

**CENSUS\_INS21ES\_A\_LU\_2021\_0000**

National Reference Metadata in Euro SDMX Metadata Structure (ESMS)

Compiling agency: STATEC



## Eurostat metadata

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For any question on data and metadata, please contact: [Eurostat user support](#)

<b>1. Contact</b> <a href="#">Top</a>	
<b>1.1. Contact organisation</b>	STATEC
<b>1.1.1. Responsible party</b>	STATEC : Unit SOC3 Population and Housing

<b>1.1.2. Responsible party role</b>	Resource Provider
<b>1.2. Contact organisation unit</b>	Unit SOC3 Population and Housing
<b>1.5. Contact mail address</b>	B.P. 304 L-2013 Luxembourg

<b>2. Metadata update</b> <a href="#">Top</a>	
<b>2.1. Metadata last certified</b>	21/12/2022
<b>2.2. Metadata last posted</b>	21/12/2022
<b>2.3. Metadata last update</b>	21/12/2022

<b>3. Statistical presentation</b> <a href="#">Top</a>	
<b>3.1. Data description</b>	
Data refers to total population by 1 km <sup>2</sup> grids for Luxembourg	
<b>3.1.1. Resource title</b>	
total population by 1km <sup>2</sup> grids	
<b>3.1.2. Resource abstract</b>	
Number of inhabitants by 1km <sup>2</sup> grids. Data comes from 2021 population census. The reference date is 8th November 2021.	
<b>3.1.3. Resource type</b>	
Spatial data set series	
<b>3.1.3.1. Additional information if 'spatial data set' is marked</b>	
<a href="https://data.europa.eu/en">https://data.europa.eu/en</a>	
<b>3.1.4. Resource locator</b>	

<b>3.1.5. Unique resource identifier</b>
<a href="https://data.europa.eu/en">https://data.europa.eu/en</a>
<b>3.1.6. Coupled resource</b>
<a href="https://data.europa.eu/en">https://data.europa.eu/en</a>
<b>3.1.7. Resource language</b>
English
<b>3.1.8. Keyword value</b>
Population Distribution
<b>3.1.9. Originating controlled vocabulary</b>
<a href="https://inspire.ec.europa.eu/theme/pd">https://inspire.ec.europa.eu/theme/pd</a>
<b>3.1.10. Metadata language</b>
English
<b>3.2. Classification system</b>
By superposing the georeferenced population data and the 1km <sup>2</sup> grids matrix, we can calculate population by 1km <sup>2</sup> grids (aggregation method).
<b>3.3. Coverage - sector</b>
Total population
<b>3.3.1. Topic category</b>
Society
<b>3.3.2. Spatial data service type</b>
Download Service
<b>3.4. Statistical concepts and definitions</b>
total population by grids means number of persons having their registered residence in the grid. Population data comes from Population Register. Georeferenced addresses come from national map authority.

The grid matrix was provided by EUROSTAT.

#### **3.4.1. Statistical concepts and definitions - Total population**

For census purposes, the total population of the country consists of all the persons falling within the scope of the census in EU on usual residents.

Usual residence means the place where a person normally spends the daily period of rest, regardless of temporary absences for purposes of recreation, holidays, visits to friends and relatives, business, medical treatment or religious pilgrimage.

Persons usually resident in the place of enumeration but absent, or expected to be absent, at the time of the census for less than one year shall be considered as temporarily absent persons and thus included in the total usually population. In contrast, persons living or expected to live outside the place of enumeration for one year or more shall not be considered temporarily absent and shall therefore be excluded from the total population. This is regardless of the length of visits that they may pay to their families from time to time.

Persons who are enumerated but do not meet the criteria for usual residence in the place of enumeration, i.e. do not live or do not expect to live in the place of enumeration for a continuous period of at least 12 months, are considered temporarily present and are therefore not counted in the total usually resident population. Unless otherwise stated in this report.

#### **3.4.2. Statistical concepts and definitions - Sex**

'Sex' refers to the biological and physiological characteristics that define men and women.

#### **3.4.3. Statistical concepts and definitions - Age**

The age reached at the reference date (in completed years).

#### **3.4.4. Statistical concepts and definitions - Employed person**

Employed person means person having a occupation.

Occupation refers to the type of work done in a job.

#### **3.4.5. Statistical concepts and definitions - Place of birth**

The place of birth for persons born within the country is the civil division in which the person was born; for those born in other countries, it is the country of birth. For persons born in the country (the native-born population), the concept of place of birth usually refers to the geographic unit where the mother of the individual resided at the time of the person's birth.

#### **3.4.6. Statistical concepts and definitions - Place of usual residence one year prior to the census**

The relationship between the current place of usual residence and the place of usual residence one year prior to the census.

For all persons that have changed their usual residence more than once within the year prior to the reference date, the previous place of usual residence is the last usual residence from which they moved to their current place of usual residence.

### 3.5. Statistical unit

1km<sup>2</sup> grid cell

### 3.6. Statistical population

Population having their registered address in Luxembourg.

This population is then provided by 1km<sup>2</sup> grids.

### 3.7. Reference area

Luxembourg

#### 3.7.1. Geographic bounding box

The bounding box is expressed with westbound and eastbound longitudes, and southbound and northbound latitudes.

For examples :

- LU\_CRS3035RES1000mN3013000E4042000  
LU\_CRS3035RES1000mN3013000E4043000  
LU\_CRS3035RES1000mN3013000E4044000  
LU\_CRS3035RES1000mN3013000E4045000  
LU\_CRS3035RES1000mN3014000E4031000  
LU\_CRS3035RES1000mN3014000E4032000  
LU\_CRS3035RES1000mN3014000E4033000
- 

#### 3.7.2. Spatial resolution

1000

Unit:m

<b>3.7.3. Coordinate Reference System</b>
EPSG:3035 - ETRS89 / LAEA Europe
<b>3.8. Coverage - Time</b>
Data refer to the situation in the reporting country at the census reference date : 08/11/2021 for Luxembourg
<b>3.9. Base period</b>
Not applicable.

<b>4. Unit of measure</b> <a href="#">Top</a>
Counts of statistical units.

<b>5. Reference Period</b> <a href="#">Top</a>
08/11/2021
<b>5.1. Temporal extent</b>
08/11/2021

<b>6. Institutional Mandate</b> <a href="#">Top</a>
<b>6.1. Institutional Mandate - legal acts and other agreements</b>
STATEC's law : <a href="https://legilux.public.lu/eli/etat/leg/loi/2011/07/10/n5/jo">https://legilux.public.lu/eli/etat/leg/loi/2011/07/10/n5/jo</a>
<b>6.2. Institutional Mandate - data sharing</b>
STATEC's law : <a href="https://legilux.public.lu/eli/etat/leg/loi/2011/07/10/n5/jo">https://legilux.public.lu/eli/etat/leg/loi/2011/07/10/n5/jo</a>

<b>7. Confidentiality</b> <a href="#">Top</a>
<b>7.1. Confidentiality - policy</b>

There is no specific policy in STATEC concerning the **confidentiality issue**.

**A special treatment is done for census (see section 7.2) except for total population.**

## 7.2. Confidentiality - data treatment

For total population by 1km<sup>2</sup> grids, the observed data is provided without perturbation.

For the other variables, Luxembourg will disturb the data with the cell key method. These data and metadata will be provided in March 2024.

## 8. Release policy

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### 8.1. Release calendar

Total population by 1km<sup>2</sup> are available for EUROSTAT in December 2022.

STATEC will publish for national purposes in January 2023.

### 8.2. Release calendar access

The calendar is available on statistical portal.

**Annexes:**

[Release calendar](#)

### 8.3. Release policy - user access

STATEC disseminates statistical results through different channels :

- press conference
- news release
- tables on statistical portal
- PDF publication
- information on social media
- newsletter
- ...

Once published, data is available for different users (media, researcher, private person, ...) at the same moment.

#### 8.3.1. Conditions applying to access and use

<https://inspire.ec.europa.eu/metadata-codelist/ConditionsApplyingToAccessAndUse/noConditionsApply>

#### 8.3.2. Limitations on public access

<https://inspire.ec.europa.eu/metadata-codelist/ConditionsApplyingToAccessAndUse/noConditionsApply>

### 9. Frequency of dissemination

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Decennial

### 10. Accessibility and clarity

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#### 10.1. Dissemination format - News release

Not yet available for grids statistics.

But in general, the news release is communicated by newsletter, social media or directly on statistical portal (see example : <https://statistiques.public.lu/en/actualites/2022/stn54-ipc-11-22.html>)

#### 10.2. Dissemination format - Publications

Not yet available for grids statistics.

But in general, publications are communicated by newsletter, social media or directly on statistical portal.

Different format are available. For 2021 census, a dedicated format will be established.

The first publications will be published in 2023.

#### 10.3. Dissemination format - online database

Not yet available for grids statistics.

Statistics by 1km<sup>2</sup> grids will be available only by maps.

If a user wants to receive the data as a table, a specific demand has to be done.

#### **10.4. Dissemination format - microdata access**

Not yet available for grids statistics.

Microdata access is only possible for research purposes.

If a user wants to have access to microdata, a specific demand has to be done and validated by the Direction.

#### **10.5. Dissemination format - other**

STATEC will also publish statistics by grids through the national geoportal :  
<https://www.geoportail.lu/en/>

A dedicated section will be available in January 2023.

#### **10.6. Documentation on methodology**

Not yet available. A publication will be done in January/February 2023.

#### **10.7. Quality management - documentation**

Not yet available.

### **11. Quality management**

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#### **11.1. Quality assurance**

STATEC uses the Population Register which is updated every day by the different municipalities.

During the census, the municipalities had the possibility to use this operation (full field work) to check and update the exhaustivity of their population register.

Concerning the training courses, STATEC produced training videos and paper documents for the municipality employees and the census enumerators.

STATEC was also available by phone and email in case of questions for the municipality employees, the census enumerators and also for the public.

For online census, STATEC organized a live demonstration to explain how to respond through our citizen portal.

Concerning the definitions and concepts, STATEC follows EU Regulation and UNECE recommendations.

At the moment, STATEC has only worked on total population and the other variables will be treated in 2023.

#### 11.1.1. Lineage

This dataset contains population by grids and are based on address points of the Grand-Duchy of Luxembourg. The dataset is structured according to the INSPIRE Annex I Theme - Addresses. The data has been derived from the Cadastral database. For every parcel, where an address is known, a point is calculated at the centroid of the biggest building of the parcel. The syntax of the addresses is compliant with the "CACLR" - database (<https://saturn.etat.lu/caclr/index.do>) These addresses are used for the geolocalisation in the Geoportal (<http://map.geoportal.lu>) They have been transposed into the INSPIRE data model and coordinate system.

#### 11.1.2. Conformity, specification

The grids specification is defined by Commission Implementing Regulation (EU) 2018/1799 of 21 November 2018 on the establishment of a temporary direct statistical action for the dissemination of selected topics of the 2021 population and housing census geocoded to a 1 km<sup>2</sup> grid

#### 11.1.3. Conformity, degree

100%

#### 11.2. Quality management - assessment

Concerning the total population, the quality of the data is good due to the fact that we use the population register who is updated every day.

For the others variables, the quality management will be realized in 2023.

### 12. Relevance

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#### 12.1. Relevance - User Needs

The questionnaire was elaborated by STATEC in cooperation with other administrations to take their needs into account.

#### 12.2. Relevance - User Satisfaction

Not available.

#### 12.3. Completeness

all the variables required in the EU legislation will be disseminated for March 2024

## 13. Accuracy

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### 13.1. Accuracy - overall

At the moment, there is no indication on unreliability of the data.

Only 0.08% of the population is not linked to a specific grid (521 persons) and they have the attribute "unallocated".

STATEC will update this section if necessary in March 2024.

### 13.2. Sampling error

Not applicable for Luxembourg due to the fact that a combined census was conducted with a full enumeration.

### 13.3. Non-sampling error

No sample estimates : full enumeration

## 14. Timeliness and punctuality

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### 14.1. Timeliness

The reference date is 8th November.

STATEC has provided the total population by grids in December 2022.

The other variables will be published in March 2024 when all the variables will be analyzed and corrected.

52% of the respondents respond by paper questionnaire. The treatment of paper questionnaire takes time.

In the future STATEC wants to use more administrative data and promote the internet questionnaire.

With this, we hope to provide the data more in advance.

#### 14.1.1. Date of publication

19/12/2022

<b>14.1.2. Date of last revision</b>
19/12/2022
<b>14.1.3. Date of creation</b>
19/12/2022
<b>14.2. Punctuality</b>
total population by grids : December 2022 Other variables : March 2024

<b>15. Coherence and comparability</b>	<a href="#">Top</a>
<b>15.1. Comparability - geographical</b>	
all the variables are comparable, no differences at regional levels.	
<b>15.1.1. Geographic information - data quality</b>	
The data refers on person having their usual residence in Luxembourg. 99.9% of the adresses are georeferenced. The coordinates are calculated as being the centroid of the biggest building of the parcel.	
<b>15.2. Comparability - over time</b>	
It's the first that Luxembourg calculate the population by 1km <sup>2</sup> grids. So no comparison with the previous censuses. But the data will be comparable with the future censuses.	
<b>15.3. Coherence - cross domain</b>	
No different reference dates in any of the data sources : <ul style="list-style-type: none"> <li>• questionnaire</li> <li>• population register</li> <li>• social security register</li> <li>• Building and dwelling register</li> </ul>	

- georeferenced address

All the data sources refers to 8th November 2021.

#### 15.4. Coherence - internal

Some inconsistencies between the hypercubes concerning the grids will be possible due to the fact that STATEC will use the Cell-Key method to add noise to data and this for confidentiality issue.

So, there will be some problems concerning the additivity . For example for a specific grid, the addition of male and female will be different to the information contained in the total hypercube.

The hypercube concerning the total population is not disrupted.

This section will be updated if necessary when STATEC will provide the other hypercubes.

### 16. Cost and Burden

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STATEC wants to reduce the cost of the census with the use of administrative data and the promotion of the electronic questionnaire.

At the moment, the exact cost of the census is not known.

But the maximum budget is : 5 000 000€ (without human resources cost)

To produce data by 1km<sup>2</sup> grids, STATEC has engaged some experts especially on confidentiality issues. But the additional cost is relatively low.

This section will be updated in March 2024

### 17. Data revision

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#### 17.1. Data revision - policy

Except for total population by grids, the data published in March 2024 will be flagged as 'final'.

At the moment, the total population by grids is flagged as 'provisonnal'.

But we assume that the data will be flagged as 'final' in 2023.

And if differences are present, the difference will be very limited.

## 17.2. Data revision - practice

At the moment, no revisions are planned.

## 18. Statistical processing

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### 18.1. Source data

The data are based on a full enumeration and administrative data.

- Demographic variables are provided by Population register
- NACE are provided by Social security register (and by questionnaire for people not registered in national security register)
- Housing conditions : Some informations are based on Building and Dwelling Register . The others are coming from questionnaires.
- All other topics : questionnaire

### 18.2. Frequency of data collection

Decennial.

### 18.3. Data collection

combined census with a full enumeration

### 18.4. Data validation

Consistency checks will be carried out between the various responses.

These checks included:

- comparisons of the dates of birth of parents and children
- number of spouses in a family nucleus
- comparison of levels of education and profession practised
- comparison of age and socio-economic status
- comparison of occupation and sector of activity
- ...

### 18.5. Data compilation

A methodology has been developed to assign a specific address to a grid.

By superposing the georeferenced population data and the 1km<sup>2</sup> grids matrix, we can calculate population by 1km<sup>2</sup> grids (aggregation method).

Except for total population, STATEC will use the Cell-Key method to add noise to the data.

This is one of the method suggested by EUROSTAT.

#### 18.6. Adjustment

Not applicable

#### 19. Comment

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The metadata will be updated in March 2024 due to the fact that the actual dissemination concerned only the total population by grids.

#### Related metadata

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#### Annexes

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