

OPENSTREETMAP, ONE GEOGRAPHIC DATABASE TO RULE THEM ALL?

+ Mapping the railway network for the public, with the public

RAIL + OPEN SOURCE + OPEN DATA = <3



LONG-DISTANCE TRAINS

Let's construct together the transport network of the future



EUROPEAN COOPERATION

Railway infrastructure managers all have similar needs: it makes sense to invest together in the same shared tool

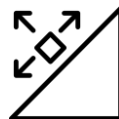


FREE COMPETITION

As a railway infrastructure managers, we must prove that all train operators are treated the same

DATA NEEDS FOR OSRD (OPEN SOURCE RAILWAY DESIGNER)

<https://github.com/DGEXolutions/osrd>

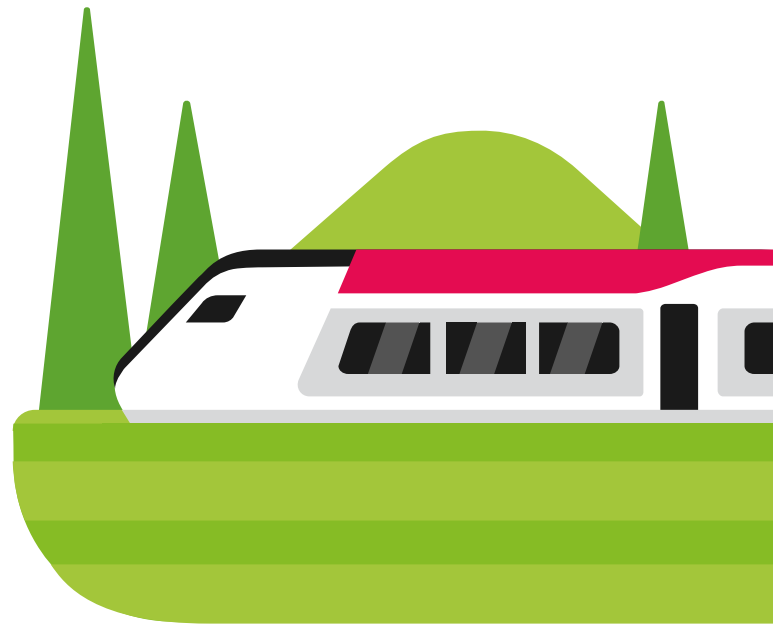


Data needed OSRD feature	Tracks	Signals	Switches, routes & detectors	Electrification	Loading gauge	Speed limit	Slopes	Curves	Real-time position of trains	Stations
<i>Necessity</i>	<i>Required</i>	<i>Required</i>	<i>Can be deduced</i>	<i>Optional</i>	<i>Optional</i>	<i>Optional</i>	<i>Optional</i>	<i>Can be deduced</i>	<i>Optional</i>	<i>Optional</i>
Pathfinding (route compatibility check)	X	X	X	X	X					
Running-time calculation	X	X	X	X		X	X	X		
Conflict detection	X	X	X							
Short-term train planning	X	X	X	X	X	X	X	X	X	

STUDY GOAL

FIND & COMPARE EUROPEAN OPEN DATA

To choose the best source for OSRD & for any open source project needing the same data



DATA SOURCES



	RINF	INSPIRE	Open data platforms of infrastructure manager	OSM
Open data	Probably	Partially	Yes	Yes
Data model consistency for all of Europe	Yes	Yes	No	Mostly yes
Evolutivity of data model	Slow	Bad	Bad	Good
Language	English	Mostly country language	Country language	English
Data access	API	File download	Mostly file download	API & file download
Data perimeter	European union	European union	Company (can be several in one country)	World

(TRYING TO) ACCESS THE DATA

<https://inspire-geoportal.ec.europa.eu/overview.html?view=themeOverview&theme=tn>

INSPIRE - Annex I Theme Transport Networks - Rail - RailwayLink

 Metadata

Country:  Luxembourg

Show metadata fields in:

original MD language ▼

Download Options ▲

Search..

Download link

Data Format

CRS


Service Metadata

Get Data Set



application/gml+xml

ETRS89 / LAEA Europe

Show Service Metadata 


Something went kromm


(TRYING TO) ACCESS THE DATA

Prieigos apribojimai (Access Constraints): Autoriaus teisės (Copyright)
Naudojimo apribojimai (Use Constraints): Autoriaus teisės (Copyright)
Kiti apribojimai (Other Constraints): -
Duomenų priežiūra (Resource Maintenance):
Duomenų priežiūra (1) (Resource Maintenance (1)) Metaduomenys (Metadata) / Duomenų resursas (1) (Data Identification (1)) / Duomenų priežiūra (1) (Resource Maintenance (1))
Priežiūros ir atnaujinimo periodiškumas (Maintenance And Update Frequency): Metinis (Annually)
Duomenų platinimo informacija (Distribution Information):
Duomenų platinimo informacija (Distribution Information) Metaduomenys (Metadata) / Duomenų platinimo informacija (Distribution Information)
Platinimo būdai (Transfer Options):
Platinimo būdai (1) (Transfer Options (1)) Metaduomenys (Metadata) / Duomenų platinimo informacija (Distribution Information) / Platinimo būdai (1) (Transfer Options (1))
Tiesioginė prieiga (On Line): https://inspire-geoportal.lt/resources/atom/tn/data/AnnexI_TRANSPORT_NETWORKS.zip
Platinimo formatas (Distribution Format):
Platinimo formatas (1) (Distribution Format (1)) Metaduomenys (Metadata) / Duomenų platinimo informacija (Distribution Information) / Platinimo formatas (1) (Distribution Format (1))
Formato pavadinimas (Name): gml
Formato versija (Version): 3.2.1
Platintojas (Distributor):
Platintojas (1) (Distributor (1)) Metaduomenys (Metadata) / Duomenų platinimo informacija (Distribution Information) / Platintojas (1) (Distributor (1))
Platintojo kontaktai (Distributor Contact):
Platintojo kontaktai (Distributor Contact) Metaduomenys (Metadata) / Duomenų platinimo informacija (Distribution Information) / Platintojas (1) (Distributor (1)) / Platintojo kontaktai (Distributor Contact)
Organizacijos pavadinimas (Organisation Name): VĮ "GIS-Centras"
Vaidmuo (Role): Kontaktinis asmuo (Point of contact)


<https://www.geoportal.lt/metadata-catalog/catalog/search/resource/details.page?uuid=%7B438DA6EB-6632-4BDF-8765-CD4085C5FC37%7D>

(TRYING TO) ACCESS THE DATA

 Start
Färdiga datapaket

+  Om Färdiga datapaket

+ Använd Chrome webbläsare om du har en Mac dator

×  Sök

– 1. Väg

+ ATK

+ Cykelvägnät med grundegenskaper

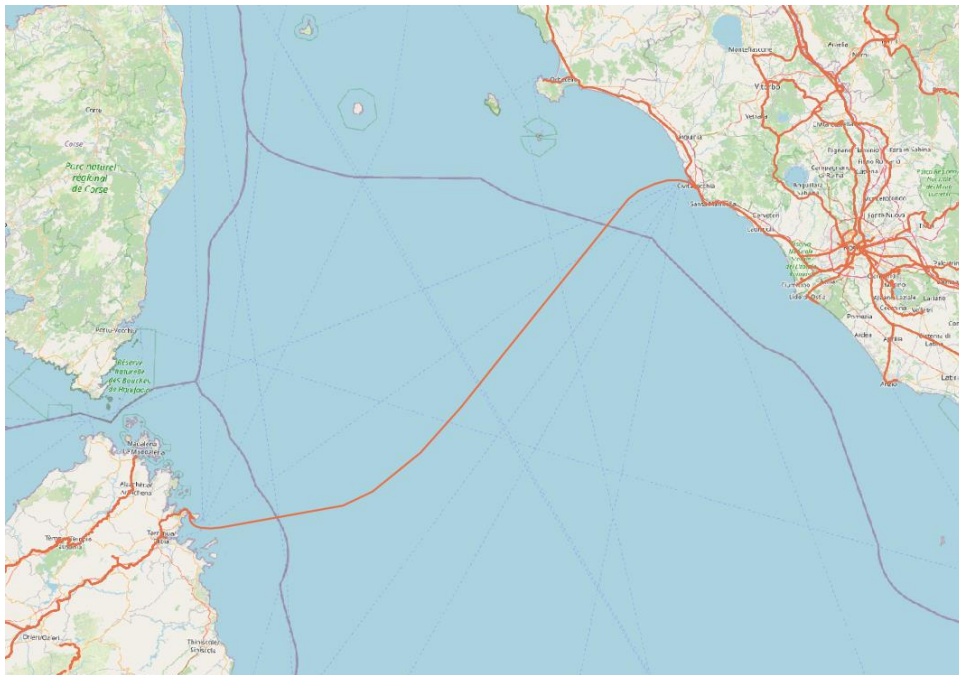
+ Data om vägbeläggning

+ Drift och underhåll

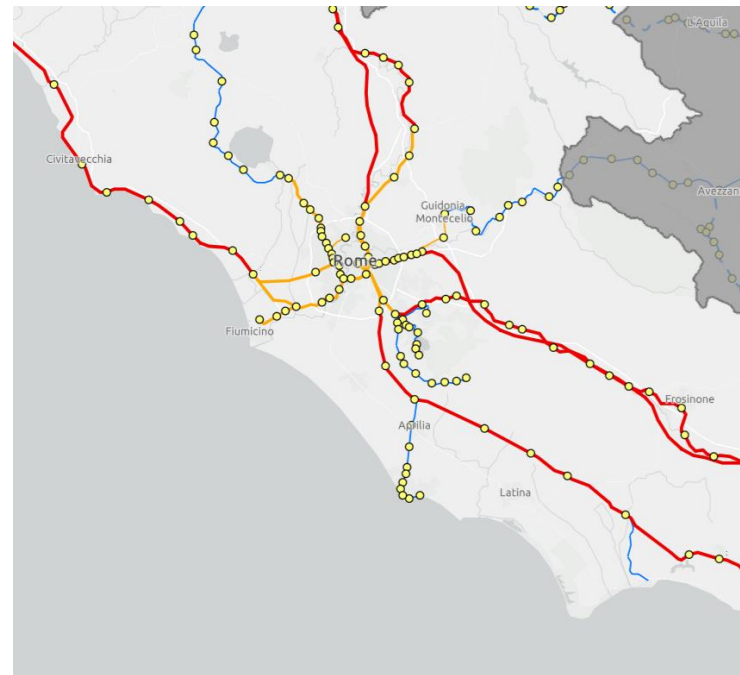
+ Höjddata statligt vägnät

<https://lastkajen.trafikverket.se/productpackages/folder/5245>

ASSESSING DATA QUALITY



http://www.pcn.minambiente.it/geoportal/catalog/search/resource/details.page?uuid=m_amte%3A299FN3%3Aad5f561e-1e56-4b2b-f504-fe4ff7a9e446



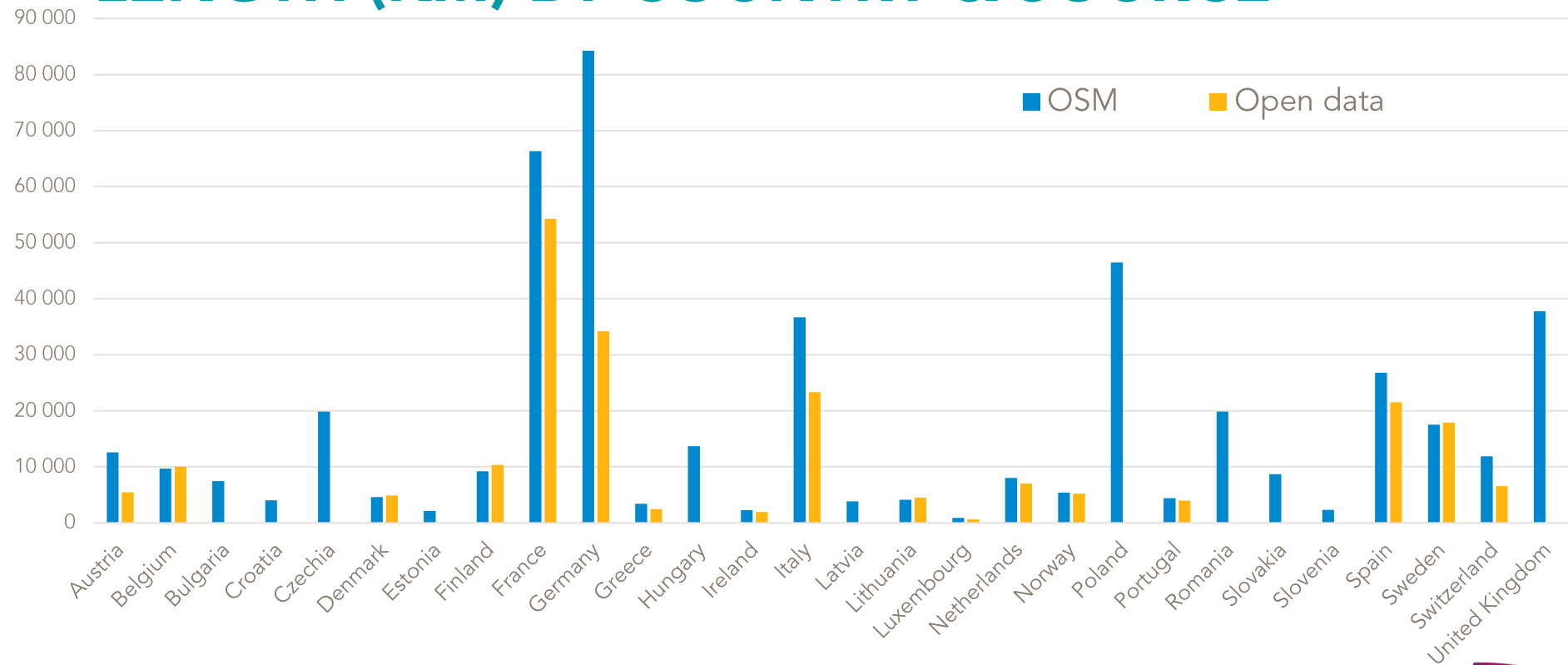
https://www.rfi.it/it/rete/la-rete-oggi/La_rete_oggi_regione_per_regione/lazio.html

LICENSE COMPATIBILITY OF « OPEN » DATA SOURCES WITH OPENSTREETMAP (ODBL)

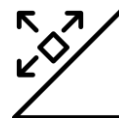
- Compatible
- Probably, but must ask
- No license provided
- No open data found
- Out of study scope



QUANTITATIVE COMPARISON : TRACK LENGTH (KM) BY COUNTRY & SOURCE



DATA USABILITY FOR OSRD INDICATOR




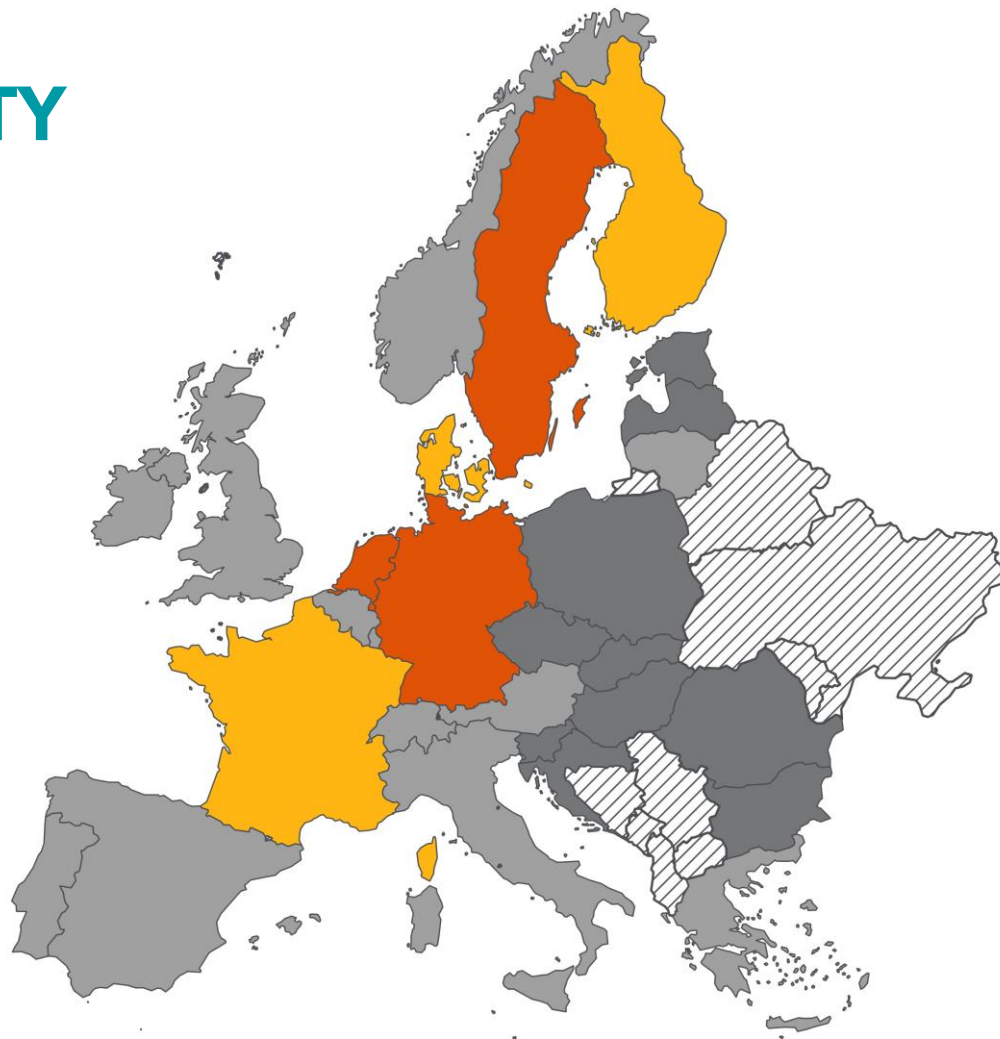
Data needed	Tracks	Signals	Electrification	Loading gauge	Speed limit	Slopes	Real-time position of trains	Stations
Necessity	Required	Required	Optional	Optional	Optional	Optional	Optional	Optional

Indicator	Required (2 max)	Optional (6 max)
Good	2	2+
Okay	1+	0+
Poor	1	2+
Not usable	0+	0+

OPEN DATA USABILITY FOR OSRD NEEDS

Indicator	Required (2 max)	Optional (6 max)
Good	2	2+
Okay	1+	0+
Poor	1	2+
Not usable	0+	0+


 Out of study scope

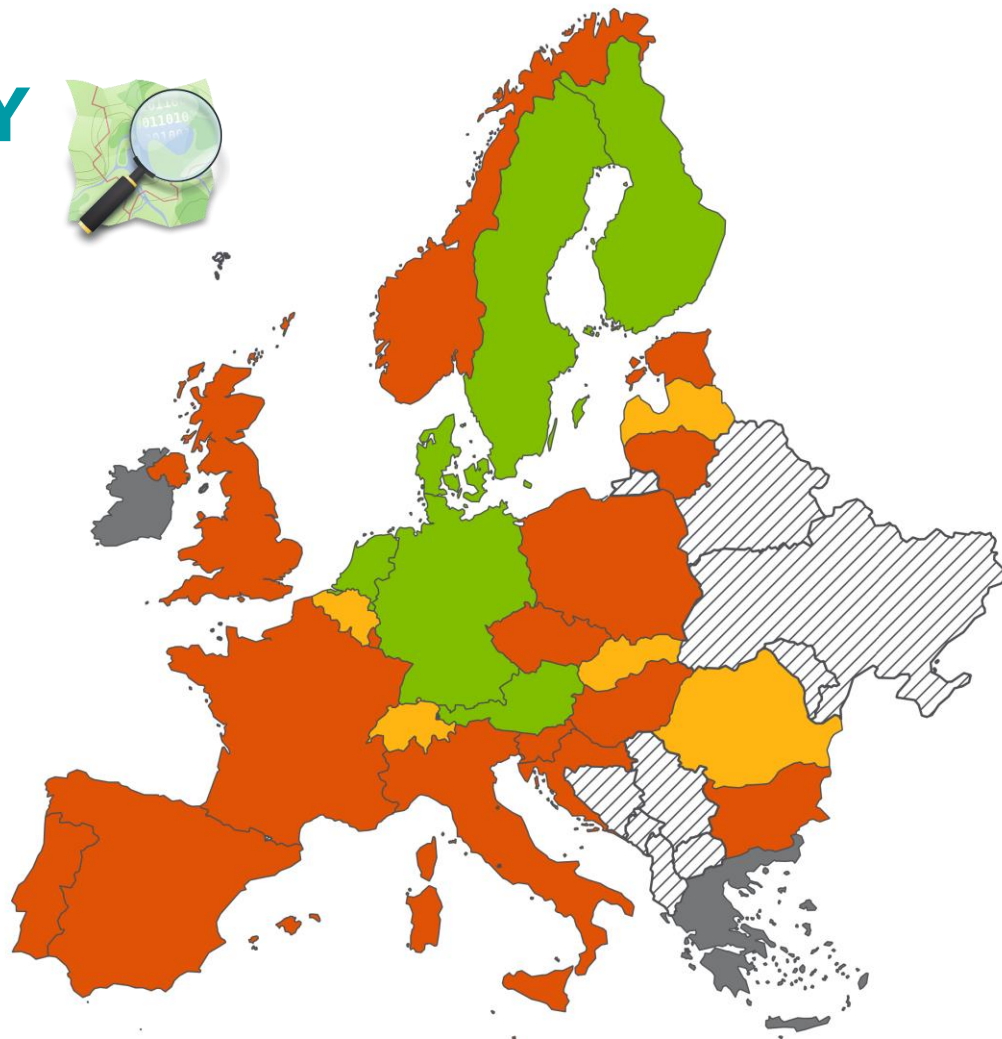


OSM DATA USABILITY FOR OSRD NEEDS



Indicator	Required (2 max)	Optional (6 max)
Good	2	2+
Okay	1+	0+
Poor	1	2+
Not usable	0+	0+

 Out of study scope



[HTTPS://OSRD.FR/EN/BLOG/](https://osrd.fr/en/blog/)

									Country	License	License compatibility	Source							
									Austria	Creative Commons https://creativecommons.org/licenses/by-sa/4.0/	Probably, but must ask	https://data.oebb.at/oebb7dataset+uddi:77ce2fcd-1712-11e8-b619-a385d0a26832							
									Belgium	CC0 - CC0 1.0 Universal	Compatible	https://opendata.infrael.be/explore/dataset/geografische-positie-van-alle-spoorsegmenten							
Country	Necessity	required			required	optional	optional	optional	optional	Bulgaria	No open data found	No open data found							
Austria	OSM	12 579	8 558		68	yes	yes	yes	no	Croatia	No open data found	No open data found							
	Open data	5 476	4 030		74	no	yes	no	yes	Czechia	No open data found	No open data found							
Belgium	OSM	9 678	7 134		74	partial	yes	yes	yes	Denmark	?	No license provided	https://geodata-banedanmark.opendata.arcgis.com/search?collection=Dataset						
	Open data	10 006	X	x		no	no	no	yes	Estonia	No open data found	No open data found							
Bulgaria	OSM	7 474	4 082		55	no	yes	yes	yes	France	Creative Commons Attribution 4.0 International	Probably, but must ask	https://vaylia.fi/en/transport-network/data/open-data/transport	https://kartt/	https://www.vaylia.fi/en/transport-network/data/open-data/transport				
Croatia	OSM	4 025	1 576		39	no	yes	yes	yes	Germany	CC BY 4.0	Probably, but must ask	https://data.sncf.com/explore/dataset/fichier-de-formes-des-voies-du-reseau-ferre-nat						
Czechia	OSM	19 876	6 190		31	no	yes	yes	yes	Germany	CC BY 4.0	Probably, but must ask	https://data.deutschebahn.com/dataset/geo-strecke.html						
Denmark	OSM	4 597	2 053		45	yes	yes	yes	yes	Greece	Creative Commons Attribution 4.0 International	Probably, but must ask	https://geodata.gov.gr/en/dataset/siderodromiko-diktuo-elladas						
	Open data	4 887	x	x		yes	no	no	yes	Hungary	No open data found	No open data found							
Estonia	OSM	2 143	242		11	no	yes	yes	yes	Ireland	CC BY 4.0	Probably, but must ask	https://data.gov.ie/dataset/rail-network-osi-national-250k-map-of-ireland6?package_type=dataset						
Finland	OSM	9 229	5 405		59	yes	yes	yes	yes	Italy	?	No license provided	http://www.pcn.minambiente.it/geoportal/catalog/search/resource/details.page?uid=						
	Open data	10 366	x	x		yes	no	yes	yes	Latvia	No open data found	No open data found							
France	OSM	66 317	38 054		57	no	yes	yes	yes	Lithuania	?	No license provided	https://www.geoportal.lt/metadata-catalog/catalog/search/resource/details.page?uid=						
	Open data	54 275	only by line			partial	partial	yes	yes	Luxembourg	CC0	Compatible	https://catalog.inspire.geoportal.lu/geonetwork/srv/eng/catalog.search#/metadata/789						
Germany	OSM	84 245	45 568		54	yes	yes	yes	yes	Netherlands	CC BY 4.0	Probably, but must ask	https://data.overheid.nl/dataset/prorail-spoorgeometrie						
	Open data	34 207	21 231		62	no	yes	yes	yes	Poland	No open data found	No open data found							
Greece	OSM	3 394			0	no	no	yes	yes	Portugal	CC BY 4.0	Probably, but must ask	https://dados.gov.pt/fr/datasets/rede-ferroviaria-nacional/						
	Open data	2 461			0	no	no	no	no	Romania	No open data found	No open data found							
Hungary	OSM	13 685	6 209		45	no	yes	yes	yes	Slovakia	No open data found	No open data found							
										Slovenia	No open data found	No open data found							
Ireland	OSM	2 253	0		0	no	no	no	yes	Spain	CC-BY 4.0	Probably, but must ask	https://opendata.esri.es/maps/c68d7c5e350c47cb9ad74ac91c327115/about						
	Open data	1 917	0		0	no	no	no	yes	Sweden	?	No license provided	https://lastkajen.trafikverket.se/product/packages/10095						
Italy	OSM	36 675	24 473		67	no	yes	yes	yes	Switzerland	Licence spécifique a priori con	Probably, but must ask	https://data.sbb.ch/explore/dataset/linie-mit-polygon/map/?location=10,46.99847,7.746						
	Open data	23 351	12 758		55	no	yes	no	yes	United Kingdom	UK Open Government Licence	Compatible	https://www.networkrail.co.uk/who-we-are/transparency-and-ethics/transparency/opa						
Latvia	OSM	3 822	508		13	partial	yes	yes	yes	Norway	Norsk lisens for offentlig data	Compatible	https://kartatlog.george.no/metadata/ernbane-banenettverk/c3da3591-cded-4584-						
										RINF	?	No license provided	https://rinf.era.europa.eu/API/Help						
Lithuania	OSM	4 148	340		8	no	yes	yes	yes		no	x	no	no	0	poor			
	Open data	4 517	356		8	no	yes	no	yes		no	no	no	no	1	2	0	not usable	
Luxembourg	OSM	885,974	583,752		66	no	yes	yes	yes		no	x	no	partial	no	1	3	0	poor
	Open data	597	x			no	no	no	no		no	no	no	no	no	1	0	0	not usable
Netherlands	OSM	8032,11	5982,89		74	yes	yes	yes	yes		no	x	no	partial	partial	2	4	0	good
	Open data	7011,6	x			no	no	no	yes		yes	yes	no	no	yes	1	4	0	poor
Norway	OSM	5397,86	3436,44		64	no	yes	yes	yes		no	x	no	partial	no	1	3	0	poor
	Open data	5219,49			0	no	no	no	yes		no	no	no	no	yes	1	1	0	not usable
Poland	OSM	46481,7	25100,5		54	no	yes	yes	yes		no	x	no	partial	partial	1	3	0	poor
Portugal	OSM	4391,01	3097,96		71	no	yes	yes	no		partial	x	no	no	partial	1	2,5	0	poor
	Open data	4003,07	x			no	no	no	no		no	no	no	no	no	1	0	0	not usable
Romania	OSM	19852,6	6992,33		35	partial	yes	yes	yes		no	no	no	partial	no	1,5	3	0	okav
Slovakia	OSM	3568,5	3385,89		20	partial	yes	yes	yes		no	no	no	partial	no	1,5	3	0	okav

CREDITS

Icons attribution

shmai – aranagraphics – srip – fjstudio – freepik – smashicons – dreamstale – iyikon

Special thanks to the **QGIS** community



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