

```
1. geo shell 0.0.1 (java)
Jared-Ericksons-MacBook-Pro:geo-shell jericks$ geo-shell

Welcome to the Geo Shell!
geo-shell>workspace open --name mem --params memory
Workspace mem opened!
geo-shell>layer create --workspace mem --name points --fields "the_geom=Point EP
SG:4326|fid=Integer|name=String"
Created Layer points!
geo-shell>layer add --name points --values "the_geom=POINT (-122.333056 47.60972
2)|fid=1|name=Seattle"
Added Feature to points
geo-shell>layer add --name points --values "the_geom=POINT (-122.459444 47.24138
9)|fid=2|name=Tacoma"
Added Feature to points
geo-shell>layer count --name points
2
geo-shell>[]
```

# Geo Shell

Jared Erickson

Version 0.7-SNAPSHOT

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# Introduction

Geo Shell is an interactive shell for geospatial analysis.



```
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Created Layer points!
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Added Feature to points
geo-shell>layer add --name points --values "the_geom=POINT (-122.459444 47.241389)|fid=2|name=Tacoma"
Added Feature to points
geo-shell>layer count --name points
2
geo-shell>[]
```

## Modules

Geo Shell has modules for dealing with **vectors**, **rasters**, **tiles**, **maps**, and **styles**.

For **vector** layers, you can use **workspace** commands access layers of spatial data in datasets like shapefiles, geopackages, or postgis databases. With **layer** commands you can perform geoprocessing functions like calculating centroids or buffer features.

For **raster** layers, you can use **format** commands access individual rasters from geotiffs or world images. With **raster** commands you can perform mosaic, raster algebra, or crop functions.

The **tile** commands let you create tile layers, get tiles, and get rasters from tiles.

The **style** commands let you create styles for vector layers and raster.

The **map** commands allow you to visualize vector, raster, and tile layers.

# Use

You can use geo-shell interactively by typing **geo-shell** at the command line.

Or you can write scripts and then execute them from the command line by typing **geo-shell -cmdfile script.txt**

Or by using the **script --file script.txt** command within a geo-shell session.

# Workspace

Workspaces hold vector layers. A Workspace can be a GeoPackage database, a directory of Shapefiles, or a PostGIS database.

## Basics

You can open, close, and list Workspaces. The earliest Workspace to open is an in memory Workspace.

### Open

Open a Workspace.

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Workspace name	true		
params	The connection parameters	true		

```
geo-shell> workspace open --name mem --params memory
Workspace mem opened!
```

You can open a Workspace with --params or connection parameters. You can give it a name with --name flag.

### List

List open Workspaces. NOTE: No parameters

```
geo-shell> workspace list
mem = Memory
```

Listing open Workspaces give you the name and the type Workspace.

### Close

Close a Workspace.

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Workspace name	true		

geo-shell> **workspace close** --name mem  
Workspace mem closed!

Once you close a Workspace by name it will no longer appear with the list command.

## Layers

List the Layer in a Workspaces.

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Workspace name	true		

In this example, we will open a GeoPackage database filled with data from Natural Earth.

*Open a Workspace*

geo-shell> **workspace open** --name naturalearth --params src/test/resources/naturalearth.gpkg  
Workspace naturalearth opened!

*List open Workspaces*

geo-shell> **workspace layers** --name naturalearth  
countries  
ocean  
places  
states

*Close a Workspace*

geo-shell> **workspace close** --name naturalearth  
Workspace naturalearth closed!

## Layer

### Basics

#### Open

Open a Layer.

geo-shell> **layer open** --workspace naturalearth --layer countries --name countries

Name	Description	Mandatory	Specified Default	Unspecified Default
workspace	The Workspace name	true		
layer	The Layer name	true		
name	The name	false		

geo-shell> **workspace open** --name naturalearth --params src/test/resources/naturalearth.gpkg  
 Workspace naturalearth opened!

geo-shell> **layer open** --workspace naturalearth --layer countries --name countries  
 Opened Workspace naturalearth Layer countries as countries

geo-shell> **workspace close** --name naturalearth  
 Workspace naturalearth closed!

## Close

Close a Layer.

geo-shell> **layer close** --name countries

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Layer name	true		

geo-shell> **workspace open** --name naturalearth --params src/test/resources/naturalearth.gpkg  
 Workspace naturalearth opened!

geo-shell> **layer open** --workspace naturalearth --layer countries --name countries  
 Opened Workspace naturalearth Layer countries as countries

geo-shell> **layer close** --name countries  
 Layer countries closed!

geo-shell> **workspace close** --name naturalearth  
 Workspace naturalearth closed!

## List

List open Layers.

geo-shell> **layer list**



No parameters

geo-shell> **workspace open** --name naturalearth --params src/test/resources/naturalearth.gpkg  
 Workspace naturalearth opened!

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
Opened Workspace naturalearth Layer ocean as ocean
```

```
geo-shell> layer open --workspace naturalearth --layer states --name states
Opened Workspace naturalearth Layer states as states
```

```
geo-shell> layer list
countries = GeoPackage
ocean = GeoPackage
states = GeoPackage
```

```
geo-shell> workspace close --name naturalearth
Workspace naturalearth closed!
```

## Schema

Inspect a Layer's Schema.

```
geo-shell> layer schema --name countries
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Layer name	true		

```
geo-shell> workspace open --name naturalearth --params src/test/resources/naturalearth.gpkg
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer schema --name countries
```

Name Type

---

```
the_geom MultiPolygon
ScaleRank Integer
FeatureCla String
SOVEREIGNT String
SOVISO String
SOV_A3 String
LEVEL Double
TYPE String
NAME String
SORTNAME String
ADM0_A3 String
NAME_SM String
NAME_LNG String
```

TERR\_String  
PARENTHETI String  
NAME\_ALT String  
LOCAL\_LNG String  
LOCAL\_SM String  
FORMER String  
ABBREV\_String  
MAP\_COLOR Double  
PEOPLE Double  
GDP\_USDM Double  
FIPS\_10 String  
ISO\_A2 String  
ISO\_A3 String  
ISO\_N3 Double  
ITU String  
IOC String  
FIFA String  
DS String  
WMO String  
GAUL Double  
MARC String  
STANAG1059 String  
GW\_ID Double  
DIAL Double  
INTERNET\_String  
COG String  
ACTUAL String  
CAPAY String  
CRPAY String  
ANI String  
LIBENR String  
ANCNOM String  
PAYS\_R\_GIO String  
COMMENT String

```
geo-shell> workspace close --name naturalearth
Workspace naturalearth closed!
```

## Count

Count the Feature in a Layer.

```
geo-shell> layer count --name countries
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Layer name	true		

```
geo-shell> workspace open --name naturalearth --params src/test/resources/naturalearth.gpkg  
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries  
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer count --name countries  
177
```

```
geo-shell> workspace close --name naturalearth  
Workspace naturalearth closed!
```

## Projection

Get the Projection of a Layer.

```
geo-shell> layer projection --name countries
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Layer name	true		

```
geo-shell> workspace open --name naturalearth --params src/test/resources/naturalearth.gpkg  
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries  
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer projection --name countries  
EPSG:4326
```

```
geo-shell> workspace close --name naturalearth  
Workspace naturalearth closed!
```

## Features

Display the Features of a Layer.

```
geo-shell> layer features --name states --filter "NAME_1='North Dakota'"
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Layer name	true		
filter	The CQL Filter	false		
sort	A Sort parameter (fld dir)	false		
start	The start index	false		-1
max	The maximum number of records	false		-1

field	A subfield to include	false		
-------	-----------------------	-------	--	--

geo-shell> **workspace open** --name naturalearth --params src/test/resources/naturalearth.gpkg  
 Workspace naturalearth opened!

geo-shell> **layer open** --workspace naturalearth --layer states --name states  
 Opened Workspace naturalearth Layer states as states

geo-shell> **layer features** --name states --filter "NAME\_1='North Dakota'"

Feature (states.3)

---

the\_geom = MULTIPOLYGON  
 FID\_1 = 31  
 ScaleRank = 2  
 FeatureCla = 1st Order Admin Polys  
 OBJECTID = 22  
 VertexCou = 223.0  
 ISO = USA  
 NAME\_0 = United States  
 NAME\_1 = North Dakota  
 VARNAME\_1 = ND | N.D.  
 NL\_NAME\_1 =  
 HASC\_1 = US.ND  
 TYPE\_1 = State  
 ENGTTYPE\_1 = State  
 VALIDFR\_1 = 18891102  
 VALIDTO\_1 = Present  
 REMARKS\_1 =  
 Region =  
 RegionVar =  
 ProvNumber = 23  
 NEV\_Countr = United States  
 FIRST\_FIPS =  
 FIRST\_HASC =  
 FIPS\_1 = US38  
 gadm\_level = 1.0  
 CheckMe = 0  
 Region\_Cod =  
 Region\_C\_1 =  
 ScaleRan\_1 = 1  
 Region\_C\_2 =  
 Region\_C\_3 =  
 Country\_Pr =

geo-shell> **workspace close** --name naturalearth  
 Workspace naturalearth closed!

## Get Style

Get the Layer's style.

```
geo-shell> layer style get --name states --style target/states.sld
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Layer name	true		
style	The SLD File	false		

```
geo-shell> workspace open --name naturalearth --params src/test/resources/naturalearth.gpkg  
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth -layer states --name states  
Opened Workspace naturalearth Layer states as states
```

```
geo-shell> style vector default --layer states --color #1E90FF --file examples/states_simple.sld  
Default Vector Style for states written to /home/travis/build/jericks/geo-  
shell/examples/states_simple.sld!
```

```
geo-shell> layer style get --name states --style target/states.sld  
states style written to /home/travis/build/jericks/geo-shell/target/states.sld
```

```
geo-shell> workspace close --name naturalearth  
Workspace naturalearth closed!
```

```

<?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:PolygonSymbolizer>
            <sld:Fill>
              <sld:CssParameter name="fill">#f2f2f2</sld:CssParameter>
            </sld:Fill>
          </sld:PolygonSymbolizer>
          <sld:LineSymbolizer>
            <sld:Stroke>
              <sld:CssParameter name="stroke">#a9a9a9</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>

```

## Set Style

Set a Layer's style

```
geo-shell> layer style get --name states --style target/states_simple.sld
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Layer name	true		
style	The SLD or CSS File	true		

```
geo-shell> workspace open --name naturalearth --params src/test/resources/naturalearth.gpkg
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer states --name states
Opened Workspace naturalearth Layer states as states
```

```
geo-shell> style vector default --layer states --color #1E90FF --file examples/states_simple.sld
```

```
Default Vector Style for states written to /home/travis/build/jericks/geo-shell/examples/states_simple.sld!
```

```
geo-shell> layer style get --name states --style target/states_simple.sld  
states style written to /home/travis/build/jericks/geo-shell/target/states_simple.sld
```

```
geo-shell> map open --name map  
Map map opened!
```

```
geo-shell> map add layer --name map --layer states  
Added states layer to map map
```

```
geo-shell> map draw --name map --file examples/layer_set_style.png  
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_set_style.png!
```

```
geo-shell> map close --name map  
Map map closed!
```

```
geo-shell> workspace close --name naturalearth  
Workspace naturalearth closed!
```



## Copy

Copy one Layer to another Workspace.

```
geo-shell> layer copy --input-name states_gpkg --output-workspace shapefiles --output-name states
```

Name	Description	Mandatory	Specified Default	Unspecified Default

input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
filter	The CQL Filter	false		
sort	A Sort parameter (fld dir)	false		
start	The start index	false		-1
max	The maximum number of records	false		-1
field	A subfield to include	false		

geo-shell> **workspace open** --name naturalearth --params src/test/resources/naturalearth.gpkg  
Workspace naturalearth opened!

geo-shell> **layer open** --workspace naturalearth --layer states --name states\_gpkg  
Opened Workspace naturalearth Layer states as states\_gpkg

geo-shell> **workspace open** --name shapefiles --params target/  
Workspace shapefiles opened!

geo-shell> **layer copy** --input-name states\_gpkg --output-workspace shapefiles --output-name states  
Done!

geo-shell> **layer count** --name states  
52

geo-shell> **workspace close** --name shapefiles  
Workspace shapefiles closed!

geo-shell> **workspace close** --name naturalearth  
Workspace naturalearth closed!

## Create

Create a new Layer.

geo-shell> **layer create** --workspace mem --name points --fields "the\_geom=Point  
EPSG:4326|fid=Int|name=String"

Name	Description	Mandatory	Specified Default	Unspecified Default
workspace	The Workspace name	true		

name	The new Layer name	true		
fields	The pipe delimited list of fields (name=type)	true		

```
geo-shell> workspace open --name mem --params memory
Workspace mem opened!
```

```
geo-shell> layer create --workspace mem --name points --fields "the_geom=Point
EPSG:4326|fid=Int|name=String"
Created Layer points!
```

```
geo-shell> layer schema --name points
Name Type
-----
```

```
the_geom Point
fid Integer
name String
```

## Add

Add a new Feature to a Layer.

```
geo-shell> layer add --name points --values "the_geom=POINT (-122.333056
47.609722)|fid=1|name=Seattle"
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Layer name	true		
values	The pipe delimited list of values (field=value)	true		

```
geo-shell> workspace open --name mem --params memory
Workspace mem opened!
```

```
geo-shell> layer create --workspace mem --name points --fields "the_geom=Point
EPSG:4326|fid=Int|name=String"
Created Layer points!
```

```
geo-shell> layer add --name points --values "the_geom=POINT (-122.333056
47.609722)|fid=1|name=Seattle"
Added Feature to points
```

```
geo-shell> layer add --name points --values "the_geom=POINT (-122.459444
47.241389)|fid=2|name=Tacoma"
Added Feature to points
```

```
geo-shell> layer count --name points  
2
```

## Delete

Delete features from the Layer

```
geo-shell> layer delete --name points --filter "fid=2"
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Layer name	true		
filter	The CQL Filter	true		

```
geo-shell> workspace open --name mem --params memory  
Workspace mem opened!
```

```
geo-shell> layer create --workspace mem --name points --fields "the_geom=Point  
EPSG:4326|fid=Int|name=String"  
Created Layer points!
```

```
geo-shell> layer add --name points --values "the_geom=POINT (-122.333056  
47.609722)|fid=1|name=Seattle"  
Added Feature to points
```

```
geo-shell> layer add --name points --values "the_geom=POINT (-122.459444  
47.241389)|fid=2|name=Tacoma"  
Added Feature to points
```

```
geo-shell> layer count --name points  
2
```

```
geo-shell> layer delete --name points --filter "fid=2"  
Deleted fid=2 Features from points
```

```
geo-shell> layer count --name points  
1
```

## Remove

Remove a Layer from a Workspace.

```
geo-shell> layer remove --layer polygons --workspace mem
```

Name	Description	Mandatory	Specified Default	Unspecified Default
workspace	The Workspace name	true		
layer	The Layer name	true		

```

geo-shell> workspace open --name mem --params memory
Workspace mem opened!

geo-shell> layer create --workspace mem --name points --fields "the_geom=Point
EPSG:4326|fid=Int|name=String"
Created Layer points!

geo-shell> layer create --workspace mem --name lines --fields "the_geom=LineString
EPSG:4326|fid=Int|name=String"
Created Layer lines!

geo-shell> layer create --workspace mem --name polygons --fields "the_geom=Polygon
EPSG:4326|fid=Int|name=String"
Created Layer polygons!

```

geo-shell> **workspace layers** --name mem  
lines  
points  
polygons

geo-shell> **layer remove** --layer polygons --workspace mem  
Layer polygons removed from Workspace mem

geo-shell> **workspace layers** --name mem  
lines  
points

## Update Field

Update the values of a field

```
geo-shell> layer updatefield --name points --field state --value WA
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Layer name	true		
field	The field name	true		
value	The value	true		
filter	The CQL Filter	false	INCLUDE	INCLUDE
script	Whether the value is a script or not	false	false	false

```

geo-shell> workspace open --name mem --params memory
Workspace mem opened!

```

```

geo-shell> layer create --workspace mem --name points --fields "the_geom=Point
EPSG:4326|fid=Int|name=String|state=String"
Created Layer points!

```

```
geo-shell> layer add --name points --values "the_geom=POINT (-122.333056  
47.609722)|fid=1|name=Seattle"  
Added Feature to points
```

```
geo-shell> layer add --name points --values "the_geom=POINT (-122.459444  
47.241389)|fid=2|name=Tacoma"  
Added Feature to points
```

```
geo-shell> layer updatefield --name points --field state --value WA  
Done updating state with WA!
```

```
geo-shell> layer features --name points
```

```
Feature (fid-5fb5555e_17017eb894f_-7890)  
-----
```

```
the_geom = POINT (-122.333056 47.609722)  
fid = 1  
name = Seattle  
state = WA
```

```
Feature (fid-5fb5555e_17017eb894f_-788e)  
-----
```

```
the_geom = POINT (-122.459444 47.241389)  
fid = 2  
name = Tacoma  
state = WA
```

## Add Fields

Add Fields to the input Layer and save the result to the output Layer

```
geo-shell> layer addfields --input-name points --output-workspace mem --output-name points2  
--fields "name=String,state=String"
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
fields	The Fields (name=type proj)	true		

```
geo-shell> workspace open --name mem --params memory  
Workspace mem opened!
```

```
geo-shell> layer create --workspace mem --name points --fields "the_geom=Point EPSG:4326"  
Created Layer points!
```

```
geo-shell> layer addfields --input-name points --output-workspace mem --output-name points2  
--fields "name=String,state=String"  
Done!
```

```
geo-shell> layer schema --name points2  
Name Type
```

```
-----  
the_geom Point  
name String  
state String
```

## Add Area Field

Add area Field to the input Layer and save the result to the output Layer

```
geo-shell> layer addareafield --input-name states --output-workspace mem --output-name  
states_area --area-fieldname AREA
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
area-fieldname	The area field name	true	area	area

```
geo-shell> workspace open --name mem --params memory  
Workspace mem opened!
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg  
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer states --name states  
Opened Workspace naturalearth Layer states as states
```

```
geo-shell> layer addareafield --input-name states --output-workspace mem --output-name  
states_area --area-fieldname AREA  
Done!
```

```
geo-shell> layer schema --name states_area  
Name Type
```

```
-----  
the_geom MultiPolygon  
FID_1 Integer  
ScaleRank Integer  
FeatureCla String  
OBJECTID Integer
```

```
VertexCou Double
ISO String
NAME_0 String
NAME_1 String
VARNAME_1 String
NL_NAME_1 String
HASC_1 String
TYPE_1 String
ENGTYPY_1 String
VALIDFR_1 String
VALIDTO_1 String
REMARKS_1 String
Region String
RegionVar String
ProvNumber Integer
NEV_Countr String
FIRST_FIPS String
FIRST_HASC String
FIPS_1 String
gadm_level Double
CheckMe Integer
Region_Cod String
Region_C_1 String
ScaleRan_1 Integer
Region_C_2 String
Region_C_3 String
Country_Pr String
AREA Double
```

```
geo-shell> layer features --name states_area --filter "NAME_1='North Dakota'" --field "NAME_0,AREA"
```

```
Feature (fid-5fb5555e_17017eb894f_-7889)
```

```
-----  
NAME_0 = United States  
AREA = 21.804544852979944
```

## Add ID Field

Add area ID to the input Layer and save the result to the output Layer

```
geo-shell> layer addidfield --input-name places --output-workspace mem --output-name places_id  
--id-fieldname ID --start-value 1
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		

output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
id-fieldname	The id field name	true	id	id
start-value	The value to start at	true	1	1

geo-shell> **workspace open** --name mem --params memory  
 Workspace mem opened!

geo-shell> **workspace open** --name naturalearth --params examples/naturalearth.gpkg  
 Workspace naturalearth opened!

geo-shell> **layer open** --workspace naturalearth --layer places --name places  
 Opened Workspace naturalearth Layer places as places

geo-shell> **layer addidfield** --input-name places --output-workspace mem --output-name places\_id  
 --id-fieldname ID --start-value 1  
 Done!

geo-shell> **layer schema** --name places\_id  
 Name Type

---

the_geom	Point
SCALERANK	Integer
NATSCALE	Integer
LABELRANK	Integer
FEATURECLA	String
NAME	String
NAMEPAR	String
NAMEALT	String
DIFFASCII	Integer
NAMEASCII	String
ADM0CAP	Double
CAPALT	Double
CAPIN	String
WORLDCITY	Double
MEGACITY	Integer
SOV0NAME	String
SOV_A3	String
ADM0NAME	String
ADM0_A3	String
ADM1NAME	String
ISO_A2	String
NOTE	String
LATITUDE	Double
LONGITUDE	Double

CHANGED Double  
NAMEDIFF Integer  
DIFFNOTE String  
POP\_MAX Integer  
POP\_MIN Integer  
POP\_OTHER Integer  
GEONAMEID Double  
MEGANAME String  
LS\_NAME String  
LS\_MATCH Integer  
CHECKME Integer  
MAX\_POP10 Integer  
MAX\_POP20 Integer  
MAX\_POP50 Integer  
MAX\_POP300 Integer  
MAX\_POP310 Integer  
MAX\_NATSCA Integer  
MIN\_AREAKM Integer  
MAX\_AREAKM Double  
MIN\_AREAMI Double  
MAX\_AREAMI Double  
MIN\_PERKM Double  
MAX\_PERKM Double  
MIN\_PERMI Double  
MAX\_PERMI Double  
MIN\_BBXMIN Double  
MAX\_BBXMIN Double  
MIN\_BBXMAX Double  
MAX\_BBXMAX Double  
MIN\_BBYMIN Double  
MAX\_BBYMIN Double  
MIN\_BBymax Double  
MAX\_BBymax Double  
MEAN\_BBXC Double  
MEAN\_BBYC Double  
COMPARE Integer  
GN\_ASCII String  
FEATURE\_CL String  
FEATURE\_CO String  
ADMIN1\_COD Double  
GN\_POP Integer  
ELEVATION Double  
GTOPO30 Double  
TIMEZONE String  
GEONAMESNO String  
UN\_FID Integer  
UN ADM0 String  
UN\_LAT Double

UN\_LONG Double  
POP1950 Double  
POP1955 Double  
POP1960 Double  
POP1965 Double  
POP1970 Double  
POP1975 Double  
POP1980 Double  
POP1985 Double  
POP1990 Double  
POP1995 Double  
POP2000 Double  
POP2005 Double  
POP2010 Double  
POP2015 Double  
POP2020 Double  
POP2025 Double  
POP2050 Double  
CITYALT String  
popDiff Integer  
popPerc Double  
ls\_gross Integer  
ID Integer

```
geo-shell> layer features --name places_id --filter "NAME='Seattle'" --field "NAME,ID"
```

```
Feature (fid-5fb5555e_17017eb894f_-79ce)
```

```
-----  
NAME = Seattle
```

```
ID = 10
```

## Add XY Fields

Add x and y coordinate Fields to the input Layer and save the result to the output Layer

```
geo-shell> layer addxyfields --input-name places --output-workspace mem --output-name places_xy --x-fieldname X --y-fieldname Y
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
x-fieldname	The x field name	true	x	x
y-fieldname	The y field name	true	y	y

```
geo-shell> workspace open --name mem --params memory
```

```
Workspace mem opened!
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
```

```
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer places --name places
```

```
Opened Workspace naturalearth Layer places as places
```

```
geo-shell> layer addxyfields --input-name places --output-workspace mem --output-name places_xy --x-fieldname X --y-fieldname Y
```

```
Done!
```

```
geo-shell> layer schema --name places_xy
```

```
Name Type
```

```
-----  
the_geom Point
```

```
SCALERANK Integer
```

```
NATSCALE Integer
```

```
LABELRANK Integer
```

```
FEATURECLA String
```

```
NAME String
```

```
NAMEPAR String
```

```
NAMEALT String
```

```
DIFFASCII Integer
```

```
NAMEASCII String
```

```
ADM0CAP Double
```

```
CAPALT Double
```

```
CAPIN String
```

```
WORLDCITY Double
```

```
MEGACITY Integer
```

```
SOV0NAME String
```

```
SOV_A3 String
```

```
ADM0NAME String
```

```
ADM0_A3 String
```

```
ADM1NAME String
```

```
ISO_A2 String
```

```
NOTE String
```

```
LATITUDE Double
```

```
LONGITUDE Double
```

```
CHANGED Double
```

```
NAMEDIFF Integer
```

```
DIFFNOTE String
```

```
POP_MAX Integer
```

```
POP_MIN Integer
```

```
POP_OTHER Integer
```

```
GEONAMEID Double
```

```
MEGANAME String
```

```
LS_NAME String
```

LS\_MATCH Integer  
CHECKME Integer  
MAX\_POP10 Integer  
MAX\_POP20 Integer  
MAX\_POP50 Integer  
MAX\_POP300 Integer  
MAX\_POP310 Integer  
MAX\_NATSCA Integer  
MIN\_AREAKM Integer  
MAX\_AREAKM Double  
MIN\_AREAMI Double  
MAX\_AREAMI Double  
MIN\_PERKM Double  
MAX\_PERKM Double  
MIN\_PERMI Double  
MAX\_PERMI Double  
MIN\_BBXMIN Double  
MAX\_BBXMIN Double  
MIN\_BBXMAX Double  
MAX\_BBXMAX Double  
MIN\_BBYMIN Double  
MAX\_BBYMIN Double  
MIN\_BBymax Double  
MAX\_BBymax Double  
MEAN\_BBXC Double  
MEAN\_BBYC Double  
COMPARE Integer  
GN\_ASCII String  
FEATURE\_CL String  
FEATURE\_CO String  
ADMIN1\_COD Double  
GN\_POP Integer  
ELEVATION Double  
GTOPO30 Double  
TIMEZONE String  
GEONAMESNO String  
UN\_FID Integer  
UN\_ADM0 String  
UN\_LAT Double  
UN\_LONG Double  
POP1950 Double  
POP1955 Double  
POP1960 Double  
POP1965 Double  
POP1970 Double  
POP1975 Double  
POP1980 Double  
POP1985 Double

```
POP1990 Double
POP1995 Double
POP2000 Double
POP2005 Double
POP2010 Double
POP2015 Double
POP2020 Double
POP2025 Double
POP2050 Double
CITYALT String
popDiff Integer
popPerc Double
ls_gross Integer
X Double
Y Double
```

```
geo-shell> layer features --name places_xy --filter "NAME='Seattle'" --field "NAME,X,Y"
```

```
Feature (fid-5fb5555e_17017eb894f_-6bd8)
```

```
-----  
NAME = Seattle  
X = -122.34193084586849  
Y = 47.57194791253073
```

## Validity

Check for invalid geometries in the Layer.

```
geo-shell> layer validity --name areas
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Layer name	true		
fields	A comma delimited list of Fields to include	false		

```
geo-shell> workspace open --name areas --params src/test/resources/invalid.properties
Workspace areas opened!
```

```
geo-shell> layer open --workspace areas --layer invalid --name areas
Opened Workspace areas Layer invalid as areas
```

```
geo-shell> layer validity --name areas
Values Reason
-----
```

```
invalid.1360815594529 Self-intersection
```

# Geoprocessing

## Clip

Clip the input Layer by the other Layer to produce the output Layer

```
geo-shell> layer clip --input-name a --clip-name b --output-workspace results --output-name results
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
clip-name	The clip Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		

```
geo-shell> workspace open --name layers --params src/test/resources/layeralgebra.gpkg
```

Workspace layers opened!

```
geo-shell> workspace open --name results --params memory
```

Workspace results opened!

```
geo-shell> layer open --workspace layers --layer a --name a
```

Opened Workspace layers Layer a as a

```
geo-shell> layer open --workspace layers --layer b --name b
```

Opened Workspace layers Layer b as b

```
geo-shell> layer clip --input-name a --clip-name b --output-workspace results --output-name results
```

Done clipping a to b to create results!

```
geo-shell> style vector default --layer a --color red --opacity 0.75 --file examples/red.sld
```

Default Vector Style for a written to /home/travis/build/jericks/geo-shell/examples/red.sld!

```
geo-shell> style vector default --layer b --color green --opacity 0.75 --file examples/green.sld
```

Default Vector Style for b written to /home/travis/build/jericks/geo-shell/examples/green.sld!

```
geo-shell> style vector default --layer results --color blue --opacity 0.75 --file examples/blue.sld
```

Default Vector Style for results written to /home/travis/build/jericks/geo-shell/examples/blue.sld!

```
geo-shell> layer style set --name a --style examples/red.sld
```

Style /home/travis/build/jericks/geo-shell/examples/red.sld set on a

```
geo-shell> layer style set --name b --style examples/green.sld
```

Style /home/travis/build/jericks/geo-shell/examples/green.sld set on b

```
geo-shell> layer style set --name results --style examples/blue.sld
```

Style /home/travis/build/jericks/geo-shell/examples/blue.sld set on results

```
geo-shell> map open --name map
```

Map map opened!

```
geo-shell> map add layer --name map --layer a
```

Added a layer to map map

```
geo-shell> map add layer --name map --layer b
```

Added b layer to map map

```
geo-shell> map add layer --name map --layer results
```

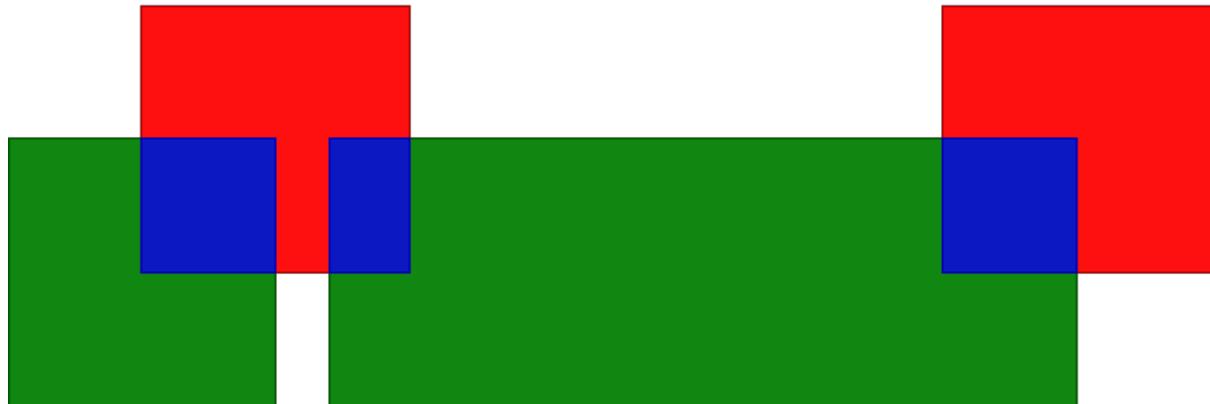
Added results layer to map map

```
geo-shell> map draw --name map --file examples/layer_clip.png
```

Done drawing /home/travis/build/jericks/geo-shell/examples/layer\_clip.png!

```
geo-shell> map close --name map
```

Map map closed!



## Convex Hull

Calculate the convexhull of the input Layer and save it to the output Layer.

```
geo-shell> layer convexhull --input-name countries --output-workspace layers --output-name convexhull
```

Name	Description	Mandatory	Specified Default	Unspecified Default

input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
geometry-field	The geometry field name	false	the_geom	the_geom

geo-shell> **workspace open** --name layers --params memory

Workspace layers opened!

geo-shell> **workspace open** --name naturalearth --params examples/naturalearth.gpkg

Workspace naturalearth opened!

geo-shell> **layer open** --workspace naturalearth --layer countries --name countries

Opened Workspace naturalearth Layer countries as countries

geo-shell> **layer style set** --name countries --style examples/countries.sld

Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries

geo-shell> **layer open** --workspace naturalearth --layer ocean --name ocean

Opened Workspace naturalearth Layer ocean as ocean

geo-shell> **layer style set** --name ocean --style examples/ocean.sld

Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean

geo-shell> **layer convexhull** --input-name countries --output-workspace layers --output-name convexhull

Done!

geo-shell> **style vector default** --layer convexhull --color #1E90FF --opacity 0.25 --file examples/convexhull.sld

Default Vector Style for convexhull written to /home/travis/build/jericks/geo-shell/examples/convexhull.sld!

geo-shell> **layer style set** --name convexhull --style examples/convexhull.sld

Style /home/travis/build/jericks/geo-shell/examples/convexhull.sld set on convexhull

geo-shell> **map open** --name map

Map map opened!

geo-shell> **map add layer** --name map --layer ocean

Added ocean layer to map map

geo-shell> **map add layer** --name map --layer countries

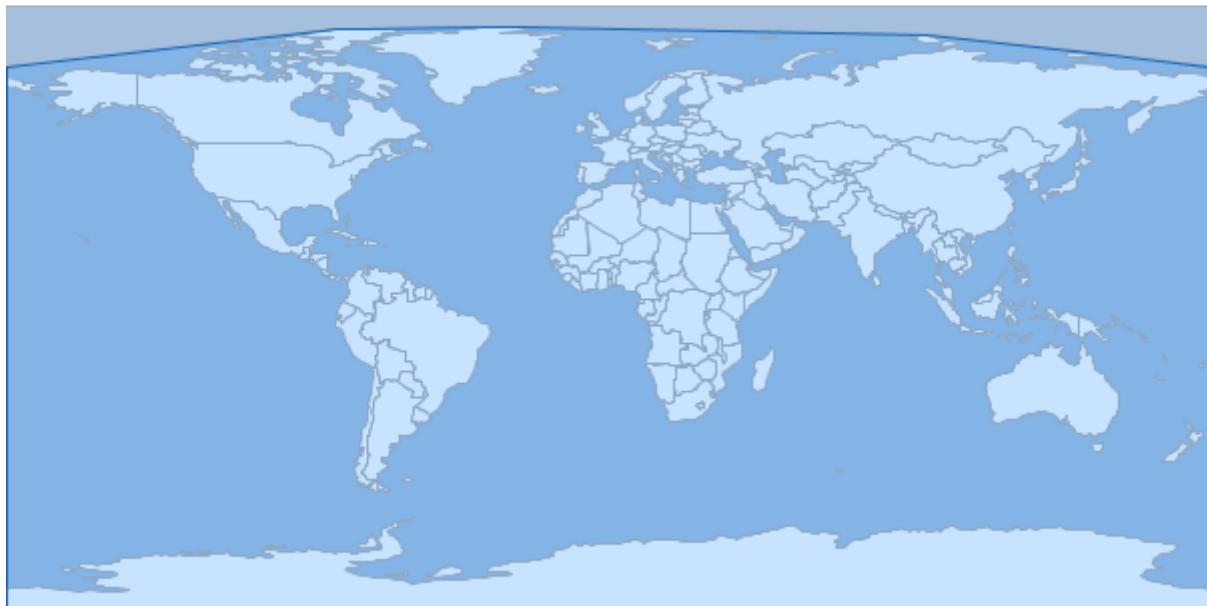
Added countries layer to map map

geo-shell> **map add layer** --name map --layer convexhull

Added convexhull layer to map map

```
geo-shell> map draw --name map --file examples/layer_convexhull.png  
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_convexhull.png!
```

```
geo-shell> map close --name map  
Map map closed!
```



## Convex Hulls

Calculate the convexhull of each Feature in the input Layer and save them to the output Layer.

```
geo-shell> layer convexhulls --input-name countries --output-workspace layers --output-name convexhulls
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		

```
geo-shell> workspace open --name layers --params memory  
Workspace layers opened!
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg  
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries  
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries

geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
Opened Workspace naturalearth Layer ocean as ocean

geo-shell> layer style set --name ocean --style examples/ocean.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean

geo-shell> layer convexhulls --input-name countries --output-workspace layers --output-name
convexhulls
Done!

geo-shell> style vector default --layer convexhulls --color #1E90FF --opacity 0.25 --file
examples/convexhulls.sld
Default Vector Style for convexhulls written to /home/travis/build/jericks/geo-
shell/examples/convexhulls.sld!

geo-shell> layer style set --name convexhulls --style examples/convexhulls.sld
Style /home/travis/build/jericks/geo-shell/examples/convexhulls.sld set on convexhulls

geo-shell> map open --name map
Map map opened!

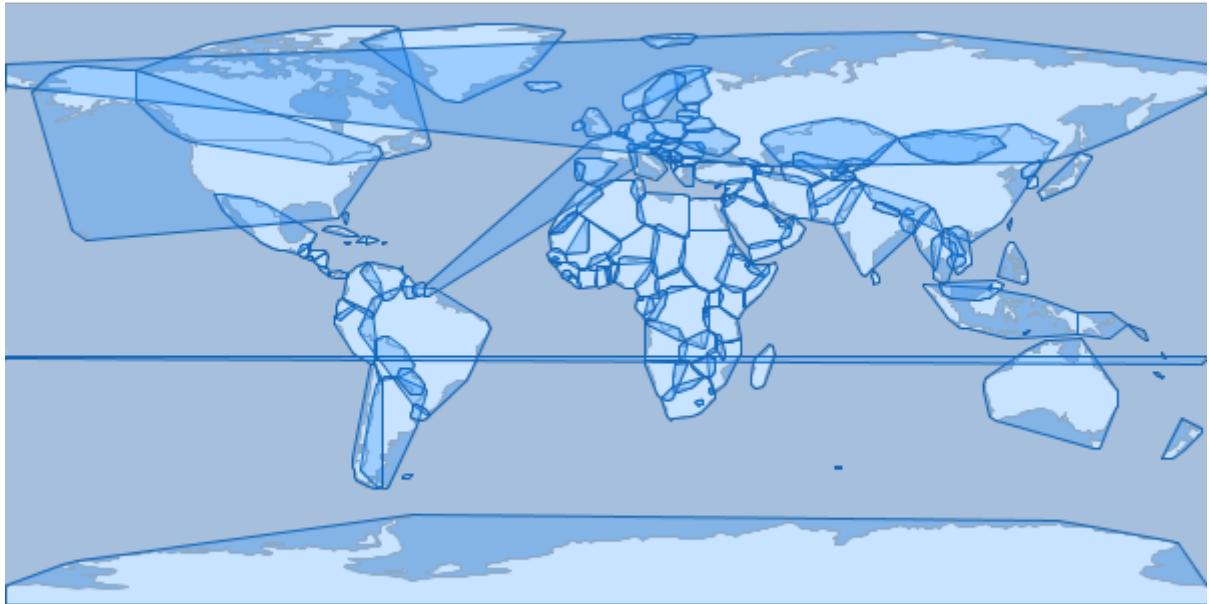
geo-shell> map add layer --name map --layer ocean
Added ocean layer to map map

geo-shell> map add layer --name map --layer countries
Added countries layer to map map

geo-shell> map add layer --name map --layer convexhulls
Added convexhulls layer to map map

geo-shell> map draw --name map --file examples/layer_convexhulls.png
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_convexhulls.png!

geo-shell> map close --name map
Map map closed!
```



## Coordinates

Extract the coordinates each Feature in the input Layer and save them to the output Layer.

```
geo-shell> layer coordinates --input-name states --output-workspace layers --output-name coordinates
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		

```
geo-shell> workspace open --name layers --params memory
Workspace layers opened!
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer states --name states
Opened Workspace naturalearth Layer states as states
```

```
geo-shell> layer coordinates --input-name states --output-workspace layers --output-name coordinates
Done!
```

```
geo-shell> style vector default --layer coordinates --color #1E90FF --opacity 0.75 --file
```

```
examples/coordinates.sld  
Default Vector Style for coordinates written to /home/travis/build/jericks/geo-  
shell/examples/coordinates.sld!
```

```
geo-shell> layer style set --name coordinates --style examples/coordinates.sld  
Style /home/travis/build/jericks/geo-shell/examples/coordinates.sld set on coordinates
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries  
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld  
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries
```

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean  
Opened Workspace naturalearth Layer ocean as ocean
```

```
geo-shell> layer style set --name ocean --style examples/ocean.sld  
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean
```

```
geo-shell> map open --name map  
Map map opened!
```

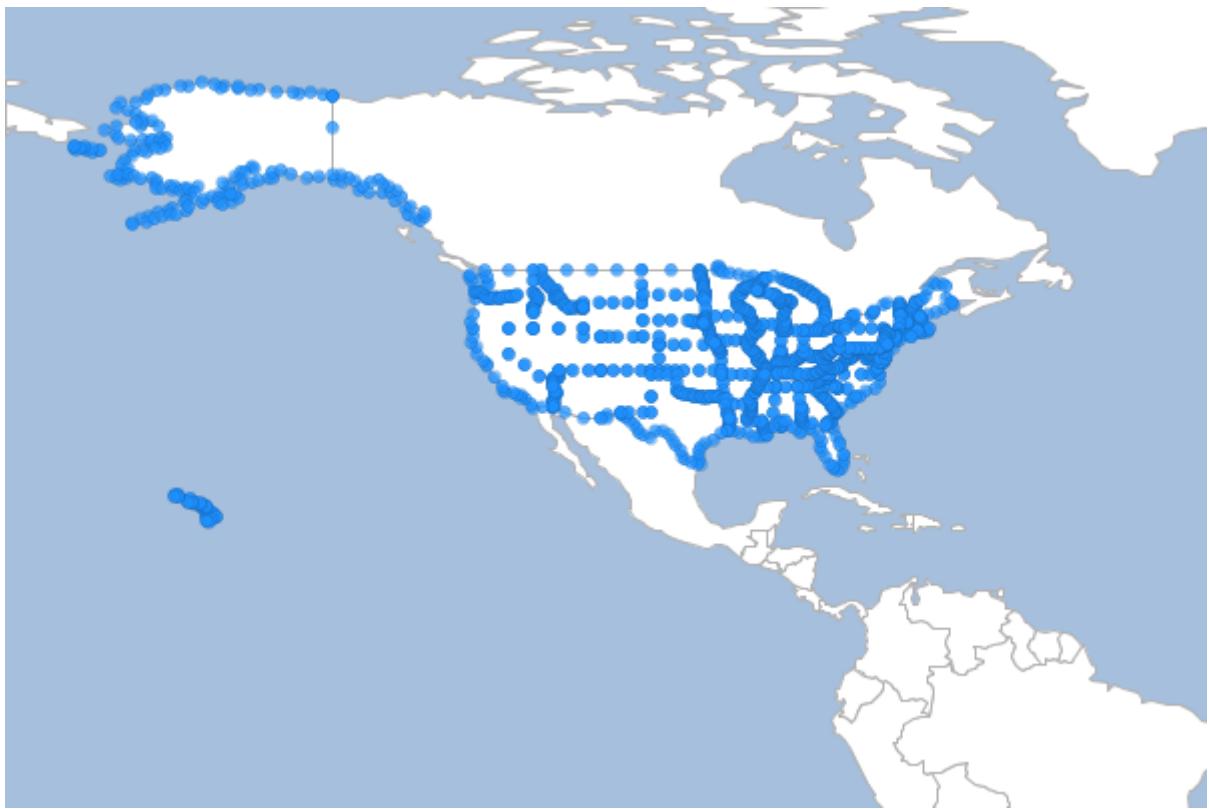
```
geo-shell> map add layer --name map --layer ocean  
Added ocean layer to map map
```

```
geo-shell> map add layer --name map --layer countries  
Added countries layer to map map
```

```
geo-shell> map add layer --name map --layer coordinates  
Added coordinates layer to map map
```

```
geo-shell> map draw --name map --file examples/layer_coordinates.png --bounds "-180,-8.233,-  
36.738,73.378"  
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_coordinates.png!
```

```
geo-shell> map close --name map  
Map map closed!
```



## Delaunay

Calculate a delaunay diagram of the input Layer and save it to the output Layer.

```
geo-shell> layer delaunay --input-name places --output-workspace layers --output-name delaunay
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
geometry-field	The geometry field name	false	the_geom	the_geom

```
geo-shell> workspace open --name layers --params memory
```

Workspace layers opened!

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
```

Workspace naturalearth opened!

```
geo-shell> layer open --workspace naturalearth --layer places --name places
```

Opened Workspace naturalearth Layer places as places

```
geo-shell> layer delaunay --input-name places --output-workspace layers --output-name delaunay
```

Done!

```
geo-shell> style vector default --layer delaunay --color #1E90FF --opacity 0.25 --file examples/delaunay.sld
Default Vector Style for delaunay written to /home/travis/build/jericks/geo-shell/examples/delaunay.sld!

geo-shell> layer style set --name delaunay --style examples/delaunay.sld
Style /home/travis/build/jericks/geo-shell/examples/delaunay.sld set on delaunay

geo-shell> layer open --workspace naturalearth --layer countries --name countries
Opened Workspace naturalearth Layer countries as countries

geo-shell> layer style set --name countries --style examples/countries.sld
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries

geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
Opened Workspace naturalearth Layer ocean as ocean

geo-shell> layer style set --name ocean --style examples/ocean.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean

geo-shell> map open --name map
Map map opened!

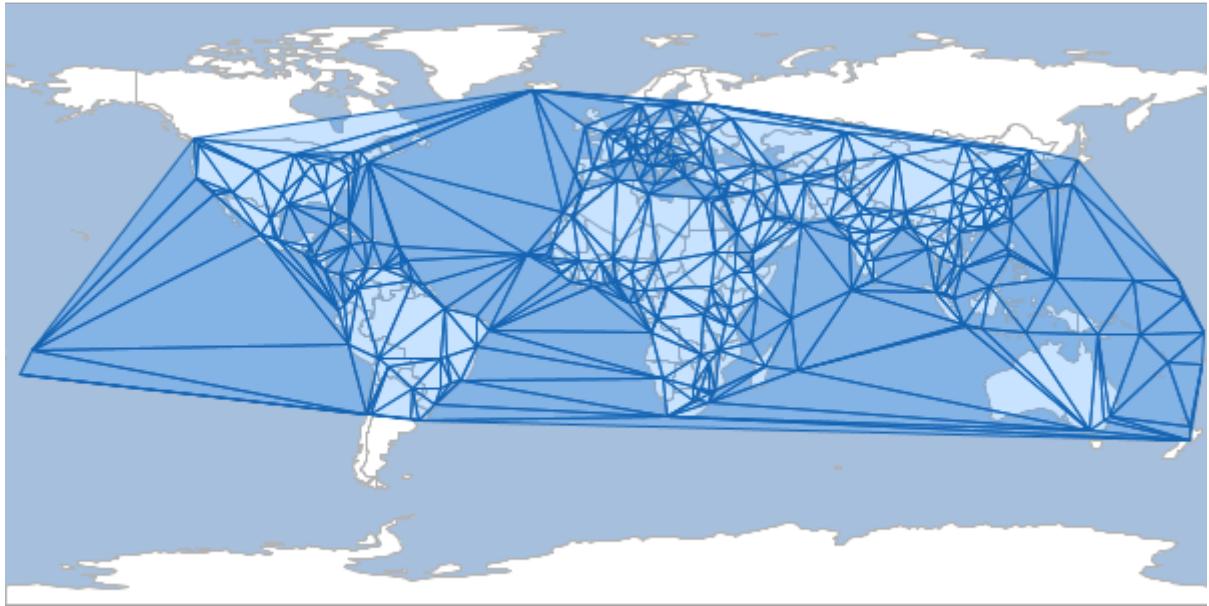
geo-shell> map add layer --name map --layer ocean
Added ocean layer to map map

geo-shell> map add layer --name map --layer countries
Added countries layer to map map

geo-shell> map add layer --name map --layer delaunay
Added delaunay layer to map map

Done drawing /home/travis/build/jericks/geo-shell/examples/layer_delaunay.png!
geo-shell> map draw --name map --file examples/layer_delaunay.png

Map map closed!
geo-shell> map close --name map
```



## Densify

Densify the features of the input Layer and save them to the output Layer

```
geo-shell> layer densify --input-name states --output-workspace layers --output-name states_densified --distance 0.1
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
distance	The distance tolerance	true		

```
geo-shell> workspace open --name layers --params memory
Workspace layers opened!
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer states --name states
Opened Workspace naturalearth Layer states as states
```

```
geo-shell> layer densify --input-name states --output-workspace layers --output-name states_densified --distance 0.1
```

Done!

```
geo-shell> layer coordinates --input-name states_densified --output-workspace layers --output-name coordinates
```

Done!

```
geo-shell> style vector default --layer coordinates --color #1E90FF --opacity 0.75 --file examples/coordinates.sld
```

```
Default Vector Style for coordinates written to /home/travis/build/jericks/geo-shell/examples/coordinates.sld!
```

```
geo-shell> layer style set --name coordinates --style examples/coordinates.sld  
Style /home/travis/build/jericks/geo-shell/examples/coordinates.sld set on coordinates
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries  
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld  
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries
```

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean  
Opened Workspace naturalearth Layer ocean as ocean
```

```
geo-shell> layer style set --name ocean --style examples/ocean.sld  
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean
```

```
geo-shell> map open --name map  
Map map opened!
```

```
geo-shell> map add layer --name map --layer ocean  
Added ocean layer to map map
```

```
geo-shell> map add layer --name map --layer countries  
Added countries layer to map map
```

```
Added coordinates layer to map map
```

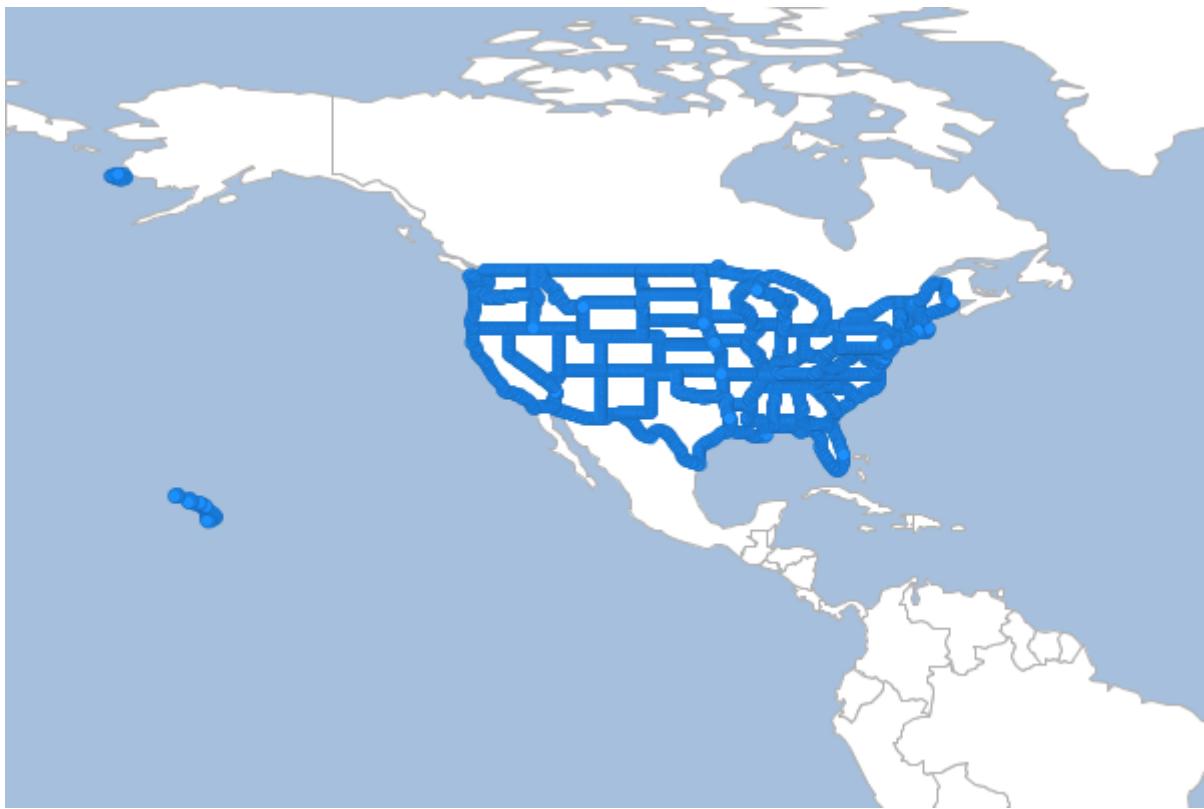
```
geo-shell> map add layer --name map --layer coordinates
```

```
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_densify.png!
```

```
geo-shell> map draw --name map --file examples/layer_densify.png --bounds "-180,-8.233,-36.738,73.378"
```

```
Map map closed!
```

```
geo-shell> map close --name map
```



## Dissolve

Dissolve the Features of a Layer by a Field.

```
geo-shell> layer dissolve --input-name states --output-workspace layers --output-name regions  
--field SUB_REGION
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
field	The field to use to dissolve features	true		
idField	The name of the id field	false	id	id
countField	The name of the count field	false	count	count

```
geo-shell> workspace open --name layers --params memory  
Workspace layers opened!
```

```
geo-shell> workspace open --name shapefiles --params examples/states/states.shp  
Workspace shapefiles opened!
```

```
geo-shell> layer open --workspace shapefiles --layer states --name states
Opened Workspace shapefiles Layer states as states

geo-shell> layer dissolve --input-name states --output-workspace layers --output-name regions
--field SUB_REGION
Done dissolving states to regions by SUB_REGION!

geo-shell> style vector uniquevalues --layer regions --field SUB_REGION --colors MutedTerrain
--file [silver] examples/regions.sld
Unique Values Vector Style for regions's SUB_REGION Field written to
/home/travis/build/jericks/geo-shell/examples/regions.sld!

geo-shell> layer style set --name regions --style examples/regions.sld
Style /home/travis/build/jericks/geo-shell/examples/regions.sld set on regions

geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
Workspace naturalearth opened!

geo-shell> layer open --workspace naturalearth --layer countries --name countries
Opened Workspace naturalearth Layer countries as countries

geo-shell> layer style set --name countries --style examples/countries.sld
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries

geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
Opened Workspace naturalearth Layer ocean as ocean

geo-shell> layer style set --name ocean --style examples/ocean.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean

geo-shell> map open --name map
Map map opened!

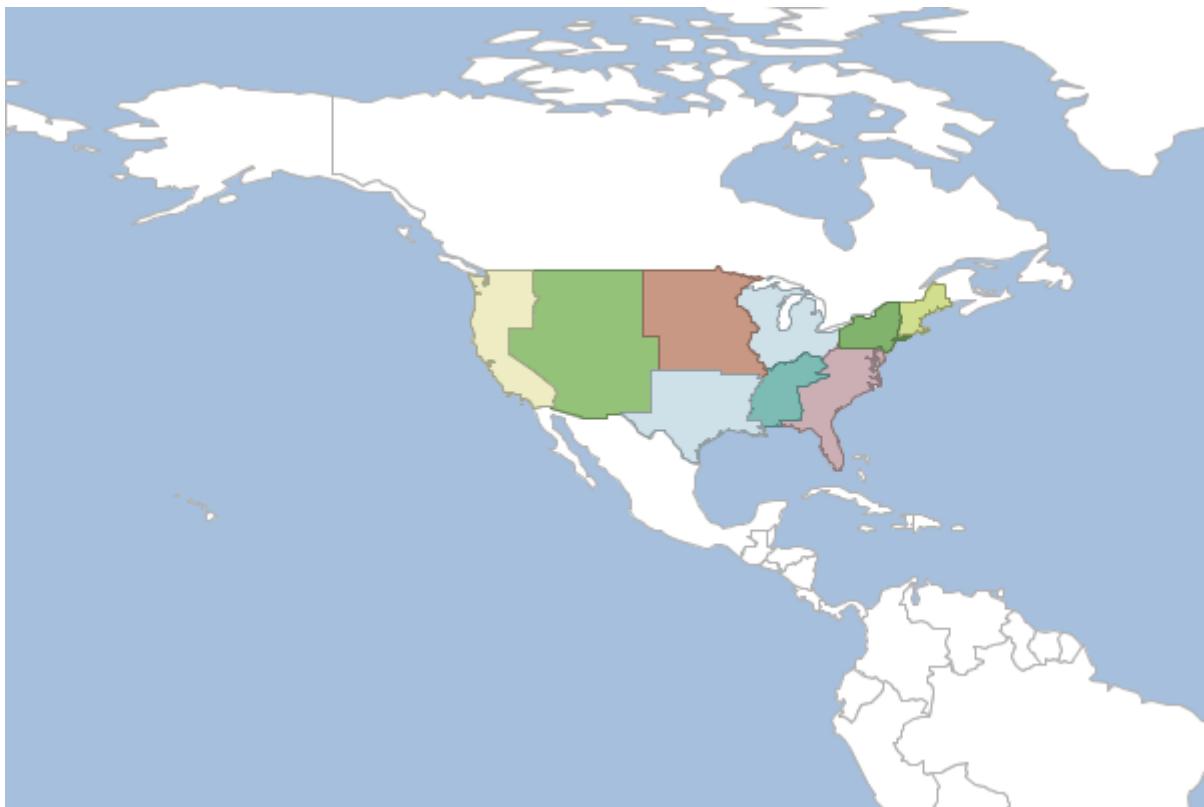
geo-shell> map add layer --name map --layer ocean
Added ocean layer to map map

geo-shell> map add layer --name map --layer countries
Added countries layer to map map

Added regions layer to map map
geo-shell> map add layer --name map --layer regions

Done drawing /home/travis/build/jericks/geo-shell/examples/layer_dissolve.png!
geo-shell> map draw --name map --file examples/layer_dissolve.png --bounds "-180,-8.233,-36.738,73.378"

Map map closed!
geo-shell> map close --name map
```



## Erase

Erase one Layer from another Layer

```
geo-shell> layer erase --input-name a --other-name b --output-workspace results --output-name results
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
other-name	The other Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		

```
geo-shell> workspace open --name layers --params src/test/resources/layeralgebra.gpkg  
Workspace layers opened!
```

```
geo-shell> workspace open --name results --params memory  
Workspace results opened!
```

```
geo-shell> layer open --workspace layers --layer a --name a  
Opened Workspace layers Layer a as a
```

```
geo-shell> layer open --workspace layers --layer b --name b  
Opened Workspace layers Layer b as b
```

```
geo-shell> layer erase --input-name a --other-name b --output-workspace results --output-name results
```

Done erasing a from b to create results!

```
geo-shell> style vector default --layer a --color red --opacity 0.75 --file examples/red.sld  
Default Vector Style for a written to /home/travis/build/jericks/geo-shell/examples/red.sld!
```

```
geo-shell> style vector default --layer b --color green --opacity 0.75 --file examples/green.sld  
Default Vector Style for b written to /home/travis/build/jericks/geo-shell/examples/green.sld!
```

```
geo-shell> style vector default --layer results --color blue --opacity 0.75 --file examples/blue.sld  
Default Vector Style for results written to /home/travis/build/jericks/geo-shell/examples/blue.sld!
```

```
geo-shell> layer style set --name a --style examples/red.sld  
Style /home/travis/build/jericks/geo-shell/examples/red.sld set on a
```

```
geo-shell> layer style set --name b --style examples/green.sld  
Style /home/travis/build/jericks/geo-shell/examples/green.sld set on b
```

```
geo-shell> layer style set --name results --style examples/blue.sld  
Style /home/travis/build/jericks/geo-shell/examples/blue.sld set on results
```

```
geo-shell> map open --name map  
Map map opened!
```

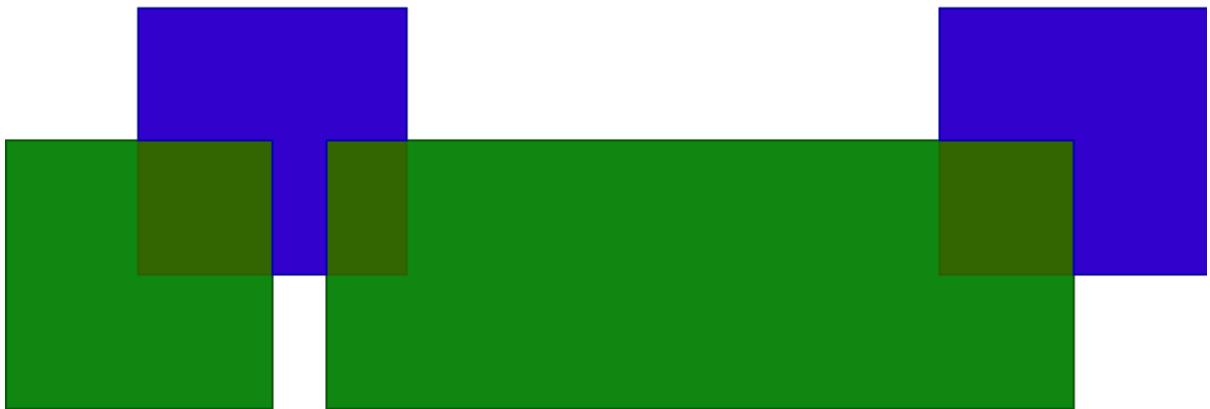
```
geo-shell> map add layer --name map --layer a  
Added a layer to map map
```

```
geo-shell> map add layer --name map --layer b  
Added b layer to map map
```

```
geo-shell> map add layer --name map --layer results  
Added results layer to map map
```

```
geo-shell> map draw --name map --file examples/layer_erase.png  
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_erase.png!
```

```
geo-shell> map close --name map  
Map map closed!
```



## Grid Row / Column

Create a grid Layer with rows and columns

Name	Description	Mandatory	Specified Default	Unspecified Default
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
rows	The number of rows	true		
columns	The number of columns	true		
geometry	The constraining geometry	true		
type	The geometry type (point or polygon)	false	polygon	polygon
projection	The projection	false	EPSG:4326	EPSG:4326
geometry-field	The geometry field name	false	the_geom	the_geom

## Grid Width / Height

Create a grid Layer with cell width and height

Name	Description	Mandatory	Specified Default	Unspecified Default
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
cell-width	The width of each cell	true		
cell-height	The height of each cell	true		
geometry	The constraining geometry	true		
type	The geometry type (point or polygon)	false	polygon	polygon
projection	The projection	false	EPSG:4326	EPSG:4326
geometry-field	The geometry field name	false	the_geom	the_geom

## Identity

Calculate the intersection between a Layer with another Layer

```
geo-shell> layer identity --input-name a --other-name b --output-workspace results --output-name results
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
other-name	The other Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
postfix-all	Whether to postfix all field names when combining schemas	false	false	false
include-duplicates	Whether to include duplicate field names	false	true	true

```
geo-shell> workspace open --name layers --params src/test/resources/layeralgebra.gpkg
Workspace layers opened!
```

```
geo-shell> workspace open --name results --params memory
```

Workspace results opened!

```
geo-shell> layer open --workspace layers --layer a --name a  
Opened Workspace layers Layer a as a
```

```
geo-shell> layer open --workspace layers --layer b --name b  
Opened Workspace layers Layer b as b
```

```
geo-shell> layer identity --input-name a --other-name b --output-workspace results --output-name  
results
```

Done calculating the identity between a and b to create results!

```
geo-shell> style vector default --layer a --color red --opacity 0.75 --file examples/red.sld  
Default Vector Style for a written to /home/travis/build/jericks/geo-shell/examples/red.sld!
```

```
geo-shell> style vector default --layer b --color green --opacity 0.75 --file examples/green.sld  
Default Vector Style for b written to /home/travis/build/jericks/geo-shell/examples/green.sld!
```

```
geo-shell> style vector default --layer results --color blue --opacity 0.75 --file examples/blue.sld  
Default Vector Style for results written to /home/travis/build/jericks/geo-shell/examples/blue.sld!
```

```
geo-shell> layer style set --name a --style examples/red.sld  
Style /home/travis/build/jericks/geo-shell/examples/red.sld set on a
```

```
geo-shell> layer style set --name b --style examples/green.sld  
Style /home/travis/build/jericks/geo-shell/examples/green.sld set on b
```

```
geo-shell> layer style set --name results --style examples/blue.sld  
Style /home/travis/build/jericks/geo-shell/examples/blue.sld set on results
```

```
geo-shell> map open --name map  
Map map opened!
```

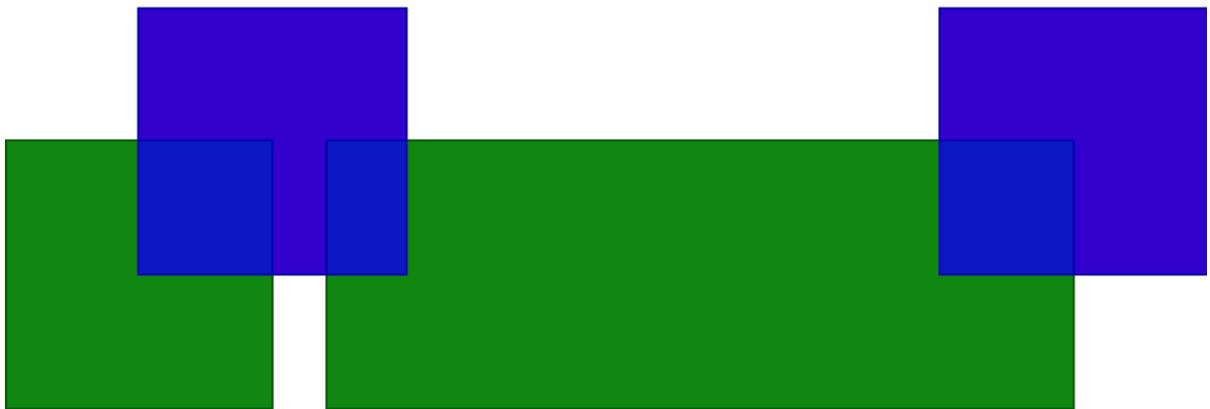
```
geo-shell> map add layer --name map --layer a  
Added a layer to map map
```

```
geo-shell> map add layer --name map --layer b  
Added b layer to map map
```

```
geo-shell> map add layer --name map --layer results  
Added results layer to map map
```

```
geo-shell> map draw --name map --file examples/layer_identity.png  
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_identity.png!
```

```
geo-shell> map close --name map  
Map map closed!
```



## Intersection

Calculate the intersection between a Layer with another Layer

```
geo-shell> layer intersection --input-name a --other-name b --output-workspace results --output-name results
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
other-name	The other Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
postfix-all	Whether to postfix all field names when combining schemas	false	false	false
include-duplicates	Whether to include duplicate field names	false	true	true

```
geo-shell> workspace open --name layers --params src/test/resources/layeralgebra.gpkg  
Workspace layers opened!
```

```
geo-shell> workspace open --name results --params memory
Workspace results opened!

geo-shell> layer open --workspace layers --layer a --name a
Opened Workspace layers Layer a as a

geo-shell> layer open --workspace layers --layer b --name b
Opened Workspace layers Layer b as b

geo-shell> layer intersection --input-name a --other-name b --output-workspace results --output
-name results
Done calculating the intersection between a and b to create results!

geo-shell> style vector default --layer a --color red --opacity 0.75 --file examples/red.sld
Default Vector Style for a written to /home/travis/build/jericks/geo-shell/examples/red.sld!

geo-shell> style vector default --layer b --color green --opacity 0.75 --file examples/green.sld
Default Vector Style for b written to /home/travis/build/jericks/geo-shell/examples/green.sld!

geo-shell> style vector default --layer results --color blue --opacity 0.75 --file examples/blue.sld
Default Vector Style for results written to /home/travis/build/jericks/geo-shell/examples/blue.sld!

geo-shell> layer style set --name a --style examples/red.sld
Style /home/travis/build/jericks/geo-shell/examples/red.sld set on a

geo-shell> layer style set --name b --style examples/green.sld
Style /home/travis/build/jericks/geo-shell/examples/green.sld set on b

geo-shell> layer style set --name results --style examples/blue.sld
Style /home/travis/build/jericks/geo-shell/examples/blue.sld set on results

geo-shell> map open --name map
Map map opened!

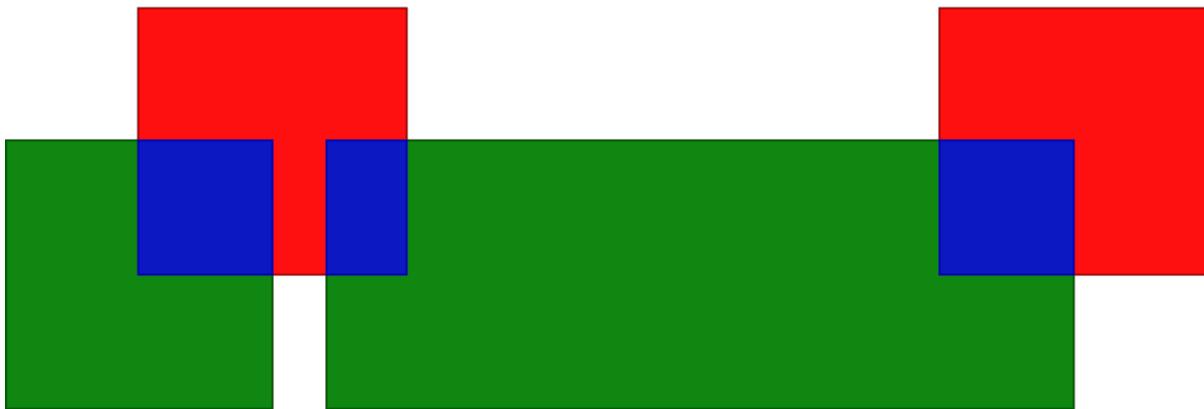
geo-shell> map add layer --name map --layer a
Added a layer to map map

geo-shell> map add layer --name map --layer b
Added b layer to map map

geo-shell> map add layer --name map --layer results
Added results layer to map map

geo-shell> map draw --name map --file examples/layer_intersection.png
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_intersection.png!

geo-shell> map close --name map
Map map closed!
```



## Minimum Circle

Calculate the mininimum bounding circle of the input Layer and save it to the output Layer.

```
geo-shell> layer mincircle --input-name countries --output-workspace layers --output-name mincircle
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
geometry-field	The geometry field name	false	the_geom	the_geom

```
geo-shell> workspace open --name layers --params memory
Workspace layers opened!
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries
```

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
Opened Workspace naturalearth Layer ocean as ocean

geo-shell> layer style set --name ocean --style examples/ocean.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean

geo-shell> layer mincircle --input-name countries --output-workspace layers --output-name
mincircle
Done!

geo-shell> style vector default --layer mincircle --color #1E90FF --opacity 0.25 --file
examples/mincircle.sld
Default Vector Style for mincircle written to /home/travis/build/jericks/geo-
shell/examples/mincircle.sld!

geo-shell> layer style set --name mincircle --style examples/mincircle.sld
Style /home/travis/build/jericks/geo-shell/examples/mincircle.sld set on mincircle

geo-shell> map open --name map
Map map opened!

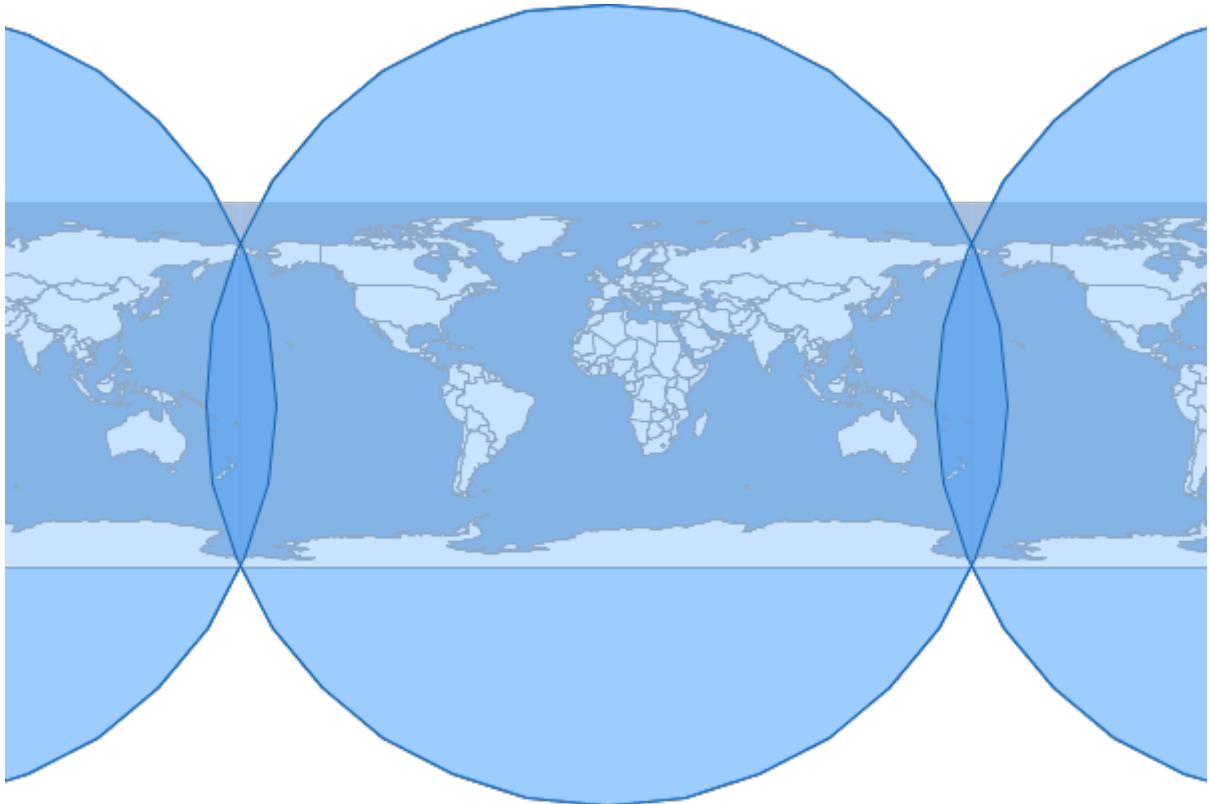
geo-shell> map add layer --name map --layer ocean
Added ocean layer to map map

geo-shell> map add layer --name map --layer countries
Added countries layer to map map

geo-shell> map add layer --name map --layer mincircle
Added mincircle layer to map map

geo-shell> map draw --name map --file examples/layer_mincircle.png
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_mincircle.png!
```

```
geo-shell> map close --name map
Map map closed!
```



## Minimum Circles

Calculate the minimum bounding circle of each Feature in the input Layer and save them to the output Layer.

```
geo-shell> layer mincircles --input-name countries --output-workspace layers --output-name mincircles
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		

```
geo-shell> workspace open --name layers --params memory  
Workspace layers opened!
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg  
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries  
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld  
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries
```

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
```

Opened Workspace naturalearth Layer ocean as ocean

```
geo-shell> layer style set --name ocean --style examples/ocean.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean
```

```
geo-shell> layer mincircles --input-name countries --output-workspace layers --output-name
mincircles
```

Done!

```
geo-shell> style vector default --layer mincircles --color #1E90FF --opacity 0.25 --file
examples/mincircles.sld
```

```
Default Vector Style for mincircles written to /home/travis/build/jericks/geo-
shell/examples/mincircles.sld!
```

```
geo-shell> layer style set --name mincircles --style examples/mincircles.sld
Style /home/travis/build/jericks/geo-shell/examples/mincircles.sld set on mincircles
```

```
geo-shell> map open --name map
```

```
Map map opened!
```

```
geo-shell> map add layer --name map --layer ocean
```

```
Added ocean layer to map map
```

```
geo-shell> map add layer --name map --layer countries
```

```
Added countries layer to map map
```

```
geo-shell> map add layer --name map --layer mincircles
```

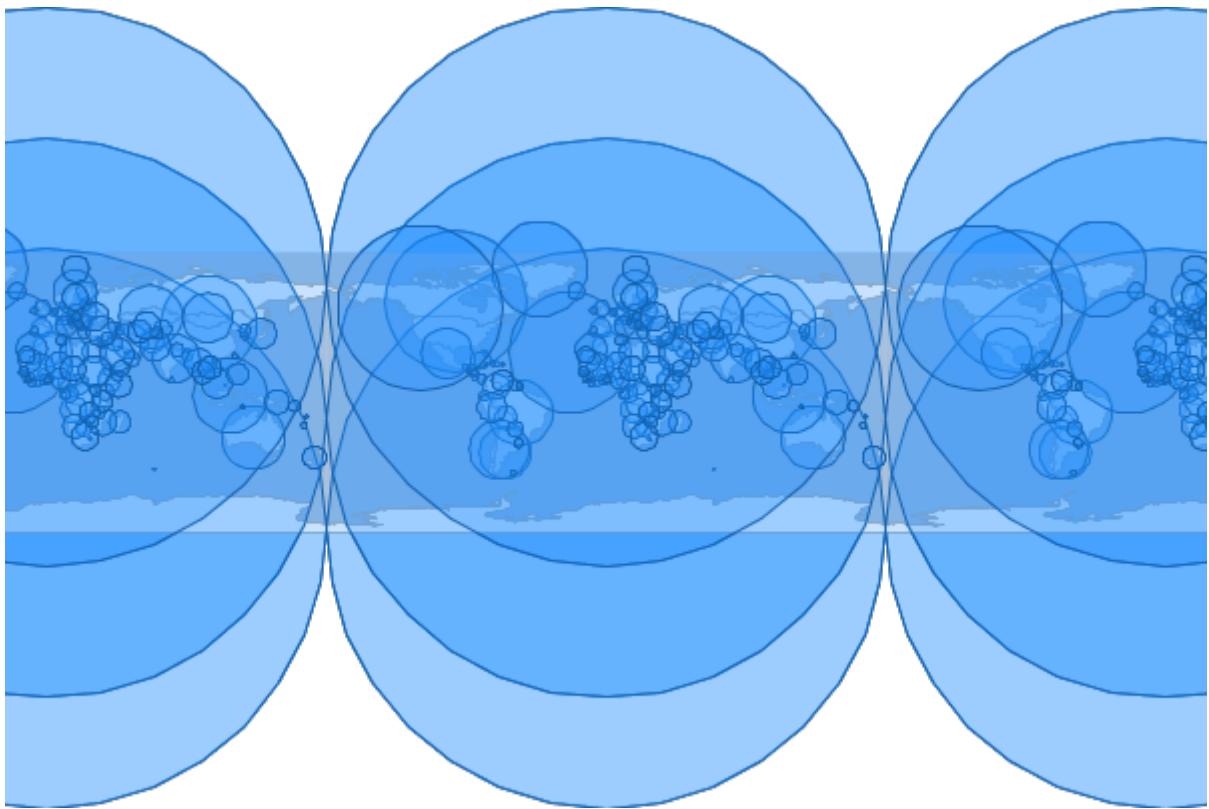
```
Added mincircles layer to map map
```

```
geo-shell> map draw --name map --file examples/layer_mincircles.png
```

```
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_mincircles.png!
```

```
geo-shell> map close --name map
```

```
Map map closed!
```



## Minimum Rectangle

Calculate the minimum rectangle of the input Layer and save it to the output Layer.

```
geo-shell> layer minrect --input-name countries --output-workspace layers --output-name minrect
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
geometry-field	The geometry field name	false	the_geom	the_geom

```
geo-shell> workspace open --name layers --params memory
Workspace layers opened!
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries
```

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
Opened Workspace naturalearth Layer ocean as ocean

geo-shell> layer style set --name ocean --style examples/ocean.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean

geo-shell> layer minrect --input-name countries --output-workspace layers --output-name minrect
Done!

geo-shell> style vector default --layer minrect --color #1E90FF --opacity 0.25 --file
examples/minrect.sld
Default Vector Style for minrect written to /home/travis/build/jericks/geo-
shell/examples/minrect.sld!

geo-shell> layer style set --name minrect --style examples/minrect.sld
Style /home/travis/build/jericks/geo-shell/examples/minrect.sld set on minrect

geo-shell> map open --name map
Map map opened!

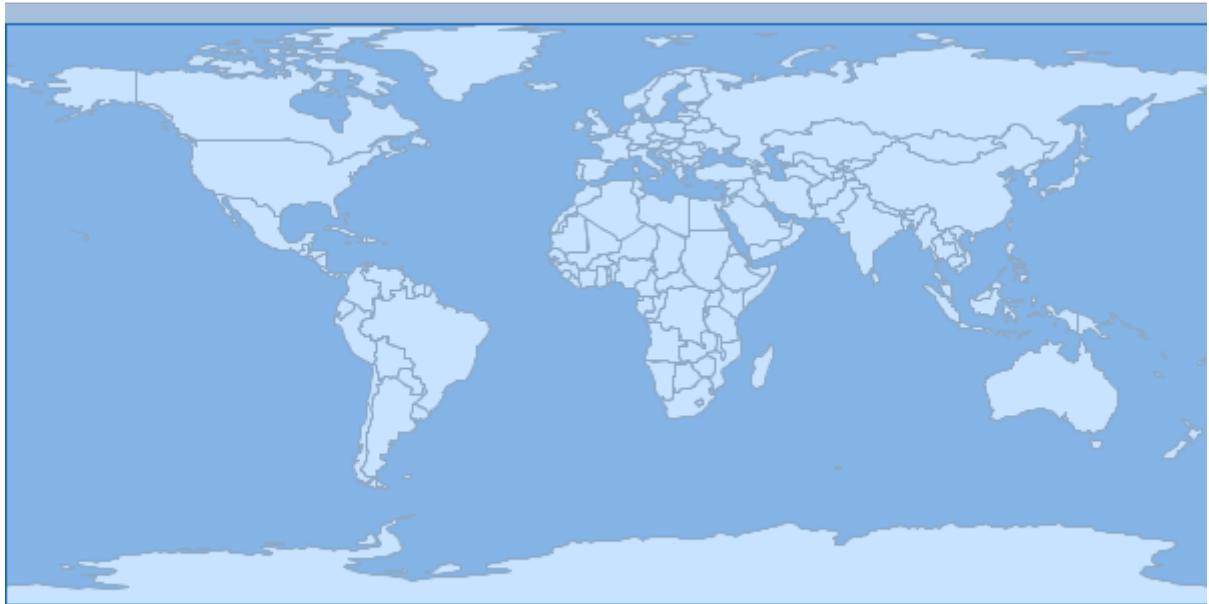
geo-shell> map add layer --name map --layer ocean
Added ocean layer to map map

geo-shell> map add layer --name map --layer countries
Added countries layer to map map

geo-shell> map add layer --name map --layer minrect
Added minrect layer to map map

geo-shell> map draw --name map --file examples/layer_minrect.png
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_minrect.png!

geo-shell> map close --name map
Map map closed!
```



## Minimum Rectangles

Calculate the minimum rectangle of each Feature in the input Layer and save them to the output Layer.

```
geo-shell> layer minrects --input-name countries --output-workspace layers --output-name minrects
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		

```
geo-shell> workspace open --name layers --params memory  
Workspace layers opened!
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg  
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth -layer countries --name countries  
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld  
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries
```

```
geo-shell> layer open --workspace naturalearth -layer ocean --name ocean
```

Opened Workspace naturalearth Layer ocean as ocean

```
geo-shell> layer style set --name ocean --style examples/ocean.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean
```

```
geo-shell> layer minrects --input-name countries --output-workspace layers --output-name
minrects
```

Done!

```
geo-shell> style vector default --layer minrects --color #1E90FF --opacity 0.25 --file
examples/minrects.sld
```

```
Default Vector Style for minrects written to /home/travis/build/jericks/geo-
shell/examples/minrects.sld!
```

```
geo-shell> layer style set --name minrects --style examples/minrects.sld
Style /home/travis/build/jericks/geo-shell/examples/minrects.sld set on minrects
```

```
geo-shell> map open --name map
```

```
Map map opened!
```

```
geo-shell> map add layer --name map --layer ocean
```

```
Added ocean layer to map map
```

```
geo-shell> map add layer --name map --layer countries
```

```
Added countries layer to map map
```

```
geo-shell> map add layer --name map --layer minrects
```

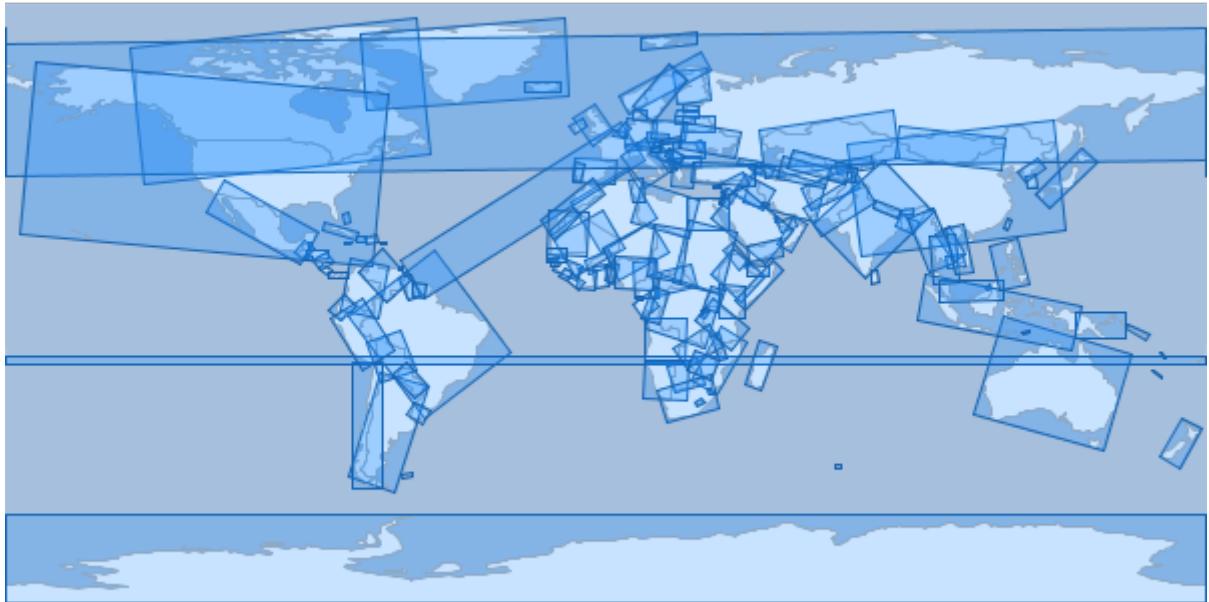
```
Added minrects layer to map map
```

```
geo-shell> map draw --name map --file examples/layer_minrects.png
```

```
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_minrects.png!
```

```
geo-shell> map close --name map
```

```
Map map closed!
```



## Octangle Envelope

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

```
geo-shell> layer octagonalenvelope --input-name countries --output-workspace layers --output-name octagonalenvelope
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
geometry-field	The geometry field name	false	the_geom	the_geom

```
geo-shell> workspace open --name layers --params memory
```

Workspace layers opened!

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
```

Workspace naturalearth opened!

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries
```

Opened Workspace naturalearth Layer countries as countries

```
geo-shell> layer style set --name countries --style examples/countries.sld
```

Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
Opened Workspace naturalearth Layer ocean as ocean

geo-shell> layer style set --name ocean --style examples/ocean.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean

geo-shell> layer octagonalenvelope --input-name countries --output-workspace layers --output
-name octagonalenvelope
Done!

geo-shell> style vector default --layer octagonalenvelope --color #1E90FF --opacity 0.25 --file
examples/octagonalenvelope.sld
Default Vector Style for octagonalenvelope written to /home/travis/build/jericks/geo-
shell/examples/octagonalenvelope.sld!

geo-shell> layer style set --name octagonalenvelope --style examples/octagonalenvelope.sld
Style /home/travis/build/jericks/geo-shell/examples/octagonalenvelope.sld set on octagonalenvelope

geo-shell> map open --name map
Map map opened!

geo-shell> map add layer --name map --layer ocean
Added ocean layer to map map

geo-shell> map add layer --name map --layer countries
Added countries layer to map map

geo-shell> map add layer --name map --layer octagonalenvelope
Added octagonalenvelope layer to map map

geo-shell> map draw --name map --file examples/layer_octagonalenvelope.png
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_octagonalenvelope.png!
```

```
geo-shell> map close --name map
Map map closed!
```



## Octangle Envelopes

Calculate the octagonal envelope of each Feature in the input Layer and save them to the output Layer.

```
geo-shell> layer octagonalenvelopes --input-name countries --output-workspace layers --output-name octagonalenvelopes
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		

```
geo-shell> workspace open --name layers --params memory  
Workspace layers opened!
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg  
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries  
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld  
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries
```

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
```

Opened Workspace naturalearth Layer ocean as ocean

```
geo-shell> layer style set --name ocean --style examples/ocean.sld  
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean
```

```
geo-shell> layer octagonalenvelopes --input-name countries --output-workspace layers --output  
-name octagonalenvelopes  
Done!
```

```
geo-shell> style vector default --layer octagonalenvelopes --color #1E90FF --opacity 0.25 --file  
examples/octagonalenvelopes.sld  
Default Vector Style for octagonalenvelopes written to /home/travis/build/jericks/geo-  
shell/examples/octagonalenvelopes.sld!
```

```
geo-shell> layer style set --name octagonalenvelopes --style examples/octagonalenvelopes.sld  
Style      /home/travis/build/jericks/geo-shell/examples/octagonalenvelopes.sld      set      on  
octagonalenvelopes
```

```
geo-shell> map open --name map  
Map map opened!
```

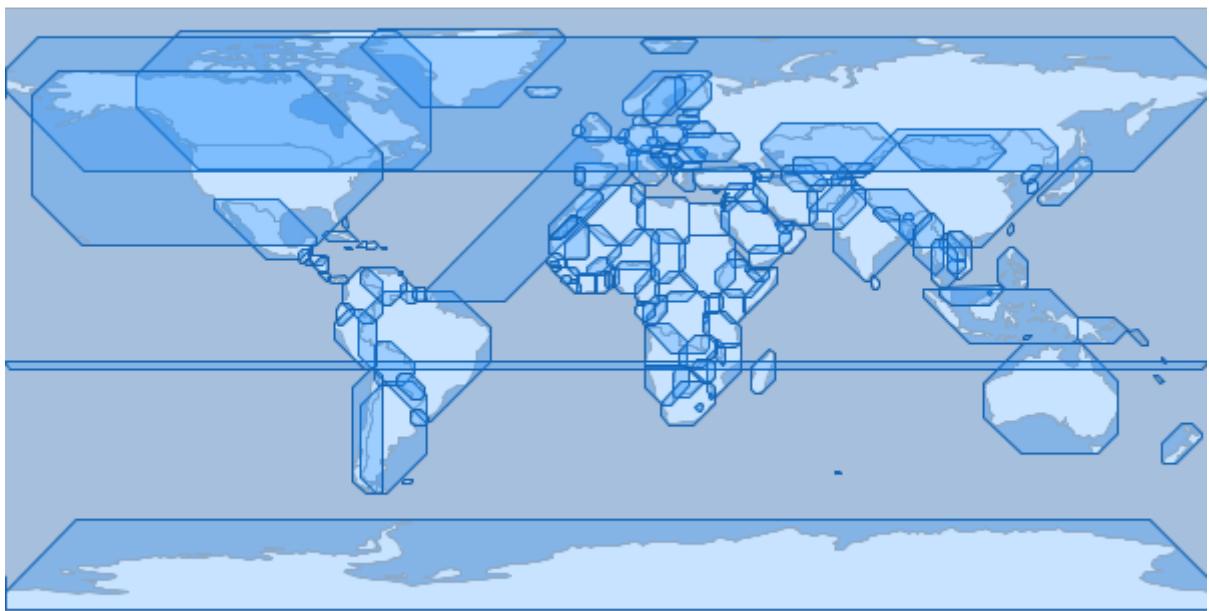
```
geo-shell> map add layer --name map --layer ocean  
Added ocean layer to map map
```

```
geo-shell> map add layer --name map --layer countries  
Added countries layer to map map
```

```
geo-shell> map add layer --name map --layer octagonalenvelopes  
Added octagonalenvelopes layer to map map
```

```
geo-shell> map draw --name map --file examples/layer_octagonalenvelopes.png  
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_octagonalenvelopes.png!
```

```
geo-shell> map close --name map  
Map map closed!
```



## Points Along Lines

Create points along lines

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
distance	The distance between points	true		

## Simplify

Simplify the features of the input Layer and save them to the output Layer

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		

algorithm	The simplify algorithm (DouglasPeucker - dp or TopologyPreserving - tp)	false	tp	tp
distance	The distance tolerance	true		

## Symmetric Difference

Calculate the symmetric difference between a Layer and another Layer.

```
geo-shell> layer symdifference --input-name a --other-name b --output-workspace results --output-name results
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
other-name	The other Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
postfix-all	Whether to postfix all field names when combining schemas	false	false	false
include-duplicates	Whether to include duplicate field names	false	true	true

```
geo-shell> workspace open --name layers --params src/test/resources/layeralgebra.gpkg
Workspace layers opened!
```

```
geo-shell> workspace open --name results --params memory
Workspace results opened!
```

```
geo-shell> layer open --workspace layers --layer a --name a
Opened Workspace layers Layer a as a
```

```
geo-shell> layer open --workspace layers --layer b --name b
Opened Workspace layers Layer b as b
```

```
geo-shell> layer symdifference --input-name a --other-name b --output-workspace results --output-name results
```

Done calculating the symmetric difference between a and b to create results!

```
geo-shell> style vector default --layer a --color red --opacity 0.75 --file examples/red.sld
Default Vector Style for a written to /home/travis/build/jericks/geo-shell/examples/red.sld!
```

```
geo-shell> style vector default --layer b --color green --opacity 0.75 --file examples/green.sld
Default Vector Style for b written to /home/travis/build/jericks/geo-shell/examples/green.sld!
```

```
geo-shell> style vector default --layer results --color blue --opacity 0.75 --file examples/blue.sld
Default Vector Style for results written to /home/travis/build/jericks/geo-shell/examples/blue.sld!
```

```
geo-shell> layer style set --name a --style examples/red.sld
Style /home/travis/build/jericks/geo-shell/examples/red.sld set on a
```

```
geo-shell> layer style set --name b --style examples/green.sld
Style /home/travis/build/jericks/geo-shell/examples/green.sld set on b
```

```
geo-shell> layer style set --name results --style examples/blue.sld
Style /home/travis/build/jericks/geo-shell/examples/blue.sld set on results
```

```
geo-shell> map open --name map
Map map opened!
```

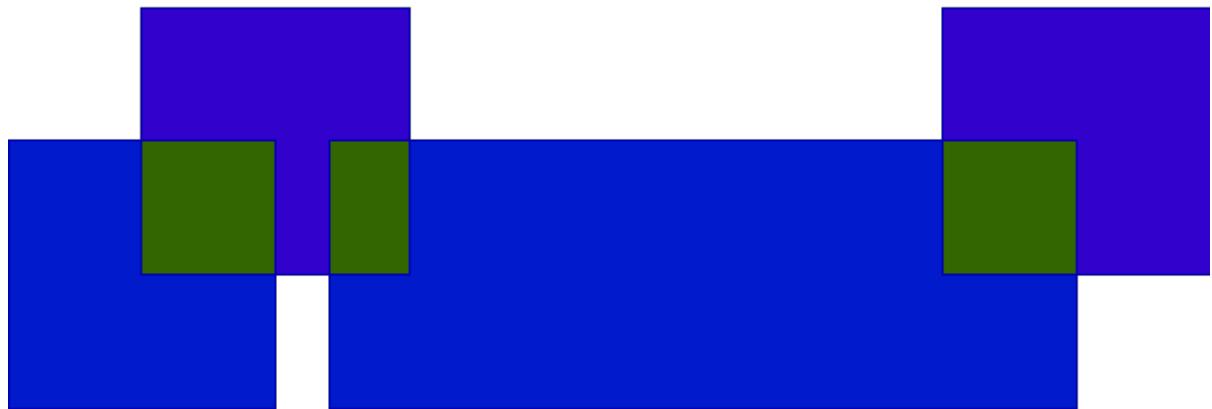
```
geo-shell> map add layer --name map --layer a
Added a layer to map map
```

```
geo-shell> map add layer --name map --layer b
Added b layer to map map
```

```
geo-shell> map add layer --name map --layer results
Added results layer to map map
```

```
geo-shell> map draw --name map --file examples/layer_symdifference.png
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_symdifference.png!
```

```
geo-shell> map close --name map
Map map closed!
```



## Transform

Transform the features of the input Layer and save them to the output Layer

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
transforms	The pipe delimited list of transforms (field=expression or function)	true		

## Union

Union a Layer with another Layer

```
geo-shell> layer union --input-name a --other-name b --output-workspace results --output-name results
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		

other-name	The other Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
postfix-all	Whether to postfix all field names when combining schemas	false	false	false
include-duplicates	Whether to include duplicate field names	false	true	true

geo-shell> **workspace open** --name layers --params src/test/resources/layeralgebra.gpkg  
 Workspace layers opened!

geo-shell> **workspace open** --name results --params memory  
 Workspace results opened!

geo-shell> **layer open** --workspace layers --layer a --name a  
 Opened Workspace layers Layer a as a

geo-shell> **layer open** --workspace layers --layer b --name b  
 Opened Workspace layers Layer b as b

geo-shell> **layer union** --input-name a --other-name b --output-workspace results --output-name results  
 Done unioning a and b to create results!

geo-shell> **style vector default** --layer a --color red --opacity 0.75 --file examples/red.sld  
 Default Vector Style for a written to /home/travis/build/jericks/geo-shell/examples/red.sld!

geo-shell> **style vector default** --layer b --color green --opacity 0.75 --file examples/green.sld  
 Default Vector Style for b written to /home/travis/build/jericks/geo-shell/examples/green.sld!

geo-shell> **style vector default** --layer results --color blue --opacity 0.75 --file examples/blue.sld  
 Default Vector Style for results written to /home/travis/build/jericks/geo-shell/examples/blue.sld!

geo-shell> **layer style set** --name a --style examples/red.sld  
 Style /home/travis/build/jericks/geo-shell/examples/red.sld set on a

geo-shell> **layer style set** --name b --style examples/green.sld  
 Style /home/travis/build/jericks/geo-shell/examples/green.sld set on b

geo-shell> **layer style set** --name results --style examples/blue.sld  
 Style /home/travis/build/jericks/geo-shell/examples/blue.sld set on results

geo-shell> **map open** --name map  
 Map map opened!

```
geo-shell> map add layer --name map --layer a
```

```
Added a layer to map map
```

```
geo-shell> map add layer --name map --layer b
```

```
Added b layer to map map
```

```
geo-shell> map add layer --name map --layer results
```

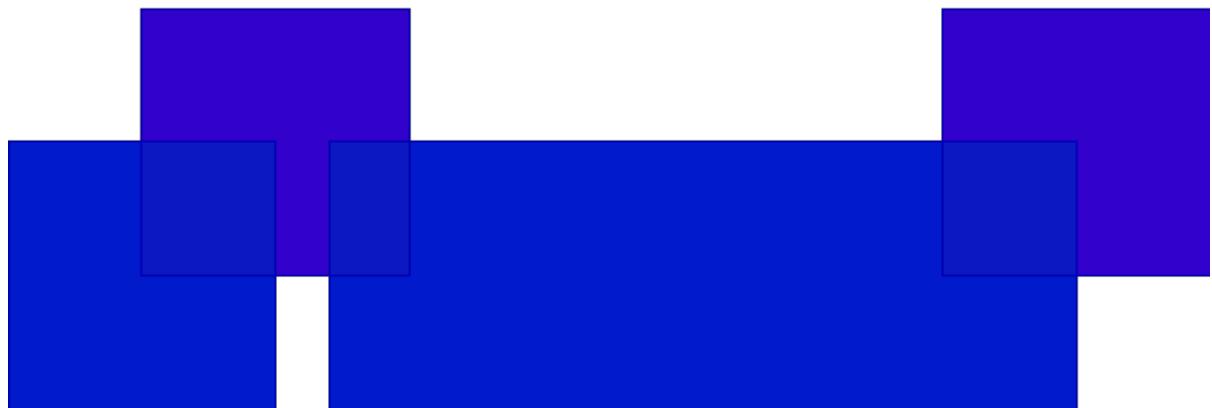
```
Added results layer to map map
```

```
geo-shell> map draw --name map --file examples/layer_union.png
```

```
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_union.png!
```

```
geo-shell> map close --name map
```

```
Map map closed!
```



## Update

Calculate the update between a Layer with another Layer

```
geo-shell> layer update --input-name a --other-name b --output-workspace results --output-name results
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
other-name	The other Layer name	true		

output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		

geo-shell> **workspace open** --name layers --params src/test/resources/layeralgebra.gpkg  
Workspace layers opened!

geo-shell> **workspace open** --name results --params memory  
Workspace results opened!

geo-shell> **layer open** --workspace layers --layer a --name a  
Opened Workspace layers Layer a as a

geo-shell> **layer open** --workspace layers --layer b --name b  
Opened Workspace layers Layer b as b

geo-shell> **layer update** --input-name a --other-name b --output-workspace results --output-name results

Done calculating the update between a and b to create results!

geo-shell> **style vector default** --layer a --color red --opacity 0.75 --file examples/red.sld  
Default Vector Style for a written to /home/travis/build/jericks/geo-shell/examples/red.sld!

geo-shell> **style vector default** --layer b --color green --opacity 0.75 --file examples/green.sld  
Default Vector Style for b written to /home/travis/build/jericks/geo-shell/examples/green.sld!

geo-shell> **style vector default** --layer results --color blue --opacity 0.75 --file examples/blue.sld  
Default Vector Style for results written to /home/travis/build/jericks/geo-shell/examples/blue.sld!

geo-shell> **layer style set** --name a --style examples/red.sld  
Style /home/travis/build/jericks/geo-shell/examples/red.sld set on a

geo-shell> **layer style set** --name b --style examples/green.sld  
Style /home/travis/build/jericks/geo-shell/examples/green.sld set on b

geo-shell> **layer style set** --name results --style examples/blue.sld  
Style /home/travis/build/jericks/geo-shell/examples/blue.sld set on results

geo-shell> **map open** --name map  
Map map opened!

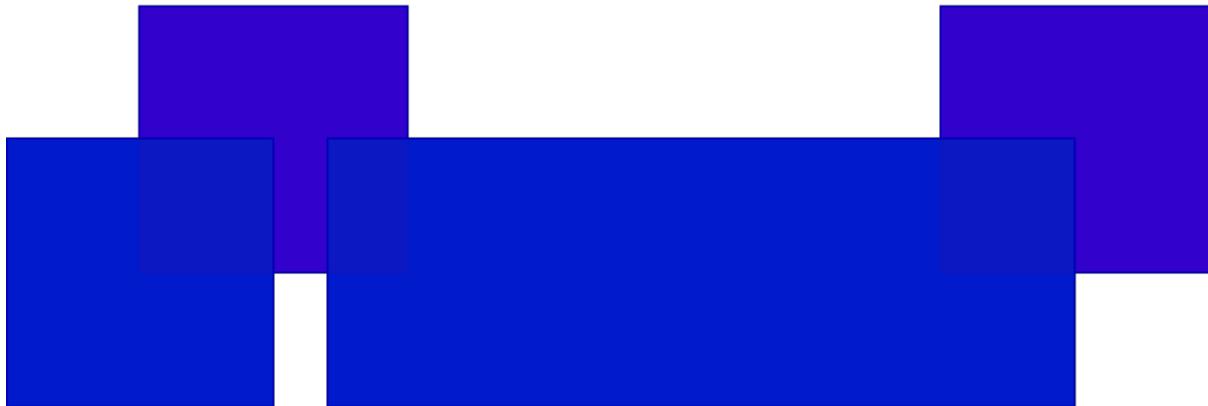
geo-shell> **map add layer** --name map --layer a  
Added a layer to map map

geo-shell> **map add layer** --name map --layer b  
Added b layer to map map

geo-shell> **map add layer** --name map --layer results  
Added results layer to map map

```
geo-shell> map draw --name map --file examples/layer_update.png  
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_update.png!
```

```
geo-shell> map close --name map  
Map map closed!
```



## Voronoi

Calculate a voronoi diagram of the input Layer and save it to the output Layer.

```
geo-shell> layer voronoi --input-name places --output-workspace layers --output-name voronoi
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
geometry-field	The geometry field name	false	the_geom	the_geom

```
geo-shell> workspace open --name layers --params memory  
Workspace layers opened!
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg  
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer places --name places
Opened Workspace naturalearth Layer places as places
```

```
geo-shell> layer voronoi --input-name places --output-workspace layers --output-name voronoi
Done!
```

```
geo-shell> style vector default --layer voronoi --color #1E90FF --opacity 0.25 --file
examples/voronoi.sld
Default Vector Style for voronoi written to /home/travis/build/jericks/geo-
shell/examples/voronoi.sld!
```

```
geo-shell> layer style set --name voronoi --style examples/voronoi.sld
Style /home/travis/build/jericks/geo-shell/examples/voronoi.sld set on voronoi
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries
```

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
Opened Workspace naturalearth Layer ocean as ocean
```

```
geo-shell> layer style set --name ocean --style examples/ocean.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean
```

```
geo-shell> map open --name map
Map map opened!
```

```
geo-shell> map add layer --name map --layer ocean
Added ocean layer to map map
```

```
geo-shell> map add layer --name map --layer countries
Added countries layer to map map
```

```
geo-shell> map add layer --name map --layer voronoi
Added voronoi layer to map map
```

```
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_voronoi.png!
geo-shell> map draw --name map --file examples/layer_voronoi.png --bounds -180,-90,180,90
```

```
Map map closed!
```

```
geo-shell> map close --name map
```



## Random Points

Create a Layer with a number of randomly located points

```
geo-shell> layer random --output-workspace layers --output-name points --geometry -180,-90,180,90  
--number 100 --projection EPSG:4326
```

Name	Description	Mandatory	Specified Default	Unspecified Default
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
number	The number of points	true		
geometry	The geometry or bounds in which to create the points	true		
projection	The projection	true		
id-field	The id field name	false	id	id
geometry-field	The geometry field name	false	the_geom	the_geom
grid	Whether to create points in a grid	false	false	false

constrained-to-circle	Whether points should be constrained to a circle	false	false	false
gutter-fraction	The size of gutter between cells	false	0	0

```
geo-shell> workspace open --name layers --params memory
Workspace layers opened!
```

```
geo-shell> layer random --output-workspace layers --output-name points --geometry -180,-90,180,90
--number 100 --projection EPSG:4326
Done!
```

```
geo-shell> style vector default --layer points --color #1E90FF --file examples/points.sld
Default Vector Style for points written to /home/travis/build/jericks/geo-shell/examples/points.sld!
```

```
geo-shell> layer style set --name points --style examples/points.sld
Style /home/travis/build/jericks/geo-shell/examples/points.sld set on points
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries
```

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
Opened Workspace naturalearth Layer ocean as ocean
```

```
geo-shell> layer style set --name ocean --style examples/ocean.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean
```

```
geo-shell> map open --name randomMap
Map randomMap opened!
```

```
geo-shell> map add layer --name randomMap --layer ocean
Added ocean layer to map randomMap
```

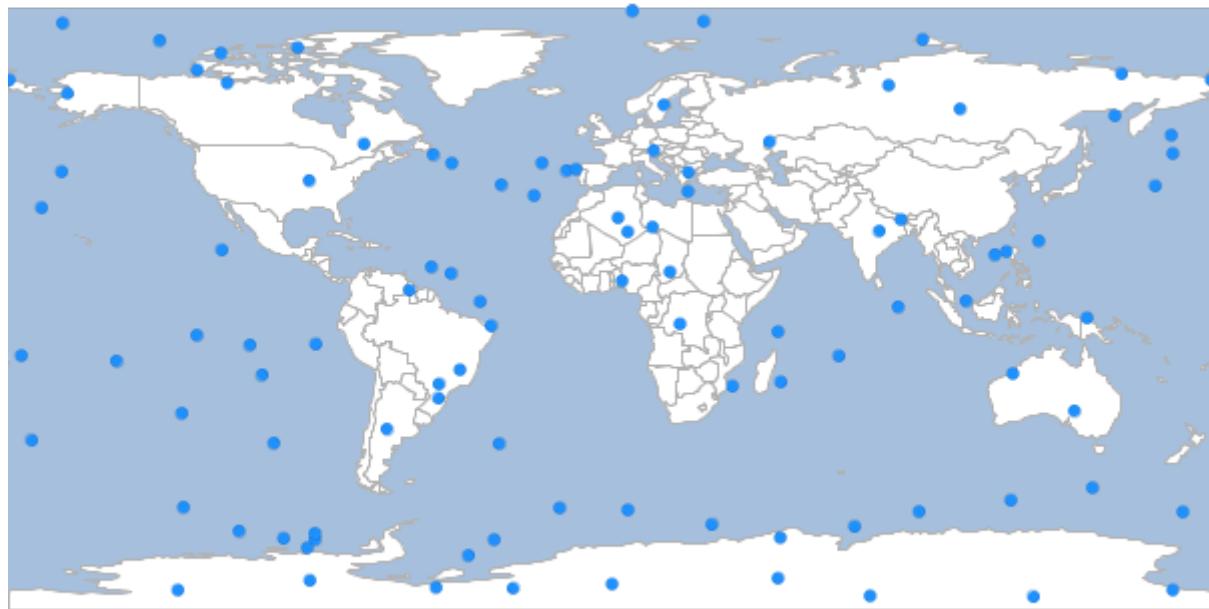
```
geo-shell> map add layer --name randomMap --layer countries
Added countries layer to map randomMap
```

```
geo-shell> map add layer --name randomMap --layer points
Added points layer to map randomMap
```

```
geo-shell> map draw --name randomMap --file examples/random_points.png
Done drawing /home/travis/build/jericks/geo-shell/examples/random_points.png!
```

```
geo-shell> map close --name randomMap
```

Map randomMap closed!



## Buffer

Buffer the input Layer to the output Layer.

```
geo-shell> layer buffer --input-name points --output-workspace layers --output-name buffers  
--distance 10
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
distance	The buffer distance	true		

```
geo-shell> workspace open --name layers --params memory  
Workspace layers opened!
```

```
geo-shell> layer random --output-workspace layers --output-name points --geometry -180,-90,180,90  
--number 100 --projection EPSG:4326  
Done!
```

```
geo-shell> layer buffer --input-name points --output-workspace layers --output-name buffers  
--distance 10
```

Done!

```
geo-shell> style vector default --layer points --color #1E90FF --file examples/points.sld
Default Vector Style for points written to /home/travis/build/jericks/geo-shell/examples/points.sld!

geo-shell> style vector default --layer buffers --color #1E90FF --opacity 0.25 --file
examples/buffers.sld
Default Vector Style for buffers written to /home/travis/build/jericks/geo-shell/examples/buffers.sld!

geo-shell> layer style set --name points --style examples/points.sld
Style /home/travis/build/jericks/geo-shell/examples/points.sld set on points

geo-shell> layer style set --name buffers --style examples/buffers.sld
Style /home/travis/build/jericks/geo-shell/examples/buffers.sld set on buffers

geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
Workspace naturalearth opened!

geo-shell> layer open --workspace naturalearth --layer countries --name countries
Opened Workspace naturalearth Layer countries as countries

geo-shell> layer style set --name countries --style examples/countries.sld
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries

geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
Opened Workspace naturalearth Layer ocean as ocean

geo-shell> layer style set --name ocean --style examples/ocean.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean

geo-shell> map open --name map
Map map opened!

geo-shell> map add layer --name map --layer ocean
Added ocean layer to map map

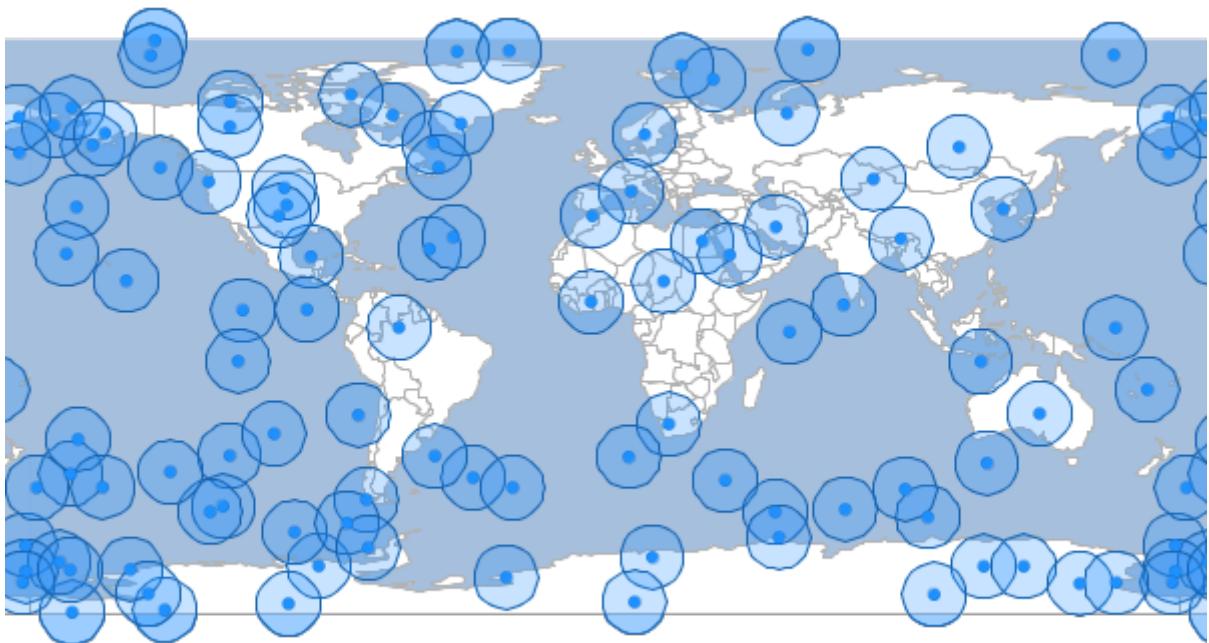
geo-shell> map add layer --name map --layer countries
Added countries layer to map map

geo-shell> map add layer --name map --layer buffers
Added buffers layer to map map

geo-shell> map add layer --name map --layer points
Added points layer to map map

geo-shell> map draw --name map --file examples/layer_buffer.png
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_buffer.png!

geo-shell> map close --name map
Map map closed!
```



## Centroid

Calculate the centroids of the input Layer to the output Layer.

```
geo-shell> layer centroid --input-name countries --output-name centroids --output-workspace layers
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		

```
geo-shell> workspace open --name layers --params memory
Workspace layers opened!
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries
```

```
geo-shell> layer centroid --input-name countries --output-name centroids --output-workspace layers
```

Done!

```
geo-shell> style vector default --layer centroids --color #1E90FF --file examples/centroids.sld
Default Vector Style for centroids written to /home/travis/build/jericks/geo-
shell/examples/centroids.sld!
```

```
geo-shell> layer style set --name centroids --style examples/centroids.sld
Style /home/travis/build/jericks/geo-shell/examples/centroids.sld set on centroids
```

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
Opened Workspace naturalearth Layer ocean as ocean
```

```
geo-shell> layer style set --name ocean --style examples/ocean.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean
```

```
geo-shell> map open --name map
Map map opened!
```

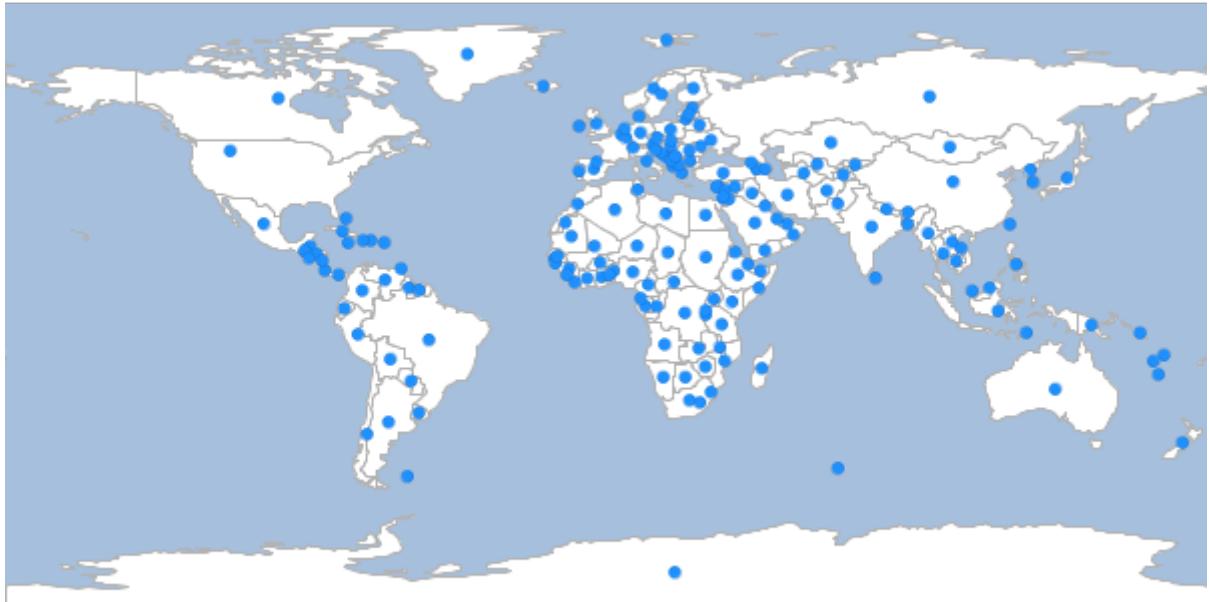
```
geo-shell> map add layer --name map --layer ocean
Added ocean layer to map map
```

```
geo-shell> map add layer --name map --layer countries
Added countries layer to map map
```

```
geo-shell> map add layer --name map --layer centroids
Added centroids layer to map map
```

```
geo-shell> map draw --name map --file examples/layer_centroid.png
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_centroid.png!
```

```
geo-shell> map close --name map
Map map closed!
```



## Interior Point

Calculate the interior points of the input Layer to the output Layer.

```
geo-shell> layer interiorpoint --input-name countries --output-name interiorpoints --output
-workspace layers
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		

```
geo-shell> workspace open --name layers --params memory
Workspace layers opened!
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries
```

```
geo-shell> layer interiorpoint --input-name countries --output-name interiorpoints --output
-workspace layers
```

Done!

```
geo-shell> style vector default --layer interiorpoints --color #1E90FF --file examples/interiorpoints.sld
```

```
Default Vector Style for interiorpoints written to /home/travis/build/jericks/geo-shell/examples/interiorpoints.sld!
```

```
geo-shell> layer style set --name interiorpoints --style examples/interiorpoints.sld  
Style /home/travis/build/jericks/geo-shell/examples/interiorpoints.sld set on interiorpoints
```

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean  
Opened Workspace naturalearth Layer ocean as ocean
```

```
geo-shell> layer style set --name ocean --style examples/ocean.sld  
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean
```

```
geo-shell> map open --name map  
Map map opened!
```

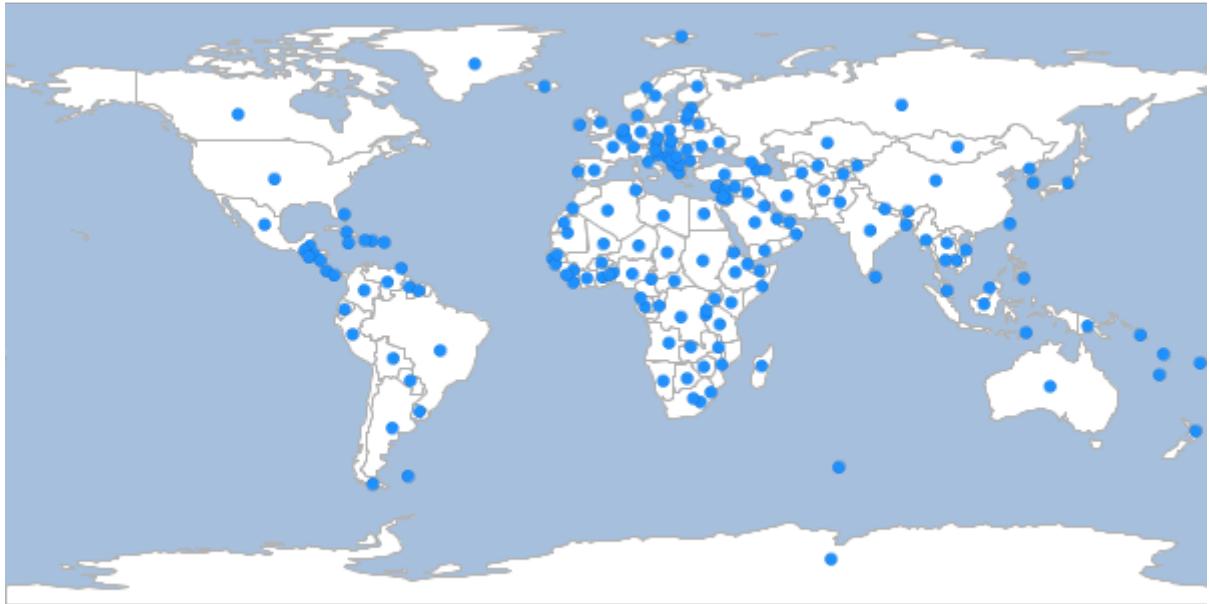
```
geo-shell> map add layer --name map --layer ocean  
Added ocean layer to map map
```

```
geo-shell> map add layer --name map --layer countries  
Added countries layer to map map
```

```
geo-shell> map add layer --name map --layer interiorpoints  
Added interiorpoints layer to map map
```

```
geo-shell> map draw --name map --file examples/layer_interiorpoint.png  
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_interiorpoint.png!
```

```
geo-shell> map close --name map  
Map map closed!
```



## Extent

Calculate the extent of the input Layer and save it to the output Layer.

```
geo-shell> layer extent --input-name states --output-workspace layers --output-name usa
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
geometry-field	The geometry field name	false	the_geom	the_geom

```
geo-shell> workspace open --name layers --params memory
```

Workspace layers opened!

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
```

Workspace naturalearth opened!

```
geo-shell> layer style set --name states --style examples/states.sld
```

Unable to find Layer states

```
geo-shell> layer open --workspace naturalearth --layer states --name states
```

Opened Workspace naturalearth Layer states as states

```
geo-shell> layer extent --input-name states --output-workspace layers --output-name usa  
Done!
```

```
geo-shell> style vector default --layer usa --color #1E90FF --opacity 0.25 --file examples/extent.sld  
Default Vector Style for usa written to /home/travis/build/jericks/geo-shell/examples/extent.sld!
```

```
geo-shell> layer style set --name usa --style examples/extent.sld  
Style /home/travis/build/jericks/geo-shell/examples/extent.sld set on usa
```

```
geo-shell> layer open --workspace naturalearth -layer countries --name countries  
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld  
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries
```

```
geo-shell> layer open --workspace naturalearth -layer ocean --name ocean  
Opened Workspace naturalearth Layer ocean as ocean
```

```
geo-shell> layer style set --name ocean --style examples/ocean.sld  
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean
```

```
geo-shell> map open --name map  
Map map opened!
```

```
geo-shell> map add layer --name map --layer ocean  
Added ocean layer to map map
```

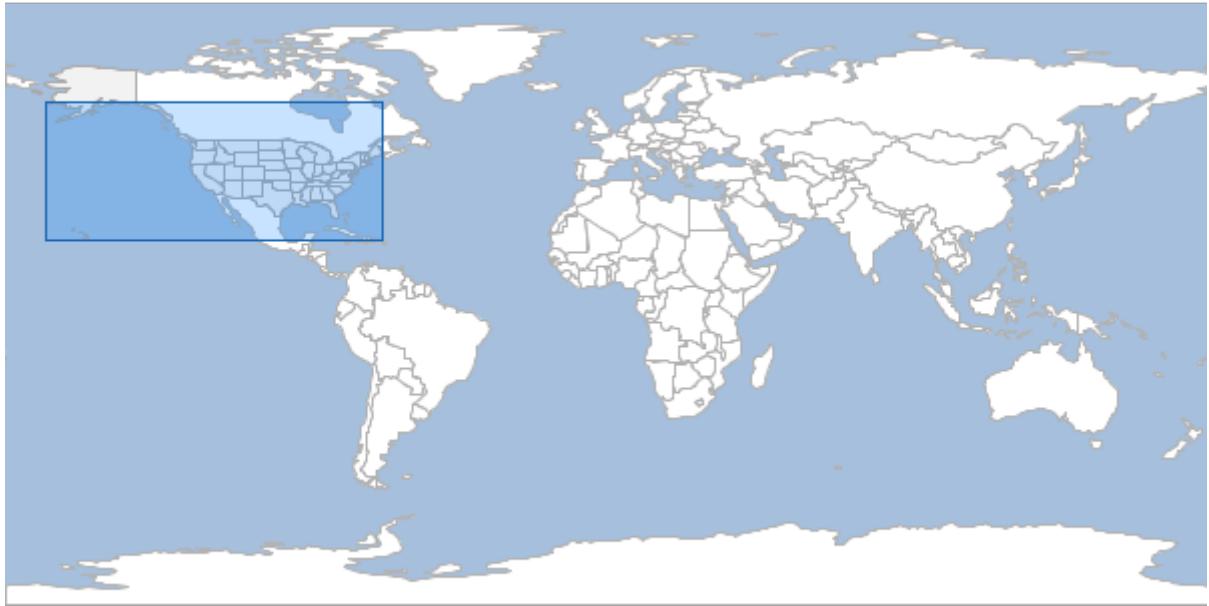
```
geo-shell> map add layer --name map --layer countries  
Added countries layer to map map
```

```
geo-shell> map add layer --name map --layer states  
Added states layer to map map
```

```
geo-shell> map add layer --name map --layer usa  
Added usa layer to map map
```

```
geo-shell> map draw --name map --file examples/layer_extent.png  
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_extent.png!
```

```
geo-shell> map close --name map  
Map map closed!
```



## Extents

Calculate the extents of each Feature in the input Layer and save them to the output Layer.

```
geo-shell> layer extents --input-name states --output-workspace layers --output-name state_extents
```

Name	Description	Mandatory	Specified Default	Unspecified Default
input-name	The Layer name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		

```
geo-shell> workspace open --name layers --params memory
```

Workspace layers opened!

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
```

Workspace naturalearth opened!

```
geo-shell> layer style set --name states --style examples/states.sld
```

Unable to find Layer states

```
geo-shell> layer open --workspace naturalearth --layer states --name states
```

Opened Workspace naturalearth Layer states as states

```
geo-shell> layer extents --input-name states --output-workspace layers --output-name state_extents
```

Done!

```
geo-shell> style vector default --layer state_extents --color #1E90FF --opacity 0.25 --file examples/extent.sld
Default Vector Style for state_extents written to /home/travis/build/jericks/geo-shell/examples/extent.sld!

geo-shell> layer style set --name state_extents --style examples/extent.sld
Style /home/travis/build/jericks/geo-shell/examples/extent.sld set on state_extents

geo-shell> layer open --workspace naturalearth --layer countries --name countries
Opened Workspace naturalearth Layer countries as countries

geo-shell> layer style set --name countries --style examples/countries.sld
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries

geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
Opened Workspace naturalearth Layer ocean as ocean

geo-shell> layer style set --name ocean --style examples/ocean.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean

geo-shell> map open --name map
Map map opened!

geo-shell> map add layer --name map --layer ocean
Added ocean layer to map map

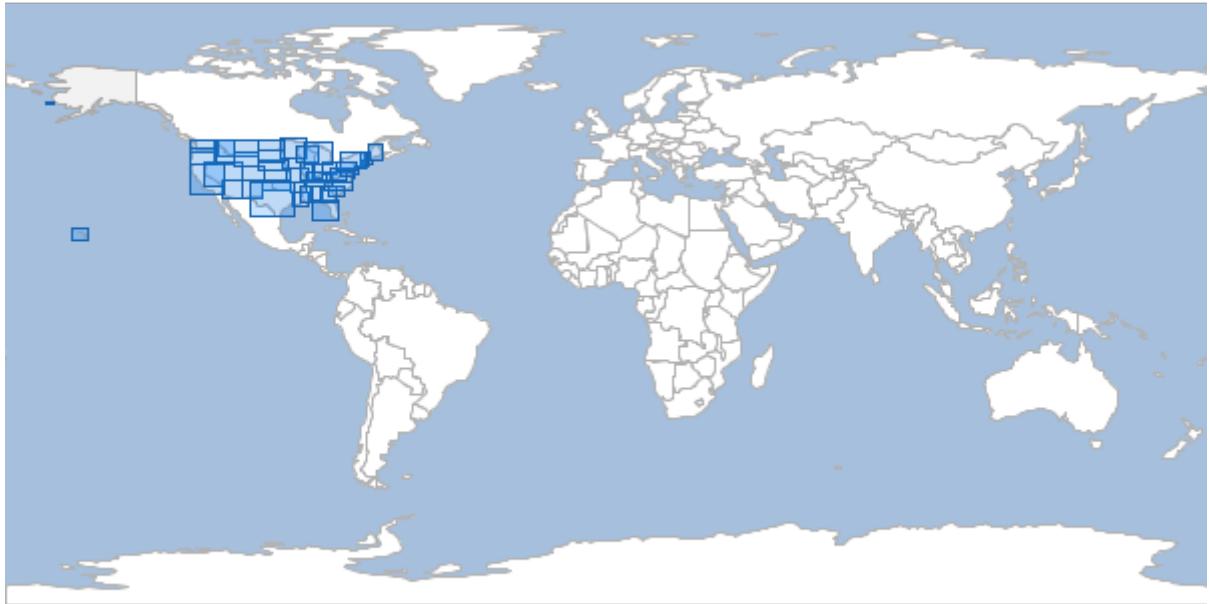
geo-shell> map add layer --name map --layer countries
Added countries layer to map map

geo-shell> map add layer --name map --layer states
Added states layer to map map

geo-shell> map add layer --name map --layer state_extents
Added state_extents layer to map map

geo-shell> map draw --name map --file examples/layer_extents.png
Done drawing /home/travis/build/jericks/geo-shell/examples/layer_extents.png!

geo-shell> map close --name map
Map map closed!
```



## Graticule

### Square

Create a square graticule.

```
geo-shell> layer graticule square --workspace layers --name squares --bounds -180,-90,180,90
--length 20
```

Name	Description	Mandatory	Specified Default	Unspecified Default
workspace	The Workspace name	true		
name	The new Layer name	true		
bounds	The bounds	true		
length	The length	true		
spacing	The spacing	false	-1	-1

```
geo-shell> workspace open --name layers --params memory
Workspace layers opened!
```

```
geo-shell> layer graticule square --workspace layers --name squares --bounds -180,-90,180,90
--length 20
```

Created Square Graticule Layer squares!

```
geo-shell> style vector default --layer squares --color #1E90FF --opacity 0.30 --file
```

```
examples/squares.sld
Default Vector Style for squares written to /home/travis/build/jericks/geo-
shell/examples/squares.sld!
```

```
geo-shell> layer style set --name squares --style examples/squares.sld
Style /home/travis/build/jericks/geo-shell/examples/squares.sld set on squares
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries
```

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
Opened Workspace naturalearth Layer ocean as ocean
```

```
geo-shell> layer style set --name ocean --style examples/ocean.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean
```

```
geo-shell> map open --name graticule
Map graticule opened!
```

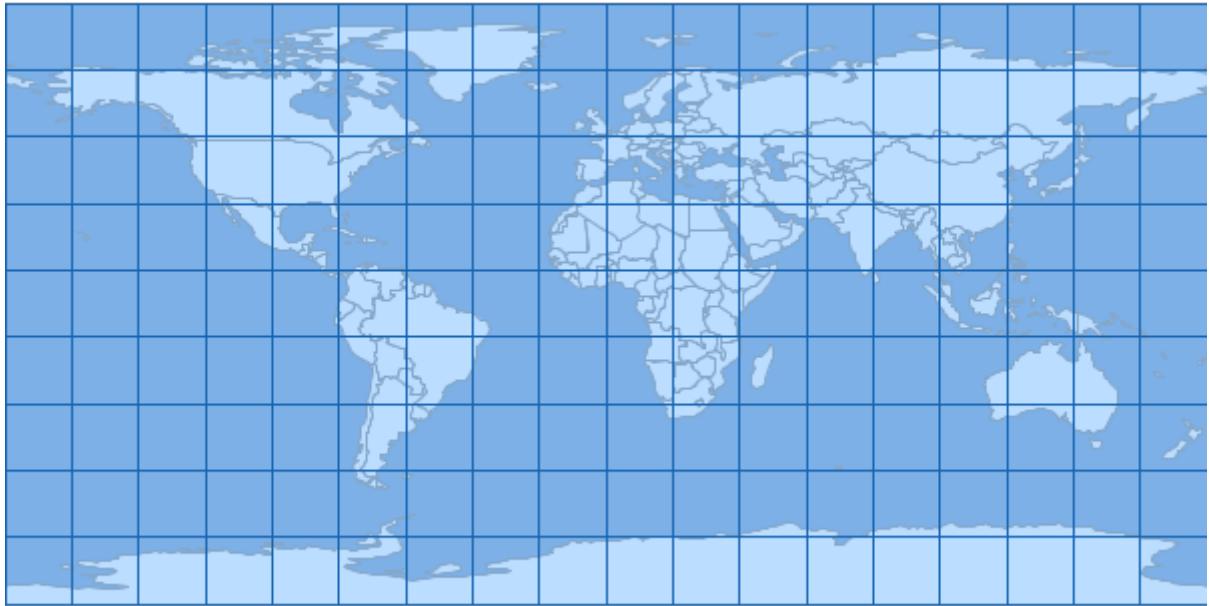
```
geo-shell> map add layer --name graticule --layer ocean
Added ocean layer to map graticule
```

```
geo-shell> map add layer --name graticule --layer countries
Added countries layer to map graticule
```

```
geo-shell> map add layer --name graticule --layer squares
Added squares layer to map graticule
```

```
geo-shell> map draw --name graticule --file examples/square_graticules.png
Done drawing /home/travis/build/jericks/geo-shell/examples/square_graticules.png!
```

```
geo-shell> map close --name graticule
Map graticule closed!
```



## Rectangle

Create a rectangle graticule.

```
geo-shell> layer graticule rectangle --workspace layers --name rectangles --bounds -180,-90,180,90
--width 20 --height 10
```

Name	Description	Mandatory	Specified Default	Unspecified Default
workspace	The Workspace name	true		
name	The new Layer name	true		
bounds	The bounds	true		
width	The width	true		
height	The height	true		
spacing	The spacing	false	-1	-1

```
geo-shell> workspace open --name layers --params memory
Workspace layers opened!
```

```
geo-shell> layer graticule rectangle --workspace layers --name rectangles --bounds -180,-90,180,90
--width 20 --height 10
```

Created Rectangle Graticule Layer rectangles!

```
geo-shell> style vector default --layer rectangles --color #1E90FF --opacity 0.30 --file
examples/rectangles.sld
```

Default Vector Style for rectangles written to /home/travis/build/jericks/geo-shell/examples/rectangles.sld!

```
geo-shell> layer style set --name rectangles --style examples/rectangles.sld  
Style /home/travis/build/jericks/geo-shell/examples/rectangles.sld set on rectangles
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg  
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth -layer countries --name countries  
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld  
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries
```

```
geo-shell> layer open --workspace naturalearth -layer ocean --name ocean  
Opened Workspace naturalearth Layer ocean as ocean
```

```
geo-shell> layer style set --name ocean --style examples/ocean.sld  
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean
```

```
geo-shell> map open --name graticule  
Map graticule opened!
```

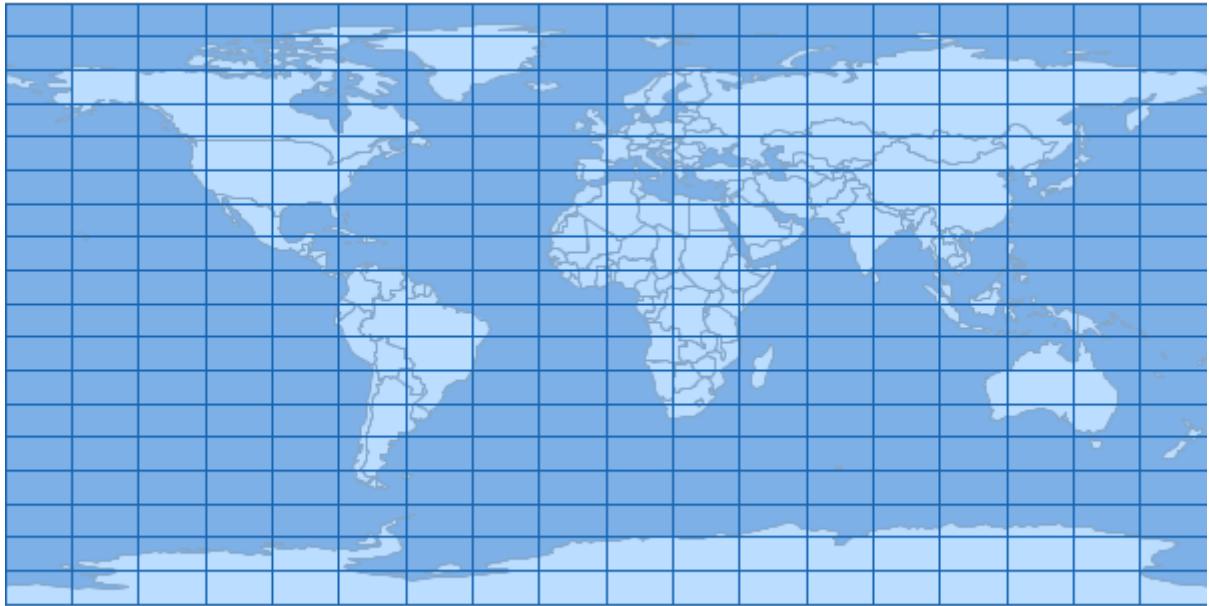
```
geo-shell> map add layer --name graticule --layer ocean  
Added ocean layer to map graticule
```

```
geo-shell> map add layer --name graticule --layer countries  
Added countries layer to map graticule
```

```
geo-shell> map add layer --name graticule --layer rectangles  
Added rectangles layer to map graticule
```

```
geo-shell> map draw --name graticule --file examples/rectangle_graticules.png  
Done drawing /home/travis/build/jericks/geo-shell/examples/rectangle_graticules.png!
```

```
geo-shell> map close --name graticule  
Map graticule closed!
```



## Oval

Create a oval graticule.

```
geo-shell> layer graticule oval --workspace layers --name ovals --bounds -180,-90,180,90 --size 20
```

Name	Description	Mandatory	Specified Default	Unspecified Default
workspace	The Workspace name	true		
name	The new Layer name	true		
bounds	The bounds	true		
size	The size	true		

```
geo-shell> workspace open --name layers --params memory
```

Workspace layers opened!

```
geo-shell> layer graticule oval --workspace layers --name ovals --bounds -180,-90,180,90 --size 20
```

Created Oval Graticule Layer ovals!

```
geo-shell> style vector default --layer ovals --color #1E90FF --opacity 0.30 --file examples/ovals.sld
```

Default Vector Style for ovals written to /home/travis/build/jericks/geo-shell/examples/ovals.sld!

```
geo-shell> layer style set --name ovals --style examples/ovals.sld
```

Style /home/travis/build/jericks/geo-shell/examples/ovals.sld set on ovals

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
```

Workspace naturalearth opened!

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries  
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld  
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries
```

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean  
Opened Workspace naturalearth Layer ocean as ocean
```

```
geo-shell> layer style set --name ocean --style examples/ocean.sld  
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean
```

```
geo-shell> map open --name graticule  
Map graticule opened!
```

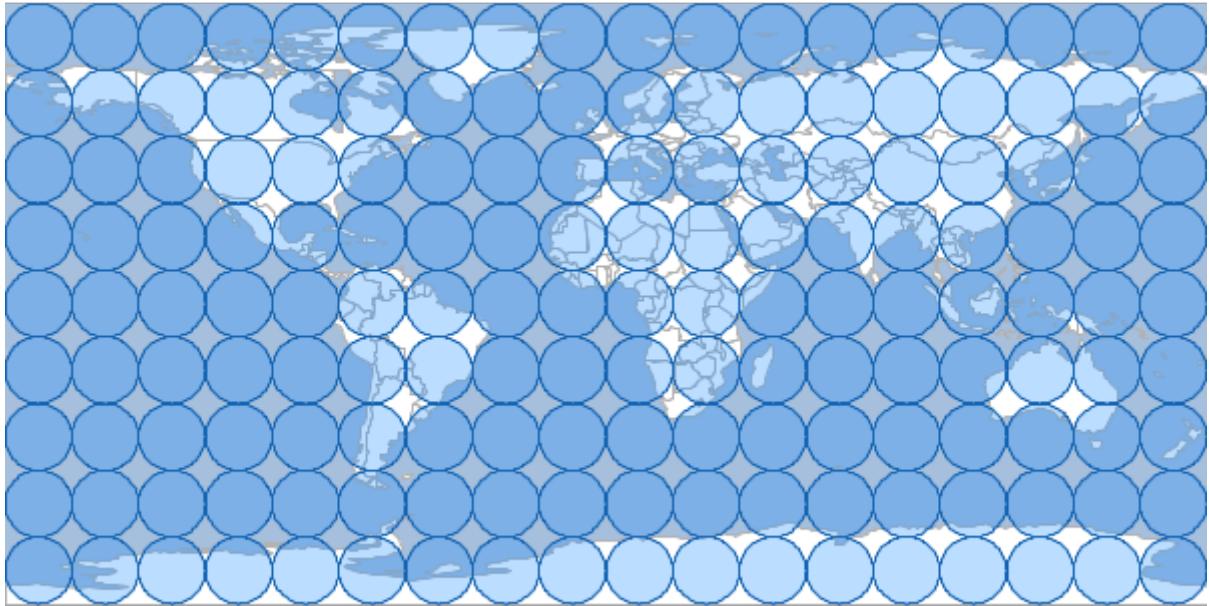
```
geo-shell> map add layer --name graticule --layer ocean  
Added ocean layer to map graticule
```

```
geo-shell> map add layer --name graticule --layer countries  
Added countries layer to map graticule
```

```
geo-shell> map add layer --name graticule --layer ovals  
Added ovals layer to map graticule
```

```
geo-shell> map draw --name graticule --file examples/oval_graticules.png  
Done drawing /home/travis/build/jericks/geo-shell/examples/oval_graticules.png!
```

```
geo-shell> map close --name graticule  
Map graticule closed!
```



## Hexagon

Create a hexagon graticule.

```
geo-shell> layer graticule hexagon --workspace layers --name hexagons --bounds -180,-90,180,90
--length 10
```

Name	Description	Mandatory	Specified Default	Unspecified Default
workspace	The Workspace name	true		
name	The new Layer name	true		
bounds	The bounds	true		
length	The length	true		
spacing	The spacing	false	5	5
orientation	The orientation (flat or angled)	false	flat	flat

```
geo-shell> workspace open --name layers --params memory
Workspace layers opened!
```

```
geo-shell> layer graticule hexagon --workspace layers --name hexagons --bounds -180,-90,180,90
--length 10
```

Created Hexagon Graticule Layer hexagons!

```
geo-shell> style vector default --layer hexagons --color #1E90FF --opacity 0.30 --file
```

```
examples/hexagons.sld
Default Vector Style for hexagons written to /home/travis/build/jericks/geo-
shell/examples/hexagons.sld!
```

```
geo-shell> layer style set --name hexagons --style examples/hexagons.sld
Style /home/travis/build/jericks/geo-shell/examples/hexagons.sld set on hexagons
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries
```

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
Opened Workspace naturalearth Layer ocean as ocean
```

```
geo-shell> layer style set --name ocean --style examples/ocean.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean
```

```
geo-shell> map open --name graticule
Map graticule opened!
```

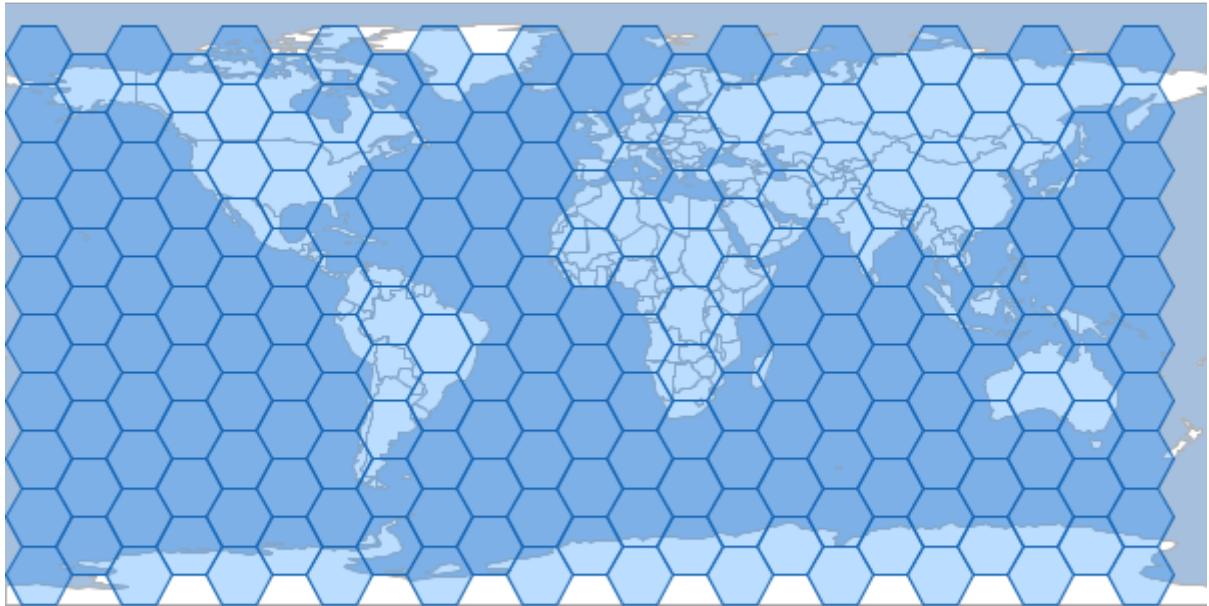
```
geo-shell> map add layer --name graticule --layer ocean
Added ocean layer to map graticule
```

```
geo-shell> map add layer --name graticule --layer countries
Added countries layer to map graticule
```

```
geo-shell> map add layer --name graticule --layer hexagons
Added hexagons layer to map graticule
```

```
geo-shell> map draw --name graticule --file examples/hexagon_graticules.png
Done drawing /home/travis/build/jericks/geo-shell/examples/hexagon_graticules.png!
```

```
geo-shell> map close --name graticule
Map graticule closed!
```



# Format

## Open

Open a Raster Format.

```
geo-shell> format open --name earth --input src/test/resources/earth.tif
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Format name	false		
input	The input string	true		

```
geo-shell> format open --name earth --input src/test/resources/earth.tif  
Format earth opened!
```

```
geo-shell> format close --name earth
```

```
Format earth closed!
```

## List

List open Raster Formats.

```
geo-shell> format list
```



No parameters

```
geo-shell> format open --name earth --input src/test/resources/earth.tif  
Format earth opened!
```

```
geo-shell> format open --name raster --input src/test/resources/raster.tif  
Format raster opened!
```

```
geo-shell> format list
```

```
earth = GeoTIFF
```

```
raster = GeoTIFF
```

```
geo-shell> format close --name earth
```

```
Format earth closed!
```

```
geo-shell> format close --name raster
```

```
Format raster closed!
```

## Close

Close a Raster Format.

```
geo-shell> format close --name earth
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Format name	true		

```
geo-shell> format open --name earth --input src/test/resources/earth.tif  
Format earth opened!
```

```
geo-shell> format close --name earth
```

```
Format earth closed!
```

## Rasters

List the Rasters in a Format.

```
geo-shell> format rasters --name earth
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Format name	true		

```
geo-shell> format open --name earth --input src/test/resources/earth.tif  
Format earth opened!
```

```
geo-shell> format rasters --name earth
```

```
earth
```

```
geo-shell> format close --name earth
```

Format earth closed!

# Raster

## Open

Open a Raster.

```
geo-shell> raster open --format earth --raster earth --name earth
```

Name	Description	Mandatory	Specified Default	Unspecified Default
format	The Format name	true		
raster	The Raster name	true		
name	The name	false		

```
geo-shell> format open --name earth --input src/test/resources/earth.tif
```

Format earth opened!

```
geo-shell> raster open --format earth --raster earth --name earth
```

Opened Format earth Raster earth as earth

```
geo-shell> raster close --name earth
```

Raster earth closed!

```
geo-shell> format close --name earth
```

Format earth closed!

## Close

Close a Raster.

```
geo-shell> raster close --name earth
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Raster name	true		

```
geo-shell> format open --name earth --input src/test/resources/earth.tif
```

Format earth opened!

```
geo-shell> raster open --format earth --raster earth --name earth
```

Opened Format earth Raster earth as earth

```
geo-shell> raster close --name earth
```

Raster earth closed!

```
geo-shell> format close --name earth  
Format earth closed!
```

## List

List open Rasters.

```
geo-shell> raster list
```



No parameters

```
geo-shell> format open --name earth --input src/test/resources/earth.tif  
Format earth opened!
```

```
geo-shell> raster open --format earth --raster earth --name earth  
Opened Format earth Raster earth as earth
```

```
geo-shell> raster list  
earth = GeoTIFF
```

```
geo-shell> raster close --name earth  
Raster earth closed!
```

```
geo-shell> format close --name earth  
Format earth closed!
```

## Info

Get information about a Raster.

```
geo-shell> raster info --name earth
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Raster name	true		

```
geo-shell> format open --name earth --input src/test/resources/earth.tif  
Format earth opened!
```

```
geo-shell> raster open --format earth --raster earth --name earth  
Opened Format earth Raster earth as earth
```

```
geo-shell> raster info --name earth  
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: -179.9999999999997, -89.9999999998205, 179.99999999996405, 90.0
Pixel Size: 0.4499999999995505, 0.449999999999551
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

```

```

geo-shell> raster close --name earth
Raster earth closed!

```

```

geo-shell> format close --name earth
Format earth closed!

```

## Value

Get a value from the Raster.

```

geo-shell> raster value --name earth --x 60 --y 45

```

```

geo-shell> raster value --name earth --x 10 --y 15 --type pixel

```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Raster name	true		
band	The x coordinate	false	0	0
x	The x coordinate	true		
y	The y coordinate	true		
type	The y coordinate	false	geometry	geometry

```

geo-shell> format open --name earth --input src/test/resources/earth.tif
Format earth opened!

```

```

geo-shell> raster open --format earth --raster earth --name earth
Opened Format earth Raster earth as earth

```

```

geo-shell> raster value --name earth --x 60 --y 45
235.0

```

```
geo-shell> raster value --name earth --x 10 --y 15 --type pixel  
109.0
```

```
geo-shell> raster close --name earth  
Raster earth closed!
```

```
geo-shell> format close --name earth  
Format earth closed!
```

## Envelope

Create a Vector Layer from the envelope of a Raster.

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Raster name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		

## Get Style

Get the Raster's style.

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Raster name	true		
style	The SLD File	false		

## Set Style

Set a Raster's style

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Raster name	true		
style	The SLD or CSS File	true		

## Add Raster

Add two Rasters together

Name	Description	Mandatory	Specified Default	Unspecified Default
name1	The Raster name	true		
name2	The Raster name	true		
output-format	The output Format Workspace	true		
output-name	The output Raster name	false		

## Add Constant

Add constant values to a Raster

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Raster name	true		
output-format	The output Format Workspace	true		
output-name	The output Raster name	false		
values	The values	true		

## Subtract Raster

Subtract one Raster from another

Name	Description	Mandatory	Specified Default	Unspecified Default
name1	The Raster name	true		
name2	The Raster name	true		
output-format	The output Format Workspace	true		
output-name	The output Raster name	false		

## Subtract Constant

Subtract constant values from a Raster

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Raster name	true		

output-format	The output Format Workspace	true		
output-name	The output Raster name	false		
values	The values	true		
from	Whether to subtract the Raster from the constant or vice versa	false	false	false

## Multiply Raster

Multiply two Raster together

Name	Description	Mandatory	Specified Default	Unspecified Default
name1	The Raster name	true		
name2	The Raster name	true		
output-format	The output Format Workspace	true		
output-name	The output Raster name	false		

## Multiply Constant

Multiply constant values to a Raster

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Raster name	true		
output-format	The output Format Workspace	true		
output-name	The output Raster name	false		
values	The values	true		

## Divide Raster

Divide one Raster by another Raster

Name	Description	Mandatory	Specified Default	Unspecified Default
name1	The Raster name	true		
name2	The Raster name	true		

output-format	The output Format Workspace	true		
output-name	The output Raster name	false		

## Divide Constant

Divide constant values against a Raster

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Raster name	true		
output-format	The output Format Workspace	true		
output-name	The output Raster name	false		
values	The values	true		

## Contours

Create contours.

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Raster name	true		
output-workspace	The output Layer Workspace	true		
output-name	The output Layer name	true		
band	The Raster band to contour	false	0	0
levels	The contour level or interval	true		
simplify	Whether to simplify	false	false	false
smooth	Whether to smooth	false	false	false
bounds	The Bounds	false		

## Crop

Crop a Raster.

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Raster name	true		
output-format	The output Format Workspace	true		
output-name	The output Raster name	false		
geometry	The geometry	true		

## Mosaic

Mosaic two Rasters together

Name	Description	Mandatory	Specified Default	Unspecified Default
name1	The Raster name	true		
name2	The Raster name	true		
output-format	The output Format Workspace	true		
output-name	The output Raster name	false		

## Reclassify

Reclassify a Raster.

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Raster name	true		
output-format	The output Format Workspace	true		
output-name	The output Raster name	false		
ranges	The comma delimited reclassification ranges (from- to=value)	true		
band	The Raster band to contour	false	0	0
nodata	The NODATA value	false	0	0

# Reproject

Project a Raster.

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Raster name	true		
output-format	The output Format Workspace	true		
output-name	The output Raster name	false		
projection	The projection	true		

# Scale

Scale a Raster.

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Raster name	true		
output-format	The output Format Workspace	true		
output-name	The output Raster name	false		
x	The scale factor along the x axis	true		
y	The scale factor along the y axis	true		
x-trans	The x translation	false	0	0
y-trans	The y translation	false	0	0
interpolation	The interpolation method (bicubic, bicubic2, bilinear, nearest)	false	nearest	nearest

# Shaded Relief

Create a shaded relief raster

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Raster name	true		
output-format	The output Format Workspace	true		

output-name	The output Raster name	false		
scale	The scale	true		
altitude	The altitude	true		
azimuth	The azimuth	true		
resx	The x resolution	false	0.5	0.5
resy	The y resolution	false	0.5	0.5
zetafactory	The zeta factory	false	1.0	1.0
algorithm	The x resolution	false	DEFAULT	DEFAULT

## Stylize

Create a new Raster by baking the style into an existing Raster

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The Raster name	true		
output-format	The output Format Workspace	true		
output-name	The output Raster name	false		

## Tile

### Open

Open a Tile Layer.

```
geo-shell> tile open --name countries --params src/test/resources/countries.mbtiles
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The tile name	true		
params	The connection parameters	true		

```
geo-shell> tile open --name countries --params src/test/resources/countries.mbtiles
Tile Layer countries opened!
```

```
geo-shell> tile close --name countries
```

Tile Layer countries closed!

# Close

Close a Tile Layer.

```
geo-shell> tile close --name countries
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The tile name	true		

```
geo-shell> tile open --name countries --params src/test/resources/countries.mbtiles  
Tile Layer countries opened!
```

```
geo-shell> tile close --name countries  
Tile Layer countries closed!
```

# List

List open Tile Layers.

```
geo-shell> tile list
```



No parameters

```
geo-shell> tile open --name countries --params src/test/resources/countries.mbtiles  
Tile Layer countries opened!
```

```
geo-shell> tile list  
countries = MBTiles
```

```
geo-shell> tile close --name countries  
Tile Layer countries closed!
```

# Info

Get information about a Tile Layer.

```
geo-shell> tile info --name countries
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The tile name	true		

```
geo-shell> tile open --name countries --params src/test/resources/countries.mbtiles  
Tile Layer countries opened!
```

```
geo-shell> tile info --name countries  
countries
```

EPSG:3857  
 -2.0036395147881314E7,  
 -2.0037471205137067E7,2.0036395147881314E7,2.003747120513706E7,EPSC:3857  
 BOTTOM\_LEFT  
 256,256  
 0,1,1,156412.0,156412.0  
 1,2,2,78206.0,78206.0  
 2,4,4,39103.0,39103.0  
 3,8,8,19551.5,19551.5  
 4,16,16,9775.75,9775.75  
 5,32,32,4887.875,4887.875  
 6,64,64,2443.9375,2443.9375  
 7,128,128,1221.96875,1221.96875  
 8,256,256,610.984375,610.984375  
 9,512,512,305.4921875,305.4921875  
 10,1024,1024,152.74609375,152.74609375  
 11,2048,2048,76.373046875,76.373046875  
 12,4096,4096,38.1865234375,38.1865234375  
 13,8192,8192,19.09326171875,19.09326171875  
 14,16384,16384,9.546630859375,9.546630859375  
 15,32768,32768,4.7733154296875,4.7733154296875  
 16,65536,65536,2.38665771484375,2.38665771484375  
 17,131072,131072,1.193328857421875,1.193328857421875  
 18,262144,262144,0.5966644287109375,0.5966644287109375  
 19,524288,524288,0.29833221435546875,0.29833221435546875

geo-shell> **tile close** --name countries

Tile Layer countries closed!

## Delete

Delete tiles from a Tile Layer.

geo-shell> **tile delete** --name tiles --z 3

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The tile name	true		
tile	The tile z/x/y	false		
bounds	The bounds	false		
width	The width	false	400	400
height	The height	false	400	400
z	The zoom level	false	0	-1
minx	The min x or column	false		-1
miny	The min y or row	false		-1

maxx	The max x or column	false		-1
maxy	The max y or row	false		-1

geo-shell> **tile open** --name tiles --params target/tiles.mbtiles  
Tile Layer tiles opened!

geo-shell> **workspace open** --name naturalearth --params examples/naturalearth.gpkg  
Workspace naturalearth opened!

geo-shell> **layer open** --workspace naturalearth --layer countries --name countries  
Opened Workspace naturalearth Layer countries as countries

geo-shell> **layer style set** --name countries --style examples/countries.sld  
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries

geo-shell> **layer open** --workspace naturalearth --layer ocean --name ocean  
Opened Workspace naturalearth Layer ocean as ocean

geo-shell> **layer style set** --name ocean --style examples/ocean.sld  
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean

geo-shell> **map open** --name world  
Map world opened!

geo-shell> **map add layer** --name world --layer ocean  
Added ocean layer to map world

geo-shell> **map add layer** --name world --layer countries  
Added countries layer to map world

geo-shell> **tile generate** --name tiles --map world --start 0 --end 3  
Tiles generated!

geo-shell> **tile delete** --name tiles --z 3  
Deleting tiles at z level 3

geo-shell> **map close** --name world  
Map world closed!

## Generate

Generate tiles for a Tile Layer.

geo-shell> **tile generate** --name tiles --map world --start 0 --end 3

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The tile name	true		

map	The map name	true		
start	The map name	true		
end	The map name	true		
bounds	The map name	false		
metatile	The metatile width,height	false		
missingOnly	The map name	false	false	false
verbose	The map name	false	false	false

geo-shell> **tile open** --name tiles --params target/tiles.mbtiles

Tile Layer tiles opened!

geo-shell> **workspace open** --name naturalearth --params examples/naturalearth.gpkg

Workspace naturalearth opened!

geo-shell> **layer open** --workspace naturalearth --layer countries --name countries

Opened Workspace naturalearth Layer countries as countries

geo-shell> **layer style set** --name countries --style examples/countries.sld

Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries

geo-shell> **layer open** --workspace naturalearth --layer ocean --name ocean

Opened Workspace naturalearth Layer ocean as ocean

geo-shell> **layer style set** --name ocean --style examples/ocean.sld

Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean

geo-shell> **map open** --name world

Map world opened!

geo-shell> **map add layer** --name world --layer ocean

Added ocean layer to map world

geo-shell> **map add layer** --name world --layer countries

Added countries layer to map world

geo-shell> **tile generate** --name tiles --map world --start 0 --end 3

Tiles generated!

geo-shell> **format open** --name world\_level2 --input examples/tile\_generate.png

Format world\_level2 opened!

geo-shell> **tile stitch raster** --name tiles --format world\_level2 --raster world\_level2 --z 2

Done stitching Raster world\_level2 from tiles!

geo-shell> **map close** --name world

Map world closed!



## Stitch Raster

Create a Raster from a Tile Layer.

```
geo-shell> tile stitch raster --name countries --format states --raster states --bounds -18217695.5734,1222992.4526,-4207094.0368,7924991.0926
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The tile name	true		
format	The raster format name	true		
raster	The raster name	true		
bounds	The bounds	false		

width	The raster width	false	400	400
height	The raster height	false	400	400
z	The zoom level	false	0	-1
minx	The min x or column	false		-1
miny	The min y or row	false		-1
maxx	The max x or column	false		-1
maxy	The max y or row	false		-1

Create a Raster from a Tile Layer with a geographic bounds.

```
geo-shell> tile open --name countries --params src/test/resources/countries.mbtiles
Tile Layer countries opened!
```

```
geo-shell> format open --name states --input examples/tile_stitch_bounds.png
Format states opened!
```

```
geo-shell> tile stitch raster --name countries --format states --raster states --bounds
-18217695.5734,1222992.4526,-4207094.0368,7924991.0926
Done stitching Raster states from countries!
```



## Tiles

List tiles within a given bounds.

```
geo-shell> tile tiles --name countries --z 8 --bounds -13787405.4140,5872198.2610,
-13349574.1159,6081635.7185
```

Name	Description	Mandatory	Specified Default	Unspecified Default

name	The tile name	true		
bounds	The bounds	true		
z	The zoom level	true		

```
geo-shell> tile open --name countries --params src/test/resources/countries.mbtiles
Tile Layer countries opened!
```

```
geo-shell> tile tiles --name countries --z 8 --bounds -13787405.4140,5872198.2610,
-13349574.1159,6081635.7185
8/39/165
8/40/165
8/41/165
8/42/165
8/39/166
8/40/166
8/41/166
8/42/166
```

```
geo-shell> tile close --name countries
Tile Layer countries closed!
```

## Vector Grid

Create a Vector Grid Layer from the pyramid of a Tile Layer.

```
geo-shell> tile vector grid --name countries --workspace layers --layer level3 --z 3
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The tile name	true		
workspace	The workspace name	true		
layer	The layer name	true		
bounds	The bounds	false		
width	The raster width	false	400	400
height	The raster height	false	400	400
z	The zoom level	false	0	-1
minx	The min x or column	false		-1
miny	The min y or row	false		-1
maxx	The max x or column	false		-1
maxy	The max y or row	false		-1

```
geo-shell> tile open --name countries --params src/test/resources/countries.mbtiles
```

Tile Layer countries opened!

```
geo-shell> workspace open --name layers --params memory
Workspace layers opened!
```

```
geo-shell> tile vector grid --name countries --workspace layers --layer level3 --z 3
Done generating the vector grid level3 from countries!
```

```
geo-shell> style vector default --layer level3 --color #ffffff --opacity 0.25 --file examples/level3.sld
Default Vector Style for level3 written to /home/travis/build/jericks/geo-shell/examples/level3.sld!
```

```
geo-shell> layer style set --name level3 --style examples/level3.sld
Style /home/travis/build/jericks/geo-shell/examples/level3.sld set on level3
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries
```

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
Opened Workspace naturalearth Layer ocean as ocean
```

```
geo-shell> layer style set --name ocean --style examples/ocean.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean
```

```
geo-shell> map open --name vectorGridMap
Map vectorGridMap opened!
```

```
geo-shell> map add layer --name vectorGridMap --layer ocean
Added ocean layer to map vectorGridMap
```

```
geo-shell> map add layer --name vectorGridMap --layer countries
Added countries layer to map vectorGridMap
```

```
geo-shell> map add layer --name vectorGridMap --layer level3
Added level3 layer to map vectorGridMap
```

```
geo-shell> map draw --name vectorGridMap --file examples/tile_vector_grid.png --projection
EPSG:3857 --width 400 --height 400 --bounds -20026376.39,-20048966.10,20026376.39,20048966.10
Done drawing /home/travis/build/jericks/geo-shell/examples/tile_vector_grid.png!
```

```
geo-shell> map close --name vectorGridMap
Map vectorGridMap closed!
```



# Style

## Create

Create a simple style.

```
geo-shell> style create --params "stroke=black stroke-width=0.25 fill=wheat" --file examples/style_create.sld
```

Name	Description	Mandatory	Specified Default	Unspecified Default
params	The style parameters	true		
file	The output file	true		

```
geo-shell> style create --params "stroke=black stroke-width=0.25 fill=wheat" --file examples/style_create.sld
```

```
Style stroke=black stroke-width=0.25 fill=wheat written to /home/travis/build/jericks/geo-shell/examples/style_create.sld!
```

```
geo-shell> workspace open --name naturalearth --params src/test/resources/naturalearth.gpkg  
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries  
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/style_create.sld
```

Style /home/travis/build/jericks/geo-shell/examples/style\_create.sld set on countries

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
Opened Workspace naturalearth Layer ocean as ocean
```

```
geo-shell> layer style set --name ocean --style examples/ocean.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean
```

```
geo-shell> map open --name map
Map map opened!
```

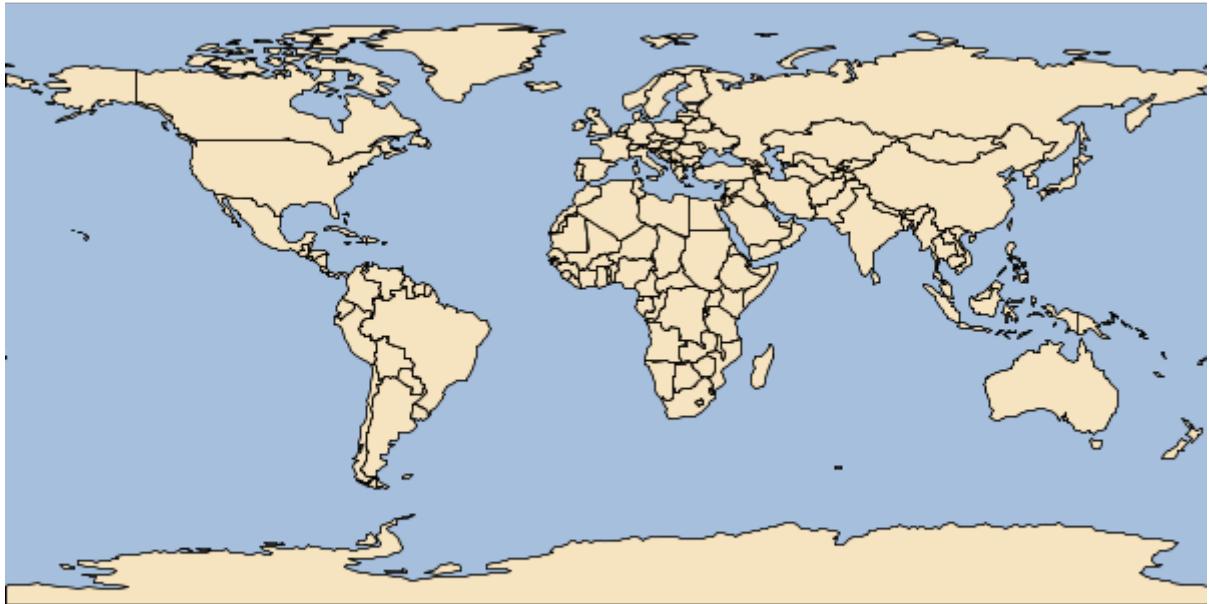
```
geo-shell> map add layer --name map --layer ocean
Added ocean layer to map map
```

```
geo-shell> map add layer --name map --layer countries
Added countries layer to map map
```

```
geo-shell> map draw --name map --file examples/style_create.png
Done drawing /home/travis/build/jericks/geo-shell/examples/style_create.png!
```

```
geo-shell> map close --name map
Map map closed!
```

```
<?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:PolygonSymbolizer>
            <sld:Fill>
              <sld:CssParameter name="fill">#f5deb3</sld:CssParameter>
              <sld:CssParameter name="fill-opacity">0.6</sld:CssParameter>
            </sld:Fill>
          </sld:PolygonSymbolizer>
          <sld:LineSymbolizer>
            <sld:Stroke>
              <sld:CssParameter name="stroke-width">0.25</sld:CssParameter>
            </sld:Stroke>
          </sld:LineSymbolizer>
        </sld:Rule>
      </sld:FeatureTypeStyle>
    </sld:UserStyle>
  </sld:UserLayer>
</sld:StyledLayerDescriptor>
```



## Vector Default

Create a default vector style.

```
geo-shell> style vector default --layer countries --color #F5F5DC --file examples/countries_default.sld
```

Name	Description	Mandatory	Specified Default	Unspecified Default
layer	The Layer	true		
color	The color	false	#f2f2f2	#f2f2f2
opacity	The opacity	false	1.0	1.0
file	The output file	true		

```
geo-shell> workspace open --name naturalearth --params src/test/resources/naturalearth.gpkg
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> style vector default --layer countries --color #F5F5DC --file examples/countries_default.sld
Default Vector Style for countries written to /home/travis/build/jericks/geo-shell/examples/countries_default.sld!
```

```
geo-shell> layer style set --name countries --style examples/countries_default.sld
Style /home/travis/build/jericks/geo-shell/examples/countries_default.sld set on countries
```

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
Opened Workspace naturalearth Layer ocean as ocean
```

```
geo-shell> style vector default --layer ocean --color DeepSkyBlue --file examples/ocean_default.sld
Default Vector Style for ocean written to /home/travis/build/jericks/geo-shell/examples/ocean_default.sld!
```

```
geo-shell> layer style set --name ocean --style examples/ocean_default.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean_default.sld set on ocean
```

```
geo-shell> map open --name map
Map map opened!
```

```
geo-shell> map add layer --name map --layer ocean
Added ocean layer to map map
```

```
geo-shell> map add layer --name map --layer countries
Added countries layer to map map
```

```
geo-shell> map draw --name map --file examples/style_vector_default.png
Done drawing /home/travis/build/jericks/geo-shell/examples/style_vector_default.png!
```

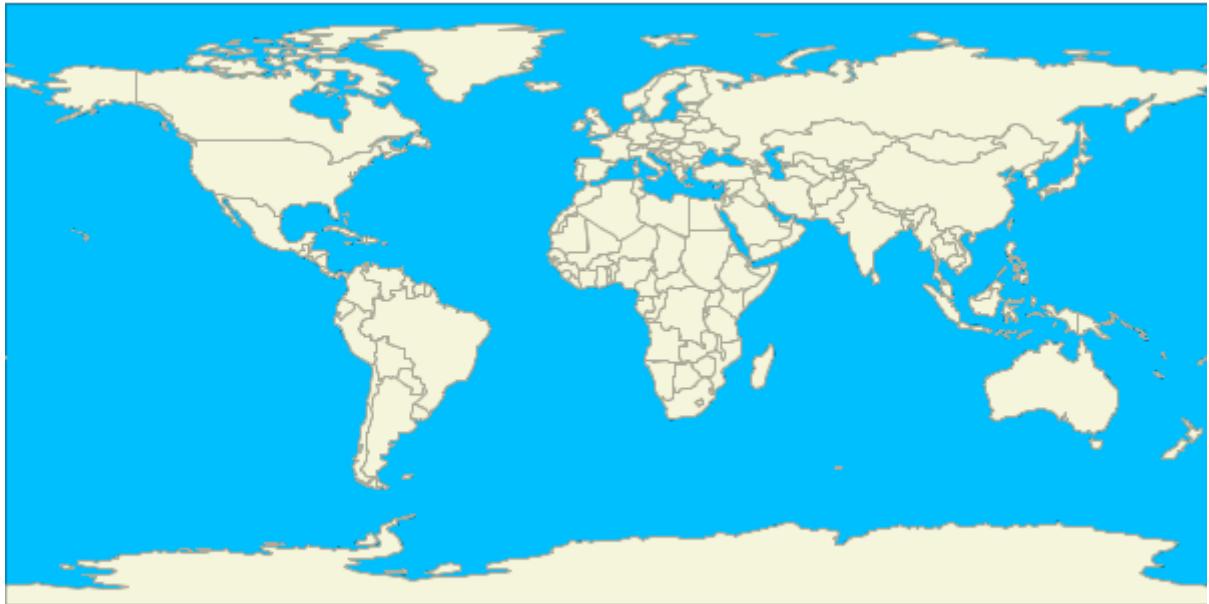
```
geo-shell> map close --name map
Map map closed!
```

Country Style

```
<?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:PolygonSymbolizer>
            <sld:Fill>
              <sld:CssParameter name="fill">#f5f5dc</sld:CssParameter>
            </sld:Fill>
          </sld:PolygonSymbolizer>
          <sld:LineSymbolizer>
            <sld:Stroke>
              <sld:CssParameter name="stroke">#abab9a</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>
```

Ocean Style

```
<?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:PolygonSymbolizer>
            <sld:Fill>
              <sld:CssParameter name="fill">#00bfff</sld:CssParameter>
            </sld:Fill>
          </sld:PolygonSymbolizer>
          <sld:LineSymbolizer>
            <sld:Stroke>
              <sld:CssParameter name="stroke">#0085b2</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>
```



## Vector Gradient

Create a gradient vector style.

```
geo-shell> style vector gradient --layer countries --field PEOPLE --colors greens --number 8  
--method quantile --file examples/style_vector_gradient.sld
```

Name	Description	Mandatory	Specified Default	Unspecified Default
layer	The Layer	true		
field	The field	true		
number	The number of categories	true		
colors	The colors	true		
method	The classification method (Quantile or EqualInterval)	false	Quantile	Quantile
elsemode	The else mode (ignore, min, max)	false	ignore	ignore
file	The output file	true		

```
geo-shell> workspace open --name naturalearth --params src/test/resources/naturalearth.gpkg  
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries  
Opened Workspace naturalearth Layer countries as countries
```

```

geo-shell> style vector gradient --layer countries --field PEOPLE --colors greens --number 8
--method quantile --file examples/style_vector_gradient.sld
Gradient Vector Style for countries's PEOPLE Field written to /home/travis/build/jericks/geo-
shell/examples/style_vector_gradient.sld!

geo-shell> layer style set --name countries --style examples/style_vector_gradient.sld
Style /home/travis/build/jericks/geo-shell/examples/style_vector_gradient.sld set on countries

geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
Opened Workspace naturalearth Layer ocean as ocean

geo-shell> layer style set --name ocean --style examples/ocean.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean

geo-shell> map open --name map
Map map opened!

geo-shell> map add layer --name map --layer ocean
Added ocean layer to map map

geo-shell> map add layer --name map --layer countries
Added countries layer to map map

geo-shell> map draw --name map --file examples/style_vector_gradient.png
Done drawing /home/travis/build/jericks/geo-shell/examples/style_vector_gradient.png!

geo-shell> map close --name map
Map map closed!

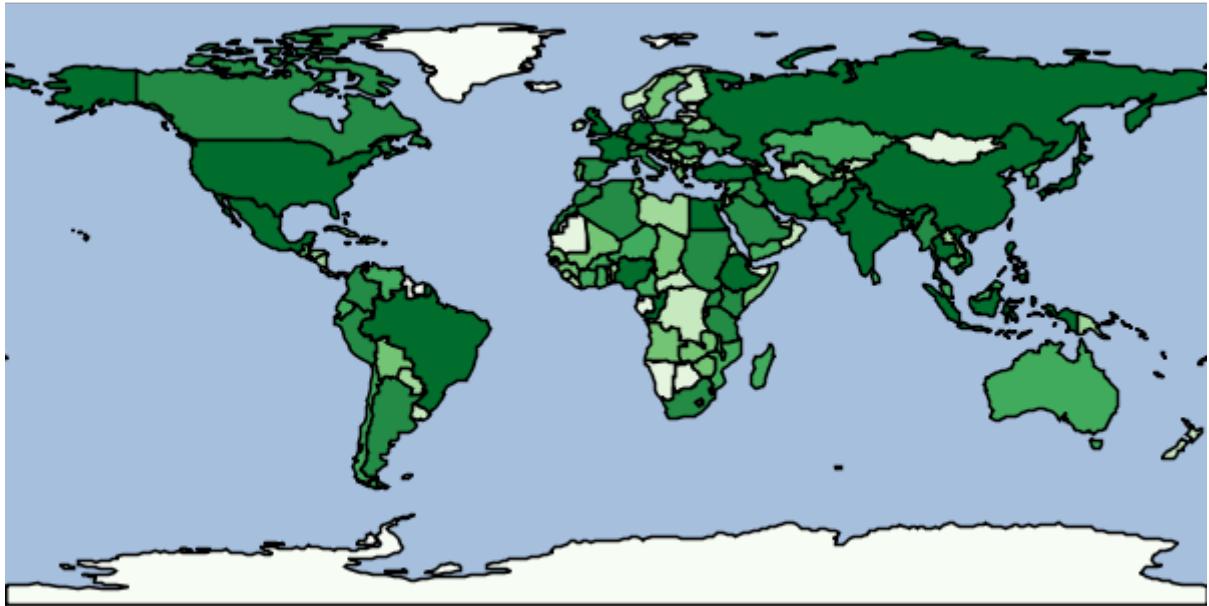
```

```

<?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:And>
              <ogc:PropertyIsGreaterThanOrEqualTo>
                <ogc:PropertyName>PEOPLE</ogc:PropertyName>
                <ogc:Literal>0</ogc:Literal>
              </ogc:PropertyIsGreaterThanOrEqualTo>
              <ogc:PropertyIsLessThan>
                <ogc:PropertyName>PEOPLE</ogc:PropertyName>
                <ogc:Literal>833285</ogc:Literal>
              </ogc:PropertyIsLessThan>
            </ogc:And>
          </ogc:Filter>
        </sld:Rule>
      </sld:FeatureTypeStyle>
    </sld:UserStyle>
  </sld:UserLayer>
</sld:StyledLayerDescriptor>

```

```
</ogc:PropertyIsLessThan>
</ogc:And>
</ogc:Filter>
<sld:PolygonSymbolizer>
  <sld:Fill>
    <sld:CssParameter name="fill">#F7FCF5</sld:CssParameter>
  </sld:Fill>
</sld:PolygonSymbolizer>
<sld:LineSymbolizer>
  <sld:Stroke/>
</sld:LineSymbolizer>
</sld:Rule>
<sld:Rule>
  <ogc:Filter>
    <ogc:And>
      <ogc:PropertyIsGreaterThanOrEqualTo>
        <ogc:PropertyName>PEOPLE</ogc:PropertyName>
        <ogc:Literal>833285</ogc:Literal>
      </ogc:PropertyIsGreaterThanOrEqualTo>
      <ogc:PropertyIsLessThan>
        <ogc:PropertyName>PEOPLE</ogc:PropertyName>
        <ogc:Literal>3360474</ogc:Literal>
      </ogc:PropertyIsLessThan>
    </ogc:And>
  </ogc:Filter>
  <sld:PolygonSymbolizer>
    <sld:Fill>
      <sld:CssParameter name="fill">#E5F5E0</sld:CssParameter>
    </sld:Fill>
  </sld:PolygonSymbolizer>
  <sld:LineSymbolizer>
```



## Vector Unique Values

Create a unique values vector style.

```
geo-shell> style vector uniquevalues --layer countries --field NAME --colors random --file examples/style_vector_uniquevalues.sld
```

Name	Description	Mandatory	Specified Default	Unspecified Default
layer	The Layer	true		
field	The field	true		
colors	The colors	true		
file	The output file	true		

```
geo-shell> workspace open --name naturalearth --params src/test/resources/naturalearth.gpkg
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> style vector uniquevalues --layer countries --field NAME --colors random --file examples/style_vector_uniquevalues.sld
Unique Values Vector Style for countries's NAME Field written to /home/travis/build/jericks/geo-shell/examples/style_vector_uniquevalues.sld!
```

```
geo-shell> layer style set --name countries --style examples/style_vector_uniquevalues.sld
Style /home/travis/build/jericks/geo-shell/examples/style_vector_uniquevalues.sld set on countries
```

```

geo-shell> layer open --workspace naturalearth --layer ocean --name ocean
Opened Workspace naturalearth Layer ocean as ocean

geo-shell> layer style set --name ocean --style examples/ocean.sld
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean

geo-shell> map open --name map
Map map opened!

geo-shell> map add layer --name map --layer ocean
Added ocean layer to map map

geo-shell> map add layer --name map --layer countries
Added countries layer to map map

geo-shell> map draw --name map --file examples/style_vector_uniquevalues.png
Done drawing /home/travis/build/jericks/geo-shell/examples/style_vector_uniquevalues.png!

geo-shell> map close --name map
Map map closed!

```

```

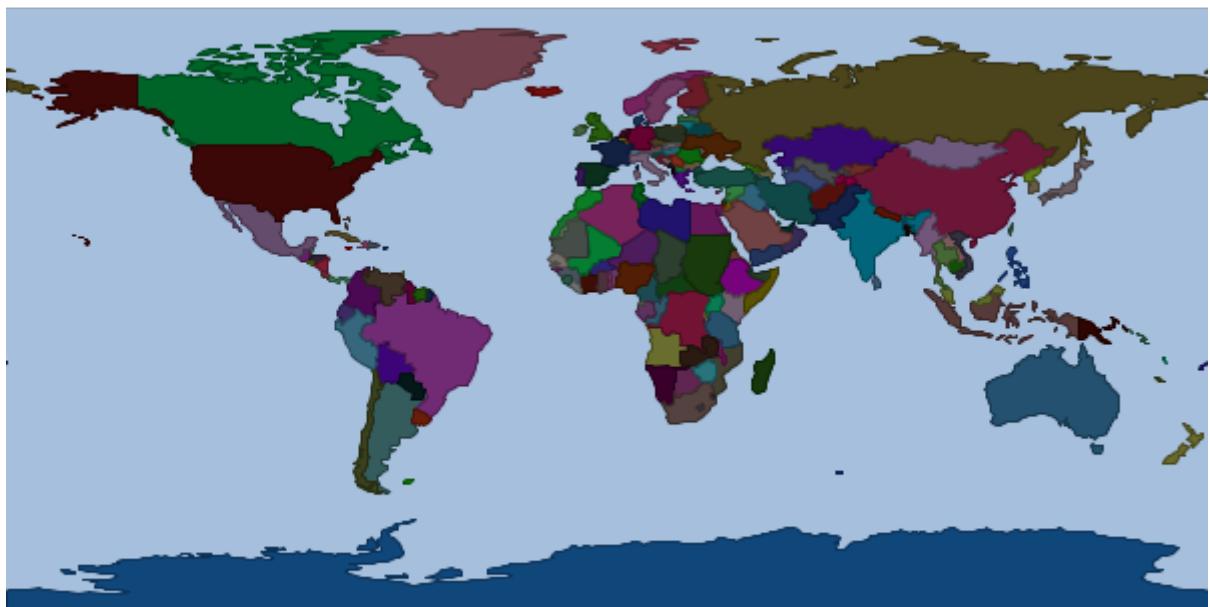
<?xml version="1.0" encoding="UTF-8"?><sld:StyledLayerDescriptor
  xmlns="http://www.opengis.net/sld" xmlns:sld="http://www.opengis.net/sld"
  xmlns:gml="http://www.opengis.net/gml" xmlns:ogc="http://www.opengis.net/ogc"
  version="1.0.0">
  <sld:UserLayer>
    <sld:LayerFeatureConstraints>
      <sld:FeatureTypeConstraint/>
    </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>NAME</ogc:PropertyName>
              <ogc:Literal>Afghanistan</ogc:Literal>
            </ogc:PropertyIsEqualTo>
          </ogc:Filter>
          <sld:PolygonSymbolizer>
            <sld:Fill>
              <sld:CssParameter name="fill">#55100c</sld:CssParameter>
            </sld:Fill>
          </sld:PolygonSymbolizer>
          <sld:LineSymbolizer>
            <sld:Stroke>
              <sld:CssParameter name="stroke">#3b0b08</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>

```

```

</sld:Rule>
<sld:Rule>
  <ogc:Filter>
    <ogc:PropertyIsEqualTo>
      <ogc:PropertyName>NAME</ogc:PropertyName>
      <ogc:Literal>Albania</ogc:Literal>
    </ogc:PropertyIsEqualTo>
  </ogc:Filter>
  <sld:PolygonSymbolizer>
    <sld:Fill>
      <sld:CssParameter name="fill">#180118</sld:CssParameter>
    </sld:Fill>
  </sld:PolygonSymbolizer>
  <sld:LineSymbolizer>
    <sld:Stroke>
      <sld:CssParameter name="stroke">#100010</sld:CssParameter>
      <sld:CssParameter name="stroke-width">0.5</sld:CssParameter>
    </sld:Stroke>
  </sld:LineSymbolizer>
</sld:Rule>
<sld:Rule>
  <ogc:Filter>
    <ogc:PropertyIsEqualTo>

```



## Vector Unique Values From Text File

Create a unique values vector style from a text file

```
geo-shell> style vector uniquevaluesfromtext --field UnitSymbol --textFile
```

```
src/test/resources/mars/I1802ABC_geo_units_RGBlut.txt      --geometryType      polygon      --styleFile
examples/style_vector_uniquevaluesfromtext.sld
```

Name	Description	Mandatory	Specified Default	Unspecified Default
field	The field name	true		
geometryType	The geometry type	true		
textFile	The input text file	true		
styleFile	The output sld or ysld file	true		

```
geo-shell> workspace open --name mars --params src/test/resources/mars
Workspace mars opened!
```

```
geo-shell> layer open --workspace mars --layer geo_units_oc_dd --name mars
Opened Workspace mars Layer geo_units_oc_dd as mars
```

```
geo-shell> style vector uniquevaluesfromtext --field UnitSymbol --textFile
src/test/resources/mars/I1802ABC_geo_units_RGBlut.txt --geometryType polygon --styleFile
examples/style_vector_uniquevaluesfromtext.sld
Create a unique values style from /home/travis/build/jericks/geo-
shell/src/test/resources/mars/I1802ABC_geo_units_RGBlut.txt for UnitSymbol and polygon to
/home/travis/build/jericks/geo-shell/examples/style_vector_uniquevaluesfromtext.sld
```

```
geo-shell> layer style set --name mars --style examples/style_vector_uniquevaluesfromtext.sld
Style /home/travis/build/jericks/geo-shell/examples/style_vector_uniquevaluesfromtext.sld set on
mars
```

```
geo-shell> map open --name map
Map map opened!
```

```
geo-shell> map add layer --name map --layer mars
Added mars layer to map map
```

```
geo-shell> map draw --name map --file examples/style_vector_uniquevaluesfromtext.png
Done drawing /home/travis/build/jericks/geo-
shell/examples/style_vector_uniquevaluesfromtext.png!
```

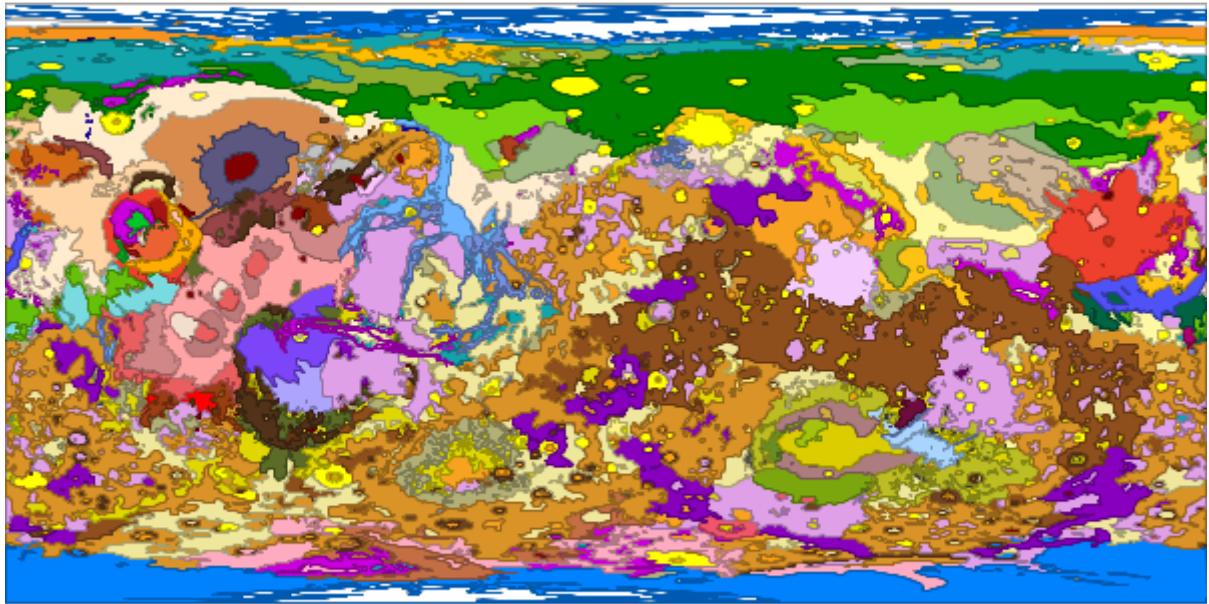
```
geo-shell> map close --name map
Map map closed!
```

```
<?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>UnitSymbol</ogc:PropertyName>
          <ogc:Literal>AHa</ogc:Literal>
        </ogc:PropertyIsEqualTo>
      </ogc:Filter>
      <sld:PolygonSymbolizer>
        <sld:Fill>
          <sld.CssParameter name="fill">#af006f</sld.CssParameter>
        </sld:Fill>
      </sld:PolygonSymbolizer>
      <sld:LineSymbolizer>
        <sld:Stroke>
          <sld.CssParameter name="stroke">#7a004d</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>UnitSymbol</ogc:PropertyName>
          <ogc:Literal>AHat</ogc:Literal>
        </ogc:PropertyIsEqualTo>
      </ogc:Filter>
      <sld:PolygonSymbolizer>
        <sld:Fill>
          <sld.CssParameter name="fill">#c03616</sld.CssParameter>
        </sld:Fill>
      </sld:PolygonSymbolizer>
      <sld:LineSymbolizer>
        <sld:Stroke>
          <sld.CssParameter name="stroke">#86250f</sld.CssParameter>
          <sld.CssParameter name="stroke-width">0.5</sld.CssParameter>
        </sld:Stroke>
      </sld:LineSymbolizer>
    </sld:Rule>
    <sld:Rule>
      <ogc:Filter>
        <ogc:PropertyIsEqualTo>

```



## Raster Default

Create a default raster style.

```
geo-shell> style raster default --raster pc --opacity 0.75 --file examples/style_raster_default.sld
```

Name	Description	Mandatory	Specified Default	Unspecified Default
raster	The Raster	true		
opacity	The opacity	false	1.0	1.0
file	The output file	true		

```
geo-shell> format open --name pierce_county --input src/test/resources/pc.tif  
Format pierce_county opened!
```

```
geo-shell> raster open --format pierce_county --raster pc --name pc  
Opened Format pierce_county Raster pc as pc
```

```
geo-shell> style raster default --raster pc --opacity 0.75 --file examples/style_raster_default.sld  
Default Raster Style for pc written to /home/travis/build/jericks/geo-  
shell/examples/style_raster_default.sld!
```

```
geo-shell> raster style set --name pc --style examples/style_raster_default.sld  
Style /home/travis/build/jericks/geo-shell/examples/style_raster_default.sld set on pc
```

```
geo-shell> map open --name map  
Map map opened!
```

```
geo-shell> map add raster --name map --raster pc
```

```
Added pc layer to map map
```

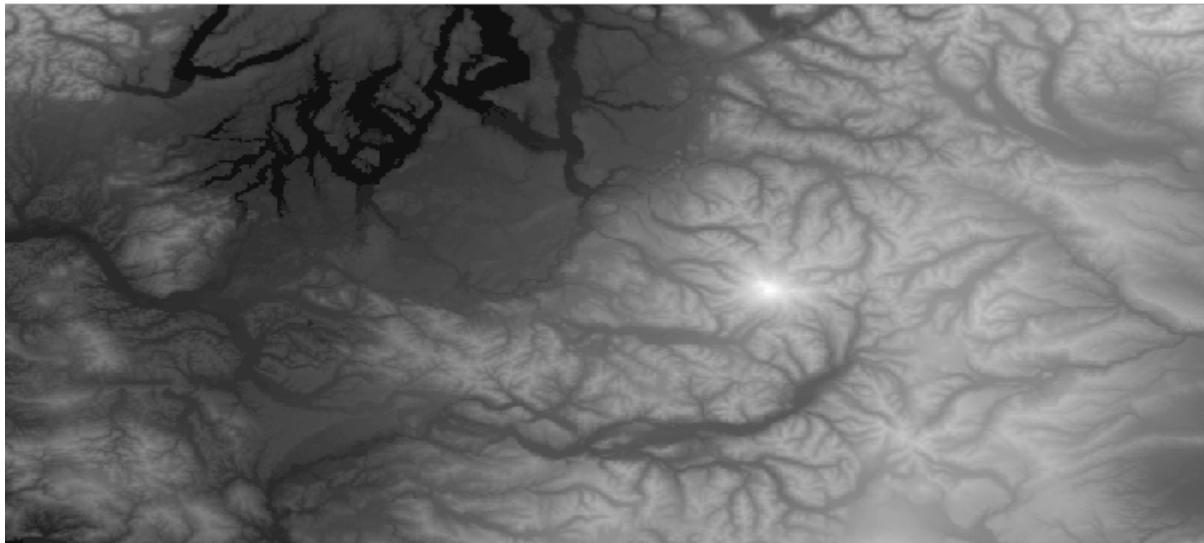
```
geo-shell> map draw --name map --file examples/style_raster_default.png
```

```
Done drawing /home/travis/build/jericks/geo-shell/examples/style_raster_default.png!
```

```
geo-shell> map close --name map
```

```
Map map closed!
```

```
<?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:RasterSymbolizer>
       <sld:Geometry>
        <ogc:Literal>grid</ogc:Literal>
       </sld:Geometry>
       <sld:Opacity>0.75</sld:Opacity>
       <sld:ContrastEnhancement/>
      </sld:RasterSymbolizer>
     </sld:Rule>
    </sld:FeatureTypeStyle>
   </sld:UserStyle>
  </sld:UserLayer>
</sld:StyledLayerDescriptor>
```



## Raster Color Map

Create a color map raster style.

```
geo-shell> style raster colormap --raster pc --values
"25=#9fd182,470=#3e7f3c,920=#133912,1370=#08306b,1820=#fffff5"
examples/style_raster_colormap.sld
```

Name	Description	Mandatory	Specified Default	Unspecified Default
raster	The Raster	true		
opacity	The opacity	false	1.0	1.0
values	The comma delimited list of values (key=value)	true		
type	The type (intervals, values, ramp)	false	ramp	ramp
extended	Whether to use extended colors or not	false	false	false
file	The output file	true		

```
geo-shell> format open --name pierce_county --input src/test/resources/pc.tif
Format pierce_county opened!
```

```
geo-shell> raster open --format pierce_county --raster pc --name pc
```

Opened Format pierce\_county Raster pc as pc

```
geo-shell> style raster colormap --raster pc --values
"25=#9fd182,470=#3e7f3c,920=#133912,1370=#08306b,1820=#fffff5"
--file examples/style_raster_colormap.sld
Colormap Raster Style for pc written to /home/travis/build/jericks/geo-
shell/examples/style_raster_colormap.sld!
```

```
geo-shell> raster style set --name pc --style examples/style_raster_colormap.sld
Style /home/travis/build/jericks/geo-shell/examples/style_raster_colormap.sld set on pc
```

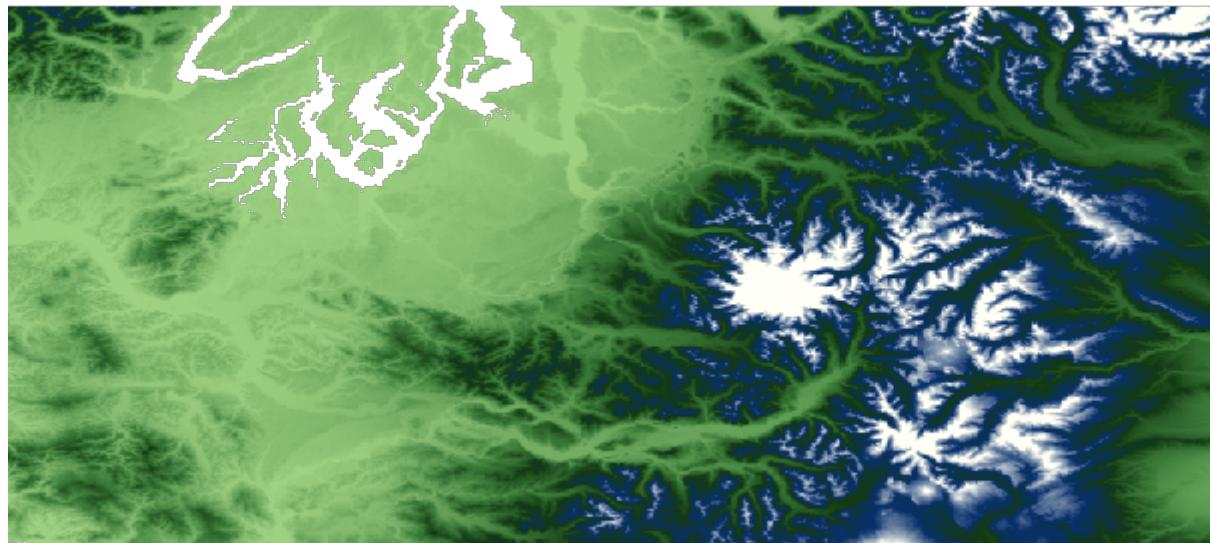
```
geo-shell> map open --name map
Map map opened!
```

```
geo-shell> map add raster --name map --raster pc
Added pc layer to map map
```

```
geo-shell> map draw --name map --file examples/style_raster_colormap.png
Done drawing /home/travis/build/jericks/geo-shell/examples/style_raster_colormap.png!
```

```
geo-shell> map close --name map
Map map closed!
```

```
<?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:RasterSymbolizer>
            <sld:Geometry>
              <ogc:Literal>grid</ogc:Literal>
            </sld:Geometry>
            <sld:ColorMap>
              <sld:ColorMapEntry color="#9fd182" opacity="1.0" quantity="25"/>
              <sld:ColorMapEntry color="#3e7f3c" opacity="1.0" quantity="470"/>
              <sld:ColorMapEntry color="#133912" opacity="1.0" quantity="920"/>
              <sld:ColorMapEntry color="#08306b" opacity="1.0" quantity="1370"/>
              <sld:ColorMapEntry color="#fffff5" opacity="1.0" quantity="1820"/>
            </sld:ColorMap>
            <sld:ContrastEnhancement/>
          </sld:RasterSymbolizer>
        </sld:Rule>
      </sld:FeatureTypeStyle>
    </sld:UserStyle>
  </sld:UserLayer>
</sld:StyledLayerDescriptor>
```



# Map

## Open

Open a new Map.

```
geo-shell> map open --name earth
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The map name	true		

```
geo-shell> map open --name earth
```

Map earth opened!

```
geo-shell> map close --name earth
```

Map earth closed!

## Close

Close a Map.

```
geo-shell> map close --name earth
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The map name	true		

```
geo-shell> map open --name earth  
Map earth opened!
```

```
geo-shell> map close --name earth  
Map earth closed!
```

## List

List open Maps.

```
geo-shell> map list
```



No parameters

```
geo-shell> map open --name earth  
Map earth opened!
```

```
geo-shell> map open --name us  
Map us opened!
```

```
geo-shell> map list
```

earth

us

```
geo-shell> map close --name earth  
Map earth closed!
```

```
geo-shell> map close --name us  
Map us closed!
```

## Add Layer

Add a Vector Layer.

```
geo-shell> map add layer --name world --layer countries
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The map name	true		
layer	The layer	true		
mapLayerName	The map layer name	false		

```
geo-shell> map open --name world  
Map world opened!
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg  
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries  
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld  
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries
```

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean  
Opened Workspace naturalearth Layer ocean as ocean
```

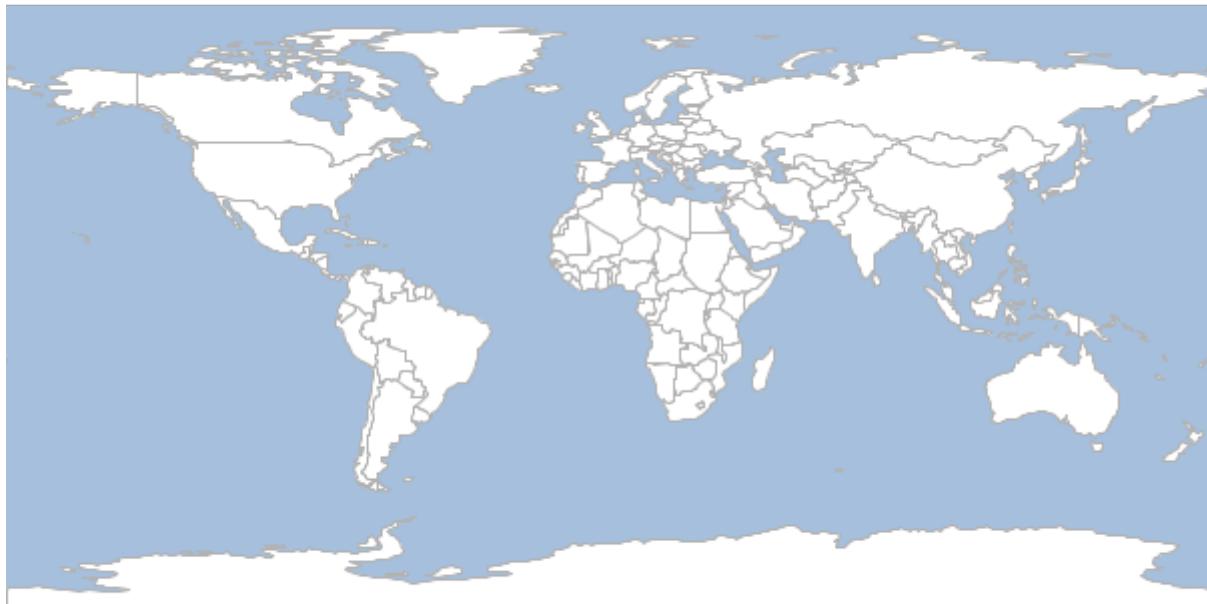
```
geo-shell> layer style set --name ocean --style examples/ocean.sld  
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean
```

```
geo-shell> map add layer --name world --layer ocean  
Added ocean layer to map world
```

```
geo-shell> map add layer --name world --layer countries  
Added countries layer to map world
```

```
geo-shell> map draw --name world --file examples/map_add_layer.png  
Done drawing /home/travis/build/jericks/geo-shell/examples/map_add_layer.png!
```

```
geo-shell> map close --name world  
Map world closed!
```



## Add Raster

Add a Raster Layer.

```
geo-shell> map add raster --name world --raster earth
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The map name	true		
raster	The raster	true		
mapLayerName	The map layer name	false		

geo-shell> **map open** --name world  
Map world opened!

geo-shell> **format open** --name earth --input src/test/resources/earth.tif  
Format earth opened!

geo-shell> **raster open** --format earth --raster earth --name earth  
Opened Format earth Raster earth as earth

geo-shell> **map add raster** --name world --raster earth  
Added earth layer to map world

geo-shell> **workspace open** --name naturalearth --params examples/naturalearth.gpkg  
Workspace naturalearth opened!

geo-shell> **layer open** --workspace naturalearth --layer countries --name countries  
Opened Workspace naturalearth Layer countries as countries

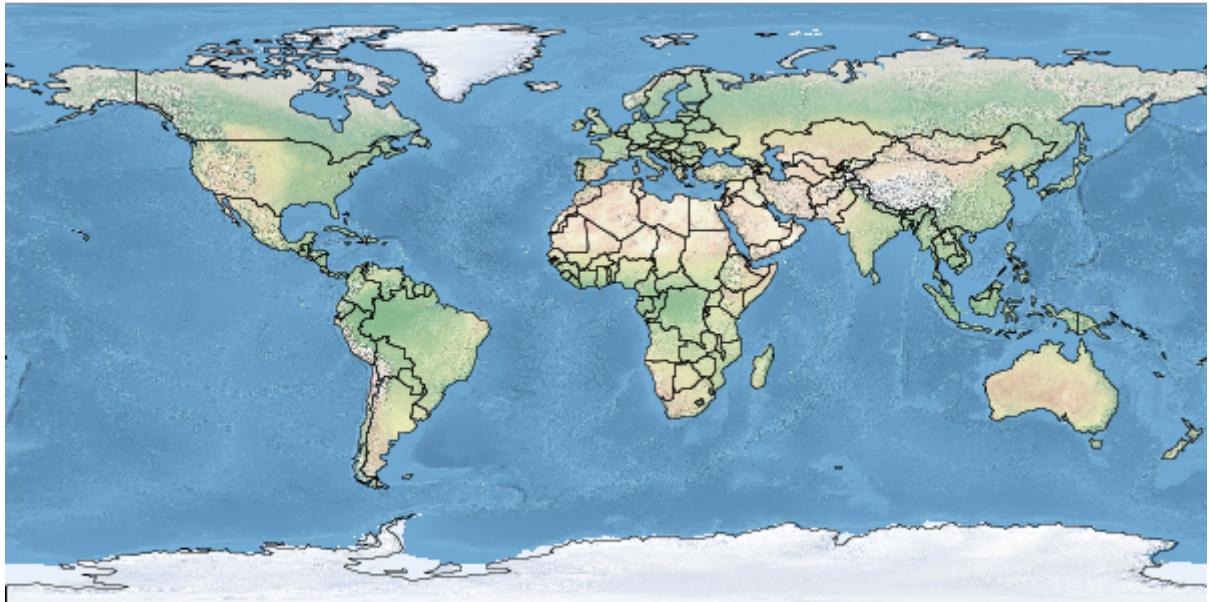
geo-shell> **style create** --params "stroke=black stroke-width=0.1" --file examples/outline.sld  
Style stroke=black stroke-width=0.1 written to /home/travis/build/jericks/geo-shell/examples/outline.sld!

geo-shell> **layer style set** --name countries --style examples/outline.sld  
Style /home/travis/build/jericks/geo-shell/examples/outline.sld set on countries

geo-shell> **map add layer** --name world --layer countries  
Added countries layer to map world

geo-shell> **map draw** --name world --file examples/map\_add\_raster.png  
Done drawing /home/travis/build/jericks/geo-shell/examples/map\_add\_raster.png!

geo-shell> **map close** --name world  
Map world closed!



## Add Tile Layer

Add a Tile Layer.

```
geo-shell> map add tile --name world --tile tiles
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The map name	true		
tile	The tile	true		
mapLayerName	The map layer name	false		

```
geo-shell> map open --name world
```

Map world opened!

```
geo-shell> tile open --name tiles --params src/test/resources/countries.mbtiles
```

Tile Layer tiles opened!

```
geo-shell> map add tile --name world --tile tiles
```

Added tiles layer to map world

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
```

Workspace naturalearth opened!

```
geo-shell> layer open --workspace naturalearth --layer places --name places
```

Opened Workspace naturalearth Layer places as places

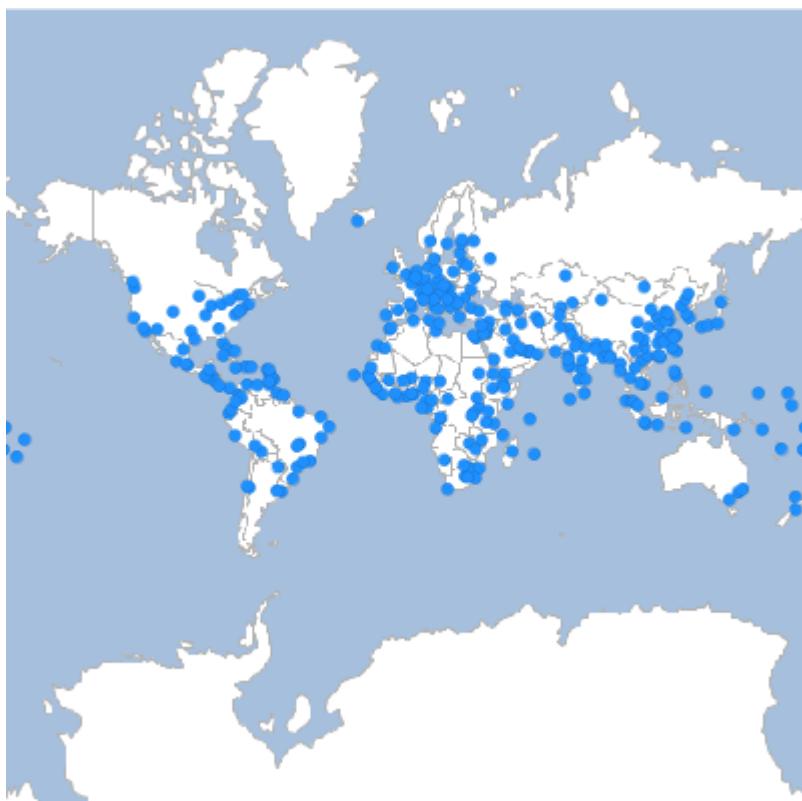
```
geo-shell> style vector default --layer places --color #1E90FF --file examples/places.sld
Default Vector Style for places written to /home/travis/build/jericks/geo-shell/examples/places.sld!
```

```
geo-shell> layer style set --name places --style examples/places.sld
Style /home/travis/build/jericks/geo-shell/examples/places.sld set on places
```

```
geo-shell> map add layer --name world --layer places
Added places layer to map world
```

```
geo-shell> map draw --name world --width 400 --height 400 --file examples/map_add_tile.png
Done drawing /home/travis/build/jericks/geo-shell/examples/map_add_tile.png!
```

```
geo-shell> map close --name world
Map world closed!
```



## Remove Layer

Remove a Layer.

```
geo-shell> map remove layer --name world --layer countries
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The map name	true		
layer	The layer name	true		

```
geo-shell> map open --name world
Map world opened!
```

```
geo-shell> format open --name earth --input src/test/resources/earth.tif
Format earth opened!
```

```
geo-shell> raster open --format earth --raster earth --name earth
Opened Format earth Raster earth as earth
```

```
geo-shell> map add raster --name world --raster earth
Added earth layer to map world
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> style create --params "stroke=black stroke-width=0.1" --file examples/outline.sld
Style      stroke=black      stroke-width=0.1      written      to      /home/travis/build/jericks/geo-
shell/examples/outline.sld!
```

```
geo-shell> layer style set --name countries --style examples/outline.sld
Style /home/travis/build/jericks/geo-shell/examples/outline.sld set on countries
```

```
geo-shell> map add layer --name world --layer countries
Added countries layer to map world
```

```
geo-shell> map layers --name world
earth
countries
```

```
geo-shell> map remove layer --name world --layer countries
Removed countries layer from map world
```

```
geo-shell> map layers --name world
earth
```

```
geo-shell> map close --name world
Map world closed!
```

## Reorder

Reorder a Layer in the Map.

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The map name	true		
layer	The layer name	true		
order	The order parameters	true		

```
geo-shell> map open --name world
```

```
Map world opened!
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
```

```
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries
```

```
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> style create --params "stroke=black stroke-width=0.1" --file examples/outline.sld
```

```
Style      stroke=black      stroke-width=0.1      written      to      /home/travis/build/jericks/geo-  
shell/examples/outline.sld!
```

```
geo-shell> layer style set --name countries --style examples/outline.sld
```

```
Style /home/travis/build/jericks/geo-shell/examples/outline.sld set on countries
```

```
geo-shell> map add layer --name world --layer countries
```

```
Added countries layer to map world
```

```
geo-shell> format open --name earth --input src/test/resources/earth.tif
```

```
Format earth opened!
```

```
geo-shell> raster open --format earth --raster earth --name earth
```

```
Opened Format earth Raster earth as earth
```

```
geo-shell> map add raster --name world --raster earth
```

```
Added earth layer to map world
```

```
geo-shell> map layers --name world
```

```
countries
```

```
earth
```

```
geo-shell> map reorder --name world --layer countries --order 1
```

```
Moved countries from 0 to 1
```

```
geo-shell> map layers --name world
```

```
earth
```

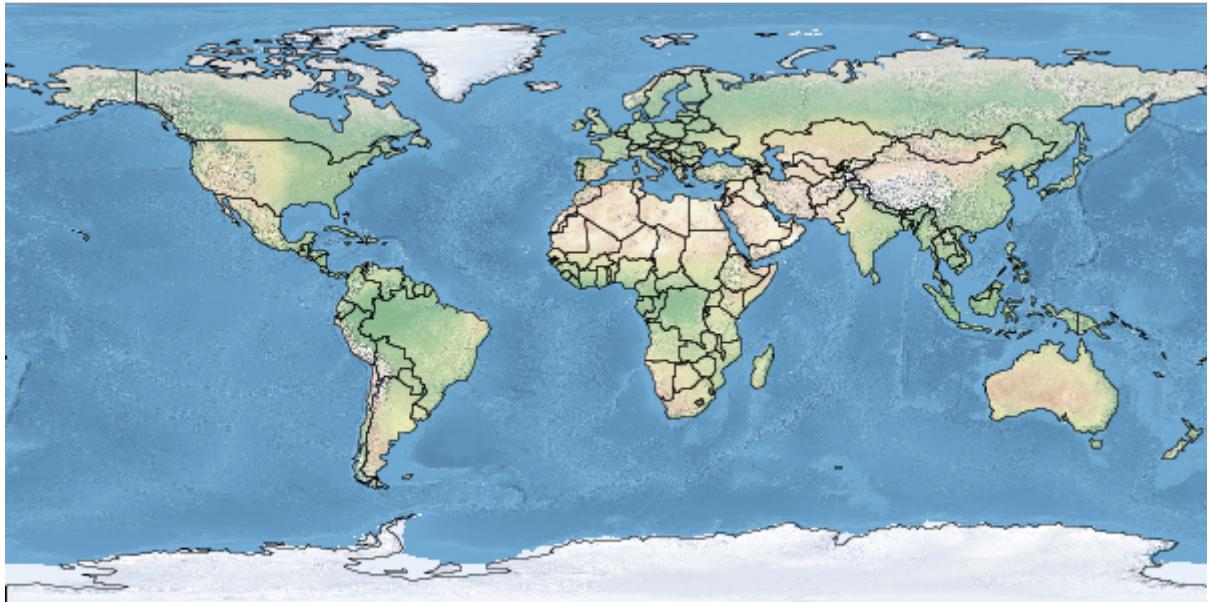
```
countries
```

```
geo-shell> map draw --name world --file examples/map_reordered.png
```

```
Done drawing /home/travis/build/jericks/geo-shell/examples/map_reordered.png!
```

```
geo-shell> map close --name world
```

```
Map world closed!
```



## Layers

List the Map's Layers.

```
geo-shell> map layers --name world
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The map name	true		

```
geo-shell> map open --name world
```

Map world opened!

```
geo-shell> format open --name earth --input src/test/resources/earth.tif
```

Format earth opened!

```
geo-shell> raster open --format earth --raster earth --name earth
```

Opened Format earth Raster earth as earth

```
geo-shell> map add raster --name world --raster earth
```

Added earth layer to map world

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg
```

Workspace naturalearth opened!

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries
```

Opened Workspace naturalearth Layer countries as countries

```
geo-shell> style create --params "stroke=black stroke-width=0.1" --file examples/outline.sld
```

```
Style stroke=black stroke-width=0.1 written to /home/travis/build/jericks/geo-shell/examples/outline.sld!
```

```
geo-shell> layer style set --name countries --style examples/outline.sld  
Style /home/travis/build/jericks/geo-shell/examples/outline.sld set on countries
```

```
geo-shell> map add layer --name world --layer countries  
Added countries layer to map world
```

```
geo-shell> map layers --name world  
earth  
countries
```

```
geo-shell> map close --name world  
Map world closed!
```

## Draw

Draw a map.

```
geo-shell> map draw --name world --file examples/map_draw.png
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The map name	true		
bounds	The Bounds	false		
projection	The Projection	false		
width	The width	false	600	600
height	The height	false	400	400
type	The type	false	png	png
file	The file	false		
background-color	The background color	false		

```
geo-shell> map open --name world  
Map world opened!
```

```
geo-shell> workspace open --name naturalearth --params examples/naturalearth.gpkg  
Workspace naturalearth opened!
```

```
geo-shell> layer open --workspace naturalearth --layer countries --name countries  
Opened Workspace naturalearth Layer countries as countries
```

```
geo-shell> layer style set --name countries --style examples/countries.sld  
Style /home/travis/build/jericks/geo-shell/examples/countries.sld set on countries
```

```
geo-shell> layer open --workspace naturalearth --layer ocean --name ocean  
Opened Workspace naturalearth Layer ocean as ocean
```

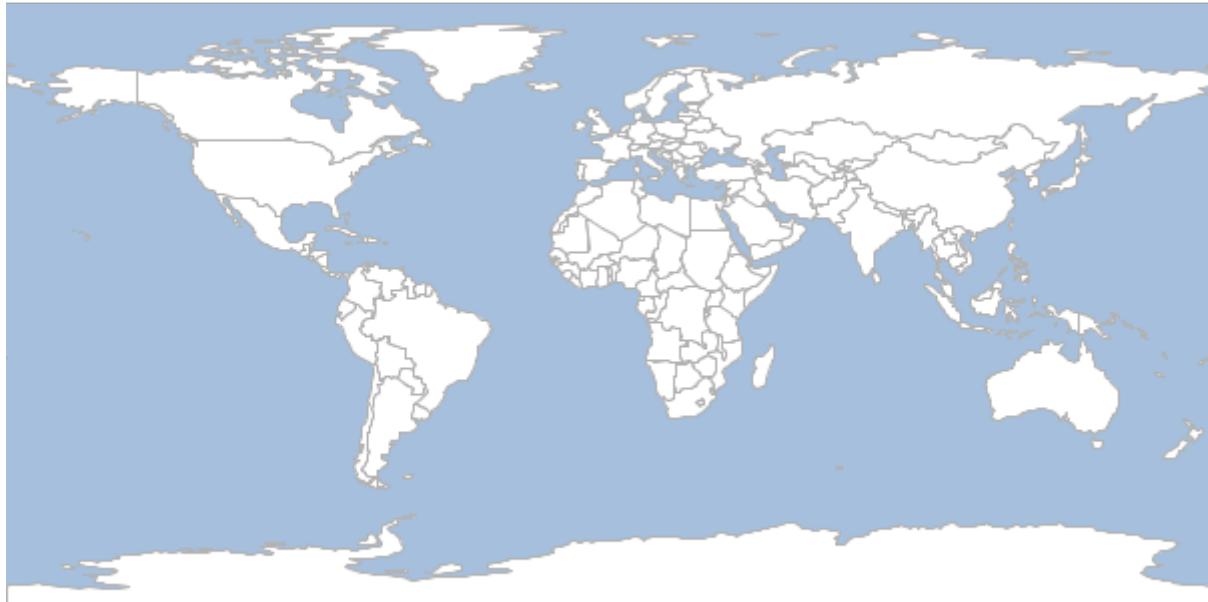
```
geo-shell> layer style set --name ocean --style examples/ocean.sld  
Style /home/travis/build/jericks/geo-shell/examples/ocean.sld set on ocean
```

```
geo-shell> map add layer --name world --layer ocean  
Added ocean layer to map world
```

```
geo-shell> map add layer --name world --layer countries  
Added countries layer to map world
```

```
geo-shell> map draw --name world --file examples/map_draw.png  
Done drawing /home/travis/build/jericks/geo-shell/examples/map_draw.png!
```

```
geo-shell> map close --name world  
Map world closed!
```



## Display

Display a map in a GUI.

```
geo-shell> map display --name world
```

Name	Description	Mandatory	Specified Default	Unspecified Default
name	The map name	true		
bounds	The Bounds	false		
projection	The Projection	false		
width	The width	false	600	600

height	The height	false	400	400
background-color	The background color	false		

geo-shell> **map open** --name world

Map world opened!

geo-shell> **workspace open** --name naturalearth --params examples/naturalearth.gpkg

Workspace naturalearth opened!

geo-shell> **layer open** --workspace naturalearth --layer countries --name countries

Opened Workspace naturalearth Layer countries as countries

geo-shell> **layer style set** --name countries --style examples/countries.sld

Style /Users/jericks/Projects/geo-shell/examples/countries.sld set on countries

geo-shell> **layer open** --workspace naturalearth --layer ocean --name ocean

Opened Workspace naturalearth Layer ocean as ocean

geo-shell> **layer style set** --name ocean --style examples/ocean.sld

Style /Users/jericks/Projects/geo-shell/examples/ocean.sld set on ocean

geo-shell> **map add layer** --name world --layer ocean

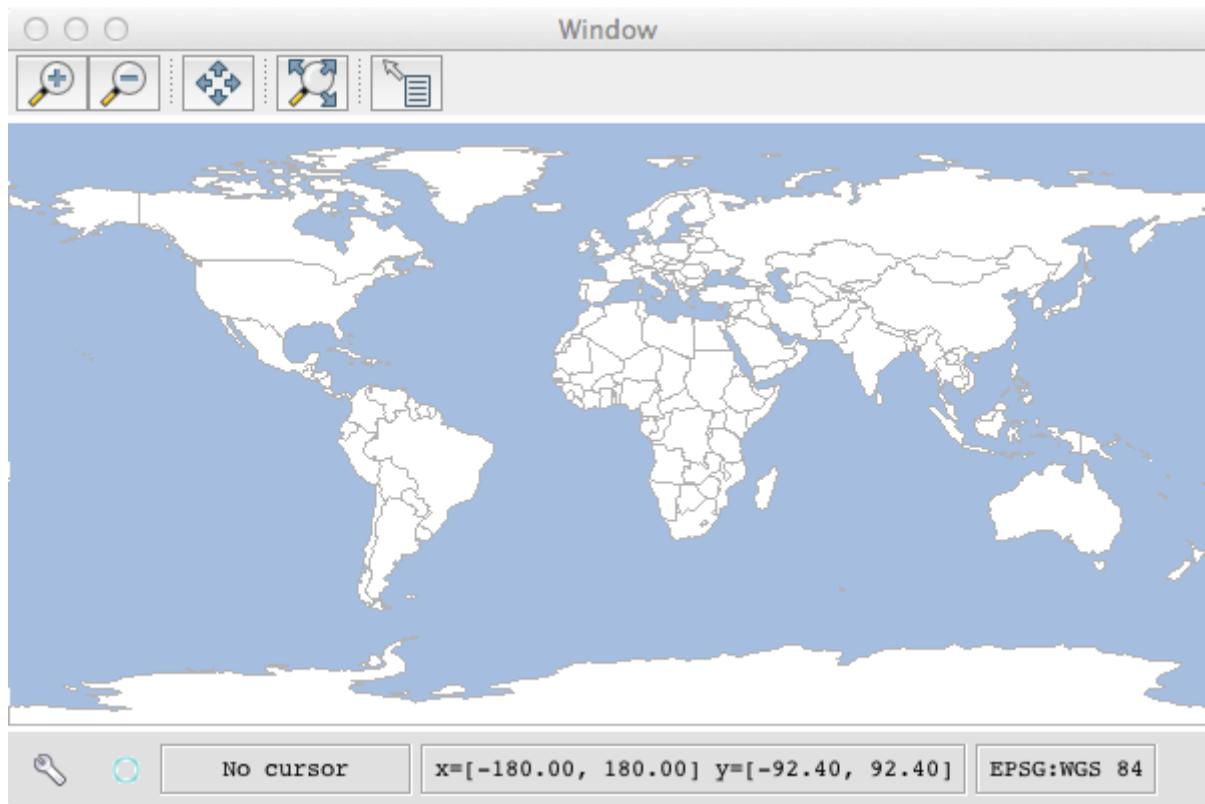
Added ocean layer to map world

geo-shell> **map add layer** --name world --layer countries

Added countries layer to map world

geo-shell> **map display** --name world

Displaying...



# Built in

## Exit / Quit

Exits the shell

geo-shell> **exit**



No parameters

## Help

List all commands usage

Name	Description	Mandatory	Specified Default	Unspecified Default
	Command name to provide help for	false		

View all commands

geo-shell> **help**

- \* ! - Allows execution of operating system (OS) commands
- \* // - Inline comment markers (start of line only)
- \* ; - Inline comment markers (start of line only)
- \* clear - Clears the console

- \* cls - Clears the console
- \* date - Displays the local date and time
- \* download - Download a URL to a file.
- \* exit - Exits the shell
- \* format close - Close a Raster Format.
- \* format list - List open Raster Formats.

Get help for a command

```
geo-shell> help layer open
```

Keyword: layer open

Description: Open a Layer.

Keyword: workspace

Help: The Workspace name

Mandatory: true

Default if specified: 'NULL'

Default if unspecified: 'NULL'

Keyword: layer

Help: The Layer name

Mandatory: true

Default if specified: 'NULL'

Default if unspecified: 'NULL'

Keyword: name

Help: The name

Mandatory: false

Default if specified: 'NULL'

Default if unspecified: 'NULL'

\* layer open - Open a Layer.

## Run OS Command

Allows execution of operating system (OS) commands

```
geo-shell> ! ls src/test/resources/mars
```

Name	Description	Mandatory	Specified Default	Unspecified Default
	The command to execute	false		

```
geo-shell> ! ls src/test/resources/mars
```

```
geo_units_oc_dd.dbf  
geo_units_oc_dd.prj  
geo_units_oc_dd.qix
```

```
geo_units_oc_dd.sbn  
geo_units_oc_dd.sbx  
geo_units_oc_dd.shp  
geo_units_oc_dd.shp.xml  
geo_units_oc_dd.shx  
I1802ABC_geo_units_RGBlut.txt
```

## Date

Displays the local date and time

```
geo-shell> date
```



No parameters

```
geo-shell> date
```

Thursday, February 6, 2020 12:34:30 AM UTC

## Script

Parses the specified resource file and executes its commands

```
geo-shell> script src/test/resources/layer_count.txt
```

Name	Description	Mandatory	Specified Default	Unspecified Default
	The file to locate and execute	true		
lineNumbers	Display line numbers when executing the script	false	true	false

```
workspace open --name naturalearth --params src/test/resources/naturalearth.gpkg  
layer open --workspace naturalearth --layer countries --name countries  
layer count --name countries  
workspace close --name naturalearth
```

```
geo-shell> script src/test/resources/layer_count.txt
```

Workspace naturalearth opened!

Opened Workspace naturalearth Layer countries as countries

Workspace naturalearth closed!

## System Properties

Shows the shell's properties

```
geo-shell> system properties
```



No parameters

```
geo-shell> system properties
```

```
awt.toolkit = sun.awt.X11.XToolkit  
basedir = /home/travis/build/jericks/geo-shell  
file.encoding = UTF-8  
file.encoding.pkg = sun.io  
file.separator = /
```

## Version

Displays shell version



No parameters

```
geo-shell> version
```

0.7-SNAPSHOT

## Download

Download a URL to a file.

```
geo-shell> download --url https://astropedia.astrogeology.usgs.gov/download/Mars/Geology/Mars15MGeologicGISRenovation.zip --file mars.zip --overwrite false
```

Name	Description	Mandatory	Specified Default	Unspecified Default
url	The url	true		
file	The file	true		
overwrite	Whether to overwrite the file or not	false	true	true

```
geo-shell> download --url https://astropedia.astrogeology.usgs.gov/download/Mars/Geology/Mars15MGeologicGISRenovation.zip --file mars.zip --overwrite false  
Downloading https://astropedia.astrogeology.usgs.gov/download/Mars/Geology/Mars15MGeologicGISRenovation.zip to /Users/jericks/Projects/geo-shell/mars.zip...
```

```
geo-shell> unzip --file mars.zip --directory mars
Unzipping /Users/jericks/Projects/geo-shell/mars.zip to /Users/jericks/Projects/geo-shell/mars

geo-shell> style vector uniquevaluesfromtext --field UnitSymbol --geometryType Polygon
--styleFile mars/units.sld --textFile mars/I1802ABC_Mars_global_geology/I1802ABC_geo_units_RGBlut.txt
Create a unique values style from /Users/jericks/Projects/geo-shell/mars/I1802ABC_Mars_global_geology/I1802ABC_geo_units_RGBlut.txt for UnitSymbol and Polygon to /Users/jericks/Projects/geo-shell/mars/units.sld

geo-shell> workspace open --name mars --params
mars/I1802ABC_Mars_global_geology/Shapefiles/I1802ABC_Mars2000_Sphere/geo_units_oc_dd.shp
Workspace mars opened!

geo-shell> layer open --workspace mars --layer geo_units_oc_dd
Opened Workspace mars Layer geo_units_oc_dd as mars:geo_units_oc_dd

geo-shell> layer style set --name mars:geo_units_oc_dd --style mars/units.sld
Style /Users/jericks/Projects/geo-shell/mars/units.sld set on mars:geo_units_oc_dd

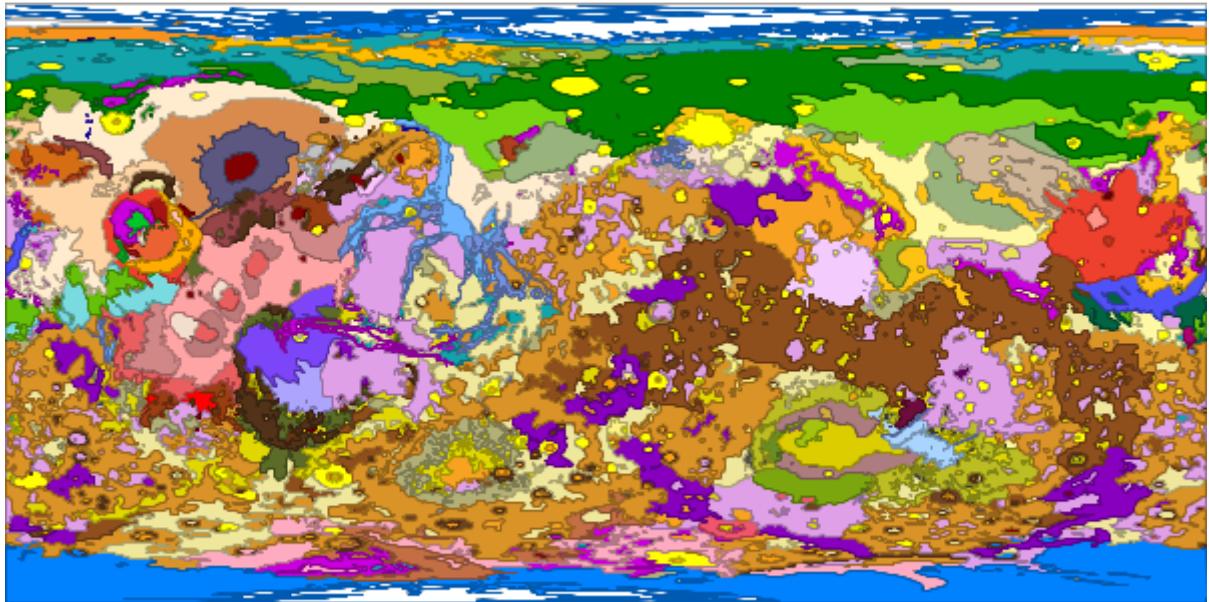
geo-shell> map open --name mars
Map mars opened!

geo-shell> map add layer --name mars --layer mars:geo_units_oc_dd
Added mars:geo_units_oc_dd layer to map mars

geo-shell> map draw --name mars
Done drawing /Users/jericks/Projects/geo-shell/image.png!

geo-shell> map close --name mars
Map mars closed!

geo-shell> open --file image.png
Opening /Users/jericks/Projects/geo-shell/image.png...
```



## Unzip

Unzip a file

```
geo-shell> unzip --file mars.zip --directory mars
```

Name	Description	Mandatory	Specified Default	Unspecified Default
file	The zip file	true		
directory	The directory	true		

```
geo-shell> unzip --file mars.zip --directory mars
```

```
Unzipping /Users/jericks/Projects/geo-shell/mars.zip to /Users/jericks/Projects/geo-shell/mars
```

## Open

Open a File.

```
geo-shell> open --file image.png
```

Name	Description	Mandatory	Specified Default	Unspecified Default
file	The File	true		

```
geo-shell> open --file image.png
```

```
Opening /Users/jericks/Projects/geo-shell/image.png...
```