

# OpenStreetMap Data Model

## Objectives:

- Understanding Concept of *tag*, *key*, dan *value* in *OpenStreetMap*
- Knowing *OpenStreetMap* wiki page as a guideline for *key* and *value*
- Understanding Objects which can be mapped into *OpenStreetMap*
- Knowing and Understanding data model as a part of mapping preparation plan
- Checking specific *key* and *value* in *TagInfo* website

In this module, you will learn about *key* and *value* concept in *OpenStreetMap* (OSM) as well as data model in OSM objects. Knowing about data model will help you to prepare your mapping activity plan efficiently start from planning, field survey and input the field survey data. You also learn some websites which can help you to find specific information *key* and *value* that you need based on OpenStreetMap standard.

## I. *Tag*, *Key*, dan *Value* Concept

In *OpenStreetMap* there are 3 types of object. They are: *Nodes*, *Ways*, and *Polygon/Closedways*. Each type of data has information that can represent the object. That information called *Tag* which structured by *key* and *value*.

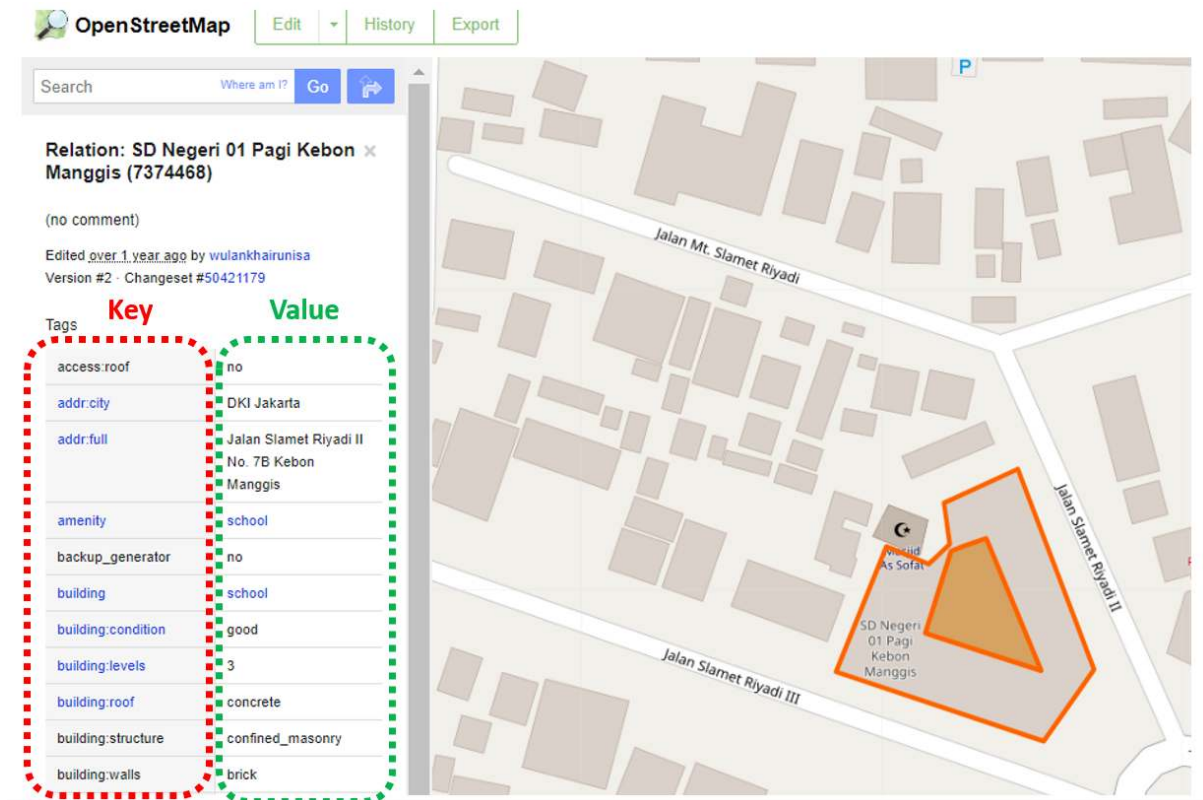
For instance, there is a school in your area. Therefore, the school should be **Tagged** as a school in OpenStreetMap. The school's tag has some details information that make the school being different from other schools. Those information such as name, address, building level, school type, etc. In OpenStreetMap, they are **Key** while each information of them called **Value**.

Example of School *Tag*:

name=SDN Kebon Manggis 11 Pagi

address= Jalan Slamet Riyadi II.

In the example above, "name and address" are **Key** while "SDN Kebon Manggis 11 Pagi and Jalan Slamet Riyadi II" are **Value**. See the image below to see the explanation in OpenStreetMap website:



### Key and value of an object on OpenStreetMap

As you can see on the picture above, key and value always written in english according to the OpenStreetMap standard. You do not need to remember all key and value in OpenStreetMap because you can find them in wikipedia *OpenStreetMap* website which will be explained in this module.

## II. Wikipedia *OpenStreetMap* to see Key and Value

As a one of mapping participatory platform, OpenStreetMap has millions of contributors all around the globe. Therefore to produce and ensure a good quality data and information in OpenStreetMap, the contributors together established rules and standardization guidelines and put into one open-source platform site called wikipedia.

### a. Global Wikipedia *OpenStreetMap*

Further explanation and list of key and value in OpenStreetMap have been made and put into specific OSM wikipedia page called *Map Feature*. In this page, you can search and find any key and value that used in OpenStreetMap globally. To access this page please visit at: [https://wiki.openstreetmap.org/wiki/Map\\_Features](https://wiki.openstreetmap.org/wiki/Map_Features)



facilities also has various type depending of its type such as Rumah Sakit (Hospital), Puskesmas ( hospital in village level) , Posyandu (hospital in rural area). These information are essential in Indonesia therefore they have been placed in Indonesia OpenStreetMap Wikipedia page. Another example is you only can find name kiosk as a name and key of small store in Map Feature while the name is not familiar and known by most of Indonesian in Indonesia OpenStreetMap Wikipedia page this small store has been given a local name called “warung” even though still has key=kiosk for its tag in OpenStreetMap.

You can see list of objects information in Indonesia OpenStreetMap Wikipedia page by click this link: [https://wiki.openstreetmap.org/wiki/Id:Indonesian\\_Tagging\\_Guidelines](https://wiki.openstreetmap.org/wiki/Id:Indonesian_Tagging_Guidelines)

**PDC InaWARE Indonesia Project Tagging Guidelines**

**Contents** [hide]

- Administrative Boundary
- Critical Facilities
  - Finance
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  - Transportation
  - Water Supply Systems
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  - Public Institution
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  - Health Facilities
  - Emergency Services
  - Government Establishment
  - Required Key and Value for Any Building Objects for Critical Facilities
- Roads, Railway and Waterway

**Administrative Boundary**

There are 4 administrative boundary that has been mapped (add and/or update) during this project

- City/Regency Boundary
- Municipality Boundary
- Village Boundary
- Community Group (RT/RW) Boundary

No.	Object Name	Object Type	Description	Key	Value	OSM Rendering
1.	City/Regency Boundary		A Boundary for City/Regency areas	admin_level	5	
2.	Municipality Boundary		A boundary for Municipality areas	admin_level	6	
3.	Village Boundary		A boundary for Village areas	admin_level	7	

**Public Institution**

No.	Object Name	Object Type	Description	Key	Value	OSM Rendering	Sample Picture
1.	Kindergarten		Place for kids to learn (5-6 years old)	amenity	kindergarten		
2.	Sekolah Dasar (SD) / Madrasah Ibtidaiyah (MI)		Elementary School	• amenity • school_type_idn	• school • sd		
3.	Sekolah Menengah Pertama (SMP) / Madrasah Tsanawiyah (MTs)		Junior High School	• amenity • school_type_idn	• school • smp		
4.	Sekolah Menengah Atas (SMA) / Madrasah Aliyah (MA)		Senior High School	• amenity • school_type_idn	• school • sma		
5.	College		A place for further education, usually a post-secondary education institution	amenity	college		
6.	University		An educational institution designed for instruction, examination, or both, of students in many branches of advanced learning	amenity	university		
7.	Mosque / Mushalla		Place of worship for muslim	• amenity • religion	• place_of_worship • muslim		
8.	Church / Chapel		Place of worship for christian	• amenity • religion	• place_of_worship • christian		

Page of Indonesia OpenStreetMap Wikipedia Page

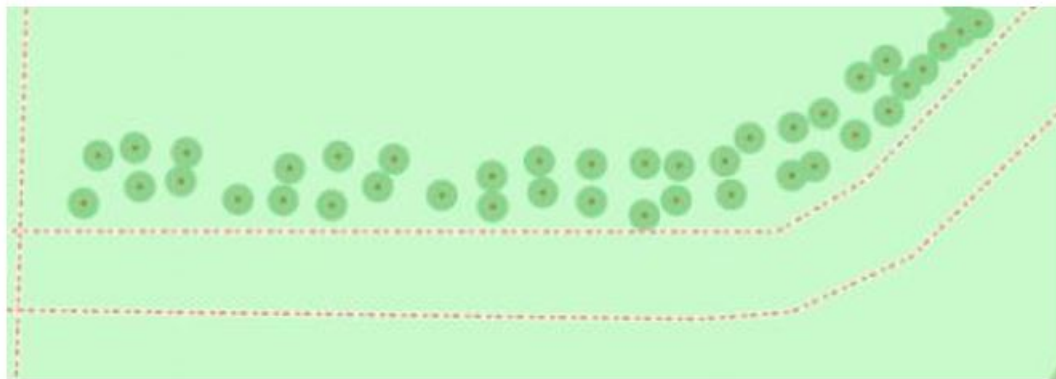
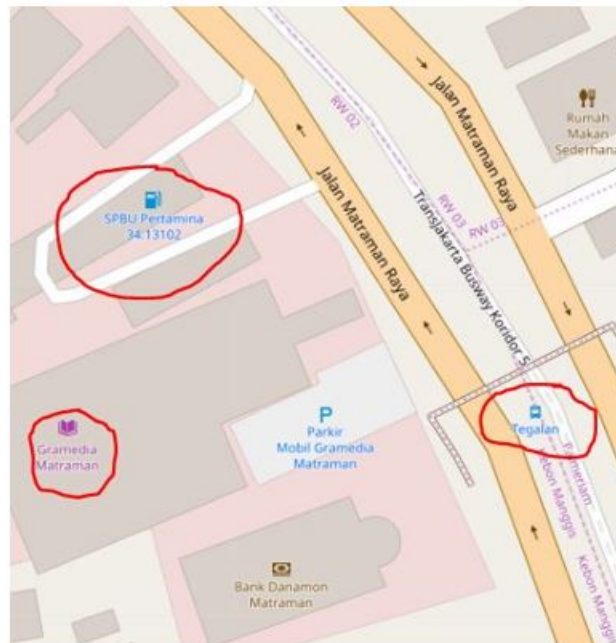
### III. Mapping Objects in *OpenStreetMap*

#### a. Data types in *OpenStreetMap*

In this module, you have been explained about data types in OpenStreetMap: point (*Nodes*), line (*Ways*) and area (*Polygon/Relation*). These are further explanation of each data type in OpenStreetMap.

- **Point (*Nodes*)**

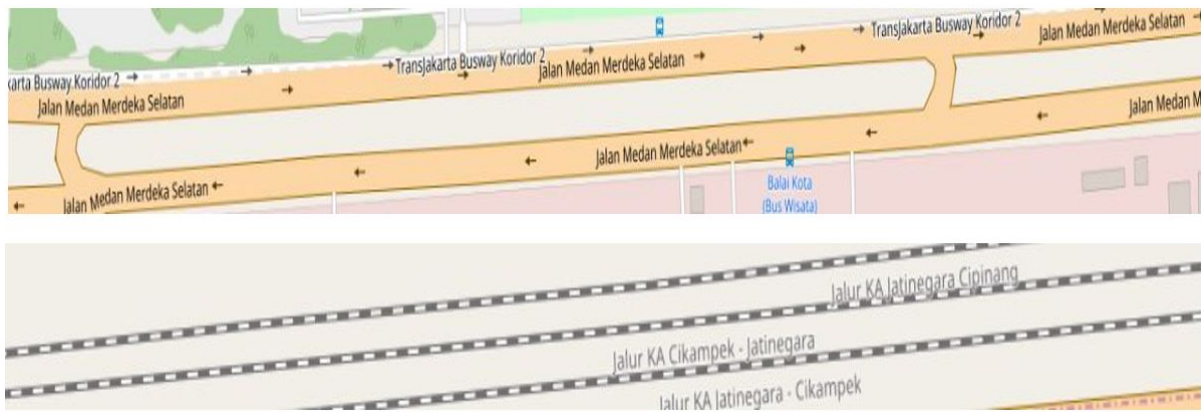
Point usually being used to represent position or location of certain object. For instance, objects which drawn as a point (nodes) in OpenStreetMap such as traffic light, gas station or restaurant in a mall or shopping center.



Example of Points in OpenStreetMap

- **Line (*Ways*)**

Line is an object that is formed by sequence of points (*nodes*) which connect one to another. Some objects which usually drawn as a line in OpenStreetMap such as road, river, railway and administration boundary.

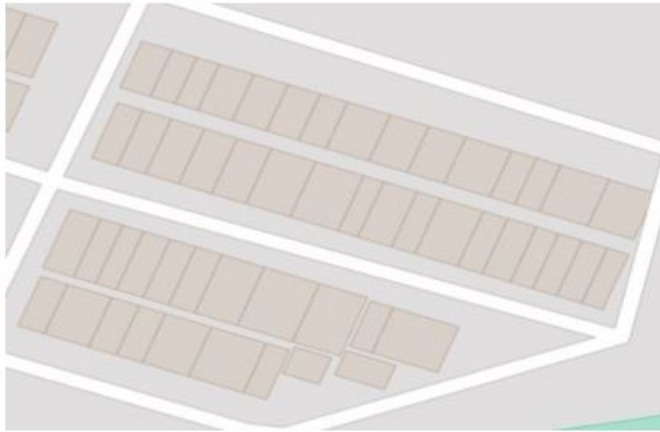


Example of lines in OpenStreetMap

- **Area (Polygon)**

Area is formed by sequence of lines (*ways*) which connect one to another. Some objects in OpenStreetMap such as building, park, land use and lake are drawn as area.





Example of area (polygon) in OpenStreetMap

#### **b. Mapping Objects in HOT-PDC Project**

In *OpenStreetMap*, you can map any object on earth surface as long as it is real and permanent. Real means that the object has physical form and can be seen such as building and roads whereas non-real object such as high level or population density. Permanent means the object has specific location and not moving in particular time.

Choosing what objects that we want to map in OpenStreetMap depends on the purposes of the mapping project itself. In HOT-PDC InAWARE, the purpose is to collecting critical infrastructures which can be used for disaster management. These are list of objects that has been mapped into OpenStreetMap in HOT-PDC InAWARE project:

##### **1.Economic Facilities**

- Traditional Market
- Supermarket

- Bank

## **2. Education Facilities**

- University
- College
- School (SD, SMP, SMA)
- Kindergarten

## **3. Health Facilities**

- Hospital
- Clinic

## **4. Communication**

- Communication Tower

## **5. Emergency Service**

- Police Office
- Fire Station
- Evacuation Center
- Hydrant

## **6. Government**

- Government Office (Governor, Mayor, District, Sub-district, village and sub-village office)
- Embassy
- Government Institution (Ministry)

## **7. Electricity**

- Power tower
- Power substation
- Power Plant

## **8. Transportation**

- Airport
- Bus Station
- Train Station
- Harbour / Dock

## **9. Public Facilities**

- Place of Worship (Mosque, Church, Temple)
- Sport Facility (Sport Center, Stadium, Sports Field)
- Public Spaces

## **10. Water**

- Water Tower
- Water Gate
- Pump House
- Embankment
- River
- Lake / Dam

## **11. Gas Station**

## **12. Administration Boundary**

- City / District Boundary
- Sub-district boundary
- Village boundary
- Sub-village boundary

## **13. Road Network**



#### IV. Data Mapping Model in *OpenStreetMap*

Data model is a compilation of some information for an object where consisted from key and value in OpenStreetMap. A data model does not have a standard for what information that should be put in an object. The model should be followed the purposes of mapping project. For instance, if you want to map school in you area and you need information of **school name**, **address**, **school type**, **school operator**, and **building level** then your data model should be like this:

School Tag Information Table

key	(possible) values
amenity	school
building	school
school:type_idn	sd [SD/MI (Elementary School)], smp [SMP/MTs (Junior High School)], sma [SMA/SMK/MA (Senior High School)]
name	(building name)
addr:full	(address)
operator:type	government, private, community
building:levels	(number of building floor)

amenity=school is a compulsory tag for the school information. *Key* and *value* in this tag are main information that identify the object as a school.

building=school is a tag that show the school has its own building. Some schools are located in another building such as government office area therefore if that was the case then this tag is unnecessary.

##### a. HOT-PDC InAWARE Data Model

The purpose of HOT-PDC InAWARE mapping project is to gather information of critical infrastructures in context of disaster management. Therefore, you need to create data model that can help the survey team to collect the information in the field and upload them into OpenStreetMap. These are data model for each priority object in HOT-PDC InAWARE mapping project:

##### Color Information:

- Warna biru the *key* and *value* are compulsory for the object.
- Warna merah the *\_key\_* and *\_value\_* are information for building of the object. This tag /information only collected if the object has its own building. Otherwise, the tag is unnecessary.
- Warna hitam artinya *key* dan *value* tersebut **sebaiknya** dimasukkan ke dalam objek pemetaan baik objek tersebut memiliki bangunan sendiri ataupun menumpang di bangunan yang lain.
- Black color means the *key* and *value* **should be** added regardless the object has its own building or not.

##### 1.Economic Facilities

- Table of Traditional Market Data Model

key

possible values

amenity

marketplace

building

marketplace

name

addr:full

addr:city

capacity:persons  
 <50, 50-100, 100-250, 250-500, >500  
 building:levels  
 building:structure  
 confined\_masonry, steel\_frame, wood\_frame, bamboo\_frame  
 building:material  
 brick , concrete, wood, bamboo, glass  
 building:floor  
 ground, wood, cement, tekheh, ceramics  
 building:roof  
 tile, tin, asbestos, concrete  
 access:roof  
 yes, no  
 building: condition  
 poor, good  
 ground\_floor:height  
 building ground floor to the surface in metre  
 backup\_generator  
 yes, no  
 source  
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- Table of Supermarket Data Model

 key  
 possible values  
 shop  
 supermarket  
 building  
 supermarket  
 name  
 addr:full  
 addr:city  
 capacity:persons  
 <50, 50-100, 100-250, 250-500, >500  
 building:levels  
 building:structure  
 confined\_masonry, steel\_frame, wood\_frame, bamboo\_frame  
 building:material  
 brick , concrete, wood, bamboo, glass  
 building:floor

ground, wood, cement, tekhel, ceramics

building:roof

tile, tin, asbestos, concrete

access:roof

yes, no

ground\_floor:height

poor, good

building: condition

building ground floor to the surface in metre

backup\_generator

yes, no

source

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- Table of Bank Data Model

key

possible values

amenity

bank

building

bank

name

addr:full

addr:city

capacity:persons

<50, 50-100, 100-250, 250-500, >500

building:levels

building:structure

confined\_masonry, steel\_frame, wood\_frame, bamboo\_frame

building:material

brick , concrete, wood, bamboo, glass

building:floor

ground, wood, cement, tekhel, ceramics

building:roof

tile, tin, asbestos, concrete

access:roof

yes, no

building: condition

poor, good

ground\_floor:height=

building ground floor to the surface in metre

backup\_generator

yes, no

source

HOT\_InAWARESurvey\_2018

## 2. Education Facilities

- Table of University Data Model

key

possible values

amenity

university

building

university

name

addr:full

addr:city

operator:type

government, private, community

capacity:persons

<50, 50-100, 100-250, 250-500, >500

building:levels

building:structure

confined\_masonry, steel\_frame, wood\_frame, bamboo\_frame

building:material

brick , concrete, wood, bamboo, glass

building:floor

ground, wood, cement, tekhele, ceramics

building:roof

tile, tin, asbestos, concrete

access:roof

yes, no

building: condition

poor, good

ground\_floor:height=

building ground floor to the surface in metre

backup\_generator

yes, no

source

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evacuation\_center

yes, no

shelter\_type

tent, building

water\_source

water\_works, manual\_pump, powered\_pump

kitchen:facilities

yes, no

toilet:facilities

yes, no

toilets:number

- Table of College Data Model

key

possible values

amenity

college

building

college

name

addr:full

addr:city

operator:type

government, private, community

capacity:persons

<50, 50-100, 100-250, 250-500, >500

building:levels

building:structure

confined\_masonry, steel\_frame, wood\_frame, bamboo\_frame

building:material

brick , concrete, wood, bamboo, glass

building:floor

ground, wood, cement, tekhel, ceramics

building:roof

tile, tin, asbestos, concrete

access:roof

yes, no

building: condition

poor, good

ground\_floor:height=

building ground floor to the surface in metre

backup\_generator

yes, no

source

HOT\_InAWARESurvey\_2018

evacuation\_center

yes, no

shelter\_type

tent, building

water\_source

water\_works, manual\_pump, powered\_pump

kitchen:facilities

yes, no

toilet:facilities

yes, no

toilets:number

- Table of School Data Model (SD, SMP, SMA)

key

possible values

school:type\_idn

sd [SD/MI (Elementary School)], smp [SMP/MTs (Junior High School)], sma [SMA/SMK/MA (Senior High School)]

amenity

school

building

school

name

addr:full

addr:city

operator:type

government, private, community

capacity:persons

<50, 50-100, 100-250, 250-500, >500

building:levels

building:structure

confined\_masonry, steel\_frame, wood\_frame, bamboo\_frame

building:material

brick , concrete, wood, bamboo, glass

building:floor

ground, wood, cement, tekhel, ceramics

building:roof

tile, tin, asbestos, concrete

access:roof

yes, no

building: condition

poor, good

ground\_floor:height=

building ground floor to the surface in metre

backup\_generator

yes, no

source

HOT\_InAWARESurvey\_2018

evacuation\_center

yes, no

shelter\_type

tent, building

water\_source

water\_works, manual\_pump, powered\_pump

kitchen:facilities

yes, no

toilet:facilities

yes, no

toilets:number

- Table of Kindergarten Data Model

key

possible values

amenity

Kindergarten [PAUD/ Play Group / TK (Early education / Play group / Kindergarten)]

building

kindergarten

name

addr:full

addr:city

operator:type

government, private, community

capacity:persons

<50, 50-100, 100-250, 250-500, >500

building:levels



building:structure  
 confined\_masonry, steel\_frame, wood\_frame, bamboo\_frame  
 building:material  
 brick , concrete, wood, bamboo, glass  
 building:floor  
 ground, wood, cement, tekhel, ceramics  
 building:roof  
 tile, tin, asbestos, concrete  
 access:roof  
 yes, no  
 building: condition  
 poor, good  
 ground\_floor:height=  
 building ground floor to the surface in metre  
 backup\_generator  
 yes, no  
 source  
 HOT\_InAWARESurvey\_2018

### 3. Health Facilities

- Table of Hospital Data Model

key  
 possible values  
 amenity  
 hospital  
 name  
 addr:full  
 addr:city  
 operator:type  
 government, private, community  
 building  
 hospital  
 capacity:persons  
 <50, 50-100, 100-250, 250-500, >500  
 building:levels  
 building:structure  
 confined\_masonry, steel\_frame, wood\_frame, bamboo\_frame  
 building:material  
 brick , concrete, wood, bamboo, glass  
 building:floor

ground, wood, cement, tekhel, ceramics  
 building:roof  
 tile, tin, asbestos, concrete  
 access:roof  
 yes, no  
 building: condition  
 poor, good  
 ground\_floor:height  
 building ground floor to the surface in metre  
 backup\_generator  
 yes, no  
 source  
 HOT\_InAWARESurvey\_2018  
 evacuation\_center  
 yes, no  
 shelter\_type  
 tent, building  
 water\_source  
 water\_works, manual\_pump, powered\_pump  
 kitchen:facilities  
 yes, no  
 toilet:facilities  
 yes, no  
 toilets:number
 

- Table of Clinic Data Model

 key  
 possible values  
 amenity  
 clinic  
 name  
 addr:full  
 addr:city  
 operator:type  
 government, private, community  
 building  
 clinic  
 capacity:persons  
 <50, 50-100, 100-250, 250-500, >500  
 building:levels

building:structure  
 confined\_masonry, steel\_frame, wood\_frame, bamboo\_frame  
 building:material  
 brick , concrete, wood, bamboo, glass  
 building:floor  
 ground, wood, cement, tekhel, ceramics  
 building:roof  
 tile, tin, asbestos, concrete  
 access:roof  
 yes, no  
 building: condition  
 poor, good  
 ground\_floor:height  
 building ground floor to the surface in metre  
 backup\_generator  
 yes, no  
 source  
 HOT\_InAWARESurvey\_2018  
 evacuation\_center  
 yes, no  
 shelter\_type  
 tent, building  
 water\_source  
 water\_works, manual\_pump, powered\_pump  
 kitchen:facilities  
 yes, no  
 toilet:facilities  
 yes, no  
 toilets:number  
**4. Communication**

- Table of Communication Tower Data Model

 key  
 possible values  
 man\_made  
 tower  
 tower:type  
 communication  
 name  
 height

operator

Telkomsel, Indosat, XL, Tri, Smartfren

communication:mobile

yes,no

communication:radio

yes,no

addr:city

source

HOT\_InAWARESurvey\_2018

## 5. Emergency Services

- Table of Police Office Data Model

key

possible values

amenity

police

building

police

name

addr:full

addr:city

capacity:persons

<50, 50-100, 100-250, 250-500, >500

building:levels

building:structure

confined\_masonry, steel\_frame, wood\_frame, bamboo\_frame

building:material

brick , concrete, wood, bamboo, glass

building:floor

ground, wood, cement, tekheh, ceramics

building:roof

tile, tin, asbestos, concrete

access:roof

yes, no

building: condition

poor, good

ground\_floor:height

building ground floor to the surface in metre

backup\_generator

yes, no

source

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- Table of Fire Station Data Model

key

possible values

amenity

fire\_station

building

fire\_station

name

addr:full

addr:city

capacity:persons

<50, 50-100, 100-250, 250-500, >500

building:levels

building:structure

confined\_masonry, steel\_frame, wood\_frame, bamboo\_frame

building:material

brick , concrete, wood, bamboo, glass

building:floor

ground, wood, cement, tekhele, ceramics

building:roof

tile, tin, asbestos, concrete

access:roof

yes, no

building: condition

poor, good

ground\_floor:height

building ground floor to the surface in metre

backup\_generator

yes, no

source

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- Table of Hydrant Data Model

key

possible values

emergency

fire\_hydrant

fire\_hydrant:type

underground, pillar, wall, pond

name

operator

addr:city

source

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## 6. Government

- Table of Government Office Data Model Model (Governor, Mayor, District, Sub-district, village and sub-village office)

key

possible values

office

government

building

governor\_office, townhall, subdistrict\_office, village\_office , community\_group\_office

admin\_level

4 (governor office), 5 (town hall), 6 (subdistrict office), 7 (village office), 9 (subvillage office)

name

addr:full

addr:city

capacity:persons

<50, 50-100, 100-250, 250-500, >500

building:levels

building:structure

confined\_masonry, steel\_frame, wood\_frame, bamboo\_frame

building:material

brick , concrete, wood, bamboo, glass

building:floor

ground, wood, cement, tekhel, ceramics

building:roof

tile, tin, asbestos, concrete

access:roof

yes, no

building: condition

poor, good

ground\_floor:height

building ground floor to the surface in metre

backup\_generator

yes, no

source

HOT\_InAWARESurvey\_2018

evacuation\_center

yes, no

shelter\_type

tent, building

water\_source

water\_works, manual\_pump, powered\_pump

kitchen:facilities

yes, no

toilet:facilities

yes, no

toilets:number

- Table of Government Institution Data Model (Ministry)

key

possible values

office

government

building

government\_office

name

addr:full

addr:city

admin\_level

7 (village level), 6 (sub district level), 5 (city level), 4 (Province level)

capacity:persons

<50, 50-100, 100-250, 250-500, >500

building:levels

building:structure

confined\_masonry, steel\_frame, wood\_frame, bamboo\_frame

building:material

brick , concrete, wood, bamboo, glass

building:floor

ground, wood, cement, tekhel, ceramics

building:roof

tile, tin, asbestos, concrete

access:roof

yes, no

building: condition



poor, good

backup\_generator

yes, no

source

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## 7. Electricity

- Table of Power Tower Data Model

key

possible values

power

tower

name

addr:city

operator

source

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- Table of Power Sub Station Data Model

key

possible values

power

substation

substation

transmission (Main substation), distribution (Distribution sub station)

building

power\_substation

name

<power substation name>

addr:city

rating

<user define>

operator

source

HOT\_InAWARESurvey\_2018

- Table of Power Plant Data Model

key

possible values

power

plant

building  
power\_plant  
name  
operator  
addr:full  
addr:city  
operator  
source  
HOT\_InAWARESurvey\_2018

## 8. Transportation

- Table of Airport Data Model

key  
possible values  
aeroway  
aerodrome  
building  
aerodrome  
Name  
addr:full  
addr:city  
capacity:persons  
<50, 50-100, 100-250, 250-500, >500  
building:levels  
building:structure  
confined\_masonry, steel\_frame, wood\_frame, bamboo\_frame  
building:material  
brick , concrete, wood, bamboo, glass  
building:floor  
ground, wood, cement, tekhele, ceramics  
building:roof  
tile, tin, asbestos, concrete  
access:roof  
yes, no  
building: condition  
poor, good  
backup\_generator  
yes, no  
source  
HOT\_InAWARESurvey\_2018

- Table of Bus Station Data Model

key

possible values

amenity

bus\_station

name

addr:full

addr:city

source

HOT\_InAWARESurvey\_2018

- Table of Train Station Data Model

key

possible values

railway

station

name

ele

operator

addr:full

addr:city

source

HOT\_InAWARESurvey\_2018

- Table of Harbour / Dock Data Model

key

possible values

amenity

ferry\_terminal

building

ferry\_terminal

name

addr:full

addr:city

capacity:persons

<50, 50-100, 100-250, 250-500, >500

building:levels

building:structure

confined\_masonry, steel\_frame, wood\_frame, bamboo\_frame

building:material

brick , concrete, wood, bamboo, glass

building:floor  
 ground, wood, cement, tekhel, ceramics  
 building:roof  
 tile, tin, asbestos, concrete  
 access:roof  
 yes, no  
 building: condition  
 poor, good  
 backup\_generator  
 yes, no  
 source  
 HOT\_InAWARESurvey\_2018

## 9. Public Facilities

- Table of Place of Worship Data Model

key  
 possible values  
 amenity  
 place\_of\_worship  
 religion  
 muslim, christian, hindu, buddhist, confucian  
 name  
 addr:full  
 addr:city  
 building  
 mosque, church, temple  
 capacity:persons  
 <50, 50-100, 100-250, 250-500, >500  
 building:levels  
 building:structure  
 confined\_masonry (Rangka beton bertulang), steel\_frame (Rangka baja), wood\_frame (Rangka kayu), bamboo\_frame (Rangka bambu)  
 building:material  
 brick (Bata), concrete (Beton), wood (Papan kayu), bamboo (Bambu), glass (Kaca)  
 building:floor  
 ground (Tanah), wood (Papan kayu), cement (Plester / Semen), tekhel (Tegel), ceramics (Keramik)  
 building:roof  
 tile (Genteng), tin (Seng), asbestos (Asbes), concrete (Beton)  
 access:roof  
 yes (Ada), no (Tidak ada)

building: condition

poor (Buruk), good (Baik)

ground\_floor:height=

Tinggi bangunan dari jalan dalam satuan meter

backup\_generator

yes (Ada), no (Tidak ada)

source

HOT\_InAWARESurvey\_2018

evacuation\_center

yes (Ya), no (Bukan)

shelter\_type

tent (Tenda), building (Bangunan)

water\_source

water\_works (PDAM), manual\_pump (Pompa Tangan), powered\_pump (Mesin Pompa)

kitchen:facilities

yes (Ada), no (Tidak ada)

toilet:facilities

yes (Ada), no (Tidak ada)

toilets:number

- Tabel Model Data Fasilitas Olahraga (GOR,Lapangan Olahraga, Stadium)

key

possible values

leisure

stadium (Stadion), sports\_centre (Pusat Kegiatan Olahraga / GOR), pitch (Lapangan Olahraga)

building

stadium, sports\_centre, yes (futsal field)

name

addr:full

addr:city

sport

soccer,futsal,basketball,badminton,tennis,volleyball,swimming,athletics,

baseball,cycling,multi

capacity:persons

<50, 50-100, 100-250, 250-500, >500

building:levels

building:structure

confined\_masonry, steel\_frame, wood\_frame, bamboo\_frame

building:material

brick , concrete, wood, bamboo, glass

building:floor  
 ground, wood, cement, tekhel, ceramics  
 building:roof  
 tile, tin, asbestos, concrete  
 access:roof  
 yes, no  
 building: condition  
 poor, good  
 ground\_floor:height  
 building ground floor to the surface in metre  
 backup\_generator  
 yes, no  
 source  
 HOT\_InAWARESurvey\_2018  
 evacuation\_center  
 yes, no  
 shelter\_type  
 tent, building  
 water\_source  
 water\_works, manual\_pump, powered\_pump  
 kitchen:facilities  
 yes, no  
 toilet:facilities  
 yes, no  
 toilets:number  
 • Table of Park Data Model  
 key  
 possible values  
 leisure  
 park  
 name  
 addr:full  
 addr:city  
 source  
 HOT\_InAWARESurvey\_2018  
 evacuation\_center  
 yes, no  
 shelter\_type  
 tent, building

water\_source

water\_works, manual\_pump, powered\_pump

kitchen:facilities

yes, no

toilet:facilities

yes, no

toilets:number

## 10. Sarana Perairan

- Table of Water Tower Data Model

key

possible values

man\_made

water\_tower

name

operator

addr:city

source

HOT\_InAWARESurvey\_2018

- Table of Flood Gate Data Model

key

possible values

waterway

floodgate

name

operator

floodgate:unit

elevation

condition

good , poor

addr:city

source

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- Tabel Model Data Rumah Pompa

key

possible values

man\_made

pumping\_station

building

pumping\_station



name  
 addr:full  
 addr:city  
 operator  
 pump:unit  
 elevation  
 capacity:pump  
 <pump capacity (l/s)>  
 building:levels  
 building:structure  
 confined\_masonry, steel\_frame, wood\_frame, bamboo\_frame  
 building:material  
 brick , concrete, wood, bamboo, glass  
 building:floor  
 ground, wood, cement, tekheh, ceramics  
 building:roof  
 tile, tin, asbestos, concrete  
 access:roof  
 yes, no  
 building: condition  
 poor, good  
 backup\_generator  
 yes, no  
 source

HOT\_InAWARESurvey\_2018

- Table of Embankment Data Model

key  
 possible values  
 man\_made  
 embankment  
 name  
 material  
 concrete, stone, soil, sand  
 source

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- Table of River Data Model

key  
 possible values  
 waterway

river, riverbank, canal

name

width

source

HOT\_InAWARESurvey\_2018

- Table of Reservoir Data Model

key

possible values

landuse

reservoir

name

operator

addr:city

source

HOT\_InAWARESurvey\_2018

## 11. Gas Station

- Table of Gas Station Data Model

key

possible values

amenity

fuel

name

addr:full

addr:city

operator

<PT Pertamina, Shell, etc>

source

HOT\_InAWARESurvey\_2018

## 12. Administration Boundary

key

possible values

type

boundary

boundary

administrative

name

admin\_level

4 (Province), 5 (City / District), 6 (Sub-district), 7 (Village), 8 (Hamlet), 9 (Sub-Village), 10 (Sub-sub Village)

is\_in:province

is\_in:city (City)

is\_in:town (District)

is\_in:municipality

is\_in:village

is\_in:RW

flood\_prone

[\*only for sub village relation]

yes,no

landslide\_prone

[\*only for sub village relation]

yes,no

source

HOT\_InAWARESurvey\_2018

### **13. Road Network**

key

possible values

highway

motorway , trunk , primary , secondary , tertiary , service , residential , pedestrian, path , living\_street, track

name

layer

5,4,3,2,1,-1,-2,-3,-4,-5

width

lanes

surface

asphalt , concrete, metal, wood, grass, ground, gravel, mud, sand, paving\_stones

smoothness

good, intermediate, bad, impassable

motorcycle

yes,no

oneway

yes, no

ref

source

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## b. Data Type in OpenStreetMap Based on Object

After knowing data model based on object tag in OpenStreetMap particularly in HOT-PDC InAWARE Project, you also need to know data type based on the object itself. The table below shows you what type of data for each object that you can add into OpenStreetMap:

### Color Information:

- Green Color means the object **allowed** to be mapped in that data type
- Red Color means the object **not allowed** and **prohibited** to be mapped in that data type

Table of Object and Its Data Type in *OpenStreetMap*

No	Infrastructure	Object	Data Type			
			Point (Nodes)	Polygon (Building)	Polygon (Area)	Line (Ways)
1	Economic Facilities	Traditional Market				
2		Supermarket				
3		Bank				
4	Education Facilities	University				
5		College				
6		School				
7		Kindergarten				
8	Health Facilities	Hospital				
9		Small Hospital, Clinic				
10	Communication	Communication Tower				
11	Emergency Services	Police Office				
12		Fire Station				
13		Hydrant				
14	Government	Government Office (Governor, Town Hall, Sub District, Village, Sub Village)				
15		Government Institution (Ministry)				
16	Electricity	Power Tower				
17		Power Sub Station				
18		Power Plant				
19	Transportation	Airport				
20		Bus Station				
21		Train Station				
22		Harbour / Dock				
23	Public Facilities	Place of Worship (Mosque, Church, Temple)				
24		Sport Facilities (Stadium, Sports Field, Sport Center)				
25		Park				
26		Gas Station				
27	Water	Water Tower				
28		Water Gate				
29		Pump House				
30		Embankment				
31		River				
32		Lake / Dam				
33	Administration Boundary	Administration Boundary (City, Sub-District, Village, Sub-Village)				
34	Road Network	Road Network				

Figure 1: Object Data Type Table

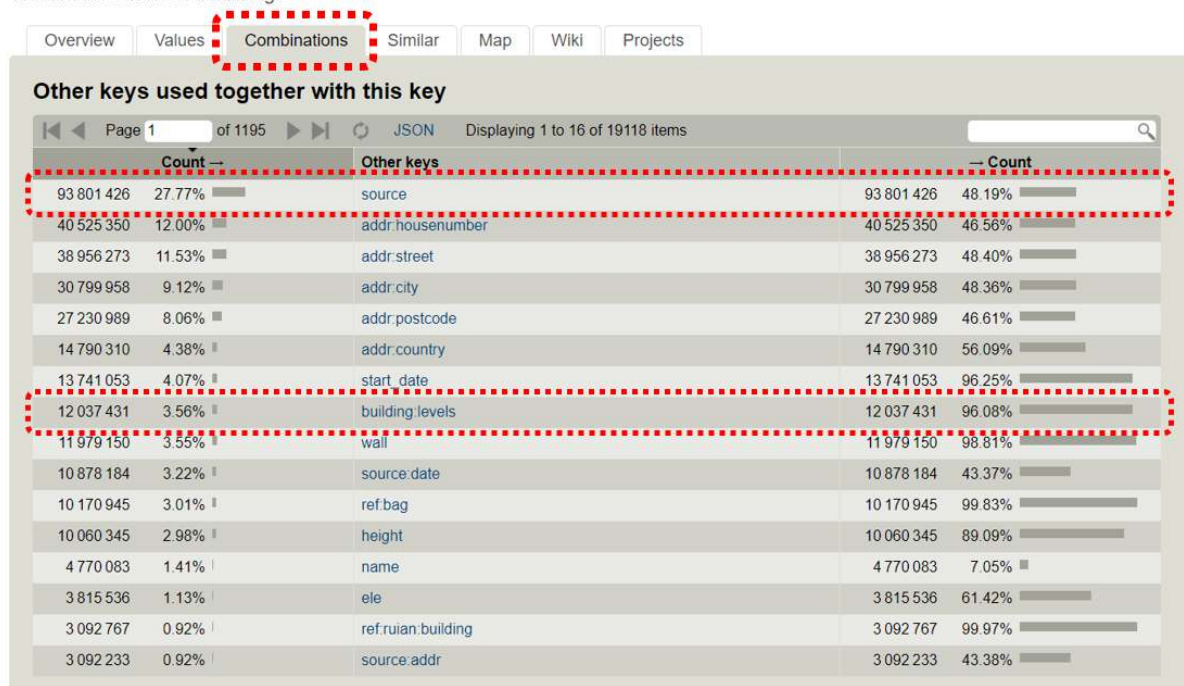
## V. Search key and value in Tag Info Website

On previous subchapter, you have been explained about a guideline to see key and value in *OpenStreetMap* using *Map Features* and Indonesia *OpenStreetMap* Wikipedia page. However, there are certain *key* and *value* that do not explained in the page especially detail and specific information of certain object. For instance, for **building capacity** or **building floor material**. To see the information (*tag*) you can visit a website called tag info: <https://taginfo.openstreetmap.org/>



## building

To mark the outline of a building.



### Example Combination of tag and value in Tag Info

You can choose *Combinations* tab and you will see some combinations for *building* key that commonly used by *OpenStreetMap* contributor. For instance, if you are looking for information about source of building and building level, you can use **source** and **building:levels**. Moreover, you can see another combination for key and value related to building. You can see how often the key have been used in *OpenStreetMap* by look at *Count* colom. The bigger the number means the key more often and commonly used by *OpenStreetMap* contributors all over the world.

Notes : key and value in *OpenStreetMap* HAVE TO BE WRITTEN in English key and value in *OpenStreetMap* HAVE TO BE WRITTEN in lower case Information interface can be set to show in Bahasa Indonesia on *JOSM* by editing / make special presets Make new presets will be explained in other module called Making *OpenStreetMap* Presets

### SUMMARY

Congratulation! You have learned about data model in *OpenStreetMap* . This material is important and really to be understand by *OpenStreetMap* contributors so you can do your mapping based on international standard from *OpenStreetMap* community guidelines. Moreover, you also have known about certain websites which can help you to find the information (tag) for you mapping objects such as *OSM wiki Map Feature Indonesia*, *OpenStreetMap Wikipedia page*, and *Tag Info*.