QGIS Overview

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The European Commission's science and knowledge service

Joint Research Centre

GIS4Trainees

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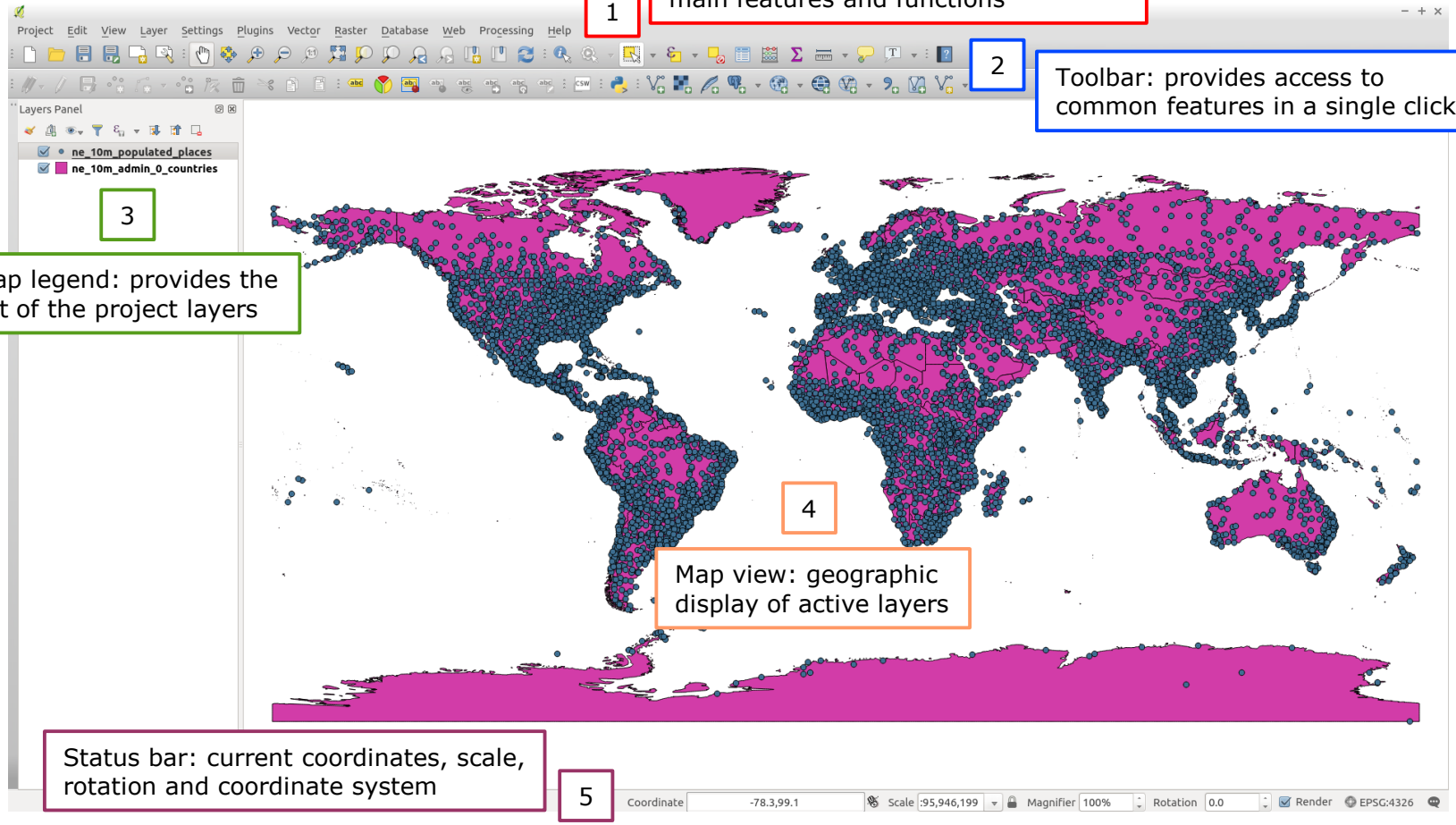
QGIS Intro

- QGIS (formerly Quantum GIS) was created in 2002 as a simple GIS viewer and has then evolved into one of the premier Free and Open Source Software for Geospatial (FOSS4G) packages:
  - latest release (LTR) is 3.4 Madeira.
- QGIS is a project of the Open Source Geospatial Foundation (OSGeo).
- It runs on MS Windows, Linux, Mac, BSD and Android.
- It is licensed under the GNU General Public License (GPL).
- It supports vector, raster and database formats, including ESRI shapefiles, PostgreSQL/PostGIS & Geopackage data, GRASS vectors/rasters, or GeoTiff.
- Users can add customized plugins and GIS-enabled applications using Python or C++. Maps can be compiled for printing using the print composer.

http://www.qgis.org

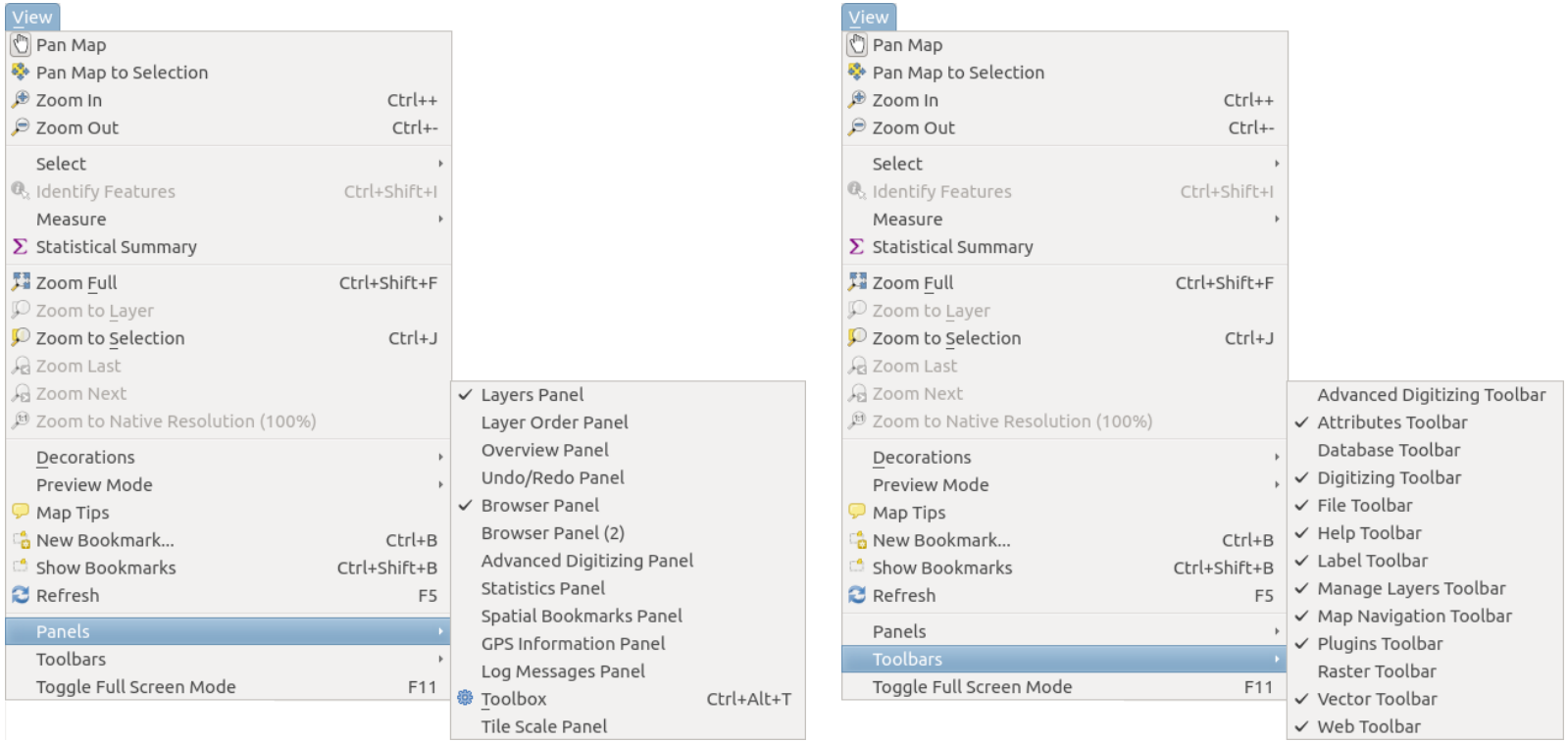
https://www.qgis.org/en/docs

QGIS Interface



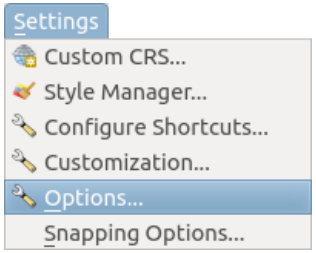
Adding panels and toolbars to the interface

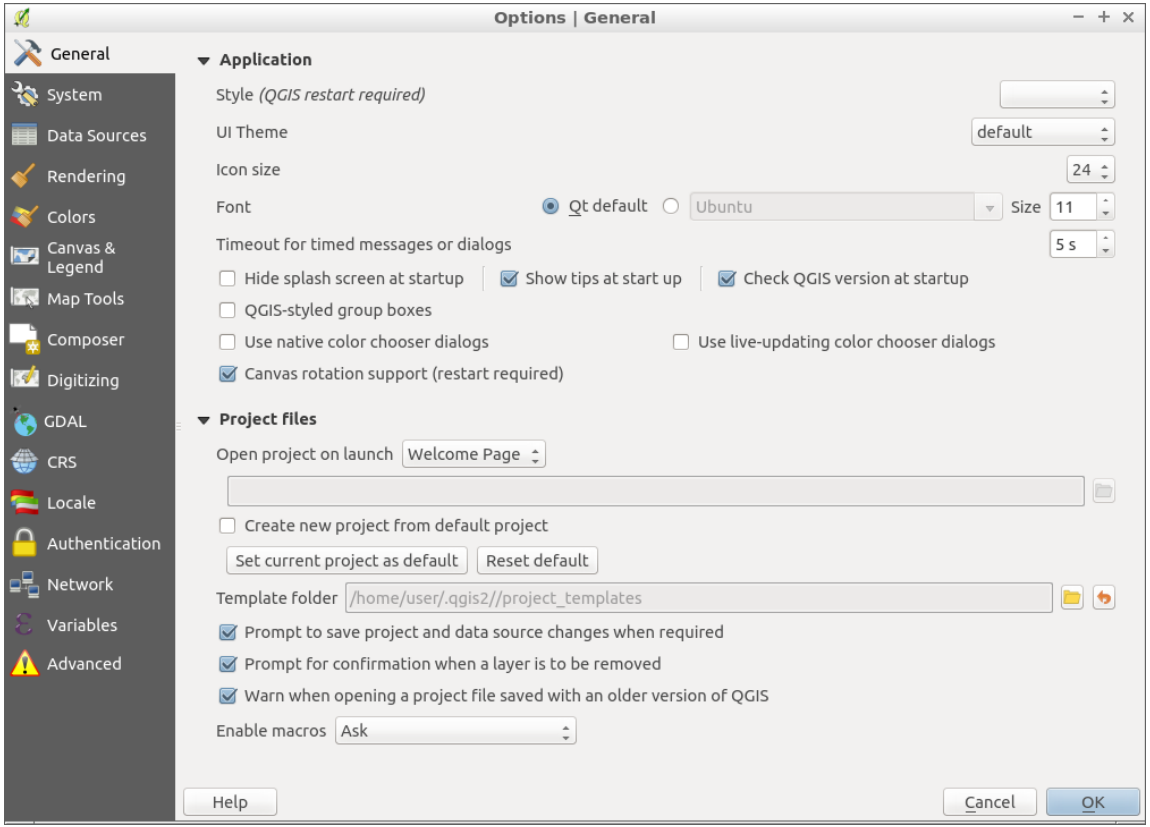
- On the Menu bar select View → Panels or View → Toolbars to add new panels and toolbars.



Configuring QGIS options

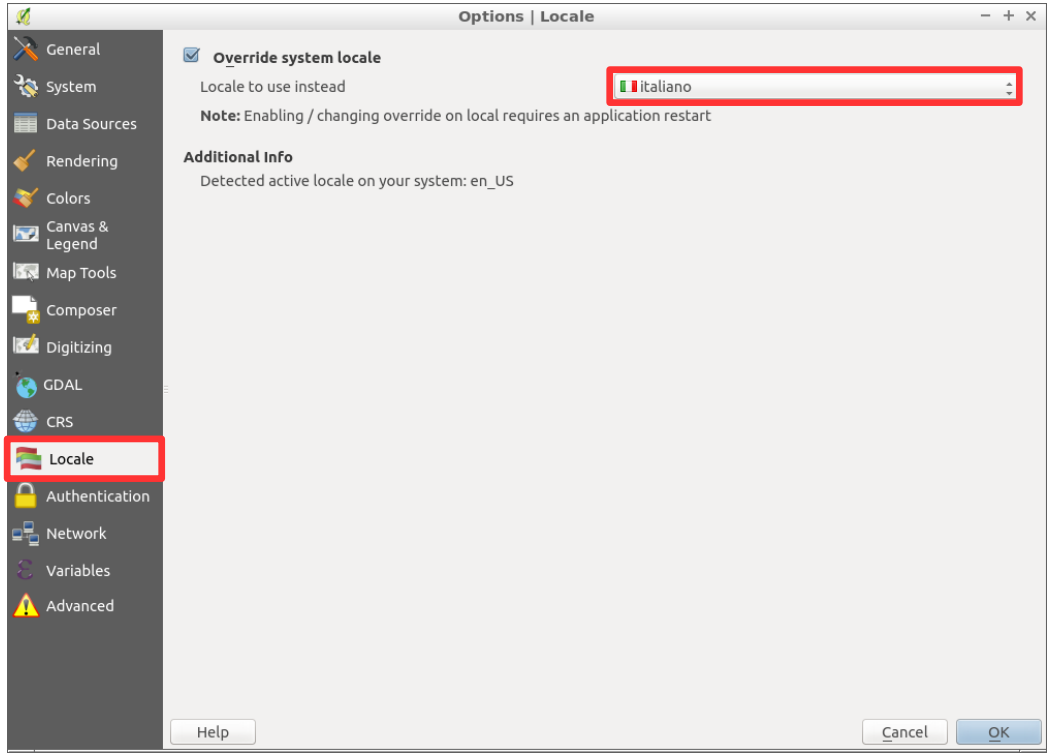
- On the Menu bar select Settings → Options to configure the ways to use QGIS





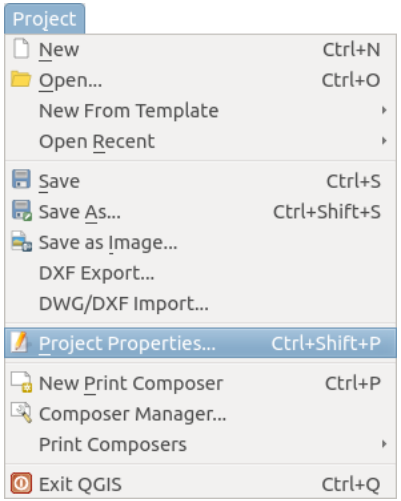
Configuring QGIS options

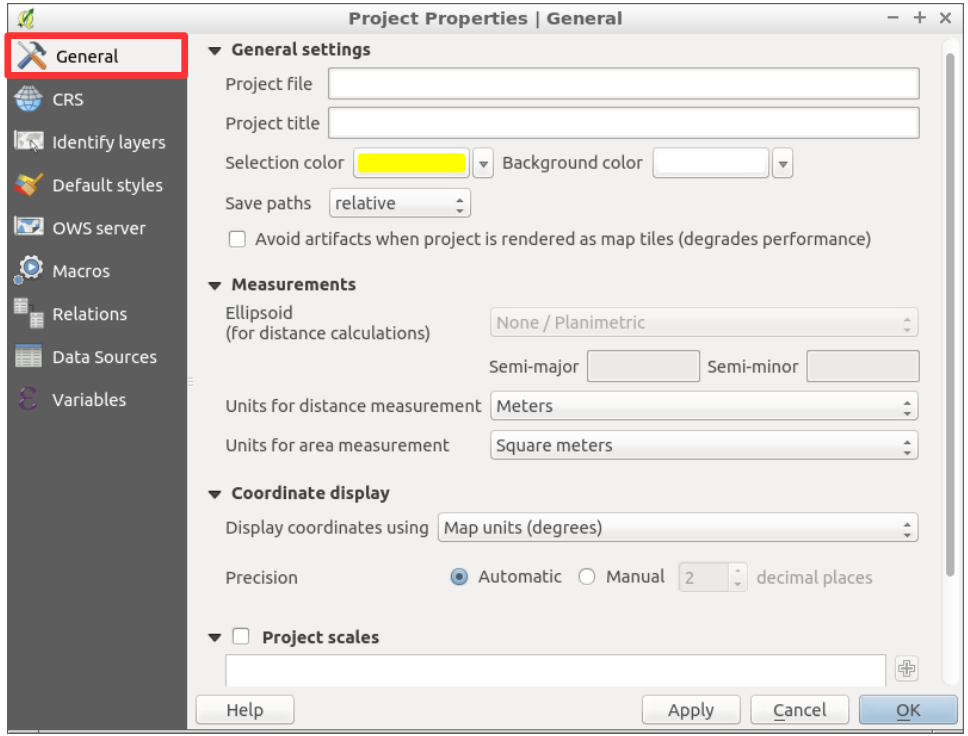
- On the Menu bar select Settings → Options to configure the ways to use QGIS:
  - on the Locale tab, define the language in which you want to use QGIS



Configuring the properties of QGIS

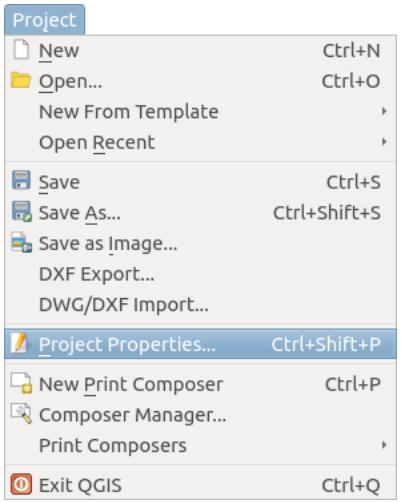
- On the Menu bar select Project → Project Properties:
  - on the General tab, set the properties of your current QGIS project

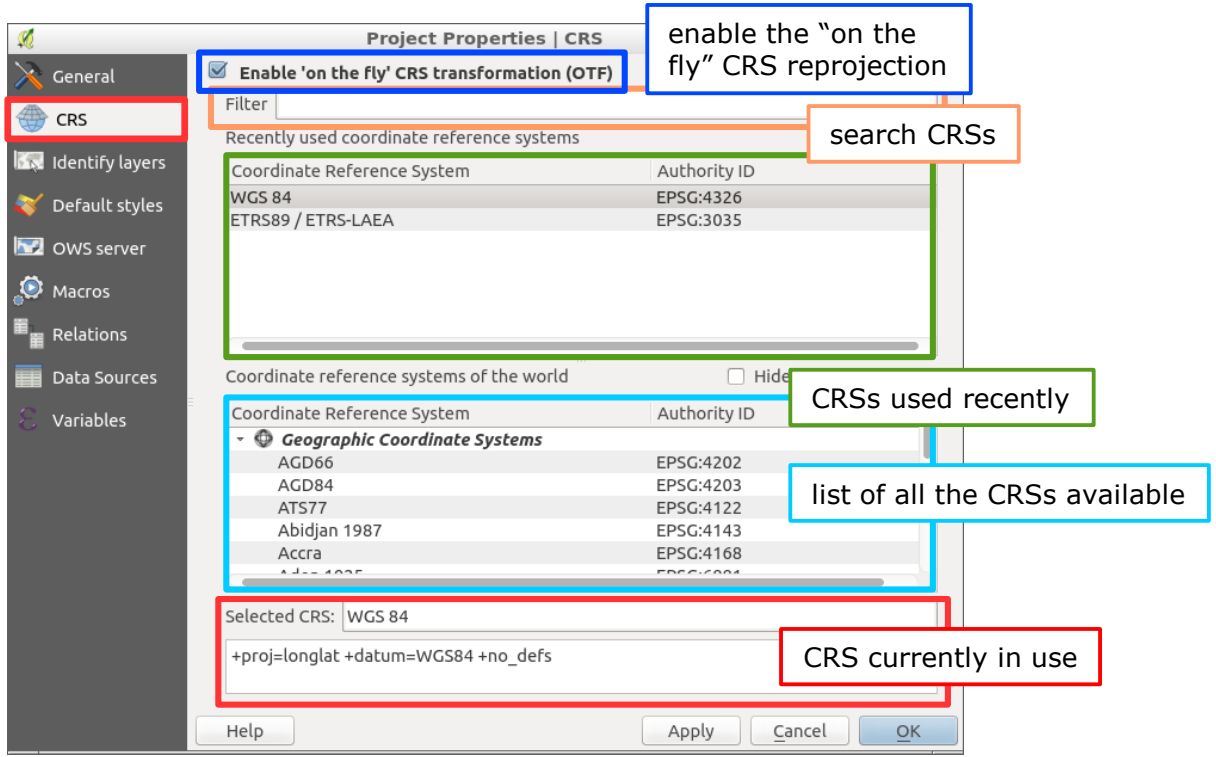




Configuring the properties of QGIS

- On the Menu bar select Project → Project Properties:
  - from the CRS tab, define the Reference System (RS) to use in the project



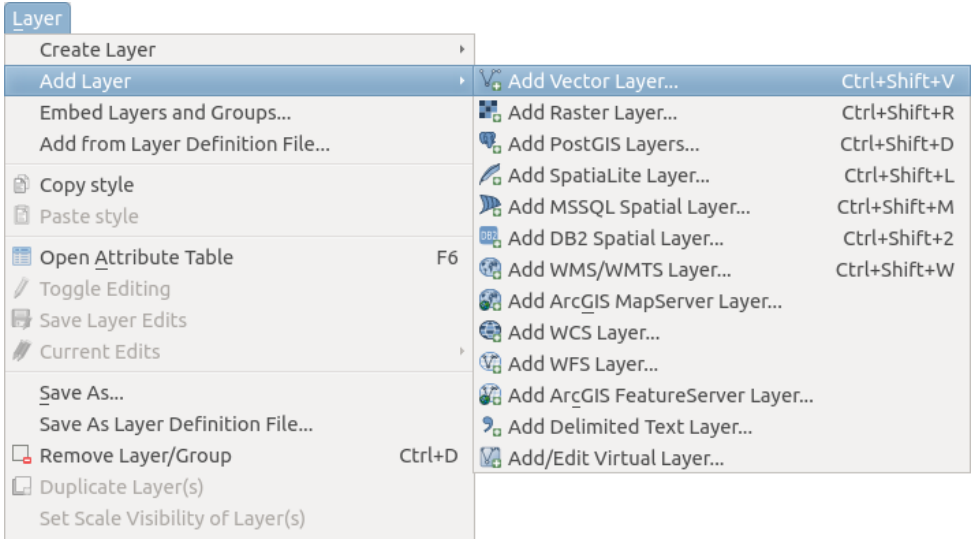


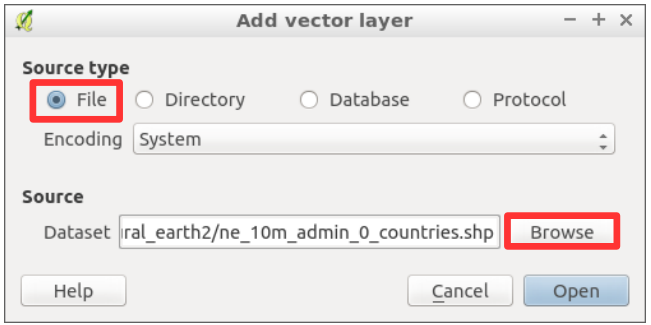
Configuring the project Reference System

- When working with data having different CRSs, there are two ways to visualize them correctly in QGIS:
  - convert each of them into a common CRS and open them in QGIS
  - enable the “on-the-fly” CRS reprojection: each layer is still in its original RS, but QGIS performs a real-time CRS reprojection into the project CRS

Adding vector layers – shapefiles

- On the Menu bar select Layer → Add Layer → Add Vector Layer
- Alternatively, hit the Add Vector Layer button on the toolbar
- When the Add Vector Layer box appears, select File as the source type of data and hit the Browse button. Browse through the folder list to the data folder and select the layer, which will appear in the Map legend and the Map view.





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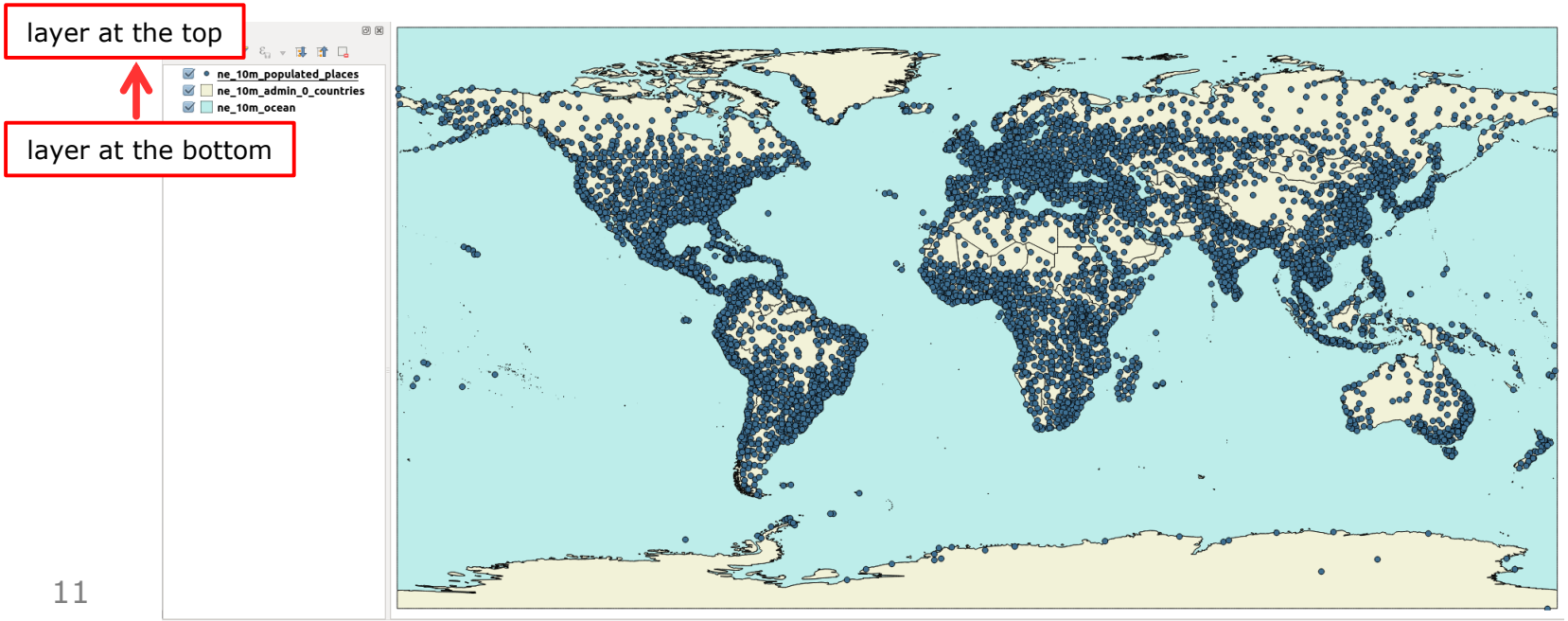
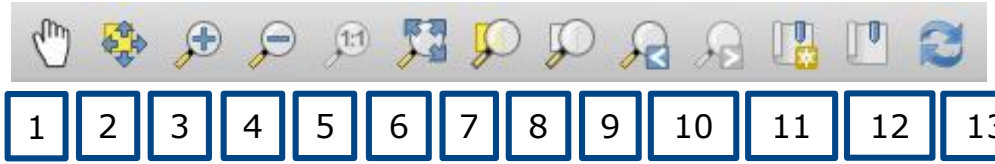
Changing the layer order

- The layer order in the Map legend determines the order they are drawn in the Map view: the first layer is drawn on top, the last on the bottom.
- To change the position of a layer, hover over the name of the layer and hold down the left mouse button, then drag and dock it in the position you like.



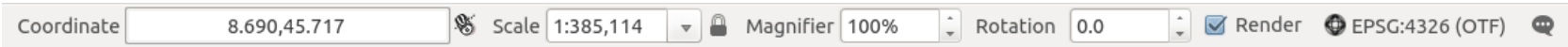
Exploring the Toolbar: navigation/zoom tools



1. PAN MAP: moves around the map, by holding down the left mouse button and dragging
2. PAN MAP TO SELECTION: moves the map to center it on the selected features
3. ZOOM IN: click to zoom in once, draw a box to zoom in to an area, or use the mouse wheel
4. ZOOM OUT: works the same as the ZOOM IN tool
5. ZOOM TO NATIVE PIXEL RESOLUTION: zooms to the native pixel resolution of raster data
6. ZOOM FULL: zooms the window to the maximum extent of all the visible layers
7. ZOOM TO SELECTION: zooms to selected features
8. ZOOM TO LAYER: zooms to the maximum extent of the layer currently selected in the Map legend
9. ZOOM LAST: returns back to the previous zoom of the map
10. ZOOM NEXT: moves forward to the next zoom of the map
11. NEW BOOKMARK: creates a new navigation bookmark
12. SHOW BOOKMARKS: shows the list of navigation bookmarks
13. REFRESH: redraws the screen (useful if layers did not draw properly)

Exploring the Status bar

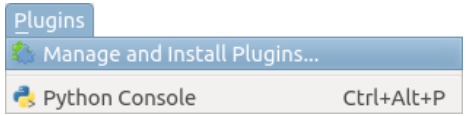
- Status bar:

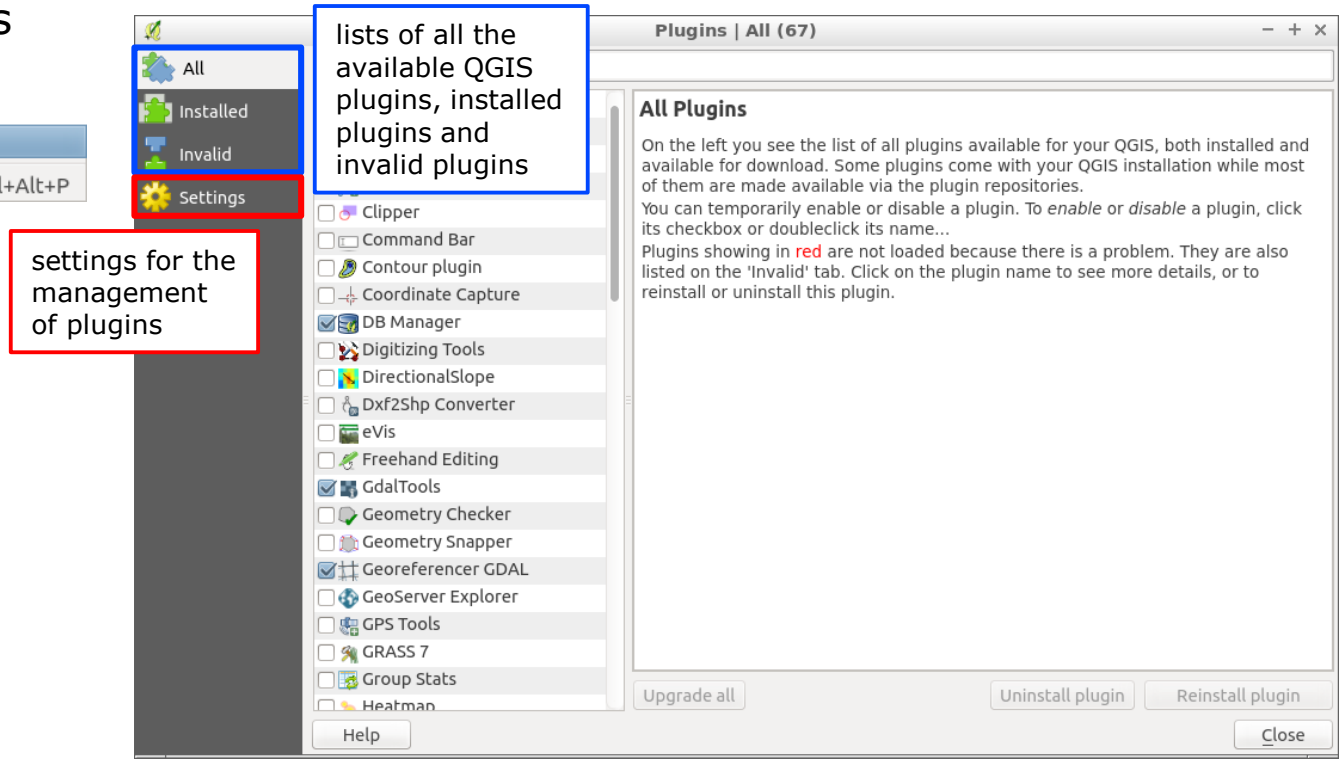


  - coordinates for the map are provided based on the position of the cursor; the unit of measurement is determined by the coordinate system and map projection of the project (if the project is in WGS84, the coordinates are in degrees and represent longitude and latitude)
  - the Scale box can be used to change the map scale by choosing one of a predefined set of scales or by manually editing the scale
  - the map can be rotated of an arbitrary angle using the Rotation box
  - the EPSG code unambiguously identifies the map coordinate system

QGIS plugins

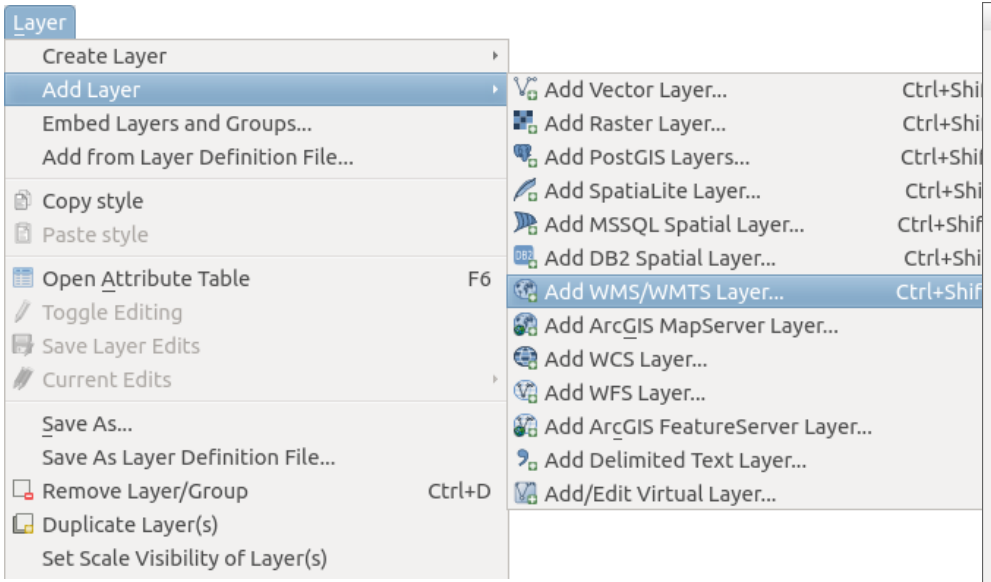
- Plugins are special QGIS modules which extend the software functionalities.
- On the Menu bar select Plugins → Manage and Install Plugins to access the list of QGIS plugins

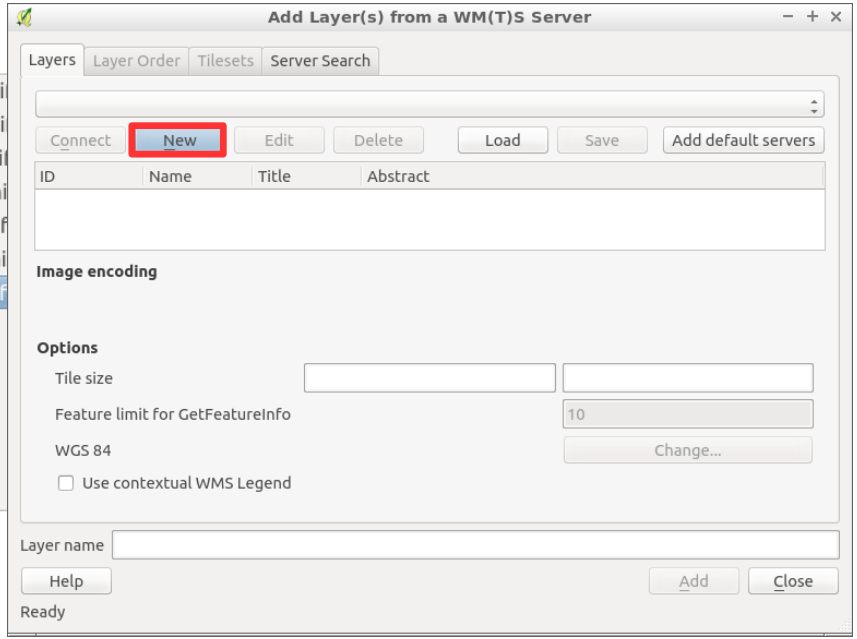




Adding a WMS layer

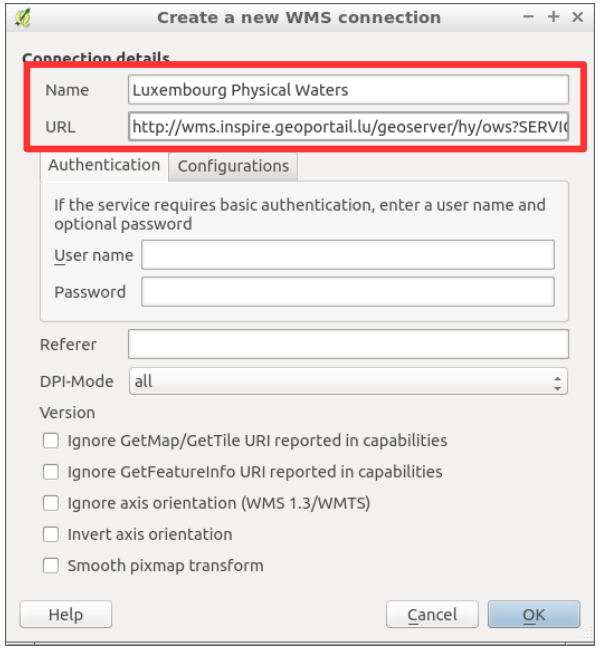
- On the Menu bar select Layer → Add Layer → Add WMS/WMTS Layer.
- Alternatively, hit the Add WMS/WMTS Layer button on the toolbar.
- When the Add Layer(s) from a WM(T)S Server box appears, press the New button to create a connection with a new WMS server.





Adding a WMS layer

- Add one of the layers provided by Luxembourg under the INSPIRE Hydrography data theme (retrievable from the INSPIRE Geoportal)
- Give a name to the WMS server and, as URL, copy and paste the link http://wms.inspire.geoportail.lu/geoserver/hy/ows?SERVICE=WMS&



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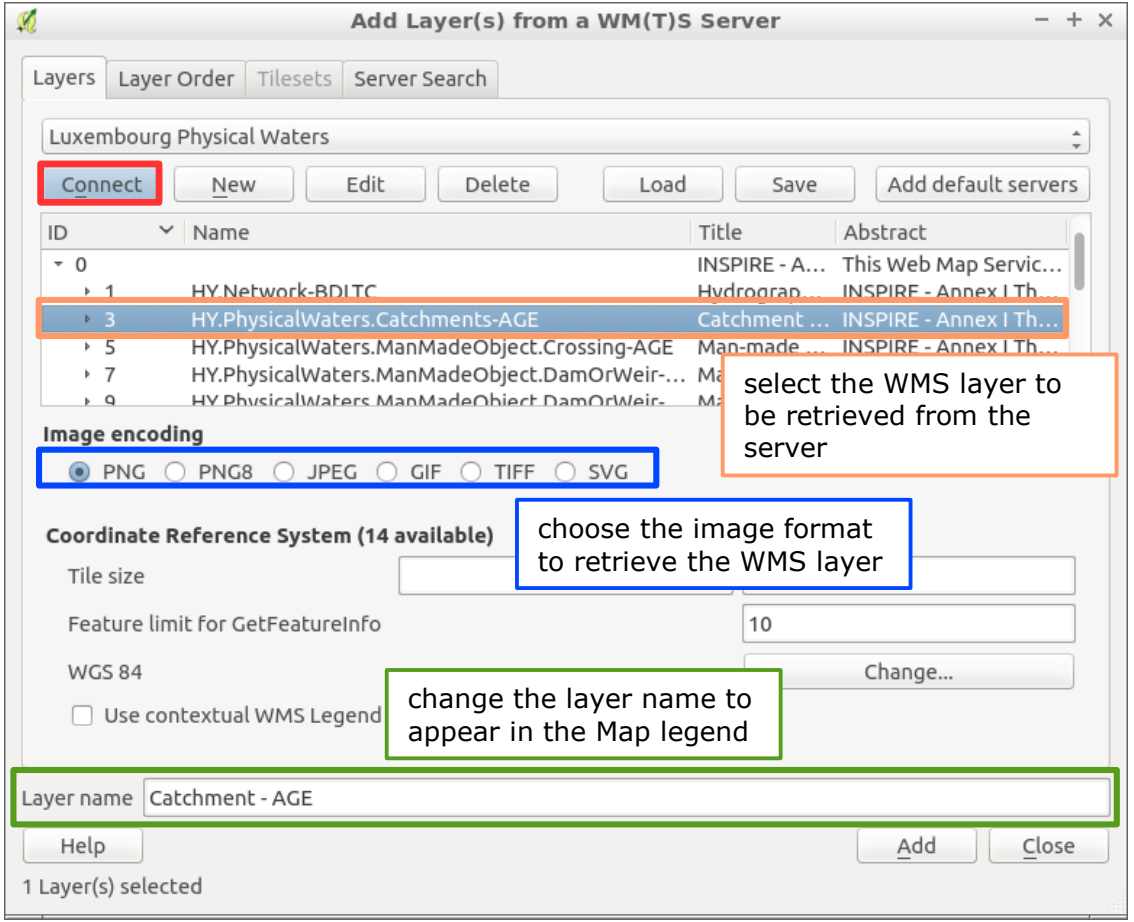
Adding a WMS layer

- Click Connect, then:



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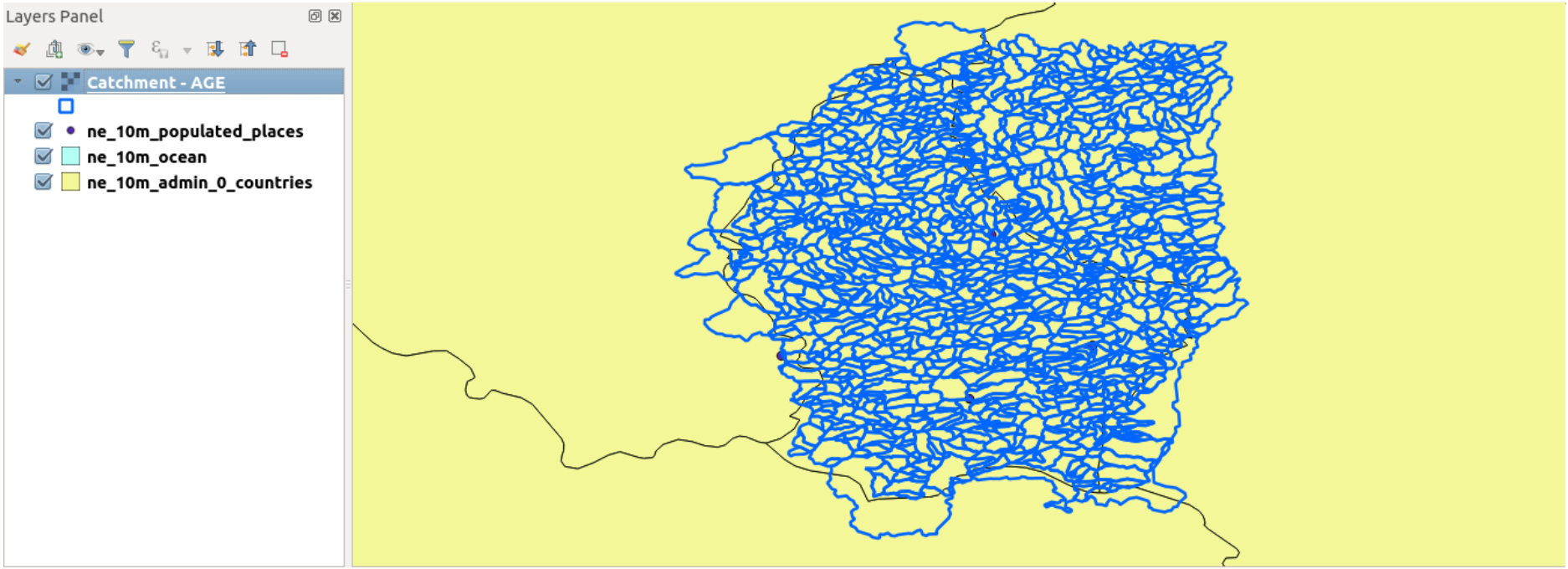

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