

# Creating Heatmaps

## QGIS Tutorials and Tips



Author

Ujaval Gandhi

<http://google.com/+UjavalGandhi>

Translations by

SongHyun Choi

클러스터 분석은 데이터의 유사성을 기반으로 그룹을 형성하는 방법이다. 클러스터 분석은 데이터 마이닝의 중요한 기법 중 하나로, 데이터의 구조를 이해하고 패턴을 발견하는 데 사용된다. 클러스터 분석의 주요 응용 분야는 마케팅, 생물학, 사회과학, 이미지 처리 등 다양한 분야에서 활용된다. 클러스터 분석의 주요 기법으로는 K-평균, 계층적 클러스터링, DBSCAN 등이 있다. 클러스터 분석은 데이터의 구조를 이해하고 패턴을 발견하는 데 사용된다. 클러스터 분석의 주요 응용 분야는 마케팅, 생물학, 사회과학, 이미지 처리 등 다양한 분야에서 활용된다. 클러스터 분석의 주요 기법으로는 K-평균, 계층적 클러스터링, DBSCAN 등이 있다.



**Surrey**

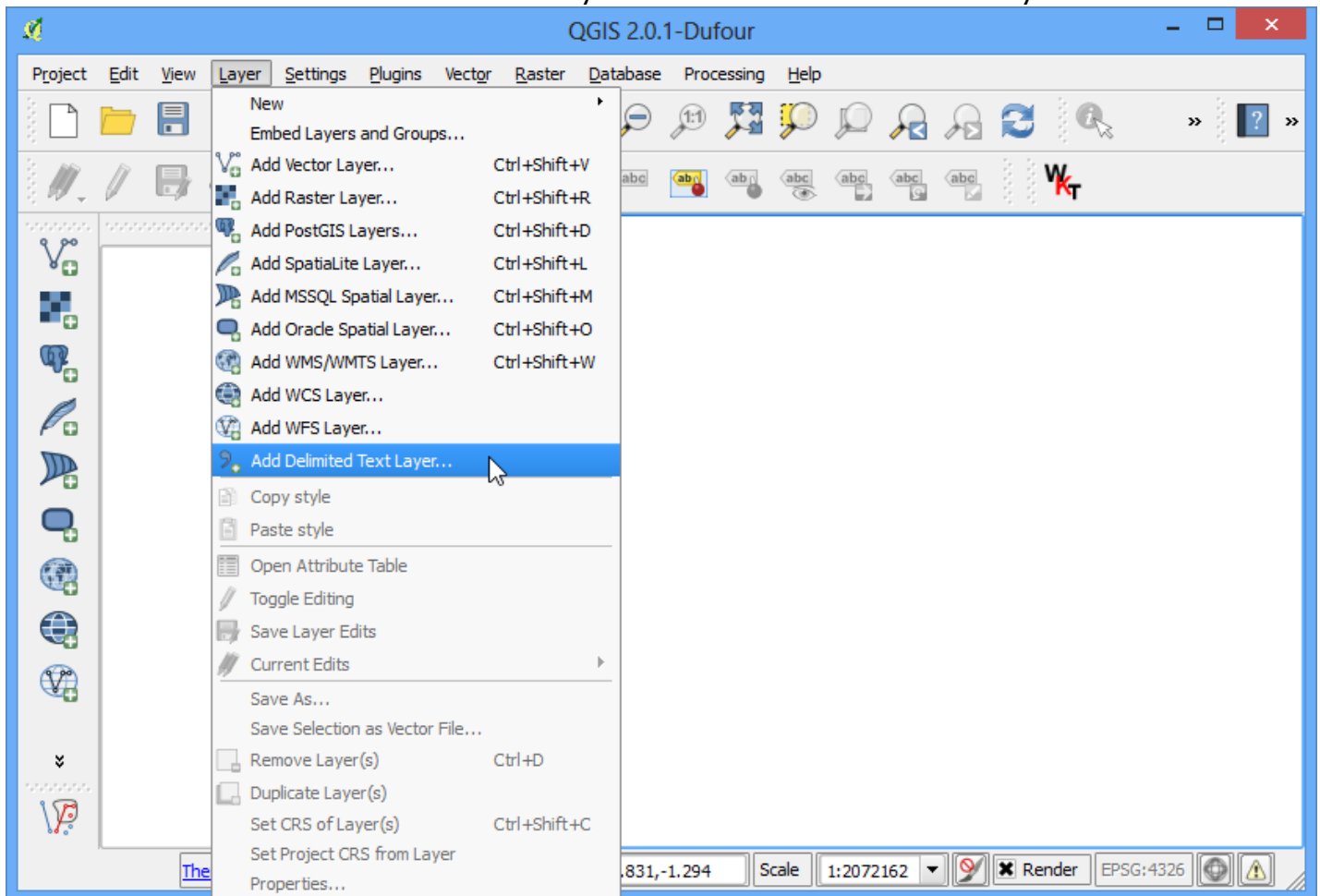


raw data from the Police.uk crime mapping website  
<<http://data.london.gov.uk/datastore/package/policeuk-crime-data>>\_.

Download the [Surrey data](#).

11

1. 以下のコードを実行すると、CSVファイルを読み込み、QGISのレイヤースタックに追加します。  
(Pythonコンソール: doc: 'importing\_spreadsheets\_csv' を参照)。このコードは --> 以下の  
コードを実行すると、レイヤースタックに 'Layer --> Add Delimited Text Layer' を追加します。



2. `police-uk-crime-data-surrey.txt` `:``guilabel:``CSV`  
`(comma separated values)` `*Easting*` `*Northing*` `X` `Y`  
`:``guilabel:``Use spatial index` `OK`.

File Name: `C:/Users/ujaval/Downloads/police-uk-crime-data-surrey/police-uk-crime-data-surrey.txt` Browse...

Layer name: `police-uk-crime-data-surrey` Encoding: `UTF-8`

File format: ☒ `CSV (comma separated values)` ☐ `Custom delimiters` ☐ `Regular expression delimiter`

Record options: Number of header lines to discard: `0` ☒ `First record has field names`

Field options: ☐ `Trim fields` ☐ `Discard empty fields` ☐ `Decimal separator is comma`

Geometry definition: ☒ `Point coordinates` ☐ `Well known text (WKT)` ☐ `No geometry (attribute only table)`

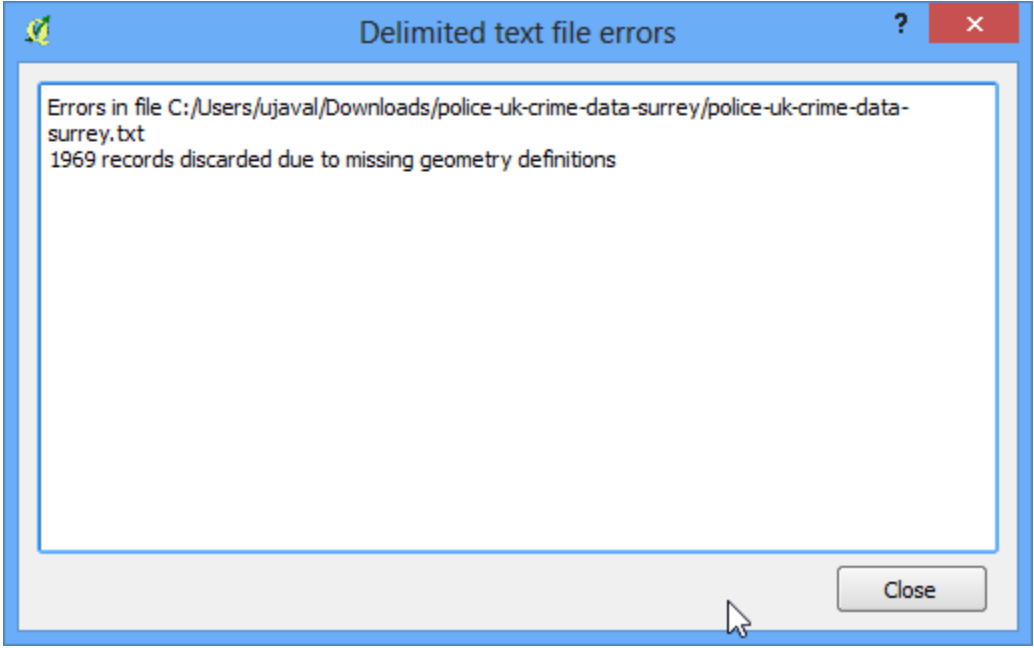
X field: `Easting` Y field: `Northing` ☐ `DMS coordinates`

Layer settings: ☒ `Use spatial index` ☐ `Use subset index` ☐ `Watch file`

	ID	Month	Reported by	Falls within	Easting	Northing	Location	Crime type	Conte...
1	480097	2010-12	Surrey Police	Surrey Police	532773.00	156680.00	On or near Addison Road	Burglary	
2	480098	2010-12	Surrey Police	Surrey Police	498361.00	149806.00	On or near The Oval	Burglary	
3	480099	2010-12	Surrey Police	Surrey Police	498205.00	165251.00	On or near Albury Close	Burglary	
4	480100	2010-12	Surrey Police	Surrey Police	507437.00	174069.00	On or near Sanctuary Road	Burglary	
5	480101	2010-12	Surrey Police	Surrey Police	498205.00	165251.00	On or near Albury Close	Burglary	

OK Cancel Help

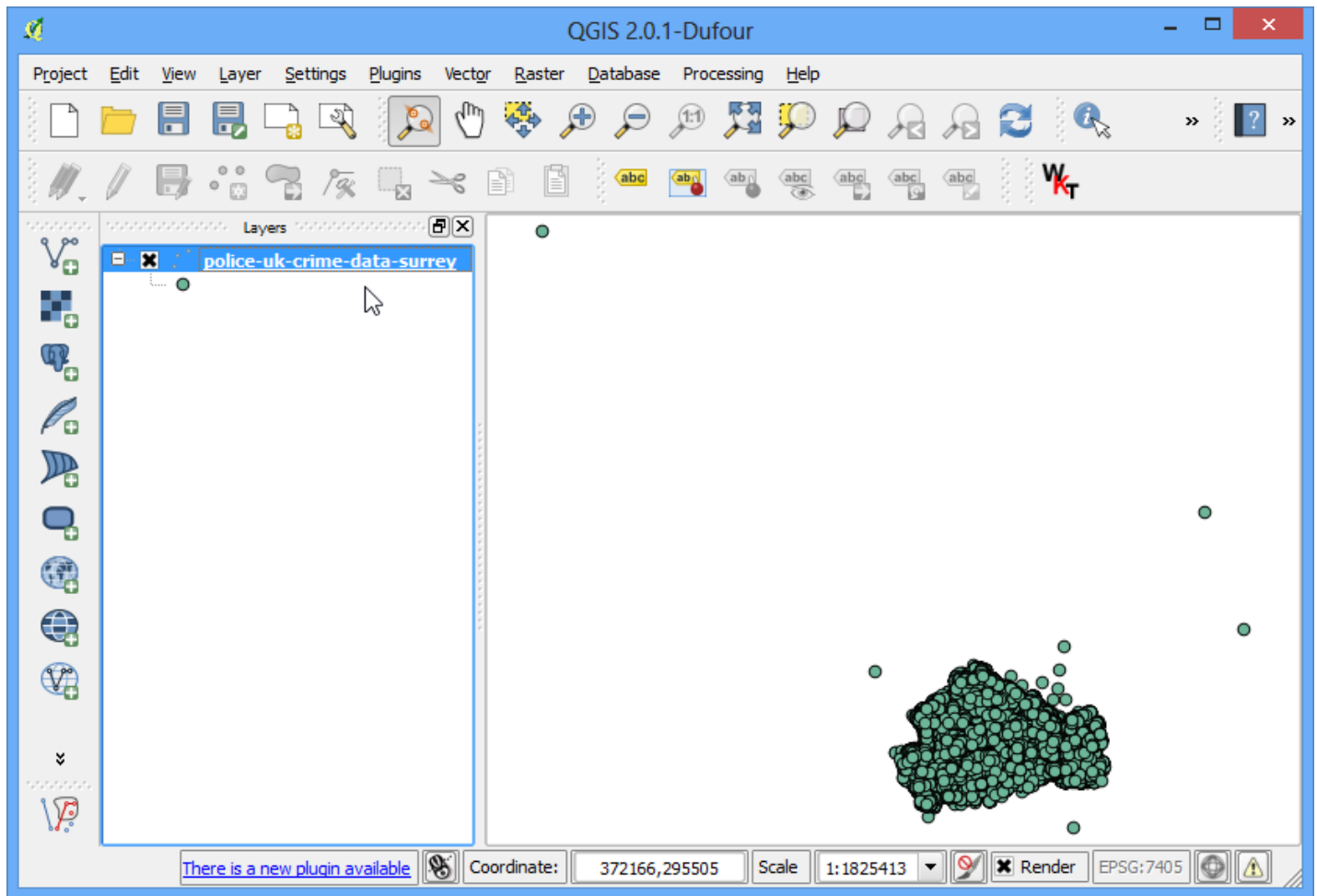
3. `:``guilabel:``Close`.



4. ,  `Coordinate Reference System (CRS)`  .           British National Grid    . CRS :guilabel:`OSGB 1936 / British National Grid`  . :guilabel:`OK`



5. □□ QGIS □ □□□ □□□□□ □ □ □□□.



6. □□□□ □ □ □□□ □□ □□□ □□□ □□□. □□□□ □□□ □□□□ □□□ □□ □□ □□□□ □□□ □□ □□□□ □□ □□□□. □□□ □□□ □□□□ □□□□□ □□□□□.



7. To create the heatmap, you need to enable a core plugin named *Heatmap*. See [□□□□](#) [□□□□](#) to know how to enable built-in plugins. Once you have enabled the plugin, go to Raster › Heatmap › Heatmap.

### **Warning**

The Heatmap plugin has a bug in QGIS 2.8.1. See [this post](#) for workarounds.



8. `Heatmap Plugin` `Output raster` `crime_heatmap` `Radius` `1000` `heat` `Advanced` `X` `Cell Size` `Y` `100` `OK`





9. □□ □□□ □□□□ □□□□ □□ □□□□ □□ □ □□□□.



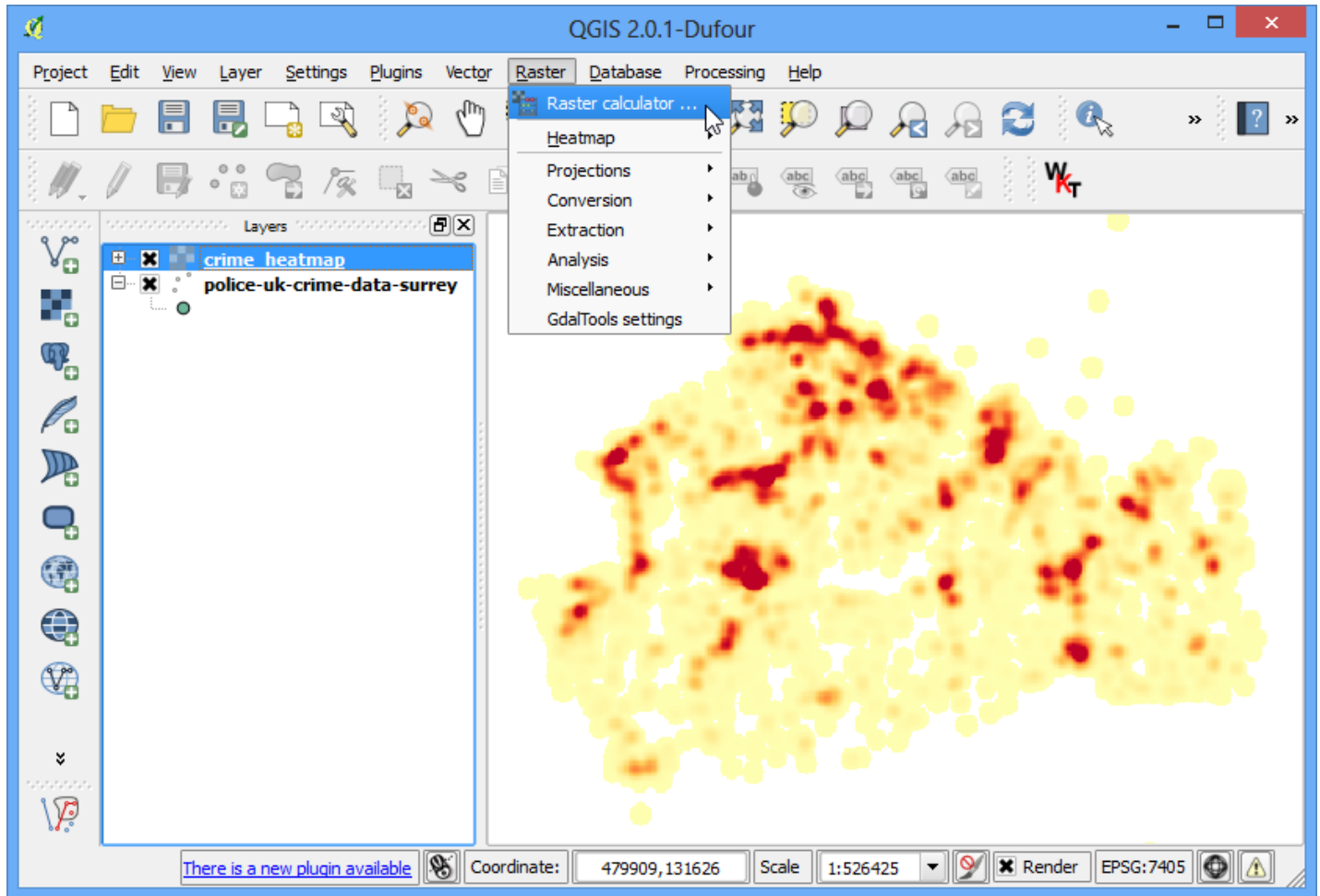


11. `Style`` `Render type`` `Singleband pseudocolor`` `Load min/max values`` `Accuracy`` `Actual (slower)`` `Load`` `Generate new color map`` `YlOrRd (Yellow-Orange-Red)`` `Classify`` `OK``





13. □□ □□□□ □□□□□□. □□□ □□□ □□□ □□□□□. □□□ □□□ □ □□□ □□□□□□ □□□□ □□□□. □□□ □□ □□ □□□ □ □ **hotspots** □ □□□□□ □□□□. □ □□□□ □□□ **hotspots** □ □□□□□ □□□□□. □□ □□□ --> □□□ □□□ :menuselection: Raster --> Raster Calculator` □ □□□□.



14. `crime_hotspots` Raster calculator `crime_hotspots` `crime_heatmap@1` `"crime_heatmap@1" > 5` `Add result to project` `OK`



15. QGIS 0.16.0 0.16.0 0.16.0. 0 0.16.0 0.16.0 5.0 0.16.0 0.16.0 1.0 0.16.0 0.16.0 0.16.0 0.16.0. 0.16.0 0.16.0 --> 0.16.0 --> 0.16.0 /0.16.0 0.16.0 :menuselection: Raster --> Conversion --> Polygonize (Raster to Vector) 0.16.0.

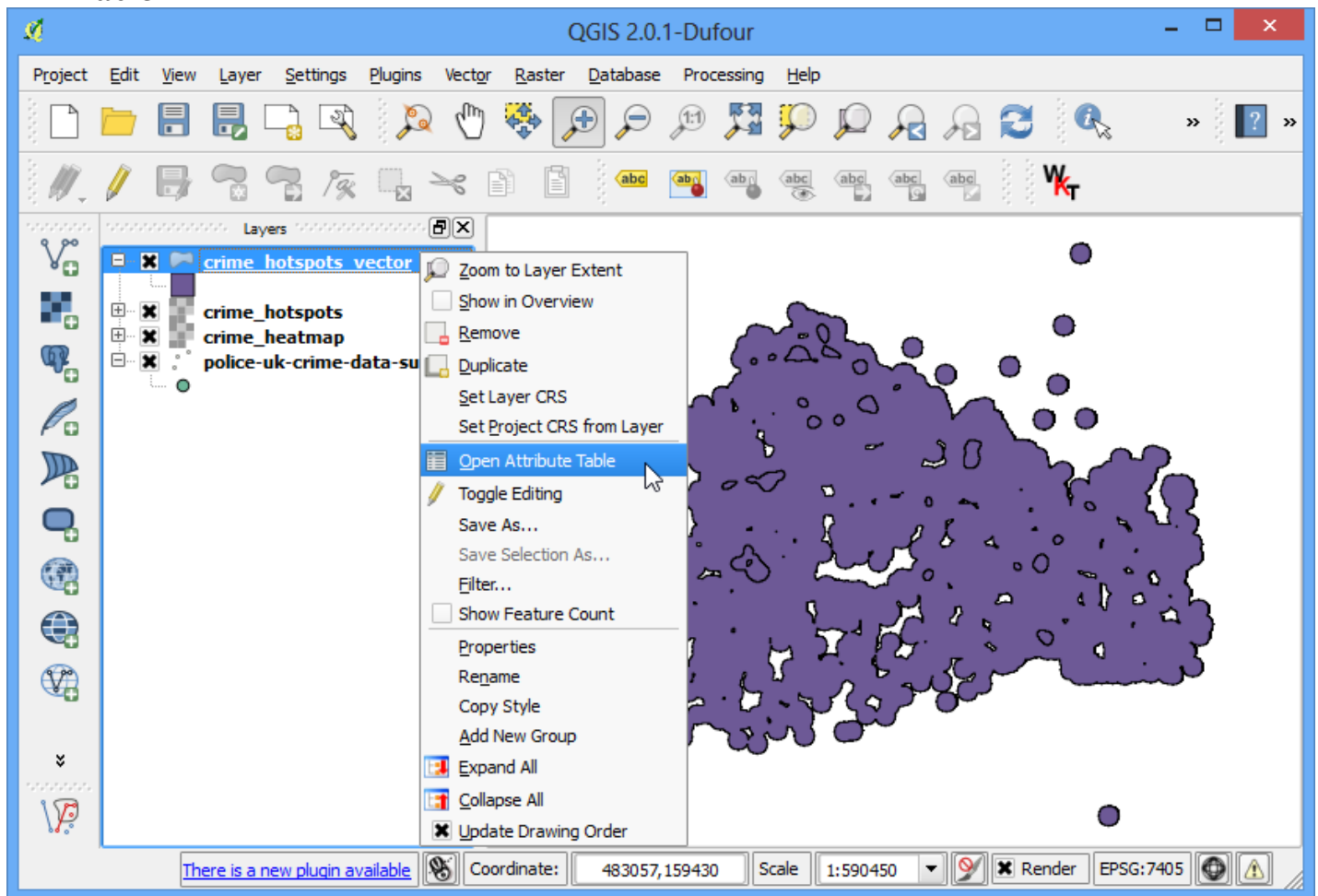


16. `crime_hotspots_vector`` `crime_hotspots_vector.shp`. `Field name`` `DN` `Load into canvas when finished`` `OK`` `crime_hotspots_vector.shp`.





17. □□ □□ □□□□ □ □□ □□□□ QGIS □□ □□□□. □□ □□□□ □□□ □□□□ □□ □□ □□□□. □ □□□ 0 □ 1 □ □□ □□ □□□□ □□□ □□□□. 0 □□ □□ □□ □□□□. □□ □□ □□□□ □□□□. □□□ □□□□□ □□□□ □□ :guilabel: `Open Attribute Table` □ □□□□□.



18. □□ □□□ :guilabel: `Attribute table` □□ □□□□ □□ □□ □□ □□ :guilabel: `Select feature using an expression` □ □□□□□.



19. Click the "DN" = 1 button in the toolbar. Click the "Select" button in the toolbar. Click the "Close" button in the toolbar.



20. QGIS の「Select By Expression」ダイアログボックスの「Expression」フィールドに「"DN" = 1|」を入力し、黄色い正方形アイコンの「Select」ボタンをクリックして選択を実行します。その後、右下の「Close」ボタンをクリックしてダイアログボックスを閉じます。



21. `crime_clusters` `:guilabel:` Add saved file to map `:guilabel:` OK `:`



