



INTRODUCTION TO QGIS



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OUTLINE

1. Introduction to QGIS and its main characteristics
2. Comparison between QGIS and ArcGIS
3. Overview of Coordinate reference systems in QGIS
4. Introductory tutorial covering:

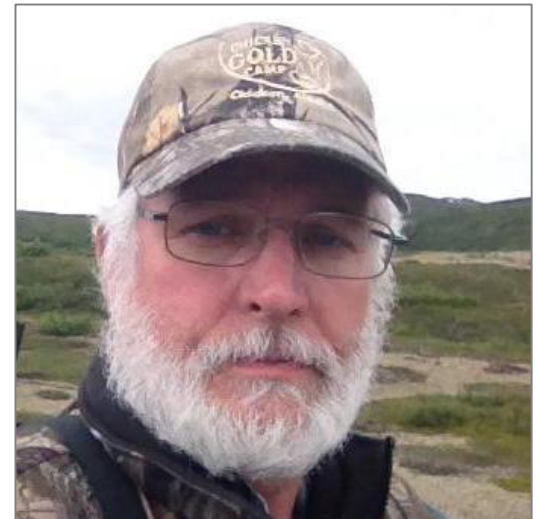
- Adding Vector and Raster layers
- Adding tabular information as a Delimited text Layer
- Symbolising vector data
- Symbolising raster data
- Installing plugins
- Querying data
- Joining Tables
- Introduction to the Processing Toolbox
- Map Layouts

WHAT IS ?

A **free** and **open source** Geographic Information System (GIS) application that allow users to **create** spatial datasets, **manage** them, **analyse** them and **display** them on a map.

A BRIEF HISTORY OF QGIS

- Quantum GIS project started in 2002
- Started as a simple data viewer, but has gradually grown since then.
- Current LTR version is 2.18.11 (released October 2016) translated into 48 languages.
- QGIS 3.0 coming!!



Gary Sherman
Founder of QGIS Project

MAIN CHARACTERISTICS OF QGIS

It is Open Source – It comes with the right to download, run, copy, alter, and redistribute the software.

It is free!

It is multi-platform – Can run in Windows, OSX, Unix and Linux.

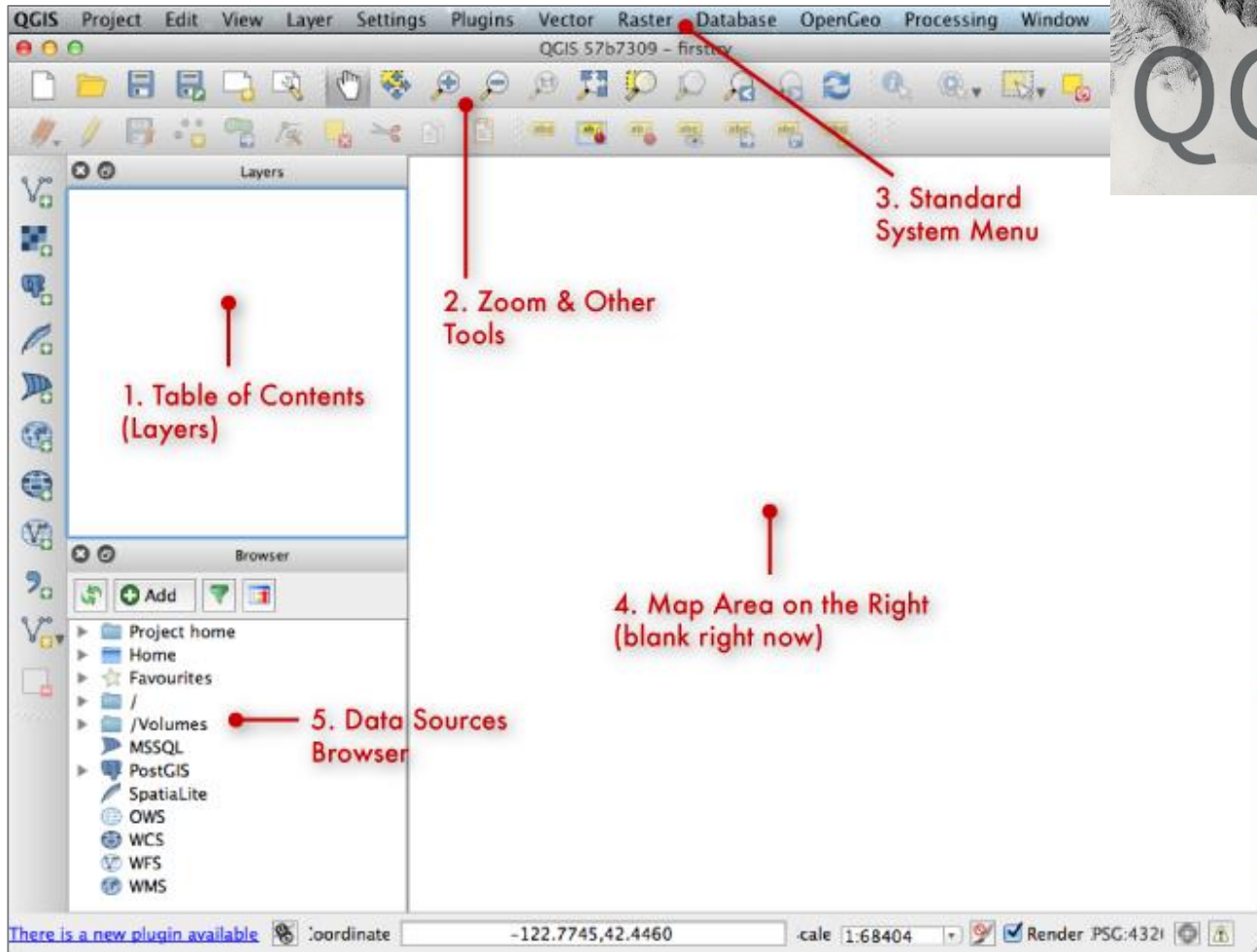
It is extendable – many of its functionalities are provided by plugins and scripts.

A very active support community! (mailing lists, forums, etc.)

Visit www.qgis.org for user manuals, tutorial, joining support groups and much more.



THE QGIS INTERFACE



COMPARISON BETWEEN QGIS AND ARCGIS

QGIS is free.

Open-source, source codes are open for everyone to modify to particular needs.

Huge support on forums like stack exchange.

Lots of supported data formats thanks to GDAL/OGR library

High functionality for vector and raster operations through plugins.

Easy integration with other open source software such as GRASS, SAGA or R.

Commercial - Not freely available.
License is restricted.

Source codes not available for users.

Huge support on ESRI forums

More restricted data formats, preference for ESRI created data formats such as shapefiles and grids.

Higher functionality, especially spatial analysis, and more reliable results than QGIS for some of them.

Designed as a single, stand-alone platform.

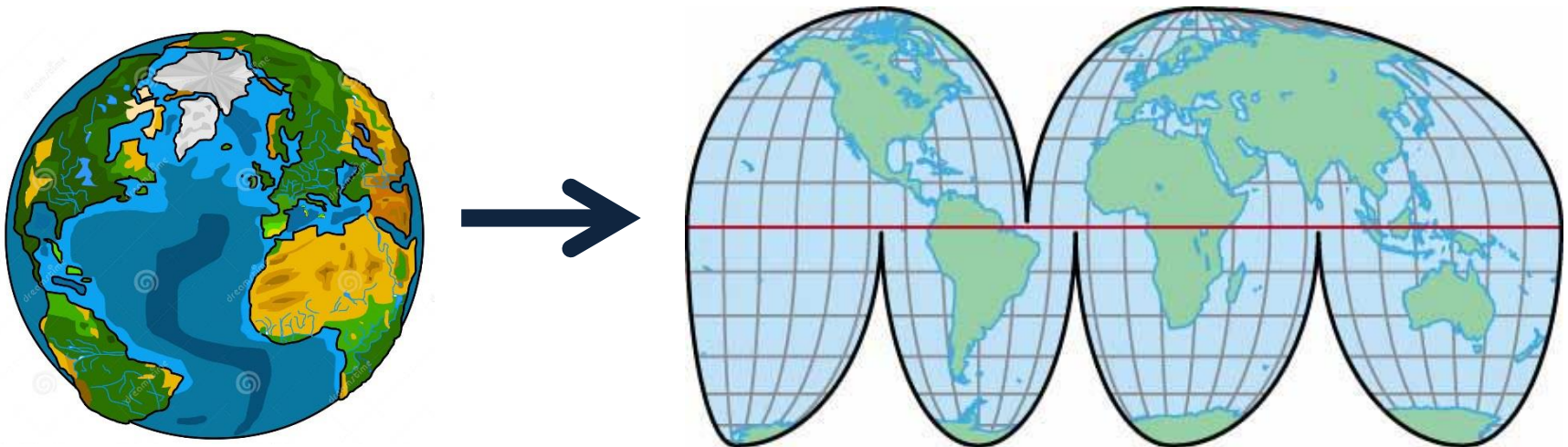
MAP PROJECTIONS

Geographic Coordinate Systems

- Defines locations on spherical model of the earth

Projected Coordinate System

- Defines locations on flat model of the earth

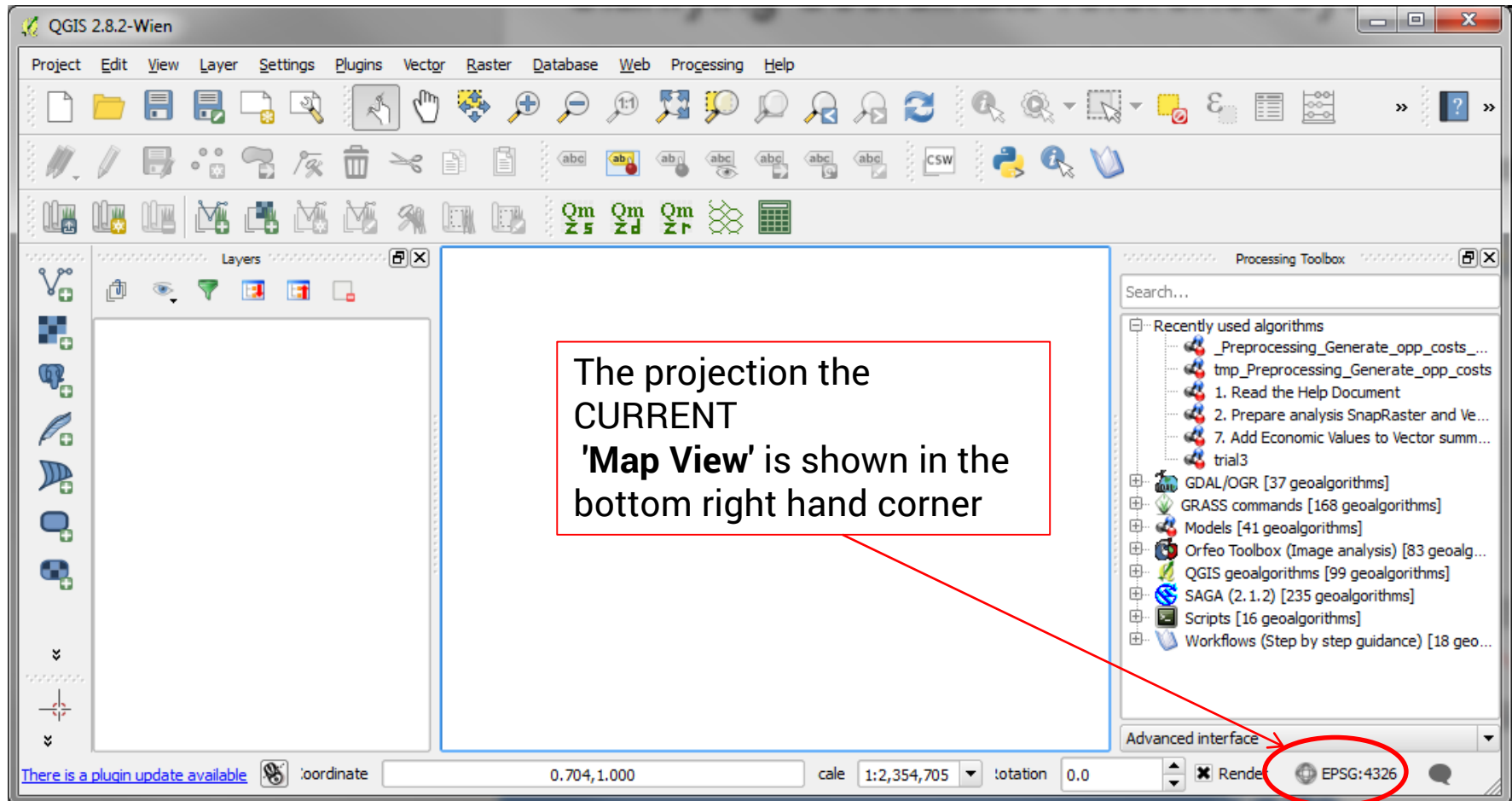


EPSG Geodetic Parameter Registry

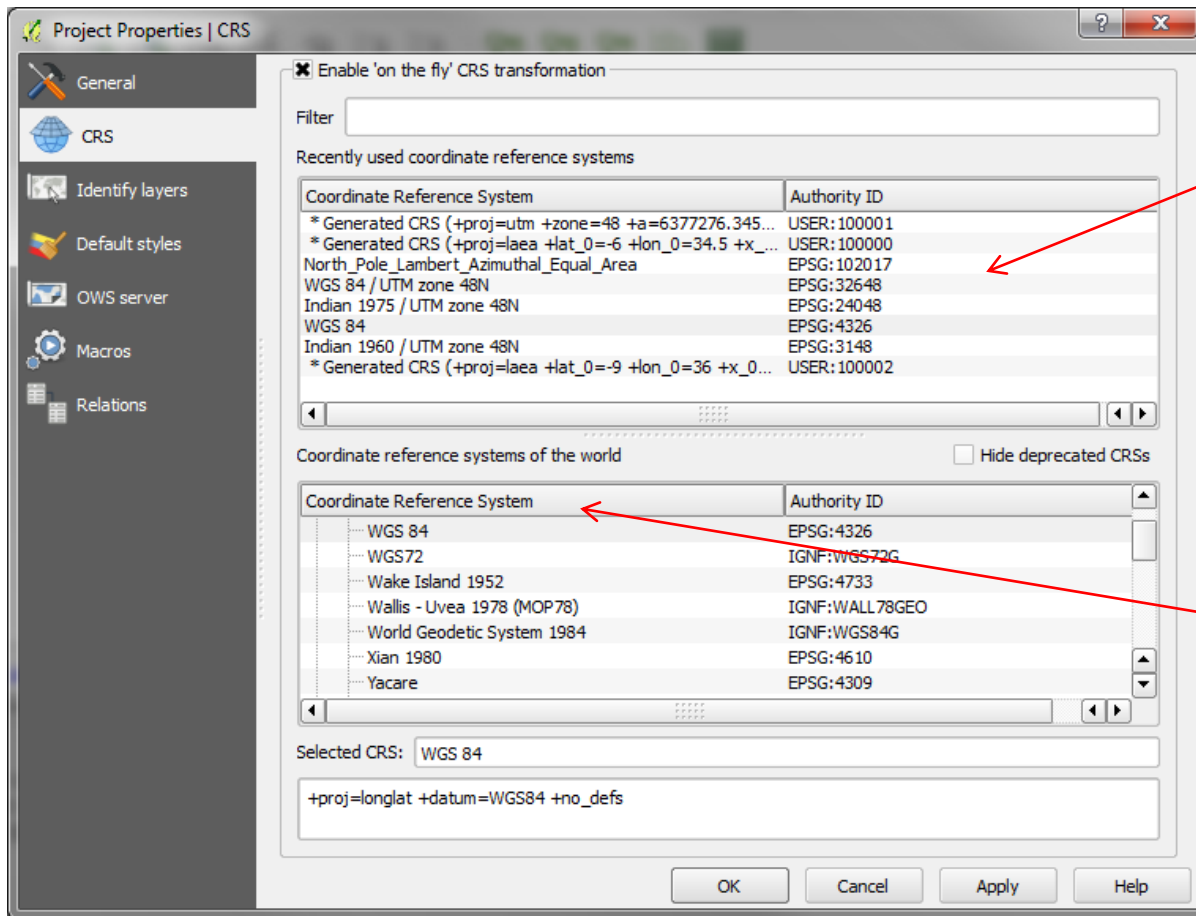
- QGIS uses EPSG codes to assign projections.
- Same projections you have always used!
- <http://www.epsg-registry.org/>

Report	Name	Code	Type	Status
<input type="checkbox"/>	NAD27 / Tennessee	EPSG::2204	ProjectedCRS	Valid
<input type="checkbox"/>	NAD83(HARN) / Tennessee	EPSG::2843	ProjectedCRS	Valid
<input type="checkbox"/>	NAD83(HARN) / Tennessee (ftUS)	EPSG::2915	ProjectedCRS	Valid
<input type="checkbox"/>	NAD83(NSRS2007) / Tennessee	EPSG::3661	ProjectedCRS	Valid
<input type="checkbox"/>	NAD83(NSRS2007) / Tennessee (ftUS)	EPSG::3662	ProjectedCRS	Valid
<input type="checkbox"/>	NAD83 / Tennessee	EPSG::32136	ProjectedCRS	Valid

Changing the projection of the QGIS Map View (for the current project only)



Changing the projection of the QGIS Map View (for the current project only)



Recently used projections are shown in the top box.

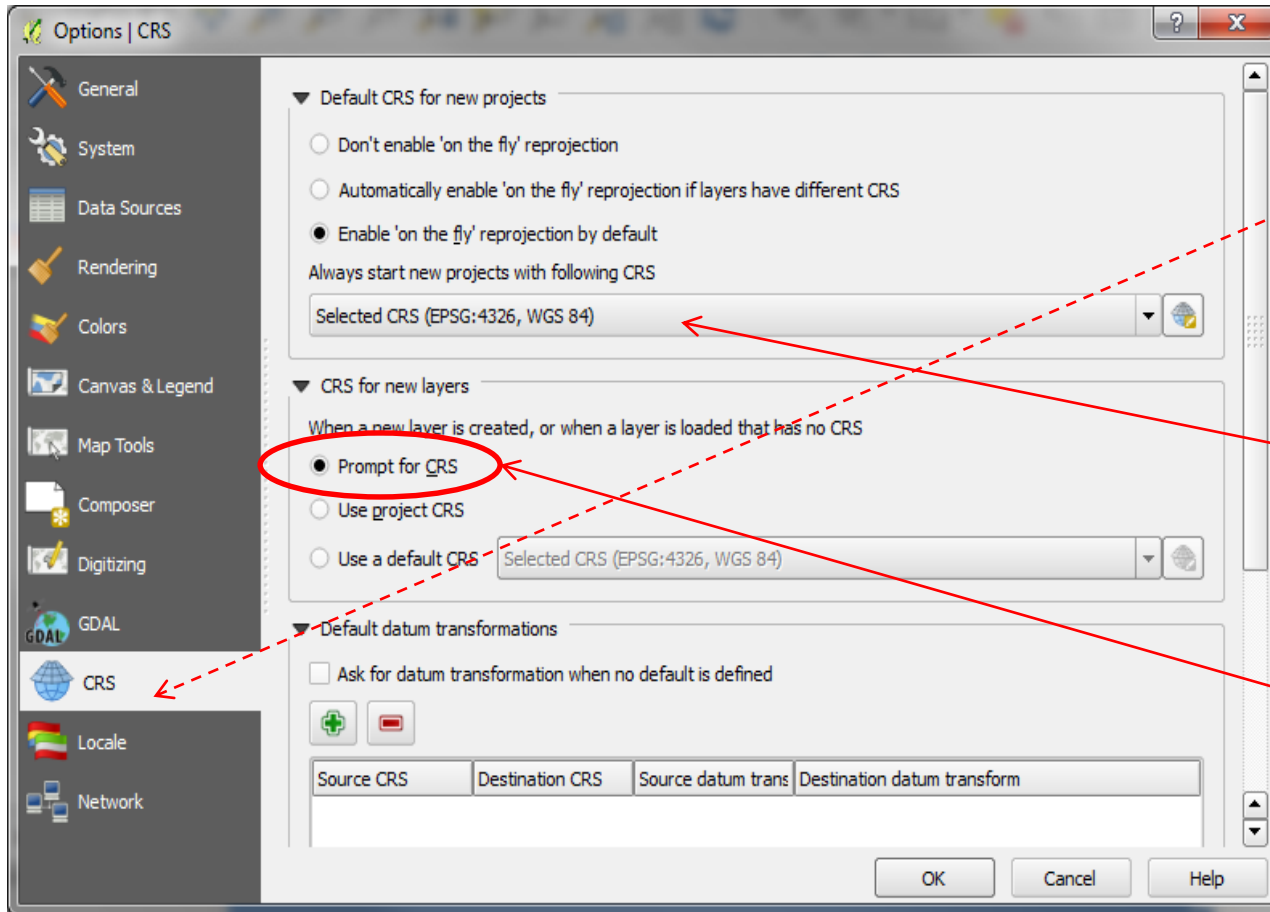
Other available projections are shown here

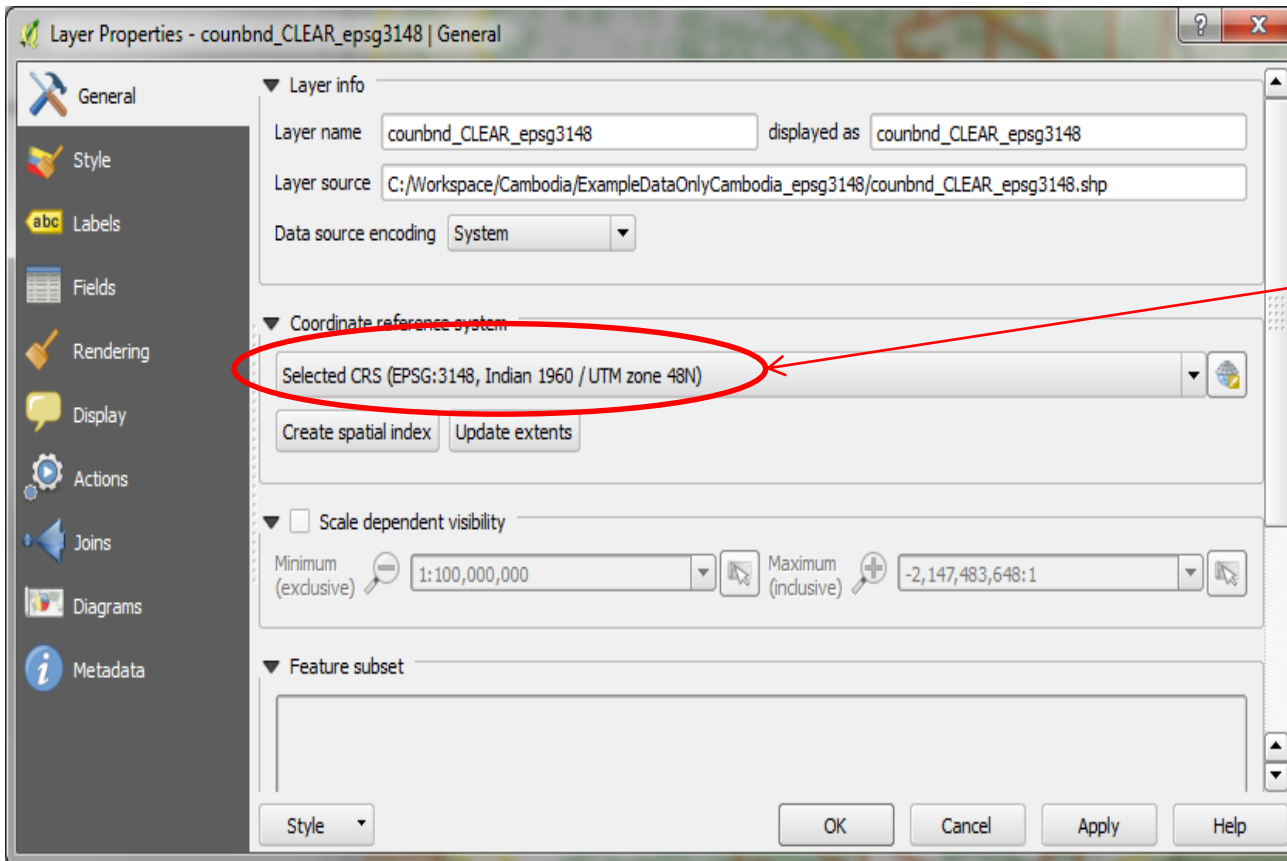
From the main menu click on **Setting>>Options**

Click on the **CRS** (Coordinate Reference System) tab

Set the projection here if you want QGIS to **always open with the MAP VIEW** in a particular projection

If a dataset has no projection defined you **ALWAYS** want QGIS to ask you what it is



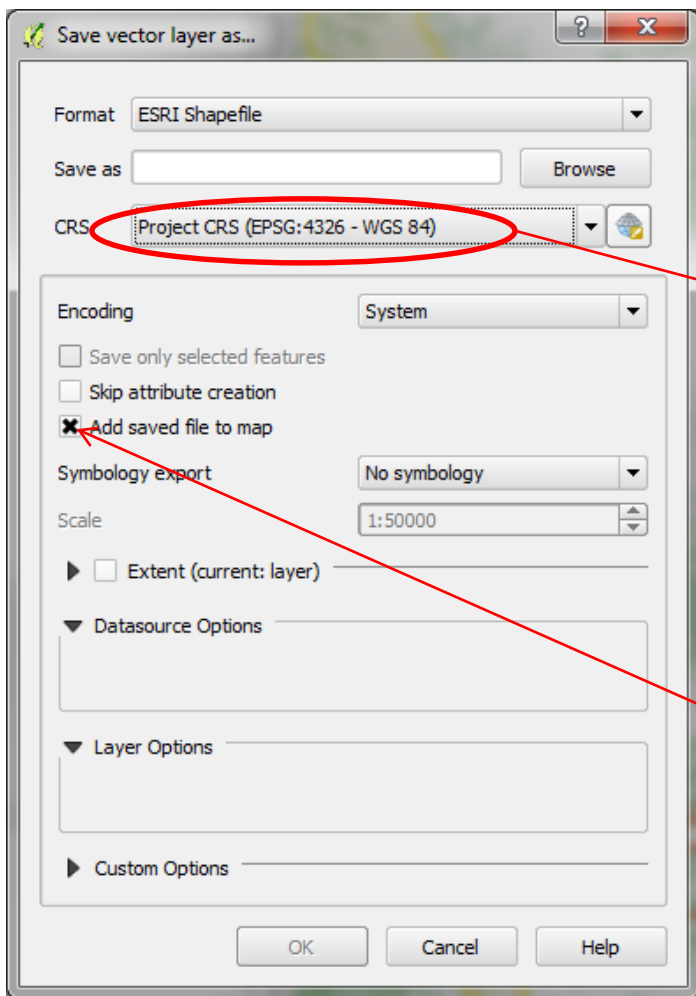


The **projection of the dataset** is given here

WARNING!!!!

Specifying a different CRS here **does not reproject** the data.

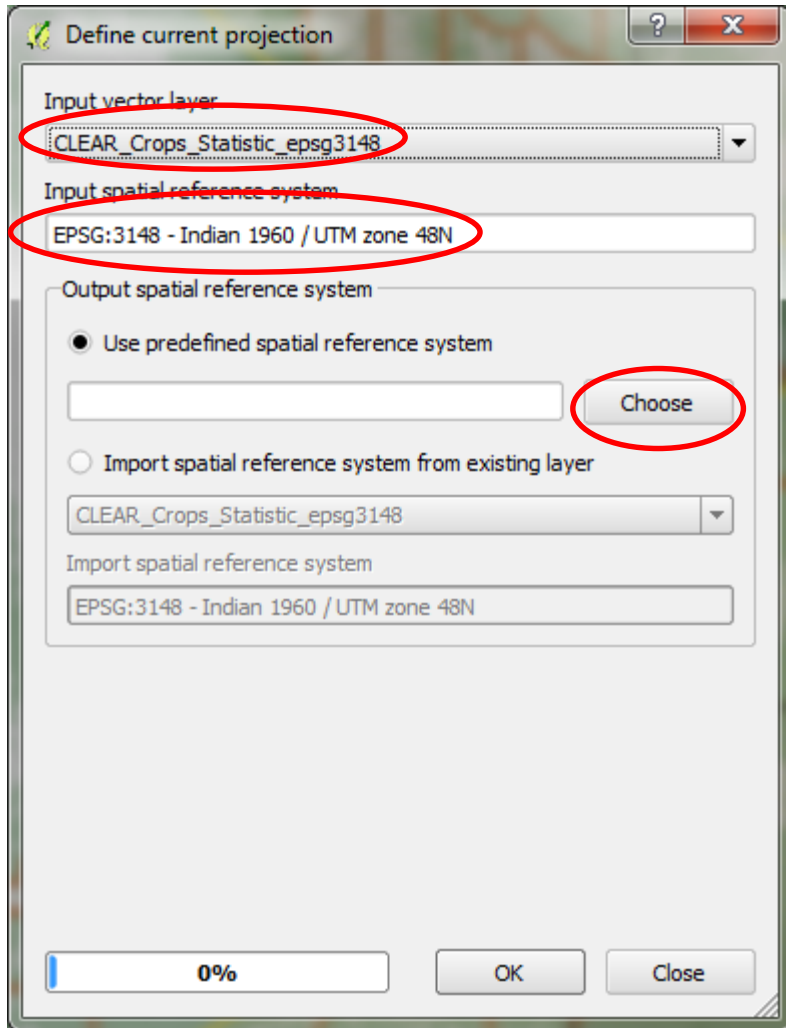
Reprojecting - Saving a dataset to another CRS



Right click on the dataset and click **Save As**

Change this from layer CRS to either **project CRS** (if you want to save as the projection of your Map View) or **Specify CRS** if you want to pick from the list of projections

Tick add to map if you want the projected dataset to be added to your QGIS project.



From the main menu click on **Vector>>Data Management Tools>>Define Current Projection**

If a layer is missing a CRS and you want to tell QGIS what the projection is and

Or

if you have a layer that has the **WRONG** projection and you want to tell QGIS what the correct projection for this layer is.



Thanks a lot!

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