Cadastre

Description BAG GeoPackage

Contents and features of the BAG GeoPackage

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Version

1.1

Version history

Version	date	location	description
1.0	02-06-2022		Initial version of the document
1.1	20-07-2023		Description of the terms area_min and _max included in the document.

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1 BAG GeoPackage

The BAG GeoPackage is a format for geo-information. It is an open, standards-based, platform-independent, portable, simple and compact file for sharing geo-information. The starting point of the BAG GeoPackage is the ability to quickly and easily process BAG data in one's own application or environment without needing specific BAG knowledge. In the development of the BAG GeoPackage, user-friendliness is paramount.

The BAG GeoPackage is accessible [through PDOK](). Every month around the 1^{e}of the month a new version of the GeoPackage is made available, replacing the old version. Only the most up-to-date BAG GeoPackage can be downloaded via PDOK.

1.1 Contents of the GeoPackage

The underlying database contains a subset of BAG data with current status. The BAG GeoPackage does not contain objects with an end state or historical occurrences with an end date. More information on the definition of objects with a current status can be found in [the BAG Practice Manual]().

The data in the BAG GeoPackage are updated monthly. Buildings, residential objects and addresses (composed of number designation, public space and residence) are flattened/merged for ease of use so that substantive BAG data are provided for different objects. For a property, information about the residential objects present within the property is also provided (where available). For addressable objects (plots, moorings and residential objects), the address data of main addresses are also supplied. In addition to the residence objects, the year of construction and the status of the related property are also supplied. The BAG GeoPackage thus contains objects derived from BAG objects.

Because the objects within the BAG GeoPackage are derived, not all BAG information is included in the GeoPackage. For example, a residence object with multiple property relationships will lack property relationships in the BAG Geopackage. For residence objects with extension addresses, the extension addresses are not provided.
In addition, not all BAG attributes are included in the BAG GeoPackage. The BAG GeoPackage lacks the following information:
- times (start date, timeRegistration, source document date)
- document numbers
- information about under investigation
- indication observed
- occurrence identifiers

Furthermore, the BAG GeoPackage contains derived data that are not explicitly defined in the BAG itself. These derived data included in the BAG GeoPackage are:
- number of residential objects per property
- area of the largest residence object in a property (given area_min)
- area of the smallest residence object in a property (given area_max)
- purpose of use per building (derived from the residential objects)

1.2   Global overview of the possibilities

The BAG GeoPackage lends itself well to easy processing of BAG data in your own environment. Some possibilities for using the BAG GeoPackage are:
- Display BAG information on a map
- Process BAG data in a database
- Perform analysis on the dataset

1.2.1   Examples

To help users get started, a number of scenarios are worked out below in which the BAG GeoPackage can be used. In these situations, the application QGIS has been used. However, there are many different (free) applications available that can handle a BAG GeoPackage.

1.2.1.1   How can I easily visualize BAG data on a map?
Using a GIS application (such as QGIS) it is possible to quickly and easily visualize BAG data on a map.

After downloading the BAG GeoPackage, you can easily load the BAG GeoPackage. Within the BAG GeoPackage several attributes are included such as address, property and number designation. You can make a selection of the data you wish to visualize on a map and the application will display all the data. To complete the visualization, you can choose to load a background map. For example, PDOK's plugin allows you to implement different background maps, which are as easy to load as the BAG GeoPackage.

1.2.1.2   How do I create a CSV file with all addresses within the city of Utrecht?
Retrieving BAG data from a BAG GeoPackage can be done in several ways. One of the ways is explained below.

After downloading the BAG GeoPackage, you can easily load the BAG GeoPackage within QGIS. Step 1: Load

the city of Utrecht.
By double clicking on 'city of residence' within the BAG GeoPackage, the layer with cities of residence will be loaded into QGIS. With the right mouse button you can click on this layer 'city of residence' which will reveal several options, including the option 'Filter'. This option allows you to filter only the data of a residence, such as Utrecht in this example. In the Querybuilder, enter in the query: "residence" = 'Utrecht' and click 'OK'. The screen will display the geometry of the residence Utrecht as a result.

Before continuing with the selection of data, zoom in until the city of Utrecht fills the screen. This ensures that loading the data in the next step takes less processing time.

Step 2: Load the data of the residence objects.
Unlike most other BAG products, in the BAG GeoPackage the addresses are collected from the residence objects. By exporting this information, you can have a list of all addresses.

By double clicking on the residence object, you can load the residence objects. You will see that the dots of the residence objects also extend outside the area of Utrecht. We will filter this in the next step.

Step 3: Filter on only the residence objects within the city of Utrecht

At the top of the toolbar, the functionality 'Toolbox' is available. This allows searching within the available functionalities of QGIS. Clicking on 'Toolbox' opens a search screen on the right side of the screen. For filtering we are going to use the functionality called 'Clipping'.
This functionality can be found by entering 'clipping' in the search term. By double clicking on the word 'clipping' you can access the functionality.

The input layer is the layer with the residence objects and the consultation layer is the layer with the residence, as shown below. After selecting the appropriate layers, click 'Run' after which you can click 'Close'.
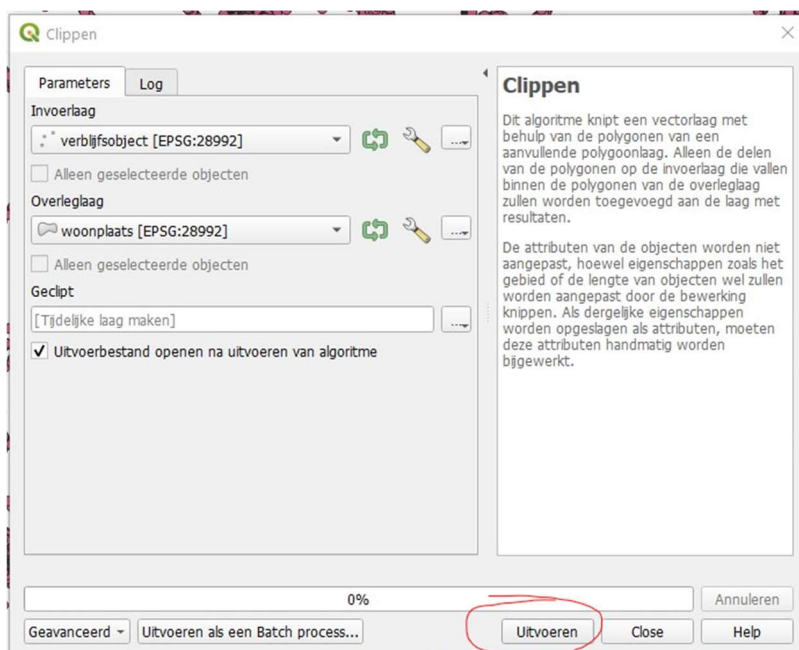
This operation will add a map layer called 'Clipped' on the left side under Layers. This map layer contains all residence objects (with addresses) within the city of Utrecht.

Step 4: Export the map layer with addresses to CSV

The final step in the process is to export the filtered addresses to CSV. Right-clicking on the 'Clipped' map layer (on the left side of the screen) reveals several options including the 'Export' option. The 'Export' option provides several options. Here you can choose 'Save objects as...'. Within this functionality there are several format choices. Select the desired format, name the file and click 'OK'. The file will now be created in the desired format.

1.2.1.3   An overview of all offices within the city of Utrecht that have been built as of 2021.

To create an overview of all offices built as of 2021, a combination of different BAG data is needed. We need to know which buildings all lie within the city of Utrecht, what the year of construction of these buildings is and what function the residential objects within these buildings have. With ease of use in mind, various BAG data (which are normally linked to other BAG objects) are combined so that analyses such as in this example can be performed in one simple query.

The steps 1 to 3 of the previous section (How to create a CSV file with all addresses within the city of Utrecht) should also be performed in this analysis. Hence, in this elaboration, we will start with step 4.

Step 4: Run the query that filters the residence objects

Right-clicking on the 'Clipped' map layer will reveal the 'Filter' option. Click on it. In the lower field called 'Provider-specific filter expression' the query below can be placed:

'purpose of use' LIKE '%officefunction%' and 'year of construction'>= '2021'

After this, 'OK' can be clicked. Now only the office properties within the city of Utrecht that were built as of 2021 will be shown.

1.2.1.4   How do I create an overview of all properties in the municipality of Apeldoorn with an area between 100m2 and 150m2?

To answer this question, it is good to first find out which BAG data are needed. To make an overview of all dwellings, we need to know which residential objects with the use purpose 'residential function' are located within the municipality of Apeldoorn. In addition, we would like to know which of these residential objects have a surface area of more than 100m2, but less than 150m2.

Step 1: Load the municipality of Apeldoorn
By double clicking on 'residence' within the BAG GeoPackage, the layer with residence objects will be loaded into QGIS. With the right mouse button you can click on the layer with residential locations which will reveal several options, including the option 'Filter'. This option allows you to filter only the data of a residence, such as the source owner identification. Clicking on 'Filter' opens the Querybuilder.

By means of the source holder identification, you can find out which municipality is the source holder of the data. In other words: within which municipality the objects are located.
The BAG GeoPackage includes the four-digit municipality code to identify the source holder. The relationship between the municipality code and the municipality name can be found in Table 33 of the RIVG Table.

In this case study, we are looking for the dwellings within the municipality of Apeldoorn. The municipality code of Apeldoorn is 0200.In the Querybuilder, enter the following query: "sourceholder_identification" = '0200'.

Then click on 'OK'. The screen will show as a result the geometry of the residential places within the municipality of Apeldoorn.

Step 2: Load the data of the residence objects.

Unlike most other BAG products, the addresses in the BAG GeoPackage are collected from the residence objects. By exporting an overview of the residence objects, you can have a list of all addresses.

Before proceeding with data selection, zoom in until the Municipality of Apeldoorn fills the screen. This ensures that loading the data in the next step takes less processing time.

By double clicking on the residence object, you can load the residence objects. You will see that the bullets of the residence objects also extend outside the area of the municipality of Apeldoorn. We will filter this in the next step.

Step 3: Filter on only the residence objects within the municipality of Apeldoorn

At the top of the toolbar, the functionality 'Toolbox' is available. This allows searching within the available functionalities of QGIS. By clicking on 'Toolbox', a search screen opens on the right side of the screen. opens a search screen. For filtering we are going to use the functionality called 'Clipping'. By double clicking on the word 'clipping' you can access the function.

The input layer is the layer with the residence objects and the consultation layer is the layer with the residence as shown below. After selecting the appropriate layers, click on 'Run' after which you can click on 'Close'.
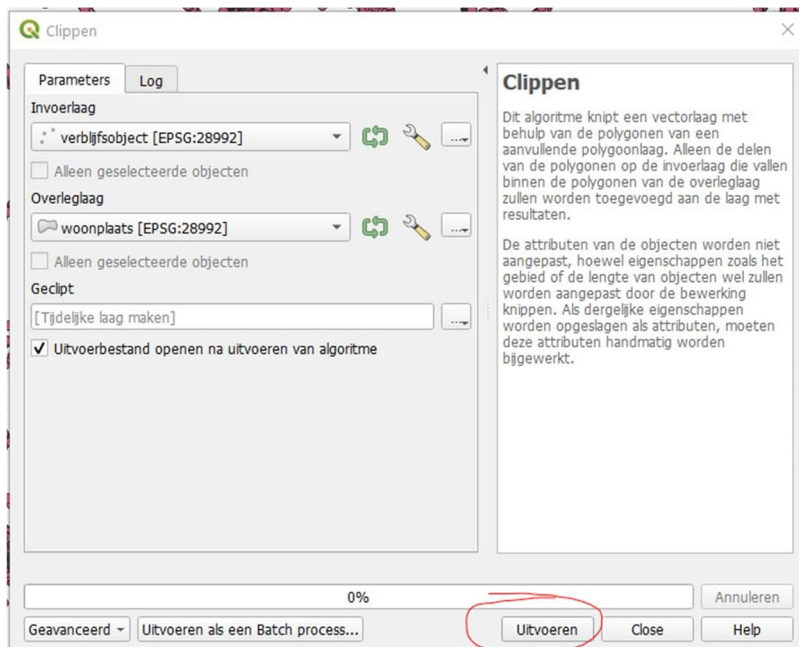
This operation will add a map layer called 'Clipped' on the left side under Layers. This map layer contains all residence objects (with addresses) within the municipality of Apeldoorn.

Step 4: Execute the query that filters the residence objects

By right-clicking on the 'Clipped' map layer, the 'Filter' option becomes visible.
In the lower field called 'Provider-specific filter expression' the following query can be placed: 'area' >= 100 and

'area' <= 150 and 'purpose of use' like '%residential%'

After this, 'OK' can be clicked. Now only the dwellings within the municipality of Apeldoorn are shown that have a surface area between 100m2 and 150 m2.

2 Appendices

2.1 Common definitions BAG

Within the BAG various terms are used that may require explanation. The terms most commonly used in this document are explained below. The full list of definitions is published on our website.

Residence object
The smallest unit of use located within one or more buildings and suitable for residential, commercial, or recreational purposes, which is accessed via its own lockable access from the public road, a yard, or a shared traffic area, may be the subject of property law transactions, and is functionally independent.

Stand
A designated (part of a) site designated as such by the competent municipality. A pitch is intended for the permanent placement of structures that are not directly and permanently connected to the earth.

Berth
A place in water (whether or not supplemented by land present on a shore) designated as such by the municipality in charge. A berth is intended for the permanent mooring of a floating object.

Number indication
A designation of an addressable object assigned by the municipality in charge. An addressable object has a number designation for its main address and may have one or more number designations for secondary addresses.