ArcGIS® Geodatabase Topology Rules

Topology in ArcGIS® allows you to model spatial relationships between feature classes in a feature dataset. Topology rules allow you to define the spatial relationships that meet the needs of your data model. Topology errors are violations of the rules that you can apply to your data.

How to read these diagrams:
- Each diagram represents a topology rule.
- Each box contains a rule name and a brief description of the rule.
- The map shows an example of how the rule applies in different feature configurations.

Topology rule name
- Must not overlap: Polygons of the first feature class or subtype should not overlap polygons of any other feature class or subtype.
- Must not have gaps: Polygons of the first feature class or subtype should be covered by all the polygons of another feature class or subtype.
- Must be larger than cluster tolerance: Polygons of the first feature class or subtype should be larger than the cluster of polygons of another feature class or subtype.
- Must cover each other: Polygons of the first feature class or subtype should cover each other.
- Must coincide with: Points of the first feature class or subtype should coincide with the points of another feature class or subtype.
- Must be disjoint: Polygons of the first feature class or subtype should not intersect.
- Must not intersect: Polygons of the first feature class or subtype should not intersect each other.
- Must not overlap with: Polygons of the first feature class or subtype should not overlap polygons of another feature class or subtype.
- Must be properly inside: Points of the first feature class or subtype should be properly inside the boundaries of polygons of another feature class or subtype.
- Must be covered by boundary of: Polygons of the first feature class or subtype should be covered by the boundary of polygons of another feature class or subtype.
- Must be covered by line: Polygons of the first feature class or subtype should be covered by the line of another polygon.
- Must not have pseudo nodes: Polygons of the first feature class or subtype should not have pseudo nodes.
- Must not self-intersect: Polygons of the first feature class or subtype should not self-intersect.
- Must be single part: Polygons of the first feature class or subtype should be single part.
- Must not have dangles: Polygons of the first feature class or subtype should not have dangles.
- Must not have gaps: Polygons of the first feature class or subtype should not have gaps.
- Must not have overlap: Polygons of the first feature class or subtype should not overlap.
- Contains one point: Polygons of the first feature class or subtype should contain exactly one point.
- Contains point: Polygons of the first feature class or subtype should contain a point.
- Boundary must be covered by: Polygons of the first feature class or subtype should be covered by the boundary of polygons of another feature class or subtype.
- Area boundary must be covered by boundary of: Polygons of the first feature class or subtype should be covered by the boundary of polygons of another feature class or subtype.

Example of a valid rule:
- Must not overlap: Polygons of the first feature class or subtype should not overlap polygons of any other feature class or subtype.

Example of an invalid rule:
- Must not overlap: Polygons of the first feature class or subtype should overlap polygons of another feature class or subtype.

How to use ArcGIS® topology:
1. Define topology rules that meet the needs of your data model.
2. Apply topology rules to your feature dataset.
3. Analyze topology errors to identify violations of the rules.
4. Correct topology errors to ensure data integrity.

For more information, visit the ArcGIS® documentation or contact your local Esri representative.