

GIS mit der Kommandozeile

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meggsimum - Büro für Geoinformatik

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- meggsimum.de
- Dienstleistungen im Bereich GIS, Webmapping & GDI
- Maßgeschneiderte WebGIS-Lösungen
- Softwarekonzepte und Softwareentwicklung
- Geodaten
- Beratung und Schulung

Warum?



Warum?

- reproduzierbar
- leichtgewichtig
- zeitlos

GDAL/OGR



fiona (OGR) & rasterio (GDAL)

- Wrapper für GDAL/OGR
- Python
- einfache Bedienung

fiona

Das Äquivalent zu **OGR**

fiona

Formate

- CSV
- Shapefile
- GeoPackage
- GPX
- GeoJSON

fiona

Usage: fio [OPTIONS] COMMAND [ARGS]...

Fiona command line interface.

Options:

-v, --verbose	Increase verbosity.
-q, --quiet	Decrease verbosity.
--aws-profile TEXT	Select a profile from the AWS
credentials file	
--aws-no-sign-requests	Make requests anonymously
--aws-requester-pays	Requester pays data transfer costs
--version	Show the version and exit.
--gdal-version	Show the version and exit.
--python-version	Show the version and exit.
--help	Show this message and exit.

fio info

Informationen über Vektordaten

```
fio info chapters.json
```

```
{  
  "driver": "GeoJSON",  
  "schema": {  
    "properties": {  
      "location": "str",  
      "title": "str",  
      "twitter": "str",  
      "website": "str",  
      "meetup": "str",  
      "comingSoon": "str",  
      "organizers": "str",  
      "moreInfo": "str",  
      "github": "str",  
      "facebook": "str"  
    },  
  },  
}
```

fio info

```
fio info --count shp/countries.shp
```

```
# 177
```

```
fio info --bounds shp/countries.shp
```

```
# -180.0 -90.0 180.000000000000006 83.645130000000001
```

```
fio info --crs chapters.json
```

```
# EPSG:4326
```

rasterio

Äquivalent zu GDAL

```
Usage: rio [OPTIONS] COMMAND [ARGS]...
```

```
Rasterio command line interface.
```

```
Options:
```

<code>-v, --verbose</code>	Increase verbosity.
<code>-q, --quiet</code>	Decrease verbosity.
<code>--aws-profile TEXT</code>	Select a profile from the AWS

```
credent
```

<code>--aws-no-sign-requests</code>	Make requests anonymously
<code>--aws-requester-pays</code>	Requester pays data transfer costs
<code>--version</code>	Show the version and exit.

```
--gdal-version
```

```
Terms of Use
```

rio info

```
rio info europe.tif
```

```
{  
  "bounds": [  
    -19.1,  
    28.733333333000004,  
    45.866666667,  
    76.3  
  ],  
  "colorinterp": [  
    "red",  
    "green",  
    "blue"  
  ],  
  "count": 3,  
  "crs": "EPSG:4326",  
  "descriptions": [  

```

rio bounds

```
rio bounds europe.tif
```

```
{  
  "bbox": [  
    -19.1,  
    28.733333333000004,  
    45.866666667,  
    76.300000000000001  
  ],  
  "geometry": {  
    "coordinates": [  
      [  
        -19.1,  
        28.733333333000004  
      ],  
      [  

```

rio overview

```
rio overview europe.tif --build auto
```

```
rio overview --ls europe.tif
```

Overview factors:

Band 1: [2, 4, 8] (method: 'nearest')

Band 2: [2, 4, 8] (method: 'nearest')

Band 3: [2, 4, 8] (method: 'nearest')

JavaScript basiert

- mapshaper
- turf
- geojsonio
- osmtogeojson
- ...

Mapshaper

Formate:

- GeoJSON
- CSV
- Shapefile
- ...

Mapshaper

Usage: mapshaper - [options] ...

I/O commands

-i	input one or more files
-o	output edited content

Editing commands

-affine	transform coordinates by shifting, scaling and rotating
-classify	apply sequential or categorical classification
-clean	fixes geometry issues, such as polygon overlaps and gaps
-clip	use a polygon layer to clip another layer
-colorizer	define a function to convert data values

Mapshaper

```
mapshaper chapters.json -info
```

```
[info]
```

```
=====
```

```
Layer:      chapters
```

```
-----
```

```
Type:       point
```

```
Records:    114
```

```
Bounds:
```

```
-149.9, -43.53137589928477, 172.63572692871094, 69.682778
```

```
CRS:        +proj=longlat +datum=WGS84
```

```
Source:     chapters.json
```

```
Attribute data
```

```
-----+-----
```

```
Field      | First value
```

```
-----+-----
```

Mapshaper

Umwandlung Format

```
mapshaper chapters.json -o chapters.shp
```

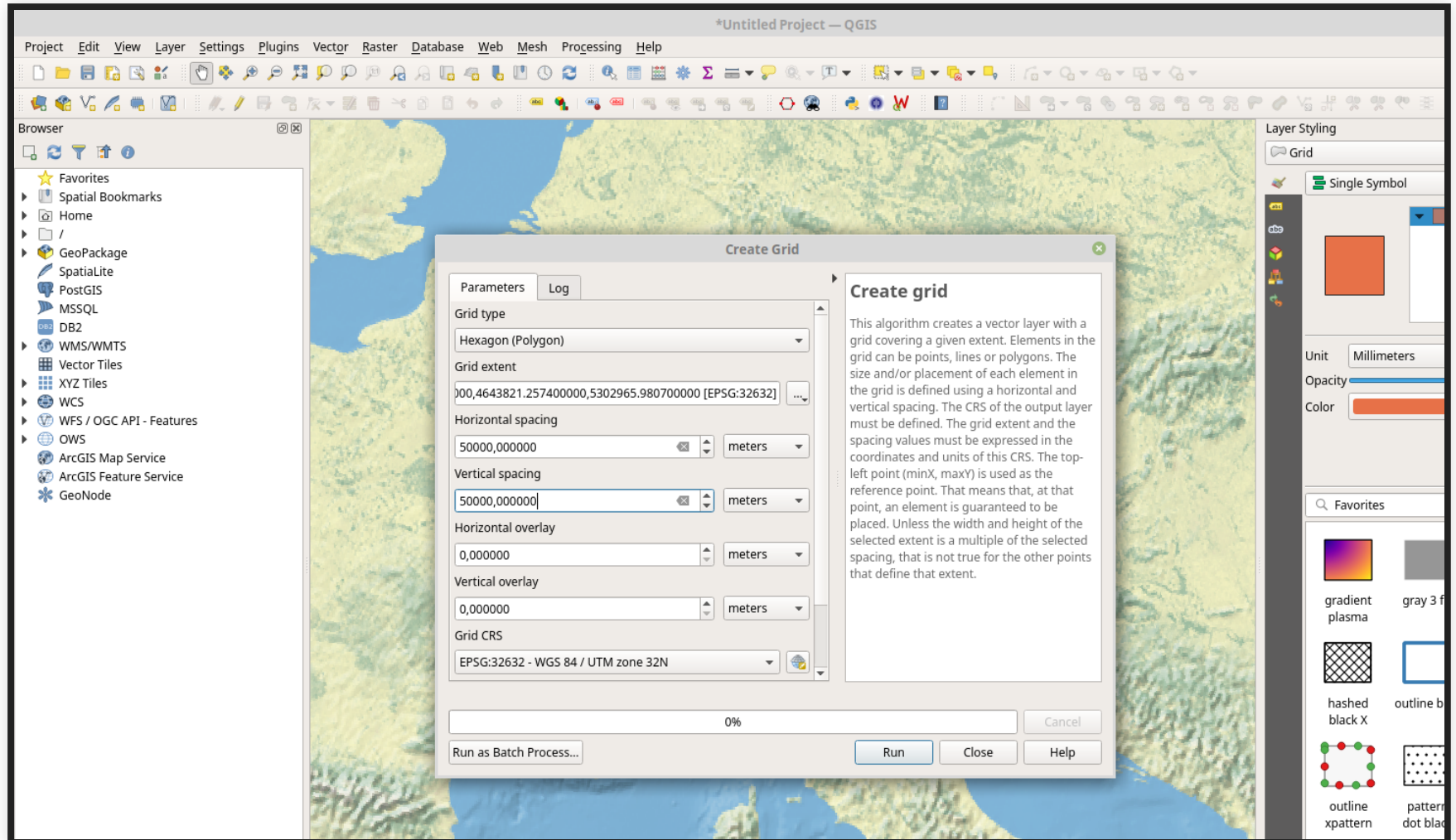
Mapshaper

- Braucht nur JavaScript
- kein GDAL/OGR nötig

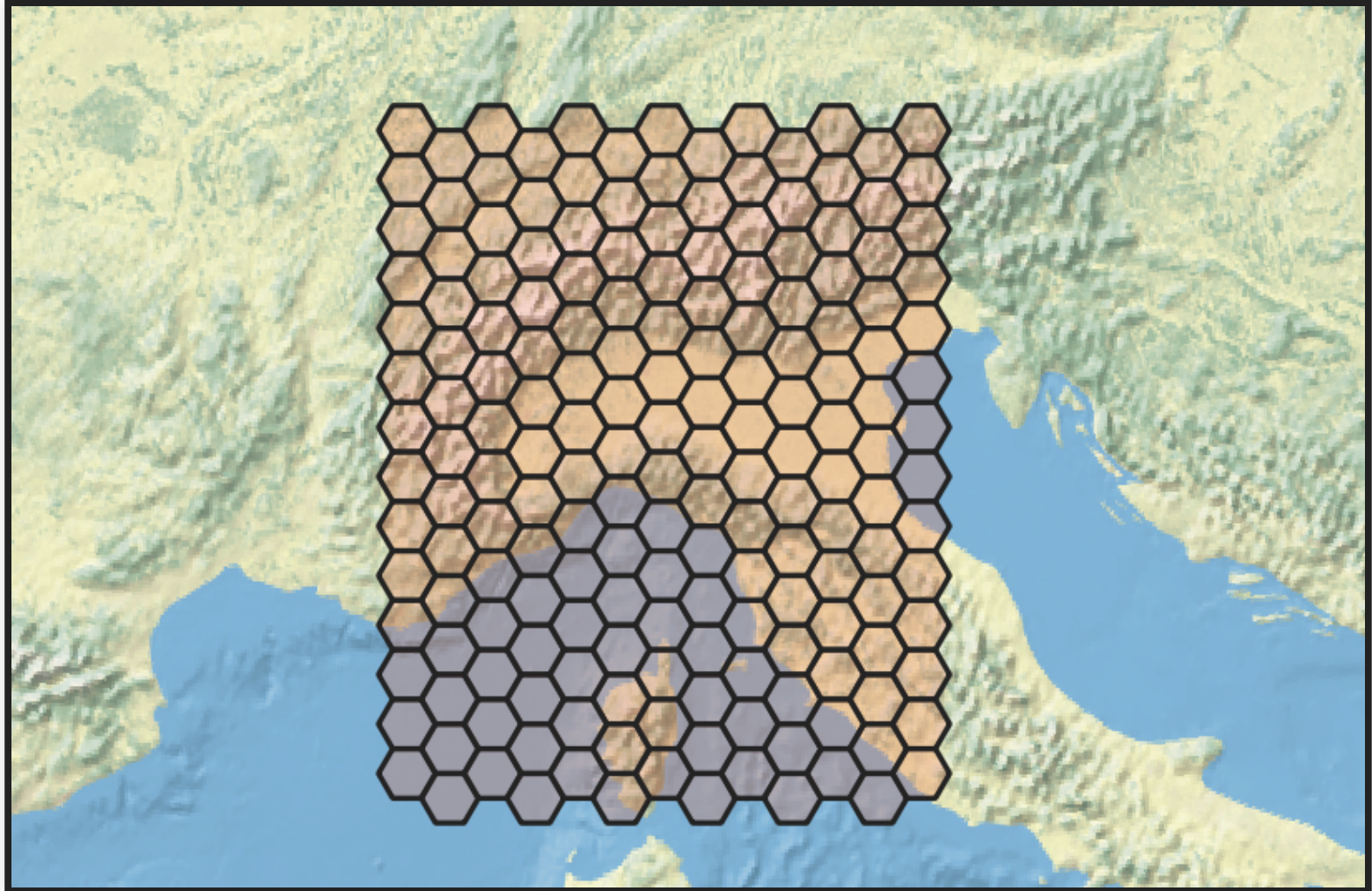
Desktop GIS Automatisieren

- QGIS - `qgis_process`
- GRASS GIS
- SAGA GIS

qgis_process



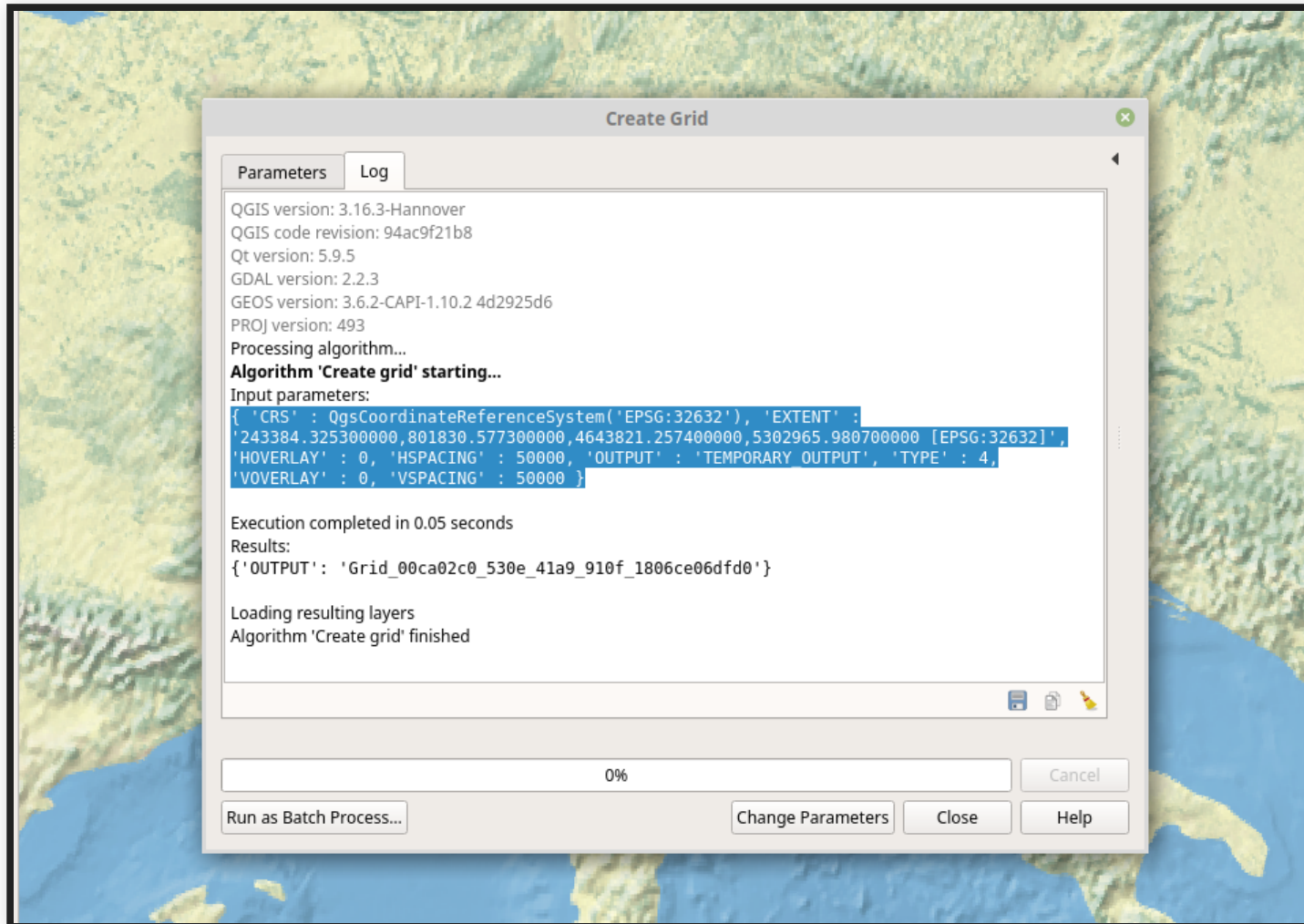
qgis_process



qgis_process

```
qgis_process run native:creategrid \  
--  
EXTENT='243384.325300000,801830.577300000,4643821.257400000,53  
[EPSG:32632]' \  
--TYPE=4 \  
--HSPACING=50000 \  
--VSPACING=50000 \  
--CRS='EPSG:32632' \  
--OUTPUT='qgis-hex2.geojson'
```

qgis_process



qgis_process

- geht mit allen Processing-Tools
- auch mit eigenen und Plugins

Schnittstellen (APIs)

- GeoCoding
- Routenplanung

GeoCoding mit Photon

```
curl 'https://photon.komoot.io/api/?q=rapperswil' \  
> rapperswil.geojson
```

```
{  
  "features": [  
    {  
      "geometry": {  
        "coordinates": [  
          8.8245459,  
          47.2269198  
        ],  
        "type": "Point"  
      },  
      "type": "Feature",  
      "properties": {  
        "osm_id": 240062727,  
        "osm_type": "N",  
        "country": "Schweiz/Suisse/Svizzera/Svizra",
```


Weitere Programme

- osmium
- Whitebox Tools
- geostyler
- lastools
- OpenDroneMap
- ...

Links

- Sammlung Programme Kommandozeile
- Blogpost: Commandline Geography
- Talk: Are we going back to commandline GIS?

Impressum

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Lizenz

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