

# Plugin for QGIS HVLSP\_merge\_packages

User manual

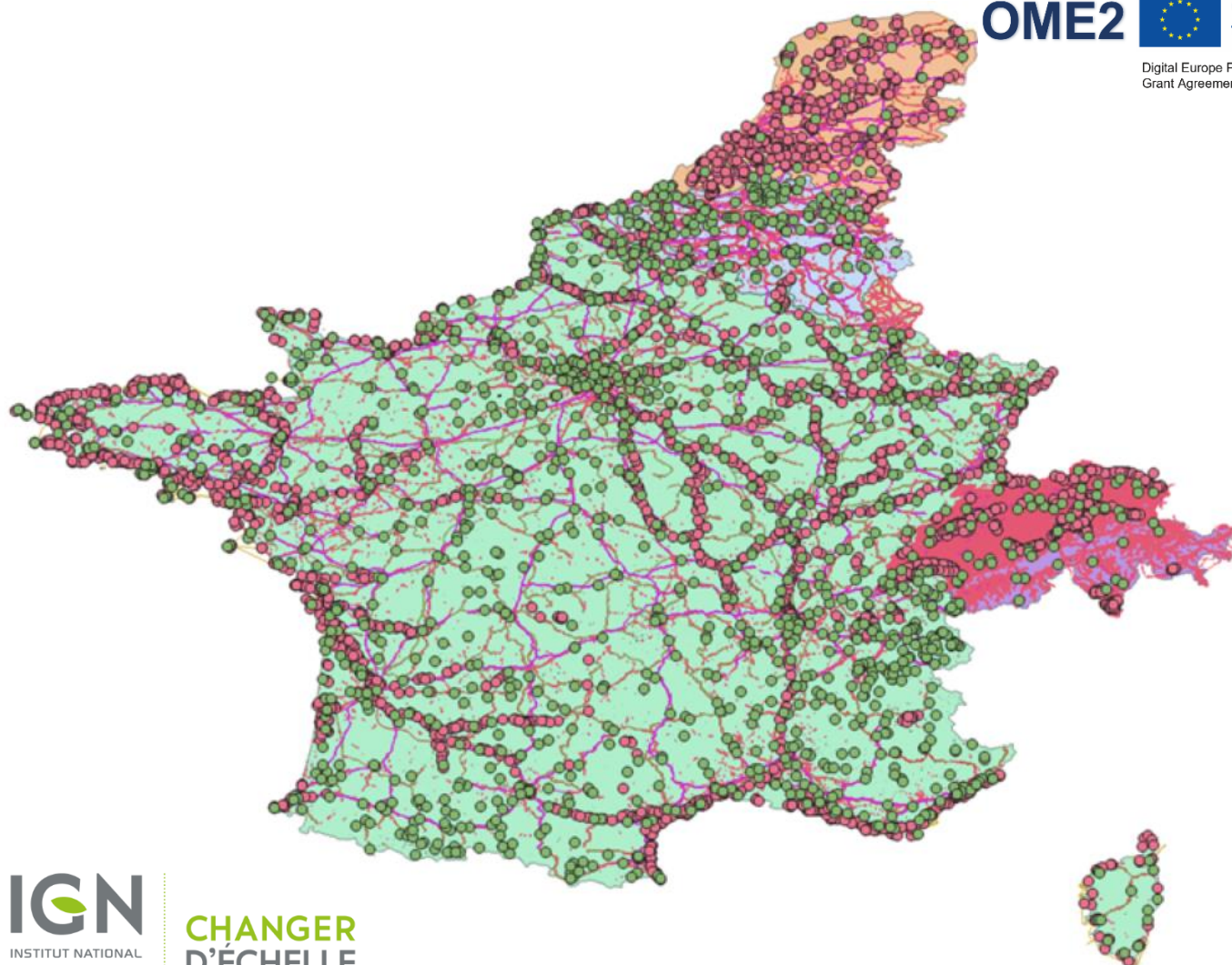
Version 1.0.0

OME2



Co-funded by  
the European Union

Digital Europe Programme  
Grant Agreement No 101100625



## 1. Versions

Number	Comment	Date
1.0	User manual version 1.0	13/12/2024

## 2. Content

1.	Versions .....	1
2.	Content.....	2
3.	Introduction.....	3
4.	Why this plugin? .....	3
5.	Installation.....	5
5.1	OPTIONAL: SET LANGUAGE AS ENGLISH .....	5
5.2	PLUGIN INSTALLATION .....	6
6.	Important information .....	8
7.	Adding additional geopackages.....	8
8.	Comparisons .....	10

### 3. Introduction

Open Maps for Europe provides free-to-use open data created using official map, geospatial and land information from official, national sources.

The High-Value Large-Scale pan-European prototype is a multi-themed topographic dataset aligned to key EU Policy objectives and UN core geospatial data recommendations. It contains seamless and harmonised authoritative data and is produced by the OME2 project using EuroGeographics' members' national databases.

At the end of 2024, the prototype should include five countries and two themes (Administrative units and Transport networks).

At the end of 2025, the prototype should include a total of 10 countries and three themes (Administrative Units, Transport networks and Hydrography).

After having accepted the license terms and entered their e-mail address, the user will be allowed to download the pre-calculated geopackages available for the first two levels of administrative hierarchy (Countries & *Régions/Länder/Province...*) at <https://www.mapsforeurope.org/access-data>

**High-value large-scale pan European prototype Download**

1. Select your Theme(s)

☐ Administrative Units

☒ Transportation

2. Select your Area(s) ⓘ

☐ Download for all Countries

OR

☐ Select by Country

OR

☒ Select by Administrative Units (Level 2)

Waals Gewest, Belgium x Hauts-de-France, France x

Zeeland, Netherlands x

### 4. Why this plugin?

The user will notice two issues after having downloaded various geopackages and imported them in QGIS:

- Geopackages imported in QGIS will appear as originating from different datasets even if the data shares the same structure.
- At the administrative limits between two adjacent geopackages, data intersecting these boundaries will be duplicated. These duplicated objects will have the same geometry and the same attributes, including the same value for « objectid » (unique identifier).



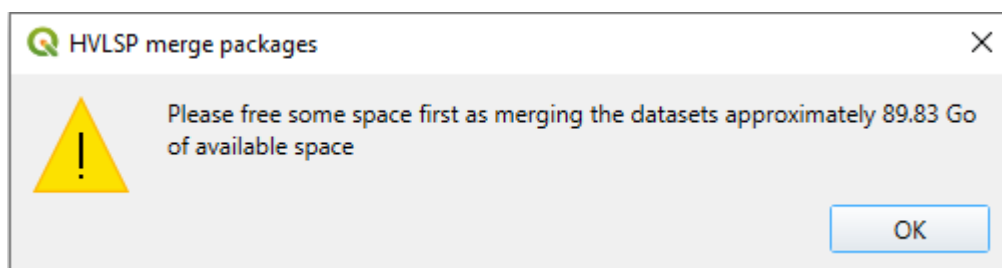
Without this plugin, in order to manually obtain a clean and merged dataset, several steps would be required, using existing QGIS tools developed to process data:

- Import the datasets;
- Merge the datasets (**Toolbox > Vector general > Merge vector layers**);
- Remove the duplicates (**Toolbox > Vector general > Delete duplicates by attribute**);

Some of these steps have to be done classes of objects after classes of objects. It may be very time consuming and prone to mistakes. And it will have to be repeated in order to add a third, fourth... dataset.

This plugin intends to automate these steps. It allows:

- To select several datasets in the same directory (one dataset downloaded = one gpkg file);
- To check if there is enough space available on the hard drive where the directory is located; The rule of thumb is to check if the space available is at least 4 times the size of the sum of the files to merge. If there is not enough space available, there will be a warning.



- To merge the datasets;
- To remove the duplicates;
- To create a unique file "result.gpkg".

Two options are possible:

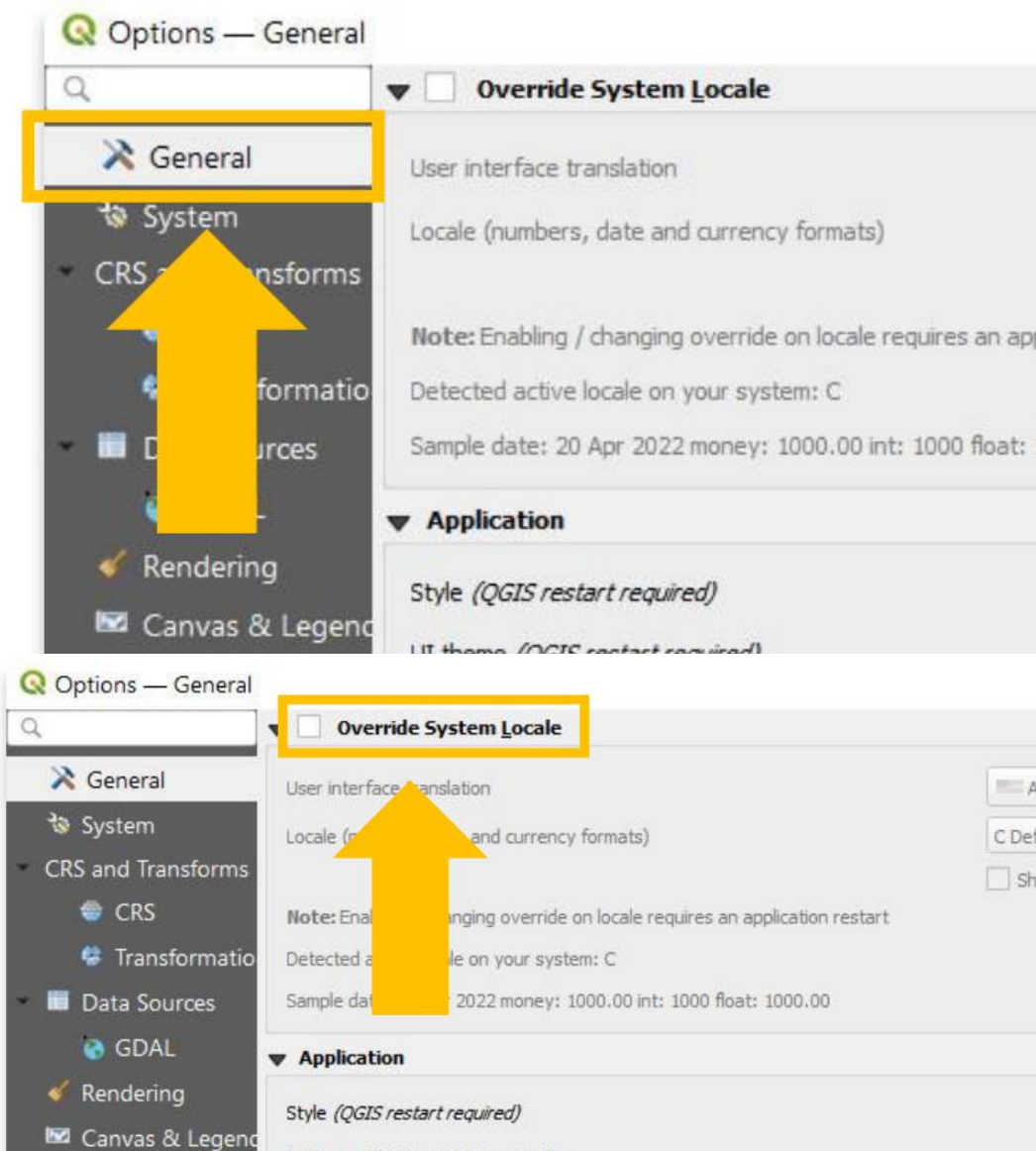
- 1- Start the three main steps sequentially and manually;
  - Import Geopackage files;
  - Merge layers and remove duplicate objects;
  - Save layers into geopackages files;
- 2- Start the three main steps sequentially and automatically.

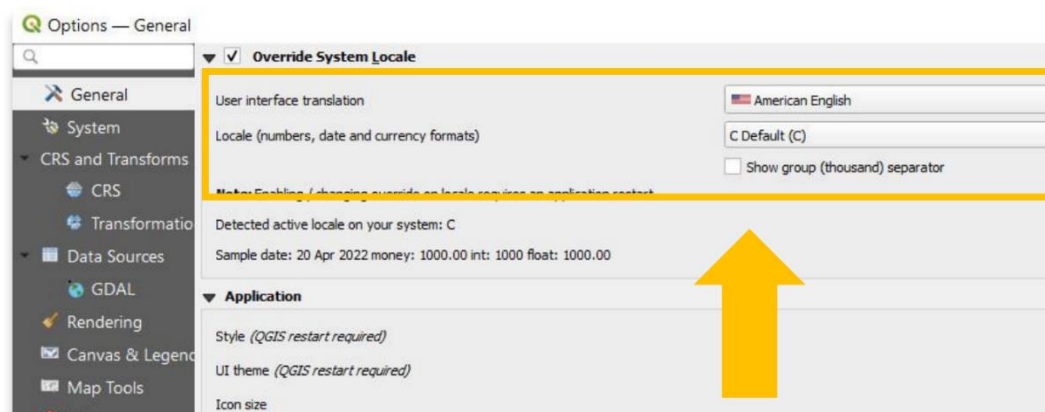


## 5. Installation

### 5.1 Optional: Set language as English

This step is provided only if the user is looking for consistency between this document and what he will see on his screen.

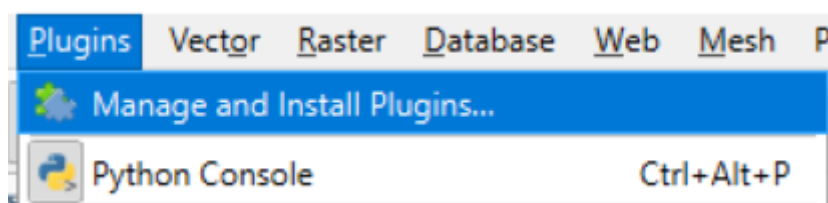




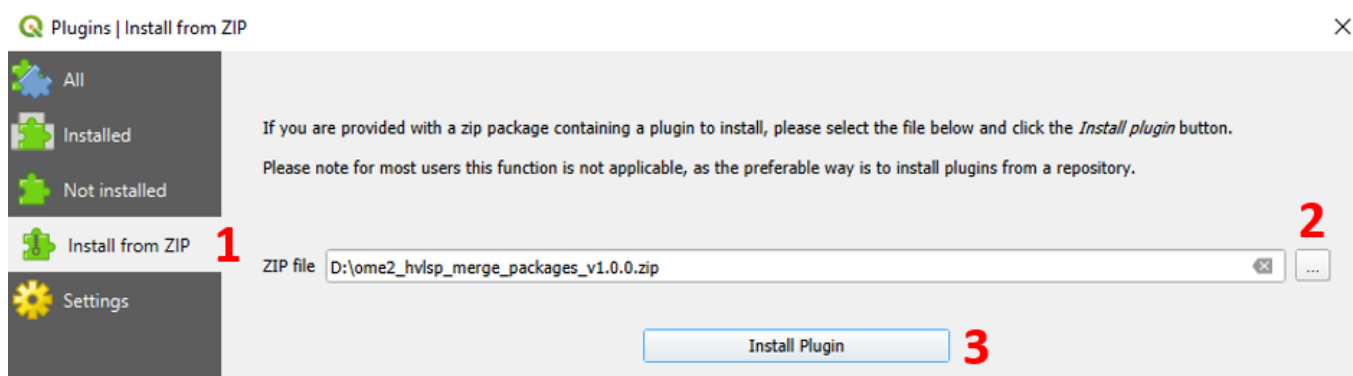
## 5.2 Plugin installation

Steps to follow to install the plugin:

- Open QGIS, go to **Plugins > Manage and Install plugins...**

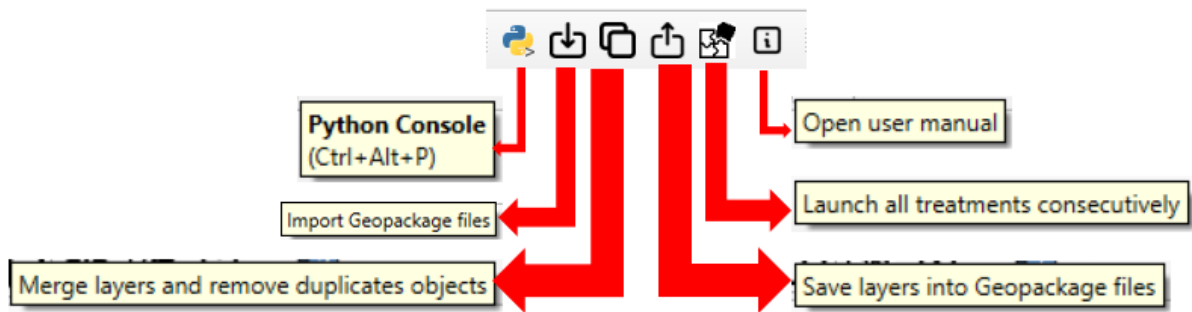


- Select **Install from ZIP** (1)
- Select the zip file (2)
- **Install Plugin** (3)
- Wait for the message “**Plugin installed successfully**” then Close the window



In the plugin toolbar, five new icons will appear.





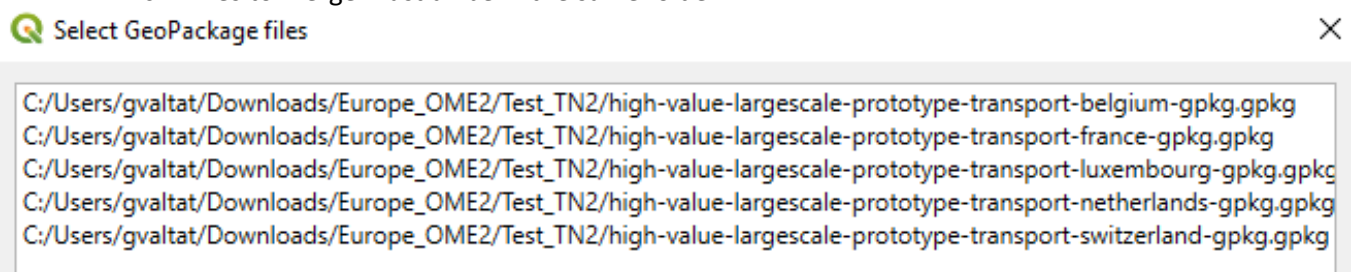
- **Python console**
  - Opens automatically as soon as importing files has started;
  - Allows to get access to information related to the treatment. This information will be saved in a log file, independently if the console is activated or not;
  - Computing time under one minute will be logged in as 0mn;

```

Console Python
14 Done.
15 au_administrative_unit_area_4
16 Done.
17 au_administrative_unit_area_5
18 Done.
19 au_maritime_zone
20 Done.
21 ib_international_boundary_line
22 Done.
23 au_administrative_unit_hierarchy
24 Done.
25 Import file : D:/DeveloppementQGIS/ProjetQGIS/OME2/PAYS/ADMIN/Nations/high-value-largescale-prototype-administrative-units-france-gpkg.gpkg

```

- **Import Geopackage files** (option 1)
  - Files to merge must all be in the same folder.



- **Merge layers and remove duplicate objects** (option 1)
  - Identical classes of objects are merged;
  - A progress bar will appear at each step of the process;



- The treatment can be very long. Depending on the amount of data to consider and on the resources available on the computer (see some comparisons below), an error message “QGIS is not working” can still appear in the upper left corner of QGIS window even if progress is under way; Treatment of the road\_link table can easily represent 80% of the total time (progress bar will appear frozen); Intermediary files are temporarily created in the folder where the files to merge are located (merged classes with duplicates, merged classes without duplicates).

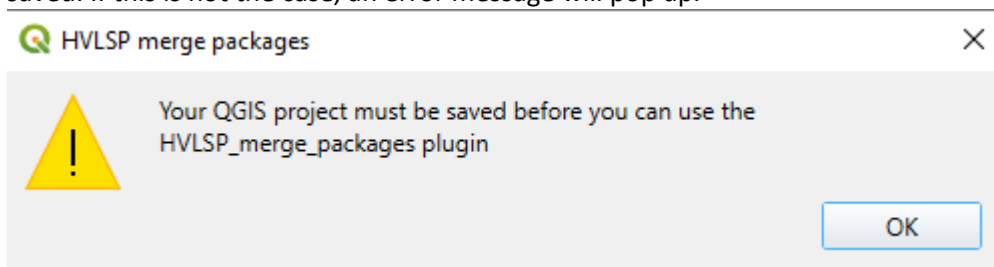
- **Save layers into Geopackage files** (option 1)




- All the results are merged into a unique file “result.gpkg”;
  - The result is saved in the folder where the .gpkg files to merge are located;
  - Intermediary files are deleted.
- **Launch all treatments consecutively** (option 2)
  - All treatments are launched sequentially and automatically;
- **Open user manual**
  - This manual;


## 6. Important information

- The plugin requires an open active project. It will work only if this project (even empty) is saved. If this is not the case, an error message will pop up.



- Two temporary files will be created in the same folder for each class of objects.
  - xxx\_merged.gpkg results from the fusion of the files for the objects xxx;
  - xxx.gpkg is the result after having applied the QGIS tool “delete duplicates by attribute = objectid”

 au\_administrative\_unit\_area\_1\_merged.gpkg

 au\_administrative\_unit\_area\_1.gpkg

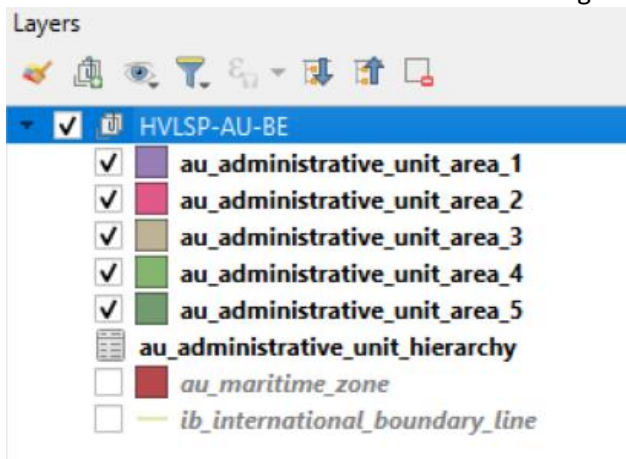
- At the end of the process, when “result.gpkg” will be created, QGIS will close to allow the automatic deletion of temporary files.
- In case users would want to recover one or more of these files, they will need to use the option where each step is triggered manually, and to create a copy of the files (do not move them).
- Each time the plugin is used, a new log “HVLSPMergePackages.log” will be created. If there is a previous log, its content will be replaced.
- QGIS adds attributes in files, like “path”, which makes them heavier. This plugin, in its beta version, doesn’t remove these additional attributes. Therefore it is strongly advised to drop off the files in a folder with a short name close to the root of the disk, to avoid long pathnames.

## 7. Adding additional geopackages

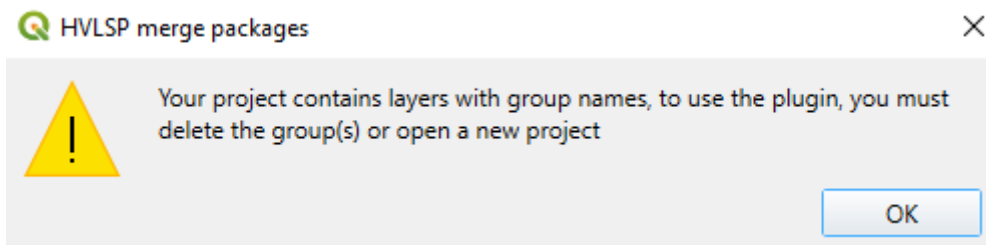
It is possible to add other package to previously merged datasets. Context matters.

- All datasets must be in the same folder;

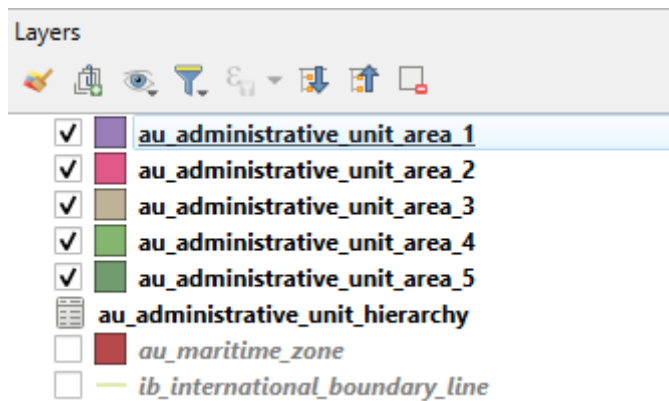
- **Context 1: starting from an empty project**
  - Select through the buttons the gpkg resulting from the previous merging, plus the next dataset(s) to merge;
  - Complete the process (manually or automatically);
  - The result will be in “result.gpkg” (if a file has already this name, it will be replaced)
- **Context 2: starting from a not-empty project**
  - Open the not-empty project;
  - Check that there are NO LAYERS WITH GROUP NAMES. If that’s the case, the plugin won’t work and an error message will pop up



There are group names, the plugin won’t work.



- If there are group names, move the layers at the root and delete the groups.
- Then use the plugin as previously described



No group names, the plugin will work to add, merge and clean additional geopackages.

## 8. Comparisons

Assuming that there is enough space available on the hard drive, the time required for the processing will depend on two factors:

- the size of the packages;
- the characteristics of the computer system (CPU, RAM...).

Some classes of objects will take longer than others to process (for the Transport Network theme, road\_link only requires ~80% of the time)

QGIS may appear to be frozen even if data keeps being processed.

Below are some comparisons of processing times using different systems.

5 countries: NL, BE, LU, FR, CH (14,5 Go of data) Theme: Transport Network			
Processor	AMD Ryzen 5 7530U	Intel Core™ i5-8300H	AMD Ryzen 5 5500U
Frequency	2,0 GHz	2,3GHz	2,1 GHz
Graphic card	Radeon Graphics		Radeon Graphics
RAM	16 Go	16Go	24 Go
Import	<1 mn	<1 mn	<1 mn
Merging	19 mn	26 mn	26 mn
Duplicates	18 mn	28 mn	29 mn
Save	18 mn	28 mn	25 mn
Total time	56 mn	80 mn	81 mn