

LECTURE – 03

GETTING STARTED WITH QGIS

Course Instructor:

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Content

- QGIS Software
- How to add vector data layer
- How to add raster data layer
- Saving a vector and raster layer
- Working with attributes
- Identify feature
- Search/query vector layer
- Working with style/color, symbols and labels

QGIS Software

- There are two main software currently in use in the market for GIS operations:
 - **ArcGIS** by ESRI (It is the most powerful commercial GIS software widely used in the market)
 - Qunatum GIS (**QGIS**) is an open source software with a lot of capabilities. It's license is free

QGIS Interface

The screenshot displays the QGIS 2.14.5-Essen interface. The main window title is "QGIS 2.14.5-Essen". The interface is divided into several key areas:

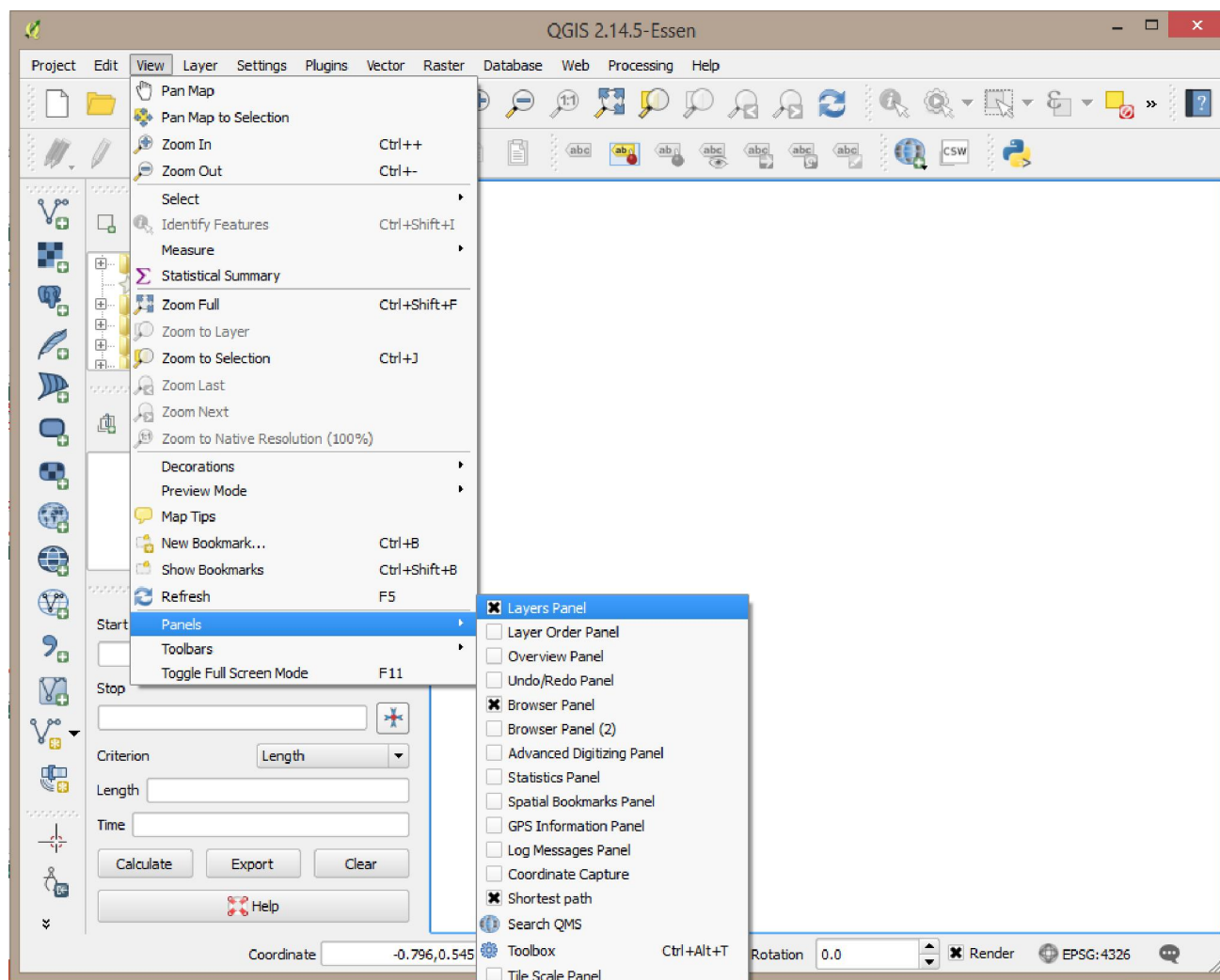
- Main Menu:** Located at the top, containing menus for Project, Edit, View, Layer, Settings, Plugins, Vector, Raster, Database, Web, Processing, and Help.
- Toolbar:** A horizontal bar below the main menu containing various icons for file operations, navigation, and processing.
- Panel Area:** A vertical column on the left side containing several panels:
 - Browser Panel:** Shows a file explorer view with Home, Favourites, and drives C:/, E:/, F:/, G:/.
 - Layers Panel:** A panel for managing map layers, currently empty.
 - Shortest path:** A panel for calculating the shortest path, with fields for Start, Stop, Criterion (set to Length), Length, and Time, and buttons for Calculate, Export, Clear, and Help.
- Map Canvas:** The large central area where the map is displayed.
- Status Bar:** Located at the bottom, showing the current coordinate (0.460,0.990), scale (1:1,419,219), rotation (0.0), and other system information.

QGIS Interface

- Customizing the Interface
 - View > Toolbar
 - View > Panel

QGIS Interface

■ Customizing the interface



How to Add Vector Data Layer

■ Adding Vector Data Layer

1. Layer > Add Layer > Add Vector Layer
2. Shortcut: ctrl + shift + v
3. Manage Layer Toolbar: Add Vector Layer

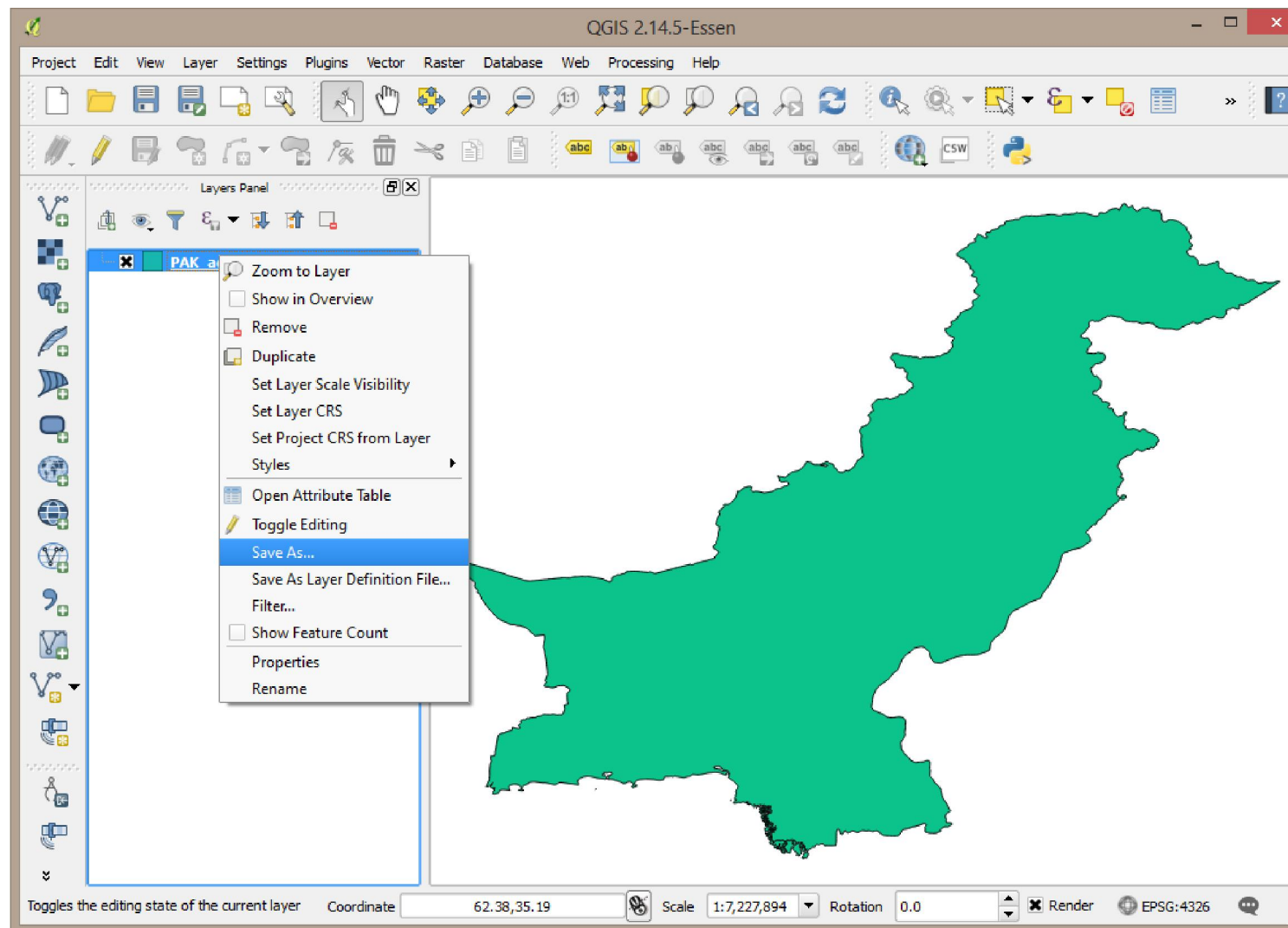
How to Add Raster Data Layer

■ Adding Raster Data Layer

1. Layer > Add Layer > Add Raster Layer
2. Shortcut: ctrl + shift + r
3. Manage Layer Toolbar: Add Raster Layer

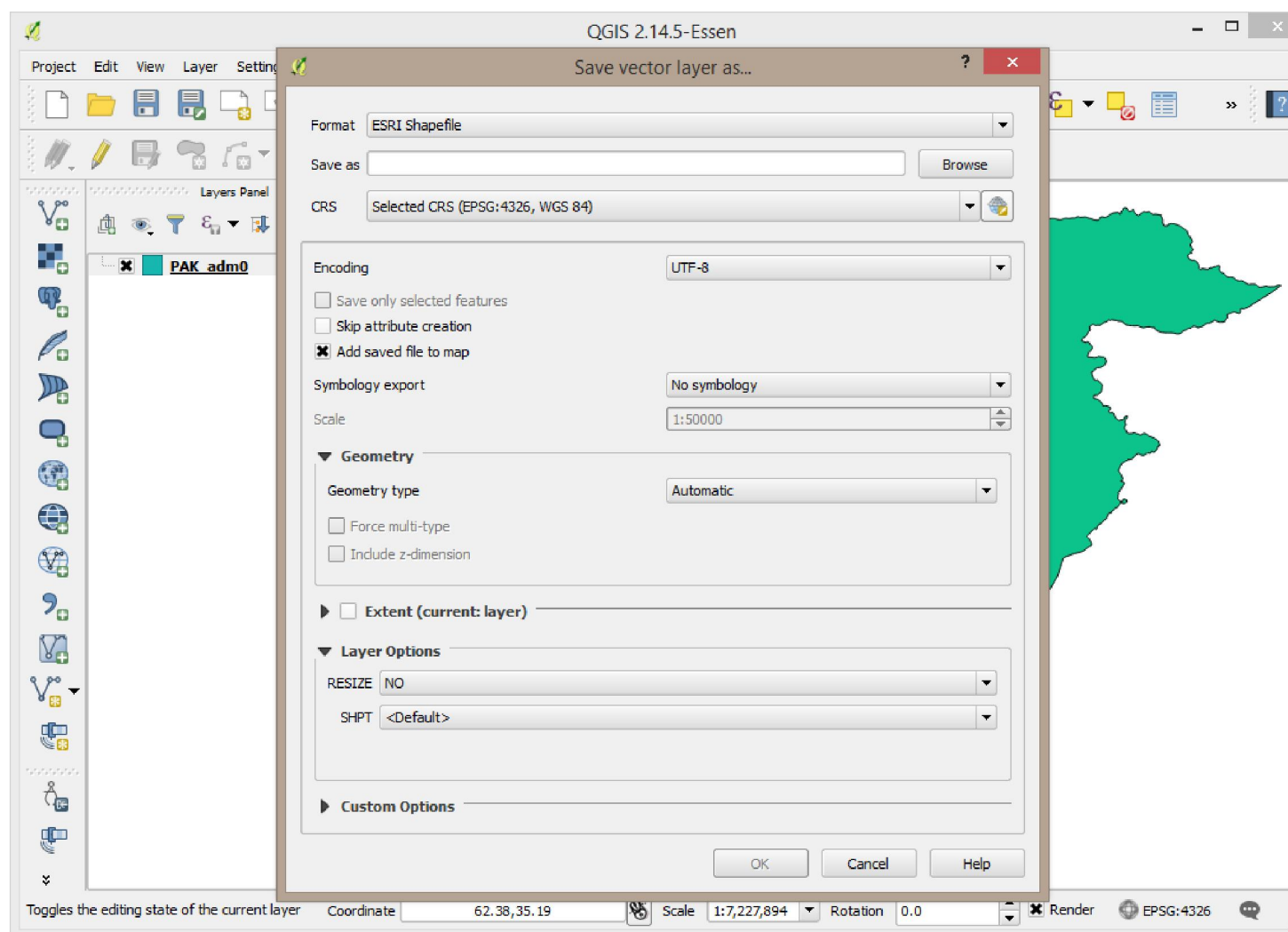
Saving a Vector and Raster Layer

- Right click on layer (in Layer Panel) and click Save As



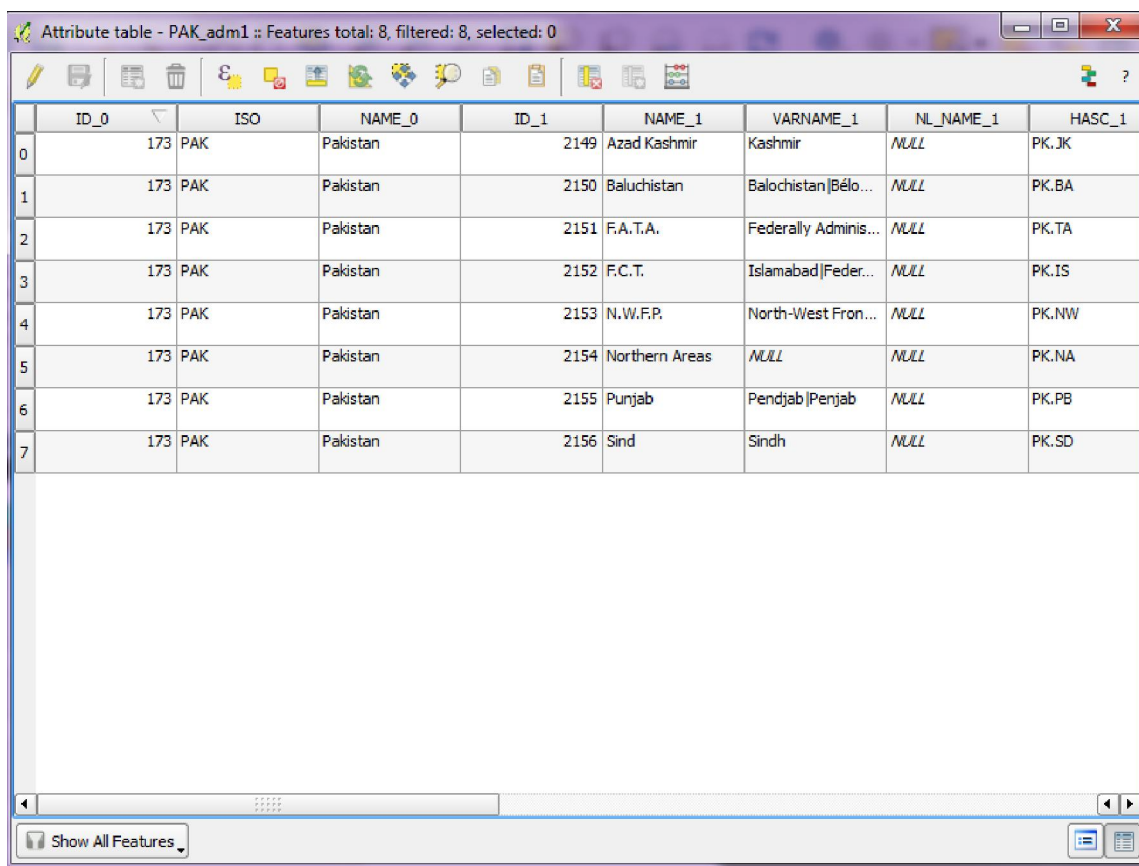
Saving a Vector and Raster Layer

- Right click on layer (in Layer Panel) and click Save As




Working with Attributes

- To view attributes of a data layer:
 - Right click on the layer > Open Attribute Table
 - Toolbar: Open Attribute Table



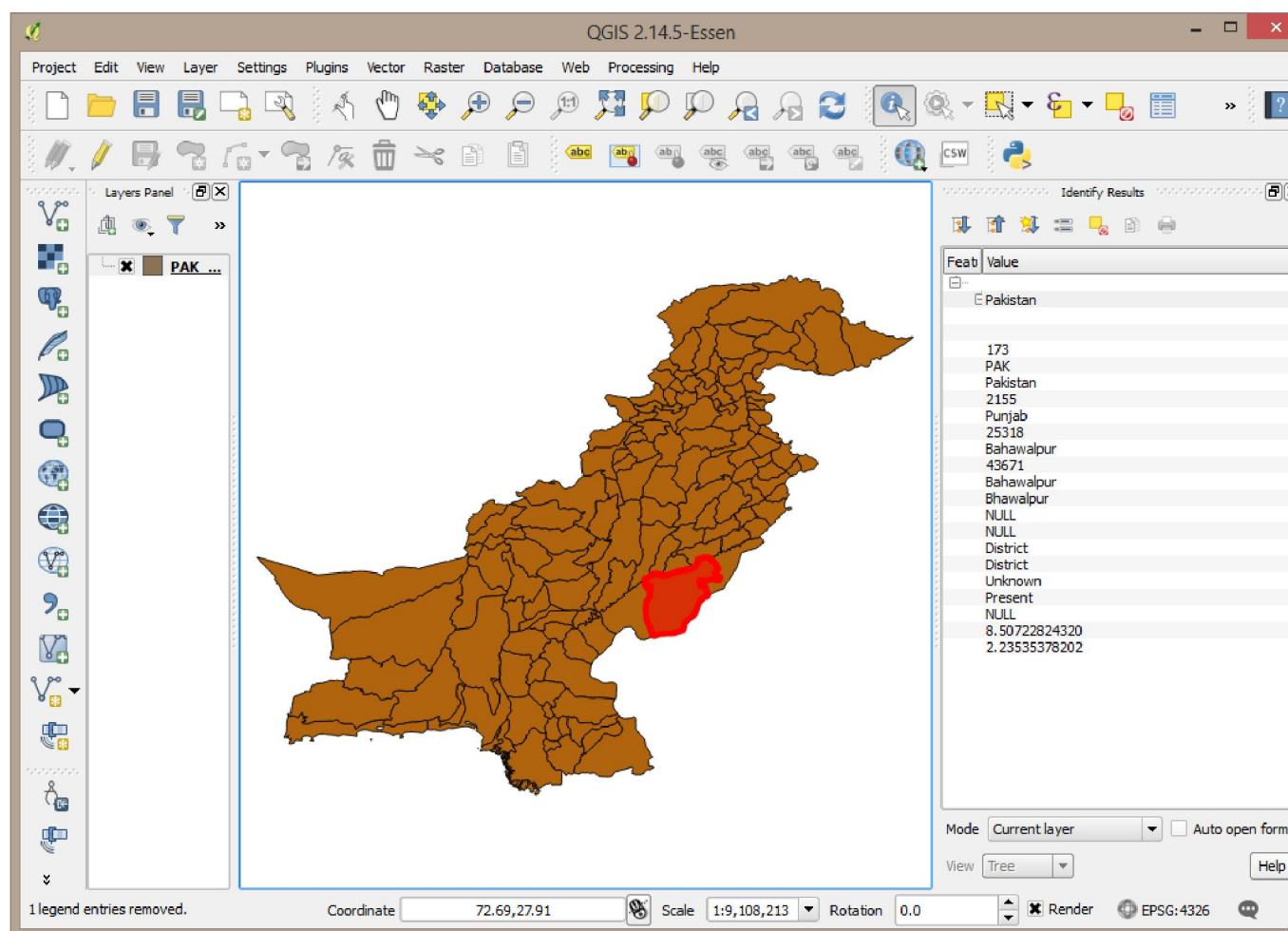
	ID_0	ISO	NAME_0	ID_1	NAME_1	VARNAME_1	NL_NAME_1	HASC_1
0	173	PAK	Pakistan	2149	Azad Kashmir	Kashmir	NULL	PK.JK
1	173	PAK	Pakistan	2150	Baluchistan	Balochistan Bélo...	NULL	PK.BA
2	173	PAK	Pakistan	2151	F.A.T.A.	Federally Adminis...	NULL	PK.TA
3	173	PAK	Pakistan	2152	F.C.T.	Islamabad Feder...	NULL	PK.IS
4	173	PAK	Pakistan	2153	N.W.F.P.	North-West Fron...	NULL	PK.NW
5	173	PAK	Pakistan	2154	Northern Areas	NULL	NULL	PK.NA
6	173	PAK	Pakistan	2155	Punjab	Pendjab Penjab	NULL	PK.PB
7	173	PAK	Pakistan	2156	Sindh	Sindh	NULL	PK.SD

Identify Features

- Identify feature is used to view attributes of a particular feature in a vector layer
- Command path:
 - Click on Identify Features icon in the Attribute Toolbar 
 - View > Identify Features
 - Shortcut: ctrl + shift + i

Identify Features

- Identify feature is used to view attributes of a particular feature in a vector layer



Search/Query Vector Layer

- There are two ways:
 - Layer > Filter
 - Shortcut: ctrl + F
- Note: In older version, Query is present instead of Filter.

Search/Query Vector Layer

Query Builder

Set provider filter on PAK_adm3

Fields

- ID_0
- ISO
- NAME_0
- ID_1
- NAME_1
- ID_2
- NAME_2
- ID_3
- NAME_3
- VARNAME_3
- NL_NAME_3
- HASC_3
- TYPE_3
- ENGTYP_3
- VALIDFR_3
- VALIDTO_3
- REMARKS_3
- Shape_Leng
- Shape_Area

Values

- Nankana Sahib
- Narowal 1
- Narowal 2
- Nasirabad
- Naushahro Firoz
- Nawab Shah
- Neelum
- Nowshera
- Okara
- Okara 1
- Orakzai
- Pakpattan
- Panjgur
- Peshawar
- Pishin

Sample All

Use unfiltered layer

Operators

= < > LIKE % IN NOT IN

<= >= != ILIKE AND OR NOT

Provider specific filter expression

```
"NAME_3" = 'Peshawar'
```

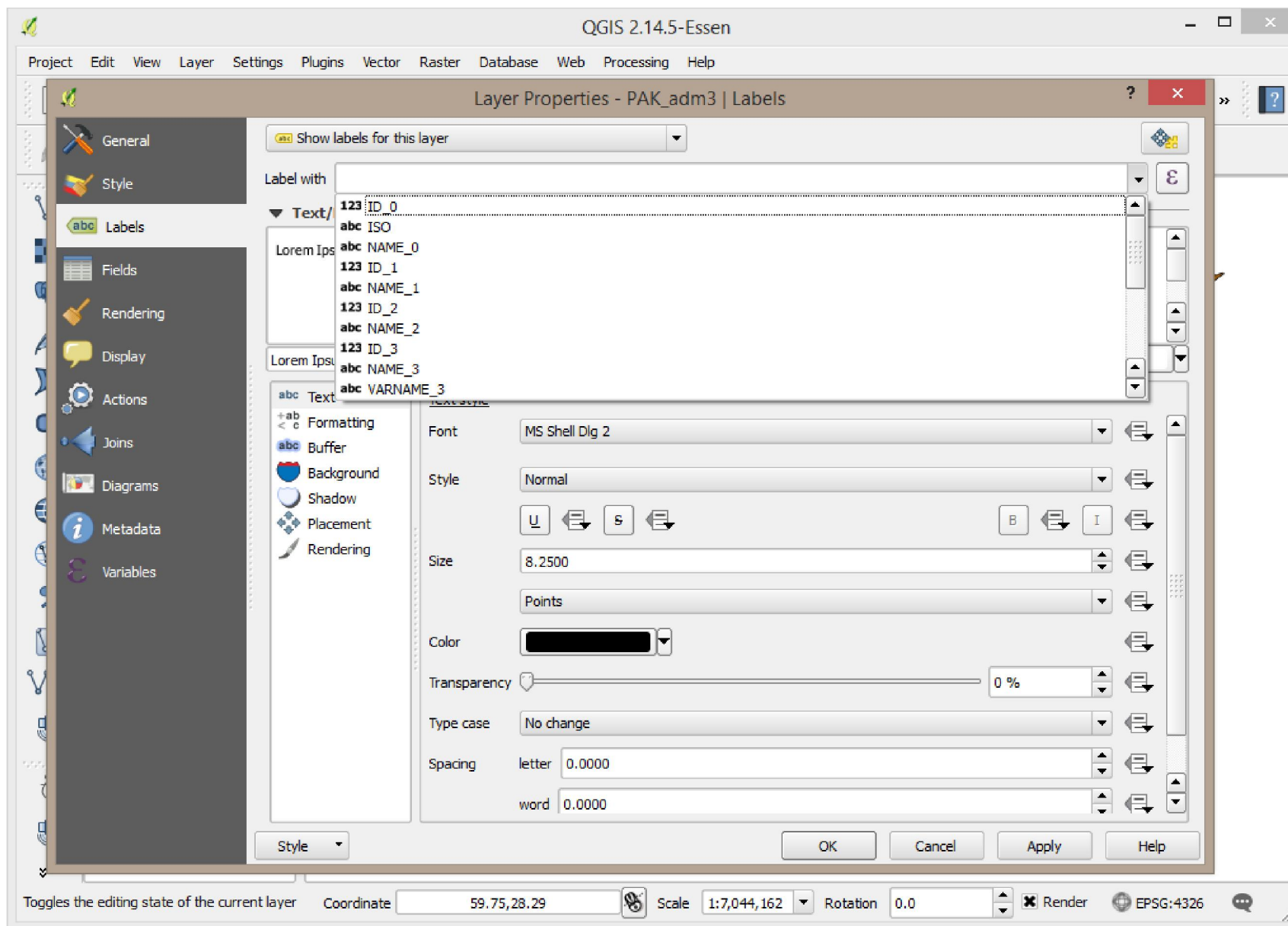
OK Test Clear Cancel Help

Render EPSG:4326

Working with Style/Color, Symbols and Labels

- Right Click on Layer > Properties
 - Style
 - Labels

Working with Style/Color, Symbols and Labels



Working with Style/Color, Symbols and Labels

The screenshot displays the QGIS 2.14.5-Essen interface with the 'Layer Properties - PAK_adm3 | Style' dialog box open. The 'Style' tab is selected, and the 'Single Symbol' dropdown menu is expanded, showing options: Single Symbol, Categorized, Graduated, Rule-based, Point Displacement, Inverted Polygons, Heatmap, and 2.5 D. The 'Fill' section shows a 'Simple fill' with a brown color. The 'Layer rendering' section shows 'Layer transparency' at 0% and 'Layer blending mode' set to 'Normal'. The 'Layer rendering' section also includes 'Draw effects' and 'Control feature rendering order' checkboxes, both unchecked. The 'Layer rendering' section also includes a 'Style' dropdown menu. The 'Layer rendering' section also includes 'Layer transparency' and 'Layer blending mode' settings. The 'Layer rendering' section also includes 'Draw effects' and 'Control feature rendering order' checkboxes. The 'Layer rendering' section also includes a 'Style' dropdown menu. The 'Layer rendering' section also includes 'Layer transparency' and 'Layer blending mode' settings. The 'Layer rendering' section also includes 'Draw effects' and 'Control feature rendering order' checkboxes. The 'Layer rendering' section also includes a 'Style' dropdown menu.

QGIS 2.14.5-Essen

Project Edit View Layer Settings Plugins Vector Raster Database Web Processing Help

Layer Properties - PAK_adm3 | Style

General

Style

Labels

Fields

Rendering

Display

Actions

Joins

Diagrams

Metadata

Variables

Single Symbol

Single Symbol

Categorized

Graduated

Rule-based

Point Displacement

Inverted Polygons

Heatmap

2.5 D

Unit: Millimeter

Transparency: 0%

Color: [Brown]

Symbols in group: [Empty]

Open Library

corners diagonal dotted green land water wine

Layer rendering

Layer transparency: 0

Layer blending mode: Normal

Feature blending mode: Normal

Draw effects: [Unchecked]

Control feature rendering order: [Empty]

Style: [Dropdown]

OK Cancel Apply Help

Toggles the editing state of the current layer

Coordinate: 59.75, 28.29

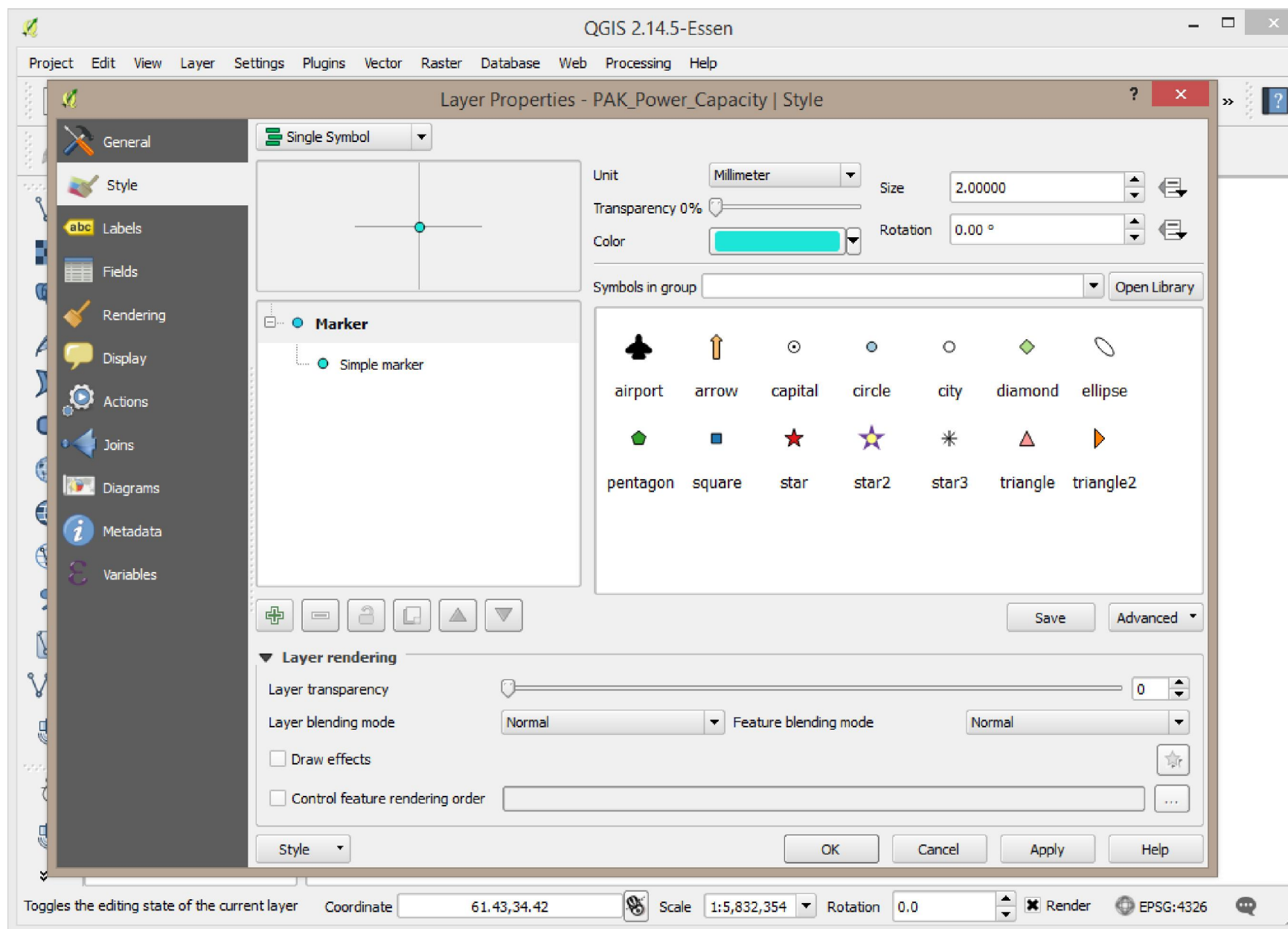
Scale: 1:7,044,162

Rotation: 0.0

Render

EPSG:4326

Working with Style/Color, Symbols and Labels



Working with Style/Color, Symbols and Labels

The screenshot shows the QGIS 2.14.5-Essen interface with the Layer Properties dialog for the 'PAK_Power_Capacity' layer, specifically the Style tab. The dialog is configured for a graduated style based on the '123 field_3' column. The legend format is '%1 - %2' with a precision of 0. The method is 'Size', with a range from 1.000000 to 8.000000 millimeters. The 'Classes' section is set to 'Equal Interval' with 5 classes. The 'Layer rendering' section shows layer transparency at 0, layer blending mode as 'Normal', and feature blending mode as 'Normal'. The 'Advanced' section is expanded, showing options for 'Draw effects' and 'Control feature rendering order'. The 'Style' dropdown is set to 'Style'. The 'OK', 'Cancel', 'Apply', and 'Help' buttons are visible at the bottom of the dialog.

QGIS 2.14.5-Essen

Project Edit View Layer Settings Plugins Vector Raster Database Web Processing Help

Layer Properties - PAK_Power_Capacity | Style

General Style Labels Fields Rendering Display Actions Joins Diagrams Metadata Variables

Graduated

Column: 123 field_3

Symbol: Change...

Legend Format: %1 - %2 Precision: 0 Trim

Method: Size

Size from: 1.000000 to 8.000000 Millimeter

Classes Histogram

Mode: Equal Interval Classes: 5 Classify

Symbol	Values	Legend
•	0.00 - 695.60	0.0000 - 695.6000
•	695.60 - 1391.20	695.6000 - 1391.2000
•	1391.20 - 2086.80	1391.2000 - 2086.8000
•	2086.80 - 2782.40	2086.8000 - 2782.4000
•	2782.40 - 3478.00	2782.4000 - 3478.0000

Add class Delete Delete all Link class boundaries

Advanced

Layer rendering

Layer transparency: 0

Layer blending mode: Normal Feature blending mode: Normal

Draw effects Control feature rendering order

Style OK Cancel Apply Help

Toggles the editing state of the current layer Coordinate: 61.43,34.42 Scale: 1:5,832,354 Rotation: 0.0 Render EPSG:4326

References

- QGIS Training Manual