

Custom Coordinate Systems

1 Custom Coordinate Systems

To use data from the Nepal Survey Department, you need to define a custom projection. You may also need to do this for other datasets. In addition to WGS84, there are two other map datum that are often used in Nepal:


1. Everest 1830
2. Everest 1830, adjusted 1937 (sometimes also referred to as “Everest 1937”, or “Everest 1830 (modified)”)

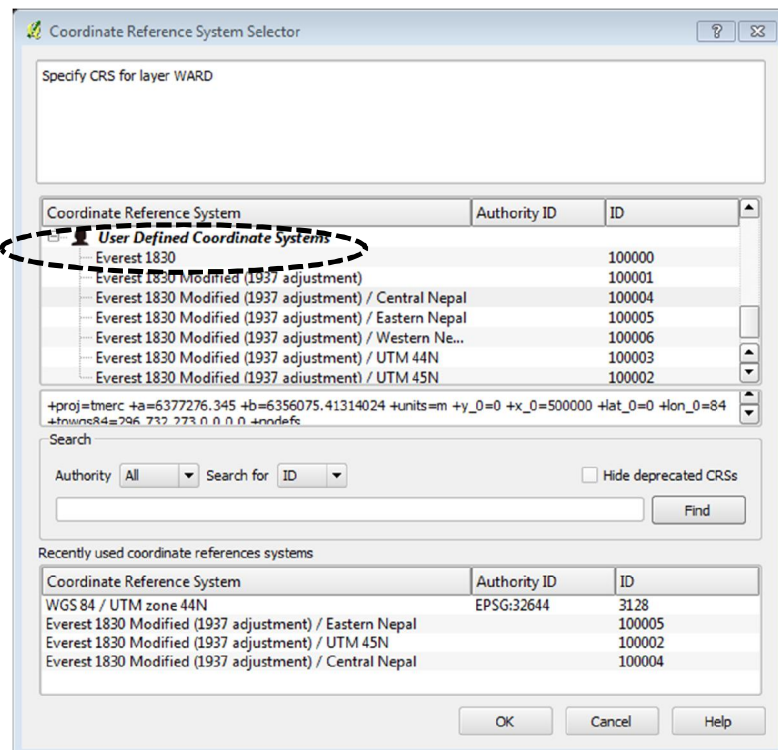
The survey department uses three different projected coordinate systems for the data from their topographic maps sheets. There are separate projections for eastern, central, and western Nepal.

Below are some of the most common coordinate systems you might encounter. The “Coordinate System Name” and “Description String” you will copy and paste into Quantum GIS (see part 2 below).

Coordinate System Name	Type	Description String
Everest 1830	Geographic	+proj=longlat +a=6377299.36559538 +b=6356098.359005156 +towgs84=296,732,273,0,0,0,0 +no_defs
Everest 1830 Modified (1937 adjustment)	Geographic	+proj=longlat +a=6377276.345 +b=6356075.41314024 +towgs84=296,732,273,0,0,0,0 +nodefs
Everest 1830 Modified (1937 adjustment) / UTM 45N	Projected	+proj=utm +north +zone=45 +a=6377276.345 +b=6356075.41314024 +units=m +towgs84=296,732,273,0,0,0,0 +nodefs
Everest 1830 Modified (1937 adjustment) / UTM 44N	Projected	+proj=utm +north +zone=44 +a=6377276.345 +b=6356075.41314024 +units=m +towgs84=296,732,273,0,0,0,0 +nodefs
Everest 1830 Modified (1937 adjustment) / Central Nepal	Projected	+proj=tmerc +a=6377276.345 +b=6356075.41314024 +units=m +y_0=0 +x_0=500000 +lat_0=0 +lon_0=84 +towgs84=296,732,273,0,0,0,0 +nodefs
Everest 1830 Modified (1937 adjustment) / Eastern Nepal	Projected	+proj=tmerc +a=6377276.345 +b=6356075.41314024 +units=m +y_0=0 +x_0=500000 +lat_0=0 +lon_0=87 +towgs84=296,732,273,0,0,0,0 +nodefs
Everest 1830 Modified (1937 adjustment) / Western Nepal	Projected	+proj=tmerc +a=6377276.345 +b=6356075.41314024 +units=m +y_0=0 +x_0=500000 +lat_0=0 +lon_0=81 +towgs84=296,732,273,0,0,0,0 +nodefs

2 Using Custom Coordinate Systems in Quantum GIS

1. Start Quantum GIS.
2. On the menubar, click “Settings”. Choose “Custom CRS”.
3. Click the “New CRS” button, that looks like: .
4. In the “Name” field, copy the name from the table above. For example, for Survey Department topographic sheets from Chitwan, you would use “Everest 1830 Modified (1937 adjustment) / Central Nepal”.
5. In the “Parameters” field, copy the Description String from the table above. For example, for Survey Department topographic sheets from Chitwan, you would use “+proj=longlat +a=6377299.36559538 +b=6356098.359005156 +tows84=296,732,273,0,0,0,0 +no_defs”. This must be entered EXACTLY as seen above. Copy and paste from the PDF file to make sure you enter it correctly.
6. Now, load the vector layer without a unspecified coordinate reference system. When the “Coordinate Reference System Selector” appears, you can now choose your custom coordinate system.
 - a. Scroll the “Coordinate Reference System Selector” window until you can see “User Defined Coordinate Systems”.
 - b. Click the “+” symbol next to “User Defined Coordinate Systems”, so the window looks like this:



- c. Choose the correct coordinate system for your vector file. For example, choose “Everest 1830 Modified (1937 adjustment) / Central Nepal” for Chitwan topographic maps from the Survey Department.
 - d. Click “OK”.
7. Your layer will now be added to the map.