IMAGE Help File

(last updated: 22/02/2023)

Contents

What is IMAGE?

IMAGE is a web-tool used for the production of Thematic Maps for a pre-defined map extent of the EU/EFTA/Candidate Countries using NUTS boundaries and Statistical regions. Additionally a global maps as well individual European countries are also available. The tool enables the production of professional, statistical maps for publication in print and online. The legacy name of IMAGE comes from the **IN**teractive **MA**p **GE**nerator

https://gisco-services.ec.europa.eu/image/

Note that customised maps showing specific regions, graphs and bespoke colours cannot be made with the default templates in IMAGE. For these customisations we recommend to use editing software such as Inkscape, or contact Eurostat's GISCO team ESTAT-GISCO-MAPS@ec.europa.eu

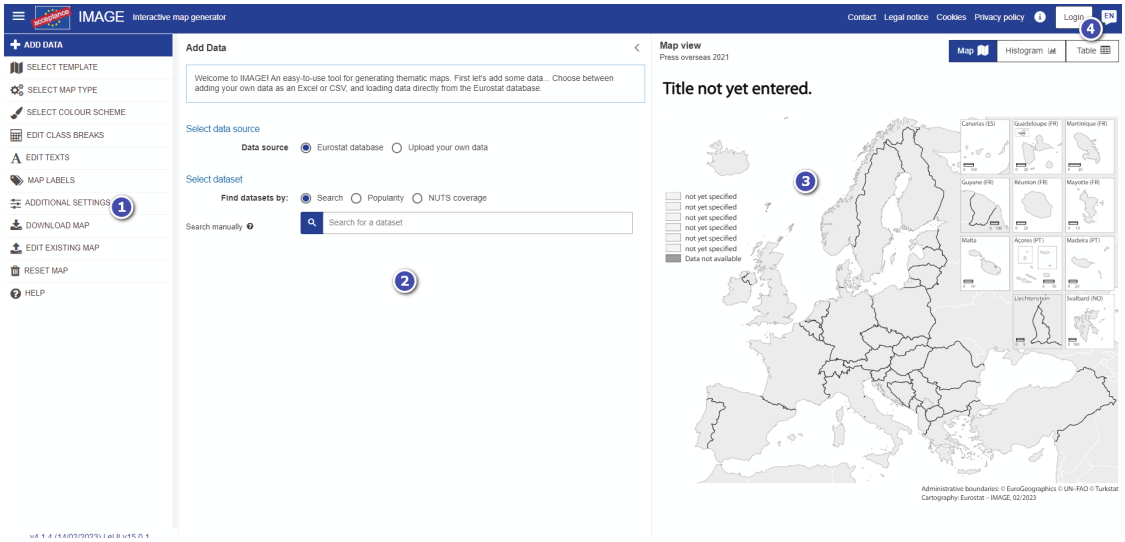
IMAGE is not intended for advanced web mapping. For these purposes, please use DG COMM's Webtools MAP component. These tools are only available to European Institutions websites.

Browser Recommendation

IMAGE is designed to work on all browsers but has been optimised for use with Microsoft Edge, Google Chrome and Mozilla Firefox.

Navigating IMAGE

On start-up, IMAGE consist of 3 panes. The left sidebar (1) contains all the menu items, where it is possible to navigate to and from any item, in any order, during the creation/editing process should the user wish to make any changes. The second pane (2) contains the options for the selected menu option. Panel 3 contains a preview of the map that is being created, as well as an option to preview a histogram of the data or the data itself in the form of a table. A Login (4) is available for users with an ECAS account, this enables access to a number of Logos to use on the map.



How do I create a new map?

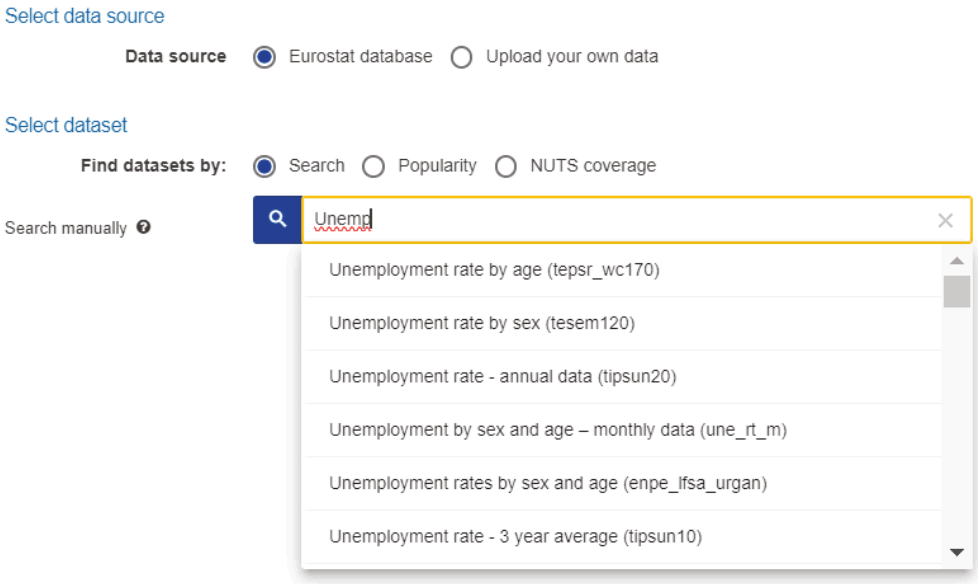
The first step is to add some data. There are two options: loading data directly from the Eurostat database, or loading a csv/Excel file.

Adding data directly from the Eurostat database

There is a live link to the Eurostat database. There are 3 options:

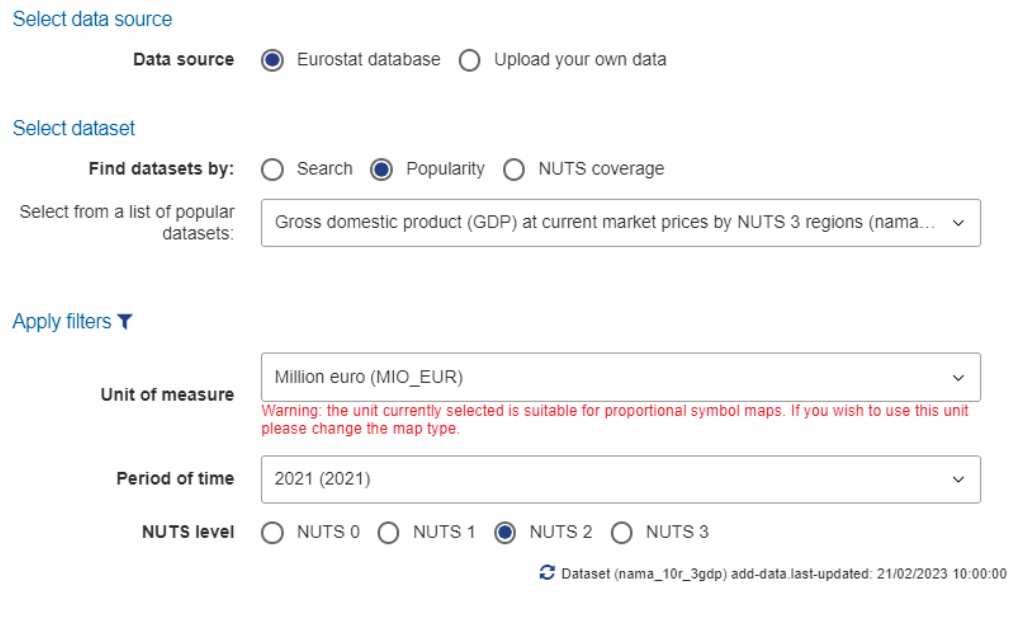
- **NUTS coverage.** Datasets can be filtered by NUTS level (Level 0 – National level to level 3 – the most detailed regional data). A % figure is given to illustrate how much geographical coverage that dataset has.
- **Manual search.** A dataset can be searched for either by typing in the name or a database code.
- **Popular datasets.** These are a small list of pre-chosen datasets that are frequently used to make maps
- **NUTS coverage.** Datasets can be filtered by NUTS level (Level 0 – National level to level 3 – the most detailed regional data). A % figure is given to illustrate how much geographical coverage that dataset has.

  Note: Not all datasets have data at NUTS levels, and are therefore not suitable for mapping purposes



Once a dataset has been chosen, a list of all the possible parameters will be available. Note that any dataset can have multiple parameters. The map will automatically be updated based on the chosen parameters and the IMAGE default settings. Items such map title will automatically be generated depending on the table selected. Other text will also be added such as the measurement unit, source, sub titles and notes. **Please ensure to check the map texts, longer texts may need to be refined to fit correctly.**

When adding data directly, the tool will try and suggest the type of map to be used based on the type of measurement unit or aggregate from the database. A warning will be displayed accordingly as seen below. If it is visible, it is suggested that a Proportional circle map would be the best approach rather than the default choropleth maps (See Map Types)



Add data via Excel or Comma separated file (CSV)

The second option for adding data into IMAGE is via an Excel file or csv. This should be a **simple excel file or csv** and the structure should consist of only two columns in the data sheet - the first with the **NUTS codes**[3] or **Country Codes**[4] and a second column with the corresponding **values**. Example files are available for download in IMAGE – they can be found by here example one, example two, and a Worldmap map example.

	A	B
1	NUTS	Value
2	BE100	31.5
3	BE211	30.5
4	BE212	30.5
5	BE213	30.0
6	BE221	30.3
7	BE222	30.1
8	BE223	30.2
9	BE231	30.2

Note that if the application finds a sheet anywhere in the source excel file with the name "Data" or "data", it will take this sheet.

Once the data is loaded the map will automatically be generated with default class breaks and the default colour scheme. No map texts will be added, these will need to be added at a later stage as required.

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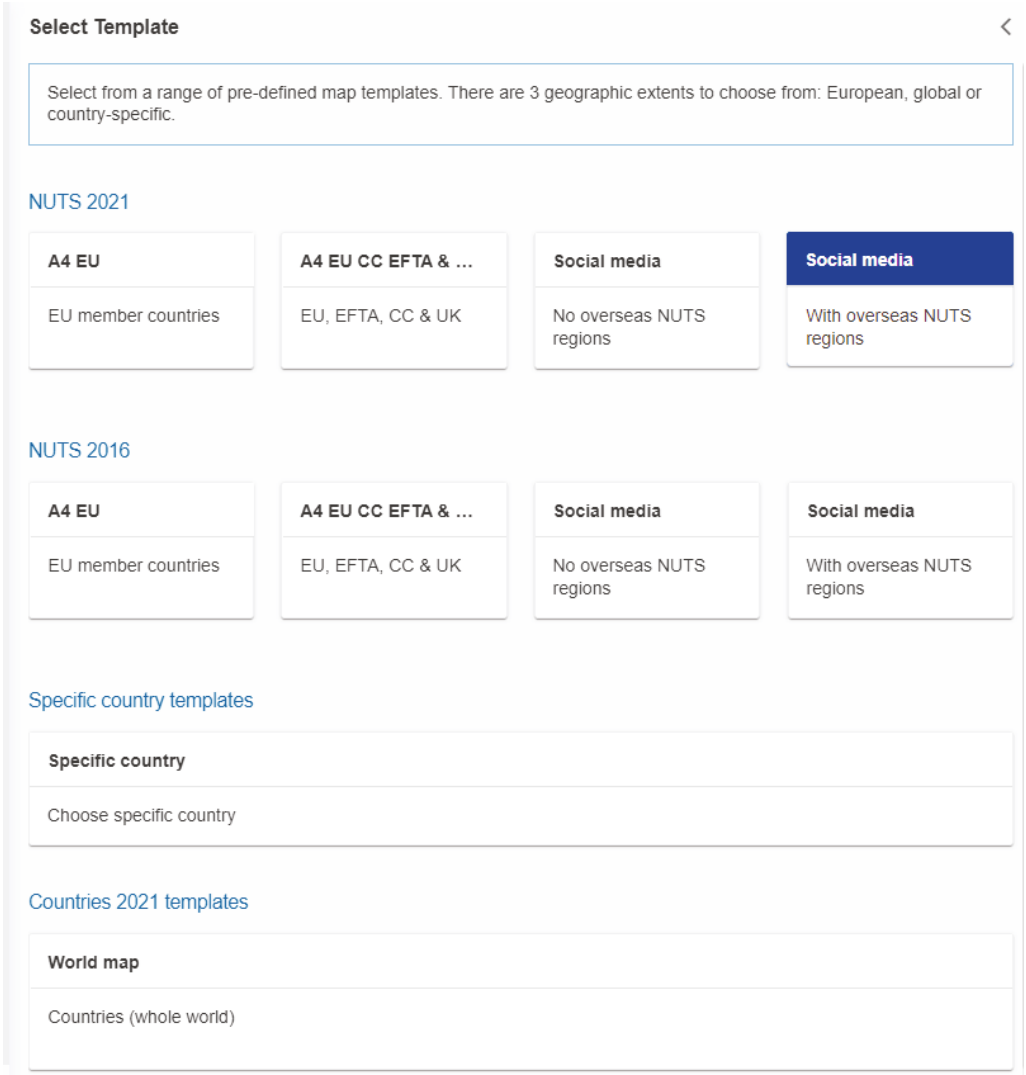
[3] For more information on NUTS, please refer to http://ec.europa.eu/eurostat/web/nuts/background. The full list of NUTS codes can be found at http://ec.europa.eu/eurostat/ramon/index.cfm?TargetUrl=DSP_PUB_WELC.

[4] ISO Codes EU/EFTA/CC statistical regions level 0 and in other cases the UN-FAO GAUL dataset https://en.wikipedia.org/wiki/ISO_3166-1_alpha-2

Selecting a map template?

IMAGE has a number of predefined map templates:



- EU (template covers the EU member countries, these are suitable for print publications)
- A4 EU CC EFTA (covers the EU, Candidate and EFTA countries, these are suitable for print publications)
- Social media (This is a template designed for the web and social media, which excludes/includes the overseas regions of the EU. **This is the default template**).
- World Countries – this template is a world map, The input file for this template requires two character country ISO codes – an example is available in the help section
- Country specific templates – a layout dedicated to individual countries of the EU, EFTA and Candidates countries

Users need to be aware which reference period (e.g. NUTS year) their data refer to For example using data for NUTS 2016 with a NUTS 2021 template will mean that some data will not be displayed due

to code changes[5]. This issue can be identified if there are grey areas displayed after the data is added. The simplest way to check this is visually. Grey areas in Belgium, Croatia, Estonia, Italy (specifically Sardinia), or Norway indicate this. Try switching the equivalent template for the alternative NUTS version.

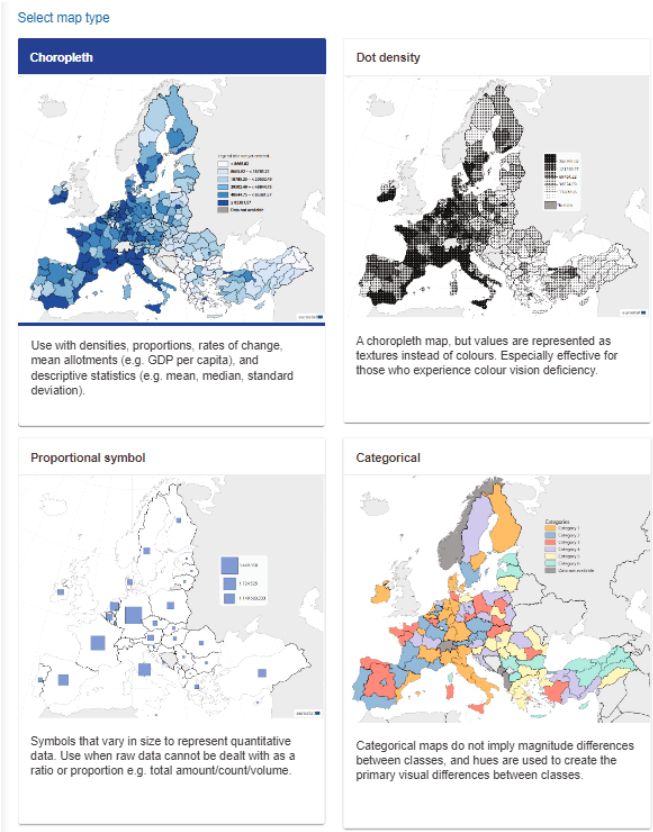
Templates for individual countries are also available to support the work of European Institutions country desk officers. Users have the possibility to restrict any displayed data to the selected country or include neighbouring countries data. For the second option of including neighbouring country data, these need to exists in the input file.

I want to change my input data ?

The source data file can be changed at any point in the map creation process. Simply select **Add data** and navigate to and upload your new excel file or alternative data table or data table parameter. The changes will be updated in the map immediately. Note however that the class breaks may need to be recalculated if user defined breaks had been set rather than equal intervals.

[5] https://ec.europa.eu/eurostat/web/nuts/history

Selecting a map type?



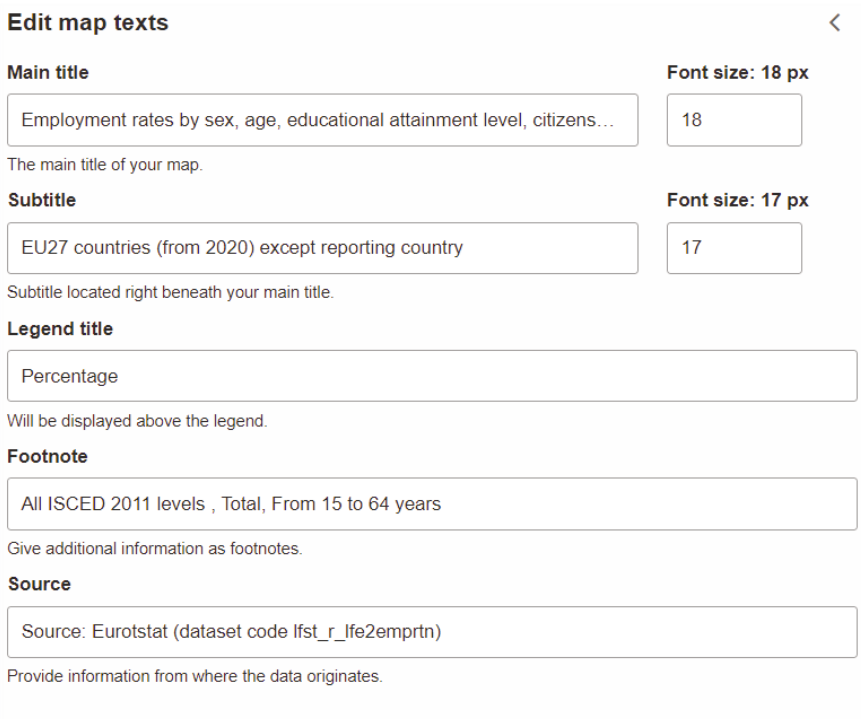
There are four types of map available in IMAGE:

- **Choropleth maps**: These are the most common maps, and should be used to display values with proportions, densities, rates of change. For example GDP per capita, Unemployment rate, Population Change;
- **Dot Density**: These are a different style of Choropleth map, and give a more textured feel to the map which may be beneficial for those with any colour vision deficiency(CVD),;
- **Proportional symbols:** Symbols that vary in size to represent quantitative data, such as a total amount, volume, count. E.g. Tonnes of Wheat produced, Total Births;
- **Categorical maps:** These work the same way as Choropleth maps, but have different colour choices available, these should be used when the value represents a category, e.g. 1 = Wheat, 2= Barley, 3 = Maize.

Note: The choice of map type will impact the menu items available, for example the “SELECT COLOUR SCHEME” and “DEFINE CLASS BREAKS” will not be available if Proportional symbol maps are chosen.

Adding text to your map

The size font and location of the text has been predefined according to the Eurostat Style guide[7]. All the fields below need to be edited. Any text can be removed by deleting the content of the field. IMAGE expects every map should however have a title. Be aware that there is limited space for text, the tool will allow some text to flow over multiple lines but the user should aim to keep any text concise.

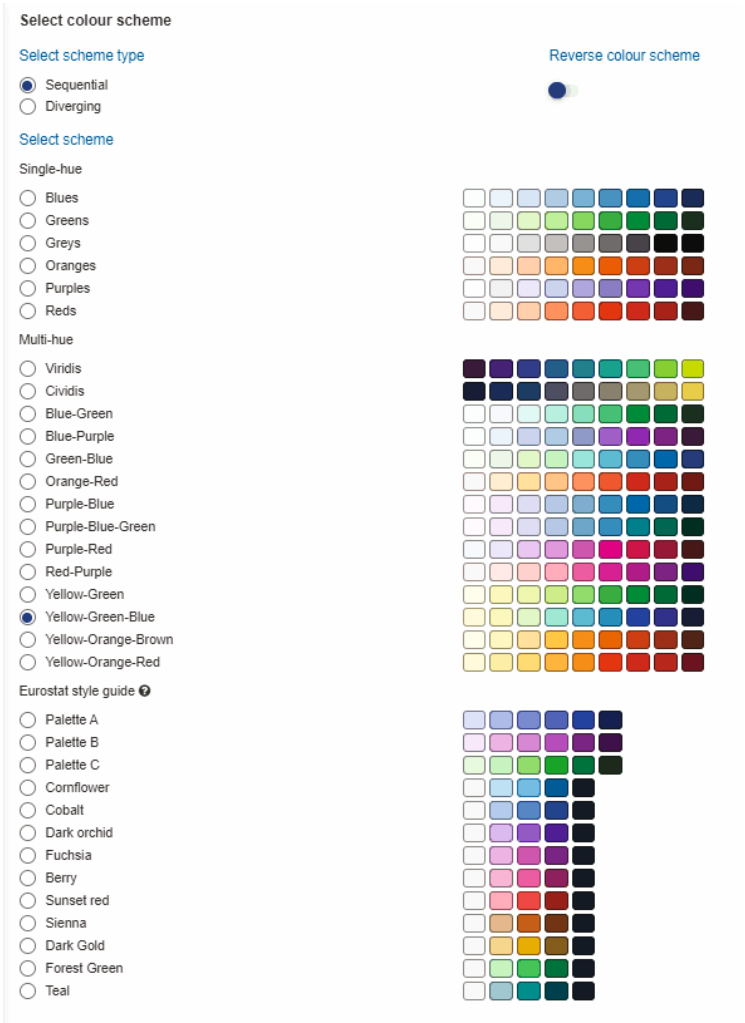


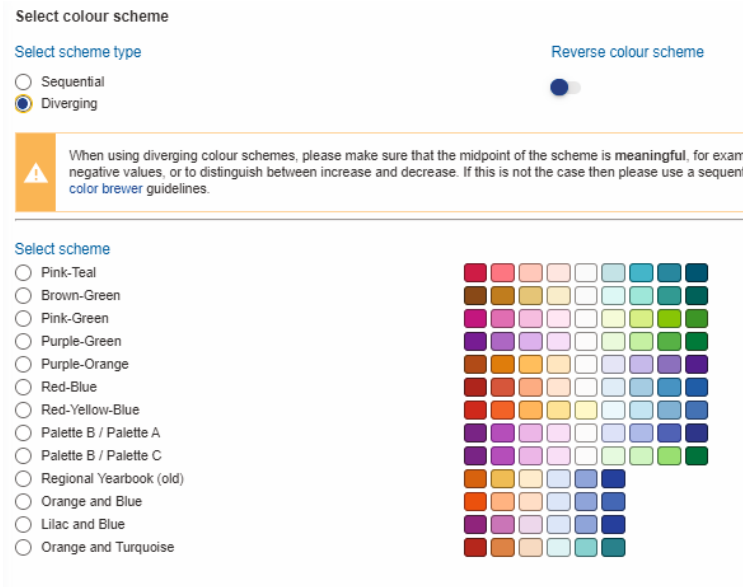
Some elements of text on the map cannot be edited such as the Cartography, copyright and disclaimer statement and **are required for legal purposes**. Please do not remove them manually.

Selecting a colour for your map

If a choropleth map has been selected, the next step is to select a colour scheme. Two types of colour scheme are available, sequential and diverging palettes. Colours are derived from Colorbrewer and the Eurostat style guide.

[7] https://ec.europa.eu/eurostat/publications/style-guides





A sequential scheme may be more intuitive when showing values that go from low to high. This applies for example to Unemployment rate, GDP per capita and similar.

Before using a diverging scheme, the user should think carefully if this is appropriate. As a general principle, a diverging scheme should be used around a meaningful mean value, examples include

- Below and above zero e.g. Population growth
- An index of 100 – e.g. Purchasing Index
- A reference value stated in a legal act or policy document
- An EU average if critical/meaningful value (All datasets have an average but this does not make it a meaningful one)

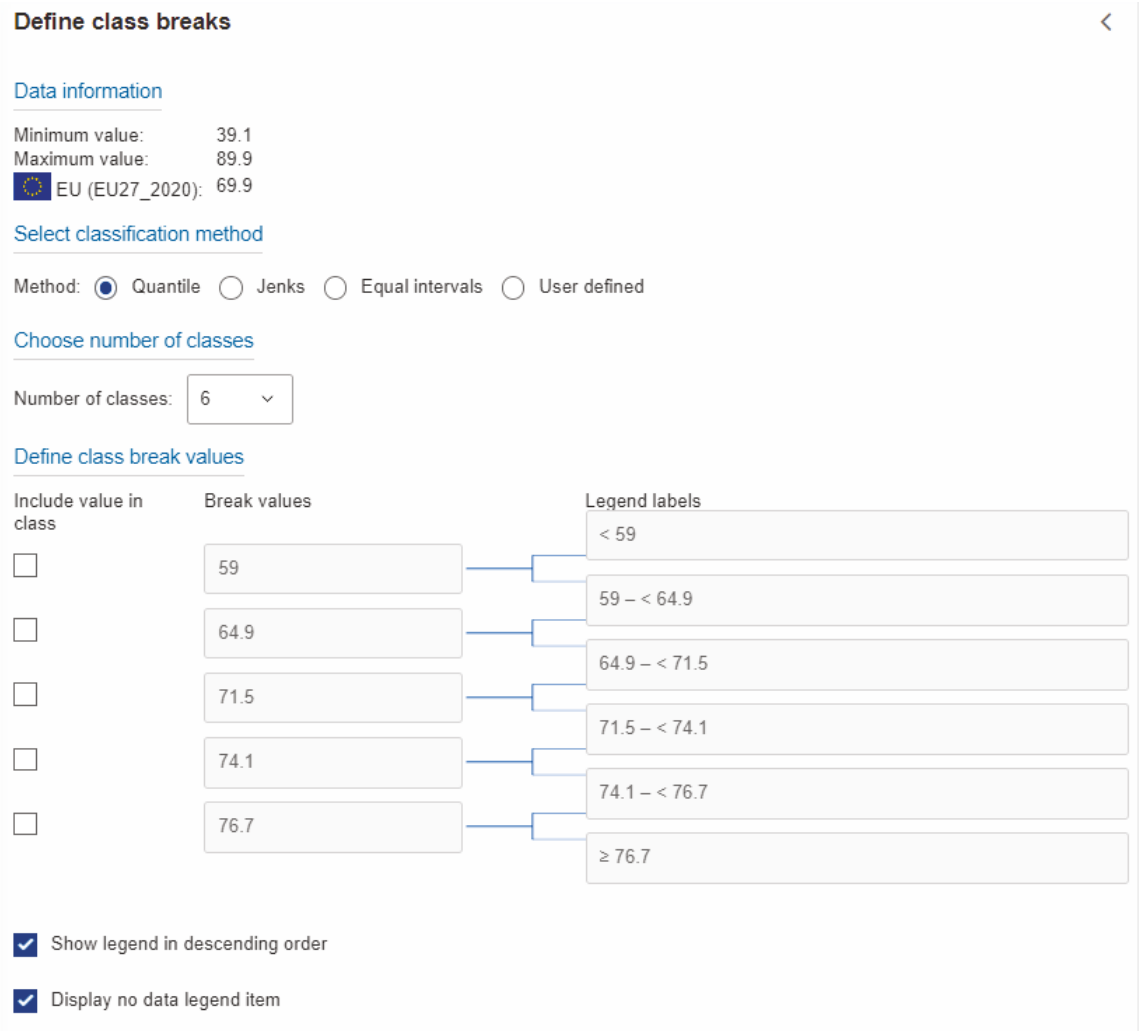
A practical example is the Population Density per NUTS region, which would suit a sequential colour scheme. In contrast, the rate of Population change would suit a diverging scheme – to identify areas where the population is growing vs areas where it is shrinking.

If using a diverging scheme, the meaningful value should be labelled in the map e.g. in the map legend.

Some general principles to use on statistical cartography are available in the following lecture

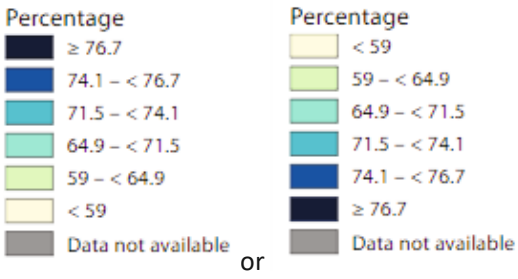
Classifying the map data

By default, IMAGE applies class breaks based on the data in your excel file using the Quantile method. Jenks (natural breaks), Equal interval and User defined class breaks are additionally available. Additionally it is possible to change the number of classes and to change the class breaks to user defined ones. The label texts which will appear on the map can be adapted for all three classification options. By default, the tool uses less than (<) in the class breaks. By ticking the box marked "include" this will be changed to less than or equal to (<=).



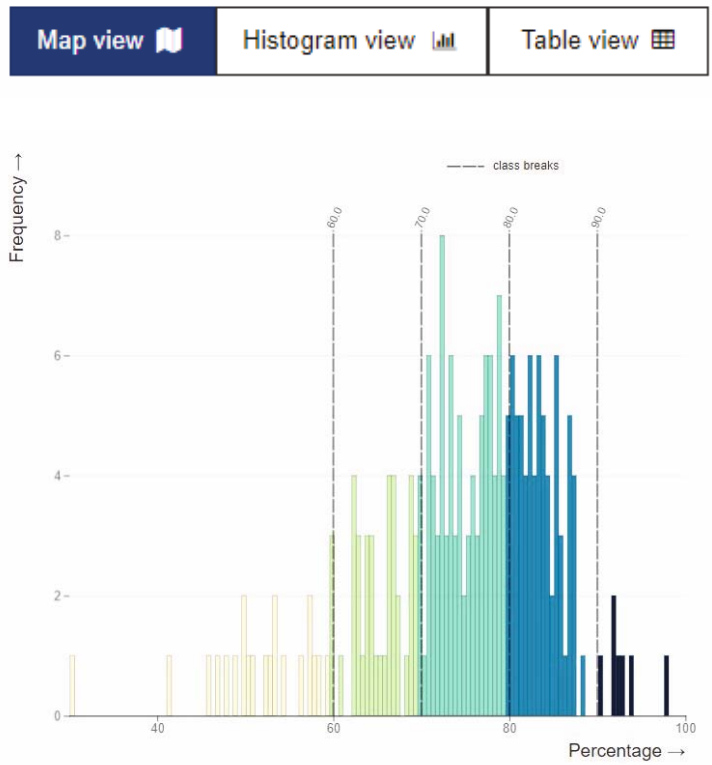
As shown in the above example, the left-hand column shows the statistical value that will be used to classify the data. The right hand column is the text that will be displayed on the map; this can be either numeric values or text. The "Data not available" field can be turned off so that it does not appear in the map legend. Please note however that any no data regions on the map will still be shown (in dark grey) if there is a record in the input file.

The legend order itself can also be reversed, as a default the highest class will be shown first in the actual map legend. This can be reversed as desired as shown below:



Histogram and table view

Once a dataset has been loaded, it is possible to view a histogram of the data distribution and a table with the data. The table can be searched by the respective NUTS or Country code.



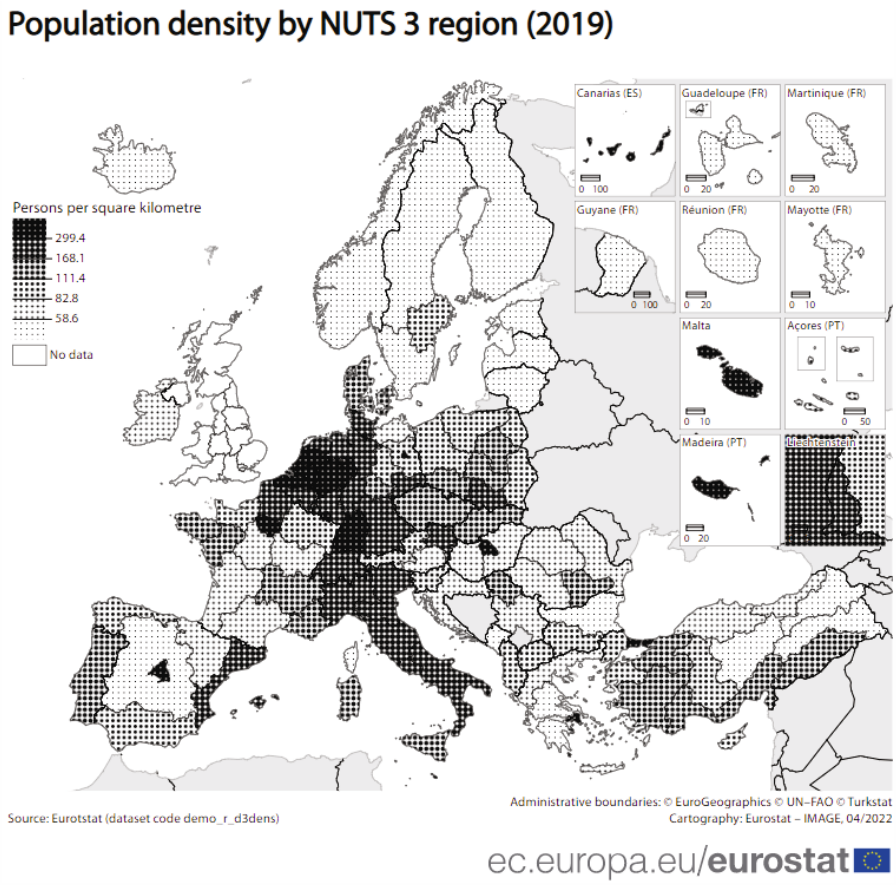
226 regions found

Search table...

Region	Value
EL52	30.4
ITF4	41.2
ITF6	45.9
ITF2	46.5
EL42	47.9
ITG1	48.6

Dot Density Maps

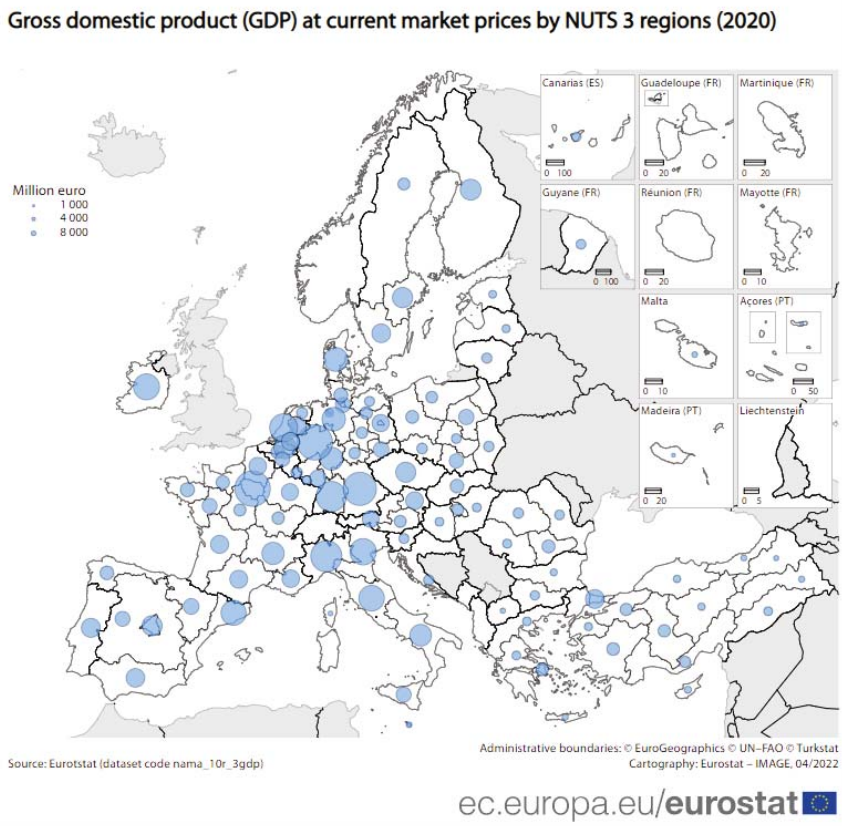
Dot density maps work in much the same way as Choropleth maps, but instead of using colours to highlight regional variations, it is achieved via textures such as cross hatching. The class breaks are set in the same way as a standard choropleth map. The main difference is in the style and colours



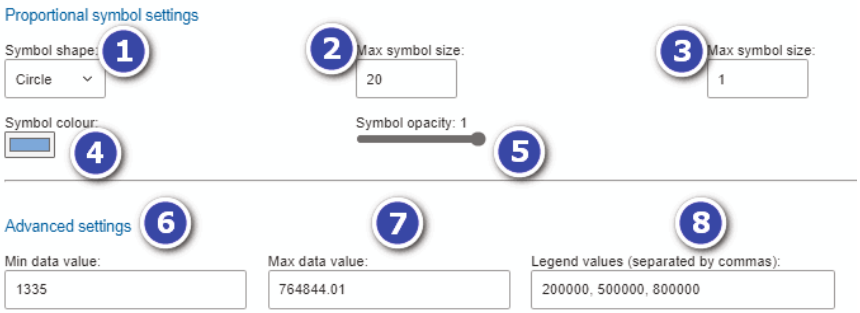
In the setting one can change the style from square to circle, the colours used for the background and the dots/hatching. The legend style differs from a choropleth map

Proportional circle Maps

These map types use symbols that vary in size to show quantitative data. These maps should be used when the data is a total/count/volume e.g. the Total number of life births per region, Tonnes of Wheat, number of hospital beds. Owing to the number of regions at NUTS3 level, it is not advised to display proportional symbols for NUTS3 data.



In IMAGE the settings used for symbol maps are visible in the 'MAP TYPE' menu



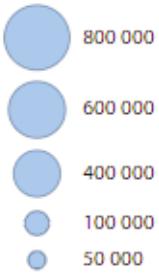
1. Symbol shape: Choose from a number of predefined symbols, it is also possible to add a simple SVG marker symbol
2. Min symbol size: This will be the size of the symbol for the minimum value of the dataset, on the example above, the value 1168.64 is the minimum value and will have a size of 1 point.

3. Max symbol size: This will be the size of the symbol for the maximum value of the dataset, on the example above, the value 710090.66 is the minimum value and will have a size of 30 points. Both the maximum and minimum symbol size can be adjusted.
4. Symbol colour: The colour used for the symbol is by default blue, this can be changed
5. Symbol opacity: The symbol is by default slightly transparent, the level of transparency can be adjusted. This is especially of use when symbols overlap.

Advanced settings

6. Max data value: The highest value in the dataset
7. Min data value: The lowest value in the dataset
8. Legend values: Here the size of the symbols used in the map legend can be defined manually, each entry should be separated by a comma, e.g. 50000, 400000, 800000

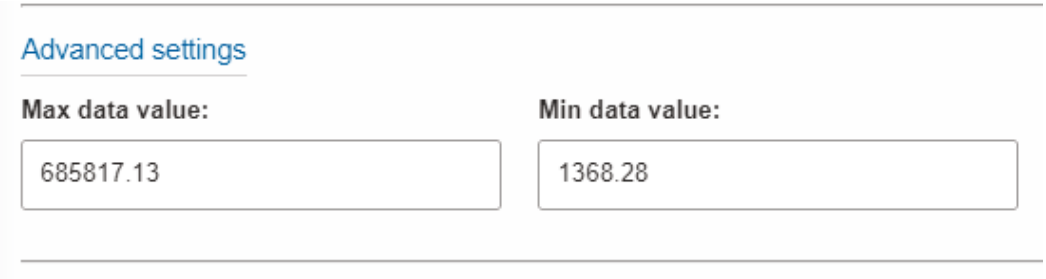
Multiple values can be entered and can be in descending or ascending order. For example entering “800000, 600000, 400000, 100000, 50000” would result in a larger and reversed legend.

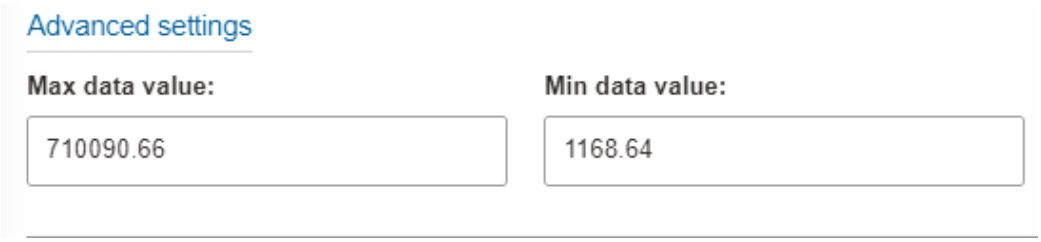


Making multiple proportional symbol maps

There may be use cases where several symbol maps could be made for the same type of indicator over several years or type of value. For example GDP per NUTS region in 2016 and in 2020. As mentioned above the symbol size is determined by the minimum and maximum values.

GDP per NUTS 1 in 2020 vs 2016





The maximum and minimum values are different as seen above for the different years. Therefore in 2016 a value of 685817.13 has symbol size of 30, while the same symbol size in the 2020 has a value of 710090.66. It does not make sense in this context as the same size symbol can mean different values when the indicator is the same.

To that end it is possible to put in a dummy minimum and maximum value to ensure that the same size symbol equals the same value across multiple maps. To do this, find a minimum and maximum value that encloses both datasets. In this case changing the values to the below, this will ensure that the same value has the same size in both version of the map.

Categorical Maps

Categorical maps should be used where the data is assigned to distinct categories, rather than a different amounts. Colours therefore represent distinct categories

Categorical map examples
Most common crop produced per region
Is a region Urban/Rural
Is a country in the European Union/EFTA/Candidate
Which party/grouping won the most votes in a region?

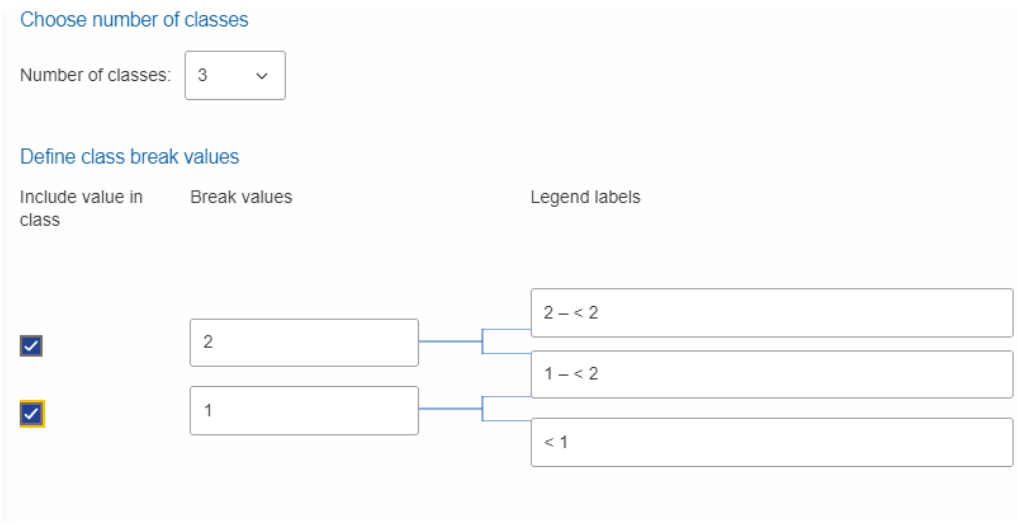
In IMAGE, each category you wish to map needs to be assigned an interfere value. For example

1 = Urban

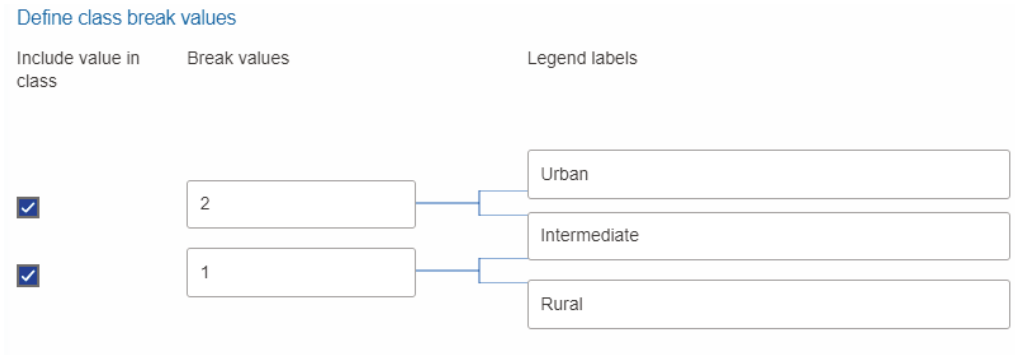
2= Intermediate

3 = Rural

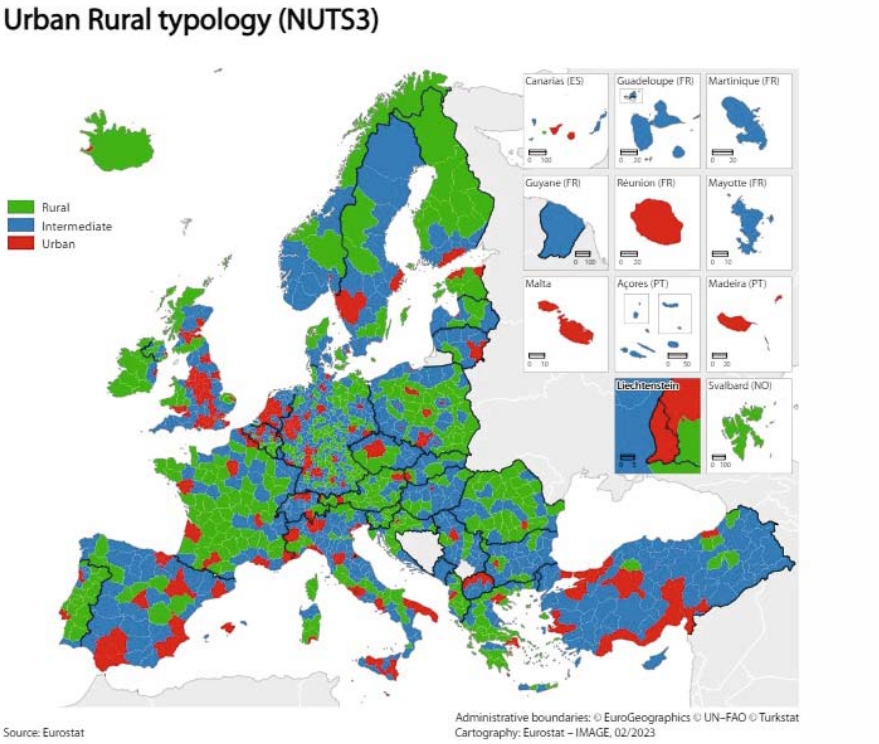
In IMAGE, set the classification to manual, set the number of class breaks to the same as the number of unique values, in this case three. Tick the boxes under “Include value in class”



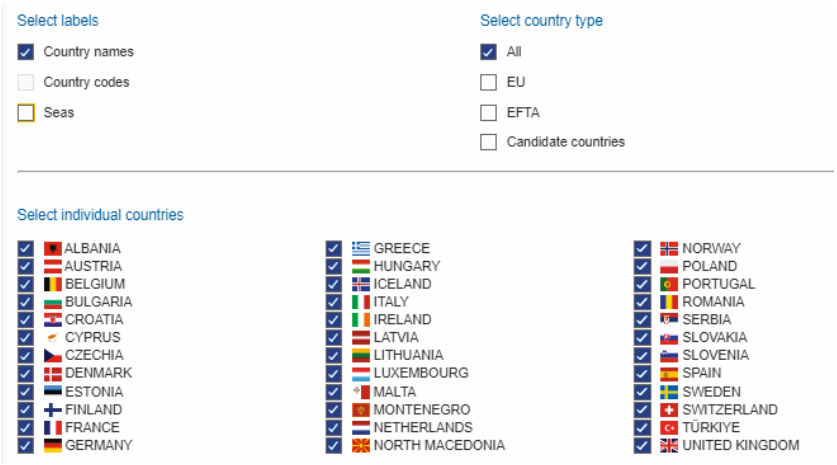
The values displayed for Legend Values can be inputted



An appropriate colour scheme can then be chosen from the selection available. The colour selection is limited, however it is possible to download the SVG file then edit the colours



A limited set of labels can be enabled. These include Country name, Country codes and sea names. Individual country names/codes can be toggle off or turned on/off as a group. Further customization with respect to labels should occur in professional map making software.

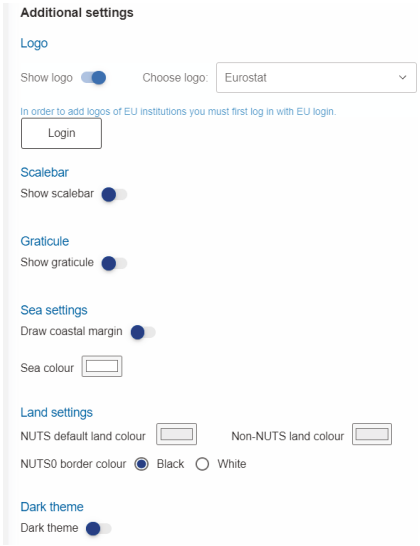


Note: Labelling is not available in the World and Country specific templates

Additional settings

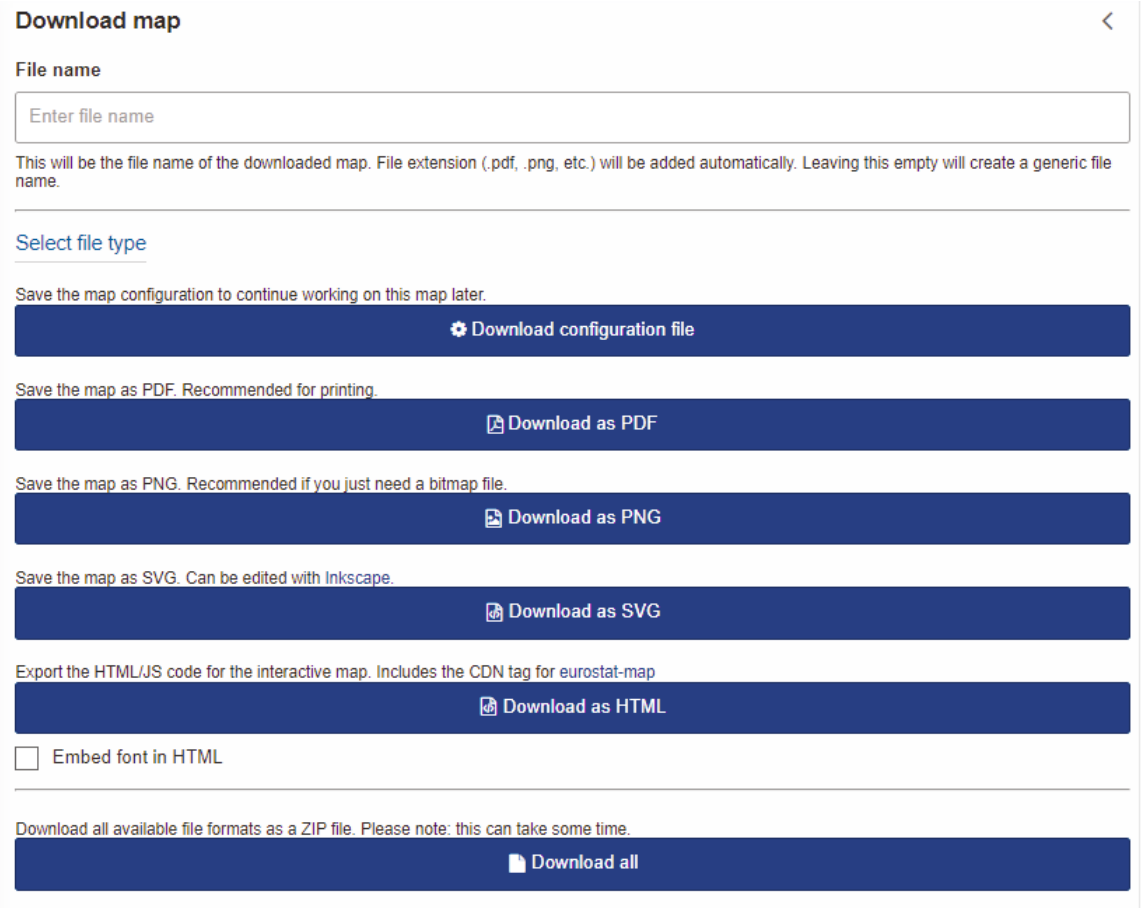
A number of additional settings are also available, these include:

- Logo – choose between a number of logos for various EU institutions, or turn the logo off. **Note**: To access these the user must login with an ECAS account
- Scalebar – by default the scale bar is turned off
- Show Graticule – turns on/off lines representing lines of longitude and latitude
- Draw Coastal margin – draws a buffer around the coastline, the width can be configured and the colour changed
- Change Land/Sea colour – the colour of the sea can be changed
- NUTS0 border – the border color can be switched between black and white
- Dark theme – For use on Social media, emits less blue light, reduces eye fatigue



Downloading the finished map

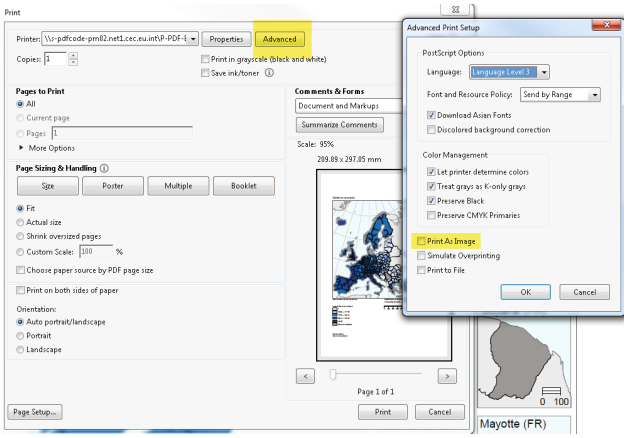
The map can be downloaded in five formats – PDF, PNG, SVG, HTML, the XLS configuration file and all formats together in a single ZIP file. GISCO recommends the PDF output as this best conforms to the Eurostat Style Guide. If no filename is given then the tool will create a generic filename as a default.



1) PDF is best for printing and publications. – NOTE: Certain multifunctional printers can have issues when printing a PDF. To solve any issues the PDF must be printed as an image via the advanced settings.

2) PNG is best for inclusion as static display on web pages.

3) An SVG file can be modified to provide some customisation via SVG editing software such as Adobe Pro and Inkscape at the user's own discretion. Inkscape is available from the EC Store for Windows 10 users. Non Windows 10 users will have to request installation from the IT helpdesk.



4) A HTML file which retains the interactivity and allows the user to hover over a region and see the name and statistical value. The output is generic and may require some adaptation depending on the specific website It will be embedded in. (The exported HTML file uses an external CDN in order to load the dependency used for generating the map (Eurostat-map.js). If for whatever reason you are not allowed to load dependencies from third-party sites then you can download the latest Eurostat-map.js build to your deployment directory from https://unpkg.com/eurostat-map@x.x.xx and change the following line in the HTML file from <script src=" https://unpkg.com/eurostat-map@x.x.xx"></script> to <script src="./yourDirectory/eurostatmap.min.js"></script>.)

5) It is also possible to download a map configuration file. With this you can recreate maps that have been made previously and update or adapt them later. This will be saved as an excel file.

6) Download all of the above formats in one zip file

Load an existing map

If you have previously made a map with IMAGE and saved the configuration file, then at a later time you can simply upload this file into IMAGE and your map will be remade automatically with your previously chosen selections. You can then apply any changes to the text, classes, colours that are needed and resave the file. In Excel it is possible to change the map texts before the configuration file is loaded and these changes will be reflected in the map. To do this open the configuration file in excel and select the “map-config” sheet. Afterwards adapt the respective cells in Column B.

	A	B
1	templateId	a4-efta-2016
2	numberOfClasses	6
3	classBreaksType	quantile
4	estatSchemeIndex	0
5	reverseColorScheme	FALSE
6	displayNoDataLegend	TRUE
7	selectedLogo	eurostat
8	mainTitle	Titleexample
9	subTitle	subtitleexample
10	measurementUnit	measurmentunitexample
11	legendTitle	
12	dataSource	
13	footnote	
14	ClassBreakInfoStart	
15	classBreakValue	1,37
16	classBreakStrValue	1.37
17	legendLabel	< 1.37
18	isValueIncluded	FALSE
19	classLabel	
20	isReadOnly	TRUE

Troubleshooting

Add Custom colours:

IMAGE supports only a defined set of styles as defined by the Eurostat style guide[9]. To change colours, an editor must be used. For example Inkscape which is available at the EC Store can edit the colours in an SVG file. Alternatively, save the configuration file and contact the GISCO team for further processing/advice.

Data is not displaying: There could be a number of reasons the two most common:

A: The wrong NUTS version has been chosen, the data file maybe for NUTS 2016 therefore some regions may not display in a NUITS 2021 template. Simply switch between templates to see which is the most complete – NUTS 2021 differs from 2016 only in Belgium, Croatia, Estonia, Italy and the United Kingdom.
B: The data/excel file may contain spaces before or after the NUTS code or value – the TRIM function is Excel is recommended to remove these spaces
C: German NUTS 2 and 3 regions beginning with DEC can sometimes be automatically converted to a date so it is recommended to check these German region inputs i.e. from DEC06 to Dec-06, the latter code would not be read by IMAGE

How do I make the map in other languages?

Text such as titles, footnotes, legends can be inputted in any language. However the Cartography and Copyright are fixed as English. This can be edited in Inkscape or any other SVG or PDF editor

Displaying non EU/EFTA/Candidate Countries:

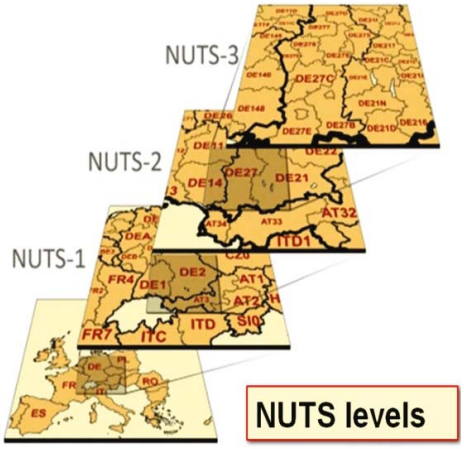
Data may be available for other Countries such as Bosnia and Herzegovina, at present, other than in the World map template only EU, EFTA and Candidate Countries can be displayed. For additional countries, contact the GISCO team.

[9] https://ec.europa.eu/eurostat/publications/style-guides

Data Preparation

Whilst IMAGE accepts a simple input file, it is important that the input file codes and values are correct to get the best results.

NUTS levels can be mixed within the map, i.e. NUTS level 2 for Germany and NUTS level 1 for Belgium. Be aware that overlapping NUTS regions can be displayed, i.e. have a value for Germany at NUTS 0 and values for German NUTS3 regions. In this instance NUTS3 regions will always be drawn on top of the NUTS0 (country level) at the bottom. Be aware that certain areas (e.g. Mt. Athos) do not belong to the country of Greece.



Classifying data

It can be of benefit to classify the data instead of using values. For example, values below 30 can be classed as 1, values above 50 as 5. The data in the class column can then be replace those in the value column.

NUTS	Value	Class	
AT11	39.6	3 < 30.0	1
AT12	37.6	3 30.0 - < 37.5	2
AT13	37.9	3 37.5 - < 42.5	3
AT21	41.0	3 42.5 - < 50.0	4
AT22	40.2	3 ≥ 50.0	5
AT31	38.8	3	
AT32	42.0	3	

It is recommended to not use the increase or decrease decimal tool in Excel. This can distort the statistical values