.0, 180.00000000000006, 83.64513000000001
Projection ID: EPSG:4326
Projection WKT: GEOGCS["WGS 84",
    DATUM["World Geodetic System 1984",
        SPHEROID["WGS 84", 6378137.0, 298.257223563, AUTHORITY["EPSG","7030"]],
        AUTHORITY["EPSG","6326"]],
    PRIMEM["Greenwich", 0.0, AUTHORITY["EPSG","8901"]],
    UNIT["degree", 0.017453292519943295],
    AXIS["Geodetic longitude", EAST],
    AXIS["Geodetic latitude", NORTH],
    AUTHORITY["EPSG","4326"]]

Feature Count: 177
Fields:
the_geom: MultiPolygon
featurecla: String
scalerank: Integer
LABELRANK: Integer
SOVEREIGNT: String
SOV_A3: String
ADM0_DIF: Integer
...

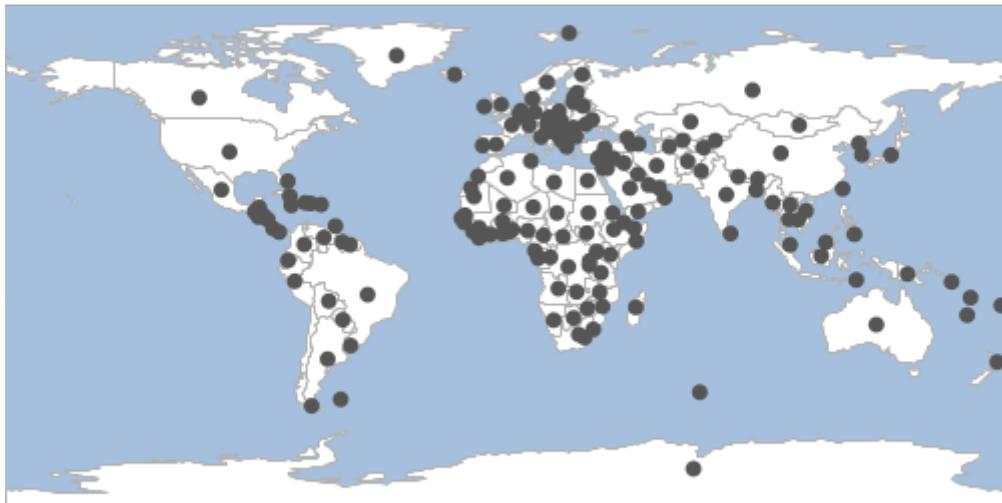
```

## Interior Point

Calculate the interior point of all the features in a Layer.

Short Name	Long Name	Description
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector interiorPoint -i src/test/resources/data.gpkg -l countries -o
target/countries_interiorpoints.shp
```



## Layer List

List the Layers in a Workspace.

Short Name	Long Name	Description
-i	--input-workspace	The input workspace
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector list layers -i src/test/resources/data.gpkg
```

```
countries
graticules
ocean
places
rivers
states
```

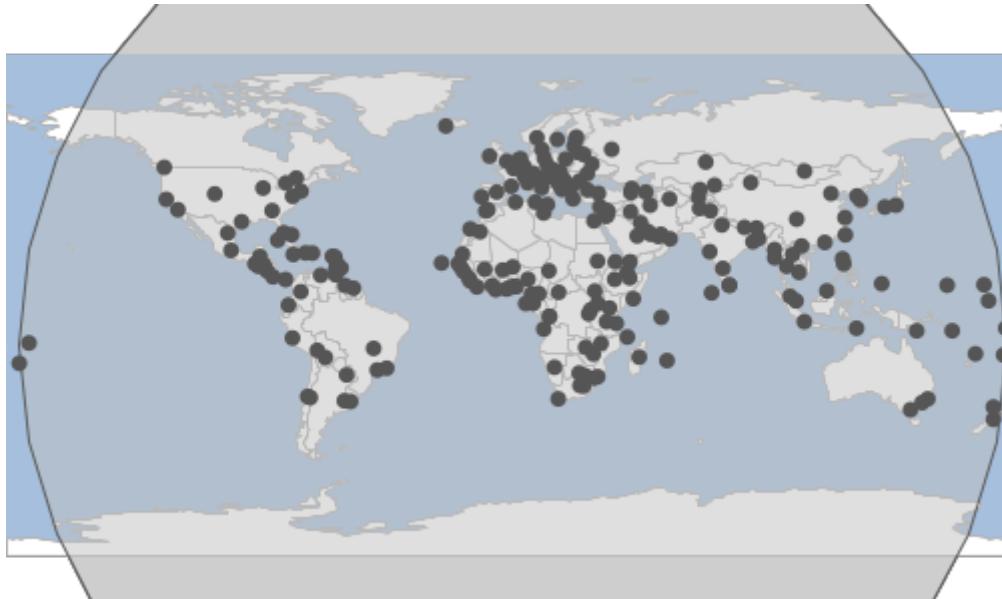
## Minimum Bounding Circle

Calculate the minimum bounding circle of all the features in a Layer.

Short Name	Long Name	Description
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector mincircle -i src/test/resources/data.gpkg -l places -o
target/mincircle.shp
```

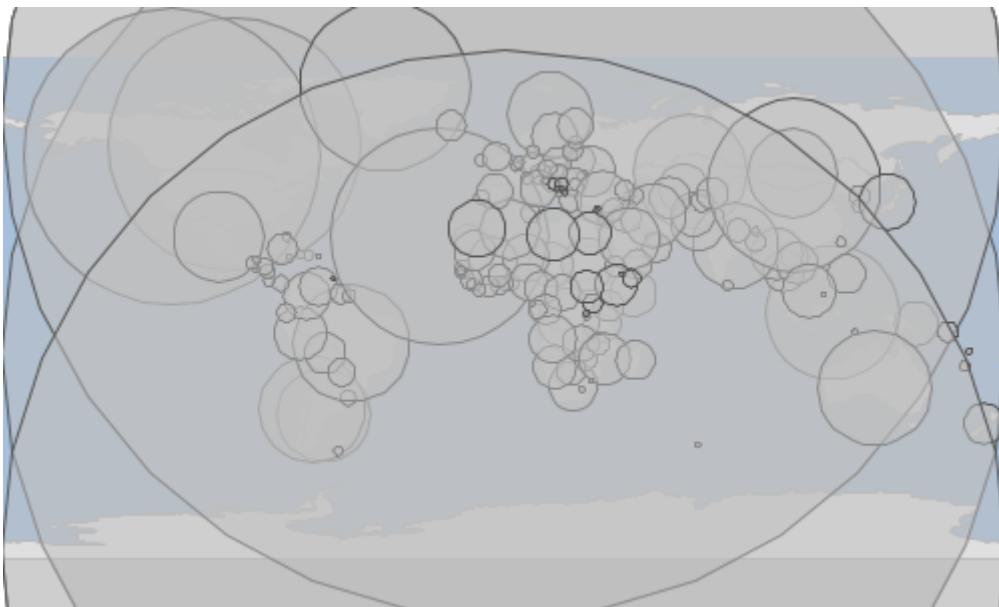


## Minimum Bounding Circles

Calculate the minimum bounding circle for each feature in a Layer.

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector mincircles -i src/test/resources/data.gpkg -l countries -o
target/mincircles.shp
```

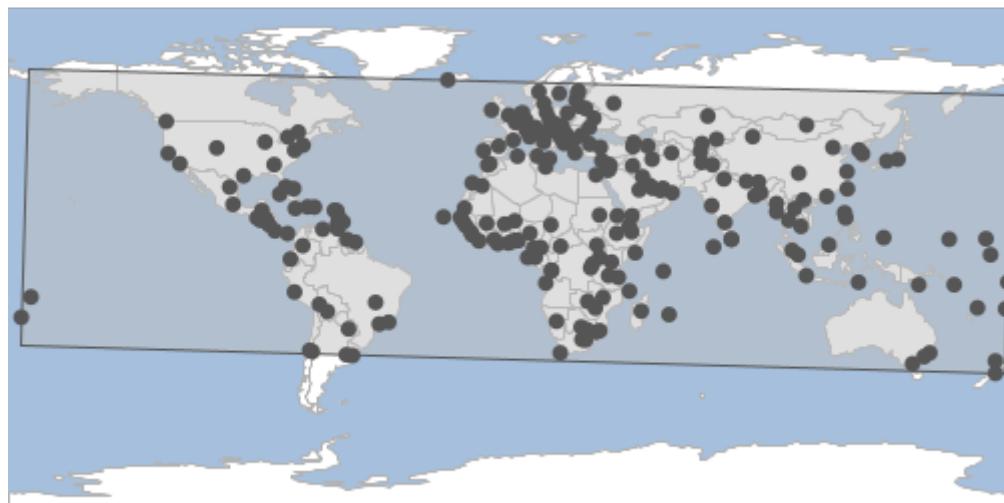


## Minimum Bounding Rectangle

Calculate the minimum bounding rectangle of all the features in a Layer.

Short Name	Long Name	Description
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector minrect -i src/test/resources/data.gpkg -l places -o target/minrect.shp
```

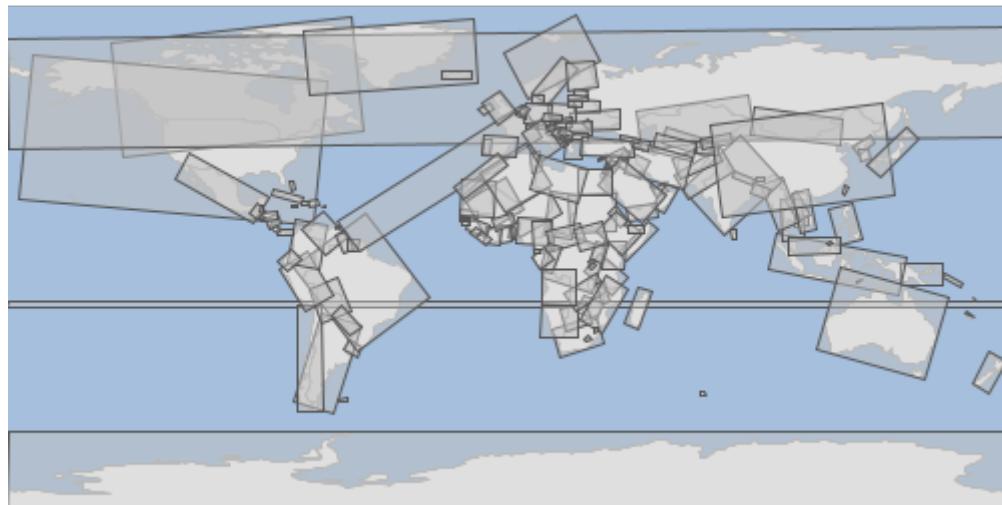


# Minimum Bounding rects

Calculate the minimum bounding rectangle for each feature in a Layer.

Short Name	Long Name	Description
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector minrects -i src/test/resources/data.gpkg -l countries -o
target/minrects.shp
```

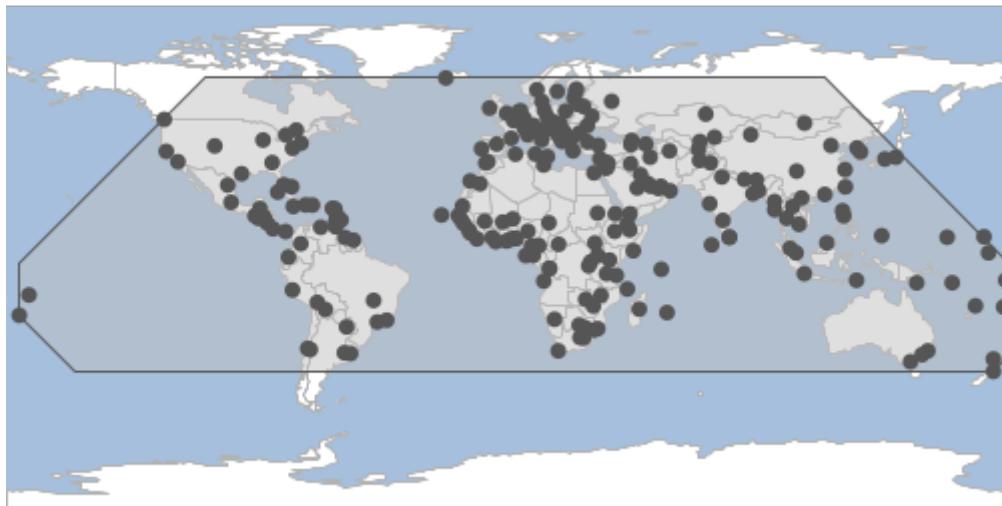


# Octagonal Envelope

Calculate the octagonal envelope of the input Layer and save it to the output Layer.

Short Name	Long Name	Description
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector octagonalenvelope -i src/test/resources/data.gpkg -l places -o target/octagonalenvelope.shp
```

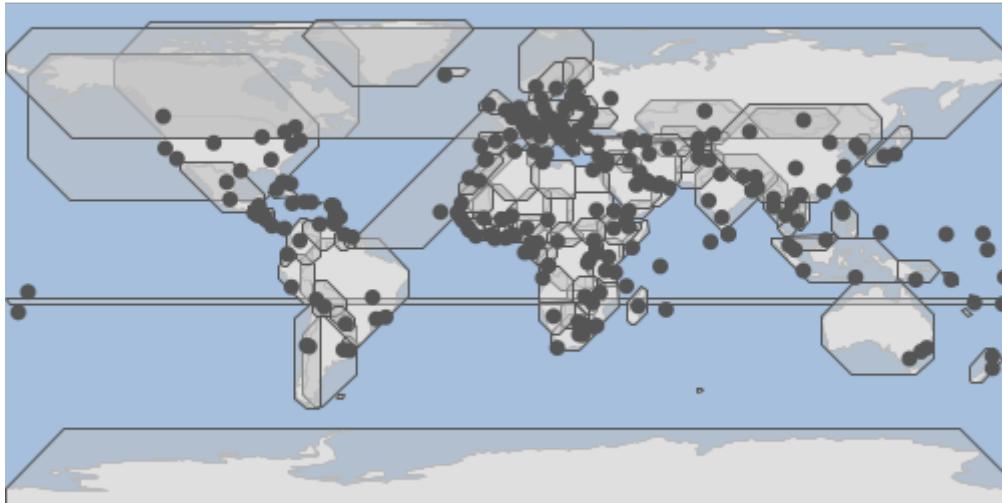


## Octagonal Envelopes

Calculate the octagonal envelope for each Feature of the input Layer and save it to the output Layer.

Short Name	Long Name	Description
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector octagonalenvelopes -i src/test/resources/data.gpkg -l countries -o target/octagonalenvelopes.shp
```

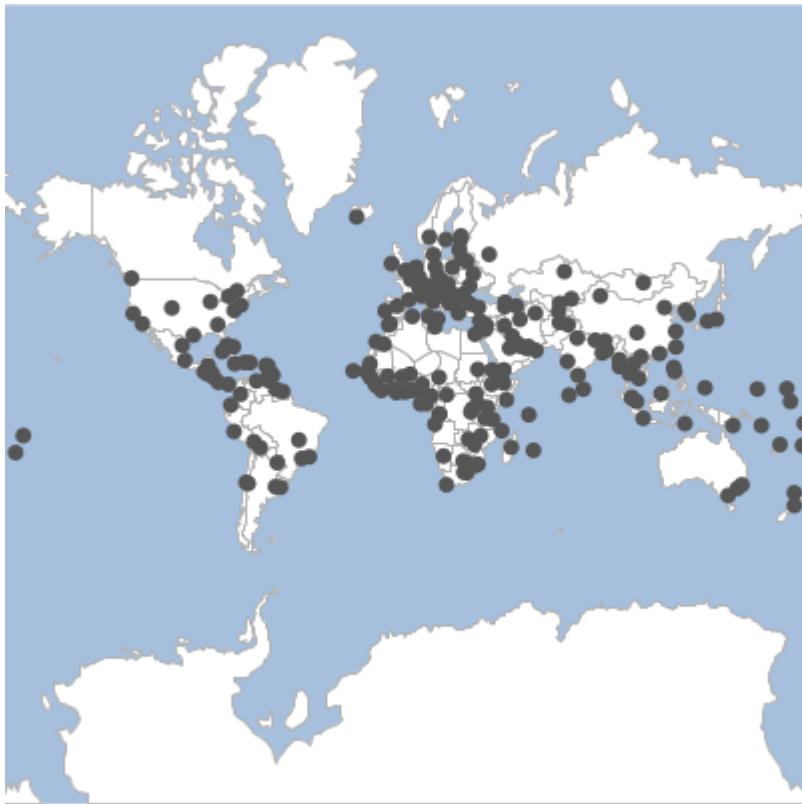


# Project

Project the input Layer to another Projection and save it as the output Layer.

Short Name	Long Name	Description
-s	--source-projection	The source projection
-t	--target-projection	The target projection
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector project -i src/test/resources/data.gpkg -l places -o target/mercator.gpkg  
-r places -s EPSG:4326 -t EPSG:3857
```

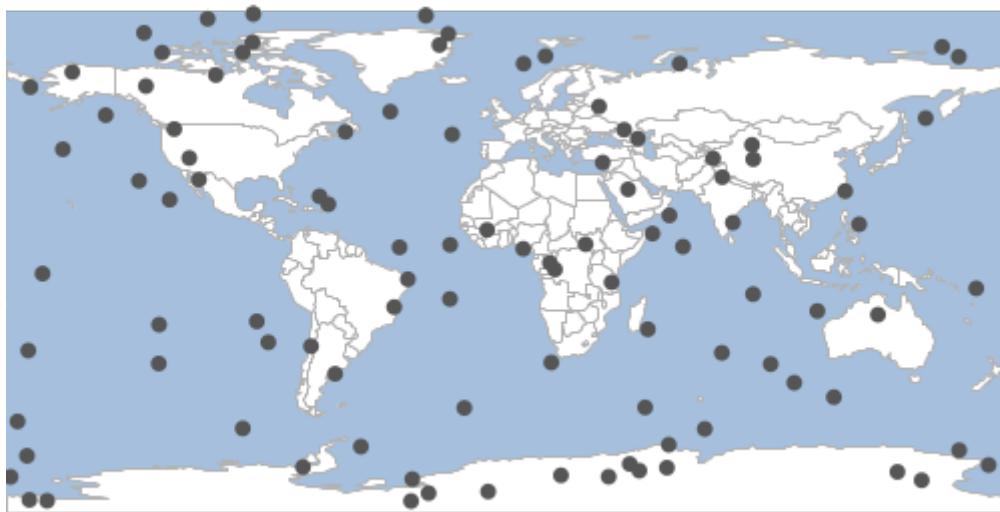


## Random Points

Generate random points.

Short Name	Long Name	Description
-n	--number	The number of points
-p	--projection	The projection
-g	--geometry	The geometry
-d	--grid	Whether to create random points in grid
-c	--constrained-to-circle	Whether the points should be constrained to a circle or not
-f	--gutter-fraction	The size of the gutter between cells
-e	--geom-fieldname	The geometry field name
-u	--id-fieldname	The id field name
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector randompoints -n 100 -g -180,-90,180,90 -o target/randompoints.shp
```

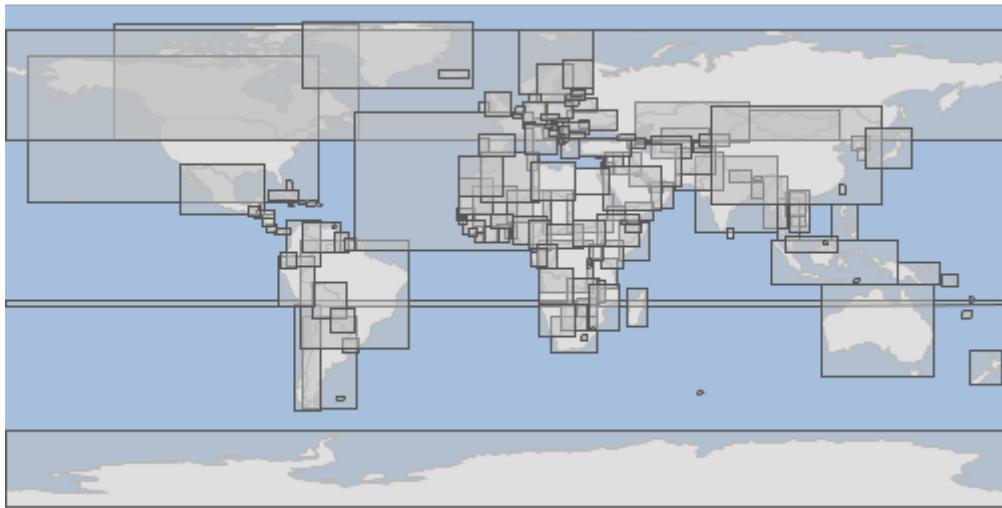


## Rectangle

Create a rectangle shape around each feature of the input Layer.

Short Name	Long Name	Description
-g	--geometry	The geometry expression
-w	--width	The width of the bounds
-h	--height	The height of the bounds
-p	--num-points	The number of points
-a	--rotation	The angle of rotation
-u	--unit	The unit can either be degrees(d) or radians(r). The default is degrees.
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector rectangle -i src/test/resources/data.gpkg -l countries -o target/rectangle.shp
```



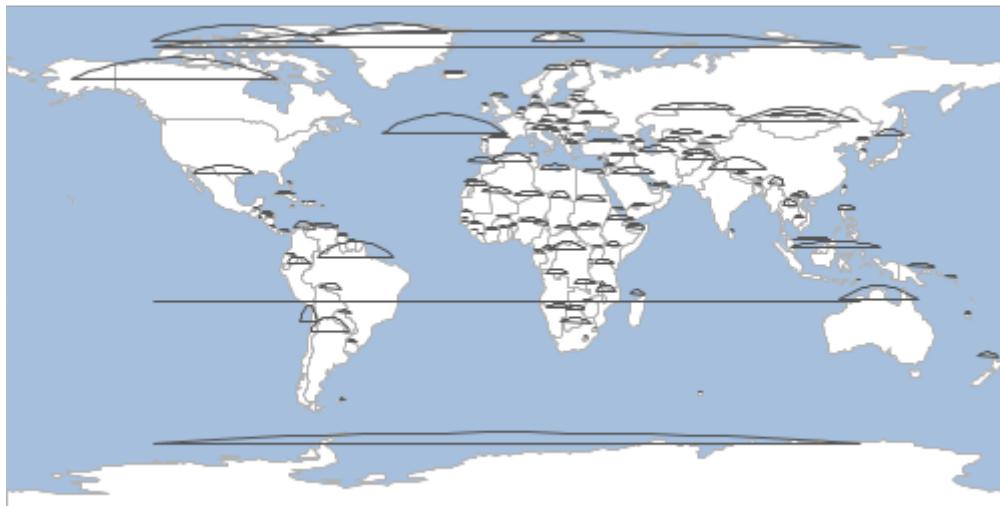
# Shapes

## Arc

Create a arc shape around each feature of the input Layer.

Short Name	Long Name	Description
-s	--start-angle	The start angle
-e	--end-angle	The end angle
-g	--geometry	The geometry expression
-w	--width	The width of the bounds
-h	--height	The height of the bounds
-p	--num-points	The number of points
-a	--rotation	The angle of rotation
-u	--unit	The unit can either be degrees(d) or radians(r). The default is degrees.
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector arc -i src/test/resources/data.gpkg -l countries -o
target/country_arcs.shp -s 45 -e 90
```

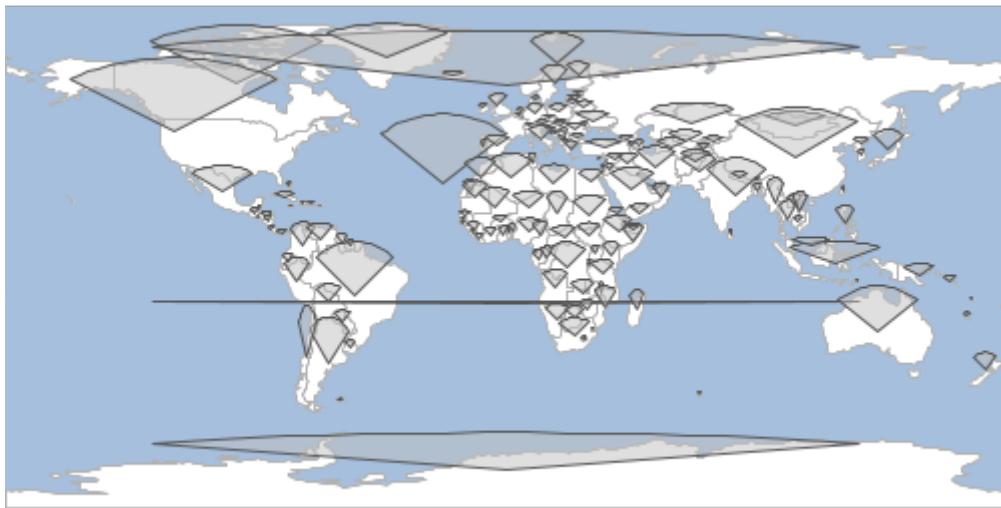


## Arc Polygon

Create a arc polygon shape around each feature of the input Layer.

Short Name	Long Name	Description
-s	--start-angle	The start angle
-e	--end-angle	The end angle
-g	--geometry	The geometry expression
-w	--width	The width of the bounds
-h	--height	The height of the bounds
-p	--num-points	The number of points
-a	--rotation	The angle of rotation
-u	--unit	The unit can either be degrees(d) or radians(r). The default is degrees.
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector arcpolygon -i src/test/resources/data.gpkg -l countries -o target/country_arcs.shp -s 45 -e 90
```

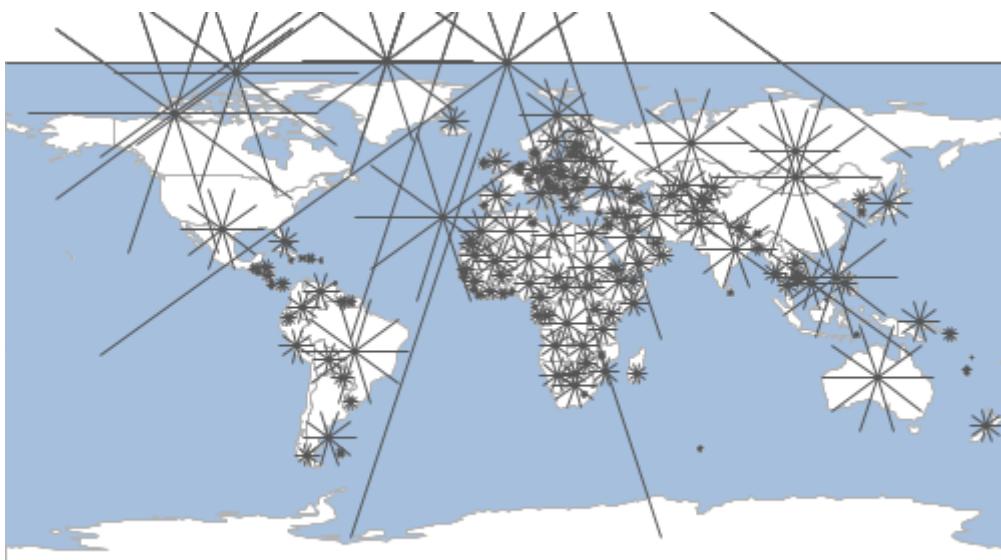


## Sine Star

Create a sinestar shape around each feature of the input Layer.

Short Name	Long Name	Description
-n	--number-of-arms	The number of arms
-e	--arm-length-ratio	The arm length ratio
-g	--geometry	The geometry expression
-w	--width	The width of the bounds
-h	--height	The height of the bounds
-p	--num-points	The number of points
-a	--rotation	The angle of rotation
-u	--unit	The unit can either be degrees(d) or radians(r). The default is degrees.
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector sinestar -i src/test/resources/data.gpkg -l countries -o target/country_stars.shp -n 10 -e 2
```



## To

Write a Layer to a String format (CSV, GeoJSON, KML, GML, GEORSS, GPX).

Short Name	Long Name	Description
-f	--format	The string format (CSV, GeoJSON, KML, GML, GEORSS, GPX)
-p	--format-options	A format options 'key=value'
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

### *GeoJSON*

```
geoc vector to -i target/randompoints.shp -f geojson
```

```
{"type": "FeatureCollection", "features": [{"type": "Feature", "geometry": {"type": "Point", "coordinates": [138.3927, -52.2107]}, "properties": {"id": 0}, "id": "randompoints.1"}, {"type": "Feature", "geometry": {"type": "Point", "coordinates": [94.3947, -39.2645]}, "properties": {"id": 1}, "id": "randompoints.2"}, {"type": "Feature", "geometry": {"type": "Point", "coordinates": [166.4458, -38.6346]}, "properties": {"id": 2}, "id": "randompoints.3"}, {"type": "Feature", "geometry": {"type": "Point", "coordinates": [3.9661, 13.099]}, "properties": {"id": 3}, "id": "randompoints.4"}, {"type": "Feature", "geometry": {"type": "Point", "coordinates": [87.4897, -14.8495]}, "properties": {"id": 4}, "id": "randompoints.5"}]}
```

CSV

```
geoc vector to -i target/randompoints.shp -f csv
```

```
"the_geom:Point:EPSG:4326", "id:Integer"
"POINT (23.282377707499933 -81.0943265704691)", "0"
"POINT (28.925226965405642 15.19152528094962)", "1"
"POINT (-152.1442652356808 76.97304717394425)", "2"
"POINT (-114.04075540627004 84.13220930928406)", "3"
"POINT (40.69373408702995 -15.01033745799694)", "4"
```

## Schema

Get a Layer's Schema.

Short Name	Long Name	Description
-p	--pretty-print	Whether to pretty print the output
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector schema -i src/test/resources/data.gpkg -l countries -p
```

-----	-----	-----
name	type	
----- ----- -----		
the_geom	MultiPolygon	
featurecla	String	
scalerank	Integer	
LABELRANK	Integer	
SOVEREIGNT	String	

SOV_A3	String
ADM0_DIF	Integer
LEVEL	Integer
TYPE	String
ADMIN	String
ADM0_A3	String
GEOU_DIF	Integer
GEOUNIT	String
GU_A3	String
SU_DIF	Integer
SUBUNIT	String
SU_A3	String
BRK_DIFF	Integer
NAME	String
NAME_LONG	String
BRK_A3	String
BRK_NAME	String
ABBREV	String
POSTAL	String
FORMAL_EN	String
FORMAL_FR	String
NAME_CIAWF	String
NOTE_ADMIN	String
NOTE_BRK	String
NAME_SORT	String
NAME_ALT	String
MAPCOLOR7	Integer
MAPCOLOR8	Integer
MAPCOLOR9	Integer
MAPCOLOR13	Integer
POP_EST	Double
POP_RANK	Integer
POP_YEAR	Integer
GDP_MD	Integer
GDP_YEAR	Integer
ECONOMY	String
INCOME_GRP	String
FIPS_10	String
ISO_A2	String
ISO_A2_EH	String
ISO_A3	String
ISO_A3_EH	String
ISO_N3	String
ISO_N3_EH	String
UN_A3	String
WB_A2	String
WB_A3	String
WOE_ID	Integer
WOE_ID_EH	Integer
WOE_NOTE	String
ADM0_A3_IS	String

ADM0_A3_US	String
ADM0_A3_FR	String
ADM0_A3_RU	String
ADM0_A3_ES	String
ADM0_A3_CN	String
ADM0_A3_TW	String
ADM0_A3_IN	String
ADM0_A3_NP	String
ADM0_A3_PK	String
ADM0_A3_DE	String
ADM0_A3_GB	String
ADM0_A3_BR	String
ADM0_A3_IL	String
ADM0_A3_PS	String
ADM0_A3_SA	String
ADM0_A3_EG	String
ADM0_A3_MA	String
ADM0_A3_PT	String
ADM0_A3_AR	String
ADM0_A3_JP	String
ADM0_A3_KO	String
ADM0_A3_VN	String
ADM0_A3_TR	String
ADM0_A3_ID	String
ADM0_A3_PL	String
ADM0_A3_GR	String
ADM0_A3_IT	String
ADM0_A3_NL	String
ADM0_A3_SE	String
ADM0_A3_BD	String
ADM0_A3_UA	String
ADM0_A3_UN	Integer
ADM0_A3_WB	Integer
CONTINENT	String
REGION_UN	String
SUBREGION	String
REGION_WB	String
NAME_LEN	Integer
LONG_LEN	Integer
ABBREV_LEN	Integer
TINY	Integer
HOMEPART	Integer
MIN_ZOOM	Double
MIN_LABEL	Double
MAX_LABEL	Double
NE_ID	Long
WIKIDATAID	String
NAME_AR	String
NAME_BN	String
NAME_DE	String
NAME_EN	String

NAME_ES	String
NAME_FA	String
NAME_FR	String
NAME_EL	String
NAME_HE	String
NAME_HI	String
NAME_HU	String
NAME_ID	String
NAME_IT	String
NAME_JA	String
NAME_KO	String
NAME_NL	String
NAME_PL	String
NAME_PT	String
NAME_RU	String
NAME_SV	String
NAME_TR	String
NAME_UK	String
NAME_UR	String
NAME_VI	String
NAME_ZH	String
NAME_ZHT	String
FCLASS_ISO	String
FCLASS_US	String
FCLASS_FR	String
FCLASS_RU	String
FCLASS_ES	String
FCLASS_CN	String
FCLASS_TW	String
FCLASS_IN	String
FCLASS_NP	String
FCLASS_PK	String
FCLASS_DE	String
FCLASS_GB	String
FCLASS_BR	String
FCLASS_IL	String
FCLASS_PS	String
FCLASS_SA	String
FCLASS_EG	String
FCLASS_MA	String
FCLASS_PT	String
FCLASS_AR	String
FCLASS_JP	String
FCLASS_KO	String
FCLASS_VN	String
FCLASS_TR	String
FCLASS_ID	String
FCLASS_PL	String
FCLASS_GR	String
FCLASS_IT	String
FCLASS_NL	String

FCLASS_SE	String
FCLASS_BD	String
FCLASS_UA	String

## Unique Values

List the unique values in a Layer's Field.

Short Name	Long Name	Description
-f	--field	The field name
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector uniquevalues -i src/test/resources/data.gpkg -l countries -f ECONOMY
```

1. Developed region: G7
2. Developed region: nonG7
3. Emerging region: BRIC
4. Emerging region: MIKT
5. Emerging region: G20
6. Developing region
7. Least developed region

## Unique Values Style

Create an SLD document where each unique value in the Layer is a rule.

Short Name	Long Name	Description
-f	--field	The field name
-c	--colors	The color brewer palette name or a list of colors (space delimited)
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector uniquevaluesstyle -i src/test/resources/data.gpkg -l countries -f ECONOMY  
-c GREENS
```

```
<?xml version="1.0" encoding="UTF-8"?><sld:StyledLayerDescriptor xmlns=  
"http://www.opengis.net/sld" xmlns:sld="http://www.opengis.net/sld" xmlns:gml=  
"http://www.opengis.net/gml" xmlns:ogc="http://www.opengis.net/ogc" version="1.0.0">  
  <sld:UserLayer>  
    <sld:LayerFeatureConstraints>  
      <sld:FeatureTypeConstraint/>  
    </sld:LayerFeatureConstraints>  
    <sld:UserStyle>  
      <sld:Name>Default Styler</sld:Name>  
      <sld:FeatureTypeStyle>  
        <sld:Name>name</sld:Name>  
        <sld:Rule>  
          <sld:Name>1. Developed region: G7</sld:Name>  
          <ogc:Filter>  
            <ogc:PropertyIsEqualTo>  
              <ogc:PropertyName>ECONOMY</ogc:PropertyName>  
              <ogc:Literal>1. Developed region: G7</ogc:Literal>  
            </ogc:PropertyIsEqualTo>  
          </ogc:Filter>  
          <sld:PolygonSymbolizer>  
            <sld:Fill>  
              <sld:CssParameter name="fill">#f7fcf5</sld:CssParameter>  
            </sld:Fill>  
          </sld:PolygonSymbolizer>  
          <sld:LineSymbolizer>  
            <sld:Stroke>  
              <sld:CssParameter name="stroke">#acb0ab</sld:CssParameter>  
              <sld:CssParameter name="stroke-width">0.5</sld:CssParameter>  
            </sld:Stroke>  
          </sld:LineSymbolizer>  
        </sld:Rule>  
        <sld:Rule>  
          <sld:Name>2. Developed region: nonG7</sld:Name>  
          <ogc:Filter>  
            <ogc:PropertyIsEqualTo>  
              <ogc:PropertyName>ECONOMY</ogc:PropertyName>  
              <ogc:Literal>2. Developed region: nonG7</ogc:Literal>  
            </ogc:PropertyIsEqualTo>  
          </ogc:Filter>  
          <sld:PolygonSymbolizer>  
            <sld:Fill>  
              <sld:CssParameter name="fill">#e5f5e0</sld:CssParameter>  
            </sld:Fill>  
          </sld:PolygonSymbolizer>  
          <sld:LineSymbolizer>  
            <sld:Stroke>
```

```

    <sld:CssParameter name="stroke">#a0ab9c</sld:CssParameter>
    <sld:CssParameter name="stroke-width">0.5</sld:CssParameter>
  </sld:Stroke>
</sld:LineSymbolizer>
</sld:Rule>
<ogc:Filter>
  <ogc:PropertyIsEqualTo>
    <ogc:PropertyName>ECONOMY</ogc:PropertyName>
    <ogc:Literal>3. Emerging region: BRIC</ogc:Literal>
  </ogc:PropertyIsEqualTo>
</ogc:Filter>
<sld:PolygonSymbolizer>
  <sld:Fill>
    <sld:CssParameter name="fill">#c7e9c0</sld:CssParameter>
  </sld:Fill>
</sld:PolygonSymbolizer>
<sld:LineSymbolizer>
  <sld:Stroke>
    <sld:CssParameter name="stroke">#8ba386</sld:CssParameter>
    <sld:CssParameter name="stroke-width">0.5</sld:CssParameter>
  </sld:Stroke>
</sld:LineSymbolizer>
</sld:Rule>
<ogc:Filter>
  <ogc:PropertyIsEqualTo>
    <ogc:PropertyName>ECONOMY</ogc:PropertyName>
    <ogc:Literal>4. Emerging region: MIKT</ogc:Literal>
  </ogc:PropertyIsEqualTo>
</ogc:Filter>
<sld:PolygonSymbolizer>
  <sld:Fill>
    <sld:CssParameter name="fill">#a1d99b</sld:CssParameter>
  </sld:Fill>
</sld:PolygonSymbolizer>
<sld:LineSymbolizer>
  <sld:Stroke>
    <sld:CssParameter name="stroke">#70976c</sld:CssParameter>
    <sld:CssParameter name="stroke-width">0.5</sld:CssParameter>
  </sld:Stroke>
</sld:LineSymbolizer>
</sld:Rule>
<ogc:Filter>
  <ogc:PropertyIsEqualTo>
    <ogc:PropertyName>ECONOMY</ogc:PropertyName>
    <ogc:Literal>5. Emerging region: G20</ogc:Literal>
  </ogc:PropertyIsEqualTo>
</ogc:Filter>

```

```

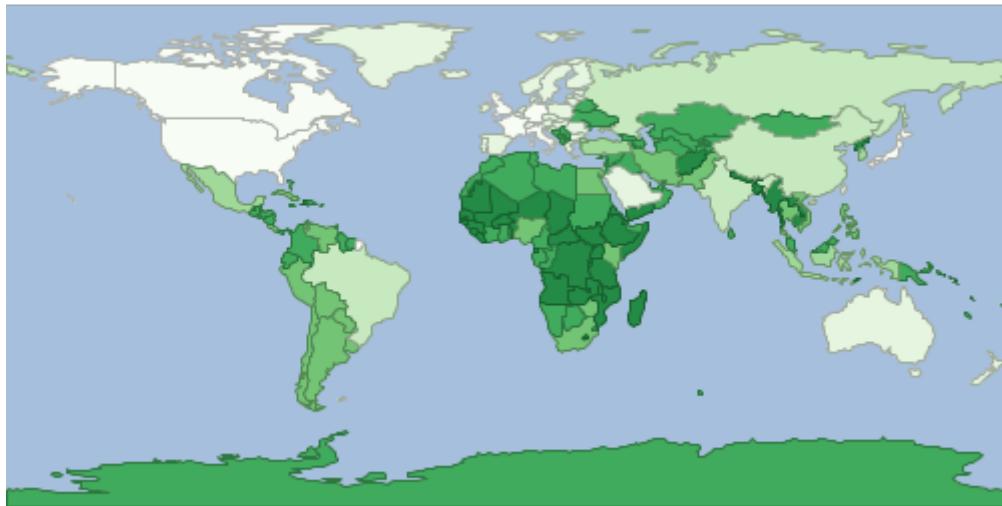
</ogc:PropertyIsEqualTo>
</ogc:Filter>
<sld:PolygonSymbolizer>
  <sld:Fill>
    <sld:CssParameter name="fill">#74c476</sld:CssParameter>
  </sld:Fill>
</sld:PolygonSymbolizer>
<sld:LineSymbolizer>
  <sld:Stroke>
    <sld:CssParameter name="stroke">#518952</sld:CssParameter>
    <sld:CssParameter name="stroke-width">0.5</sld:CssParameter>
  </sld:Stroke>
</sld:LineSymbolizer>
</sld:Rule>
<sld:Rule>
  <sld:Name>6. Developing region</sld:Name>
  <ogc:Filter>
    <ogc:PropertyIsEqualTo>
      <ogc:PropertyName>ECONOMY</ogc:PropertyName>
      <ogc:Literal>6. Developing region</ogc:Literal>
    </ogc:PropertyIsEqualTo>
  </ogc:Filter>
  <sld:PolygonSymbolizer>
    <sld:Fill>
      <sld:CssParameter name="fill">#41ab5d</sld:CssParameter>
    </sld:Fill>
</sld:PolygonSymbolizer>
<sld:LineSymbolizer>
  <sld:Stroke>
    <sld:CssParameter name="stroke">#2d7741</sld:CssParameter>
    <sld:CssParameter name="stroke-width">0.5</sld:CssParameter>
  </sld:Stroke>
</sld:LineSymbolizer>
</sld:Rule>
<sld:Rule>
  <sld:Name>7. Least developed region</sld:Name>
  <ogc:Filter>
    <ogc:PropertyIsEqualTo>
      <ogc:PropertyName>ECONOMY</ogc:PropertyName>
      <ogc:Literal>7. Least developed region</ogc:Literal>
    </ogc:PropertyIsEqualTo>
  </ogc:Filter>
  <sld:PolygonSymbolizer>
    <sld:Fill>
      <sld:CssParameter name="fill">#238b45</sld:CssParameter>
    </sld:Fill>
</sld:PolygonSymbolizer>
<sld:LineSymbolizer>
  <sld:Stroke>
    <sld:CssParameter name="stroke">#186130</sld:CssParameter>
    <sld:CssParameter name="stroke-width">0.5</sld:CssParameter>

```

```

</sld:Stroke>
</sld:LineSymbolizer>
</sld:Rule>
</sld:FeatureTypeStyle>
</sld:UserStyle>
</sld:UserLayer>
</sld:StyledLayerDescriptor>

```



## Voronoi

Calculate a voronoi diagram of all the features in a Layer.

<b>Short Name</b>	<b>Long Name</b>	<b>Description</b>
-o	--output-workspace	The output workspace
-r	--output-layer	The output layer
-i	--input-workspace	The input workspace
-l	--input-layer	The input layer
	--help	Print the help message
	--web-help	Open help in a browser

```
geoc vector voronoi -i src/test/resources/data.gpkg -l places -o target/voronoi.shp
```

