

# WS27: Unleash the power of GRASS GIS 7

Session 2 – GRASS GIS Software installation  
OSGeo-Live  
Intro QGIS-Processing / GRASS GIS

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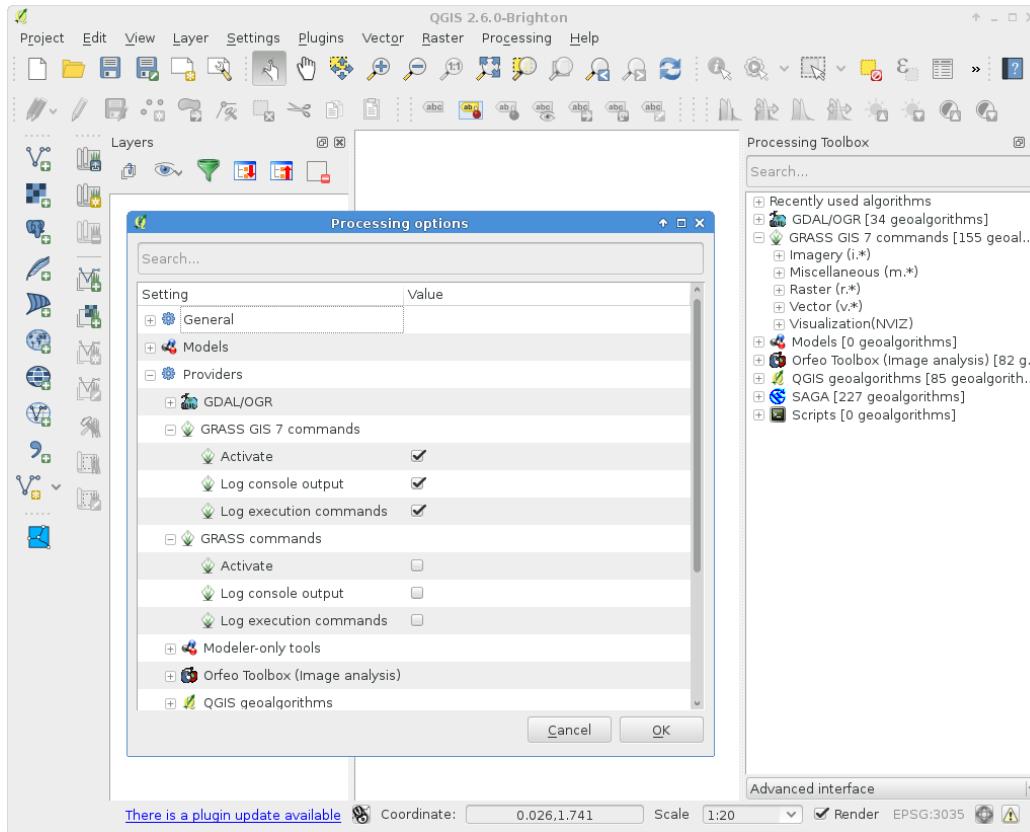
FOSS4G 2016, Bonn

<http://foss4g2016.org/ws27.html>



# Session Objectives

- Hints: Download and installation of GRASS GIS 7
- Using GRASS GIS in QGIS through “**Processing**” in the OSGeoLive machine



# Hint – Downloading & installing the software

## GRASS GIS Software:

*Free download for MS Windows, Mac OSX, Linux (and source code):*

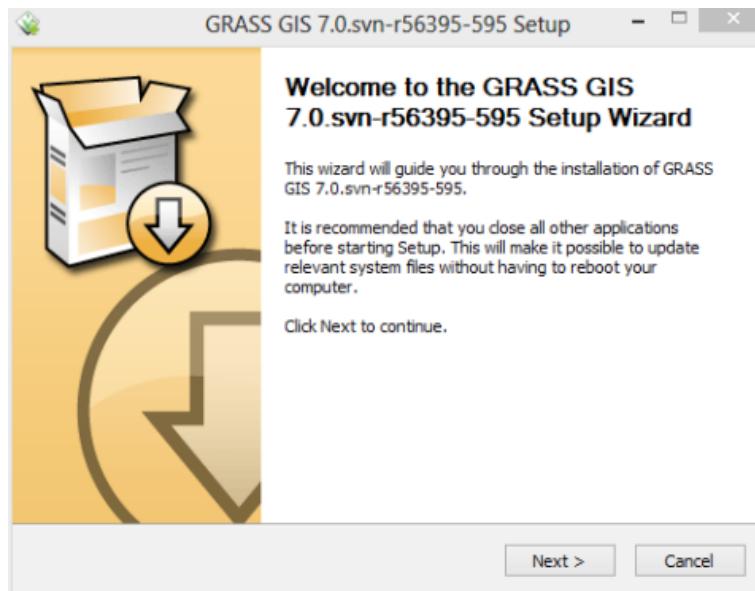
<https://grass.osgeo.org/download/>

→ get GRASS GIS 7 installers for Linux, Mac OSX, MS Windows

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**MS Windows: two options** are available:

**1) WinGRASS stand-alone  
installer**



(“pure” GRASS GIS installation)

**2) OSGeo4W installer**



(offers all OSGeo software stack)

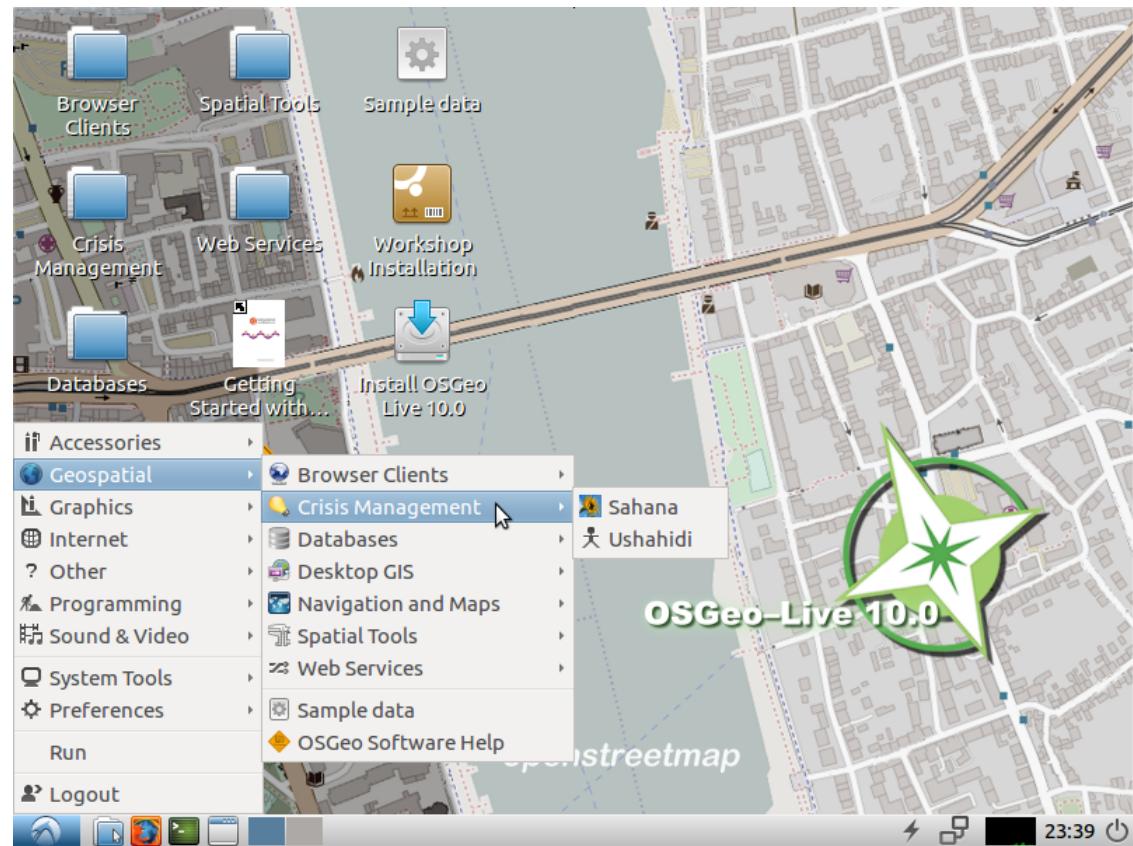
# Preparation – Starting OSGeoLive

OSGeo-Live, ISO available from:  
<http://download.osgeo.org/livedvd>

Copy to **DVD or USB flash drive**, then boot from flash drive,  
or run in a **Virtual Machine** environment.

See: [https://live.osgeo.org/en/quickstart/osgeolive\\_quickstart.html](https://live.osgeo.org/en/quickstart/osgeolive_quickstart.html)

Sit back while the  
system boots up...



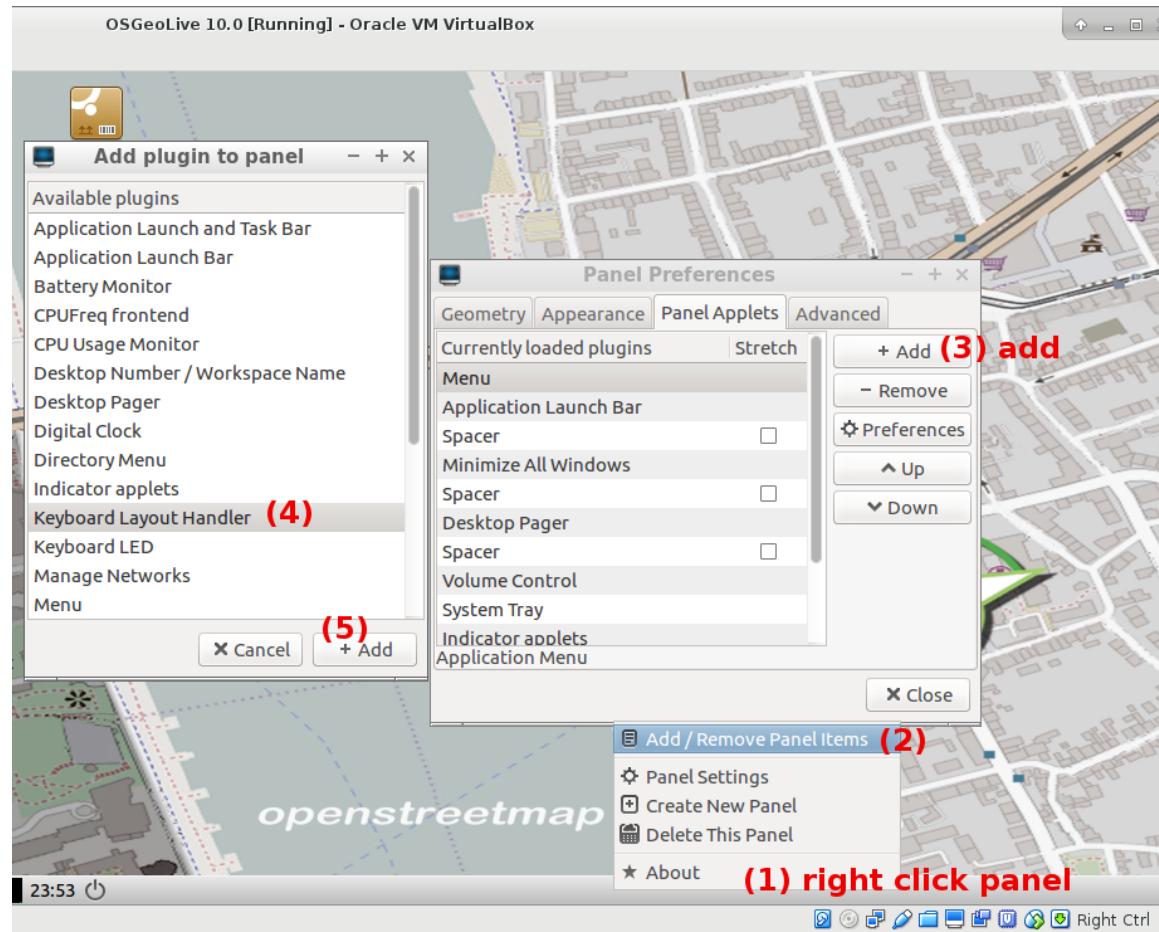
# Preparation – Starting OSGeoLive

Configuration of region settings if needed:

OSGeo-Live Internationalisation Quickstart (language + keyboard layout):

[https://live.osgeo.org/en/quickstart/internationalisation\\_quickstart.html](https://live.osgeo.org/en/quickstart/internationalisation_quickstart.html)

To add a “flag” icon to the lower menu panel, do:



# North Carolina sample data set

Create a “gis\_data” directory for the course data (this or file manager):

```
cd $HOME
```

```
mkdir gis_data
```

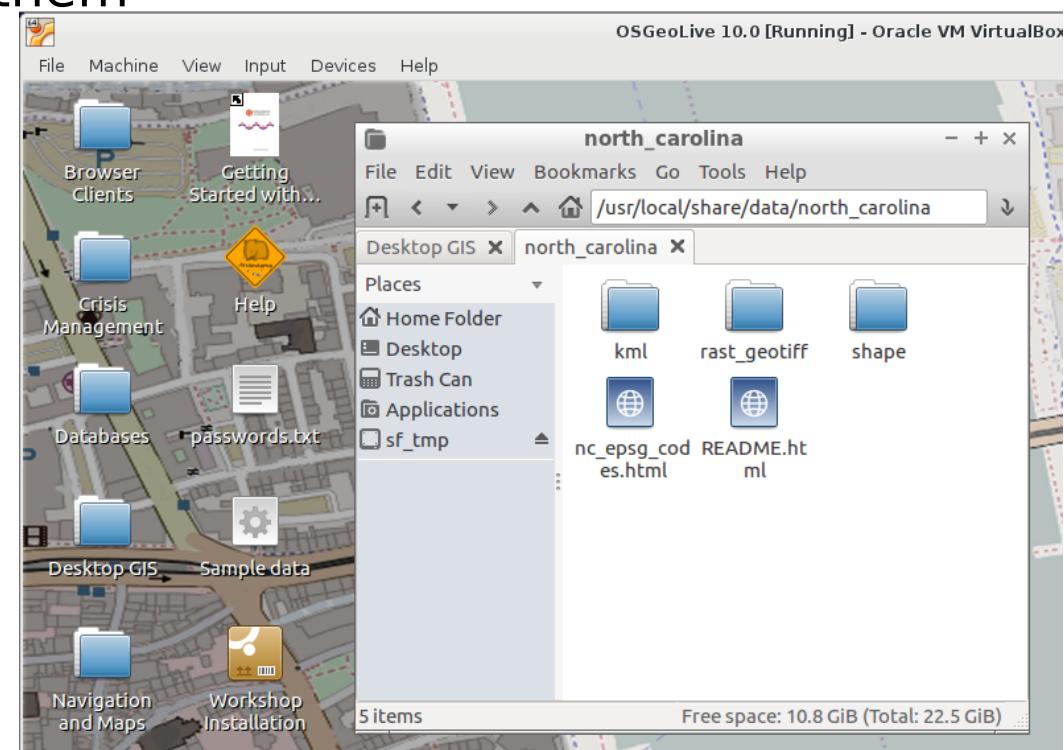
## Data files:

Stored in /usr/local/share/data/north\_carolina/

- zipcodes\_wake.shp (.dbf, .prj, .shx)
- elev\_state\_500m.tif
- elev\_lid792\_1m.tif

Find these **3 datasets** and copy them  
into the new “gis\_data” directory.

The maps are located in  
North Carolina, USA.



# QGIS: “GRASS Toolbox” versus “Processing”

**Two ways of using GRASS GIS from QGIS**

## **GRASS Toolbox**

**Processing** (former SEXTANTE) → GRASS GIS provider

The choice is up to the user. The differences are... (next slide)

# QGIS: “GRASS Toolbox” versus “Processing”

## GRASS Toolbox

- “traditional” GRASS GIS support in QGIS
- Connects directly to GRASS: uses region information and reads/writes GRASS data format directly

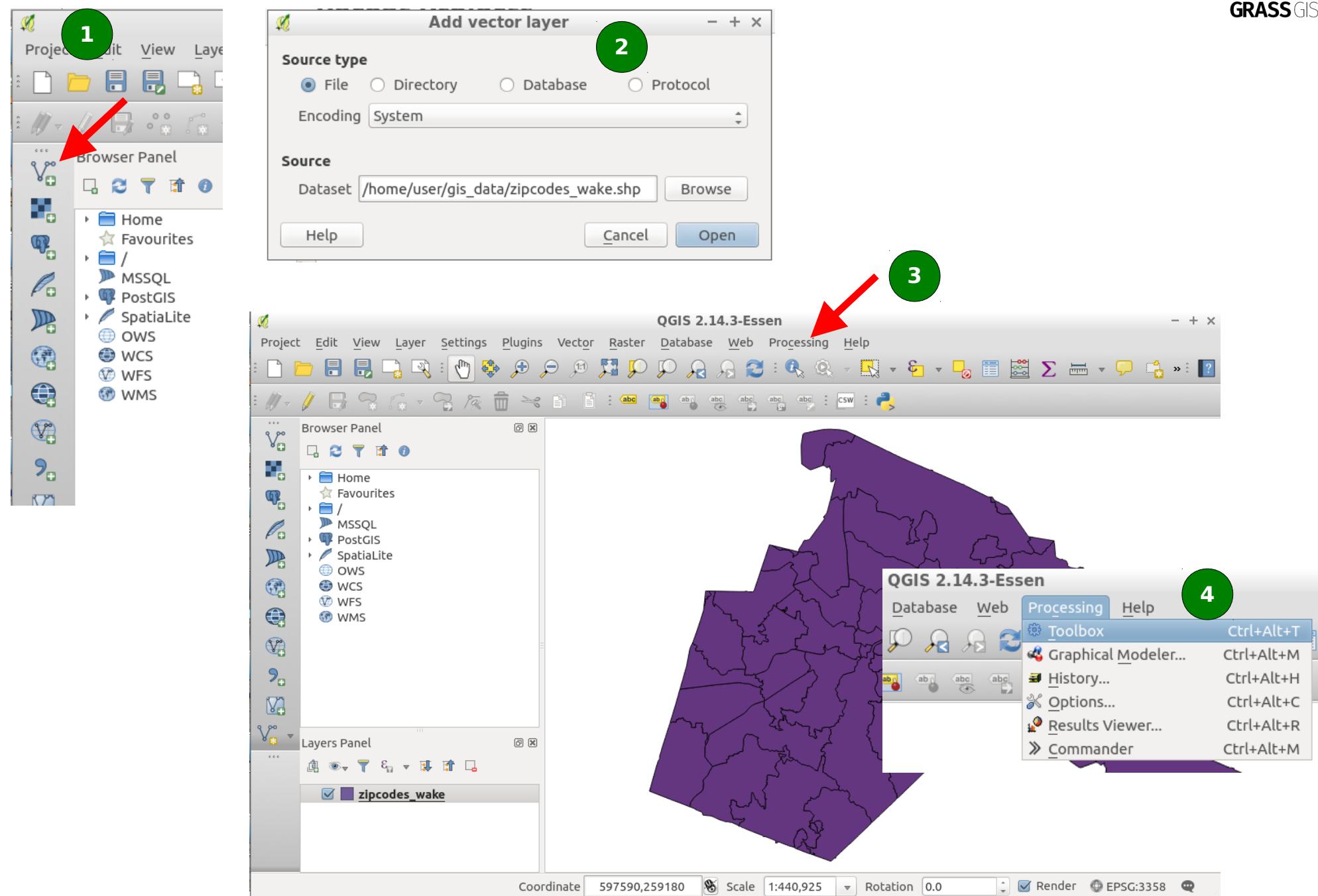
**Processing** (formerly SEXTANTE) → GRASS GIS provider

- “new” GRASS GIS support
- Runs GRASS GIS in a temporary session for each calculation
- ... using GRASS GIS from QGIS (internal batch job mode)

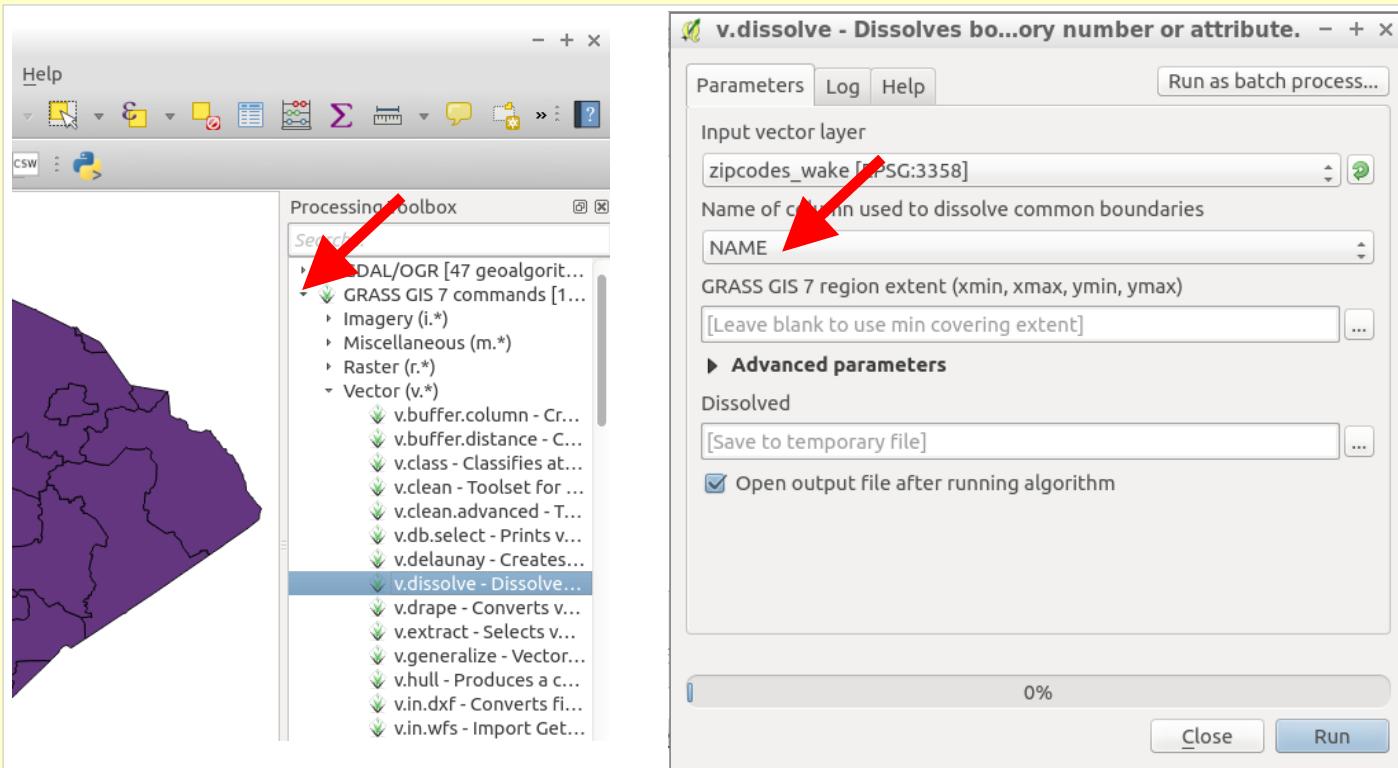
So, which one? We will now use “Processing”!

**Start QGIS** from “Desktop GIS” in OSGeoLive

# QGIS-Processing – Using QGIS and Processing



# QGIS-Processing - Vector exercise: dissolve

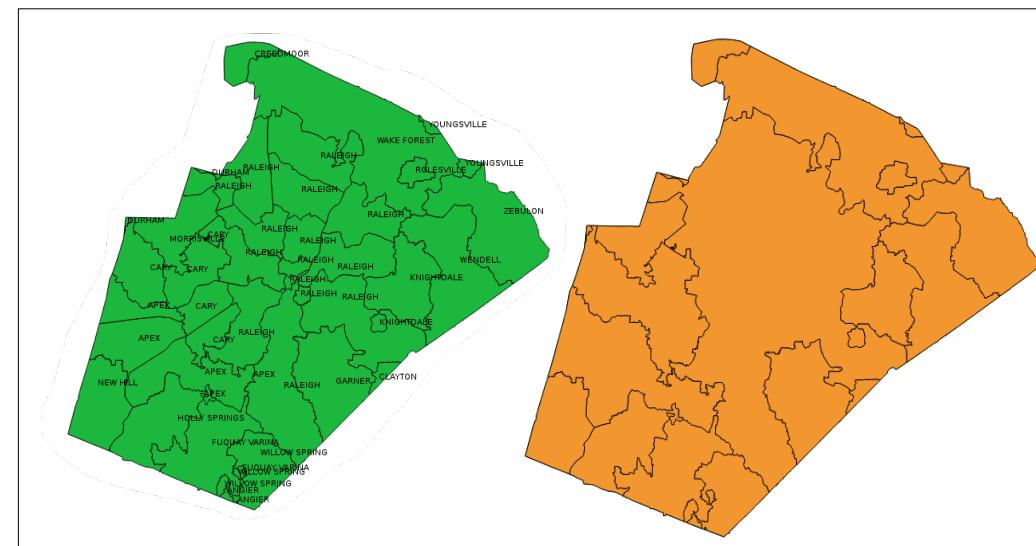


The screenshot shows the QGIS Processing Toolbox interface. On the left, there is a map view with a purple-shaded area representing zip codes. The Processing Toolbox window is open, displaying a list of algorithms under the 'Vector' category. The 'v.dissolve - Dissolve...' algorithm is highlighted with a blue selection bar at the bottom of the list. A red arrow points from the top-left towards this selection bar. Another red arrow points from the top-right towards the 'NAME' field in the 'Parameters' tab of the dialog box.

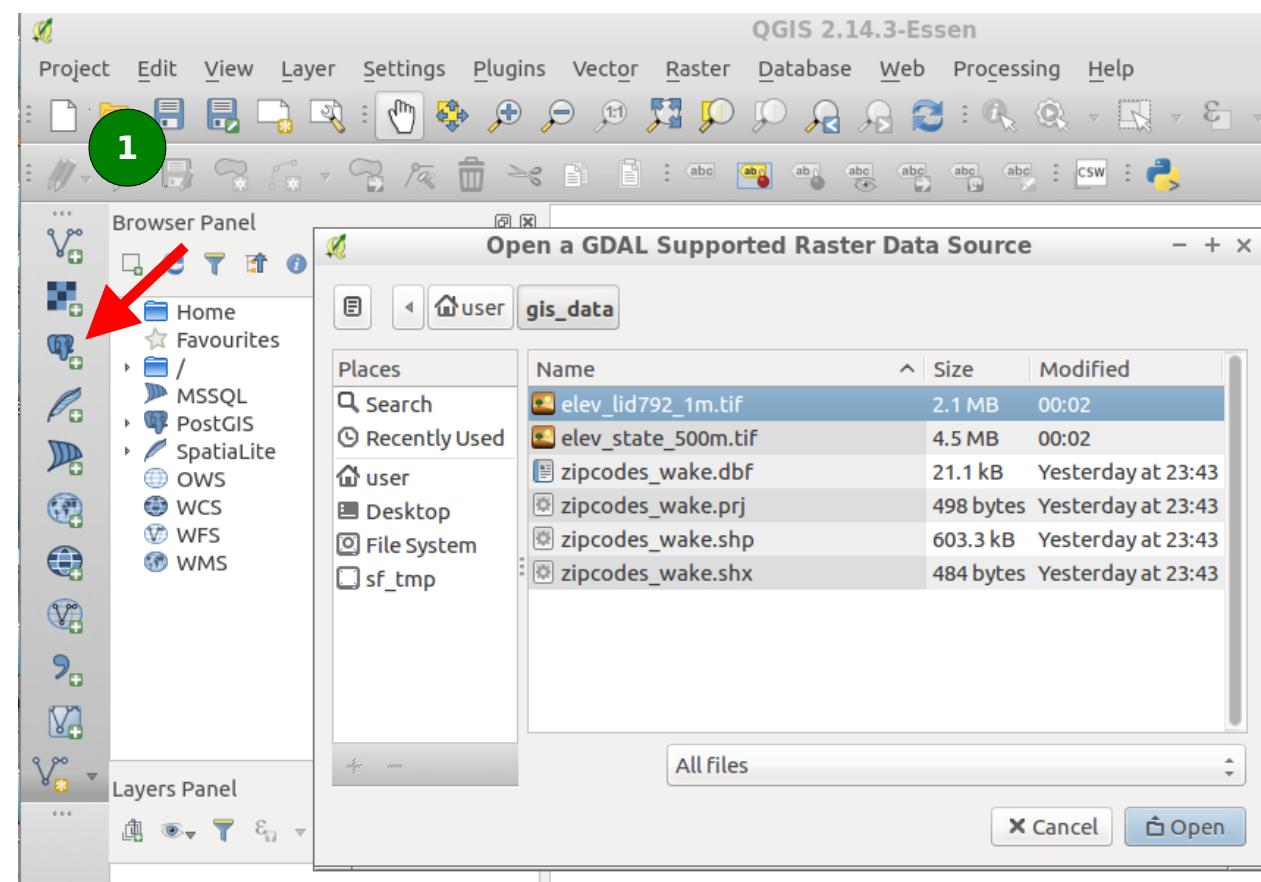
## Dissolving geometry by string column attributes:

- **SHAPE file is preselected according to legend**
- **Select “NAME” column for dissolving**
- **Run**

**Processing** calls GRASS GIS in a temporal session which deliver the result back (here: SHAPE file)



# QGIS: Raster data: loading a 1m LiDAR map



# QGIS: Raster data: styling the elevation map

QGIS 2.14.3-Essen

Project Edit View Layer Settings Plugins Vector Raster Database Web Processing Help

Browser Panel

- General
- Style
- Transparency
- Pyramids
- Histogram
- Metadata

Layer 2\_1m | Style

Band render

- Multiband color
- Paletted
- Singleband gray
- Singleband pseudocolor**

Render type

Band Band 1 (Gray) ▾

Color interpolation Linear ▾

Generate new color map

Spectral ▾ Edit Invert

Mode Continuous ▾ Classes 5 ▾

Min 107.17 Max 130.834

Classify

Min / max origin:  
Estimated cumulative cut of full extent.

Load min/max values

Cumulative count cut 2.0 - 98.0 %

Min / max

Mean +/-

Help Style ▾

Apply Cancel OK

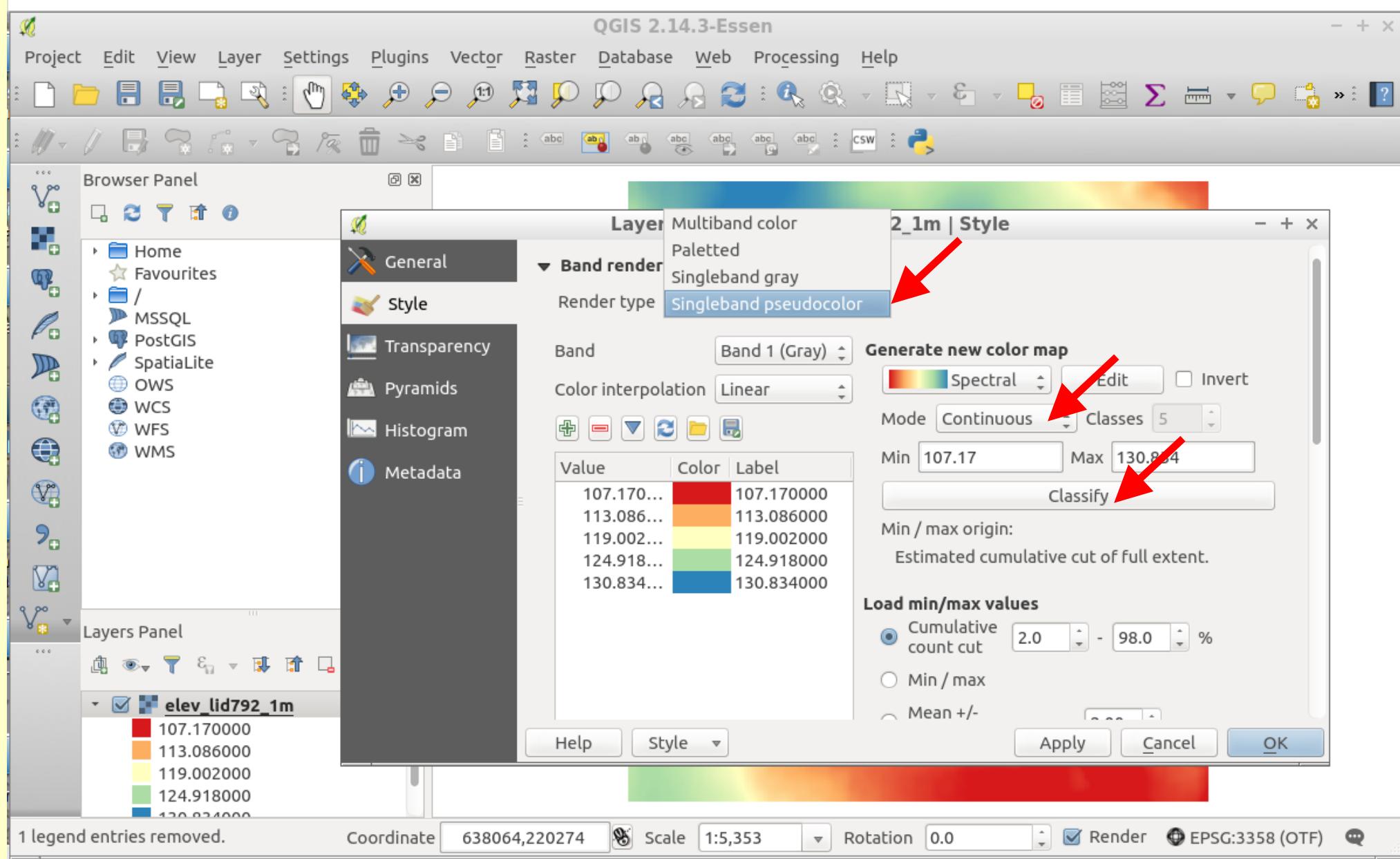
Layers Panel

elev\_lid792\_1m

Value	Color	Label
107.170000	Red	107.170000
113.086000	Orange	113.086000
119.002000	Yellow	119.002000
124.918000	Green	124.918000
130.834000	Blue	130.834000

Coordinate 638064,220274 Scale 1:5,353 Rotation 0.0 Render EPSG:3358 (OTF)

1 legend entries removed.



# QGIS: Raster data: hillshading

Please try yourself...

QGIS 2.14.3-Essen

Project Edit View Layer Settings Plugins Vector Raster Database Web Processing Help

Browser Panel

- Home
- Favourites
- /
- MSSQL
- PostGIS
- SpatiaLite
- OWS
- WCS
- WFS
- WMS

Layers Panel

- Output shaded relief layer
- elev\_lid792\_1m

Coordinate 638284,220637 Scale 1:5,669 Rotation 0.0 Render EPSG:3358 (OTF)

Processing Toolbox

Search...

- r.out.ppm - Converts a raster la...
- r.out.vrml - Export a raster layer...
- r.param.scale - Extracts terrain ...
- r.patch - Creates a composite ra...
- r.plane - Creates raster plane la...
- r.profile - Outputs the raster lay...
- r.quant - Produces the quantiza...
- r.quantile - Compute quantiles ...
- r.random - Creates a raster lay...
- r.random.cells - Generates rand...
- r.random.raster - Create rando...
- r.reclass - Creates a new map la...
- r.reclass.area.greater - Reclassi...
- r.reclass.area.lesser - Reclassifie...
- r.recode - Recodes categorical r...
- r.regression.line - Calculates lin...
- r.relief - Creates shaded relief fr...**
- r.relief.scaling - Creates shaded ...
- r.report - Reports statistics for r...
- r.resamp.interp - Resamples ras...
- r.resamp.rst - Reinterpolates usi...
- r.resamp.stats - Resamples rast...
- r.resample - GRASS raster map l...
- r.rescale - Rescales the range of...
- r.rescale.eq - Rescales historia...

You can add more algorithms to the toolbox, enable additional providers. [close]

