UP08/22: KURSUS PERISIAN ARCGIS LANJUTAN

SEMAKAN TOPOLOGI

Salina Binti Ibrahim
Pusat Geospatial Negara (PGN)

TOPOLOGI?

- Topology → *spatial relationship* ataupun hubungkait spatial di antara *feature-feature* samada di dalam layer yang sama ataupun di dalam layer yang berasingan.

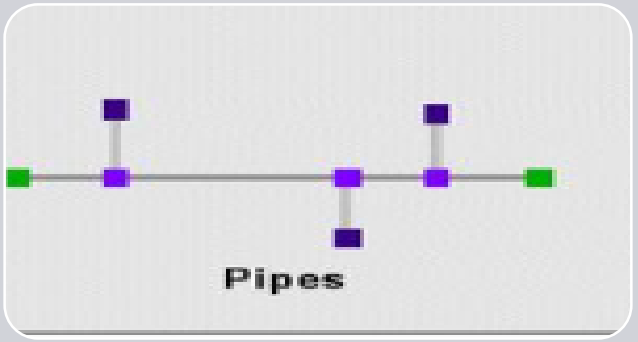
*(defines how **point, line, and polygon** features share coincident geometry)*

KEPENTINGAN TOPOLOGI

Konsep topologi digunakan di dalam GIS untuk;

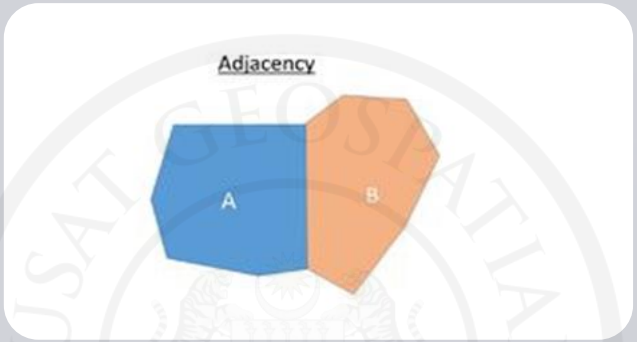
1. Menjamin kualiti dan integriti pada data spatial
2. Menambah baik analisis GIS

COMPONENT OF TOPOLOGY



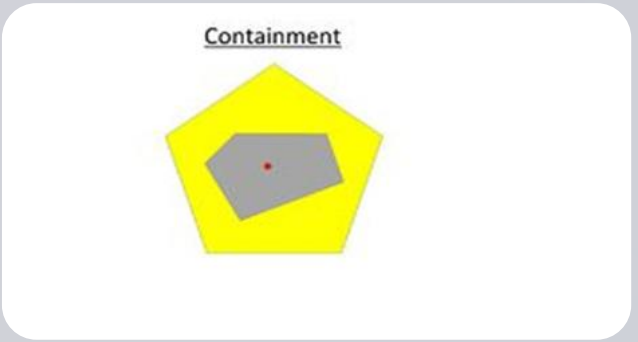
Connectivity

how lines are connected to each other to form a network.



Adjacency

describes whether two areas are next to each other



Containment

describes whether two areas are nested.

TYPES OF TOPOLOGY

Types of Topology

Line features can share endpoints

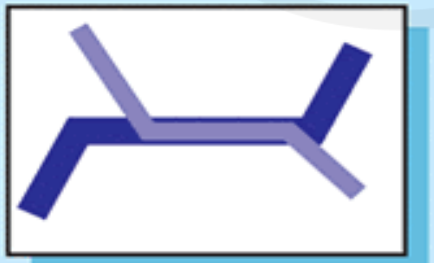
arc-node topology

Area features can share boundaries

polygon topology

Line features can share segments with other line features

route topology



Area features can overlap with other area features

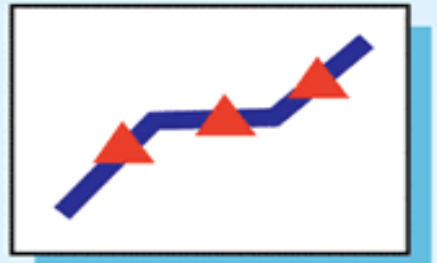
region topology

Line features can share endpoint vertices with point features

node topology

Point features can share vertices with line features

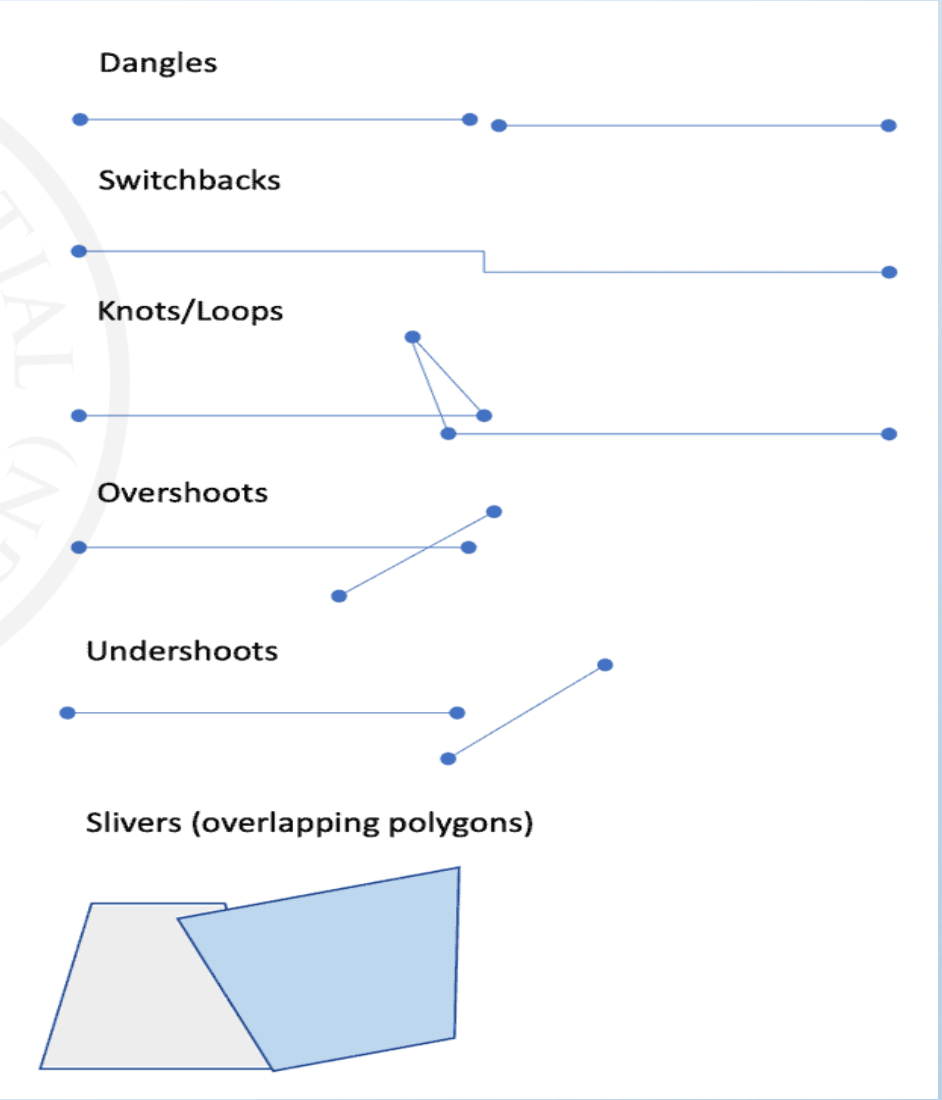
point events



TOPOLOGICAL ERRORS

Topological errors can occur when

- data is scanned or digitized.
- the result of human or computer error.
- occur when raster data is turned into vector data.



SEMAKAN TOPOLOGI

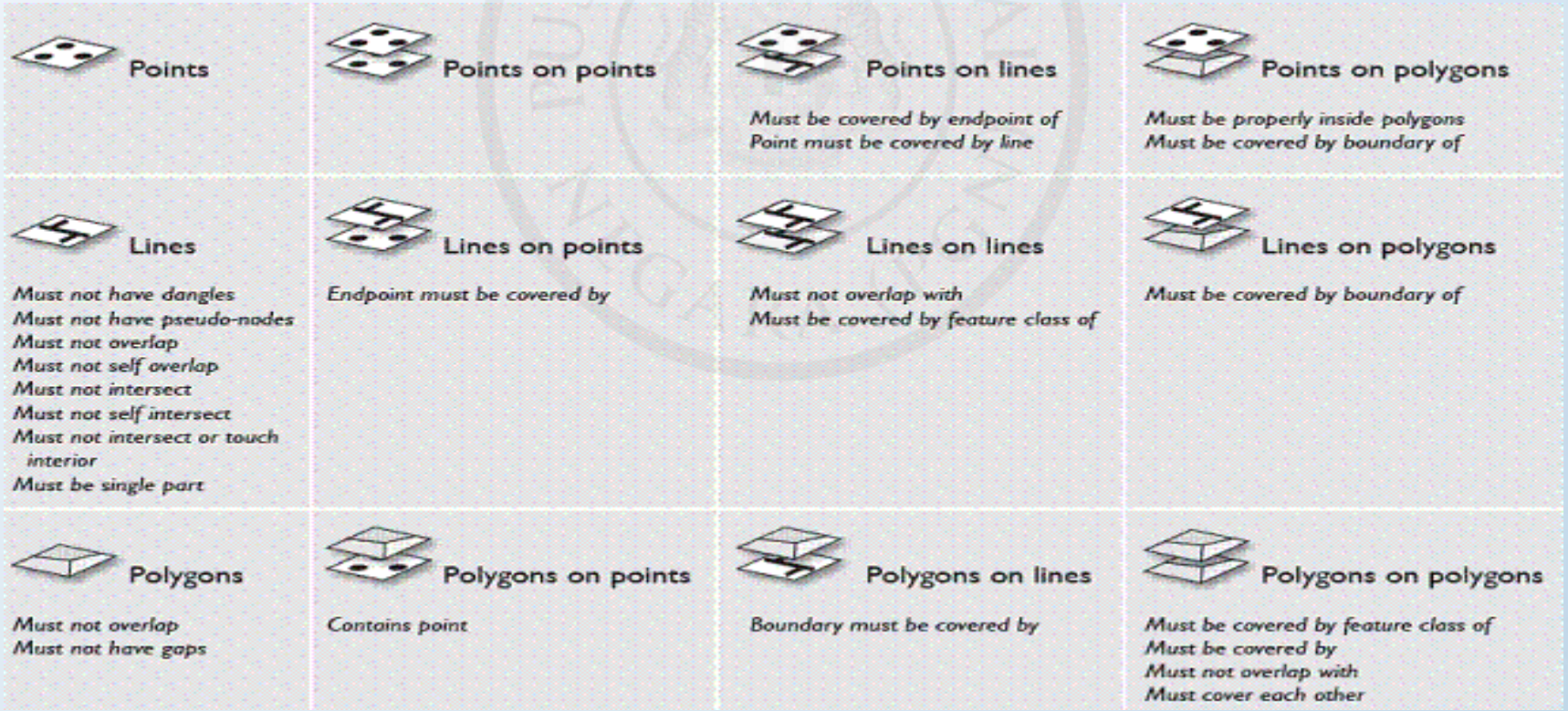
Semakan Topologi mengguna ArcMap;

1. Map Topology

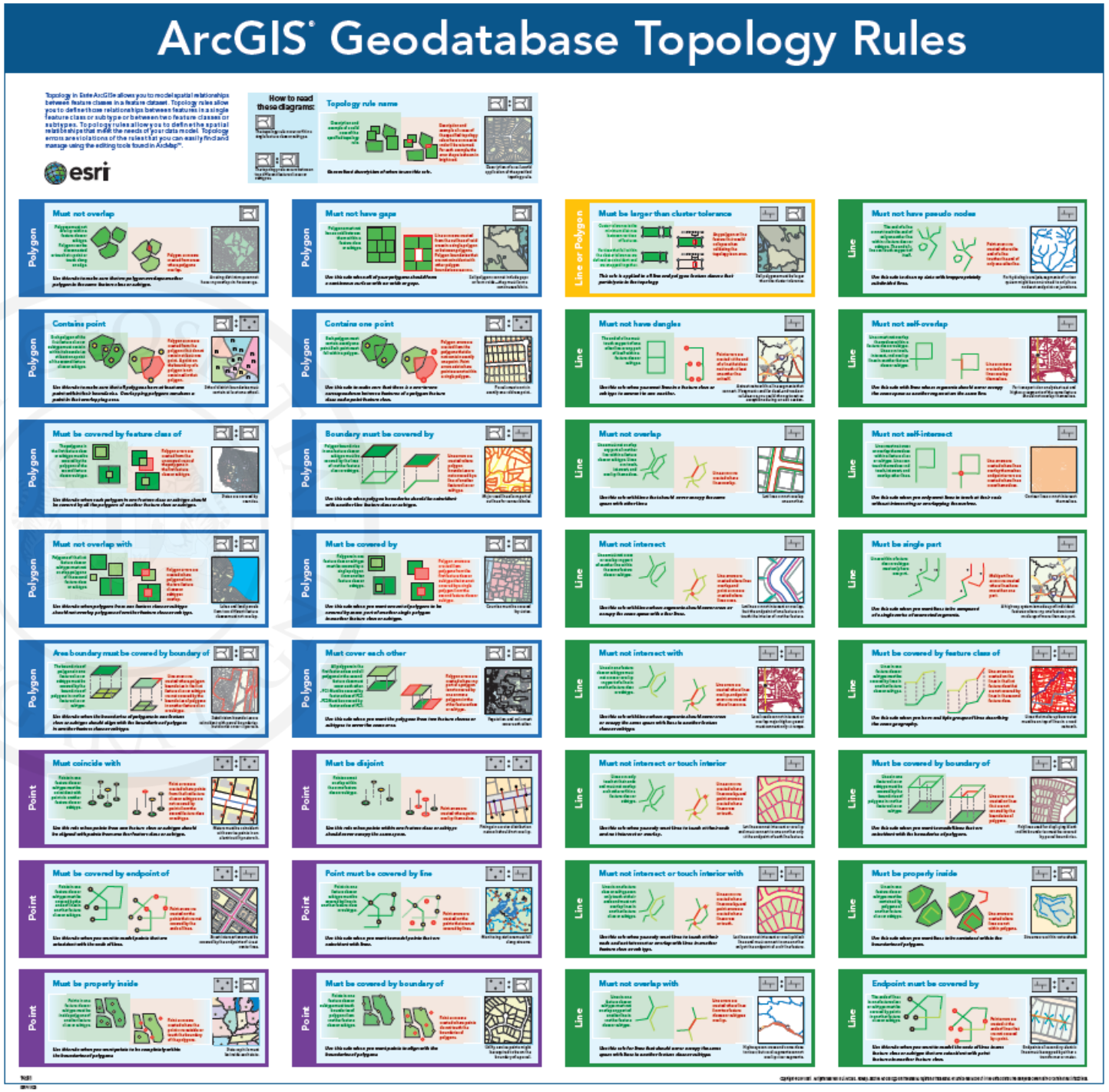
2. Geodatabase Topology Rules.

TOPOLOGY RULES

- Topology Rules adalah set aturan yang kita tetapkan pada data kita untuk memastikan data kita tu konsisten dan bebas dari ralat-ralat topology yang tidak sepatutnya ada pada data tersebut.



- **Nama File: topology_rules_poster.pdf.**
- C:\Program Files(x86)\ArcGIS\Desktop10.4\Documentation.



How to read these diagrams:

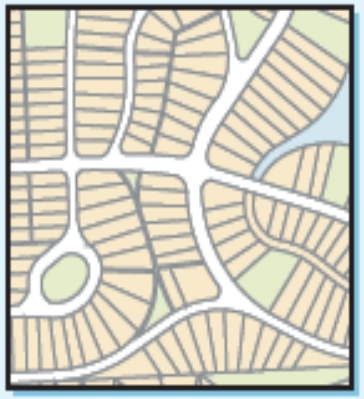
The topology rule occurs within a single feature class or subtype.

The topology rule occurs between two different feature classes or subtypes.

Topology rule name

Description and example of a valid case of the specified topology rule.

Description and example of a case of the specified topology rule where errors exist and will be returned. For each example, the error shape is shown in bright red.



Description of a real-world application of the specified topology rule.

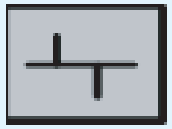
Generalized description of when to use this rule.

Rules *Must not overlap* hanya boleh digunakan untuk menyemak data feature polygon

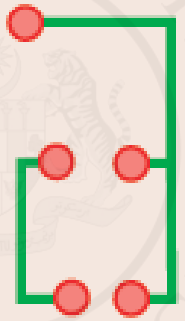
*contoh melihat lot bertindih, zon gunatanah bertindih dan lain-lain.

Line

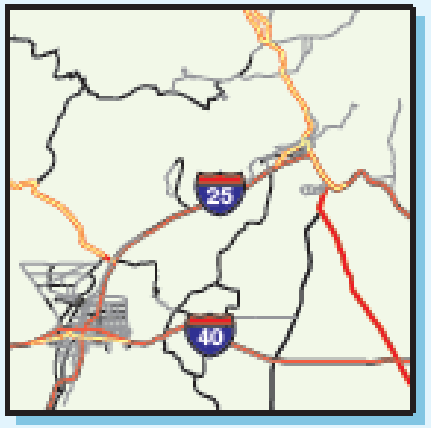
Must not have dangles



The end of a line must touch any part of one other line or any part of itself within a feature class or subtype.



Point errors are created at the end of a line that does not touch at least one other line or itself.

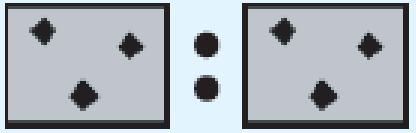


A street network has line segments that connect. If segments end for dead-end roads or cul-de-sacs, you could choose to set as exceptions during an edit session.

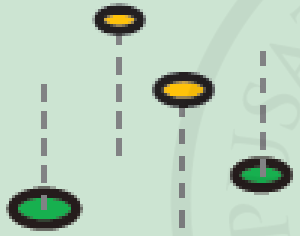
Use this rule when you want lines in a feature class or subtype to connect to one another.

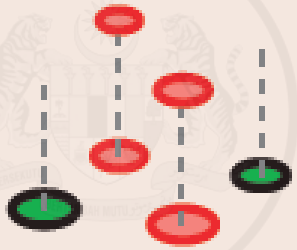
Point

Must be disjoint

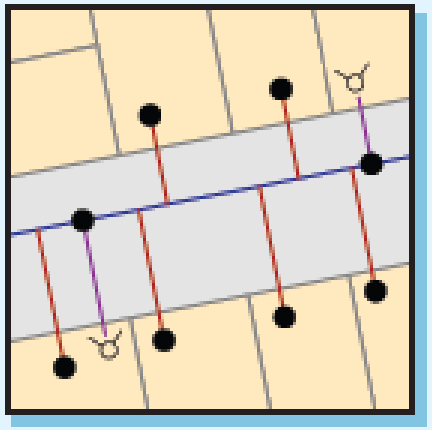


Points cannot overlap within the same feature class or subtype.





Point errors are created where points overlap themselves.



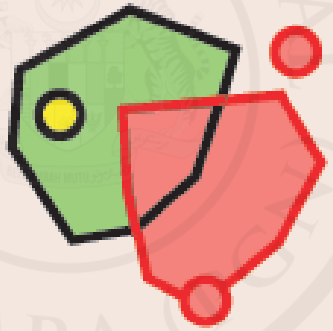
Fittings in a water distribution network should not overlap.

Use this rule when points within one feature class or subtype should never occupy the same space.

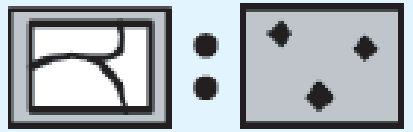
Polygon

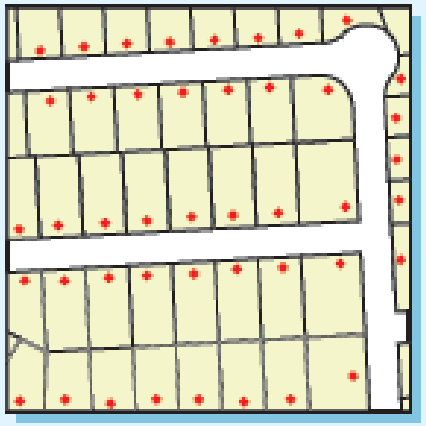
Contains one point

Each polygon must contain exactly one point. Each point must fall within a polygon.



Polygon errors are created from the polygons that do not contain exactly one point. Point errors exist where points are not within a single polygon.





Parcels must contain exactly one address point.

Use this rule to make sure that there is a one-to-one correspondence between features of a polygon feature class and a point feature class.

LATIHAN AMALI

SEMAKAN TOPOLOGI SECARA MAP TOPOLOGI

- Soalan

1. Mukim mana yg terlibat dalam topology error dan nyatakan?

2. Jenis topology error yang terlibat?

SEMAKAN TOPOLOGI SECARA GEODATABASE TOPOLOGY

1. Berapakah error **Must Not Overlap** yang dikenalpasti?
2. Berapakah error **Must Not Have Gap** yang dikenalpasti?

Rujukan

- http://www.sukagis.com/2012/06/membina-geodatabase-topology-rules.html
- https://desktop.arcgis.com/en/arcmap/10.3/manage-data/editing-topology/geodatabase-topology-rules-and-topology-error-fixes.htm
- https://www.esri.com/news/arcnews/summer02articles/arcgis-brings-topology.html
- http://wiki.gis.com/wiki/index.php/Topology

TERIMA KASIH

www.mygeoportal.gov.my
salina@ketsa.gov.my
08-88861227