GST 101 - Introduction to Geospatial Technology

Lecture 0 – Getting to Know FOSS and FOSS4G

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What is Open Source Software?

The term refers to how the software is licensed.

Open source software licensed so that:

- Everyone can use, copy, study, and change the software in any way
- The source code is available everyone

Users are encouraged to voluntarily improve the design and functionality of the software

Proprietary Software

This term also refers to how the software is licensed.

Proprietary software is software licensed so that:

- The source code is not available
- Use is restricted in some way:
  - limiting the number of computers it can be installed on
  - limiting the time period the software can be used
  - limiting the amount of data that can be processed
  - limiting the number of features available
  - limiting the fields of endeavor: educational, non-commercial…

Related Terms

- Open Source Software (OSS)?
- Free Software (FS)?
- FOSS?

What does it all mean?

Free Software (FS)

The free software movement was conceived in 1983 by Richard Stallman to give the benefit of "***software freedom***" to computer users.

Stallman founded the Free Software Foundation in 1985 to provide the organizational structure to advance his Free Software ideas.

CopyLeft - says that anyone who redistributes the software, with or without changes, must pass along the freedom to further copy and change it. CopyLeft guarantees that every user has freedom.

Free Software License

“Free" is intended to refer to the freedom to copy and re-use the software, rather than the financial cost of the software.

The Four Kinds of Freedom (for the users of the software)

1) The freedom to run the program, for any purpose.

* 2) The freedom to study how the program works, and adapt it to your needs.

3) The freedom to redistribute copies so you can help your neighbor.

4) The freedom to improve the program, and release your improvements to the public, so that the whole community benefits.

* Requires access to the source code

Open Source Software (OSS)

Coined by **Eric Raymond** in 1998 who thought the Term “Free” would be misunderstood.

The source code and certain other rights normally reserved for copyright holders are provided under a software license that meets the Open Source Definition or that is in the public domain.

This license permits users to use, change, and improve the software, and to redistribute it in modified or unmodified forms.

Open source software vs. free software

Open Source Software and Free Software are different terms for software which comes with certain rights, or freedoms, for the user.

They describe two approaches and philosophies towards free software.

They are often described as:

Open Source → a practical development methodology

Free Software → a social movement

Most Open Source software is “free” and

most Free Software is “open source”

FOSS

Many now just use the term:

FOSS = Free and Open Source Software

The term Open Source is much more prevalent in popular culture than FOSS, but software users are beginning to use the FOSS term more frequently.

Other Related Terms

FreeWare – software available at no monetary cost. It is considered neither Free nor Open Source software.

Source Available/Shared Source - source is available for viewing, but it may not legally be modified or redistributed. Has been used by Microsoft.

Closed Source – Most proprietary software.

FOSS Software Projects

FOSS projects are established to solve a particular problem.

Developers then program the software.

FOSS development is not purely altruistic.

Developers often earn a living:

- Via selling services provided with the software
- Being paid by a third party to develop the software
- Being paid via crowd funding
- Training others in the use of the software
- Selling repackaged software with support agreements

Governance of FOSS Projects

Can be led by one individual – Centralized

or

Can be led by a Steering Committee – Democracy

Steering Committees may include:

- Individuals – developers or users
- Companies
- Organizations

Development Community

In the Open Source development community, any skilled individual can contribute to projects in many ways:

- Writing code – development
- Testing features & reporting bugs
- Writing user manuals
- Creating training materials

FOSS vs. Proprietary

Is one better than the other?

The answer is no. FOSS software must be evaluated in the same ways as proprietary software.

The most important question is: “Will it meet my needs?”

To most of us, the availability of source code isn’t the most important factor.

However, the Freedom to use the software is often very attractive.

The lack of licensing fees may also be important.

Software Examples: FOSS vs. Proprietary

FOSS	Proprietary
Operating Systems	
Linux	Windows / Mac
Mobile Operating Systems	
Android	iOS / Windows Mobile
Office Software	
Open Office	Microsoft Office
Image Manipulation	
GIMP	Adobe Photoshop
Vector Drawing	
Inkscape	Adobe Illustrator
Web Browsers	
Chrome/FireFox	Internet Explorer
Web Servers	
Apache	IIS
Databases	
mySQL	Oracle
PostgreSQL	SQL Server
Statistics	
R	S

GIS Software: FOSS vs. Proprietary

FOSS	Proprietary
GeoSpatial Desktop	
QGIS	ArcGIS
MapWindow	MapInfo
gvSIG	Manifold GIS
GRASS GIS	IDRISI
uDig	Intergraph
Field GIS	
BeeGIS / Geopaparazzi	ArcPAD
Remote Sensing	
OSSIM	ERDAS
GRASS GIS	ENVI
Web Mapping	
MapServer	ArcIMS
MapGuide	MapGuide
GeoServer	ArcGIS Server
Spatial Databases	
SpatiaLite	ESRI File Geodatabase
PostGIS	ArcSDE

FOSS4G

- Free and open source software for geospatial.
- An acronym used for all geospatial FOSS software.
- In this course you will be using the leading FOSS4G desktop software: QGIS.

Why Use Open Source for GIS?

- It’s free to try.
- GIS is a tool – why not have a full toolbox?
- Increase your marketability by learning a new skill set.
- Eliminate licensing fees.
- QGIS will run on multiple operating systems.
- You can have more direct involvement in software development.

The Open Source Geospatial Foundation (OSGeo)

- Non-profit formed in 2006.
- Goal is to support and build the best open source geospatial tools.
- Provides financial, organizational and legal support to the broader Free and Open Source geospatial community.
- Serves as an independent legal entity to which community members can contribute code, funding and other resources. Maintains these contributions for the public benefit.
- Provides a common forum.

http://www.osgeo.org/

QGIS

- An OsGeo Project
- A viewer for common geospatial formats.
- An editor for geospatial data.
- Has many analysis tools.

QGIS

- Available for Windows, Mac, Linux, & Android.
- Easy intuitive interface
- Active Development community:
  - Rapid development (quick bug fixes and new features)
  - Many user created tools
  - Active email listserv

FOSS Help Resources

- With proprietary software there is often a dedicated support phone number to call.
- There is a common misconception that FOSS software has poor support
- There is actually very good support.
- However, with FOSS software support comes from the community.

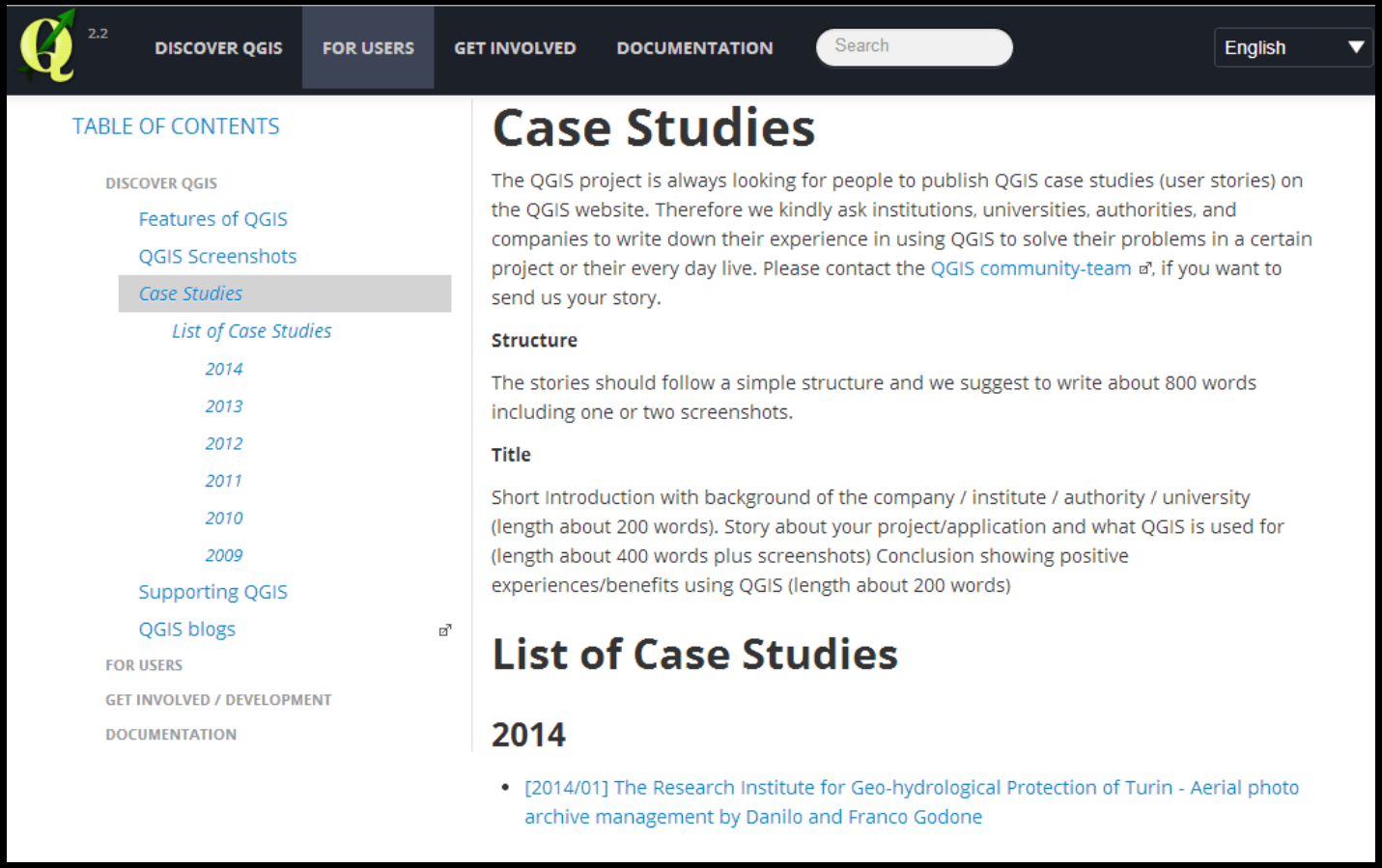
FOSS Help Resources

- QGIS has many help resources:
  - User guide
  - Case studies
  - Planet QGIS
  - Email Listserv
    - Emails usually answered within hours
  - Commercial Support
  - Conferences / User Groups
  - Books
  - Blogs
  - Social Media

Resources – User Guide

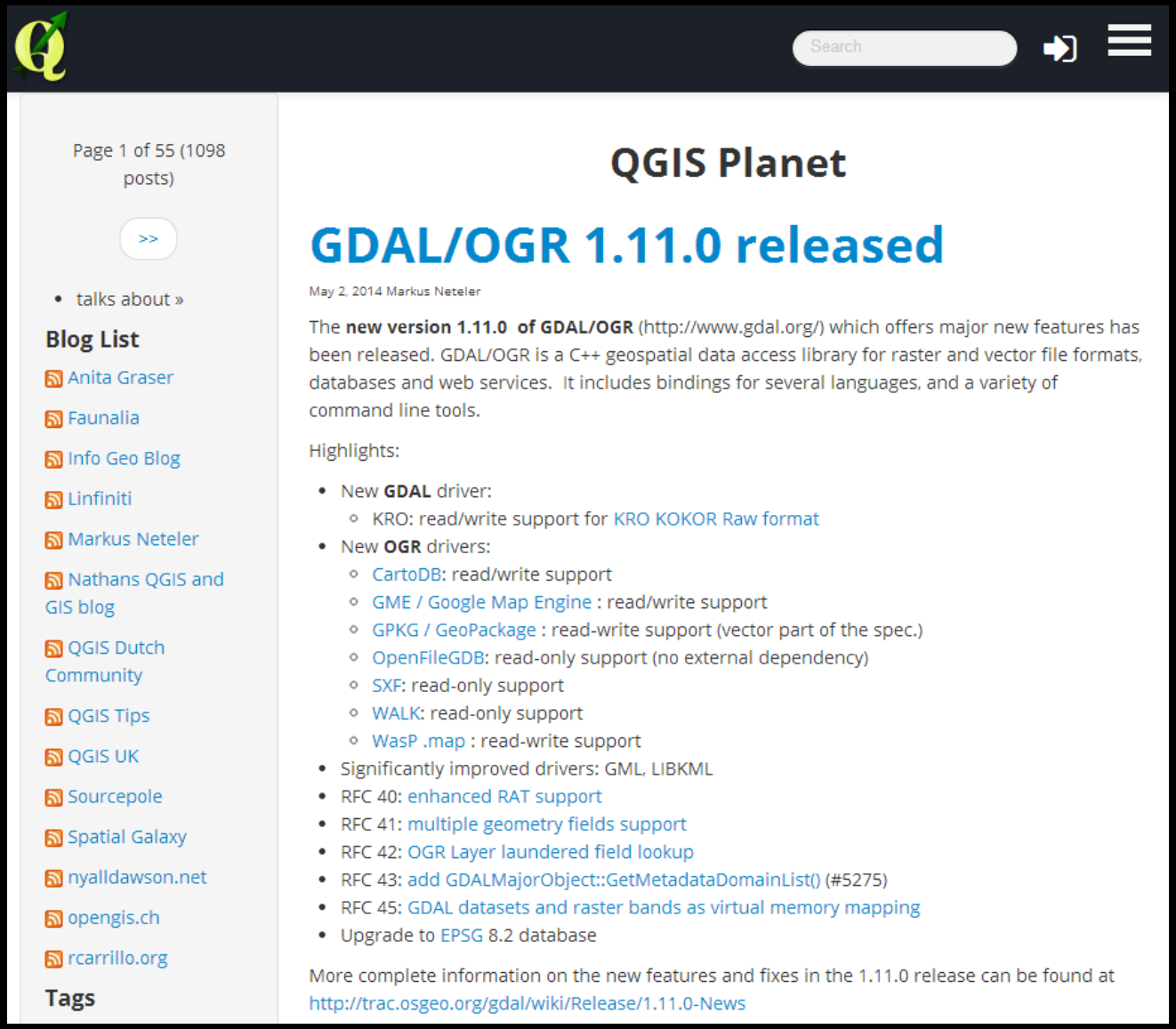
http://www.qgis.org/en/docs/user_manual/index.html

Resources – Case Studies



http://www.qgis.org/en/site/about/case_studies/index.html

Resources – Planet QGIS



The main QGIS blog

Also includes a blogroll of other QGIS related blogs