



# A Guide on how the official municipality key (AGS) is used and constructed

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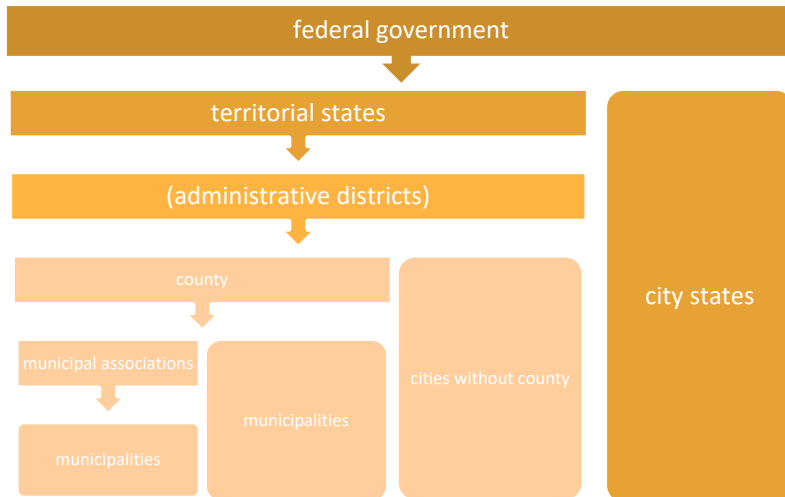
**This guide presents information about the use, meaning and construction of the AGS. First we describe how the administrative spatial structure is organized in Germany and what the AGS is for. Then we break down how the AGS is constructed and where to obtain Data. Finally we present how to use the AGS.**

## 1 Introduction - What is AGS?

The Federal Republic of Germany consists of a large number of regional units that are structured hierarchically. In order to obtain an overview of the individual regional units, it is necessary to have a unique labeling of each regional unit. For that, different options are available, such as the postcode, the Nielsen areas, the NUTS code or the AGS. We now first need to get an overview on how the German spatial structure is built. This allows us to comprehend the composition of the numerical coded AGS. The regional units in Germany are structured as in Figure 1 (Statistisches Bundesamt, 2021):

The Federal Republic consists of 16 federal states, 3 city states (Hamburg, Bremen, Berlin) and 13 territorial states. Some of the territorial states are subdivided into administrative districts. On a sublevel under the territorial states and administrative district the counties are located. Similarly we find the cities without counties on the same level. The counties are then divided in municipalities, which sometimes form a municipal association (Peters, 2013). Those municipalities are the lowest administrative level in Germany.

Figure 1: regional administrative structure in Germany



For an unambiguous identification, an eight digit sequence is assigned to each municipality, city without county and city state, the so called AGS. The numerical classification is very similar to the NUTS code system (Nomenclature des Unites territoriales statistiques) used in Europe. Originally the idea was to use the AGS to better capture population movements in the different municipalities, especially since some of them have identical or strongly related names (Maier, 1956). At the same time, the digit sequence also provides information on which district or state the municipality belongs to (Rijke 2020). For more information, the AGS code can be expanded by three digits to the regional key (ARS) (Statistisches Bundesamt 2021).

## 2 How to construct and access the AGS

The official municipality key consists of eight digits. The first two digits indicate the federal state (territorial or city state), the third the affiliation to an administrative district. The fourth and fifth digits are used to identify smaller units, such as counties or cities without county. The identification of the municipality takes place via the sixth to eighth digits (Maier, 1956). For the regional key, additional four digits are inserted before the last three digits for the classification of the municipal association. As an example, let us consider the city of Constance with the AGS 08 3 35 043, as in Figure 2. The digits 08 stand for Baden-Württemberg, the 3 for the administrative district of Freiburg, the 35 for the rural district of Constance and the 043 finally for the municipality of Constance.

Figure 2: Example: AGS for Constance

08 3 35 043	•municipality Konstanz, Universitätsstadt
08 3 35	•rural district Konstanz
08 3	•administrative district Freiburg
08	•territorial state Baden-Württemberg

To access data sets containing the AGS, various sources are available, such as the Federal Statistical Office (Destatis), the Federal Institute for Research on Building, Urban Affairs and Spatial Development or the Research Data Center of the Socio-Economic Panel (FDZ SOEP). Destatis provides the Municipal Directory Information System (GV-ISys), which lists all politically independent municipalities in Germany, including AGS categorization (Statistisches Bundesamt, 2021). Alternatively, the current edition of INKAR (Indicators and Maps of Spatial and Urban Development) can be used at the Federal Institute for Research on Building, Urban Affairs and Spatial Development. This interactive online atlas provides regional statistical information on topics such as education, demography, labor market or economy. The data can be filtered and sorted according to geographic dimensions such as countries, counties or municipalities using AGS (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2022). Another data source is the SOEP datasets. Among other things, the SOEP Core v35 dataset contains surveys of households regarding income or education with regional assignment to places of residence, using the AGS (DIW Berlin, 2022). However, in order to gain access to the SOEP datasets with regional information, a data transfer contract with a data protection concept is required in the context of data confidentiality. In contrast, the data from INKAR is freely accessible. Here, the data is processed according to the EU Data Protection Regulation, DSGVO, and the Federal Data Protection Act 2018 BDSG.

When working with the AGS it is important to always use up-to-date datasets, as the German spatial structure changes over time. Municipalities are incorporated into other municipalities or merged as part of municipal reforms. In addition, they sometimes change their names. While there were more than 13,000 municipalities in 2003, there were only 11,092 left in 2015. Similarly, the number of administrative districts is constantly changing. In Lower Saxony, for example, the counties were dissolved in 2005 (Siebenherz, 2016). To avoid mistakes and confusion regarding changes, the GV-ISys updates the regional units and their AGS in the datasets annually.

### 3 How to use GBP AGS

Researchers can use AGS in the GBP datasets to conduct regional studies. In this section, we illustrate how one could utilize AGS to graph municipality-level data on maps using Stata (Same logic applies for other regional levels). The resulting figure is Figure 3

```
/*Step1: Find the shapefile online (In this example, the shapefiles for Germany are downloaded from the web.)*/

/* Step2: Install the necessary packages in Stata
*/
ssc install spmap
ssc install shp2dta

/* Step3: Translate the shapefiles into Stata datasets
data("path\VG250_GEM_data") indicates the name of the new dataset
coord("path\VG250_GEM_coord") indicates the name of the new coordinate dataset
genid(municipality) allocates unique ids to each municipality (each row) in the new dataset
After running the command, two Stata datasets are generated.
*/
shp2dta using "path\VG250_GEM", data("path\VG250_GEM_data") coord("path\VG250_GEM_coord")
genid(municipality) replace

/* Step4: Drop Northern, Baltic, and Bodensee Areas.
This step is necessary to drop duplicates.
*/
use "path\VG250_GEM_data", clear
keep if GF==4

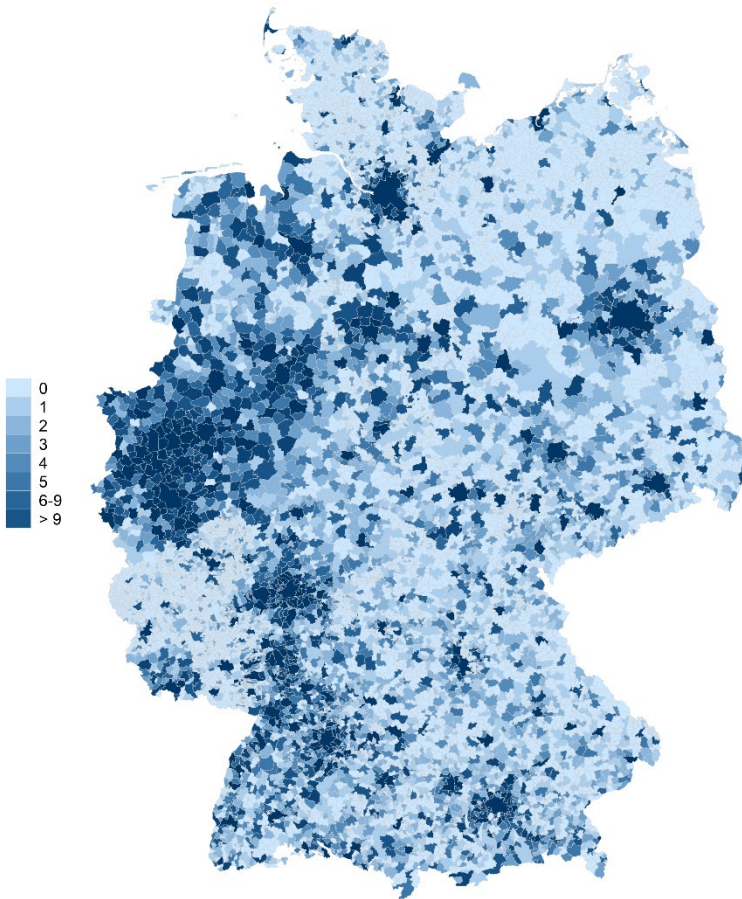
/* Step5: Merge with the main dataset, keepusing: variables to keep from using data
As an example, the data from wave 1 and 2 are used.
*/
use "wave1_2.dta", clear
merge m:1 AGS using "path \VG250_GEM_data", keepusing(municipality)

/* Step6: Count the number of participants in each municipality
*/
gen aux = 0
replace aux = 1 if _merge == 3
* Collapse the data set
collapse (sum) aux, by(municipality)

/* Step7: Draw the map
Here aux indicates the total number of participants in each municipality.
For design options, please consult the documentation of spmap.*/
spmap aux using "path\VG250_GEM_coord", id(municipality) fcolor(Blues2) cnumber(38) legend(symy(*1)
symx(*1) size(*1)) legorder(lohi) ocolor(gs13 ..) osize(vvthin ..) ndfcolor(white) ndocolor(gs13) legenda(on)
legend(ring(1) pos(9)) graphregion(color(white)) legend(order(2 "0" 3 "1" 4 "2" 5 "3" 6 "4" 7 "5" 8 "6-9" 9 "> 9"))
```

Figure 3 illustrates the distribution of participants in the first two GBP waves. The figure shows that most of the participants are located in states such as Nordrhein-Westfalen and Baden-Württemberg, or big cities such as Hamburg, Berlin, and Munich.

Figure 3: Distribution of participants of GBP surveys



## References

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