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## Carto Commands

### Map

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

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

### JSON

Create a cartographic map from a JSON definition file.

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

```

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

```

# Map Title



## XML

Create a cartographic map from an XML definition file.

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

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

```

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

```

# Map Title



## Elements

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

### Map

Draw a map.

JSON

```

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

```



XML

```

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

```



## Overview Map

Draw a overview map.

JSON

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





## XML

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

```

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

```



## Text

Draw text.

JSON

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

## Map Text

### XML

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

## Map Text

### Rectangle

Draw a rectangle.

### JSON

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



### XML

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



### North Arrow

Draw a north arrow.

JSON

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



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



## Legend

Draw a legend.

JSON

```

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

```



## Legend



## XML

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



```

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

```



### Legend



### Date

Draw a date.

JSON

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

01/22/2022

## XML

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

01/22/2022

## Scale Text

Draw scale text.

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



Scale: 1:376644894

```

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

```



Scale :1:298177207

### Scale Bar

Draw scale bar.

JSON

```

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

```



XML

```

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

```



## Line

Draw a line.

JSON

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



XML

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



---

## Grid

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

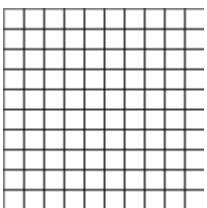
JSON

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



XML

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



## Paragraph

Draw paragraph.

## JSON

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

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

## XML

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

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

## Image

Draw an image.

JSON

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



XML

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



## Table

Draw a table of data.

JSON

```

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

```

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

XML

```

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

```

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