

Routing plugin for JOSM



Juan G. Jordán Aldasoro
José Vidal Peña



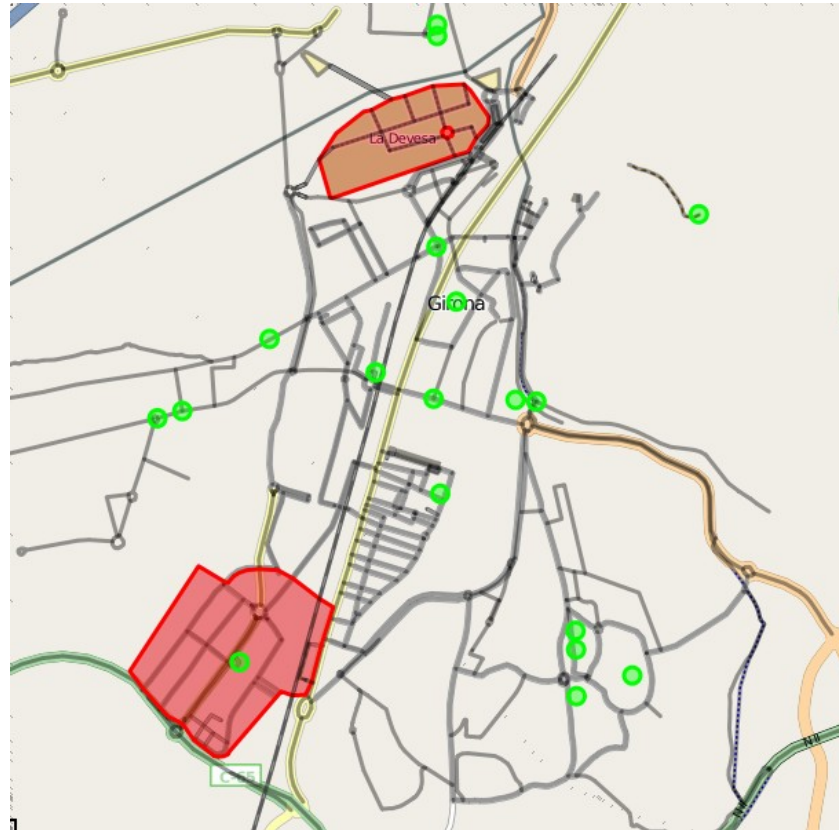
III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



OpenStreetMap

provides free and rich geodata to users



it's a REVOLUTION!!!



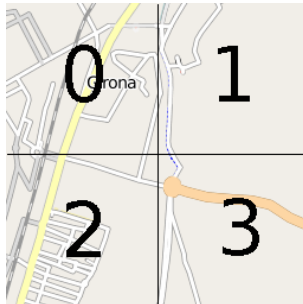
III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



OpenStreetMap

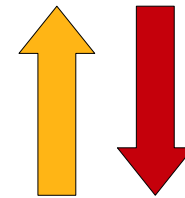
benefits as a developer



tiles



data



APIs



III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



OpenStreetMap

aplications



Use our data in “creative,
productive or unexpected ways”



III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



OpenStreetMap

in our case...



Routing



III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



Doesn't Google provide it?

- Google does not give you access to **THEIR** vectorial data, but
- provides free routing services
 - by car, foot or public transport through their sites Google Maps and Google Transit
 - as a service through the Google Maps API (not for public transport)



III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



So why don't we just use Google?



III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



**And why not?
(if it works for you)
;)**



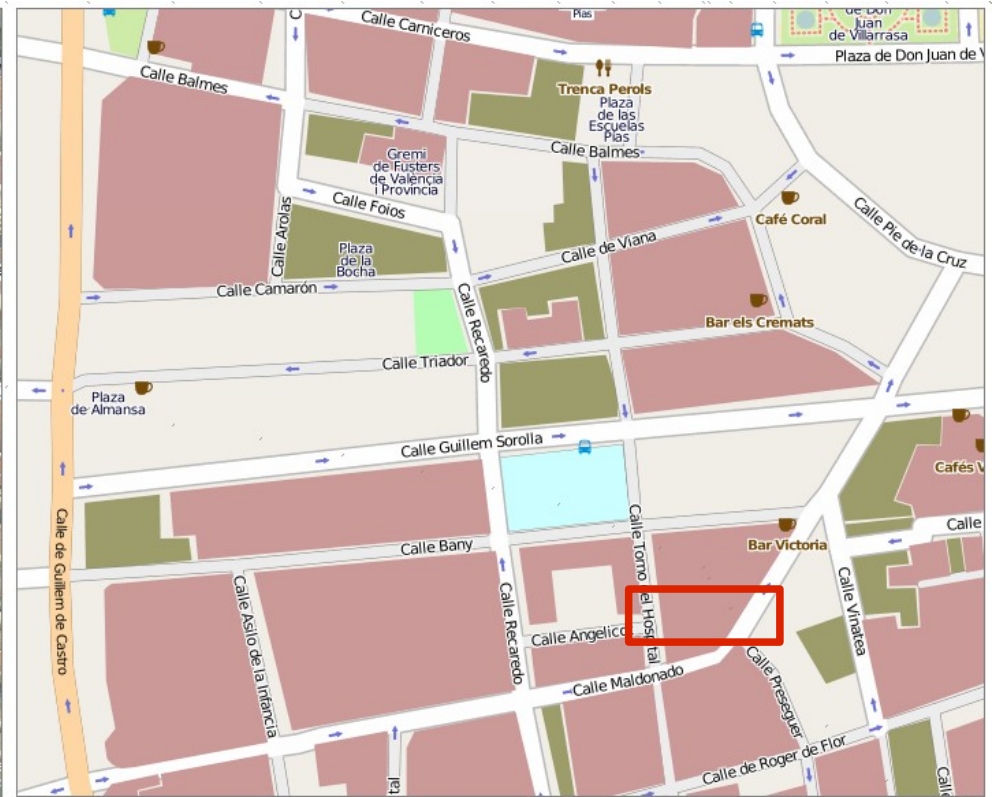
III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



some reasons to use OSM

Google maps are not always up to date



<http://tools.geofabrik.de/mc/>



III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



some reasons to use OSM

experimentation

OpenRouteService.org Routing with user-generated, collaboratively collected free geodata. This service is based on open standards by the Open Geospatial Consortium (OGC). Thanks to [openStreetMap.org](http://openstreetmap.org) - please donate your geographic data to openstreetmap.org!

MAP&ROUTING HELP WIKI NEWS INFO&CONTACT [Searching for hardware sponsors...](#)

Search

Routing

Start

End

[add Viapoint](#) [remove Viapoint](#)

[more options](#)

POI Search for Points of Interest: [Directory Service](#)

Calculates reachable regions in given time: [Accessibility Analysis](#)

1. | 2. Set Minutes | 3. Press

Result Accessibility Analysis

Time: 4 Minutes
Position: -0.3775483 39.4746722

<http://openrouteservice.org/>



III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



some reasons to use OSM

new and creative services

ride THE city
BETA ABOUT RIDE THE CITY RIDE THE CITY BLOG F.A.Q. FEEDBACK

"I want to ride my bicycle. I want to ride it where I like."
— Queen

38° F and fair
A lovely night for a ride.

From: W 51st St, Manhattan
To: E 102nd St, Manhattan

Route type: **Safest route**
Total distance: 4.1 miles
Estimated time: 16-25 minutes

- 1) Start riding northwest from **W 51st St, Manhattan** on **W 51st St**
- 2) Turn right on **10th Ave** and ride about 252 feet
- 3) Turn right on **W 52nd St** and ride about 0.3 miles
- 4) Turn left on **8th Ave** and ride about 0.2 miles
- 5) Continue straight on **8th Ave** and ride about 0.1 miles
- 6) Make a slight right on **Columbus Cir** and ride about 246 feet
- 7) Turn left on **Columbus Cir (sidewalk)** and ride about 155 feet

alt route Find a safer or more direct route for the same trip. Currently on the **Safest route**

reverse Find the best route back or **plan a new route.**

print this route or **link to this route.**

Safest route **GO**

<http://ridethecity.com/>



III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



some reasons to use OSM

because... we're geeks?



III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



Routing engines

- General purpose libraries: Boost Graph Library, JGraphT
- Specific for routing on streetmaps: Graphserver, pgRouting, Fivepoints
- Specific for OSM: Gosmore, Travelingsalesman, pyroutelib, navit, gpsmid, etc.



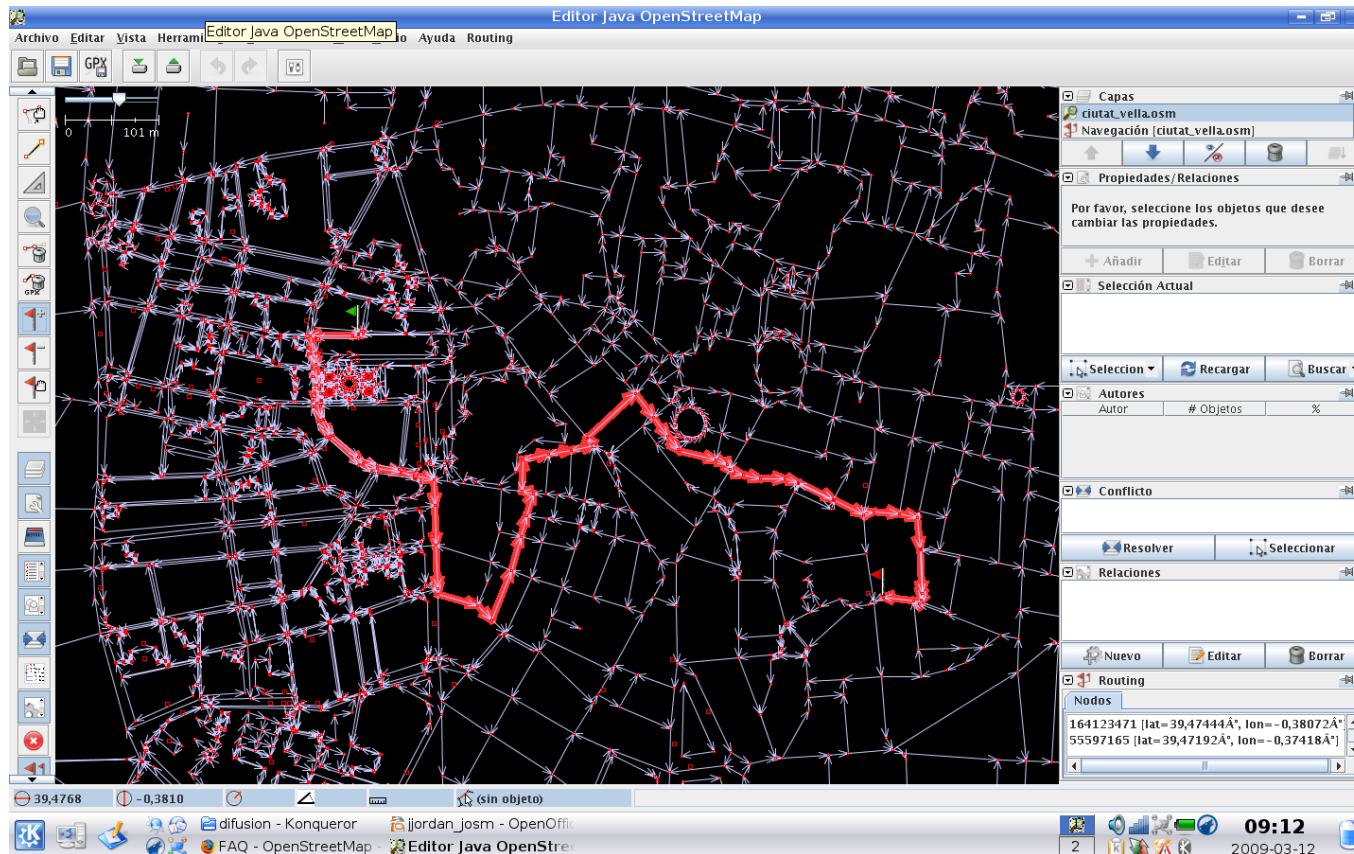
III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



our development

routing plugin for JOSM based on JGraphT



III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



motivation

- Add routing support to the most popular editor
- Add intelligence to edition
- Experimentating with routing algorithms
- Other uses



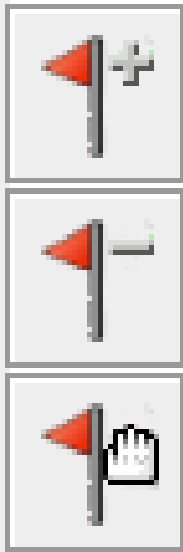
III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



functionality

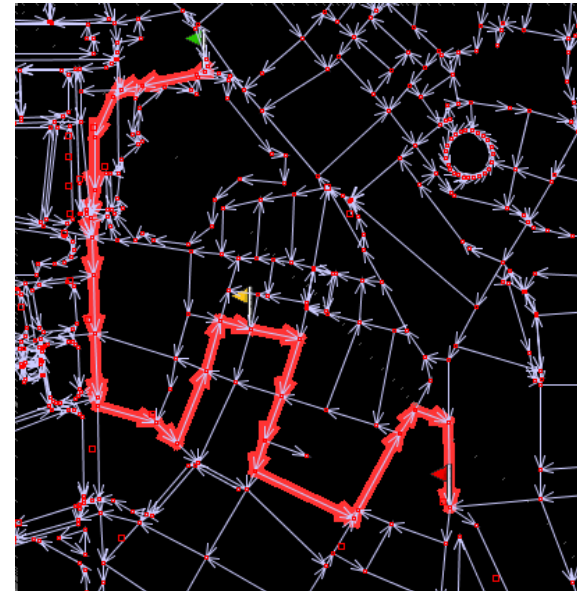
multidestination routing



add route node

remove route node

move route node



III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



functionality

multidestination routing

- reverse route
- clear route



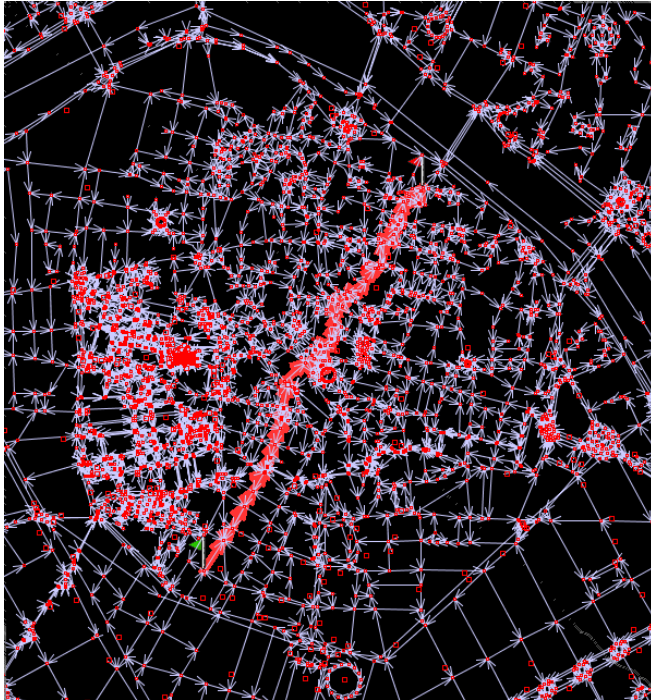
III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España

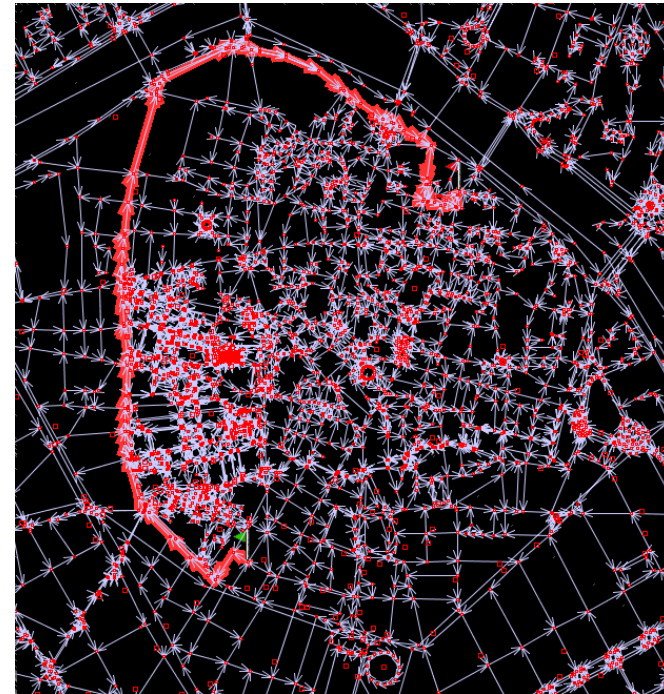


functionality

routing criteria



- shortest



- fastest



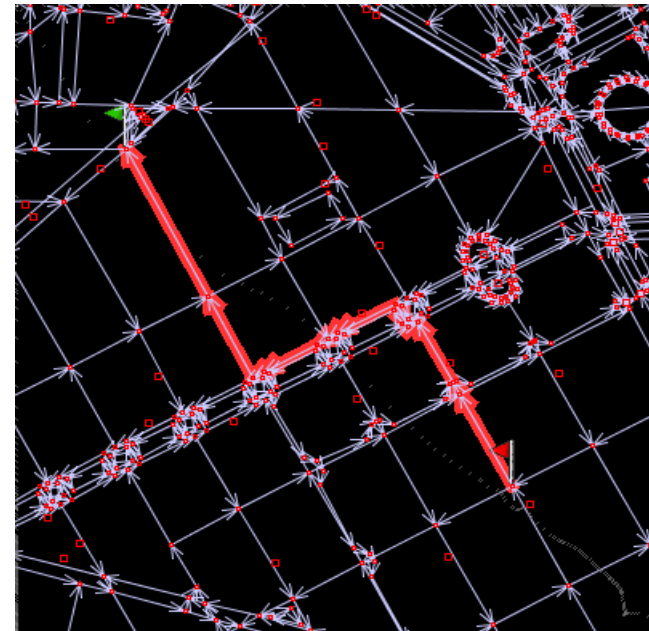
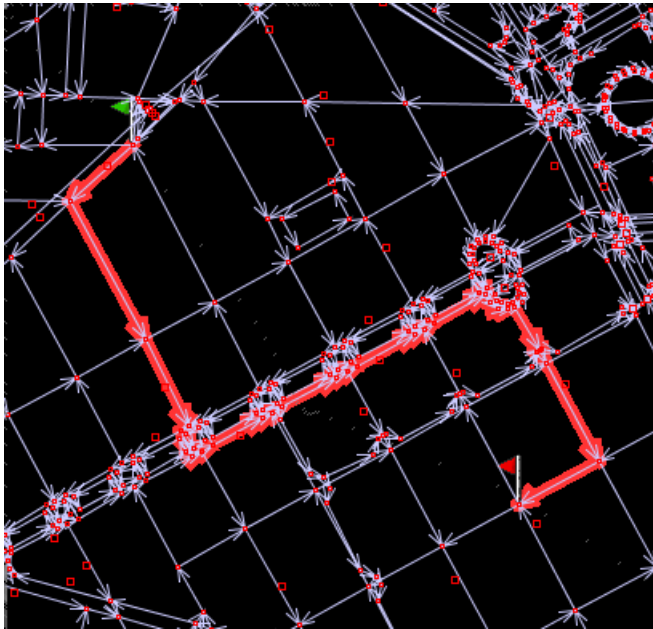
III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



functionality

routing criteria



- ignore oneways



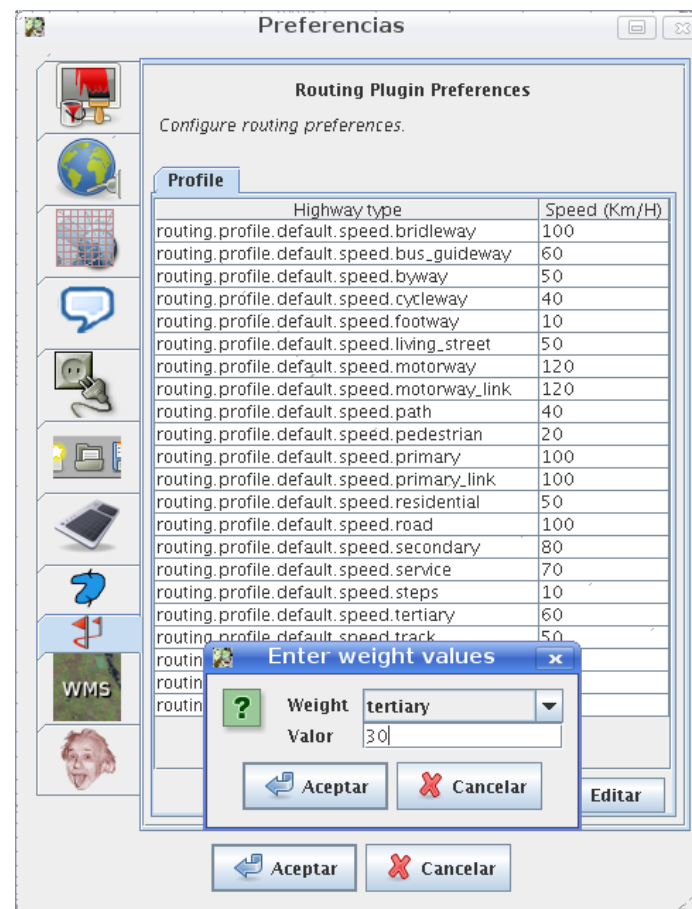
III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



functionality

routing profile settings



III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



functionality

- Combining routing criteria and profile parameters, routes can be computed for
 - car
 - pedestrian
 - bicycle
 - disabled people
 - etc.



III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



installation

- Download from
 - <http://www.grupoinnovant.com/jrtplugin/routing.jar>
- Copy to JOSM plugins folder
 - /home/user/.josm/plugins
 - \${user.home}/Program data/JOSM/plugins



III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



next steps

- Using restrictions
- User creation and management of routing profiles
- Enable using more than one routing layer
- Exporting to GPX
- Generation of driving (or walking) textual directions
- Add new algorithms
 - Traveling salesman
 - Accessibility analysis (shortest path tree)



III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



further information

- Source code will be soon published
- OpenStreetMap wiki:
<http://wiki.openstreetmap.org/index.php?title=JOSM/Plugins/Routing>
- Innovant Blog:
<http://public.grupoinnovant.com/blog>



III Jornadas de SIG Libre

11, 12 y 13 de Marzo de 2009. Girona. España



You are free:

to Share — to copy, distribute and transmit the work



to Remix — to adapt the work

**Under the following conditions:**

Attribution. You must attribute the work in the manner specified by the author or licensor (but not in any way that suggests that they endorse you or your use of the work).



Share Alike. If you alter, transform, or build upon this work, you may distribute the resulting work only under the same, similar or a compatible license.

- ◆ For any reuse or distribution, you must make clear to others the license terms of this work. The best way to do this is with a link to this web page.
- ◆ Any of the above conditions can be waived if you get permission from the copyright holder.
- ◆ Nothing in this license impairs or restricts the author's moral rights.

