Institute of Natural Resources
Departament of General Geology and Land use planning

QGIS

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General information

QGIS is a user friendly Open Source Geographic Information System (GIS) licensed under the GNU General Public License. QGIS is an official project of the Open Source Geospatial Foundation (OSGeo). It runs on Linux, Unix, Mac OSX, Windows and Android and supports numerous vector, raster, and database formats and functionalities.

Qgis desktop

QGIS offers many common GIS functionalities provided by core features and plugins.

View data
You can view and overlay vector and raster data in different formats and projections without conversion to an internal or common format.

Explore data and compose maps
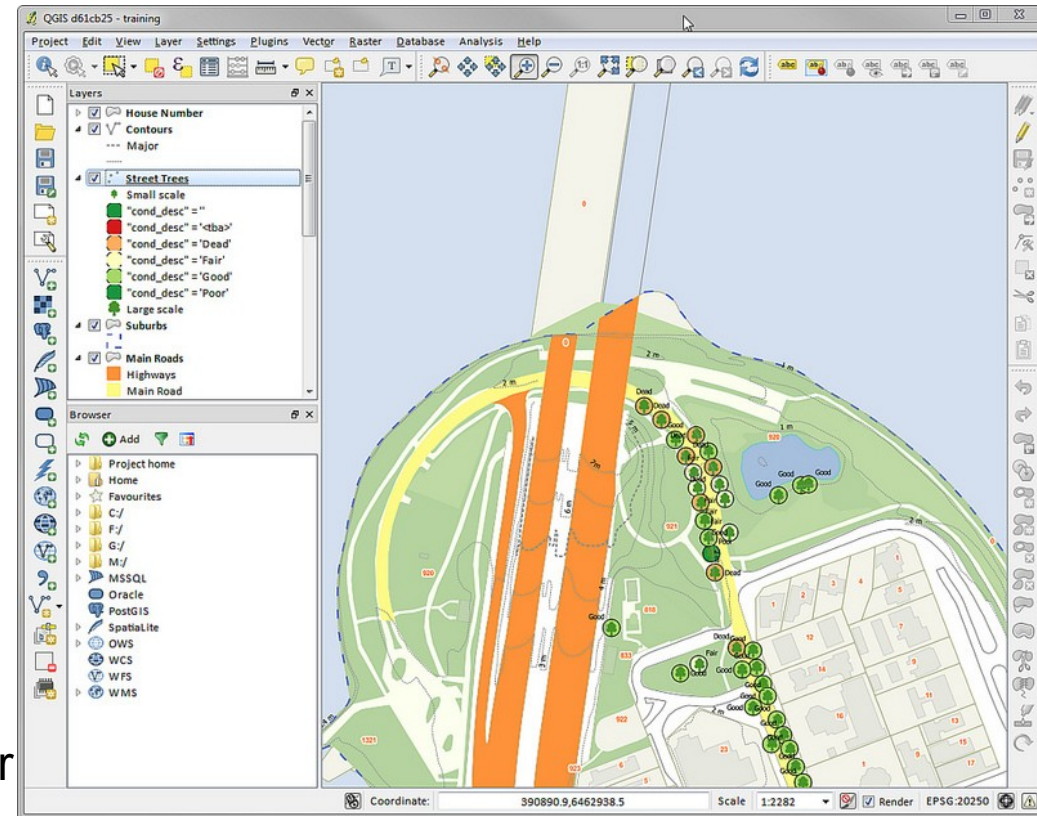You can compose maps and interactively explore spatial data with a friendly GUI.

Create, edit, manage and export data
You can create, edit, manage and export vector and raster layers in several formats.

Analyse data
You can perform spatial data analysis on spatial databases and other OGR- supported formats.
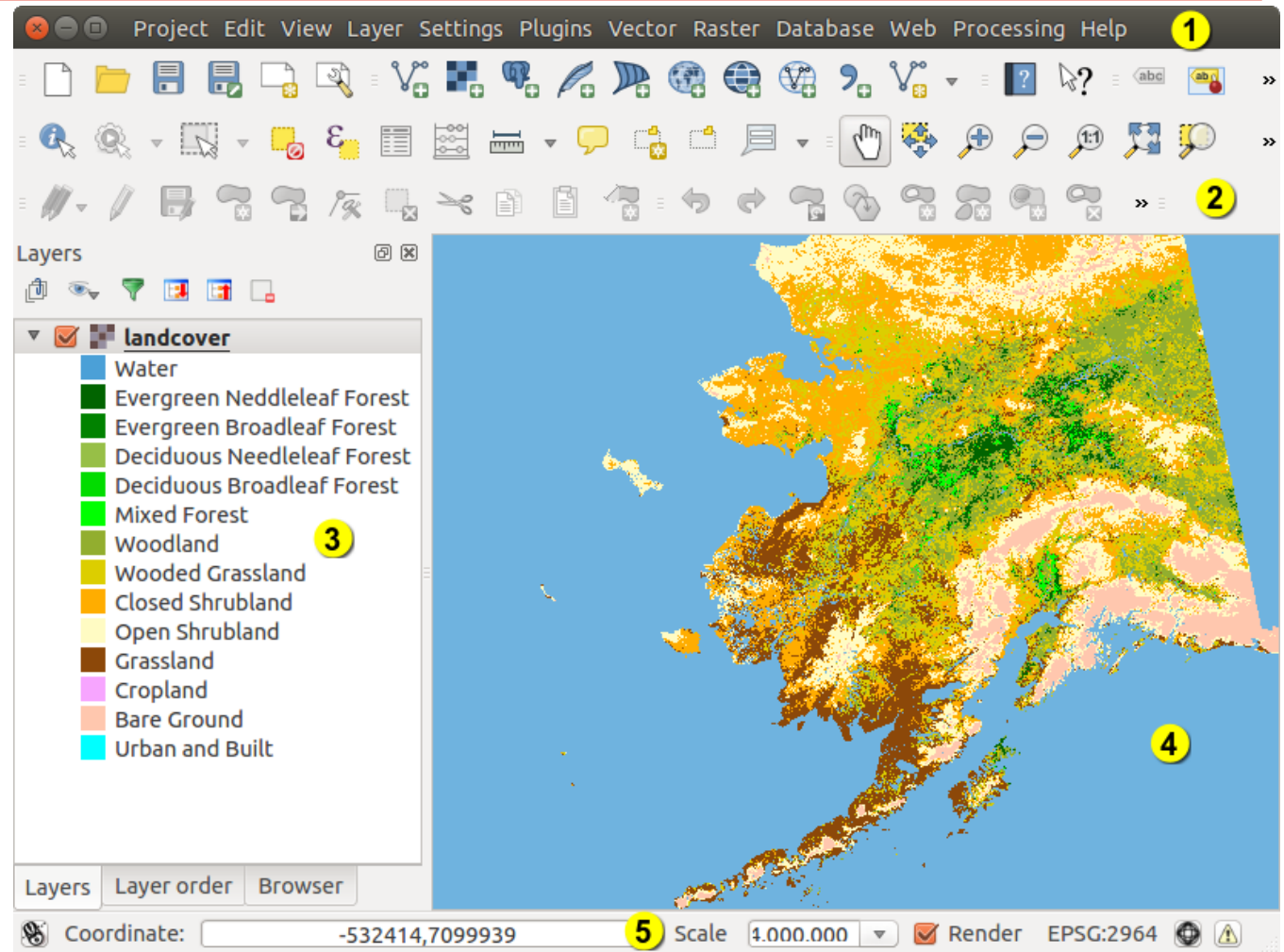
Publish maps on the Internet

QGIS GUI

The QGIS GUI is divided into five areas:

1) Menu Bar;
2) Tool Bar;
3) Map Legend;
4) Map View;
5) Status Bar.

General Tools

Measuring

Measuring works within projected coordinate systems (e.g. UTM) and unprojected data. If the loaded map is defined with a geographic coordinate system (latitude/longitude), the results from a line or area measurements will be incorrect. To fix this, you need to set an appropriate map coordinate system. All measuring modules also use the snapping settings from the digitizing module. This is useful, if you want to measure along lines or areas in vector layers.

QGIS is able to measure real **distances** between given points according to a defined ellipsoid.

Areas can also be measured. In the measure window, the accumulated area size appears.

You can also measure **angles**.

North Arrow places a simple north arrow on the map canvas.

Scale Bar adds a simple scale bar to the map canvas.

Working with Vector Data

QGIS uses the OGR library to read and write vector data formats, including ESRI shapefiles, MapInfo and MicroStation file formats, AutoCAD DXF, PostGIS, SpatiaLite, Oracle Spatial and MSSQL Spatial databases, and many more.

QGIS is able to Load a Shapefile. When you add a layer to the map, it is assigned a random **color**. When adding more than one layer at a time, different **colors** are assigned to each layer.
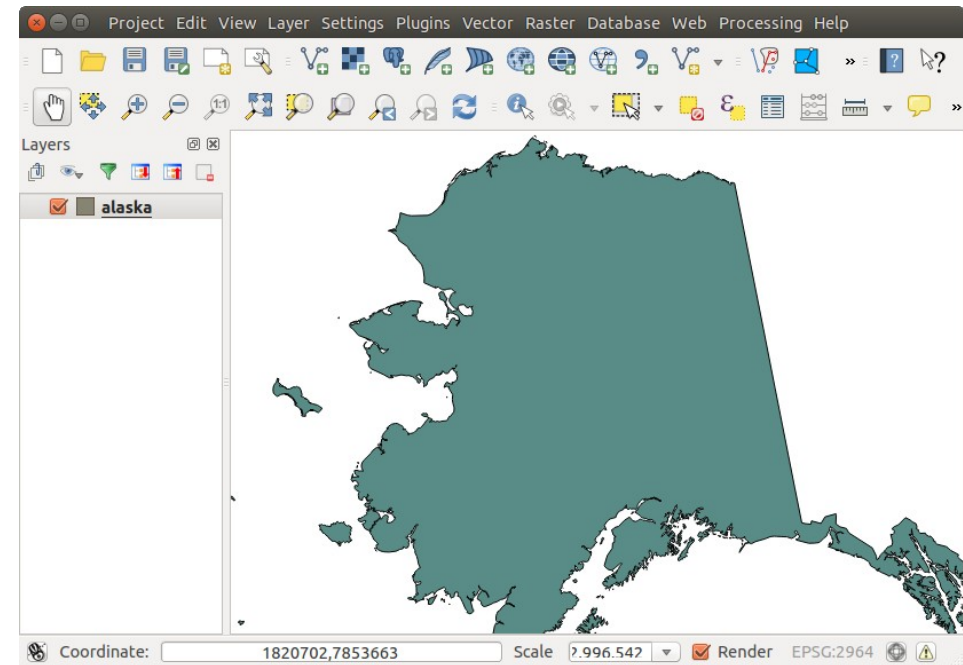
The Symbol Library

The Symbol Library is the place where users can create generic symbols to be used in several QGIS projects. It allows users to export and import symbols, groups symbols and add, edit and remove symbols.
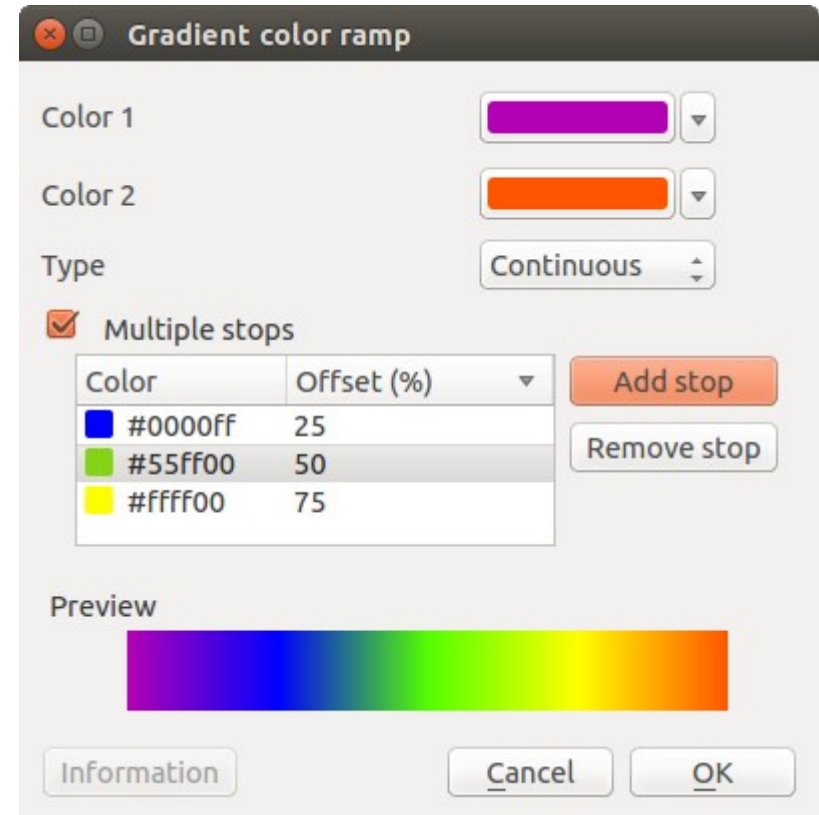
Working with Raster Data

Raster data in GIS are matrices of discrete cells that represent features on, above or below the earth's surface. Each cell in the raster grid is the same size, and cells are usually rectangular (in QGIS they will always be rectangular). Typical raster datasets include remote sensing data, such as aerial photography, or satellite imagery and modelled data, such as an elevation matrix.
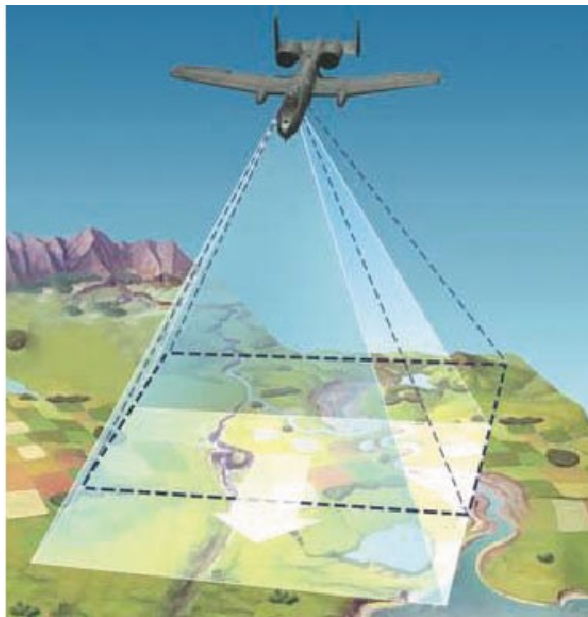
Working with Raster Data

Unlike vector data, raster data do not have typically an associated database record for each cell. They are geocoded by pixel resolution and the x/y coordinate of a corner pixel of the raster layer. This allows QGIS to position the data correctly in the map canvas.

Transparency Menu

QGIS has the ability to display each raster layer at a different transparency level. Use the transparency slider slider to indicate to what extent the underlying layers (if any) should be visible though the current raster layer. This is very useful if you like to overlay more than one raster layer (e.g., a shaded relief map overlayed by a classified raster map). This will make the look of the map more three dimensional.
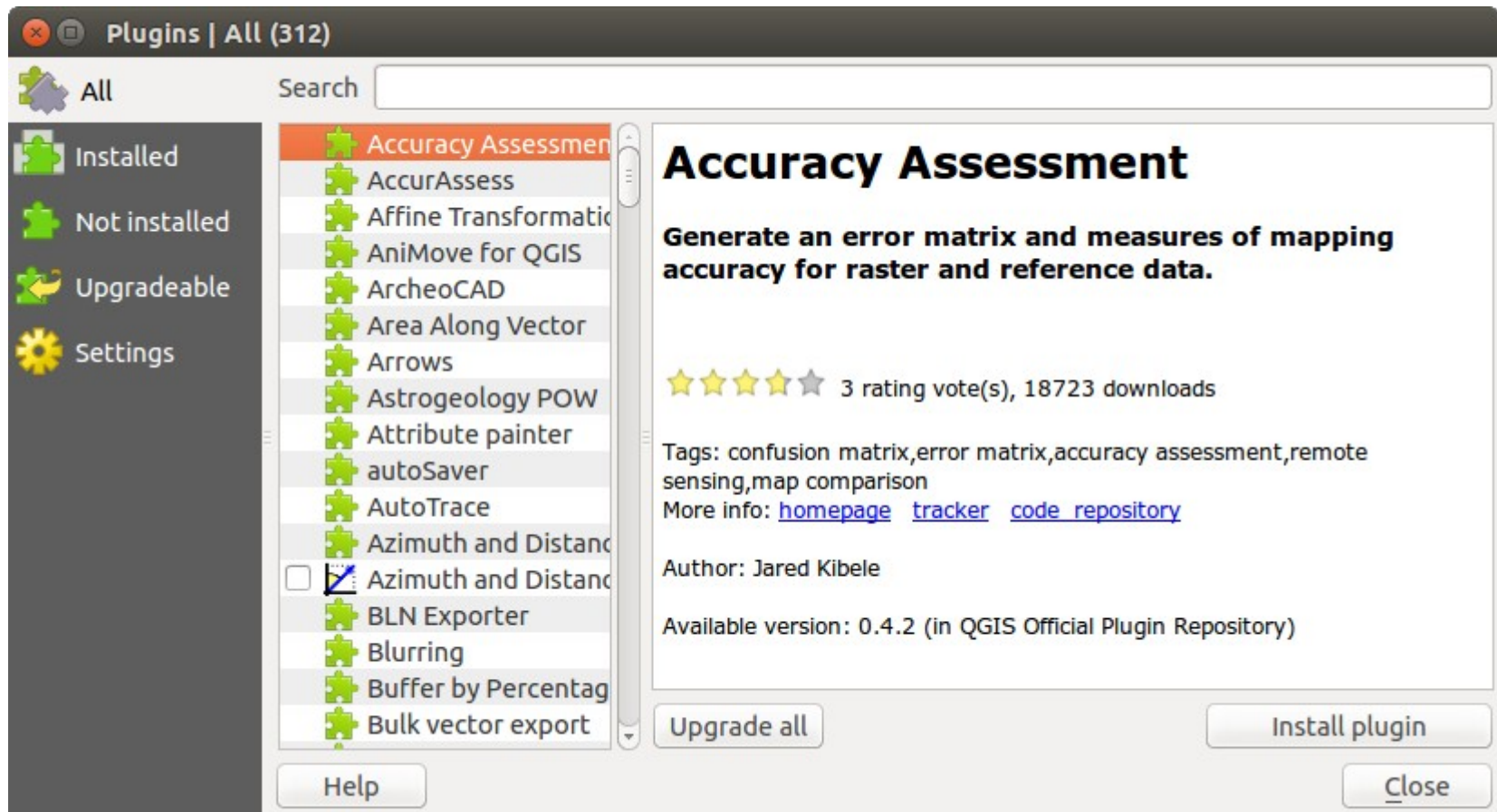
QGIS Plugins

QGIS has been designed with a plugin architecture. This allows many new features and functions to be easily added to the application. Many of the features in QGIS are actually implemented as plugins.

When a plugin needs to be updated, and if plugins settings have been set up accordingly, QGIS main interface could display a blue link in the status bar to tell you that there are some plugins updating waiting to be applied.

QGIS Plugins

Here, all the available plugins are listed, including both core and external plugins.

THANK YOU FOR ATTENTION!