

# Civil-Military Cooperation



## LARA V4.0 – Generic QGIS project



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The European Organisation for the Safety of Air Navigation

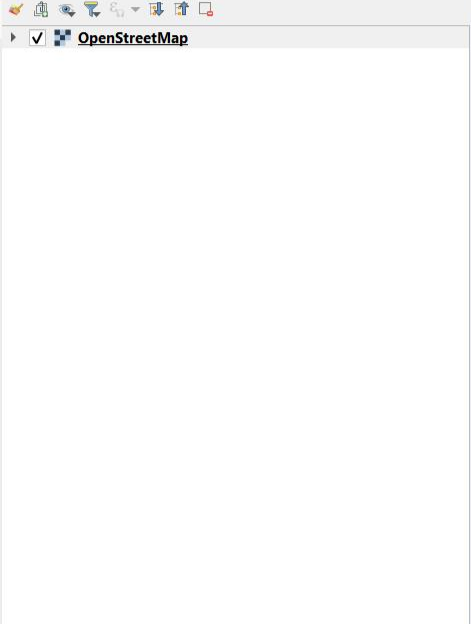
# 1) Start the provided QGIS “.qgz”

LARA\_SERVER-OSM — QGIS

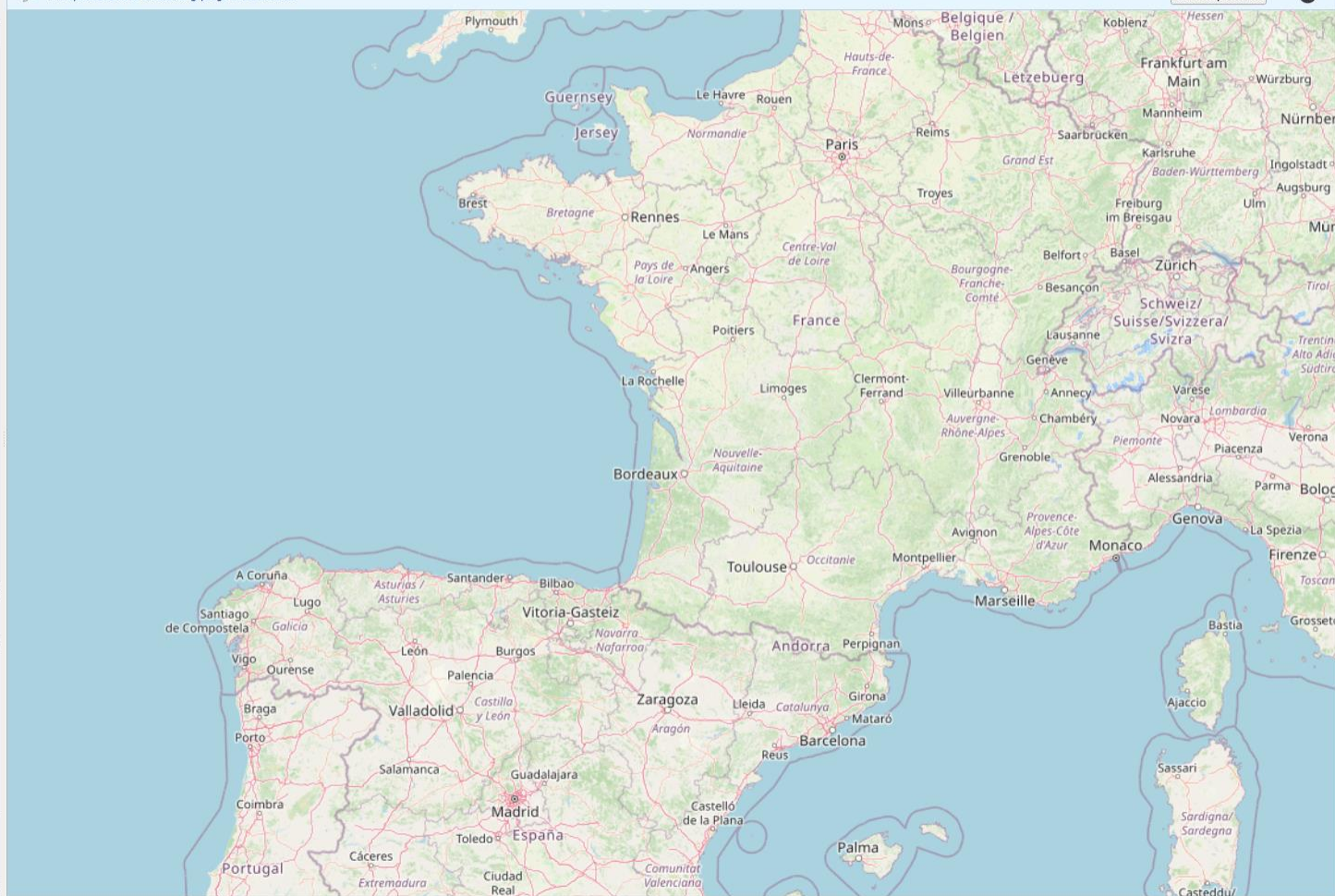
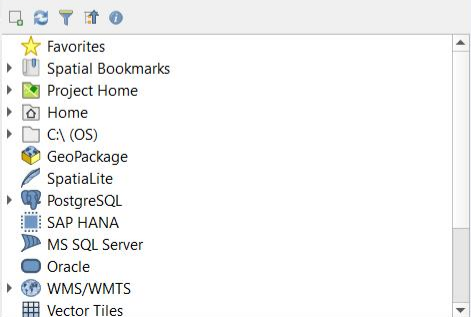
Project Edit View Layer Settings Plugins Vector Raster Database Web Mesh Processing Help Vecteur



Layers



Browser

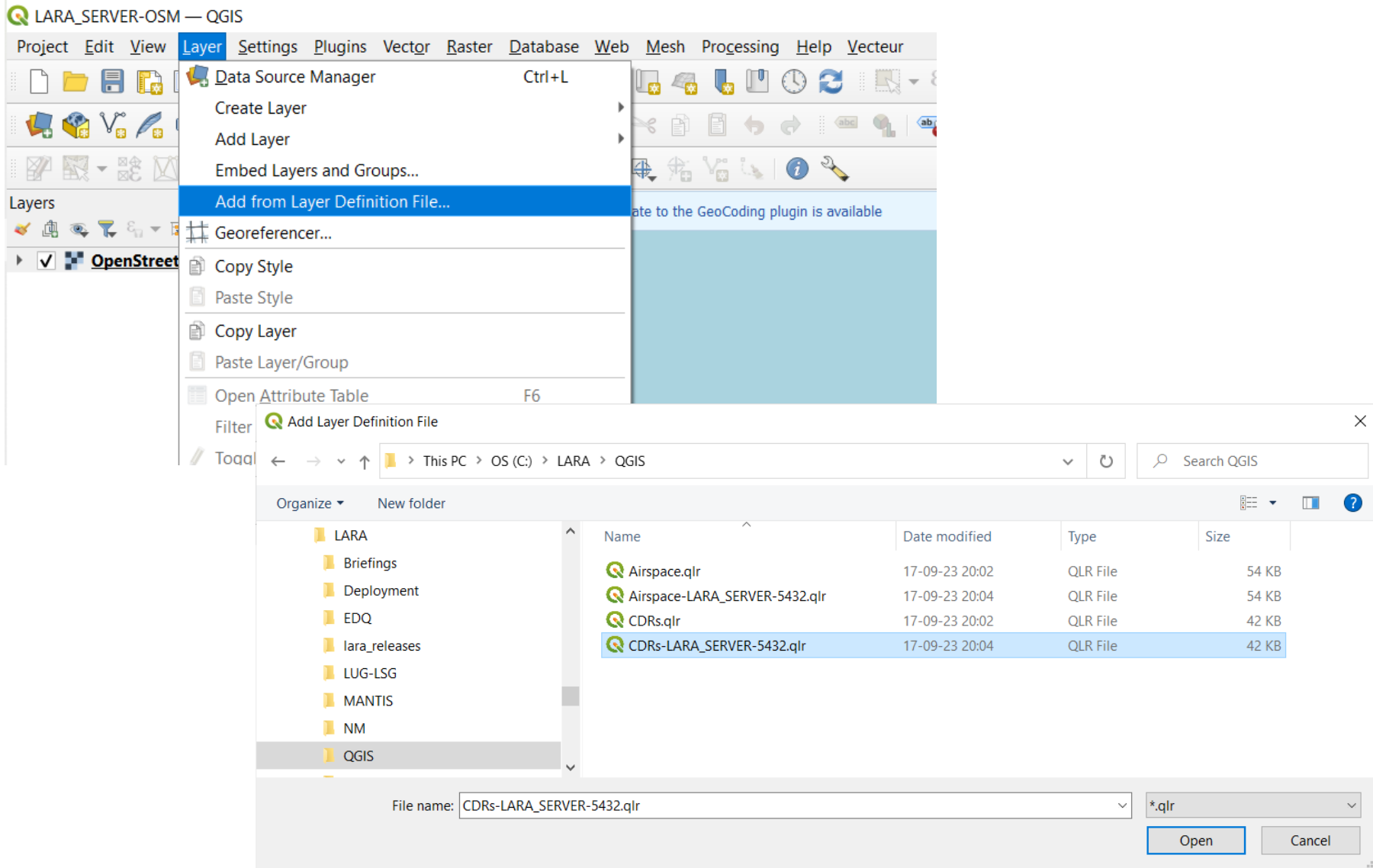


## 2) Edit the provided CDRs ".qlr"

```
C:\LARA\QGIS\CDRs-LARA_SERVER-5432.qlr - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
CDRs-LARA_SERVER-5432.qlr x
1 <!DOCTYPE qgis-layer-definition>
2 <qlr>
3 <layer-tree-group expanded="1" checked="Qt::Checked" groupLayer="" name="">
4 <customproperties>
5 <Option/>
6 </customproperties>
7 <layer-tree-layer legend_exp="" id="CDRs_a7b5f3a2_4d0e_4c1a_905a_cfe7a26165a4" legend_split_behavior="0" expanded="1"
checked="Qt::Checked" patch_size="-1,-1" name="CDRs" providerKey="postgres" source="dbname='LARA_SERVER_Db14' host=localhost port=5432
sslmode=disable key='_uid' checkPrimarykeyunicity='0' table="(SELECT row_number() over () AS _uid, * FROM
(&#xd;&#xa;&#xd;&#xa;&#xd;&#xa;SELECT DISTINCT&#xd;&#xa; concat(perpetualcdr.name,'
','&quot;pStart&quot;.icaoname','-','&quot;pEnd&quot;.icaoname) as Segment,&#xd;&#xa; perpetualcdr.name as cdname,&#xd;&#xa;
&quot;pStart&quot;.icaoname as startPoint,&#xd;&#xa; \&quot;pEnd&quot;.icaoname as endPoint,&#xd;&#xa;
ST_Makeline(\&quot;pStart&quot;.point, \&quot;pEnd&quot;.point) as line&#xd;&#xa; FROM data.perpetualcdr,
data.perpetualcdrsegment, data.perpetualpoint \&quot;pStart&quot;,\&quot;pEnd&quot;; WHERE
perpetualcdrsegment.cdr_dbid = perpetualcdr.dbid AND perpetualcdrsegment.start_dbid = \&quot;pStart&quot;.dbid AND
perpetualcdrsegment.end_dbid = \&quot;pEnd&quot;.dbid&#xa;)&quot; AS _subq_1 &#xa;)&quot; (line)">
8 <customproperties>
9 <Option/>
10 </customproperties>
11 </layer-tree-layer>
12 </layer-tree-group>
13 <maplayers>
14 <maplayer autoRefreshEnabled="0" symbologyReferenceScale="-1" minScale="100000000" simplifyLocal="1" geometry="Line"
refreshOnNotifyMessage="" legendPlaceholderImage="" refreshOnNotifyEnabled="0" simplifyDrawingTol="1" simplifyAlgorithm="0"
styleCategories="AllStyleCategories" autoRefreshTime="0" simplifyMaxScale="1" maxScale="0" wkbType="LineString"
simplifyDrawingHints="1" hasScaleBasedVisibilityFlag="0" readOnly="0" type="vector" labelsEnabled="1">
15 <extent>
16 <xmin>-5.83666666666666956</xmin>
17 <ymin>39</ymin>
18 <xmax>9.75</xmax>
19 <ymax>51.28722222222219784</ymax>
20 </extent>
21 <wgs84extent>
22 <xmin>-5.83666666666666956</xmin>
23 <ymin>39</ymin>
24 <xmax>9.75</xmax>
25 <ymax>51.28722222222219784</ymax>
```

Warning: 2 locations for data source

# 3) Add CDRs layer



The screenshot shows the QGIS interface with the 'Layer' menu open. The 'Add from Layer Definition File...' option is selected. Below the menu, the 'Add Layer Definition File' dialog box is open, displaying a file explorer view of the 'LARA' folder. The file 'CDRs-LARA\_SERVER-5432.qlr' is selected in the file list.

**QGIS Layer Menu Options:**

- Data Source Manager (Ctrl+L)
- Create Layer
- Add Layer
- Embed Layers and Groups...
- Add from Layer Definition File...**
- Georeferencer...
- Copy Style
- Paste Style
- Copy Layer
- Paste Layer/Group
- Open Attribute Table (F6)
- Filter
- Tool

**Add Layer Definition File Dialog:**

Path: This PC > OS (C:) > LARA > QGIS

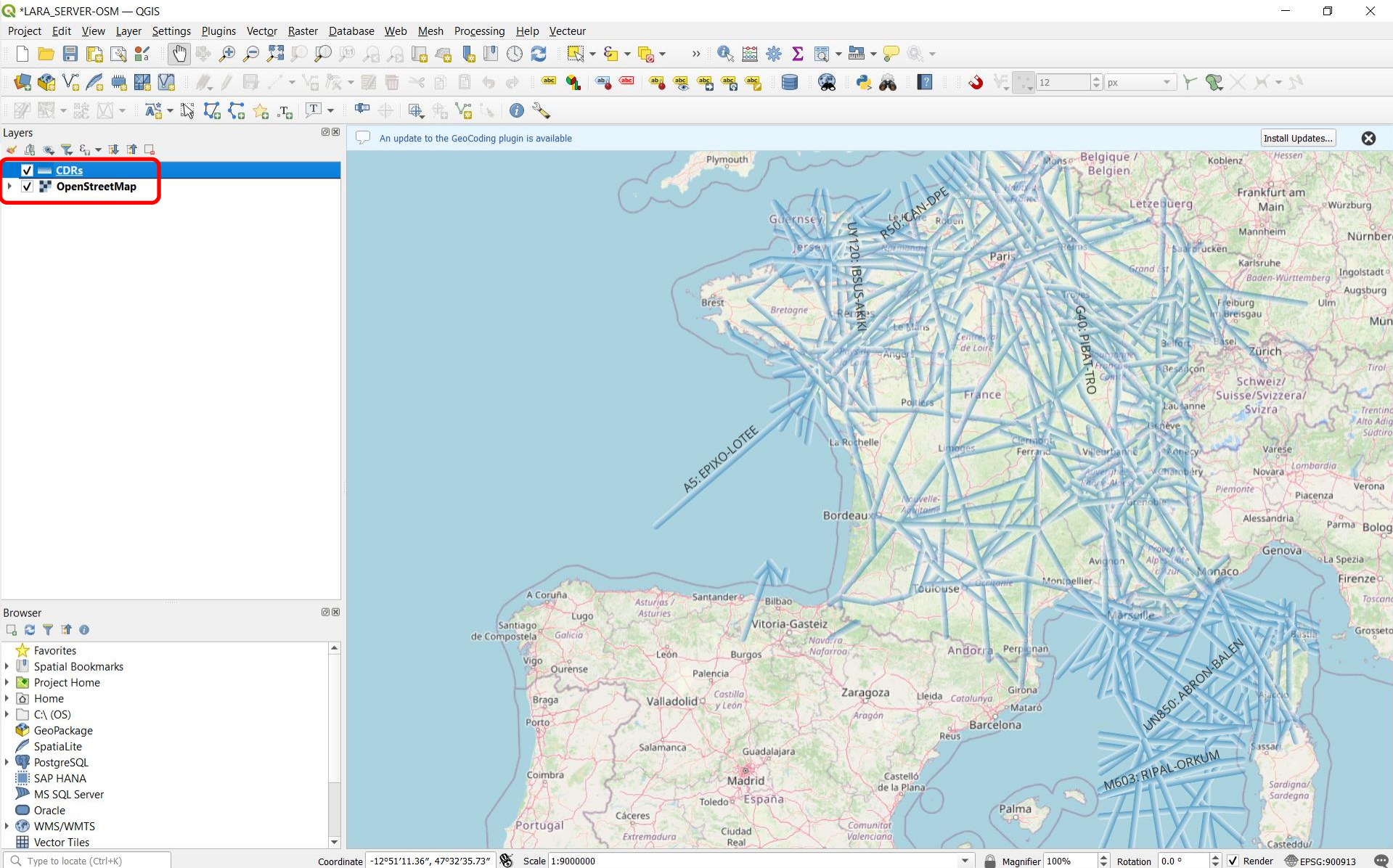
Name	Date modified	Type	Size
Airspace.qlr	17-09-23 20:02	QLR File	54 KB
Airspace-LARA_SERVER-5432.qlr	17-09-23 20:04	QLR File	54 KB
CDRs.qlr	17-09-23 20:02	QLR File	42 KB
<b>CDRs-LARA_SERVER-5432.qlr</b>	17-09-23 20:04	QLR File	42 KB

File name: CDRs-LARA\_SERVER-5432.qlr

File type: \*.qlr

Buttons: Open, Cancel

# 4) Re-order layers stack (OSM at bottom)



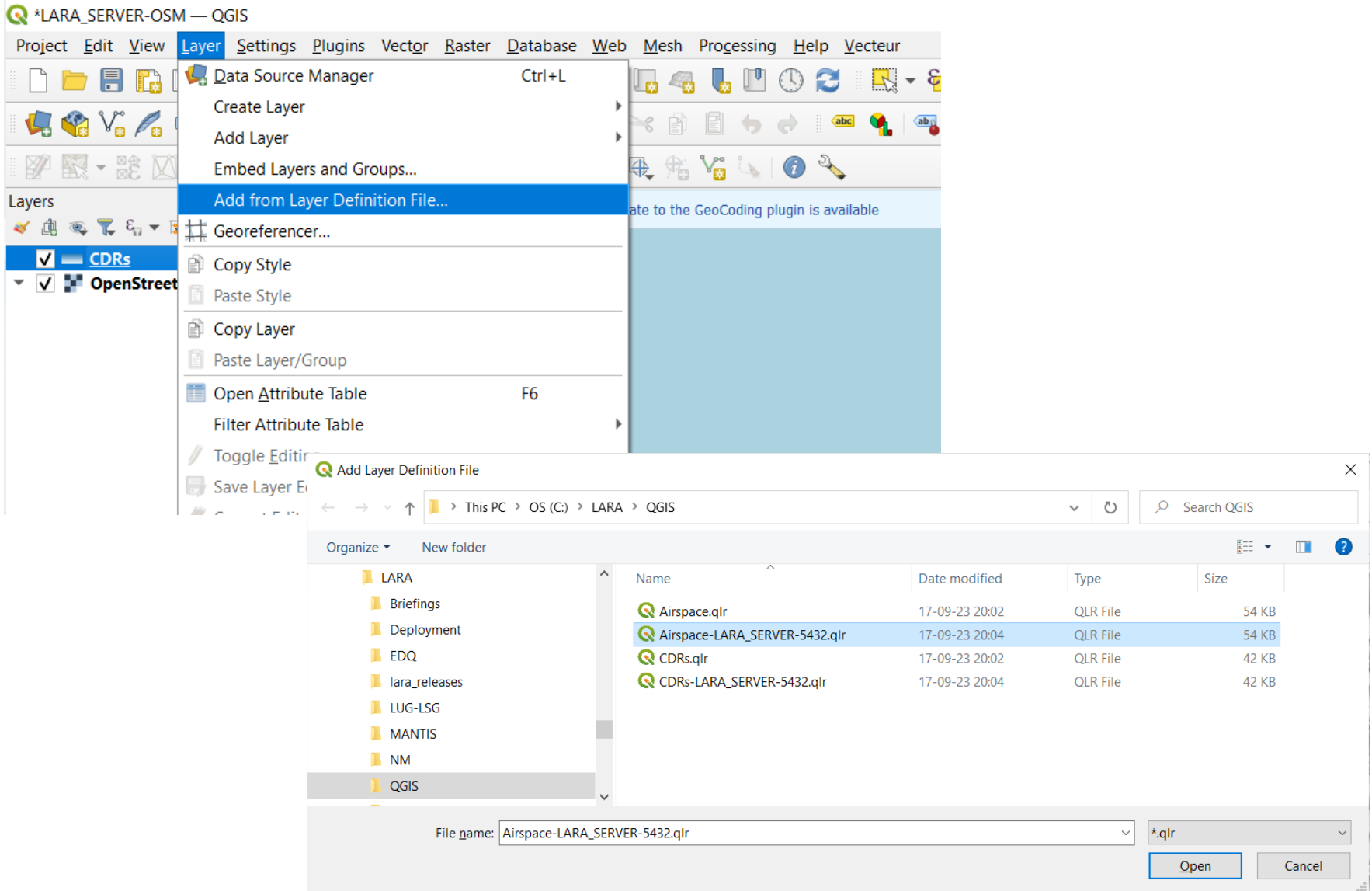
The screenshot displays the QGIS desktop environment. The main map area shows a geographical view of Europe with a dense network of blue lines representing flight routes. The 'Layers' panel on the left side of the interface shows two layers: 'CDRs' and 'OpenStreetMap'. The 'OpenStreetMap' layer is selected and highlighted with a red box. The 'Browser' panel on the left side of the interface shows a list of data sources, including 'Favorites', 'Spatial Bookmarks', 'Project Home', 'Home', 'CA (OS)', 'GeoPackage', 'Spatialite', 'PostgreSQL', 'SAP HANA', 'MS SQL Server', 'Oracle', 'WMS/WMTS', and 'Vector Tiles'. The status bar at the bottom of the window shows the following information: Coordinate: -12°51'11.36", 47°32'35.73"; Scale: 1:9000000; Magnifier: 100%; Rotation: 0.0°; Render: checked; EPSG:900913.

## 5) Edit the provided Airspace “.qlr”

```
C:\LARA\QGIS\Airspace-LARA_SERVER-5432.qlr - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
Airspace-LARA_SERVER-5432.qlr x
1 <!DOCTYPE qgis-layer-definition>
2 <qlr>
3 <layer-tree-group expanded="1" checked="Qt::Checked" groupLayer="" name="">
4 <customproperties>
5 <Option/>
6 </customproperties>
7 <layer-tree-layer legend_exp="" id="Airspace_c7034dc7_3c01_4597_946b_07461d3b3a7d" legend_split_behavior="0" expanded="1"
checked="Qt::Checked" patch_size="-1,-1" name="Airspace" providerKey="postgres" source="dbname='LARA_SERVER_Db14' host=localhost
port=5432 sslmode=disable key='_uid_' checkPrimarykeyUnicity=0 table='"(SELECT row_number() over () AS _uid, ^ FROM
(&#xd;&#xa;SELECT&#xd;&#xa; abstractairspace.name,&#xd;&#xa; temporalarea.areatype,&#xd;&#xa; geographicalvolume.lower_level as
lbound,&#xd;&#xa; geographicalvolume.upper_level as hbound,&#xd;&#xa; st_astext(geographicalvolume.polygon) as
geometry&#xd;&#xa; FROM&#xd;&#xa; data.abstractairspace,&#xd;&#xa; data.geographicalvolume,&#xd;&#xa;
data.temporalairspace,&#xd;&#xa; data.temporalarea,&#xd;&#xa; data.temporalspace&#xd;&#xa;&#xd;&#xa; WHERE&#xd;&#xa;
geographicalvolume.area_dbid = temporalairspace.dbid AND&#xd;&#xa; temporalairspace.perpetual_dbid = abstractairspace.dbid
AND&#xd;&#xa; temporalairspace.dbid = temporalarea.dbid and&#xd;&#xa; temporalairspace.dbid = temporalspace.dbid
AND&#xd;&#xa;now() BETWEEN temporalspace.lifetimestartdate AND temporalspace.lifetimeenddate&#xd;&#xa;&#xd;&#xa; ORDER BY
&#xd;&#xa;temporalarea.areatype, &#xd;&#xa;abstractairspace.name&#xa;) AS_subq_1_&#xa;)&quot;; (geometry)">
8 <customproperties>
9 <Option type="Map">
10 <Option value="Airspace" name="cached_name" type="QString"/>
11 <Option value="1" name="overview" type="int"/>
12 </Option>
13 </customproperties>
14 </layer-tree-layer>
15 </layer-tree-group>
16 <maplayers>
17 <maplayer autoRefreshEnabled="0" symbologyReferenceScale="-1" minScale="100000000" simplifyLocal="1" geometry="Polygon"
refreshOnNotifyMessage="" legendPlaceholderImage="" refreshOnNotifyEnabled="0" simplifyDrawingTol="1" simplifyAlgorithm="0"
styleCategories="AllStyleCategories" autoRefreshTime="0" simplifyMaxScale="1" maxScale="0" wkbType="Polygon" simplifyDrawingHints="1"
hasScaleBasedVisibilityFlag="0" readOnly="0" type="vector" labelsEnabled="1">
18 <extent>
19 <xmin>-40</xmin>
20 <ymin>37.47916666666669983</ymin>
21 <xmax>9.7494444444444408</xmax>
22 <ymax>51.05277777777779846</ymax>
23 </extent>
24 <wgs84extent>
```

Warning: 2 locations for data source

## 6) Add Airspace layer



The screenshot shows the QGIS interface with the 'Layer' menu open. The 'Add from Layer Definition File...' option is selected. Below the menu, the 'Add Layer Definition File' dialog box is open, displaying a file explorer view of the 'LARA > QGIS' directory. The file 'Airspace-LARA\_SERVER-5432.qlr' is selected in the file list.

**QGIS \*LARA\_SERVER-OSM — QGIS**

Project Edit View **Layer** Settings Plugins Vector Raster Database Web Mesh Processing Help Vecteur

Data Source Manager Ctrl+L  
Create Layer  
Add Layer  
Embed Layers and Groups...  
**Add from Layer Definition File...**  
Georeferencer...  
Copy Style  
Paste Style  
Copy Layer  
Paste Layer/Group  
Open Attribute Table F6  
Filter Attribute Table  
Toggle Editing  
Save Layer E

Layers  
CDRs  
OpenStreetMap

**Add Layer Definition File**

This PC > OS (C:) > LARA > QGIS

Organize New folder

Name	Date modified	Type	Size
Airspace.qlr	17-09-23 20:02	QLR File	54 KB
<b>Airspace-LARA_SERVER-5432.qlr</b>	17-09-23 20:04	QLR File	54 KB
CDRs.qlr	17-09-23 20:02	QLR File	42 KB
CDRs-LARA_SERVER-5432.qlr	17-09-23 20:04	QLR File	42 KB

File name: Airspace-LARA\_SERVER-5432.qlr \*.qlr

Open Cancel

# 7) Re-order layers stack (OSM at bottom)

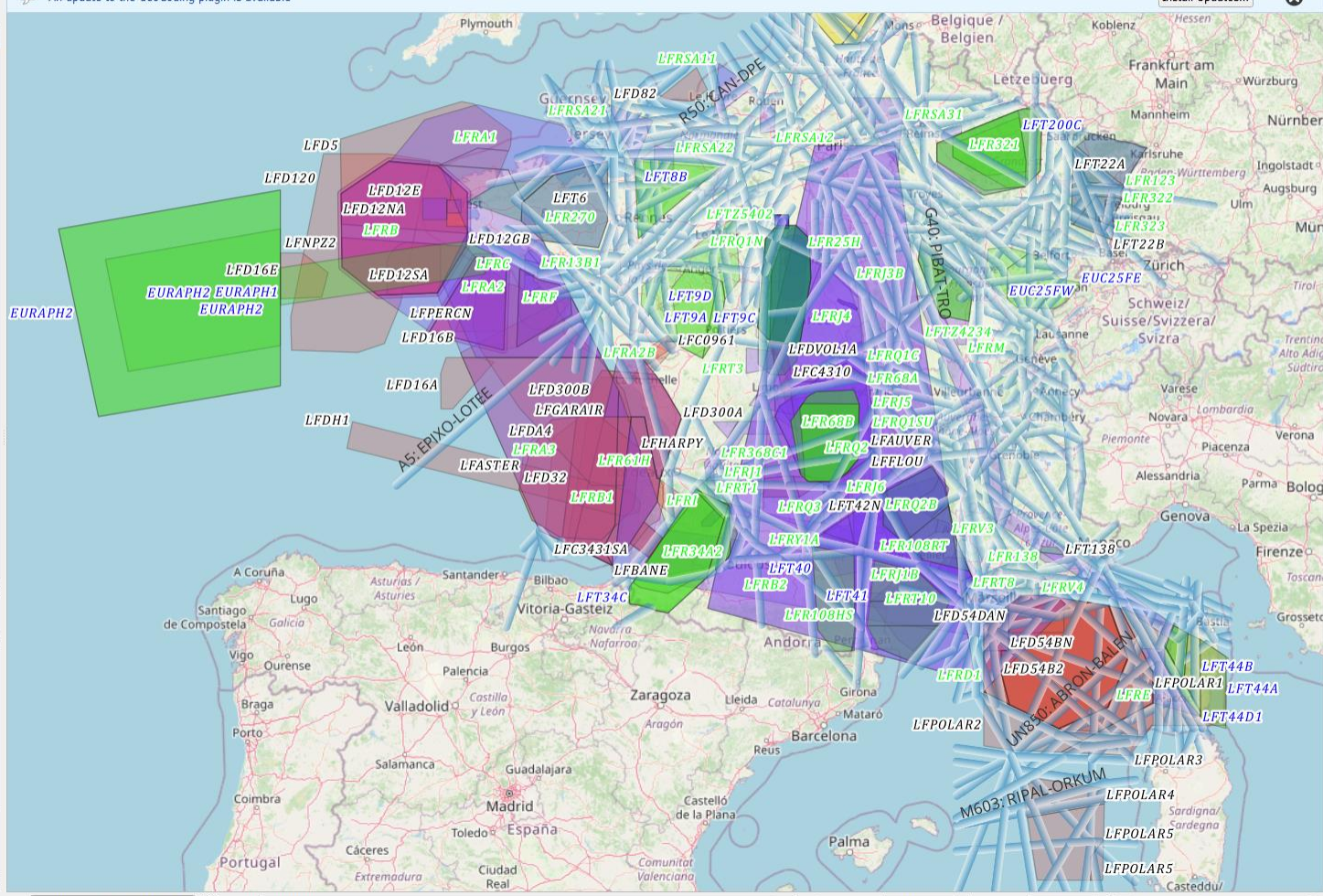
\*LARA\_SERVER-OSM — QGIS

Project Edit View Layer Settings Plugins Vector Raster Database Web Mesh Processing Help Vecteur



Layers

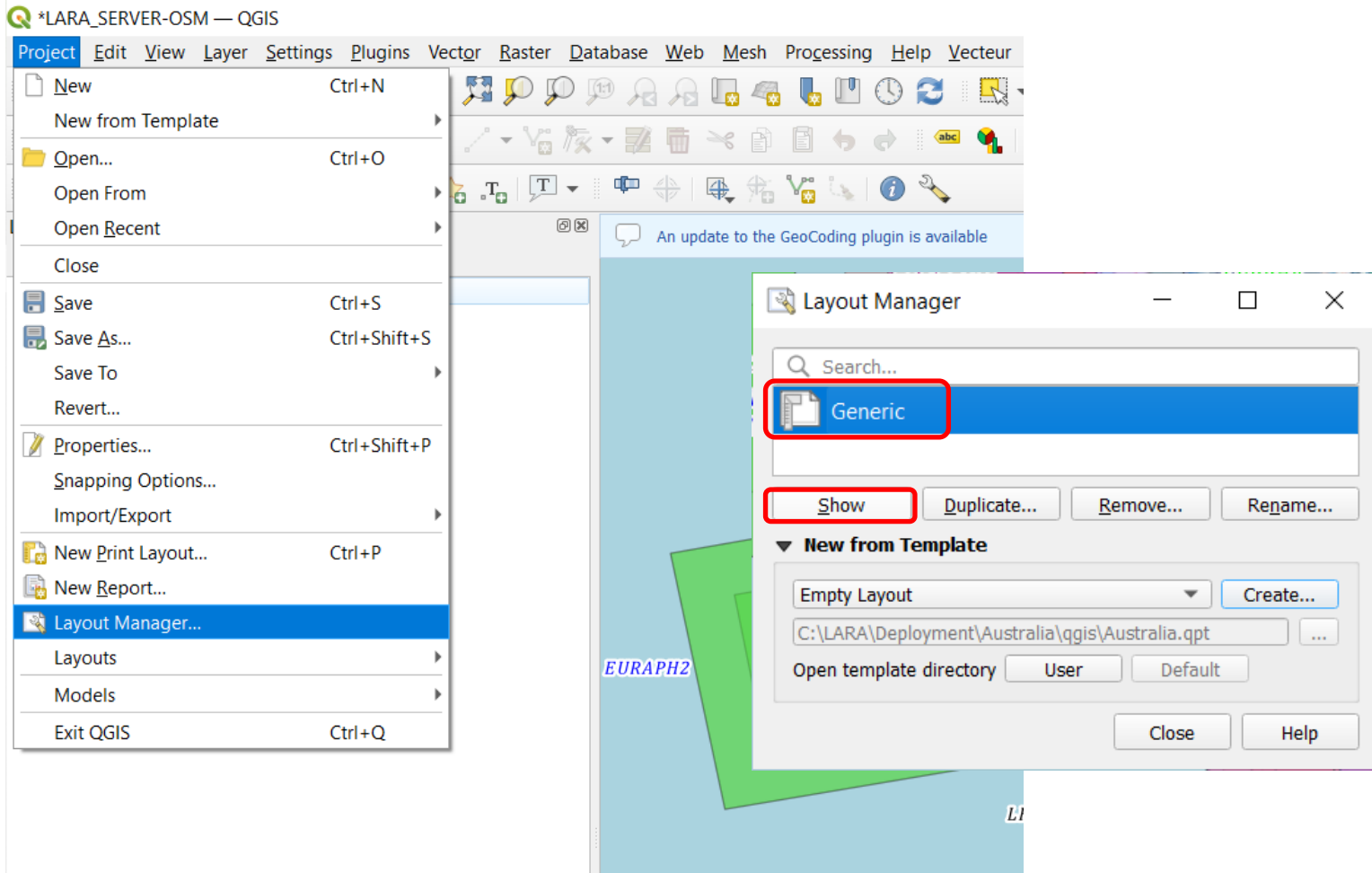
- CDRs
- Airspace
  - CBA
  - D
  - NPZ
  - R
  - TRA
  - TSA
- OpenStreetMap



- Browser
- ★ Favorites
  - ▶ Spatial Bookmarks
  - ▶ Project Home
  - ▶ Home
  - ▶ CA (OS)
  - ▶ GeoPackage
  - ▶ SpatialLite
  - ▶ PostgreSQL
  - ▶ SAP HANA
  - ▶ MS SQL Server
  - ▶ Oracle
  - ▶ WMS/WMTS
  - ▶ Vector Tiles
- Coordinate: -13°1'27.42", 47°18'0.4"
- Scale: 1:9000000
- Magnifier: 100%
- Rotation: 0.0°
- Render: EPSG:900913



## 8) Show pre-defined Layout



The screenshot displays the QGIS interface with the Project menu open and the Layout Manager dialog box active. The Project menu is open, showing options such as New, Open..., Save, and Layout Manager... The Layout Manager dialog box is open, showing a search bar, a list of layouts (Generic), and buttons for Show, Duplicate..., Remove..., and Rename... The 'Generic' layout is highlighted in blue, and the 'Show' button is also highlighted in blue. The 'New from Template' section is expanded, showing 'Empty Layout' as the selected template and a 'Create...' button. The file path 'C:\LARA\Deployment\Australia\qgis\Australia.qpt' is visible in the text field below the template dropdown. The 'Open template directory' section has 'User' and 'Default' buttons. The 'Close' and 'Help' buttons are at the bottom of the dialog box. The background shows a map with a green polygon and the text 'EURAPH2'.



# 9) Select Map1 item

\*Generic

Layout Edit View Items Add Item Atlas Settings

0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

### LARA Server - generic dataset

Legend

Scale: 1/8500000  
CRS Name: Google Maps Global Mercator  
Created: 18/09/2023  
Author: Eurocontrol CMC/AIO  
Credits: Eurocontrol, Base map from OpenStreetMap

0 100 200 300 400 NM

Item Properties Items Undo History

Item Properties  
Map 1

**Main Properties**

Scale: 8500000  
Map rotation: 0.00 °  
CRS: EPSG:900913 - Google  
 Draw map canvas items

**Layers**

Follow map theme (none)  
 Lock layers  
 Lock styles for layers

**Extents**

X min: -1119118.814  
Y min: 5350831.490  
X max: 870816.188  
Y max: 6627333.203

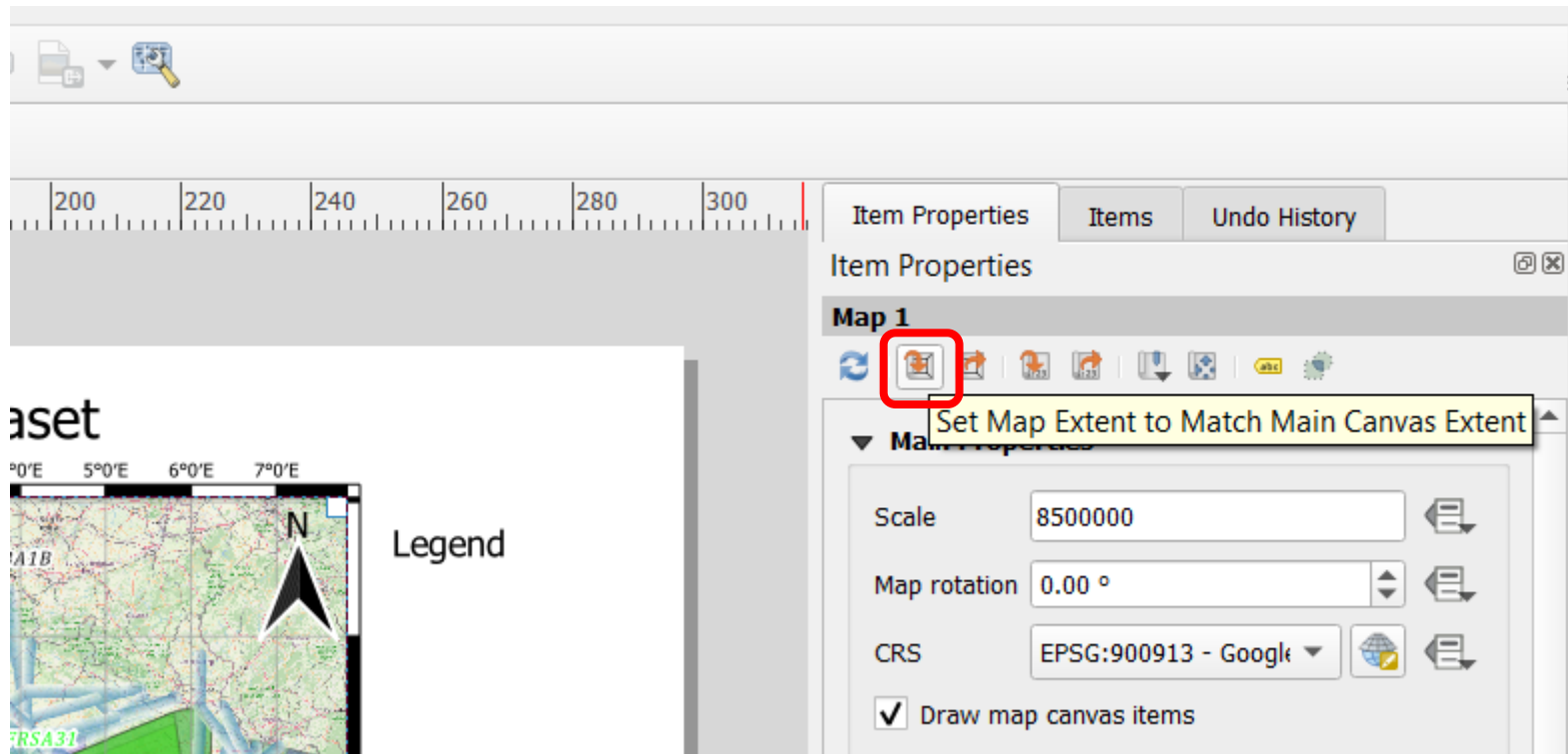
Temporal Range  
 Controlled by Atlas

**Grids**

Overviews  
 Position and Size  
 Rotation  
 Frame

x: 310.813 mm y: 59.4652 mm page: 1 57.1%

# 10) Adapt Layout view on Project view



The screenshot displays a software interface for managing a project layout. At the top, there is a horizontal ruler with markings at 200, 220, 240, 260, 280, and 300. Below the ruler, the main workspace is divided into two sections. On the left, a map titled "asset" is shown, featuring a north arrow and a legend. The map includes geographical features and labels such as "A1B" and "FRSA31". On the right, the "Item Properties" panel is open, showing settings for "Map 1". The panel includes a toolbar with a red box highlighting the "Set Map Extent to Match Main Canvas Extent" icon. Below the toolbar, the following properties are listed:

- Scale: 8500000
- Map rotation: 0.00 °
- CRS: EPSG:900913 - Google
- Draw map canvas items

# 11) Review proposed Items properties

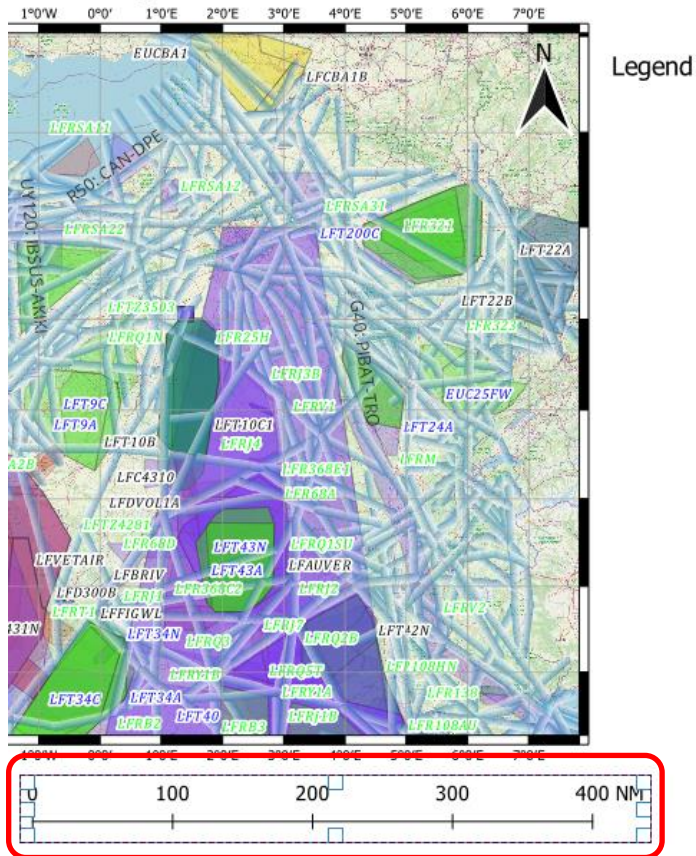
20 140 160 180 200 220 240 260 280 300

Item Properties Items Undo History

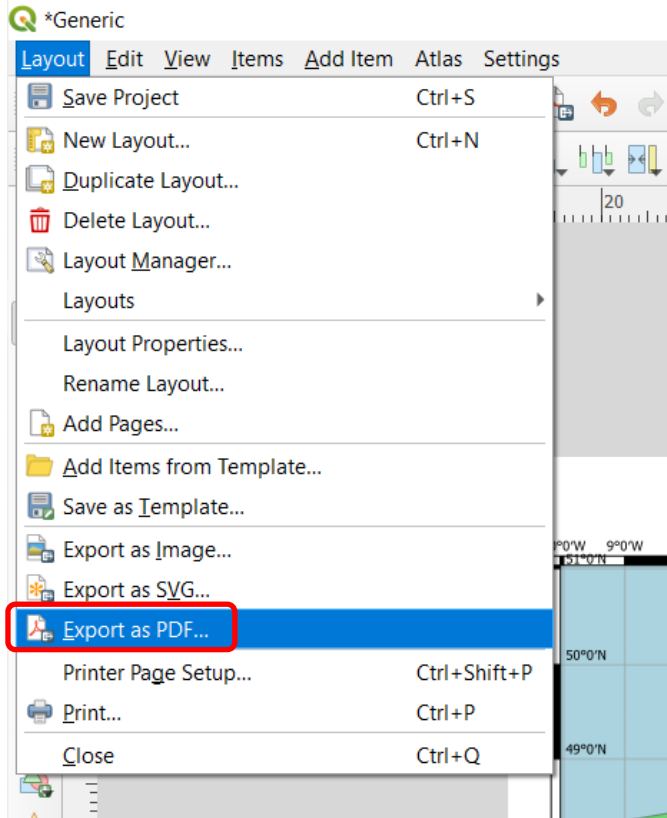
Items

Item	Item
<input checked="" type="checkbox"/>	Author: Eurocontrol CMC/A...
<input checked="" type="checkbox"/>	Created: [% format_date(n...
<input checked="" type="checkbox"/>	Credits: [% array_to_stri...
<input checked="" type="checkbox"/>	LARA Server - generic dat...
<input checked="" type="checkbox"/>	North Arrow
<input checked="" type="checkbox"/>	<Scalebar>
<input checked="" type="checkbox"/>	CRS Name: [% item_variabl...
<input checked="" type="checkbox"/>	Scale: [% '1/'    round(m...
<input checked="" type="checkbox"/>	Map 1
<input checked="" type="checkbox"/>	Legend

server - generic dataset

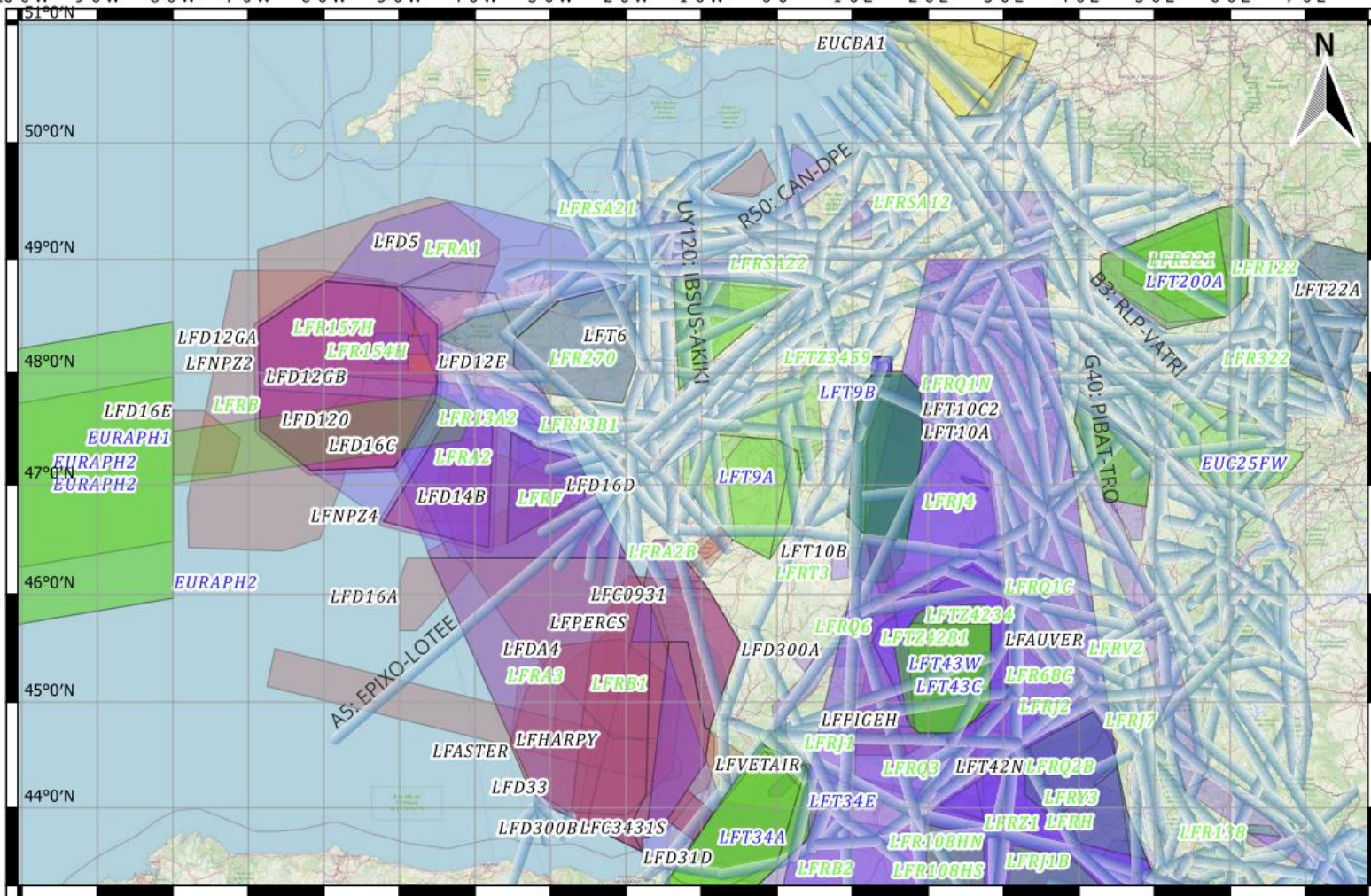


## 12) Export e.g. as PDF



# LARA Server - generic dataset

10°0'W 9°0'W 8°0'W 7°0'W 6°0'W 5°0'W 4°0'W 3°0'W 2°0'W 1°0'W 0°0' 1°0'E 2°0'E 3°0'E 4°0'E 5°0'E 6°0'E 7°0'E



## Legend

### Airspace

- CBA
- D
- NPZ
- R
- TRA
- TSA

Scale: 1/8500000

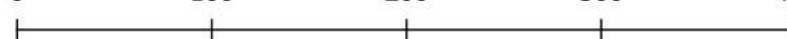
CRS Name: Google Maps Global Mercator

Created: 13/09/2023

Author: Eurocontrol CMC/AIO

Credits: Eurocontrol, Base map from OpenStreetMap

0 100 200 300 400 NM





# 13) ... and much more...

Google

qgis layout tutorials



Vidéos

Images

Maps

Actualités

Livres

Vols

Finance

Environ 531000 résultats (0,35 secondes)



QGIS Tutorials and Tips

<https://www.qgistutorials.com> > docs

## Making a Map

QGIS has a powerful tool called **Print Composer** that allows you to take your **GIS** layers and package them to create maps. Overview of the task¶. The **tutorial** ...



QGIS Tutorials and Tips

<https://www.qgistutorials.com> > docs

## Making a Map (QGIS3)

QGIS has a powerful tool called **Print Layout** that allows you to take your **GIS** layers and package them to create maps. Overview of the task¶. The **tutorial** shows ...



QGIS

<https://docs.qgis.org> > docs > map\_...

## 5.1. Lesson: Using Print Layout

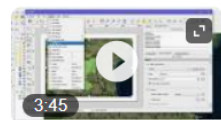
5 juin 2020 — 5.1.1. basic Follow Along: The **Layout Manager**¶ · Click on the Project > **Layout** Manager menu entry to open this tool. You'll see a blank **Layout** ...



YouTube

<https://www.youtube.com> > watch

## How to Create Map Layout in QGIS - Explained - YouTube



Study area **Map** using **QGIS** | Study Area Location **Map** Preparation | **QGIS** for beginners - **Tutorials** | ... **Map Layout GIS** tutorial using **QGIS**...

YouTube · Terra Spatial · 3 sept. 2018