

Introduction to Open-Source GIS Software with QGIS

Carto 2016 Workshop

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Before we begin...

- Go to <https://goo.gl/6guqv1> to download the data zipfile for this workshop.
- Download and extract the zipfile into a known working directory on your computer.

If you are using a lab computer, download the data to your “My Documents” folder (the path should be something like: C:/Users/mml01.unbdomain/)
- Ensure that you’ve extracted this file (e.g. right click > Extract Here)

Today's Objectives

- Provide you with some experience using open-source GIS (OS GIS) software via QGIS
- Work through some common GIS operations with QGIS
- Consider the merits of OS GIS, and how you might incorporate it into personal use or service models



Today's Outline

- Introduction to open-source GIS software and QGIS
- QGIS: The interface and general functionality
- Working with vector and raster data
- Connecting with other OSGeo tools

Common GIS Software

- Many, MANY types of GIS software
- Different tools for different purposes
 - Full-featured vs. specialized
 - Open-source vs. closed-source
 - Free vs. licensed
 - User-friendly vs. technical
 - Online vs. standard desktop





GDAL - Geospatial Data Abstraction Library



www.gdal.org

SAGA - System for Automated Geoscientific Analyses



saga-gis.org/

GRASS - Geographic Resources Analysis Support System



QGIS - Quantum GIS



qgis.org

www.grass.osgeo.org

GeoTools



GeoTools

www.geotools.org

Quantum GIS (QGIS)



- Free and open-source GIS software
- User-friendly, fully-functional; relatively lightweight
- Product of the Open Source Geospatial Foundation (OSGeo)
- Built in C++; uses python for scripting and plugins
- Version 1.0 released in 2009
- Current version: 2.14.3; Long-term release (LTR): 2.8.9
 - 2.14 becomes LTR in early July, 2016

Why consider QGIS (instead of ArcGIS)?

- It's free and open-source
 - No licensing fees or license management
 - Barrierless introduction to GIS
- It runs on Linux, Unix, Mac OSX, Windows and Android
- It's integrated with OSGeo tools: GRASS, SAGA, GDAL, etc.
- Did I mention it's free?
- User-friendly → good for the uninitiated
- Rapid development cycle



Why consider ArcGIS (instead of QGIS)?

- ArcGIS is ***the*** industry-standard
- Many ArcGIS toolboxes are unmatched
- Large user-base and extensive support documentation
- Some QGIS functions can be ‘buggy’*
- May be free (or very inexpensive) for students, staff, faculty

*this is not saying that Arc doesn't have some bugs, too.



Helpful QGIS Tutorials and Resources

- QGIS Tutorials: <http://www.qgistutorials.com/en/>
- QGIS Quicktips with Klas Karlsson: <https://www.youtube.com/channel/UCxs7cfMwzgGZhtUuwhny4-Q>
- QGIS Training Guide: https://docs.qgis.org/2.8/en/docs/training_manual/