Geoc

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Version 0.12.0-SNAPSHOT

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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)
```

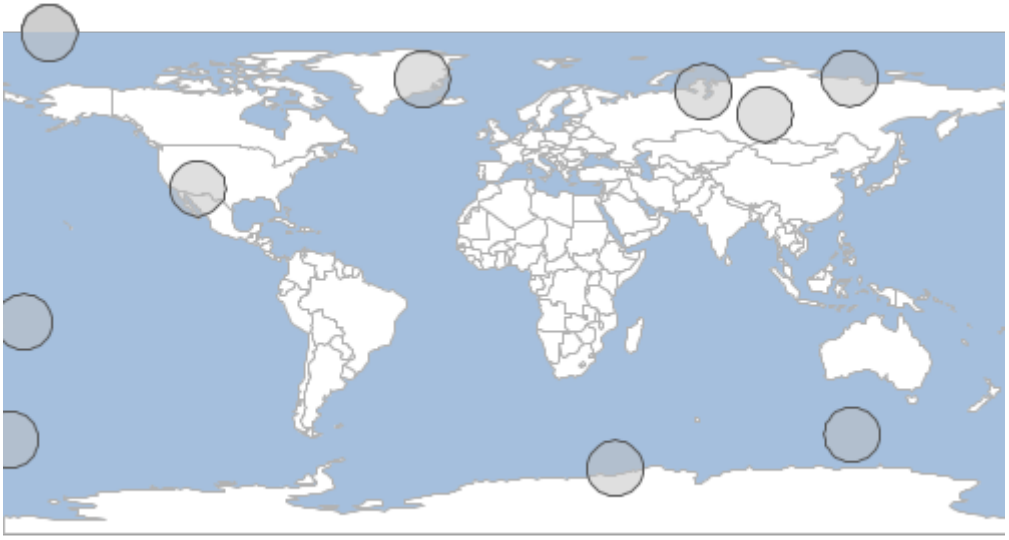
Pipe

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 ((49.96919241084396 -66.8374882626343, 49.77704521487627
-68.78839148279557, 49.20798773595683 -70.6643225862852, 48.283888533869415
-72.39319059283032, 47.040260222709435 -73.90855607449977, 45.52489474103998
-75.15218438565975, 43.79602673449486 -76.07628358774716, 41.92009563100524
-76.6453410666666, 39.96919241084396 -76.8374882626343, 38.01828919068268
-76.6453410666666, 36.14235808719306 -76.07628358774716, 34.41349008064794
-75.15218438565975, 32.898124598978484 -73.90855607449977, 31.654496287818507
-72.39319059283032, 30.73039708573109 -70.6643225862852, 30.161339606811655
-68.78839148279557, 29.96919241084396 -66.8374882626343, 30.161339606811655
-64.88658504247302, 30.73039708573109 -63.010653938983396, 31.654496287818503
-61.281785932438275, 32.898124598978484 -59.76642045076882, 34.41349008064794
-58.52279213960884, 36.14235808719306 -57.598692937521434, 38.01828919068267
-57.029635458601994, 39.96919241084396 -56.837488262634295, 41.92009563100524
-57.02963545860199, 43.79602673449486 -57.59869293752143, 45.52489474103998
-58.52279213960884, 47.040260222709435 -59.76642045076882, 48.283888533869415
-61.281785932438275, 49.20798773595682 -63.01065393898339, 49.77704521487626
-64.886585042473, 49.96919241084396 -66.8374882626343))"
...
```

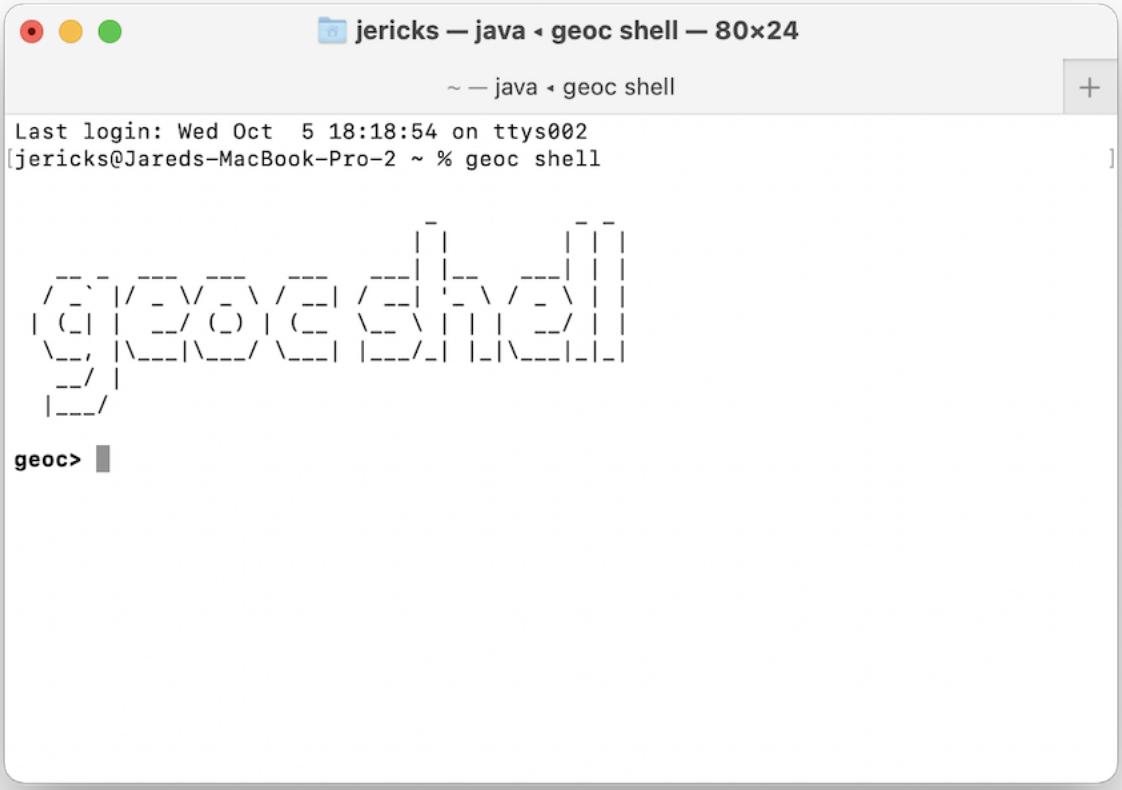


Shell

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
```

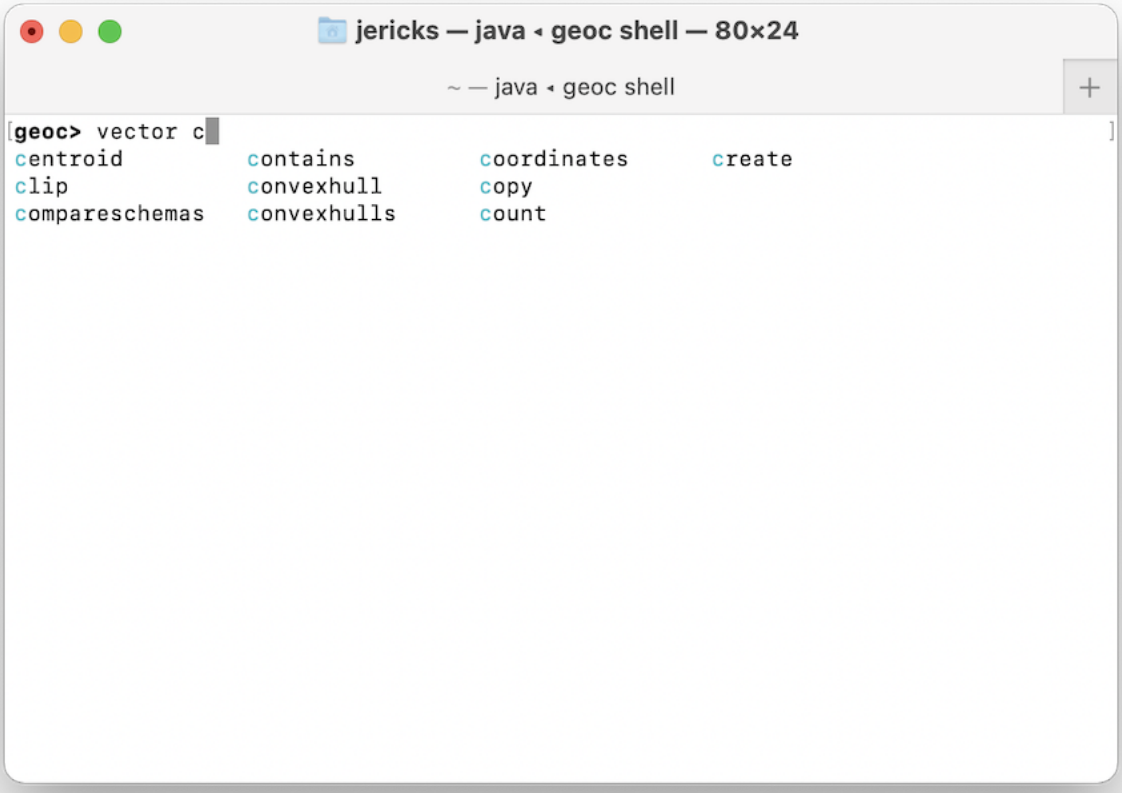


You can now type commands in the interactive shell.

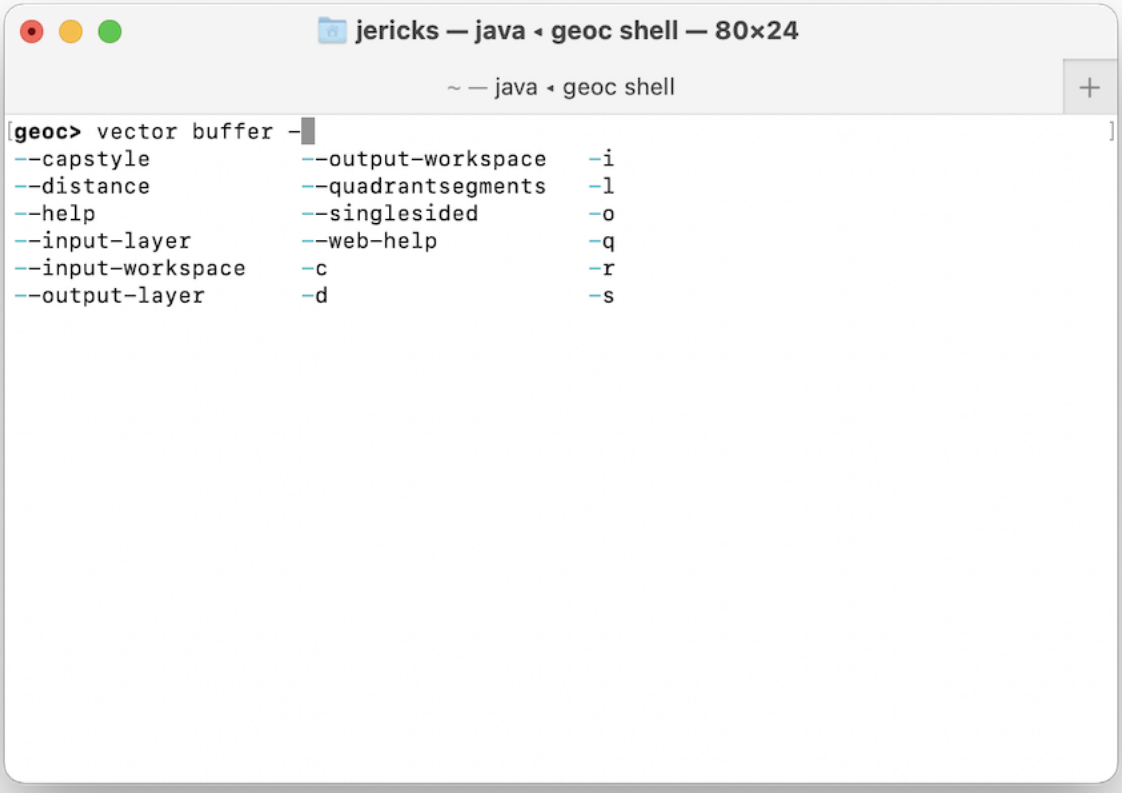
If you hit the **tab** key you can get command line completion.

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

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.



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



Carto Commands

Map

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

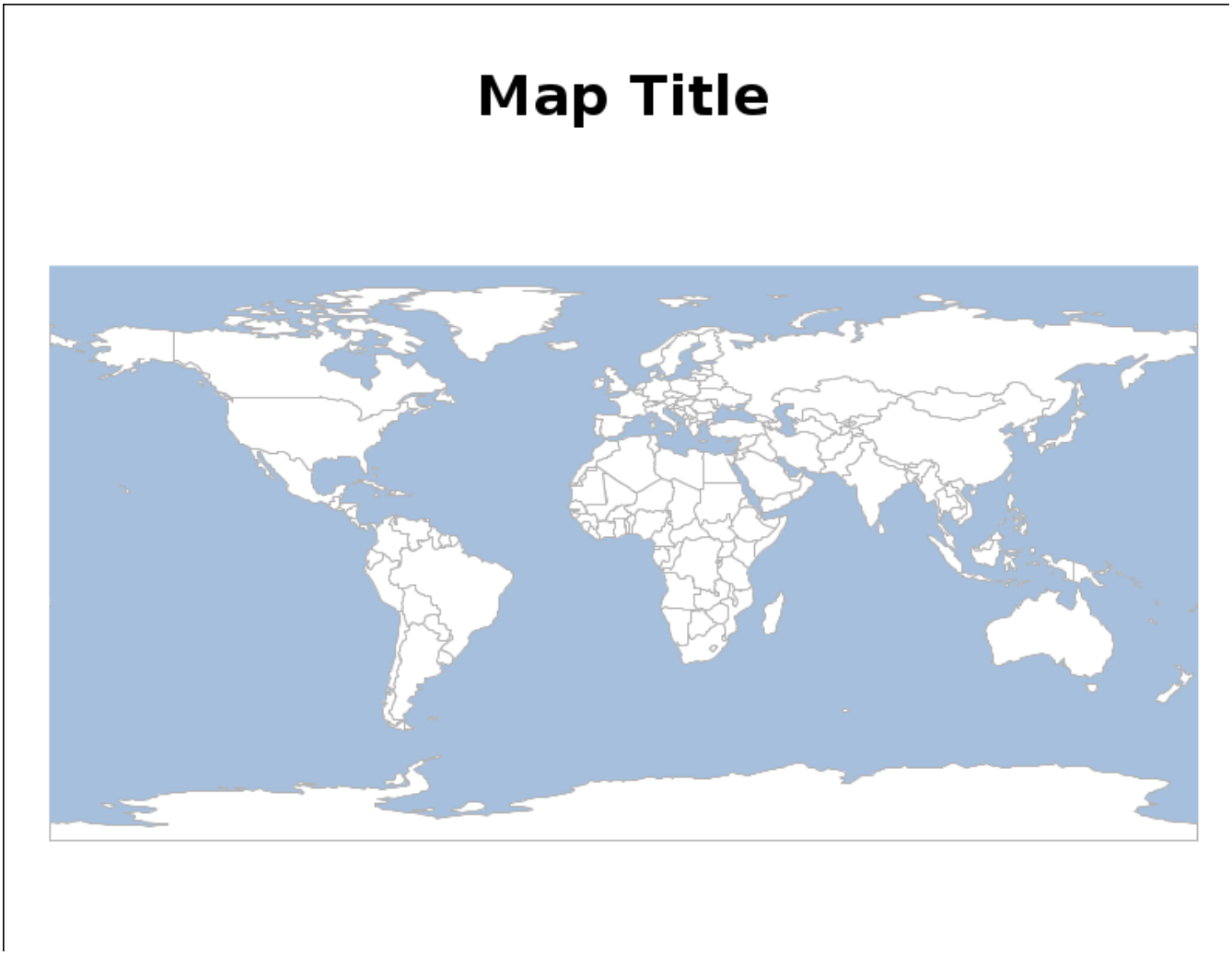
Short Name	Long Name	Description
-t	--type	The type of the carto file (json, xml)
-c	--carto-file	The input carto definition file
-o	--output-file	The output file
	--help	Print the help message
	--web-help	Open help in a browser

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"}
      ]
    }
  ]
}
```



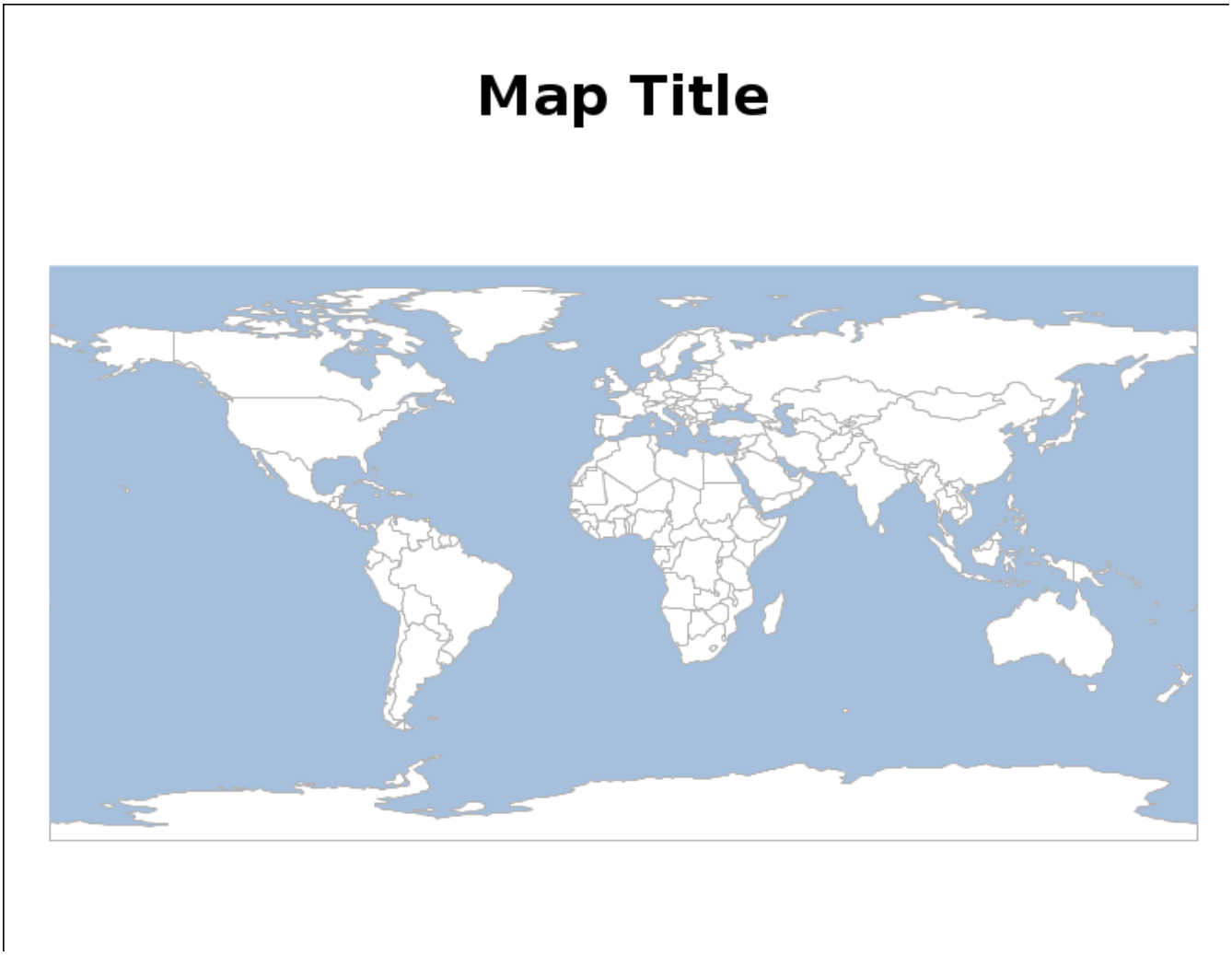
XML

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>
```



Elements

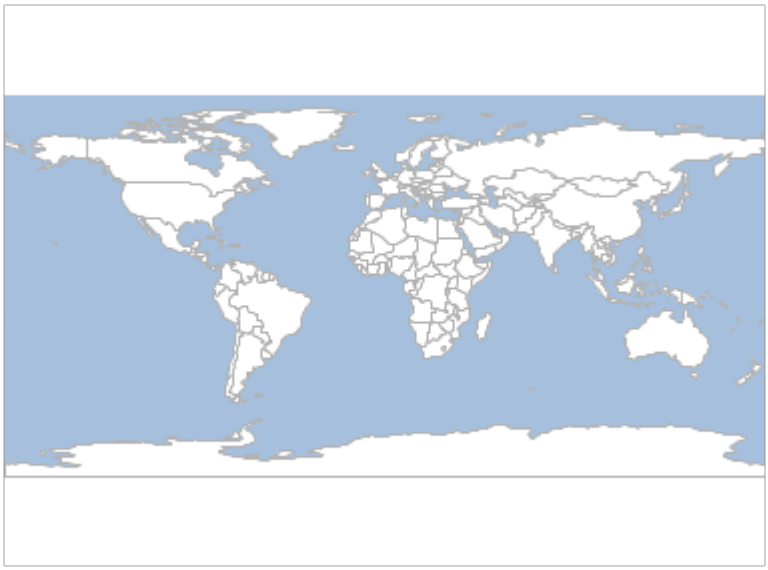
The geoc carto map command takes either a JSON or XML document made up of one or more elements.

Map

Draw a map.

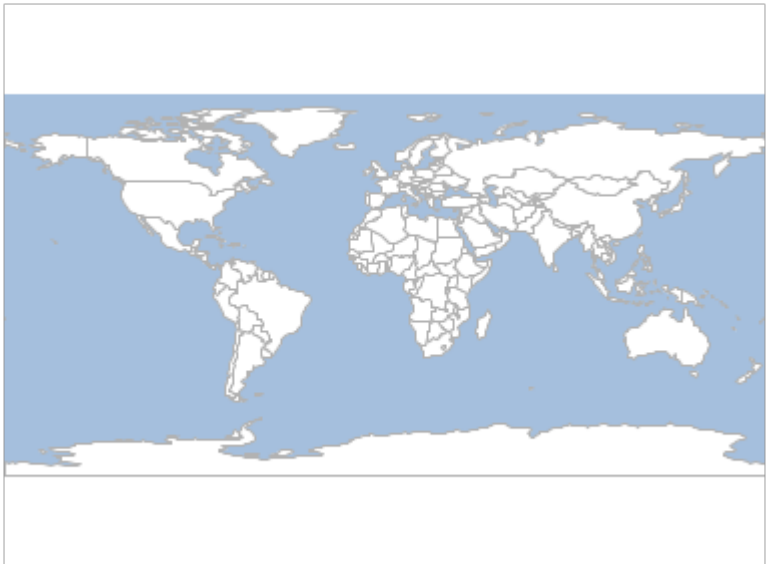
JSON

```
{
  "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.

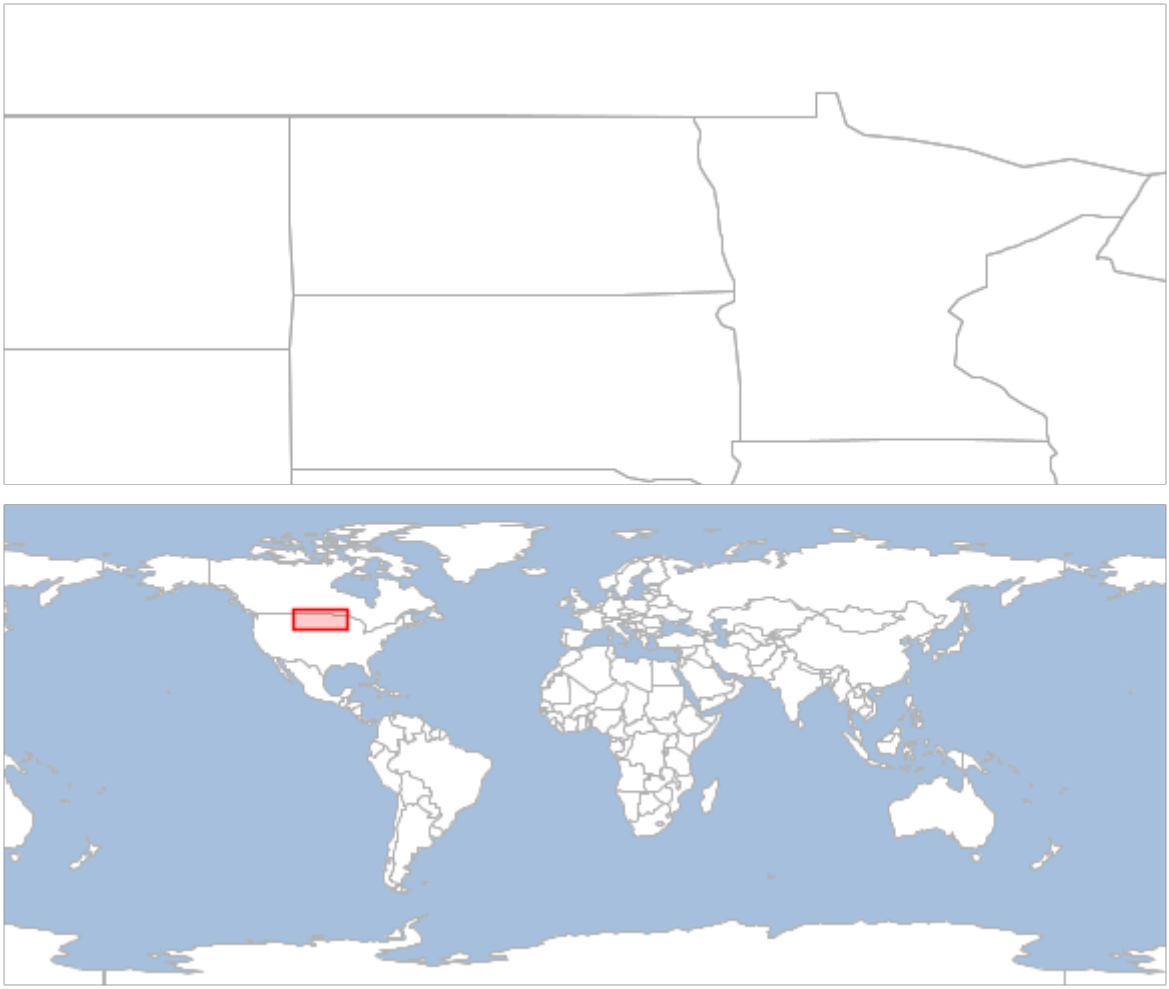
JSON

```
{
  "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>
```

```
            <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>
    <zoomIntoBounds>false</zoomIntoBounds>
    <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.

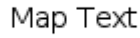
JSON

```
{
  "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>
```



Rectangle

Draw a rectangle.

JSON

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

XML

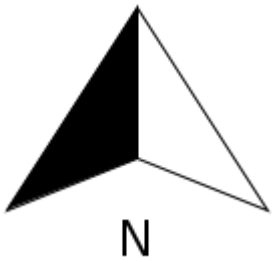
```
<item>
    <x>10</x>
    <y>10</y>
    <width>30</width>
    <height>30</height>
    <type>rectangle</type>
    <fillColor>white</fillColor>
    <strokeColor>black</strokeColor>
</item>
```

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"
}
```

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>
```

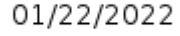
```
    <height>70</height>
    <type>legend</type>
    <map>mainMap</map>
    <backgroundColor>white</backgroundColor>
    <title>Legend</title>
    <titleFont>
        <name>Arial</name>
        <style>bold</style>
        <size>14</size>
    </titleFont>
    <titleColor>black</titleColor>
    <textColor>black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

Date

Draw a date.

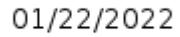
JSON

```
{
  "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
  }
}
```



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>
```



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

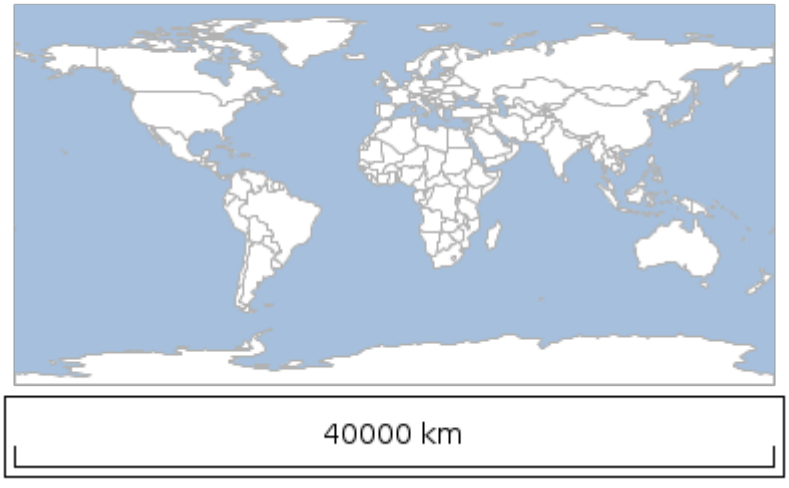
```xml
<item>
    <x>10</x>
    <y>10</y>
    <width>580</width>
    <height>240</height>
    <type>map</type>
    <name>mainMap</name>
    <layers>
        <layer>
            <layertype>layer</layertype>
            <file>src/test/resources/data.gpkg</file>
            <layername>ocean</layername>
            <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 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>
```

Line

Draw a line.

JSON

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

XML

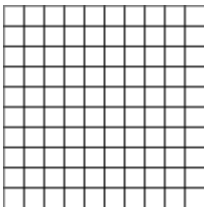
```
<item>
    <x>10</x>
    <y>10</y>
    <width>180</width>
    <height>0</height>
    <type>line</type>
    <strokeColor>black</strokeColor>
    <strokeWidth>2</strokeWidth>
</item>
```

Grid

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

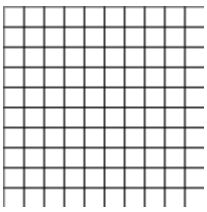
JSON

```
{
  "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>
```

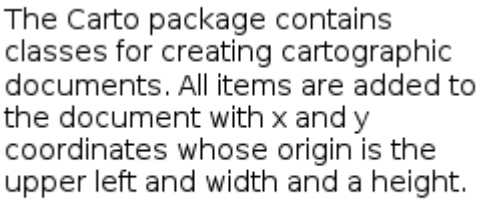


Paragraph

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
  }
}
```



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	Abbreviatio
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	Abbreviatio
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)

Short Name	Long Name	Description
	--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 (-122.52561944444444 47.212022222222224)
```

GeoHash Bounds

Calculate the geohashes for the given bounds.

Short Name	Long Name	Description
-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 (35.00001668930054 60.00000715255737)
```

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.

Short Name	Long Name	Description
-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 uf8vk6wjr
```

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

Great Circle Arc

Create a great circle arc.

Short Name	Long Name	Description
-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-segements	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)
```

orthodromicDistance

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
```

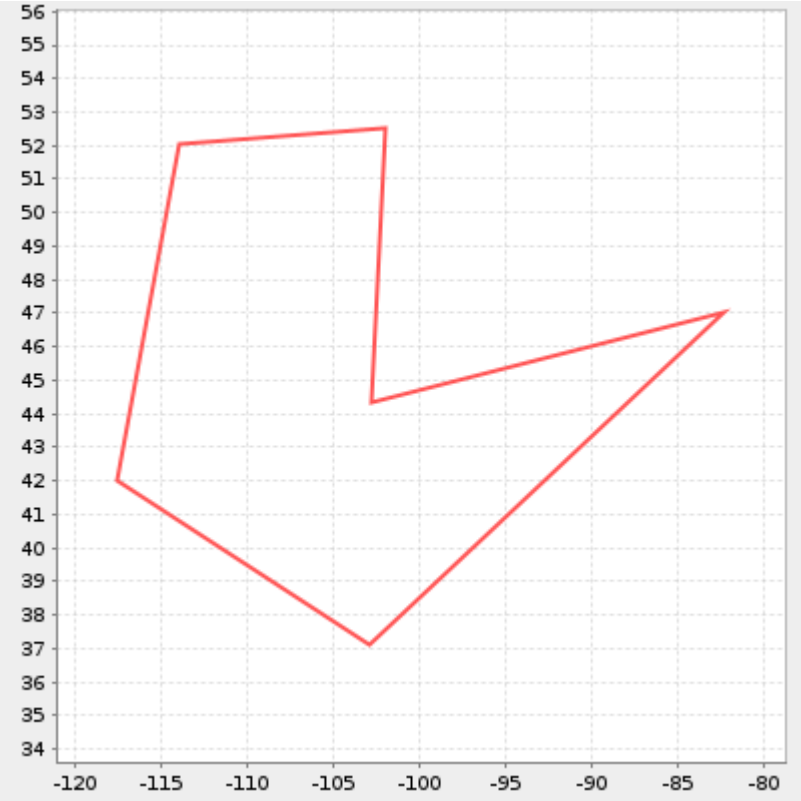
Plot

Draw a geometry to a plot.

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

Short Name	Long Name	Description
-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.

Short Name	Long Name	Description
-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/polygons.csv **layername**=polygons **style**=/Users/user/Desktop/geoc/polygons.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/polygons.shp
  - **layertype**=layer **directory**=/Users/user/Projects/geoc/src/test/resources/points.properties **layername**=points
- **Raster**

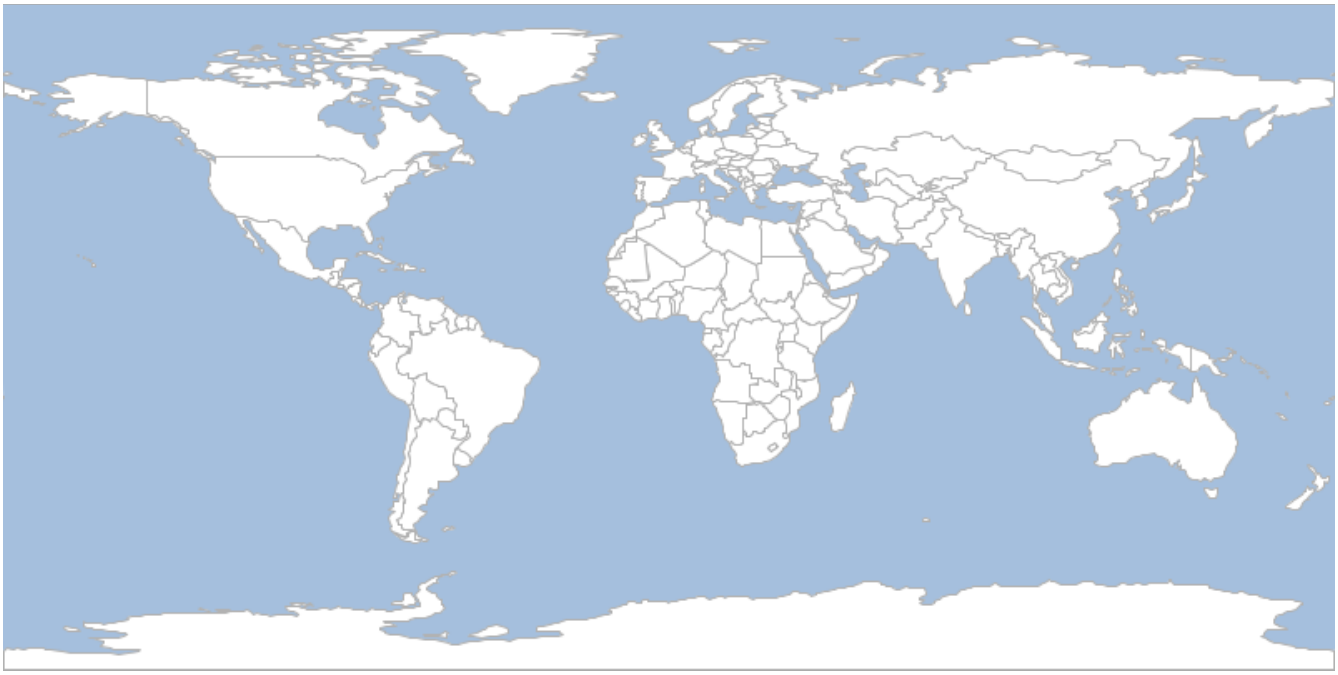
    - **layertype**=raster **source**=rasters/earth.tif
- **Tile**
    - **layertype**=tile **file**=world.mbtiles
    - **layertype**=tile **type**=geopackage **file**=states.gpkg

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
```

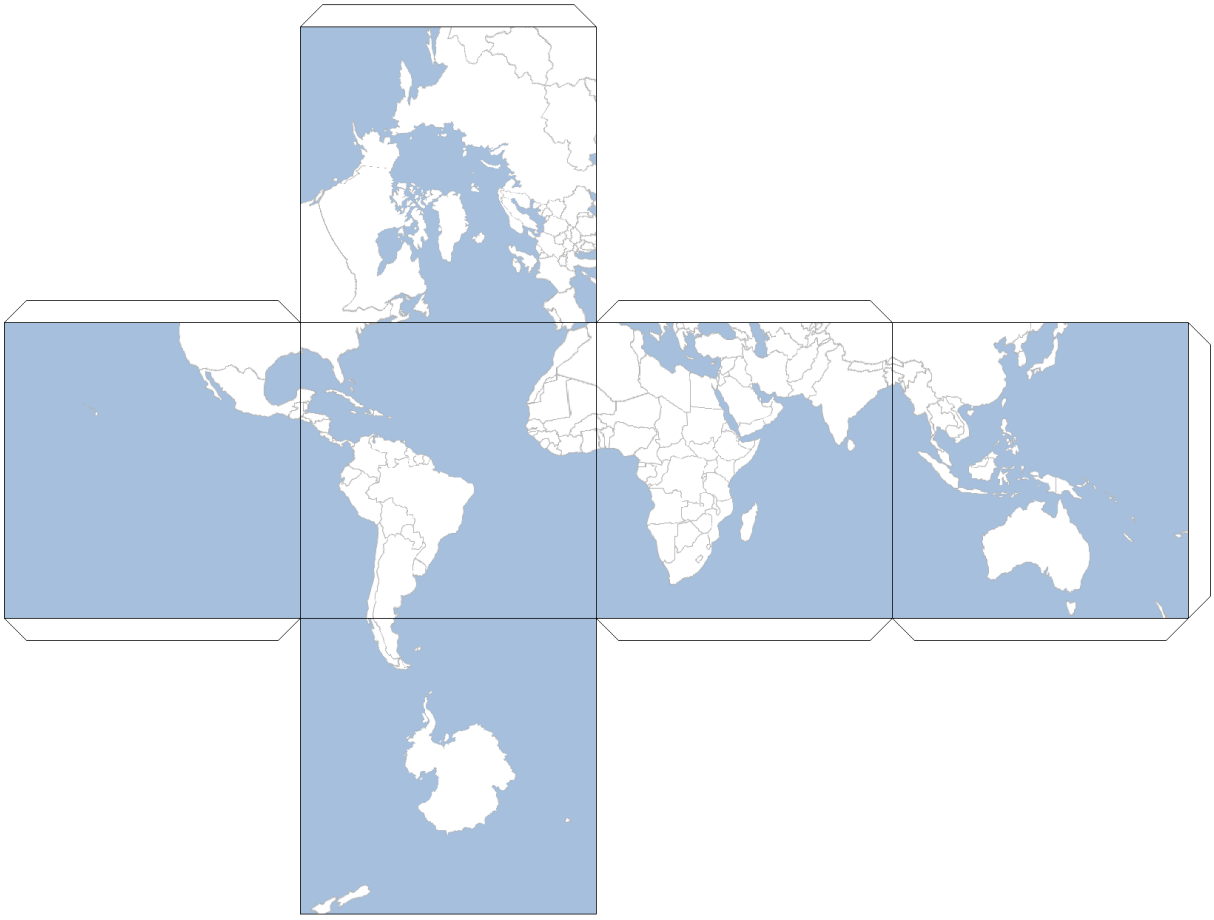


Map Cube

Draw a map cube.

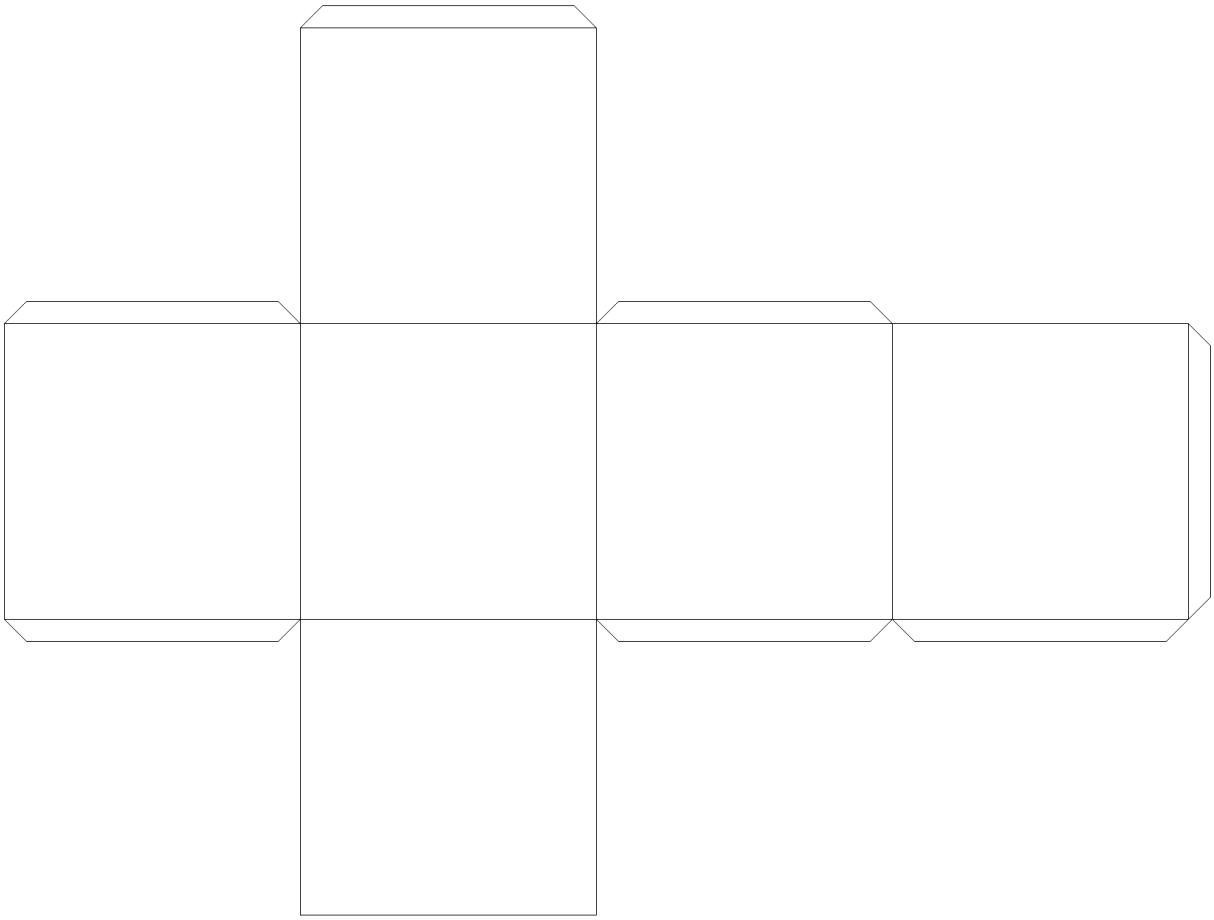
Short Name	Long Name	Description
-l	--layer	The map layer
-f	--file	The output image file
-o	--draw-outline	The flag to whether to draw outlines or not
-t	--draw-tabs	The flag to whether to draw tabs or not
-s	--tab-size	The tab size
-i	--title	The title
-c	--source	The data source or credits
	--help	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
```



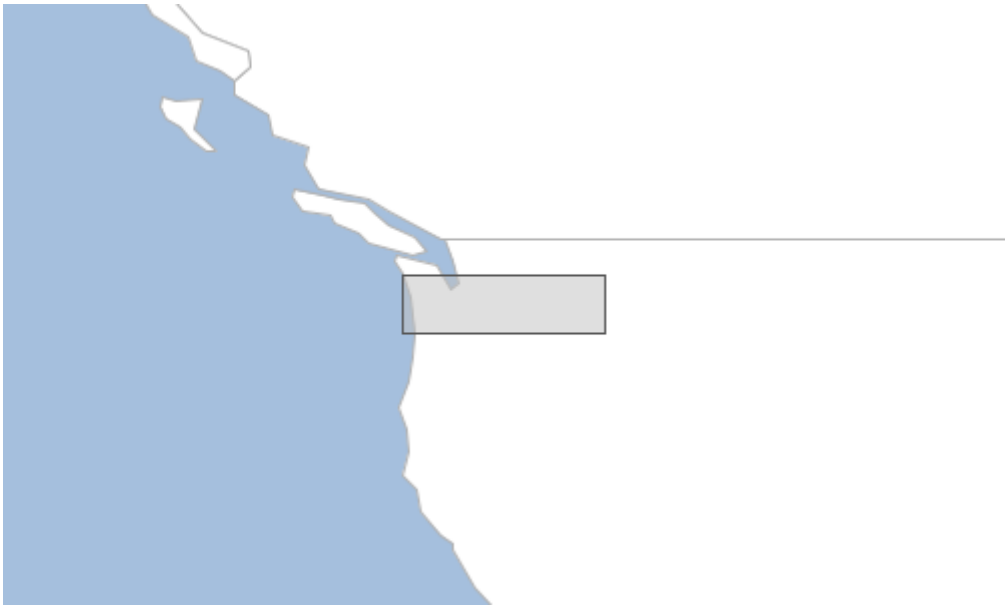
Projection Commands

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, 298.257222101, 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", 45.333333333333336],
  PARAMETER["Latitude of 1st standard parallel", 47.333333333333336],
  PARAMETER["False easting", 1640416.667],
  PARAMETER["False northing", 0.0],
  PARAMETER["Scale factor at natural origin", 1.0],
  PARAMETER["Latitude of 2nd standard parallel", 45.833333333333336],
  UNIT["ft_survey_us", 0.3048006096012192],
  AXIS["Easting", EAST],
  AXIS["Northing", NORTH],
  AUTHORITY["EPSG","2927"]]
```

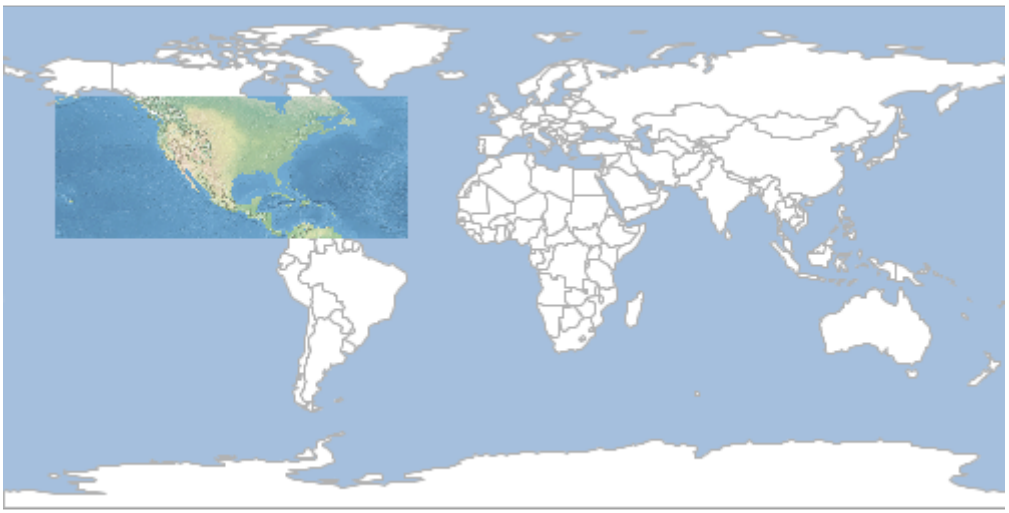
Raster Commands

Crop

Crop a Raster.

Short Name	Long Name	Description
-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
```

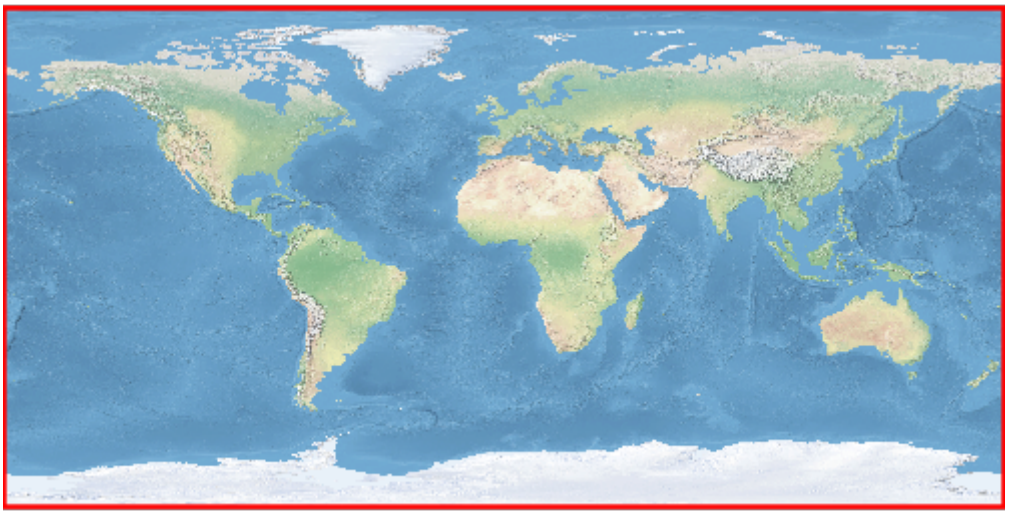


Envelope

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: 0.44999999999995505, 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
```

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.

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 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=#fcedcd
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>
```

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

Delete

Delete tiles from a tile layer

Short Name	Long Name	Description
-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.

Short Name	Long Name	Description
-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
-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,-
2.0037471205137067E7,2.003639514788131E7,2.003747120513706E7,EPSG:3857)
   Generating 1 tile took 0.088060953 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-
9,0.0,2.003747120513706E7,EPSG:3857)
   3). Tile(x:1, y:1, z:1)
          Bounds(0.0,-3.725290298461914E-
```

```
9,2.003639514788131E7,2.003747120513706E7,EPSG:3857)
   Generating 4 tiles took 0.316581145 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,-
3.7252902984619l4E-9,EPSG:3857)
   5). Tile(x:1, y:1, z:2)
          Bounds(-1.0018197573940655E7,-1.0018735602568535E7,0.0,-3.7252902984619l4E-
9,EPSG:3857)
   6). Tile(x:2, y:1, z:2)
          Bounds(0.0,-1.0018735602568535E7,1.0018197573940655E7,-3.7252902984619l4E-
9,EPSG:3857)
   7). Tile(x:3, y:1, z:2)
          Bounds(1.0018197573940653E7,-1.0018735602568535E7,2.0036395147881307E7,-
3.7252902984619l4E-9,EPSG:3857)
   8). Tile(x:0, y:2, z:2)
          Bounds(-2.003639514788131E7,-3.7252902984619l4E-9,-
1.0018197573940655E7,1.0018735602568528E7,EPSG:3857)
   9). Tile(x:1, y:2, z:2)
          Bounds(-1.0018197573940655E7,-3.7252902984619l4E-
9,0.0,1.0018735602568528E7,EPSG:3857)
   10). Tile(x:2, y:2, z:2)
          Bounds(0.0,-3.7252902984619l4E-
9,1.0018197573940655E7,1.0018735602568528E7,EPSG:3857)
   11). Tile(x:3, y:2, z:2)
          Bounds(1.0018197573940653E7,-3.7252902984619l4E-
9,2.0036395147881307E7,1.0018735602568528E7,EPSG:3857)
   12). Tile(x:0, y:3, z:2)
          Bounds(-2.003639514788131E7,1.001873560256853E7,-
1.0018197573940655E7,2.003747120513706E7,EPSG:3857)
   13). Tile(x:1, y:3, z:2)
          Bounds(-
1.0018197573940655E7,1.001873560256853E7,0.0,2.003747120513706E7,EPSG:3857)
   14). Tile(x:2, y:3, z:2)

Bounds(0.0,1.001873560256853E7,1.0018197573940655E7,2.003747120513706E7,EPSG: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 1.086563327 seconds
```

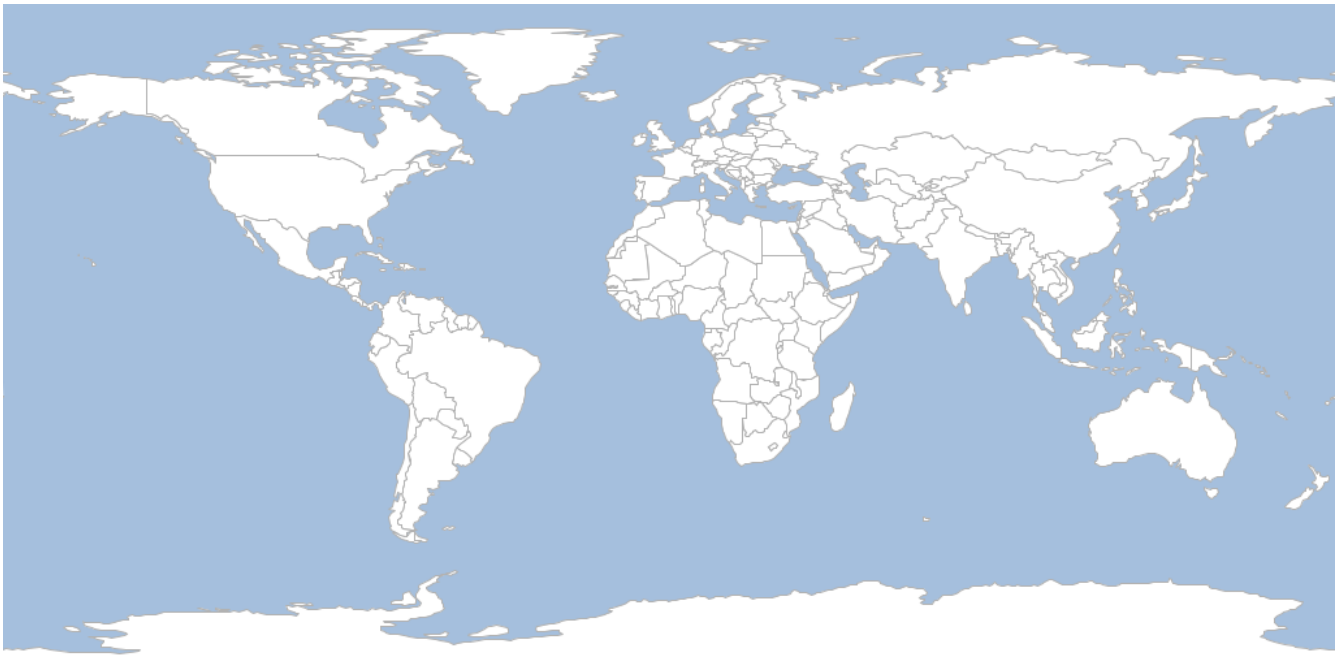
GeoPackage

```
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 0.079776131 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 0.23149618 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 0.779429745 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,-
2.0037471205137067E7,2.003639514788131E7,2.003747120513706E7,EPSG:3857)
   Generating 1 tile took 0.095904756 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-
9,0.0,2.003747120513706E7,EPSG:3857)
   3). Tile(x:1, y:1, z:1)
          Bounds(0.0,-3.725290298461914E-
9,2.003639514788131E7,2.003747120513706E7,EPSG:3857)
   Generating 4 tiles took 0.252614107 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,EPSG:3857)
   9). Tile(x:1, y:2, z:2)
          Bounds(-1.0018197573940655E7,-3.725290298461914E-
9,0.0,1.0018735602568528E7,EPSG:3857)
   10). Tile(x:2, y:2, z:2)
          Bounds(0.0,-3.725290298461914E-
9,1.0018197573940655E7,1.0018735602568528E7,EPSG:3857)
   11). Tile(x:3, y:2, z:2)
          Bounds(1.0018197573940653E7,-3.725290298461914E-
9,2.0036395147881307E7,1.0018735602568528E7,EPSG:3857)
   12). Tile(x:0, y:3, z:2)
          Bounds(-2.003639514788131E7,1.001873560256853E7,-
1.0018197573940655E7,2.003747120513706E7,EPSG:3857)
   13). Tile(x:1, y:3, z:2)
          Bounds(-
1.0018197573940655E7,1.001873560256853E7,0.0,2.003747120513706E7,EPSG:3857)
   14). Tile(x:2, y:3, z:2)

Bounds(0.0,1.001873560256853E7,1.0018197573940655E7,2.003747120513706E7,EPSG: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 0.969832799 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,-
2.0037471205137067E7,2.003639514788131E7,2.003747120513706E7,EPSG:3857)
   Generating 1 tile took 0.523511119 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-
9,0.0,2.003747120513706E7,EPSG:3857)
   3). Tile(x:1, y:1, z:1)
```

```
          Bounds(0.0,-3.725290298461914E-
9,2.003639514788131E7,2.003747120513706E7,EPSG:3857)
   Generating 4 tiles took 0.840441439 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,EPSG:3857)
   9). Tile(x:1, y:2, z:2)
          Bounds(-1.0018197573940655E7,-3.725290298461914E-
9,0.0,1.0018735602568528E7,EPSG:3857)
   10). Tile(x:2, y:2, z:2)
          Bounds(0.0,-3.725290298461914E-
9,1.0018197573940655E7,1.0018735602568528E7,EPSG:3857)
   11). Tile(x:3, y:2, z:2)
          Bounds(1.0018197573940653E7,-3.725290298461914E-
9,2.0036395147881307E7,1.0018735602568528E7,EPSG:3857)
   12). Tile(x:0, y:3, z:2)
          Bounds(-2.003639514788131E7,1.001873560256853E7,-
1.0018197573940655E7,2.003747120513706E7,EPSG:3857)
   13). Tile(x:1, y:3, z:2)
          Bounds(-
1.0018197573940655E7,1.001873560256853E7,0.0,2.003747120513706E7,EPSG:3857)
   14). Tile(x:2, y:3, z:2)

Bounds(0.0,1.001873560256853E7,1.0018197573940655E7,2.003747120513706E7,EPSG: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 0.825507803 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,EPSG: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>
```

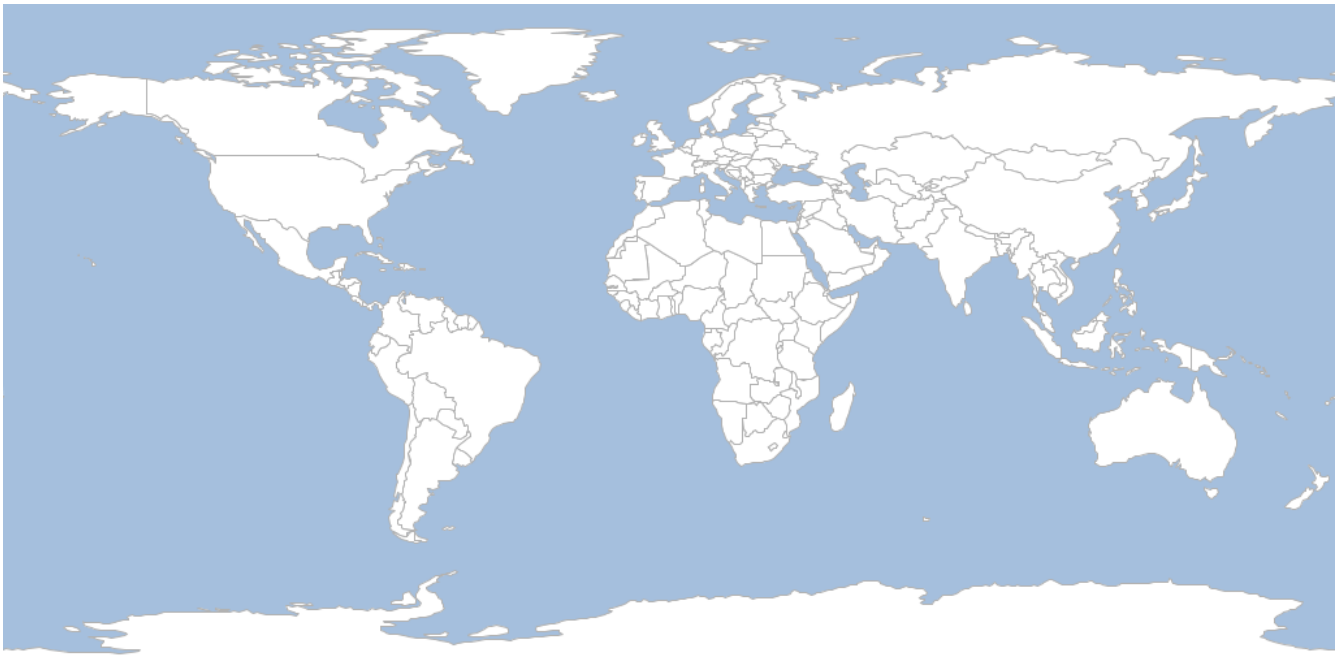
Stitch Raster

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

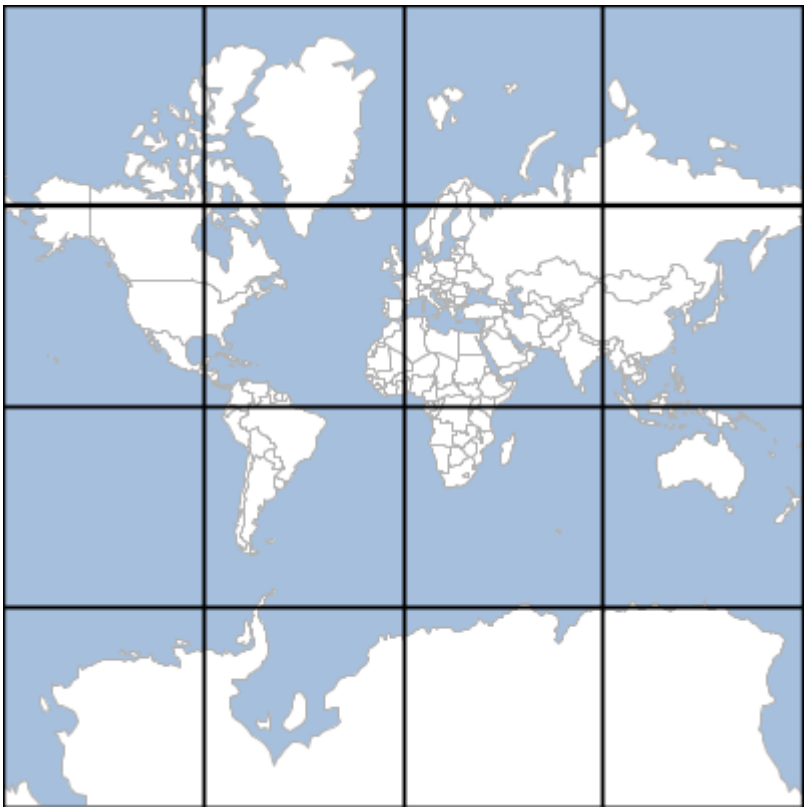
Name	Type
geometry	Polygon
TYPE	String
LEVEL	Long
NAME	String

Vector Grid

Create a vector grid of a tile layers cells.

Short Name	Long Name	Description
-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

Short Name	Long Name	Description
-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

Name	Type
the_geom	Point
name	String
id	Integer

Add Area Field

Add an area Field.

Short Name	Long Name	Description
-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

Name	Type
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

name	label	length
Peace	Peace	44.84258394589285
Donau	Donau	26.67902946932429

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

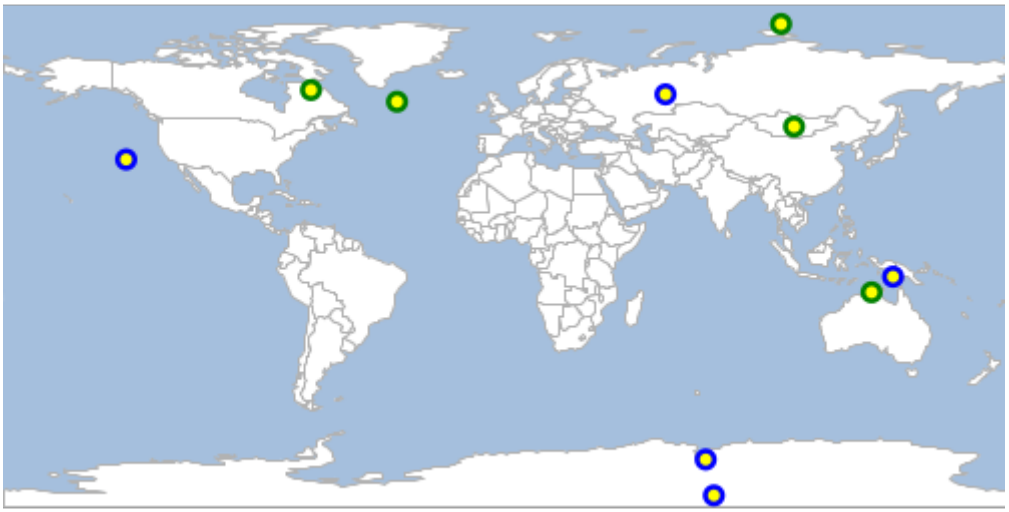
NAME	x_coord	y_coord
Luxembourg	6.1300028	49.6116604

Append

Add a Features from one layer to another Layer.

Short Name	Long Name	Description
-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
```



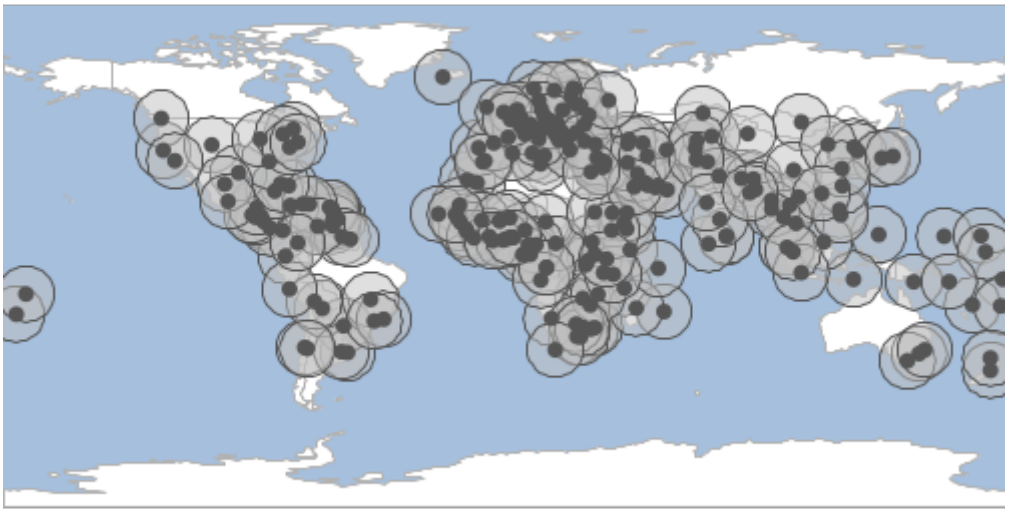
Buffer

Buffer all of the features in a Layer.

Short Name	Long Name	Description
-d	--distance	The buffer distance
-q	--quadrantsegments	The number of quadrant segments

Short Name	Long Name	Description
-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
	--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
```

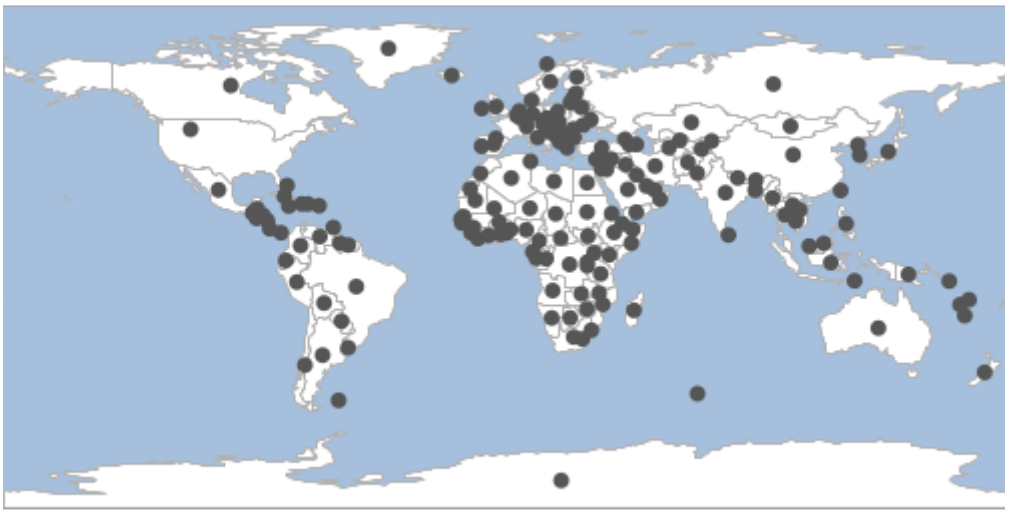


Centroid

Calculate the centroid of all the features in a Layer.

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

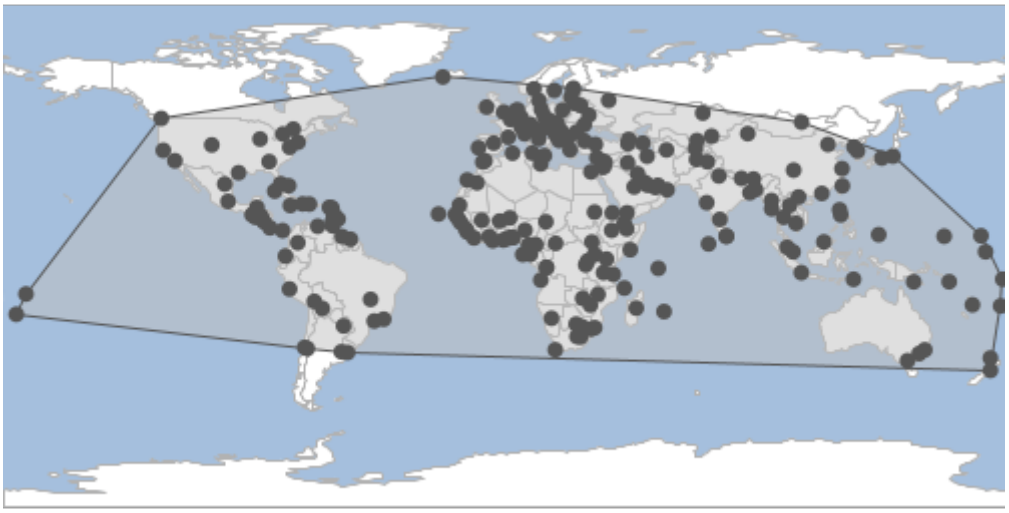


Convexhull

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
```

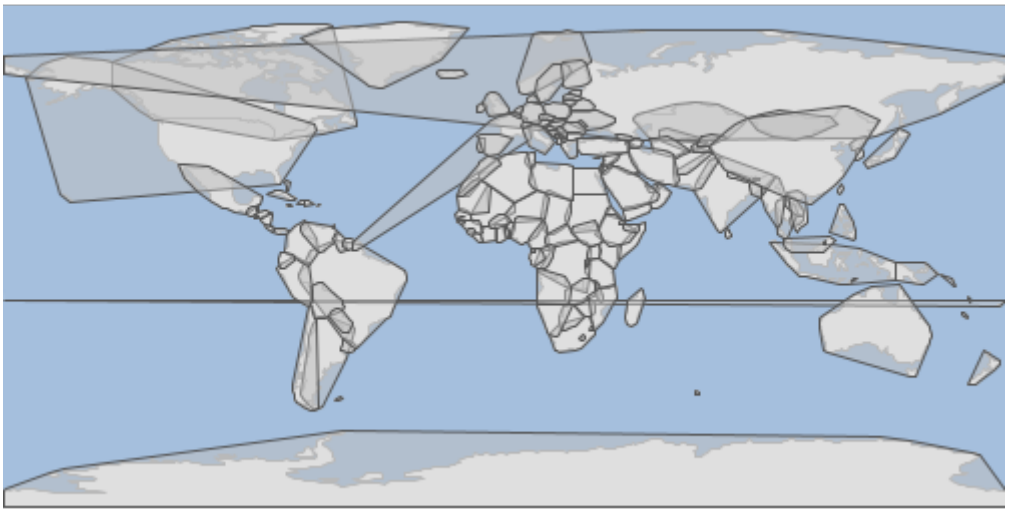


Convexhulls

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
```



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
```

```
243
```

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

Short Name	Long Name	Description
	--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
```

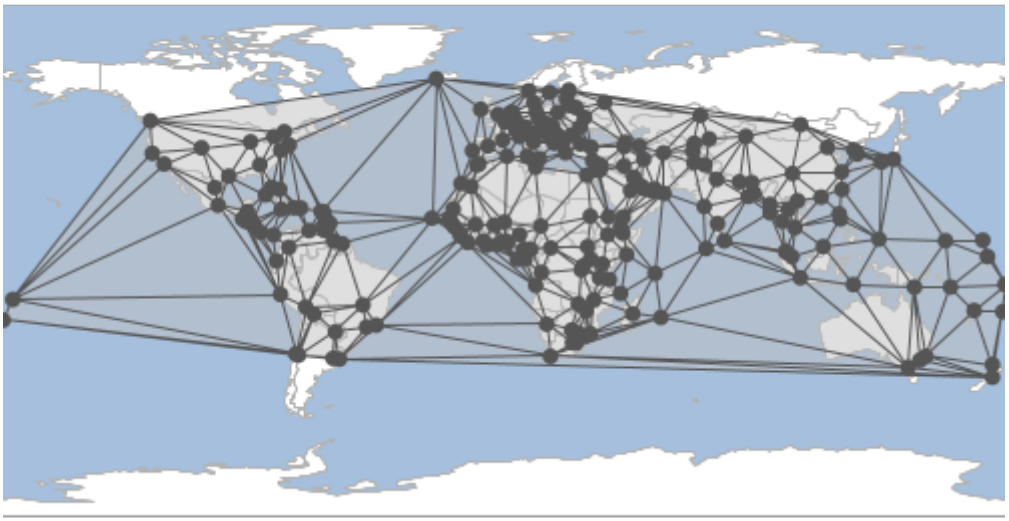
Name	Type
the_geom	Point
name	String
id	Integer

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
```

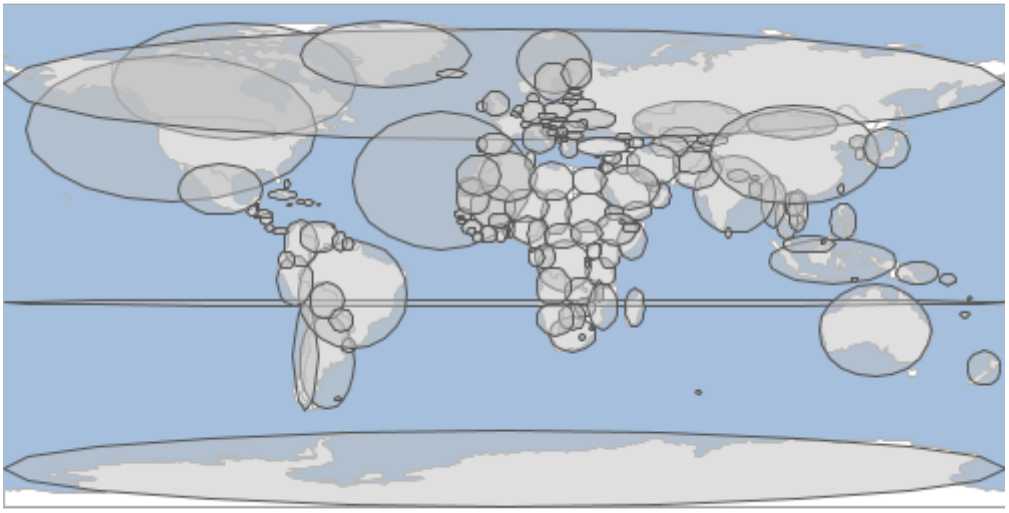


Ellipse

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
```

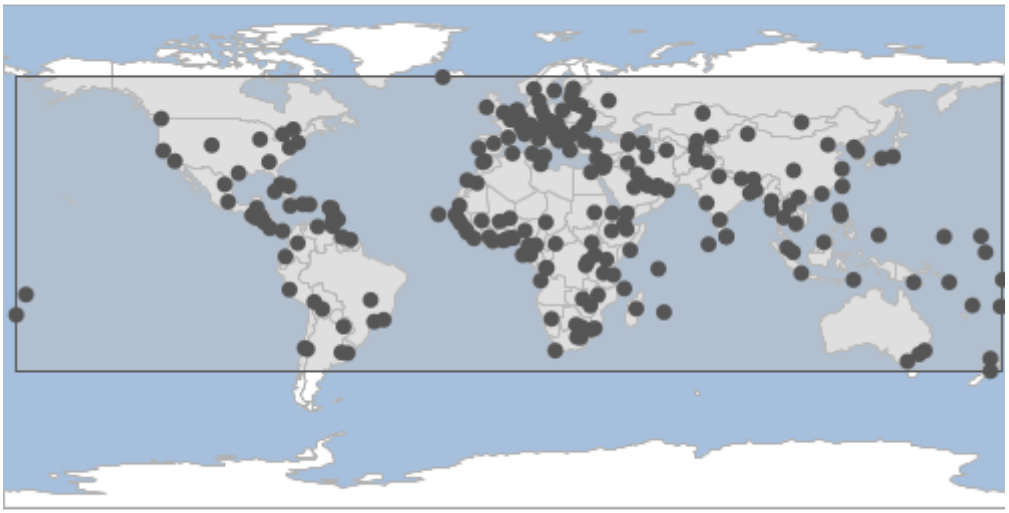


Envelope

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
```

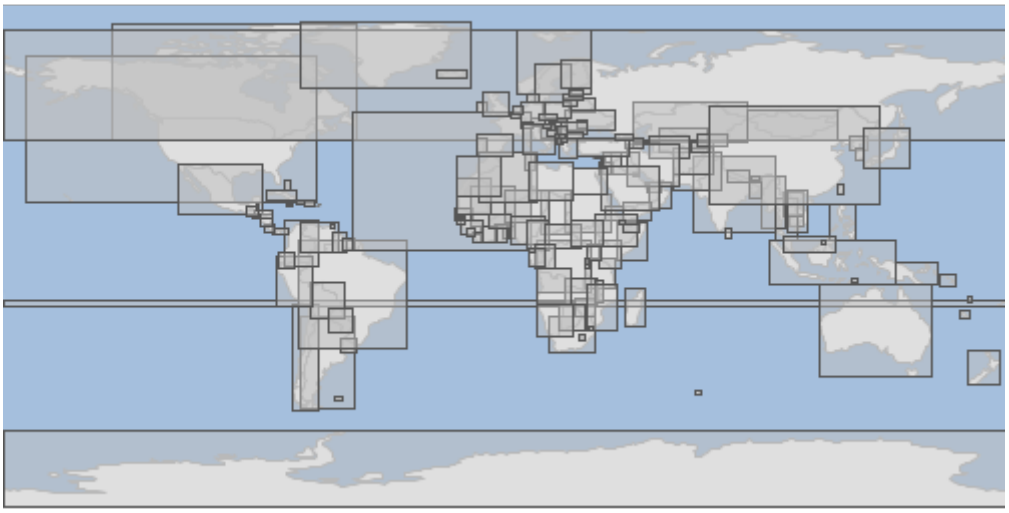


Envelopes

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
-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":[-60.0026,78.433]},"properties":{"id":0},"id":"randompoints.1"},{"type":
"Feature","geometry":{"type":"Point","coordinates":[82.8902,-73.872]},"properties":{
"id":1},"id":"randompoints.2"},{"type":"Feature","geometry":{"type":"Point","coordinat
es":[-63.2133,-11.7686]},"properties":{"id":2},"id":"randompoints.3"},{"type":"
Feature","geometry":{"type":"Point","coordinates":[-1.8767,-65.2411]},"properties":{
"id":3},"id":"randompoints.4"},{"type":"Feature","geometry":{"type":"Point","coordinat
es":[99.6327,-77.2146]},"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 (116.76493835586763 89.49194475318816)","0"
"POINT (66.08799055412206 -73.94963878229296)","1"
"POINT (-73.30918112445288 3.929941452968208)","2"
"POINT (173.90924217499185 59.537162272134765)","3"
"POINT (-164.84661179167972 35.502461754689705)","4"
```

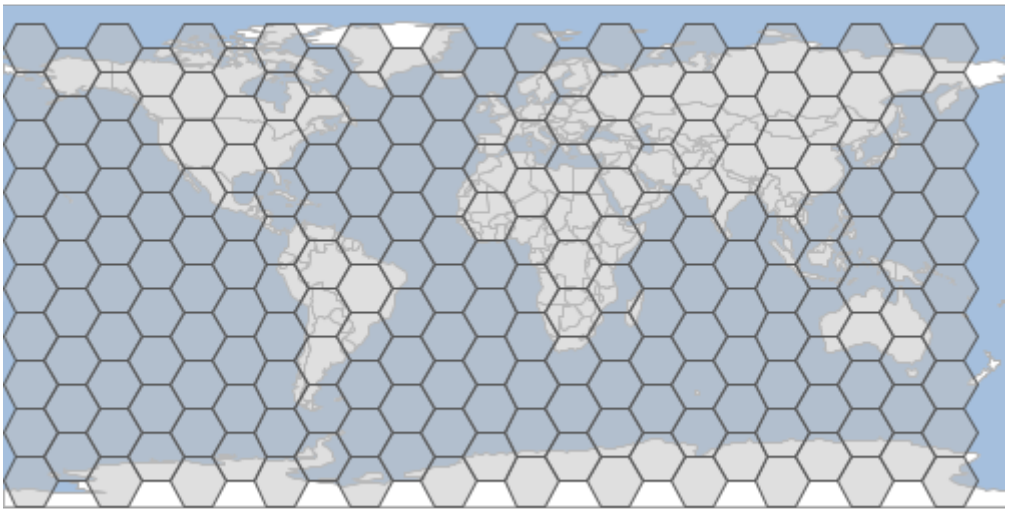
```
cat points.csv | geoc vector from -f csv
```

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
```



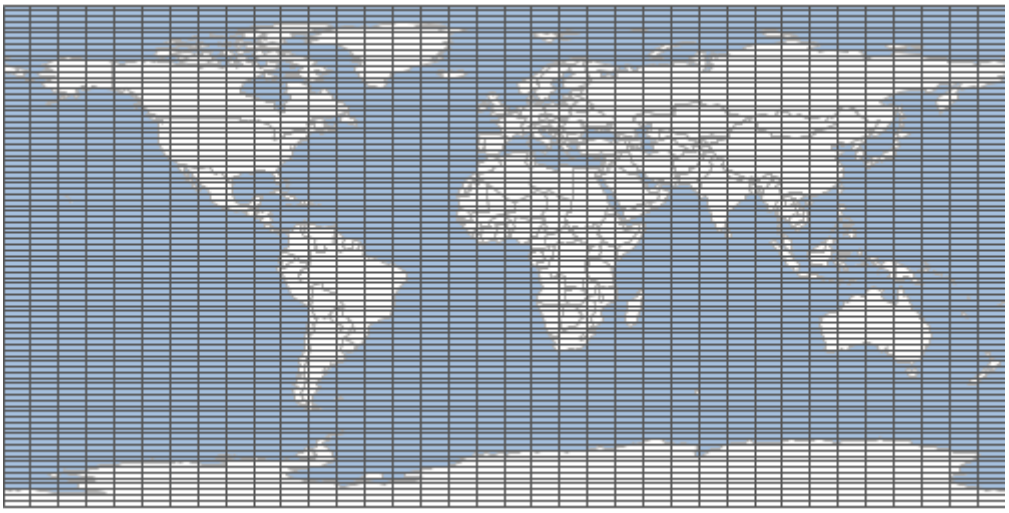
Graticule - Line

Create line graticules.

Short Name	Long Name	Description
-g	--geometry	The geometry
-s	--spacing	The spacing (defaults to -1)

Short Name	Long Name	Description
-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
```

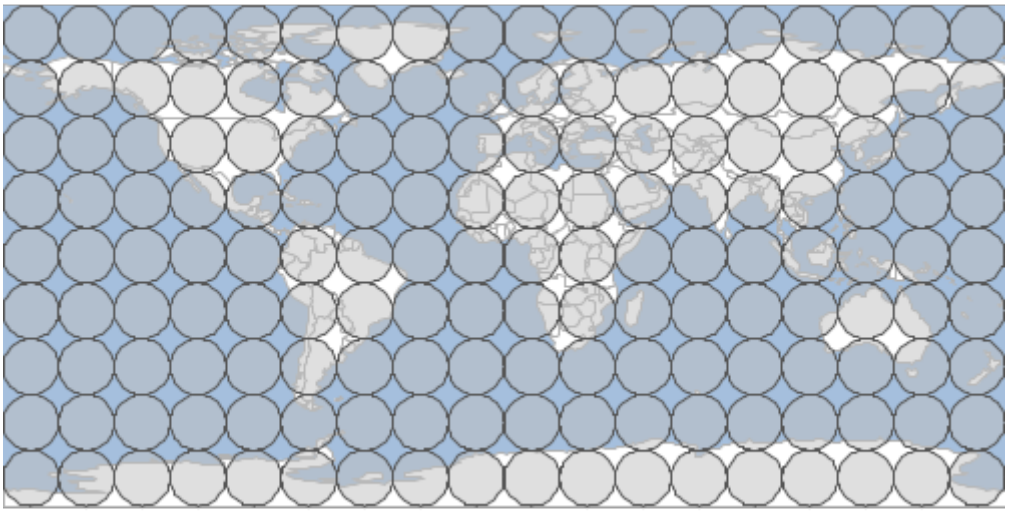


Graticule - Oval

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
```

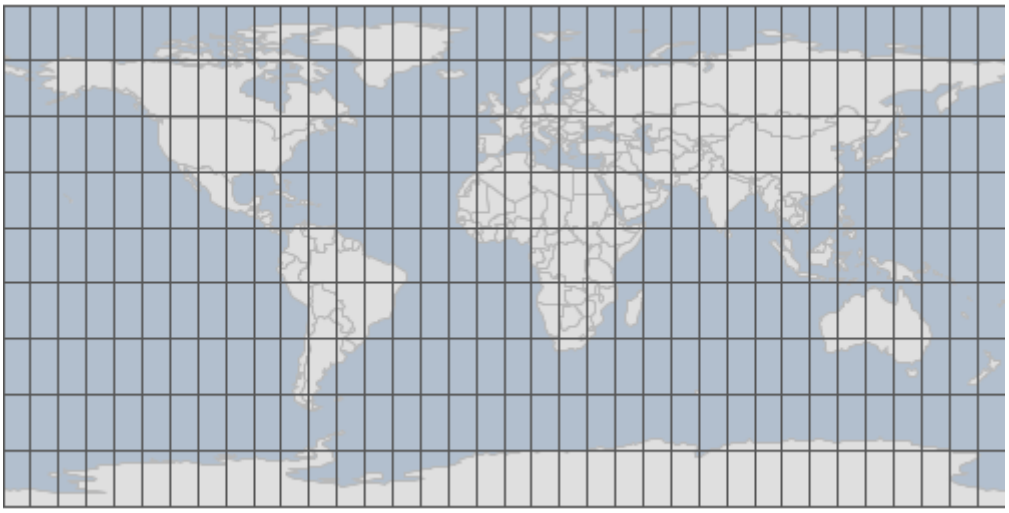


Graticule - Rectangle

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
```

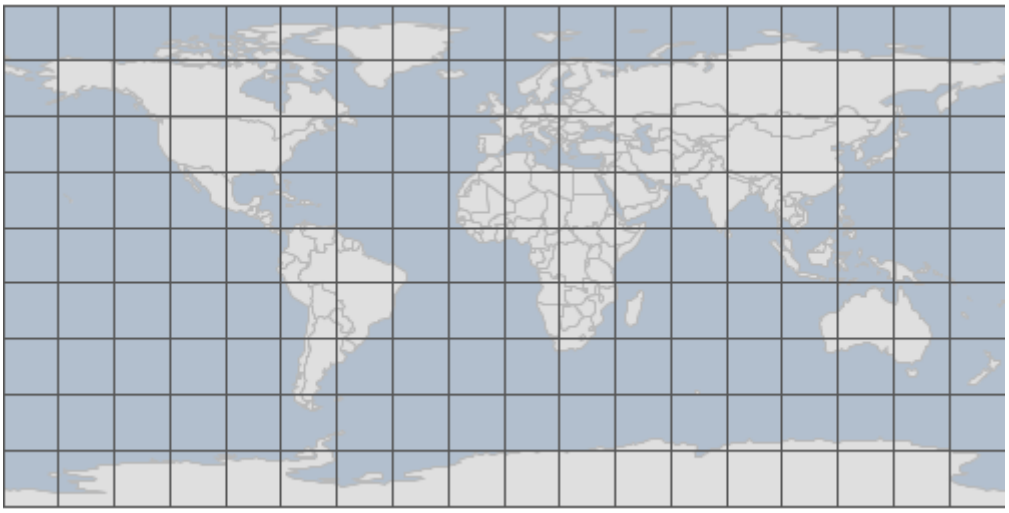


Graticule - Square

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
-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.

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

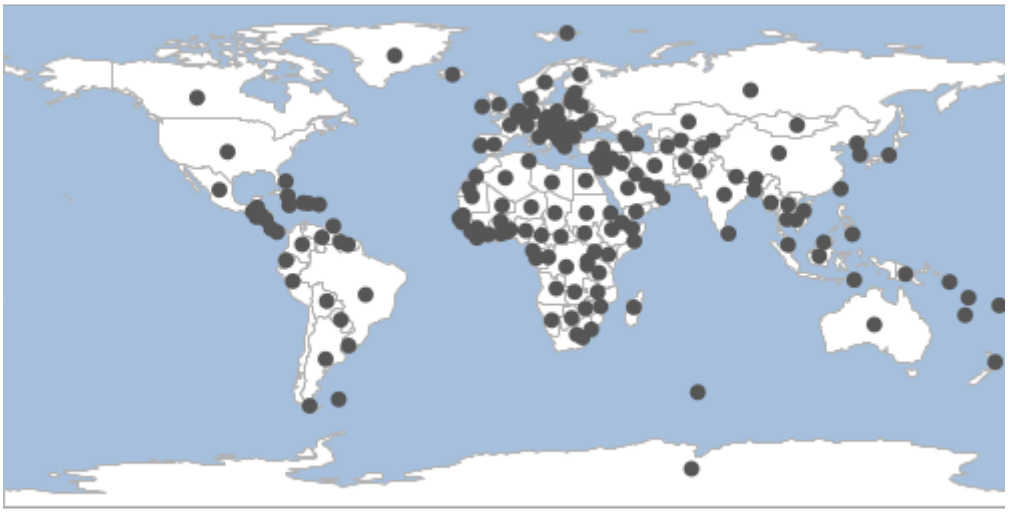
```
Name: countries
Geometry: MultiPolygon
Extent: -180.0, -90.0, 180.00000000000006, 83.64513000000001
Projection ID: EPSG:4326
Projection WKT: GEOGCS["WGS 84",
  DATUM["World Geodetic System 1984",
    SPHEROID["WGS 84", 6378137.0, 298.257223563, AUTHORITY["EPSG","7030"]],
    AUTHORITY["EPSG","6326"]],
  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
```

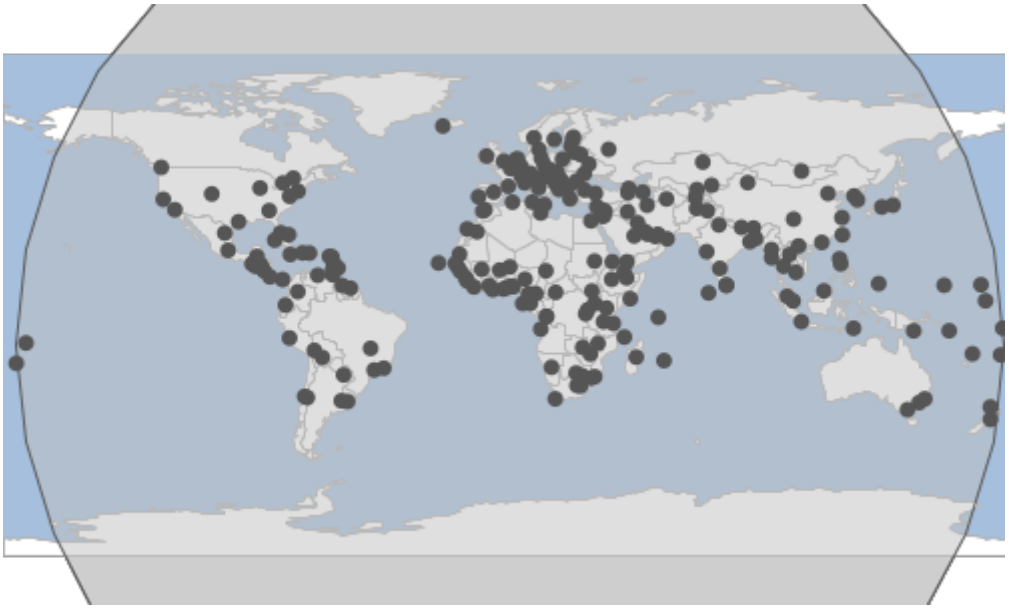
Minimum Bounding Circle

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

Short Name	Long Name	Description
	--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
```

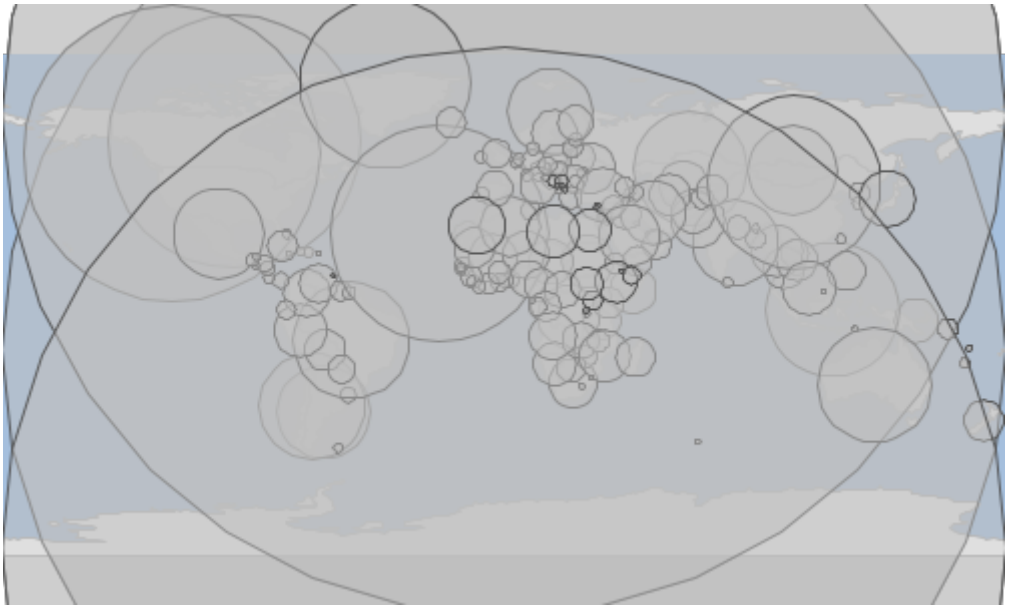


Minimum Bounding Circles

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

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

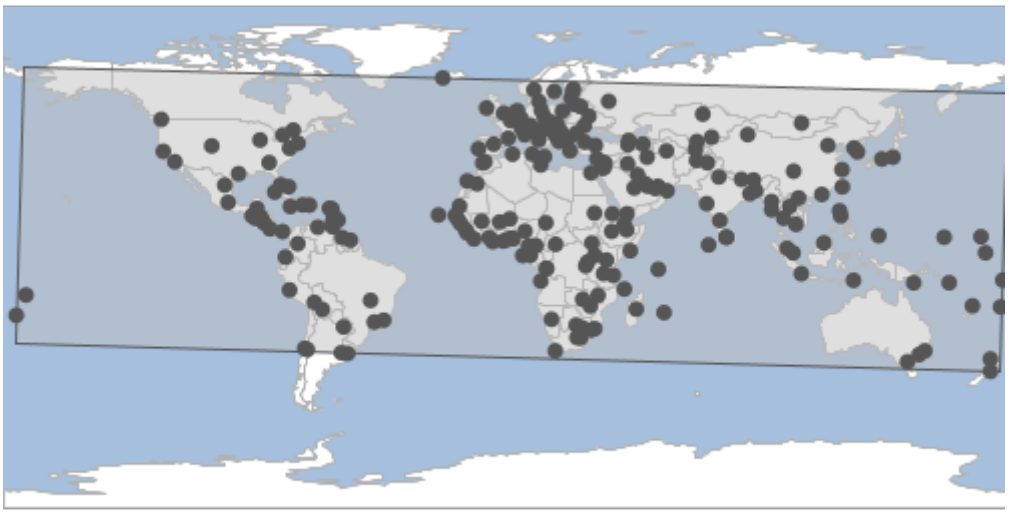


Minimum Bounding Rectangle

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
```

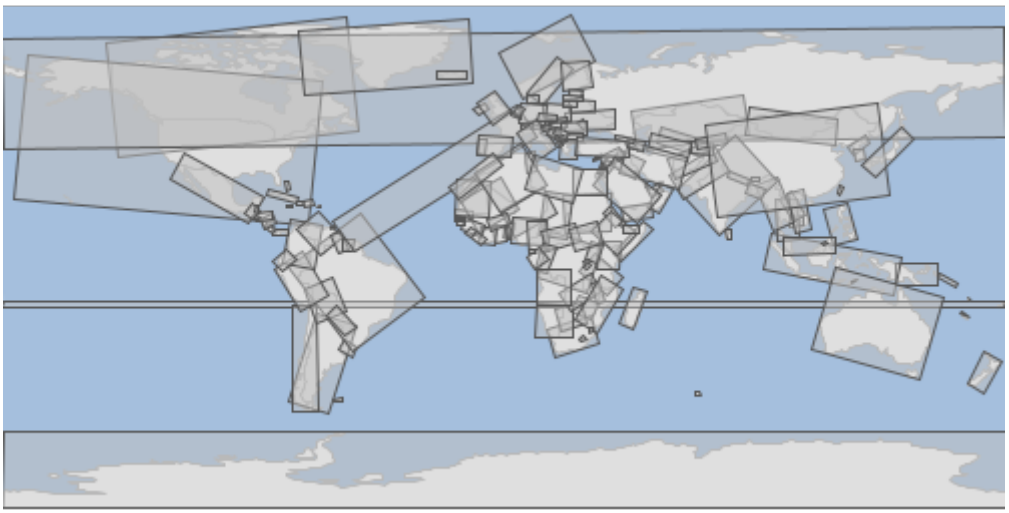


Minimum Bounding rects

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
```



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

Short Name	Long Name	Description
	--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
```

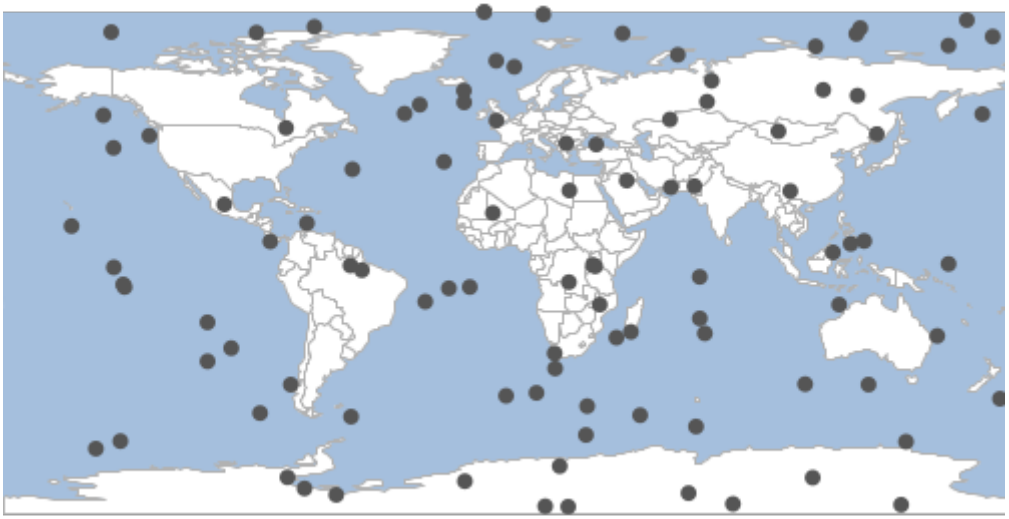
Random Points

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

Short Name	Long Name	Description
-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
```



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":[122.7241,14.5692]},"properties":{"id":0},"id":"randompoints.1"},{"type":"Feature","geometry":{"type":"Point","coordinates":[97.1685,-11.8931]},"properties":{"id":1},"id":"randompoints.2"},{"type":"Feature","geometry":{"type":"Point","coordinates":[96.1646,62.6204]},"properties":{"id":2},"id":"randompoints.3"},{"type":"Feature","geometry":{"type":"Point","coordinates":[-172.3349,-17.5401]},"properties":{"id":3},"id":"randompoints.4"},{"type":"Feature","geometry":{"type":"Point","coordinates":[-134.1642,-85.249]},"properties":{"id":4},"id":"randompoints.5"}]}
```


CSV

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


```
"the_geom:Point:EPSG:4326","id:Integer"
"POINT (90.05288150956972 -88.89289505522005)","0"
"POINT (-28.006489392444507 2.0180354919084067)","1"
"POINT (-105.12587578583454 -32.61087362140958)","2"
"POINT (-126.64993026765336 -20.254873846862168)","3"
"POINT (-41.95937857329898 17.55356287710555)","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_ADM0  | 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       |
-----------------------------
```

Voronoi

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