

Supplement 1: OGIM v2.5.1 Database Schema

Table A: Attributes present in all layers

Attribute name	Data type	Allow nulls?	Description	Valid values and/or example values	Notes
CATEGORY	string	no	Category of O&G infrastructure to which the record belongs.	valid: 'CRUDE OIL REFINERIES'; 'EQUIPMENT AND COMPONENTS'; 'GATHERING AND PROCESSING'; 'INJECTION AND DISPOSAL'; 'LNG FACILITIES'; 'NATURAL GAS COMPRESSOR STATIONS'; 'NATURAL GAS FLARING DETECTIONS'; 'OFFSHORE PLATFORMS'; 'OIL AND NATURAL GAS BASINS'; 'OIL AND NATURAL GAS FIELDS'; 'OIL AND NATURAL GAS LICENSE BLOCKS'; 'OIL AND NATURAL GAS PIPELINES'; 'OIL AND NATURAL GAS WELLS'; 'PETROLEUM TERMINALS'; 'STATIONS - OTHER'; 'TANK BATTERIES'	Within a geopackage layer, all values for CATEGORY should be the same.
COUNTRY	string	no	Country in which the record resides. Where possible, country name matches the UN Member State list.	ex: 'GERMANY'; 'AFGHANISTAN, TURKMENISTAN'	Only LineString and Polygon features may fall in 2+ countries; in these cases, COUNTRY field contains a comma-separated list of these countries in alphabetical order.
OGIM_ID	integer	no	Unique identifier for each record in the geopackage. Values do not repeat across infrastructure categories.		
ON_OFFSHORE	string	no	Indicates whether the record lies onshore, offshore, or both.	valid: 'ONSHORE'; 'OFFSHORE'; 'ONSHORE, OFFSHORE'	Only LineString and Polygon features may fall both on and offshore, so only these geometries may have the value 'ONSHORE, OFFSHORE'.
REGION	string	yes	World region in which the record lies. When possible, region aligns with the IEA's Energy Region classifications.	valid: 'AFRICA', 'ASIA PACIFIC', 'CENTRAL AND SOUTH AMERICA', 'EURASIA', 'EUROPE', 'MIDDLE EAST', 'NORTH AMERICA', 'N/A'	It is possible for line and polygon features to have a value of N/A if they pass through multiple countries/regions.

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SRC_DATE	string	no	Publication date of the record's original data source; YYYY-MM-DD format.	ex: '2014-06-01'	If a record's attributes were derived from 2+ different sources (see below), the most recent source date is listed in this field.
SRC_REF_ID	string	no	ID number(s) linking the record to its corresponding source in the "Data_Catalog" table.	ex: '22'; '89,92'	Records that list multiple SRC_REF_IDs separated by a comma (such as '89,92') indicate that different attributes of that record were obtained from different sources. For example, a record's location may have come from SRC_ID 89, but facility status came from SRC_ID 92.
STATE_PROV	string	yes	State or province in which the record resides.	ex: 'TEXAS'; 'ALBERTA'	
geometry	geometry	no	Vertices of the feature's geometry. Formatted as well-known text (WKT) representations of the geometries.	ex: 'POINT (67.42377999999999 37.21161)'	

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Table B: Attributes present in all well + infrastructure layers

Attribute name	Data type	Allow nulls?	Description	Valid values and/or example values	Notes
FAC_ID	string	yes	Unique ID used by the original source agency to identify the infrastructure asset.	ex: 'BGBR0230'; '126162'; '5609/10-01'	
FAC_NAME	string	yes	Name of the infrastructure asset.		
FAC_STATUS	string	yes	Operational status of the infrastructure asset, according to the original source.	ex: 'ACTIVE'; 'SUSPENDED'; 'TEMPORARILY CLOSED'	FAC_STATUS of "N/A" cannot be assumed to mean active or inactive.
FAC_TYPE	string	yes	Detailed information on type of facility.	ex: "EXPORT FACILITY"; "NGL FRACTIONATION FACILITY"	
INSTL_DATE *	string	yes	Date the facility or asset was installed; YYYY-MM-DD format.	ex: '1994-02-17'	Some data sources only included an installation year, or a month-year combination. These values appear with their month or date value filled with '01'. For example, if we only know a facility was installed in 2012, the INSTL_DATE would appear '2012-01-01'.
LATITUDE	float	no	Latitude of Point features in decimal degrees.	ex: 30.11438	
LONGITUDE	float	no	Longitude of Point features in decimal degrees.	ex: -93.29659	
OGIM_STATUS	string	yes	Standardized version of FAC_STATUS, created by the OGIM authors to "bin" statuses reported by the original source into categories.	valid: 'PERMITTING'; 'UNDER CONSTRUCTION'; 'OPERATIONAL'; 'PROPOSED'; 'DRILLING'; 'COMPLETED'; 'PRODUCING'; 'INACTIVE'; 'ABANDONED'; 'INJECTING'; 'STORAGE, MAINTENACE, OR OBSERVATION'; 'OTHER'	
OPERATOR	string	yes	Name of the asset's operator, according to the original source at time of publication.	ex: 'YSUR ENERGÍA ARGENTINA S.R.L.'; 'PETROBRAS'; 'DCP MIDSTREAM, LP'	No modifications have been made to standardize operator names or associate subsidiaries with parent companies.

* = attribute not present for wells

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Table C: Attributes present in wells layer only

Attribute name	Data type	Allow nulls?	Description	Valid values and/or example values	Notes
COMP_DATE	string	yes	Date that well construction was completed; YYYY-MM-DD format.	ex: '2019-12-13'	
DRILL_TYPE	string	yes	Drilling direction of the well.	ex: 'HORIZONTAL'; 'VERTICAL'; 'DIRECTIONAL'; 'CONVENTIONAL'	Conventional' indicates a vertical well; 'Unconventional' indicates a horizontal or hydraulic fracturing well.
SPUD_DATE	string	yes	Date that well was first spudded (i.e., drilling began); YYYY-MM-DD format.	ex: '2019-04-11'	

Table D: Attributes present in pipelines only

Attribute name	Data type	Allow nulls?	Description	Valid values and/or example values	Notes
PIPE_DIAMETER_MM	float	yes	Pipeline diameter in millimeters.	ex: 88, 114	
PIPE_LENGTH_KM	float	no	Length of pipeline feature in kilometers.	ex: 4.45; 90.4; 1130	Pipeline length is calculated for each feature in GIS by the OGIM authors, even if the original data source reports a length.
PIPE_MATERIAL	float	yes	Material that pipeline is made of.	ex: 'STEEL'; 'POLYETHYLENE'; 'CARBON STEEL 5L GRADE X 65'; 'ASTM A-106 GR.B'	

Table E: Attributes present in basins, fields, and license blocks layers only

Attribute name	Data type	Allow nulls?	Description	Valid values and/or example values	Notes
NAME	string	yes	The name of the basin, field, or license block.	ex: 'PERMIAN'	
AREA_KM2	float	no	Area of polygon in sq. kilometers.	ex: 37200; 186000	Area is calculated for each feature in GIS by the OGIM authors, even if the original data source reports an area.
RESERVOIR_TYPE	string	yes	Hydrocarbon(s) produced by the reservoir, OR the phase of production the reservoir is in.	ex: 'OIL'; 'OIL AND GAS'; 'CONDENSATE'; 'EXPLORATION AND EXPLOITATION'; 'COALBED METHANE'	

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Table F: Attributes present in flaring detections only

Attribute name	Data type	Allow nulls?	Description	Valid values and/or example values	Notes
AVERAGE_FLARE_TEMP_K	integer	no	Average flare temperature in Kelvin.	ex: 1020, 2119	
DAYS_CLEAR_OBSERVATIONS	integer	no	Number of clear days for which flares were detected.	ex: 123, 381	
FLARE_YEAR	integer	no	Year in which detections occurred.	valid: 2022	
GAS_FLARED_MMCF	float	no	Estimated volume of gas flared in million cubic feet per year.		
SEGMENT_TYPE	string	yes	Oil and gas industry segment to which the flaring detection belongs.	valid: 'GAS DOWNSTREAM'; 'OIL DOWNSTREAM'; 'UPSTREAM'	

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Table H: Additional attributes in infrastructure layers				
Attribute name	Data type	Allow nulls?	Description	In which layer(s) is attribute present?
GAS_CAPACITY_MMCFD	float	yes	Facility capacity for natural gas, in million cubic ft. per day.	CS, GP, ID, LNG, PL, TM
GAS_THROUGHPUT_MMCFD	float	yes	Facility throughput for natural gas, in million cubic ft. per day.	CS, GP, ID, LNG, PL, TM
LIQ_CAPACITY_BPD	float	yes	Facility capacity for O&G liquids, in barrels per day.	CS, GP, ID, LNG, PL, R, TM
LIQ_THROUGHPUT_BPD	float	yes	Facility throughput for O&G liquids, in barrels per day.	CS, GP, ID, LNG, PF, PL, R, TM
NUM_STORAGE_TANKS	integer	yes	Number of storage tanks at the facility.	CS, GP, ID, LNG, PF, R, TM
NUM_COMPR_UNITS	integer	yes	Number of compressor units present at facility.	CS, GP, TM
SITE_HP	float	yes	Horsepower of the facility.	CS, GP
COMMODITY	string	yes	Hydrocarbon(s) contained in the infrastructure.	PL, SO, TM

Key for Table H:

CS = Compressor Stations

GP = Gathering and Processing

ID = Injection and Disposal

LNG = Liquefied Natural Gas Facilities

PL = Pipelines

R = Refineries

SO = Stations (Other)

TM = Petroleum Terminals

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Table Z: Attributes present in the Data Catalog layer

Attribute name	Data type	Allow nulls?	Description	Valid values and/or example values
SRC_ID	integer	no	Identification number unique to the particular data source.	
SRC_URL	string	no	URL to the webpage that describes the data and offers it for download.	
SRC_NAME	string	no	Source agency or name (written out fully).	ex: 'New Zealand Petroleum & Minerals'; 'Ministero della transizione ecologic'
SRC_ALIAS	string	yes	Optional short-name for source; may be an abbreviation of the source agency, or the name/username of the original data author.	ex: 'NZPAM'; '@jesse_hamlin'; 'USGS'
SRC_TYPE	string	no	General categorization of the source type, as determined by OGIM team.	valid: 'Academia', 'ArcGIS Online', 'Company', 'Data Vendor', 'Government', 'NGO', 'OGInfra.com'
SRC_YEAR	integer	no	Year that source was published.	valid: integers 1900 - 2024 inclusive
SRC_MNTH	integer	no	Month that source was published.	valid: integers 1 - 12 inclusive
PUB_PRIV	string	no	Public availability of data.	valid: 'Public'; 'Proprietary'
PROD_DATA	boolean	no	Does the original data source report O&G production values?	valid: 0,1
UPDATE_FREQ	string	no	Frequency with which the source is usually updated.	valid: 'Annually', 'Quarterly'; 'Monthly', 'Weekly'; 'Daily'; 'Irregularly'; 'One-Time'; 'Uncertain'
LASTVISIT	string	no	Date on which an EDF analyst last visited the source URL; YYYY-MM-DD format.	ex: '2023-12-13'
REGION	string	no	Region in which data lies.	valid: 'Africa'; 'Asia'; 'Central Asia'; 'Europe'; 'Global'; 'Middle East'; 'North America'; 'South America'; 'Oceania'; 'Various'
COUNTRY	string	yes	If applicable, country in which data lies.	ex: 'Argentina'; 'Various'
STATE_PROV	string	yes	If applicable, state or province in which data lies.	ex: 'Various'; 'Sub-national'; 'Kentucky'; 'Alberta'
NOTES	string	yes	Internal notes about the source or its contents.	
HAS_WELLS	boolean	no	Does this data source contain any records that are included in the Oil and Natural Gas Wells layer?	valid: 0, 1
HAS_PLATFORMS	boolean	no	Does this data source contain any records that are included in the Offshore Platforms layer?	valid: 0, 1

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HAS_COMPRESSORS	boolean	no	Does this data source contain any records that are included in the Natural Gas Compressor Stations layer?	valid: 0, 1
HAS_PROCESSING	boolean	no	Does this data source contain any records that are included in the Gathering and Processing layer?	valid: 0, 1
HAS_REFINERIES	boolean	no	Does this data source contain any records that are included in the Crude Oil Refineries layer?	valid: 0, 1
HAS_TERMINALS	boolean	no	Does this data source contain any records that are included in the Petroleum Terminals layer?	valid: 0, 1
HAS_LNG	boolean	no	Does this data source contain any records that are included in the LNG Facilities layer?	valid: 0, 1
HAS_INJ_DISP	boolean	no	Does this data source contain any records that are included in the Injection and Disposal layer?	valid: 0, 1
HAS_TANKS	boolean	no	Does this data source contain any records that are included in the Tank Battery layer?	valid: 0, 1
HAS_EQUIP_COMP	boolean	no	Does this data source contain any records that are included in the Equipment and Components layer?	valid: 0, 1
HAS_OTHER	boolean	no	Does this data source contain any records that are included in the Stations - Other layer?	valid: 0, 1
HAS_PIPELINES	boolean	no	Does this data source contain any records that are included in the Oil and Natural Gas Pipelines layer?	valid: 0, 1
HAS_BASINS	boolean	no	Does this data source contain any records that are included in the Oil and Natural Gas Basins layer?	valid: 0, 1
HAS_FIELDS	boolean	no	Does this data source contain any records that are included in the Oil and Natural Gas Fields layer?	valid: 0, 1
HAS_BLOCKS	boolean	no	Does this data source contain any records that are included in the Oil and Natural Gas License Blocks layer?	valid: 0, 1
HAS_PRODUCTION	boolean	no	Does this data source contain any records that are included in the Oil and Natural Gas Production layer?	valid: 0, 1
HAS_FLARES	boolean	no	Does this data source contain any records that are included in the Natural Gas Flaring Detections layer?	valid: 0, 1