

DATAConnections

MADRID 23/05/2024

¡Señales de tráfico directas al Mapa!

Juanma Anera



con•terra
locate the future



Juanma Anera

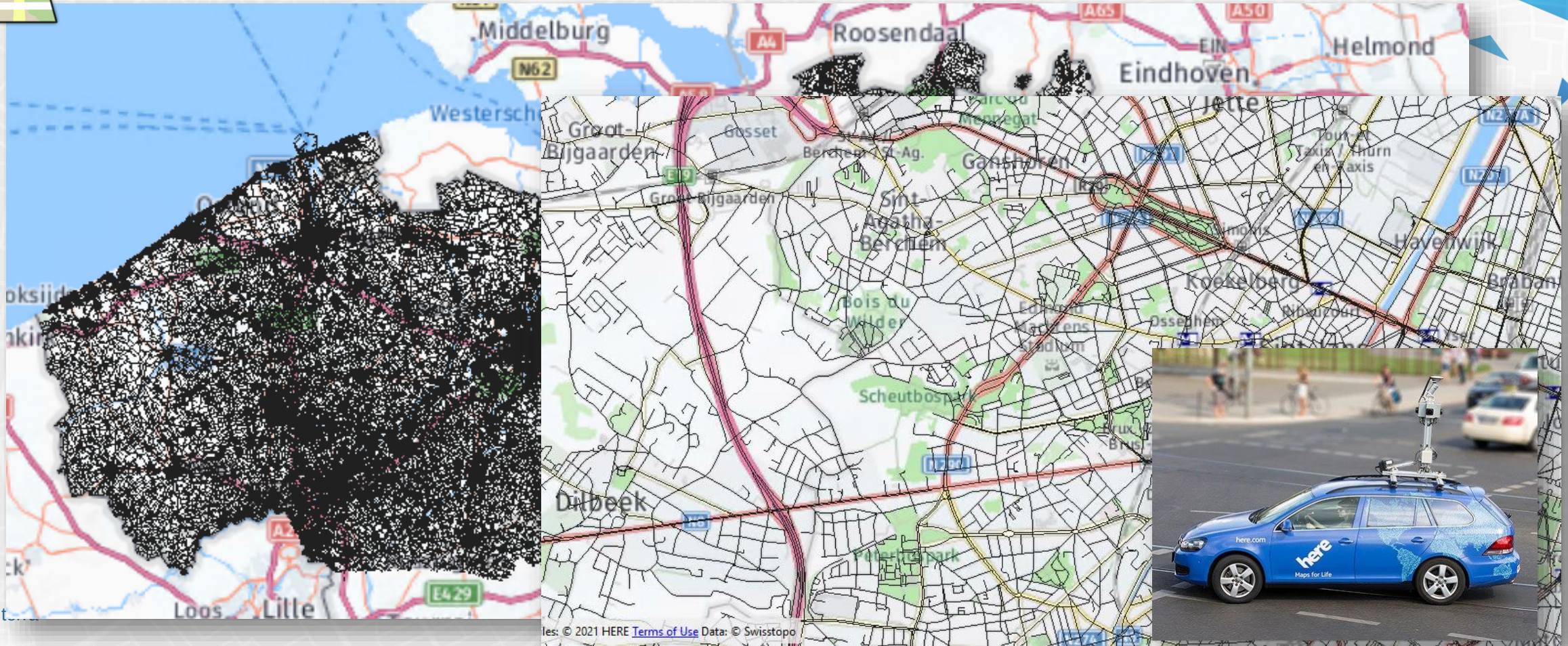
Sr. GIS Data Engineer
Here Technologies



Agenda

- 1.- Objetivos.
- 2.- Oportunidades y Desafíos.
- 3.- Fuentes Puntuales **VS** Fuentes Repetitivas.
- 4.- Procesamiento.
- 5.- Cuadro de Mando y su mantenimiento.
- 6.- Referencias.

Objetivos: Mantenimiento y mejora



Objetivos: ISA



European Road Safety Charter

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Intelligent speed assistance (ISA) set to become mandatory across Europe

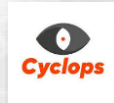
With the General Vehicle Safety Regulation (EU) 2019/2144, the Commission has taken unprecedented action to help the transport sector and public authorities prepare for the mobility of tomorrow. The objective is to protect Europeans against traffic accidents, poor air quality and climate change, empower them with new mobility solutions that match their changing needs, and defend the competitiveness of European industry.

As of 15 June, the delegated act "Technical requirements and test procedure for approval of intelligent speed assistance (ISA)" has been adopted. The act will be sent to the European Parliament and Council for two-month scrutiny.

From July 2024, intelligent speed assistance (ISA) will be mandatory for new models/types of vehicles introduced on the market. The ISA will become mandatory for new cars that will be sold from July 2024 (therefore it will not concern the vehicle fleet already registered and in circulation before that date).

Oportunidades

- Creación de una **Base de Datos** de Señales de Tráfico a nivel mundial.
- **Reafirmar** el contenido que actualmente tenemos.
- Crear nuevos índices de **Calidad**.
- **Evaluación** de grandes datasets de otras Fuentes.



123 nav_fr_spd	123 nav_to_spd	ABC ft_goid	123 src_fr_spd_join	123 src_to_spd_join	ABC dtc_type
40	40	0843B749DDE013D2278B57639E02EC48	40	40	match
50	50	0849189D8357085F278B577BA40B1C5F	40	40	mismatch
50	50	0849352102D054A0278B577D5E0BB875	40	40	mismatch
40	40	0849609246B9334D278B577A9F0AC39C	40	40	match

ABC gisdig_iso		123 count
1	DEU	240
2	PRT	231

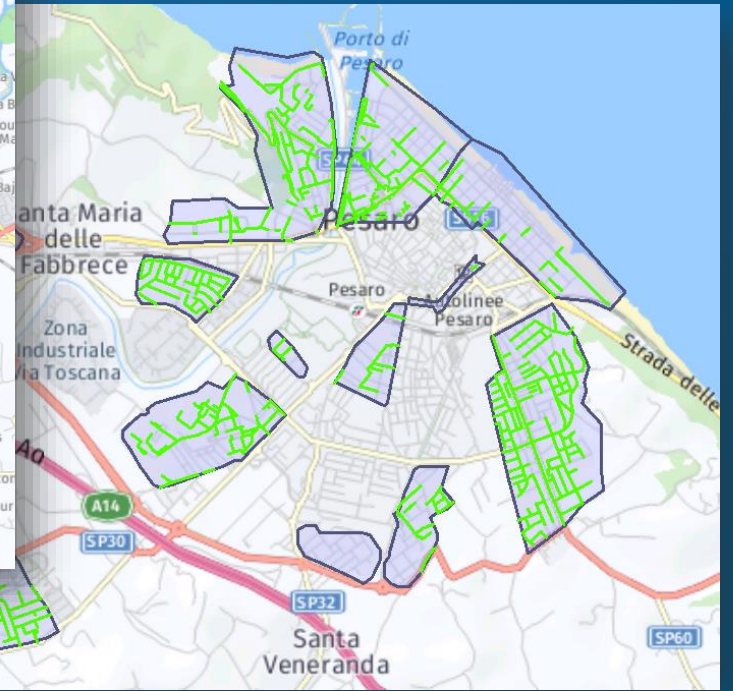
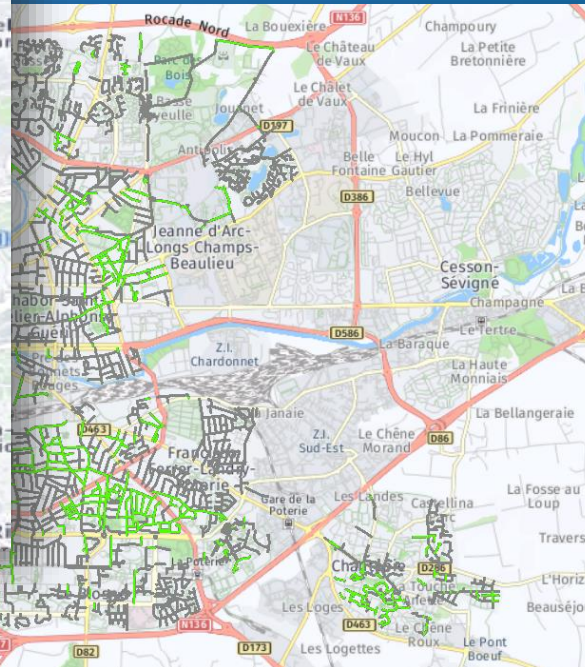
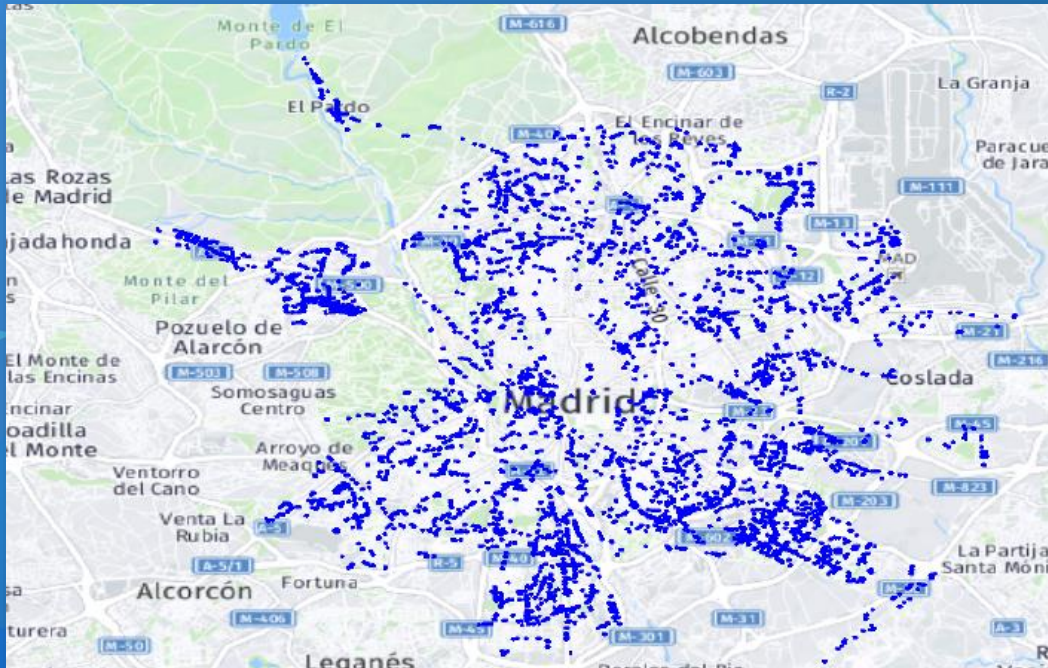
existence						
PT	ST	C	A	EH	=	SQI
relevance						
[0-2]	[0-2]	[0-2]	[0-2]	[0-2]		[0-10]
2	2	1	2	0	=	7
2	2	2	2	2	=	10
1	1	0	2	0	=	4

12	SVK	117
13	ISR	91
14	NZL	76
15	SGP	45
16	DNK	26
17	TWN	23

Desafíos y problemáticas

- Trabajar con datos de diferentes proveedores.
 - Acceso y extracción, normalización y estandarización.
- Desarrollo y mejoras para incluir nuevas señales de Tráfico.

Diferentes Componentes Espaciales



Fuente Puntual vs Repetitiva.



Puntual = Simple



GeoJSON

```
{
  "type": "Feature",
  "momType": "RoadSign",
  "geometry": @Value(_geometry),
  "properties": {
    "signType": "@Value(sign_type_mom)",
    "signValue": "@Value(sign_value_mom)",
    "@ns:com:here:xyz": {
      "tags": [ "signtype_@LowerCase(@Value(sign_type_mom))",
        "signgroup_@LowerCase(@Value(sign_group_mom))",
        "provider_ht_test_20230917_2" ]
    },
    "enriched_attributes": {
      "status": "draft",
      "signId": "HT_@Value(id)",
      "provider": "HT",
      "captureDate": @Value(datelatest),
      "bearing": @Value(vehicleheading),
      "tpd_signadditional_info": "Check detection against current HT d",
      "description": ""
    },
    "ht_enriched_attributes": {
      "description": "@Value(task_type)",
      "heighCm": "@Value(heightcm_dimensioncm)",
      "widthCm": "@Value(widthcm_dimensioncm)",
      "n_detections": "@Value(countobserved)"
    }
  }
}
```

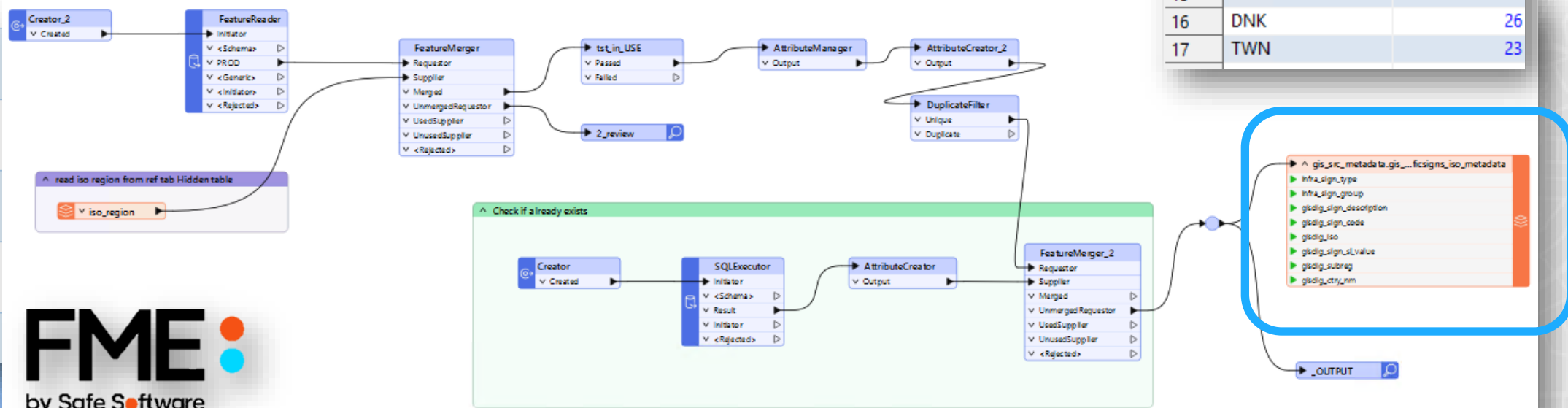


Información oficial – Diccionario de Señales de Tráfico

1

Sign_image	infra_sign_type	infra_sign_group	gisdig_sign_desc	gisdig_sign_code	use	gisdig_Iso
	DO_NOT_ENTER	ONE-WAYS	R-101	y		ESP
	NO_ACCESS	NULL	R-100	y		ESP
	NO_CARS	NULL	R-103	y		ESP
	NO_TRUCKS	TRUCKS	NULL			ESP

	ABC gisdig_iso	123 count
1	DEU	240
2	PRT	231
3	CZE	175
4	HRV	174
5	FRA	163
6	REU	157
7	NLD	153
8	ESP	153
9	AUS	131
10	GBR	121
11	CHE	119
12	SVK	117
13	ISR	91
14	NZL	76
15	SGP	45
16	DNK	26
17	TWN	23



FME
by Safe Software

Análisis – preprocesamiento - Almacenaje

2

FME
by Safe Software

Creamos un Identificador Único geolocalizado: **GOLD***

*32 HEX:

(16) X, Y + (10) Tiempo + (4) Secuencia

Info adicional – Extracción desde atributo – Concatenación...

Normalizamos Azimut

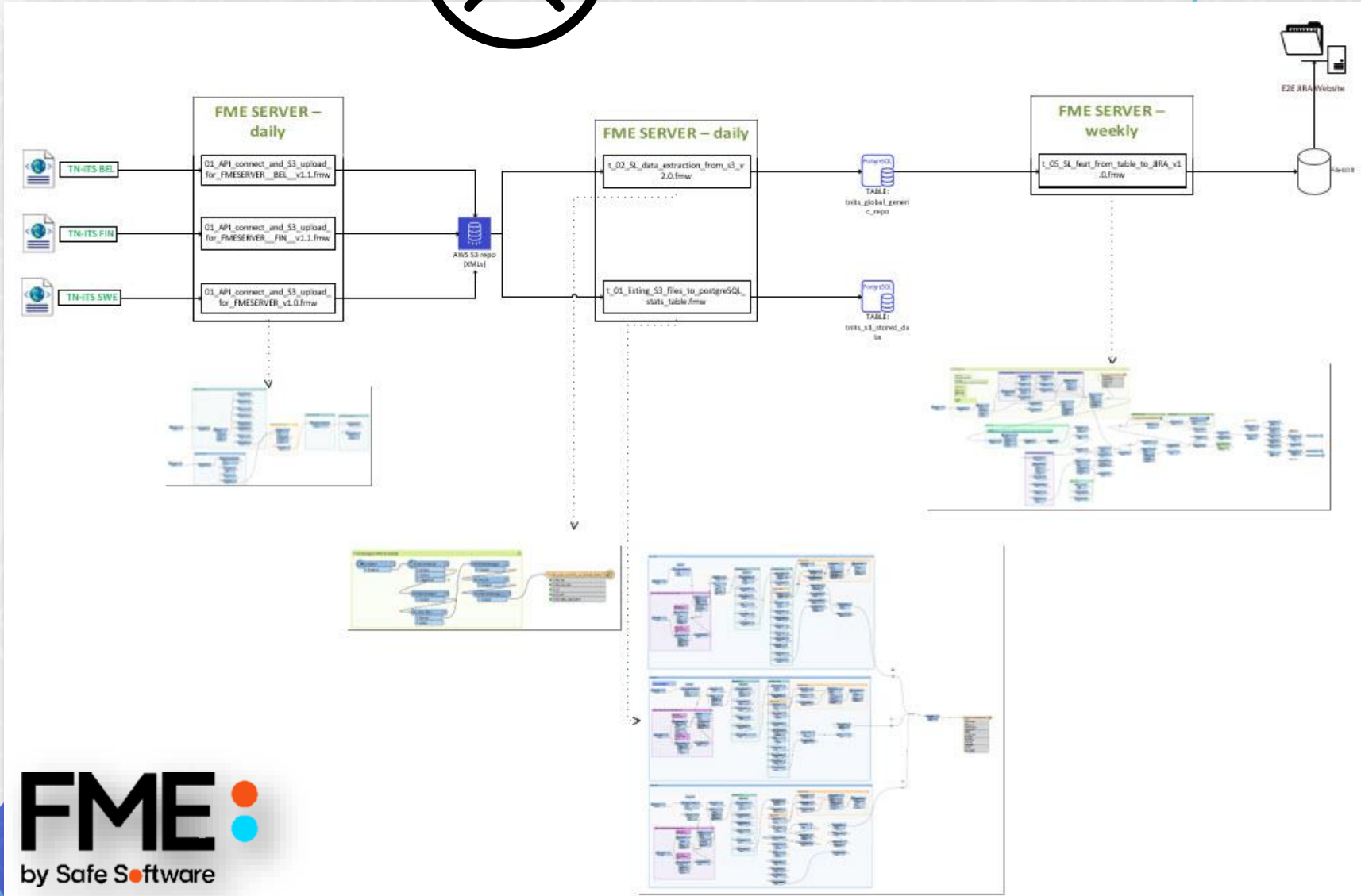




36 Tipos

	ABC sign_type	ABC sign_group	ABC task_type
1	END_BUA	BUA	tasktype_bua_speedlimit
2	START_BUA	BUA	tasktype_bua_speedlimit
3	ROUNDAABOUT	DISCRETE ATTRIBUT	tasktype_roundabout
4	DISTANCE_MARKER	DISTANCE_MARKER	tasktype_distancemarker
5	YIELD	DRIVER ALERTS	tasktype_trafficsign_critical
6	STOP	DRIVER ALERTS	tasktype_trafficsign_critical
7	SCHOOL_ZONE	DRIVER ALERTS	tasktype_trafficsign_noncritical
8	PROTECTED_OVERTAKING	DRIVER ALERTS	tasktype_trafficsign_noncritical
9	NO_TURN_ON_RED	DRIVER ALERTS	tasktype_trafficsign_noncritical
10	START_NO_OVERTAKING	DRIVER ALERTS	tasktype_trafficsign_noncritical
11	DO_NOT_ENTER	ONE-WAYS	tasktype_dot
12	ONE_WAY_LEFT	ONE-WAYS	tasktype_dot
13	ONE_WAY_RIGHT	ONE-WAYS	tasktype_dot
14	ONE_WAY_STRAIGHT	ONE-WAYS	tasktype_dot
15	NO_TURN	RDMS	tasktype_rdm
16	NO_RIGHT_TURN	RDMS	tasktype_rdm
17	NO_LEFT_TURN	RDMS	tasktype_rdm
18	END_SPEED_LIMIT	SPEED LIMITS	tasktype_speedlimit
19	RAIN_SPEED_LIMIT	SPEED LIMITS	tasktype_speedlimit
20	SNOW_SPEED_LIMIT	SPEED LIMITS	tasktype_speedlimit
21	END_SPEED_LIMIT_ZONE	SPEED LIMITS	tasktype_speedlimit
22	SPEED_LIMIT_ZONE	SPEED LIMITS	tasktype_speedlimit
23	SCHOOL_SPEED_LIMIT	SPEED LIMITS	tasktype_speedlimit
24	ADVISORY_SPEED_LIMIT	SPEED LIMITS	tasktype_advisory_speed_limit
25	SPEED_LIMIT	SPEED LIMITS	tasktype_speedlimit
26	TRAFFIC_SIGNAL	TRAFFIC SIGNAL	tasktype_trafficsignal
27	END_NO_TRUCKS	TRUCKS	tasktype_trucks
28	TRANSPORT_ACCESS_RESTRICTION	TRUCKS	tasktype_trucks
29	TRANSPORT_LENGTH_RESTRICTION	TRUCKS	tasktype_trucks
30	NO_GOODS_HARMFUL_TO_WATER	TRUCKS	tasktype_trucks
31	TRANSPORT_WIDTH_RESTRICTION	TRUCKS	tasktype_trucks
32	NO_TRUCKS	TRUCKS	tasktype_trucks
33	NO_HAZARDOUS_MATERIALS	TRUCKS	tasktype_trucks
34	TRANSPORT_HEIGHT_RESTRICTION	TRUCKS	tasktype_trucks
35	TRANSPORT_WEIGHT_RESTRICTION	TRUCKS	tasktype_trucks
36	NO_EXPLOSIVE_MATERIALS	TRUCKS	tasktype_trucks

Repetitiva = Compleja



Repositorio del proveedor

This XML file does not appear to have any style information associated with it. The document tree is shown below.

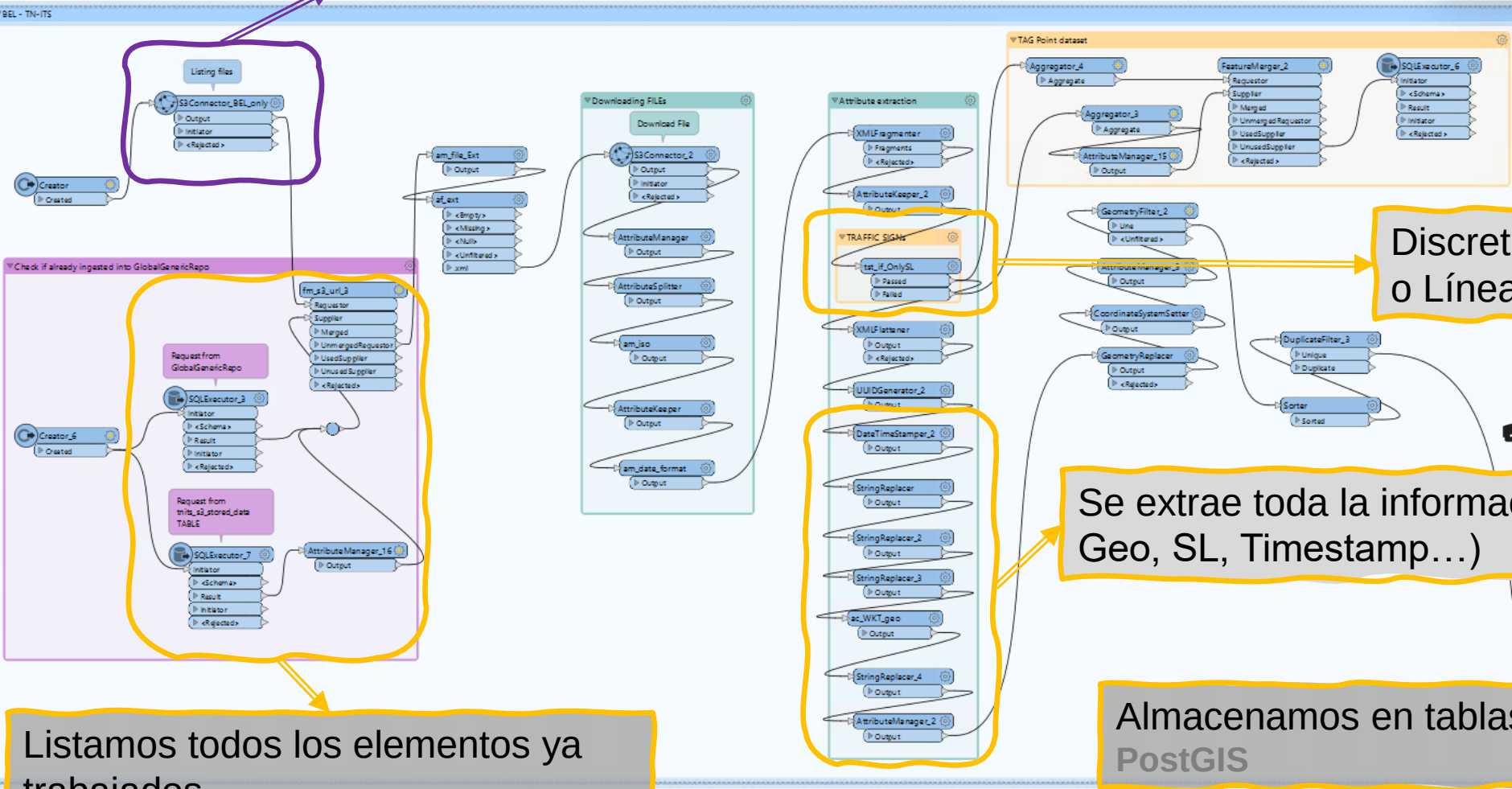
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</tnitsapi:RestDatasetRefList>
```



Extracción de información necesaria de los Datos



Listamos todos los ficheros nuevos



Discretizamos si son Puntos o Líneas

Se extrae toda la información (UUID, Geo, SL, Timestamp...)

Almacenamos en tablas PostGIS

Listamos todos los elementos ya trabajados

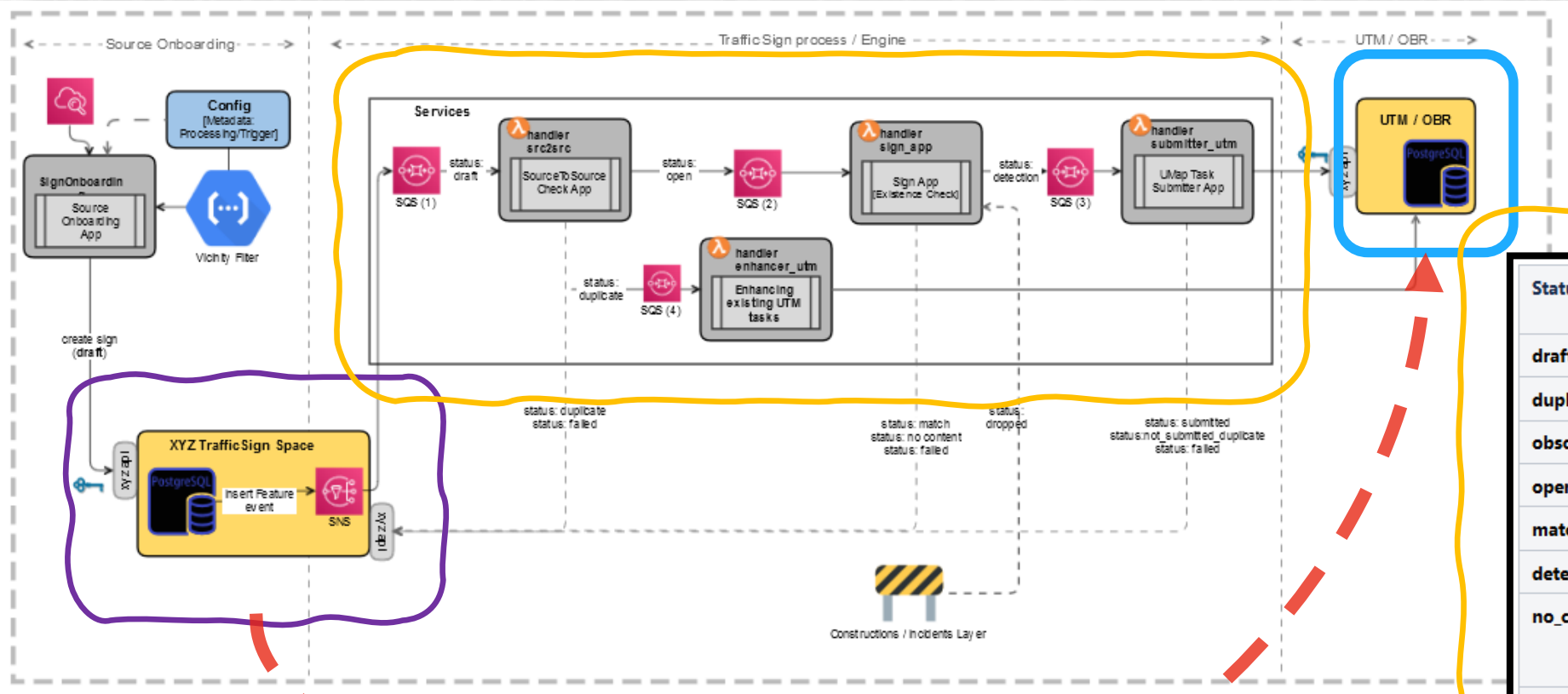
h_uuid
h_url_filefrom_repo
h_iso
h_feat_fso_status
h_feat_fso_status_date
h_feat_filefrom_date
h_geo_wkt
t_feat_id
t_feat_upd_info_type
t_provider_nm
t_feat_sl_value
t_feat_valid_from
t_feat_valid_to
t_road_feat_nm
t_feat_geo_type
t_feat_dot
t_feat_filefrom_nm
t_feat_filefrom_date



Sign_code			Ambito			caract_general		
Row Labels	Count of id	Count of id2	Row Labels	Count of id	Count of id2	Row Labels	Count of id	Count of id2
R-301	83,765	99.51%	Puntual	59,875	71.13%	Enlace	11,305	13.43%
TR-301	411	0.49%	Toda la platafor	1,049	1.25%	Otras	550	0.65%
Grand Total	84,176	100.00%	Zona central	10	0.01%	Tronco	45,635	54.21%
Sign codes & value			Zona derecha	437	0.52%	Vía colectora-distribuidor	723	0.86%
Row Labels	Count of id	Count of id2	Zona izquierda	231	0.27%	Vía de servicio/Vía lateral	4,051	4.81%
R-301	83,765	99.51%	(blank)	22,574	26.82%	(blank)	21,912	26.03%
10	20	0.02%	Grand Total	84,176	100.00%	Grand Total	84,176	100.00%
20	846	1.01%	caract_particular			Row Labels		
30	2,077	2.47%	Lado			Apartadero	16	0.02%
40	19,023	22.60%	Row Labels	Count of id	Count of id2	Área de descanso	79	0.09%
50	10,076	11.97%	Central	312	0.37%	Área de servicio	79	0.09%
60	11,353	13.49%	Derecha	44	0.05%	Carril bici	1	0.00%
70	8,756	10.40%	Derecho	39,293	46.68%	Central reversible	20	0.02%
80	11,739	13.95%	Izquierda	42	0.05%	Centro COEX	11	0.01%
90	6,041	7.18%	Izquierdo	22,173	26.34%	Glorieta	420	0.50%
100	5,986	7.11%	Otro	167	0.20%	Intersección	624	0.74%
110	46	0.05%	(blank)	22,145	26.31%	Mediana	1,207	1.43%
120	7,802	9.27%	Grand Total	84,176	100.00%	Ramal de transferencia	289	0.34%
TR-301	411	0.49%	Zona			Ramal doble sentido	2,504	2.97%
30	2	0.00%	Row Labels	Count of id	Count of id2	Ramal entrada	1,248	1.48%
40	49	0.06%	Ambas zonas	2,633	3.13%	Ramal salida	7,111	8.45%
50	8	0.01%	Pk creciente	25,277	30.03%	Terciana	124	0.15%
60	84	0.10%	Pk decreciente	23,562	27.99%	Tronco	47,417	56.33%
70	5	0.01%	(blank)	32,704	38.85%	Vialio anexo	344	0.41%
80	157	0.19%	Grand Total	84,176	100.00%	Zona de aparcamiento	7	0.01%
90	3	0.00%	caract_particular			(blank)	22,675	26.94%
100	103	0.12%	Row Labels	Count of id	Count of id2	Grand Total	84,176	100.00%
Grand Total	84,176	100.00%	Ambas zonas	2,633	3.13%			
			Pk creciente	25,277	30.03%			
			Pk decreciente	23,562	27.99%			
			(blank)	32,704	38.85%			
			Grand Total	84,176	100.00%			

Procesamiento del Dato

4



Status attribute value
draft
duplicate
obsolete
open
match
detection
no_content
submitted
not_submitted_duplicate
failed

~1-2 seg / 25 en paralelo

Ejemplo de Tarea generada



Moderation Panel : HMM - Task

Fri Nov 03 2023

Check Roundabout coding
Leipzig, Germany

PV 109
COMPLETED

THIRDPARTY ROUNDABOUT
8IVokABbT7jjMGT3 NORMAL - Task

Feedback Details

Traffic sign: Roundabout
Sign capture date: 2023/01/10

You have successfully responded to the feedback mentioned above.

Solution:
Response: MANUAL_FIXED
Comments: Suggestion Not Verified

Check Roundabout coding

TPD Traffic Signs into
TSGFlow

2.3M 

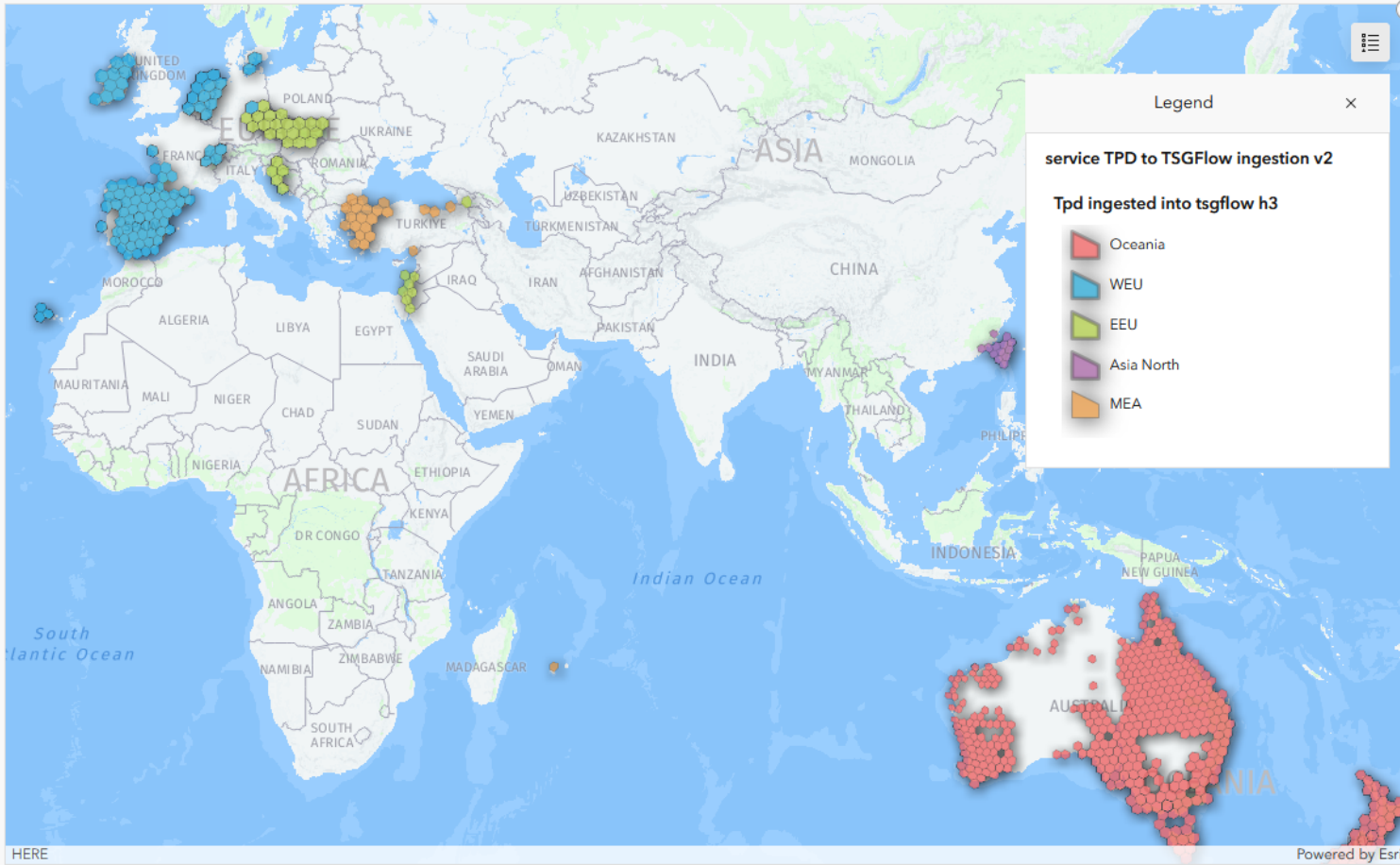
[Confluence Page Link](#)

Traffic sign JIRA Tickets

105 

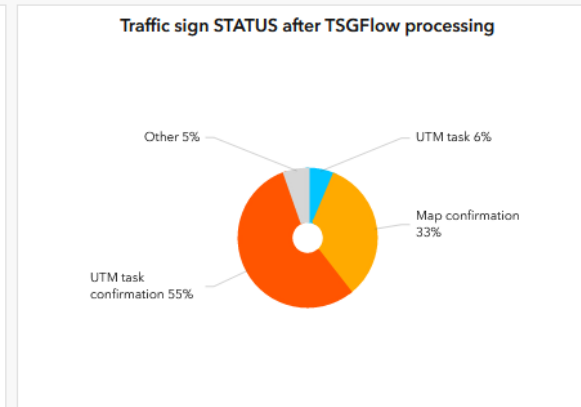
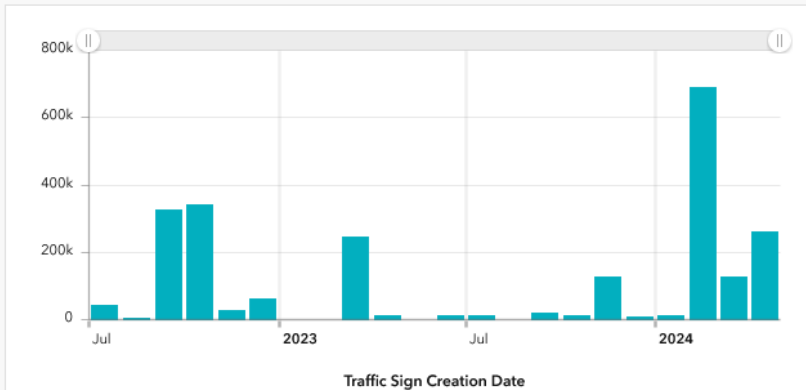
ISO	Count
NLD	999.8k
PRT	342.5k
AUS	333.9k
ESP	282.2k
SGP	131.6k
NZL	90.9k
CZE	31.8k
SVK	19.1k
TWN	18.9k
DEU	16.9k
FRA	16.6k
CHE	13.8k
HRV	12.4k
TUR	11.9k
ISR	8.2k
DNK	1.8k

Subregion	Count
WEU	1.7M
Oceania	424.8k
Asia South East	131.6k
EEU	71.6k
Asia North	18.9k
MEA	12.2k



MOM Sign Type	Count
YIELD	585.3k
SPEED_LIMIT	496.4k
STOP	222.9k
DO_NOT_ENTER	219.7k
SPEED_LIMIT_ZONE	153.1k
TRAFFIC_SIGNAL	131.3k
END_SPEED_LIMIT_ZONE	99.8k
ROUNDBABOUT	99.5k
ONE_WAY_STRAIGHT	68.7k
NO_TRUCKS	30.7k
NO_LEFT_TURN	29.6k
START_BUA	28.4k
NO_RIGHT_TURN	25.3k
SCHOOL_ZONE	24.1k
END_BUA	23.9k
TRANSPORT_HEIGHT_RESTRICTION	23.8k
DISTANCE_MARKER	20.7k
TRANSPORT_WEIGHT_RESTRICTION	20.4k
Total of Sign Types	2.3M

Sign Process	Count
DriverAlert	987.6k
SpeedLimit	813.7k
DOT	289.1k
DiscreteAttribute	99.5k
TruckAttr	82.3k
RDMs	56.3k



JIRA source ID	Count
sgrl_5c924416-14f8-11ee-b604-023c114dcd05_20230627	661.4k
sgrl_7c594c0e-18c3-11ed-b302-12e75745e508_20220810	342.5k
sgrl_bbb56ff0-e672-11ec-8677-12e75745e508_20220607	327.7k
sgrl_bd926486-e821-11eb-a5f9-12e75745e508_20210718	202.2k
sgrl_1bd7d710-140d-11ee-8bb4-023c114dcd05_20230626	131.6k
sgrl_e14b5210-11ce-11ee-8e8a-023c114dcd05_20230623	103k
sgrl_930d3d30-5e87-11ec-bdc9-12e75745e508_20211216	83.7k
sgrl_d57d8140-4665-11ed-a962-12e75745e508_20221007	50k
sgrl_26a9fda8-6161-11ed-a5d9-12e75745e508_20221110	37.1k
sgrl_c1e76572-8bbd-11ed-ac84-12e75745e508_20230103	30.7k
Total Count Traffic Signs from TPD	2.3M

Mantenimiento del Cuadro de Mando (Dashboard)

Conectamos con la BD para encontrar nuevos elementos

Conectamos con el Hosted Feature Layer de AGOL

Creamos hexágonos y Añadimos nuevos elementos al Hosted Feature layer

Email con las novedades de la actualización

Referencias:

<https://academy.safe.com/>

<https://community.safe.com>

¡Muchas gracias!

Juanma Anera

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con•terra