Euratlas Georeferenced Vector Data Description

Euratlas Georeferenced Vector Data Description....1
I - General description....2
II - Political data....2
III - Physical data....6
IV - Layers description....7
V - Spatial reference system....9
VI - Styles....9

I - General description

Euratlas Georeferenced Vector Data is composed of 21 maps, one for each century from year 1 to year 2000. These maps depict the detailed political situation of Europe at the last year of each century. Each map is composed of two kinds of layers: physical features layers, such as seas and rivers, and political features layers, such as states and cities.

II - Political data

Layers

Political data is composed of the following layers

- Political territories of various kinds:
    - Supranational entities
    - Sovereign states
    - Sovereign and dependent states
    - First-level administrative divisions
    - Second-level administrative divisions
    - Autonomous peoples
- Uncertain political borders
- Cities

Description

Supranational entity - Currently, this category is intended to display two specific entities, the Holy Roman Empire and the European Union.

Sovereign state - Are considered as sovereign or independent states all entities fulfilling the following conditions:

a) a territory covering a geographic area,

b) an own population,

c) an authority ruling the territory and the population,

d) this authority is sovereign, i.e. not subject to any other power or state.

1st level division - These types of divisions are sub-parts of states but do not exist in all the countries. As existing 1st level divisions, let us mention the Roman or civil dioceses, the Ottoman eyalets, the autonomous communities of Spain or the regions of France and Italy. Some states are composed of divisions of their own. It is the case, for instance, of the United Kingdom divided into England, Northern Ireland, Scotland and Wales. It was also the case of Austria-Hungary divided into Austrian Lands and Hungary while Bosnia was under common administration. For consistency reasons we have treated all these situations as if the state was divided in 1st level administrative divisions.

2nd level divisions - These types of divisions are simple territorial units under the control of the main authority of their state and bear various denominations like provinces, counties, duchies, districts, départements etc.

Dependent state This type of states has the same characteristics (territory, population, authority) as the sovereign states but their authority is subject to a higher power, generally to the authority of a neighbouring or dominant state. It may also happen that only some provinces of a state are subject to a foreign control.

Autonomous people - Autonomous peoples are generally nomadic, semi-nomadic or not well-known populations without evident central authority

City - This word stands for all inhabited places. The cities are ranked in 5 categories according to their importance. Big towns get number 5 and small villages number 1.

Uncertain borders – These are areas centred between political territories represent uncertain political boundaries. The bigger is such an area, the higher is the uncertainty for this border.

Nomenclature

Names are provided for all political entity. The complete, fully qualified, name is provided as well as a short form, generally a simple proper noun.

The choice was made to give each entity its official name commonly used by the contemporary local people. When the official name was unknown, a variant form was used instead. As a result, you will notice that some major states have unusual names. Among others, we have to mention:

- *Carolingian Empire* whose official name was *Kingdom of the Franks*,
- *Byzantine Empire* whose official name was *Roman Empire* or *Empire of Rhomania,*
- *Holy Roman Empire* whose official name was also *Roman Empire* until 1254,
- *Kievan Rus* whose official name was *Rus* or rather *Rus Land etc.*.

However, usual or modern names are also provided as variants. Variants are separated by semicolon.

Names are originally encoded in Unicode (UTF8). This is necessary as many names may contain characters specific to some regions and thus, no local character set may handle all these cases. Thus, we provide two versions of the data: one using UTF8 (highly recommended) and one using Latin-1 / Western European (ISO-8859-1). In this latter version, invalid, non-transliterable, characters have been replaced by question marks.

Data model

Euratlas georeferenced vector data is also a database containing much non-geographical information about political relationships between the various kinds of territories. Thus, it is important to know how this database is structured in order to be able to use the whole information contained in it.

States and administrative divisions

The *states and administrative divisions* form a hierarchy of territories which is completely defined from the ***2nd-level administrative divisions***. Thus, the territory of a ***sovereign state*** is

defined as the union of all its owned *2nd level divisions*. Similarly, a ***1st level division*** is the union of all its composing *2nd level divisions*. However, *1st level divisions* are optional and thus, not all *2nd level divisions* are part of a *1st level divisions*. These relationships are summarized on the centre part of figure 1 (everything except the "holds" relationship and the supranational entity)

Thus, each *2nd level division* has a reference on its owner *sovereign state* and on its potential parent *1st level division*. Note also that *1st level divisions* also have a reference on their owner state and this owner is the same than the one of their composing *2nd level divisions* except in few cases with dependent states (explained below)

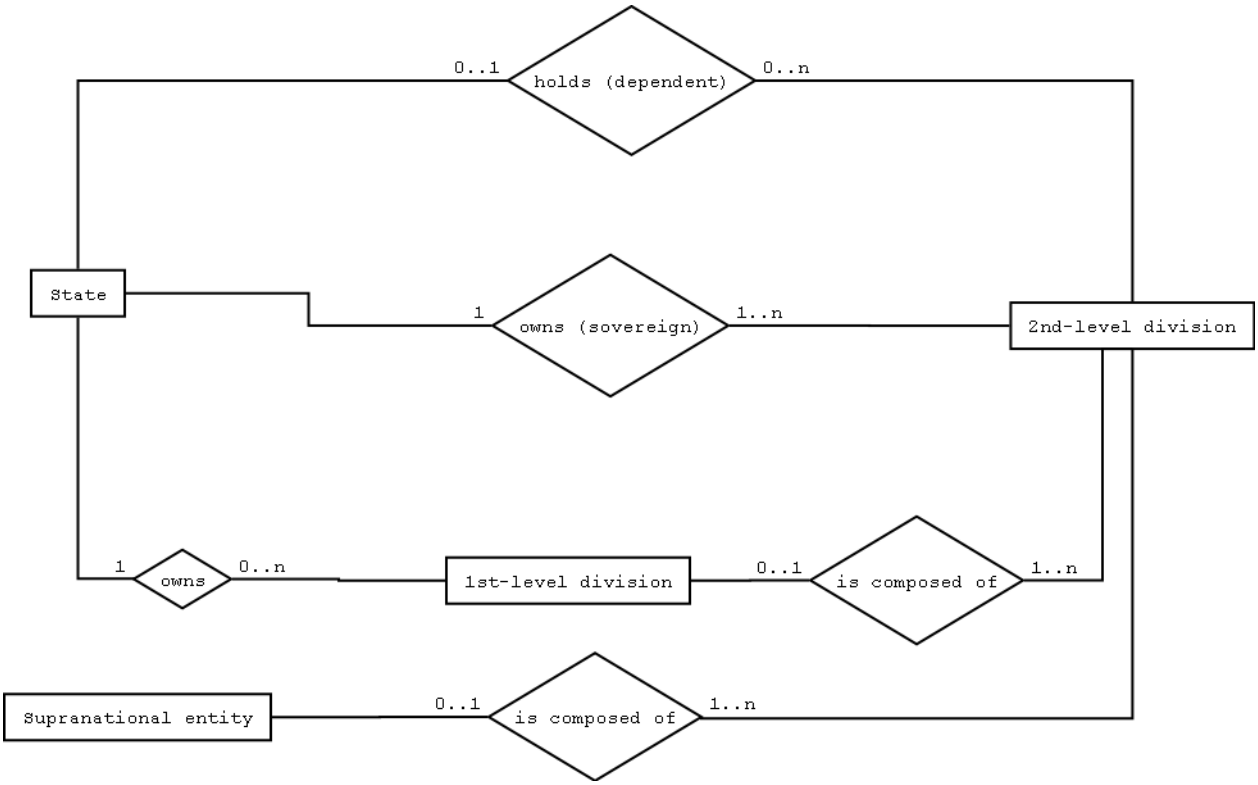

Figure 1. Simplified entity-relationship diagram depicting relationships between states and administrative divisions.

Dependent states

Each *2nd level division* may optionally have a reference on another state (relationship "holds" on figure 1), called its holder state. This happens in the case of dependent state (see political description). In such case, a *2nd level division* has both a sovereign state (its owner) and a dependent state (its holder).

Thus, this holder reference is used to generate the *sovereign and* ***dependent states*** layer. This layer has been built by grouping *2nd level divisions* having the same owner state and the same holder state (if any). Thus, resulting features may be associated to two states, an owner (or sovereign) state and possibly, a holder (dependent) state. Also, on this layer, a state may appear as several features. For example, if a state owns a part without holder and another part with a

holder, then it will appear as 2 features in this layer. Also, it is possible for a state to have both a sovereign (owned) part and a dependent (holded) part.

In very few cases, it happens that a *2nd level division* and its parent *1st level division* are not owned by the same state. In such cases, the owner of the *1st level division* is actually the holder of the *2nd level division*. For this reason, *2nd level divisions* have another optional reference to those so-called holder *1st level division* (not shown explicitly on figure 1). Note however that only one 1st level parent will be defined for a *2nd level division*, either for its owner state, or for its holder state.

Supranational entities

Supranational entities are also defined in a similar way from the *2nd level divisions*, which also contains an optional reference to a *supranational entity*. Although it would seem more natural to have *supranational entities* defined as unions of states, it is not so because it may happen, in the case of the Holy Roman Empire, that only parts of states belong to a supranational entity.

Independent layers

Autonomous peoples are not related to this hierarchy. They form an independent layer.

Uncertain borders are a set of polygons covering some borders with a high level of uncertainty due to lack of information. However, they also are an independent layer and thus are not directly linked to any political entity. Moreover, it may happen that an uncertain border polygon covers more than just two political territories.

Cities are also independent. They are defined in a year-independent manner by a unique point location. Each city has also name and size information for every century for which the city exists.

Political entities IDs

States, supranational entities, autonomous peoples and *cities* are all identified by a unique integer ID (generally owner_id or entity_id). These IDs are unique between political territories. This means that a state cannot have the same ID than an autonomous people or a supranational entity in the same year. Cities form a separated set of IDs which overlaps with those of the political territories. Finally, all these IDs are consistent throughout the years. Thus, a state which is present on several years, like Roman Empire, will have the same ID in every year. The same is also true for cities. Moreover, some states are present as *autonomous people* in a year and as state, with the same ID, in another year.

1st and 2nd level administrative divisions are defined on a year-dependent manner. Thus, it is not possible to make any correspondence between administrative divisions of one year with the ones of another year.

III - Physical data

Layers

Physical data comprises the following layers:

- Seas
- Rivers divided in two categories:
    - Small rivers
    - Big rivers
- Mountains contour lines for 5 different level:
    - 200m.
    - 500 m.
    - 1000 m.
    - 2000 m.
    - 3500 m.

S*eas* and *rivers* are different for each year. Indeed, coastlines and some rivers may have changed a bit between year 1 and year 2000. Thus, we provide a different layer of seas and rivers for every century even though there are very few differences.

Mountains are the same for all centuries. They are represented as polygons formed by the contours of five different heights: 200m, 500m, 1000m, 2000m and 3500m.

IV - Layers description

Here is a brief description of each layer and of all their attributes. Some attributes are underlined to indicate that, taken together, they form a unique identifier (or primary key). Some fields are optional and the value -1 (or empty text for text field) is used to indicate null value. Optional attributes are prefixed with an * in the following description. All layers, except mountains, are provided for each year separately and layers containing names are also provided for each encoding separately. This is specified just after the layer name in the following description. This indicates also in which directory of the dataset the file is located. The type of geometrical features present in the layer is also indicated after the layer name.

2nd level divisions [MULTIPOLYGON] year/encoding

Finest level of political territory. All other political territories (apart from *autonomous people*) are generated from this layer. Each feature has an *owner_id* referring to a sovereign state but it may also have a *holder_id* referring to a dependent state. It may happen that the names are those of the owner or of the holder state in some cases if the 2nd level division is the only one composing the state.

Only one of the level1 fields (*level1_o* or *level1_h*) can be not null at a time. The *owner_id* of the referred 1st level division is equal either to *owner_id* (for *level1_o*) or to *holder_id* (for *level1_h*)

- *owner_id* : owner state ID
- *num*: unique 2nd-level division number for this owner state for this year.
- **holder_id*: holder state ID, if there is a dependence on this territory
- **level1_o*: 1st-level division number in the owner state
- **level1_h*: 1st-level division number in the holder state
- **supra_id*: supranational entity id
- *dual_color*: concatenation of *owner_id* and *holder_id* with an underscore between (used for style)
- *short_name,* long_name, *variants* : names of the territory

1st level divisions [MULTIPOLYGON] year/encoding

Optional higher level divisions of states. These territories are automatically generated from their composing 2nd level divisions. Also, 1st level divisions do not exist in every year.

- *owner_id* : owner state ID
- *num*: unique 1st-level division number for this owner state for this year.
- *short_name,* long_name, *variants*: names of the territory

Sovereign States [MULTIPOLYGON] year/encoding

Sovereign states without taking into account the existence of dependent states. These territories are constructed by grouping 2nd level divisions according to their *owner_id*.

- *owner_id* : ID of the state represented by this territory
- *short_name, *long_name, *variants*: names of the entity

Sovereign and dependent states [MULTIPOLYGON] year/encoding

Sovereign and non-sovereign, dependent, states. Thus, each territory of this layer has an owner and sometimes a holder, like for 2nd level divisions. However, states having dependent parts do not appear as a unique territory but as several territories with different *holder_id*. So, every entity appears in this layer, either as owner (or sovereign) of some territory, or, for non-sovereign states, as holder. These territories have been constructed by grouping 2nd level divisions according to both their own*er_id* and their *holder_id*. The style of the 2nd level divisions may be used for this layer.

- *owner_id* : owner state ID
- **holder_id* : holder state ID if there is a dependence on this territory
- *dual_color*: concatenation of *owner_id* and *holder_id* with an underscore between (used for style)
- *short_name*: holder name in parenthesis or owner entity if no holder (used for style)
- *sname_o, *lname_o, *variants_o*: names of the owner state
- **sname_h, *lname_h, *variants_h*: names of the holder state if exists

Supranational entities [MULTIPOLYGON] year/encoding

Supranational entities. These entities are composed of 2nd level divisions and not of states. Thus, it may happen that supranational borders do not coincide with countries borders. More specifically, the territory of a supranational entity is the union of all 2nd level divisions having the same *supra_id*

- *entity_id* : ID of the entity represented by this territory
- *short_name, *long_name, *variants*: names of the entity

Autonomous peoples [MULTIPOLYGON] year/encoding

Autonomous peoples without well-defined territory. Populations also have an entity ID to uniquely identify the population.

- *entity_id* : ID of the people represented by this territory
- *short_name, *long_name, *variants*: names of the entity

Cities [POINT] year/encoding

- *id*: unique ID for the city, same across the years
- *size*: importance/size of the city between 1 and 5
- *name, *variants*: name of the city

Uncertain borders [MULTIPOLYGON] year

These are polygons which overlap with territories polygons in order to represents the uncertainty on some boundaries.

- *id*: unique ID
- *level*: indicate if the uncertain border concerns states borders (0), 1st level division borders (1) or 2nd level division borders (2)

Small/big Rivers [MULTILINE] year (2 layers)

No specific attributes

Seas [MULTIPOLYGON] year

No specific attributes

Mountains 200->3500 [MULTIPOLYGON] (5 layers)

No specific attributes

V - Spatial reference system

The spatial reference system for all layers is the world Mercator projection of World Geodetic System (WGS84). This reference system corresponds to ESRI WKID 54004. It is also mathematically equivalent to SRID 3395 defined by the European Petroleum Survey Group (EPSG).

VI - Styles

SLD (Styled Layer Descriptor) files are provided for each layer. They contain styles to render maps in the same way than the original Periodical Historical Atlas of Europe. Styles for coloured political territories are provided separately for each year because they define the colour of each entity and can be very big if covering several years.

Each state or autonomous people identifier defines a unique colour which is always the same for each year. This colour is used to fill country territory and province territory. 2nd level divisions having a holder state are filled by the holder state colour and surrounded with the owner state colour. Other styles are quite simple.

Note that most layers have an associated style having the same name. The only exception is the *sovereign and dependent states* layer for which the 2nd level division style must be used.

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