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Tile Commands

Tile Layers

All of the tile commands work with a tile layer.

Supported Tile Layers include:

- MBTiles

- GeoPackage

- TMS

- OSM

- UTFGrid

- Vector Tiles

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

- **pyramid** = Several tile layers can take a pyramid attribute. You can use one of several well known pyramid names:

  - globalmercator

  - mercator

  - globalmercatorbottomleft

  - globalgeodetic

  - geodetic

  - file that contains pyramid metadata in csv, xml, or json format.

- **type** = The type of image layer.

  - mbtiles

- geopackage
  - tms
  - osm

mbtiles

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

geopackage

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

tms

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

osm

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

utfgrid

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

vectortiles

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

Delete

Delete tiles from a tile layer

Short Name	Long Name	Description
-l	--tile-layer	The tile layer
-i	--tile	The Tile Z/X/Y coordinates
-b	--bounds	The bounds
-z	--zoom-level	The tile zoom level
-x	--minx	The min x or col
-y	--miny	The min y or row

Short Name	Long Name	Description
-c	--maxx	The max x or col
-u	--maxy	The max y or row
-w	--width	The raster width
-h	--height	The raster height
	--help	Print the help message
	--web-help	Open help in a browser

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

Generate

Generate tiles.

Short Name	Long Name	Description
-l	--tile-layer	The tile layer
-f	--field	A field
-d	--layer-fields	A List of sub fields for a layer
-m	--layer	The map layer
-s	--start-zoom	The start zoom level
-e	--end-zoom	The end zoom level
-b	--bounds	The bounds
-t	--metatile	The metatile width,height
-i	--missing	Whether to generate only missing tiles
-v	--verbose	The verbose flag
	--help	Print the help message
	--web-help	Open help in a browser

MBTiles

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

```
Zoom Level 0
   0). Tile(x:0, y:0, z:0)
```

```
            Bounds(-2.003639514788131E7,-
2.0037471205137067E7,2.003639514788131E7,2.003747120513706E7,EPSG:3857)
    Generating 1 tile took 0.0844695 seconds
Zoom Level 1
    0). Tile(x:0, y:0, z:1)
            Bounds(-2.003639514788131E7,-2.0037471205137067E7,0.0,-3.725290298461914E-
9,EPSG:3857)
    1). Tile(x:1, y:0, z:1)
            Bounds(0.0,-2.0037471205137067E7,2.003639514788131E7,-3.725290298461914E-
9,EPSG:3857)
    2). Tile(x:0, y:1, z:1)
            Bounds(-2.003639514788131E7,-3.725290298461914E-
9,0.0,2.003747120513706E7,EPSG:3857)
    3). Tile(x:1, y:1, z:1)
            Bounds(0.0,-3.725290298461914E-
9,2.003639514788131E7,2.003747120513706E7,EPSG:3857)
    Generating 4 tiles took 0.315985791 seconds
Zoom Level 2
    0). Tile(x:0, y:0, z:2)
            Bounds(-2.003639514788131E7,-2.0037471205137067E7,-1.0018197573940655E7,-
1.0018735602568535E7,EPSG:3857)
    1). Tile(x:1, y:0, z:2)
            Bounds(-1.0018197573940655E7,-2.0037471205137067E7,0.0,-
1.0018735602568535E7,EPSG:3857)
    2). Tile(x:2, y:0, z:2)
            Bounds(0.0,-2.0037471205137067E7,1.0018197573940655E7,-
1.0018735602568535E7,EPSG:3857)
    3). Tile(x:3, y:0, z:2)
            Bounds(1.0018197573940653E7,-2.0037471205137067E7,2.0036395147881307E7,-
1.0018735602568535E7,EPSG:3857)
    4). Tile(x:0, y:1, z:2)
            Bounds(-2.003639514788131E7,-1.0018735602568535E7,-1.0018197573940655E7,-
3.725290298461914E-9,EPSG:3857)
    5). Tile(x:1, y:1, z:2)
            Bounds(-1.0018197573940655E7,-1.0018735602568535E7,0.0,-3.725290298461914E-
9,EPSG:3857)
    6). Tile(x:2, y:1, z:2)
            Bounds(0.0,-1.0018735602568535E7,1.0018197573940655E7,-3.725290298461914E-
9,EPSG:3857)
    7). Tile(x:3, y:1, z:2)
            Bounds(1.0018197573940653E7,-1.0018735602568535E7,2.0036395147881307E7,-
3.725290298461914E-9,EPSG:3857)
    8). Tile(x:0, y:2, z:2)
            Bounds(-2.003639514788131E7,-3.725290298461914E-9,-
1.0018197573940655E7,1.0018735602568528E7,EPSG:3857)
    9). Tile(x:1, y:2, z:2)
            Bounds(-1.0018197573940655E7,-3.725290298461914E-
9,0.0,1.0018735602568528E7,EPSG:3857)
    10). Tile(x:2, y:2, z:2)
            Bounds(0.0,-3.725290298461914E-
9,1.0018197573940655E7,1.0018735602568528E7,EPSG:3857)
```

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

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

Bounds(1.0018197573940653E7,1.001873560256853E7,2.0036395147881307E7,2.003747120513706
E7,EPSG:3857)
  Generating 16 tiles took 1.129306691 seconds
```


GeoPackage

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

```
Zoom Level 0
   0). Tile(x:0, y:0, z:0)
        Bounds(-179.99,-89.99,0.0,89.99,EPSG:4326)
   1). Tile(x:1, y:0, z:0)
        Bounds(0.0,-89.99,179.99,89.99,EPSG:4326)
   Generating 2 tiles took 0.080972369 seconds
Zoom Level 1
   0). Tile(x:0, y:0, z:1)
        Bounds(-179.99,0.0,-89.995,89.99,EPSG:4326)
   1). Tile(x:1, y:0, z:1)
        Bounds(-89.995,0.0,0.0,89.99,EPSG:4326)
   2). Tile(x:2, y:0, z:1)
        Bounds(0.0,0.0,89.995,89.99,EPSG:4326)
   3). Tile(x:3, y:0, z:1)
        Bounds(89.995,0.0,179.99,89.99,EPSG:4326)
   4). Tile(x:0, y:1, z:1)
        Bounds(-179.99,-89.99,-89.995,0.0,EPSG:4326)
   5). Tile(x:1, y:1, z:1)
        Bounds(-89.995,-89.99,0.0,0.0,EPSG:4326)
   6). Tile(x:2, y:1, z:1)
        Bounds(0.0,-89.99,89.995,0.0,EPSG:4326)
   7). Tile(x:3, y:1, z:1)
        Bounds(89.995,-89.99,179.99,0.0,EPSG:4326)
   Generating 8 tiles took 0.198788589 seconds
Zoom Level 2
   0). Tile(x:0, y:0, z:2)
        Bounds(-179.99,44.995,-134.9925,89.99,EPSG:4326)
   1). Tile(x:1, y:0, z:2)
        Bounds(-134.9925,44.995,-89.995,89.99,EPSG:4326)
   2). Tile(x:2, y:0, z:2)
        Bounds(-89.995,44.995,-44.9975,89.99,EPSG:4326)
   3). Tile(x:3, y:0, z:2)
        Bounds(-44.9975,44.995,0.0,89.99,EPSG:4326)
   4). Tile(x:4, y:0, z:2)
        Bounds(0.0,44.995,44.9975,89.99,EPSG:4326)
   5). Tile(x:5, y:0, z:2)
        Bounds(44.9975,44.995,89.995,89.99,EPSG:4326)
   6). Tile(x:6, y:0, z:2)
        Bounds(89.995,44.995,134.9925,89.99,EPSG:4326)
   7). Tile(x:7, y:0, z:2)
        Bounds(134.9925,44.995,179.99,89.99,EPSG:4326)
   8). Tile(x:0, y:1, z:2)
        Bounds(-179.99,-7.105427357601002E-15,-134.9925,44.99499999999999,EPSG:4326)
```

```
9). Tile(x:1, y:1, z:2)
        Bounds(-134.9925,-7.105427357601002E-15,-89.995,44.99499999999999,EPSG:4326)
10). Tile(x:2, y:1, z:2)
        Bounds(-89.995,-7.105427357601002E-15,-44.9975,44.99499999999999,EPSG:4326)
11). Tile(x:3, y:1, z:2)
        Bounds(-44.9975,-7.105427357601002E-15,0.0,44.99499999999999,EPSG:4326)
12). Tile(x:4, y:1, z:2)
        Bounds(0.0,-7.105427357601002E-15,44.9975,44.99499999999999,EPSG:4326)
13). Tile(x:5, y:1, z:2)
        Bounds(44.9975,-7.105427357601002E-15,89.995,44.99499999999999,EPSG:4326)
14). Tile(x:6, y:1, z:2)
        Bounds(89.995,-7.105427357601002E-15,134.9925,44.99499999999999,EPSG:4326)
15). Tile(x:7, y:1, z:2)
        Bounds(134.9925,-7.105427357601002E-15,179.99,44.99499999999999,EPSG:4326)
16). Tile(x:0, y:2, z:2)
        Bounds(-179.99,-44.995,-134.9925,0.0,EPSG:4326)
17). Tile(x:1, y:2, z:2)
        Bounds(-134.9925,-44.995,-89.995,0.0,EPSG:4326)
18). Tile(x:2, y:2, z:2)
        Bounds(-89.995,-44.995,-44.9975,0.0,EPSG:4326)
19). Tile(x:3, y:2, z:2)
        Bounds(-44.9975,-44.995,0.0,0.0,EPSG:4326)
20). Tile(x:4, y:2, z:2)
        Bounds(0.0,-44.995,44.9975,0.0,EPSG:4326)
21). Tile(x:5, y:2, z:2)
        Bounds(44.9975,-44.995,89.995,0.0,EPSG:4326)
22). Tile(x:6, y:2, z:2)
        Bounds(89.995,-44.995,134.9925,0.0,EPSG:4326)
23). Tile(x:7, y:2, z:2)
        Bounds(134.9925,-44.995,179.99,0.0,EPSG:4326)
24). Tile(x:0, y:3, z:2)
        Bounds(-179.99,-89.99,-134.9925,-44.995,EPSG:4326)
25). Tile(x:1, y:3, z:2)
        Bounds(-134.9925,-89.99,-89.995,-44.995,EPSG:4326)
26). Tile(x:2, y:3, z:2)
        Bounds(-89.995,-89.99,-44.9975,-44.995,EPSG:4326)
27). Tile(x:3, y:3, z:2)
        Bounds(-44.9975,-89.99,0.0,-44.995,EPSG:4326)
28). Tile(x:4, y:3, z:2)
        Bounds(0.0,-89.99,44.9975,-44.995,EPSG:4326)
29). Tile(x:5, y:3, z:2)
        Bounds(44.9975,-89.99,89.995,-44.995,EPSG:4326)
30). Tile(x:6, y:3, z:2)
        Bounds(89.995,-89.99,134.9925,-44.995,EPSG:4326)
31). Tile(x:7, y:3, z:2)
        Bounds(134.9925,-89.99,179.99,-44.995,EPSG:4326)
Generating 32 tiles took 0.706033309 seconds
```
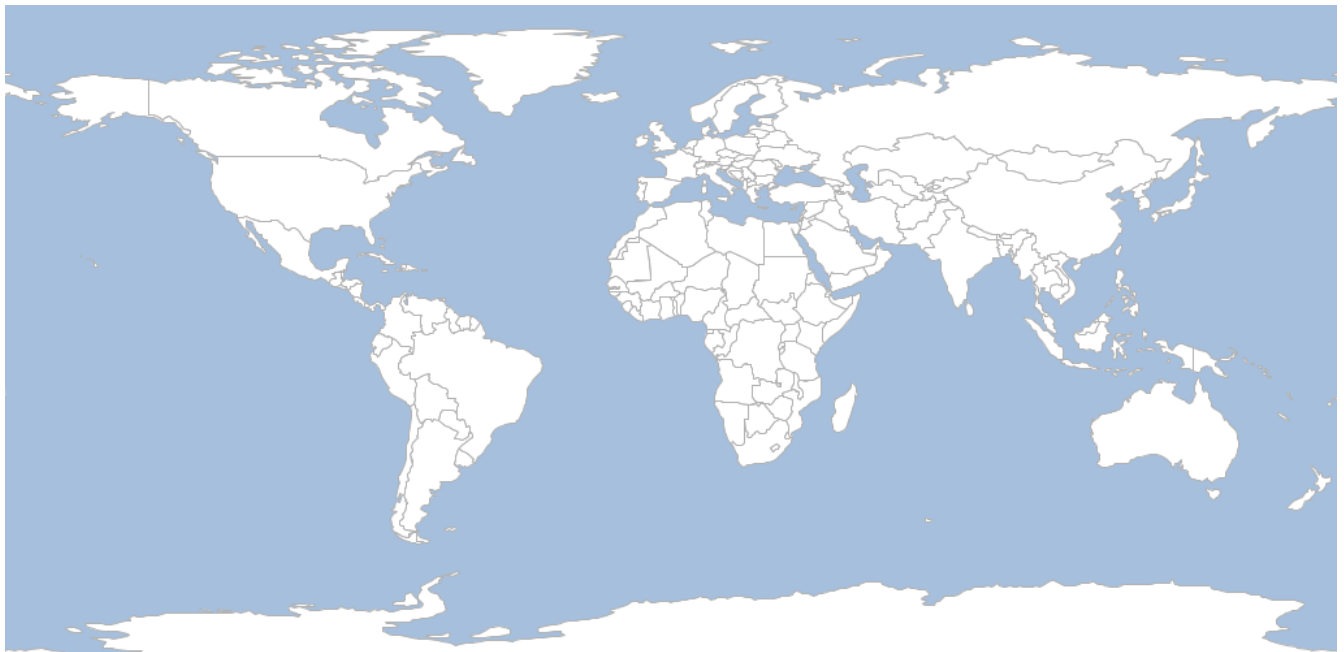
TMS

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

```
Zoom Level 0
    0). Tile(x:0, y:0, z:0)
          Bounds(-2.003639514788131E7,-
2.0037471205137067E7,2.003639514788131E7,2.003747120513706E7,EPSG:3857)
    Generating 1 tile took 0.077017929 seconds
Zoom Level 1
    0). Tile(x:0, y:0, z:1)
          Bounds(-2.003639514788131E7,-2.0037471205137067E7,0.0,-3.725290298461914E-
9,EPSG:3857)
    1). Tile(x:1, y:0, z:1)
          Bounds(0.0,-2.0037471205137067E7,2.003639514788131E7,-3.725290298461914E-
9,EPSG:3857)
    2). Tile(x:0, y:1, z:1)
          Bounds(-2.003639514788131E7,-3.725290298461914E-
9,0.0,2.003747120513706E7,EPSG:3857)
    3). Tile(x:1, y:1, z:1)
          Bounds(0.0,-3.725290298461914E-
9,2.003639514788131E7,2.003747120513706E7,EPSG:3857)
    Generating 4 tiles took 0.273009485 seconds
Zoom Level 2
    0). Tile(x:0, y:0, z:2)
          Bounds(-2.003639514788131E7,-2.0037471205137067E7,-1.0018197573940655E7,-
1.0018735602568535E7,EPSG:3857)
    1). Tile(x:1, y:0, z:2)
```

```
              Bounds(-1.0018197573940655E7,-2.0037471205137067E7,0.0,-
1.0018735602568535E7,EPSG:3857)
    2). Tile(x:2, y:0, z:2)
              Bounds(0.0,-2.0037471205137067E7,1.0018197573940655E7,-
1.0018735602568535E7,EPSG:3857)
    3). Tile(x:3, y:0, z:2)
              Bounds(1.0018197573940653E7,-2.0037471205137067E7,2.0036395147881307E7,-
1.0018735602568535E7,EPSG:3857)
    4). Tile(x:0, y:1, z:2)
              Bounds(-2.003639514788131E7,-1.0018735602568535E7,-1.0018197573940655E7,-
3.725290298461914E-9,EPSG:3857)
    5). Tile(x:1, y:1, z:2)
              Bounds(-1.0018197573940655E7,-1.0018735602568535E7,0.0,-3.725290298461914E-
9,EPSG:3857)
    6). Tile(x:2, y:1, z:2)
              Bounds(0.0,-1.0018735602568535E7,1.0018197573940655E7,-3.725290298461914E-
9,EPSG:3857)
    7). Tile(x:3, y:1, z:2)
              Bounds(1.0018197573940653E7,-1.0018735602568535E7,2.0036395147881307E7,-
3.725290298461914E-9,EPSG:3857)
    8). Tile(x:0, y:2, z:2)
              Bounds(-2.003639514788131E7,-3.725290298461914E-9,-
1.0018197573940655E7,1.0018735602568528E7,EPSG:3857)
    9). Tile(x:1, y:2, z:2)
              Bounds(-1.0018197573940655E7,-3.725290298461914E-
9,0.0,1.0018735602568528E7,EPSG:3857)
    10). Tile(x:2, y:2, z:2)
              Bounds(0.0,-3.725290298461914E-
9,1.0018197573940655E7,1.0018735602568528E7,EPSG:3857)
    11). Tile(x:3, y:2, z:2)
              Bounds(1.0018197573940653E7,-3.725290298461914E-
9,2.0036395147881307E7,1.0018735602568528E7,EPSG:3857)
    12). Tile(x:0, y:3, z:2)
              Bounds(-2.003639514788131E7,1.001873560256853E7,-
1.0018197573940655E7,2.003747120513706E7,EPSG:3857)
    13). Tile(x:1, y:3, z:2)
              Bounds(-
1.0018197573940655E7,1.001873560256853E7,0.0,2.003747120513706E7,EPSG:3857)
    14). Tile(x:2, y:3, z:2)

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

Bounds(1.0018197573940653E7,1.001873560256853E7,2.0036395147881307E7,2.003747120513706
E7,EPSG:3857)
    Generating 16 tiles took 1.036423212 seconds
```

Vector Tiles (PBF)

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

```
Zoom Level 0
   0). Tile(x:0, y:0, z:0)
          Bounds(-2.003639514788131E7,-
2.0037471205137067E7,2.003639514788131E7,2.003747120513706E7,EPSG:3857)
   Generating 1 tile took 0.760307226 seconds
Zoom Level 1
   0). Tile(x:0, y:0, z:1)
          Bounds(-2.003639514788131E7,-2.0037471205137067E7,0.0,-3.725290298461914E-
9,EPSG:3857)
   1). Tile(x:1, y:0, z:1)
          Bounds(0.0,-2.0037471205137067E7,2.003639514788131E7,-3.725290298461914E-
9,EPSG:3857)
   2). Tile(x:0, y:1, z:1)
          Bounds(-2.003639514788131E7,-3.725290298461914E-
9,0.0,2.003747120513706E7,EPSG:3857)
   3). Tile(x:1, y:1, z:1)
```

```
            Bounds(0.0,-3.725290298461914E-
9,2.003639514788131E7,2.00374712051370 6E7,EPSG:3857)
    Generating 4 tiles took 0.996851773 seconds
Zoom Level 2
    0). Tile(x:0, y:0, z:2)
            Bounds(-2.003639514788131E7,-2.0037471205137067E7,-1.0018197573940655E7,-
1.0018735602568535E7,EPSG:3857)
    1). Tile(x:1, y:0, z:2)
            Bounds(-1.0018197573940655E7,-2.0037471205137067E7,0.0,-
1.0018735602568535E7,EPSG:3857)
    2). Tile(x:2, y:0, z:2)
            Bounds(0.0,-2.0037471205137067E7,1.0018197573940655E7,-
1.0018735602568535E7,EPSG:3857)
    3). Tile(x:3, y:0, z:2)
            Bounds(1.0018197573940653E7,-2.0037471205137067E7,2.0036395147881307E7,-
1.0018735602568535E7,EPSG:3857)
    4). Tile(x:0, y:1, z:2)
            Bounds(-2.003639514788131E7,-1.0018735602568535E7,-1.0018197573940655E7,-
3.725290298461914E-9,EPSG:3857)
    5). Tile(x:1, y:1, z:2)
            Bounds(-1.0018197573940655E7,-1.0018735602568535E7,0.0,-3.725290298461914E-
9,EPSG:3857)
    6). Tile(x:2, y:1, z:2)
            Bounds(0.0,-1.0018735602568535E7,1.0018197573940655E7,-3.725290298461914E-
9,EPSG:3857)
    7). Tile(x:3, y:1, z:2)
            Bounds(1.0018197573940653E7,-1.0018735602568535E7,2.0036395147881307E7,-
3.725290298461914E-9,EPSG:3857)
    8). Tile(x:0, y:2, z:2)
            Bounds(-2.003639514788131E7,-3.725290298461914E-9,-
1.0018197573940655E7,1.0018735602568528E7,EPSG:3857)
    9). Tile(x:1, y:2, z:2)
            Bounds(-1.0018197573940655E7,-3.725290298461914E-
9,0.0,1.0018735602568528E7,EPSG:3857)
    10). Tile(x:2, y:2, z:2)
            Bounds(0.0,-3.725290298461914E-
9,1.0018197573940655E7,1.0018735602568528E7,EPSG:3857)
    11). Tile(x:3, y:2, z:2)
            Bounds(1.0018197573940653E7,-3.725290298461914E-
9,2.0036395147881307E7,1.0018735602568528E7,EPSG:3857)
    12). Tile(x:0, y:3, z:2)
            Bounds(-2.003639514788131E7,1.001873560256853E7,-
1.0018197573940655E7,2.003747120513706E7,EPSG:3857)
    13). Tile(x:1, y:3, z:2)
            Bounds(-
1.0018197573940655E7,1.001873560256853E7,0.0,2.003747120513706E7,EPSG:3857)
    14). Tile(x:2, y:3, z:2)

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

```
Bounds(1.0018197573940653E7,1.001873560256853E7,2.0036395147881307E7,2.00374712051370
6E7,EPSG:3857)
    Generating 16 tiles took 1.112393254 seconds
```

Tile Bounds

Get the Bounds of a tile.

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

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

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

List Tiles

Get a list of tiles for a given geometry

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

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

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

Pyramid

Get a Pyramid from a TileLayer.

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

Text

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

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

JSON

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

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

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

```
        },
        {
            "z": 8,
            "width": 512,
            "height": 256,
            "xres": 0.00274658203125,
            "yres": 0.00274658203125
        },
        {

            "z": 9,
            "width": 1024,
            "height": 512,
            "xres": 0.001373291015625,
            "yres": 0.001373291015625
        },
        {

            "z": 10,
            "width": 2048,
            "height": 1024,
            "xres": 6.866455078125E-4,
            "yres": 6.866455078125E-4
        },
        {

            "z": 11,
            "width": 4096,
            "height": 2048,
            "xres": 3.4332275390625E-4,
            "yres": 3.4332275390625E-4
        },
        {

            "z": 12,
            "width": 8192,
            "height": 4096,
            "xres": 1.71661376953125E-4,
            "yres": 1.71661376953125E-4
        },
        {

            "z": 13,
            "width": 16384,
            "height": 8192,
            "xres": 8.58306884765625E-5,
            "yres": 8.58306884765625E-5
        },
        {

            "z": 14,
            "width": 32768,
            "height": 16384,
            "xres": 4.291534423828125E-5,
            "yres": 4.291534423828125E-5
        },
        {
```

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

XML

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

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

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

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

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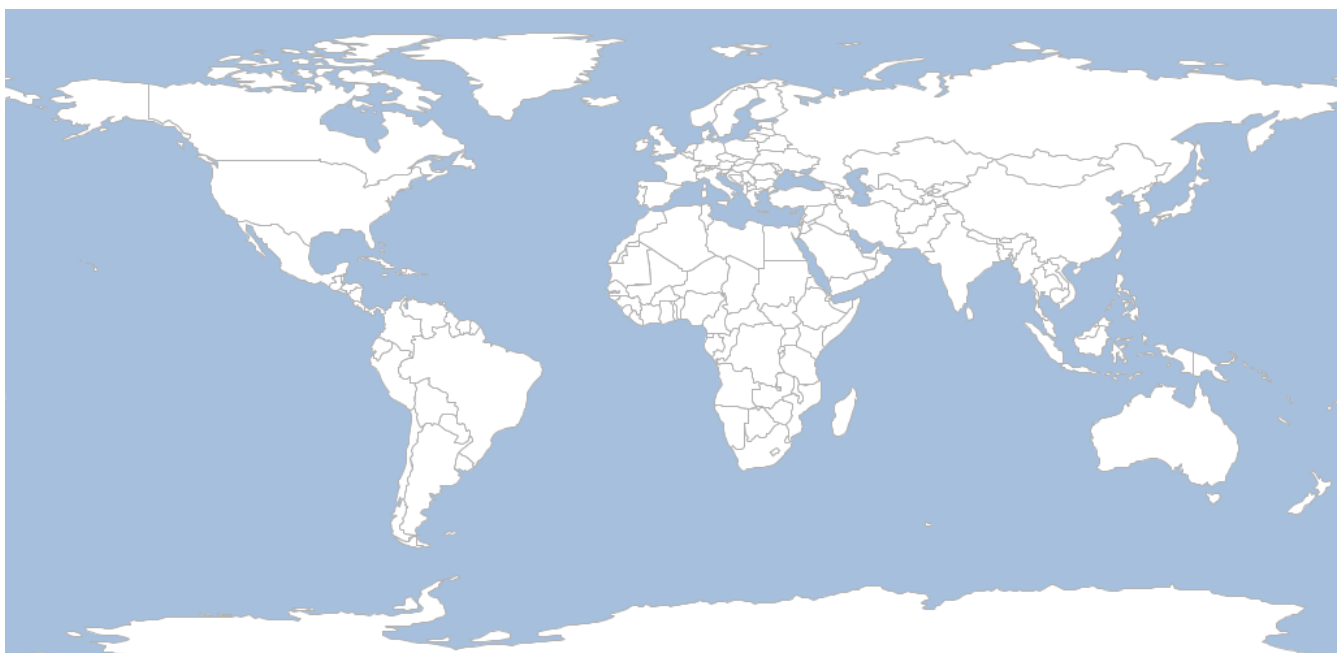
Stitch Raster

Stitch image tiles together to create a Raster.

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

Zoom Level

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

Stitch Vector

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

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

Zoom Level

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

Layers

countries

Schema

Name	Type
geometry	Polygon
TYPE	String
LEVEL	Long
NAME	String

Vector Grid

Create a vector grid of a tile layers cells.

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

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