

CENTERLINE TOPOLOGY:

Requirements:

- Arc Editor or above.
- Data must be in a Feature Dataset within a geodatabase.

Geodatabases:

If you maintain your data in a shapefile you can convert it to a geodatabase to run topology.

Step One: Creating the Geodatabase

Open ArcCatalog

- Right click on the folder you want to house the geodatabase and select New, personal geodatabase.
- Rename the GDB appropriately.

Step Two: Creating the Feature Dataset

- Right click on the geodatabase you created and select new, Feature Dataset. A setup wizard will open.
 - › Name appropriately.
 - › Select the projection your data is currently using. You can manually select this or you can import this information by browsing to a current copy of your data.
 - › Do not select a projection for the z values.
 - › Leave the default values for XY, Z and M tolerances.

Step Three: Importing your data

- Right click on your new feature dataset and select import, feature class single. A setup wizard will open.
 - › Input features: browse to the most current copy of your data.
 - › Output Location: This should be automatically populated with the file path to your new geodatabase.
 - › Output Feature Class: Name your feature class here.

You can now run topology!

Topology

Step One: Creating the Topology Feature

Open ArcCatalog

- Right click on the **FEATURE DATASET** within your geodatabase and select New, Topology.

Step Two: Navigating the Topology Wizard

Window 1: Select Next

Window 2: Select Next, accepting the default settings

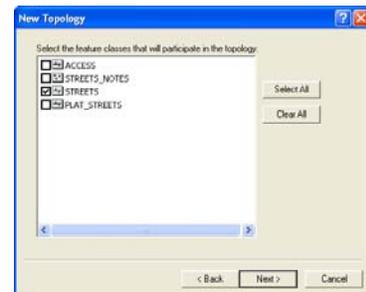
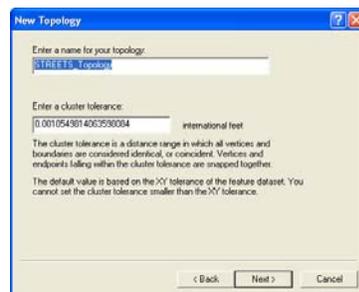
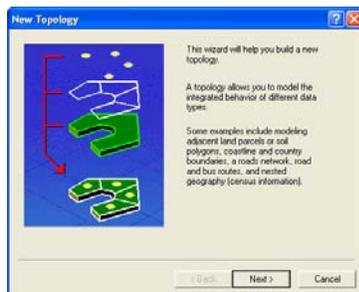
Window 3: Select your centerline feature

Window 4: Select Next, accepting the default settings

Window 5: Select Add Rule...

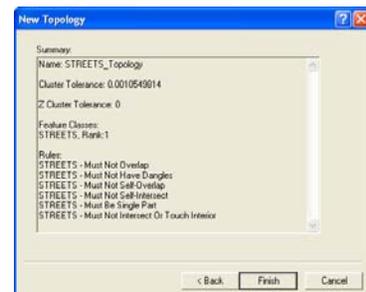
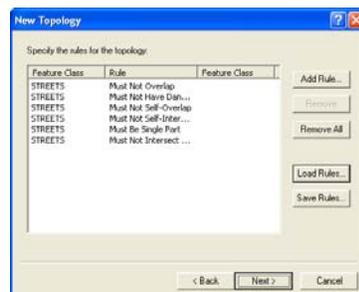
- Must Not Overlap
- Must Not Have Dangles
- Must Not Self-Overlap
- Must Not Self-Intersect
- Must Be Single Part
- Must Not Intersect Or Touch Interior

Window 6: Select Finish



Accept the default settings

Select Streets



Accept the default settings

Select Rules

Finish

Step Three: Validate Topology Select Yes

Topology Errors

Step One: Setting Up the .mxd

Open ArcMap

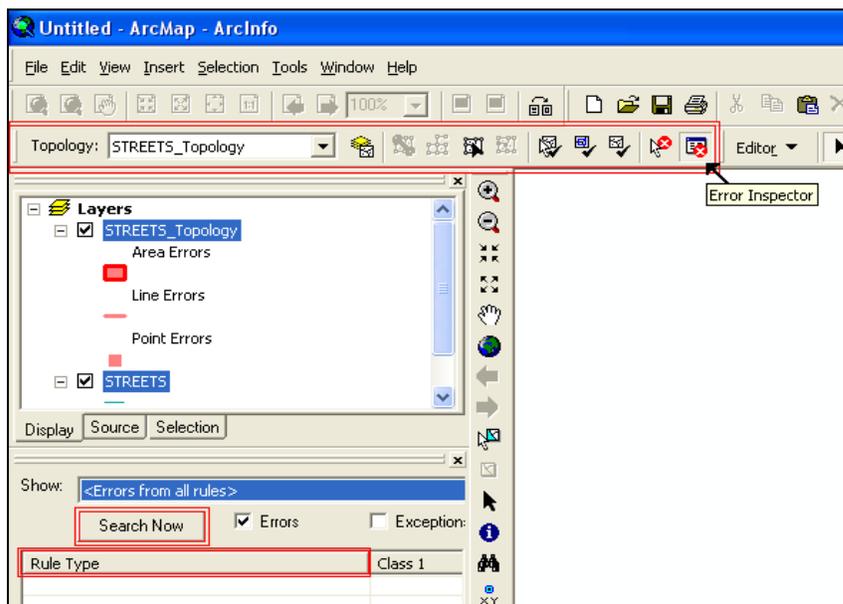
- Add the new centerline topology file.
 - › Add all feature classes that participated in the topology.
- Add all additional resource data you may need to correct attributes or centerline geometry. For example: Aerial photography or taxlot data.
- Make sure the Editor Toolbar is turned on.

Step Two: Setting Up the Topology Errors

Start editing

- Turn on the Topology Toolbar (see the image below for the following steps).
- Select the “Error Inspector” to display the error table.
- Select “search now” on the error table to display a list of all errors, making sure that the “Visible Extent Only” box is unchecked.
- Click the “Rule Type” header to sort the table by topology error.
- To view an error: click the error and then press “z” this will zoom to the specified error. If the flagged issue is not an error, right click on the row in the topology table and select “Mark as Exception.”

Hint: When selecting pan and exception you can use a shortcut by right clicking and then hitting “p” on the keyboard (for pan) or “x” on the keyboard (for exempt).



Correcting Topology Errors

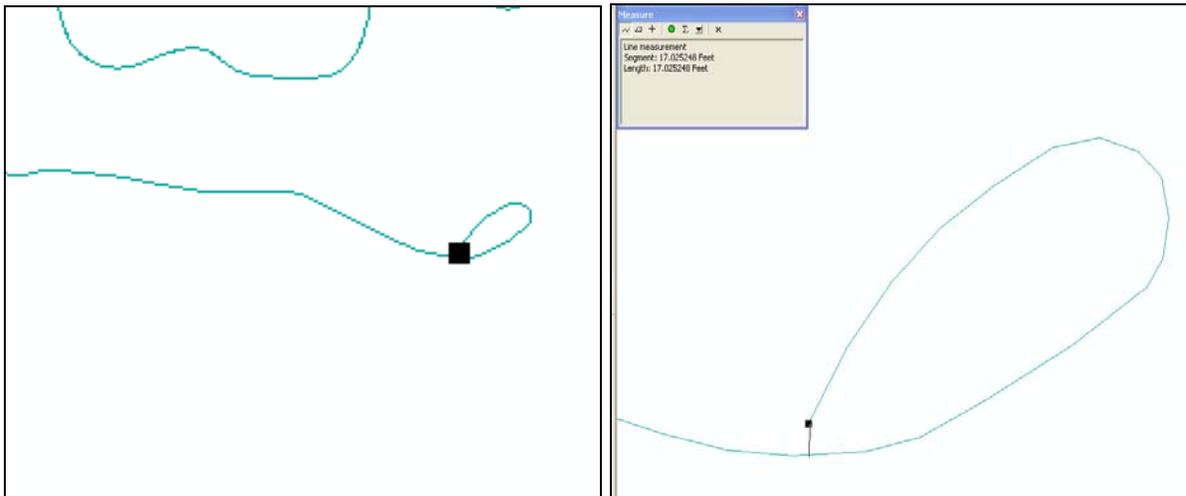
MAJOR ERROR TYPES

Must Not Have Dangles:

What to look for:

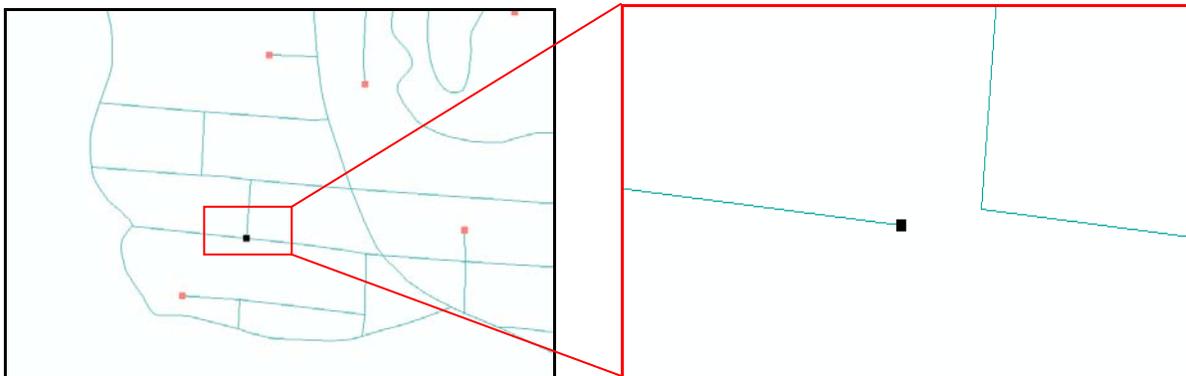
Most dangles are not errors. They're usually the ends of streets. However, when you zoom to a dangle and it looks as if the street continues or intersects with another street there may be a missing vertex or a snapping error.

Possible error #1



Measured distance: 17 feet

Possible error #2



Measured distance: .003 feet

Correcting Dangle Errors

If the line does not connect

Start editing

- Select the editor cursor and double click the line. Vertices should be visible.
- Snap the dangle vertex to the intersection. To do this you may need to create a vertex for it to snap to.

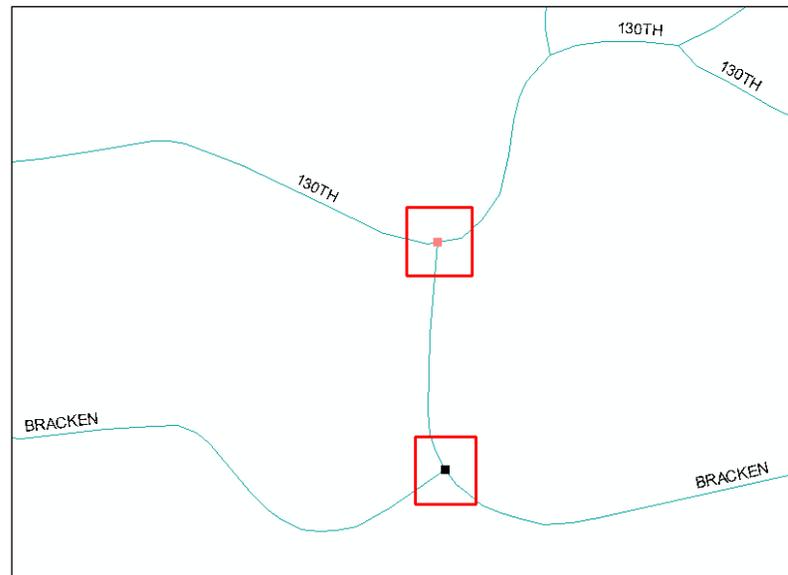
If the line extends beyond the intersection

Start editing

- Select the editor cursor and double click the line. Vertices should be visible.
- Right clicking directly over the vertex.
 - › Select delete vertex
- Make sure that the last vertex is snapped to the intersection correctly.

Must Not Intersect or Touch Interior:

These errors are generally found when two streets are supposed to intersect but one or both lines have not been split at an intersection. If you split a road, you must also adjust the ranges according to the addresses on that street.



Correcting Intersect/Touch Interior Errors

Start Editing

- Select the editor cursor and double click the line that needs to be split. Vertices should be visible.
- Verify that there is a vertex at the intersection. If there is not add a vertex in the appropriate location.
- Select the split tool.
- Click on the vertex at the intersection with the split tool.
- Assign an appropriate range for each segment according to addressing rules and geo-coding principles.

Multipart Features

Multipart features are point, line or polygon features that are spatially separate but linked as one feature. Some of the causes of this are missing vertices or accidental merges.

Correcting multipart features

If the line is missing a vertex and supposed to be one road

Start editing

- Select the editor cursor and double click the multi-part feature.
- Snap the vertices together where the line is broken.

If the lines are supposed to be two separate roads

Start Editing

- Turn on the Advanced Editing Toolbar.
- Select the multipart feature using the editor cursor.
- On the Advanced Editing Toolbar select "Explode Multi-Part Feature."
- Re-attribute each segment according to your resource data.

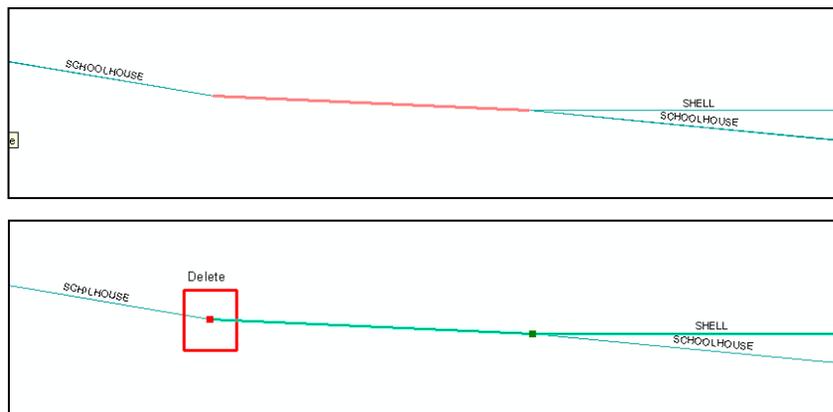
Overlaps

Overlaps generally occur when more than one vertex snaps to an intersecting street. In the example below Shell Rd and Schoolhouse St overlap.

To correct overlaps

You should be able to tell which road is overlapping the other by looking at the vertices and the Aerial Photography.

- Start editing and select the editor cursor.
- Double click the road that is overlapping the correct road.
- Right-click on the extra vertex/vertices and select delete vertex.



Once Corrections have been made

If you were working with a shapefile originally, you can export your Centerline data to a shapefile from the geodatabase.