

MRF GIS Tool Kit (MGTK) for ArcGIS 9.2

System requirement:

- MGTK works as an extension to ArcGIS 9.2 (ArcView, ArcEditor, or ArcInfo). MGTK provides ArcView users with valuable add-on capabilities.
- Windows operating system

Input layer formats supported:

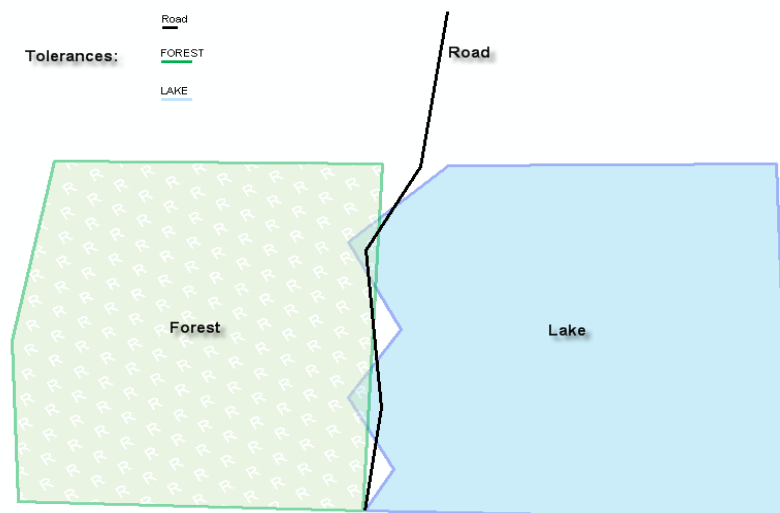
- Shapefiles
- Personal Geodatabase
- File Geodatabase

Major MGTK Capabilities

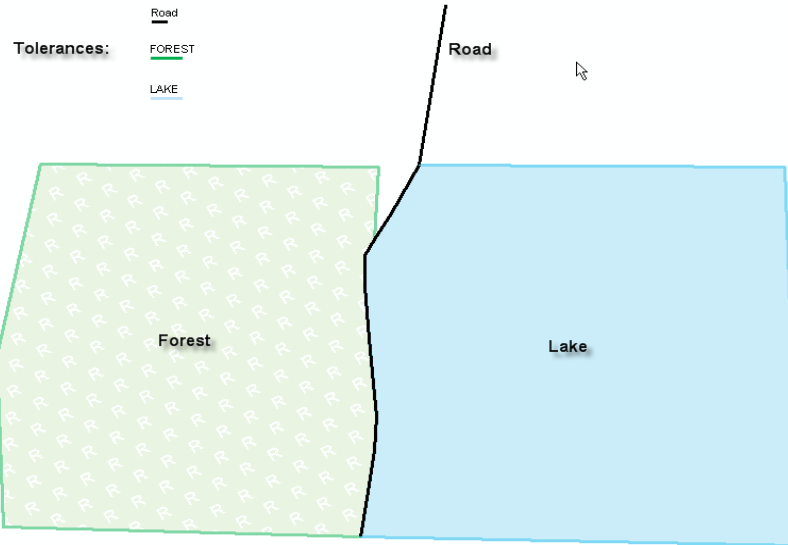
MGTK includes five modules: MRF Clean, MRF Flag Editor, MRF Polygon, MRF Overlay, and MRF Buffer.

- MRF Clean:
 - Cleans multiple layers with multiple tolerances simultaneously
 - Very efficient, user configurable workflows
 - Uses parameter files to enforce consistency and improve productivity
 - Creates output layers (input layers are kept intact)
 - Software includes a batch mode that can process many layers without operator intervention
 - Can create intersections (split lines where they intersect)
 - Can correct short geometries, overshoots, undershoots, duplicates, and near duplicates
 - Can join singly-connected linear features into longer linear features
 - Can conflate one layer to another layer
 - Can flag dangles, intersections and short geometries

Example 1: Clean multiple layers with multiple tolerances simultaneously (conflation)

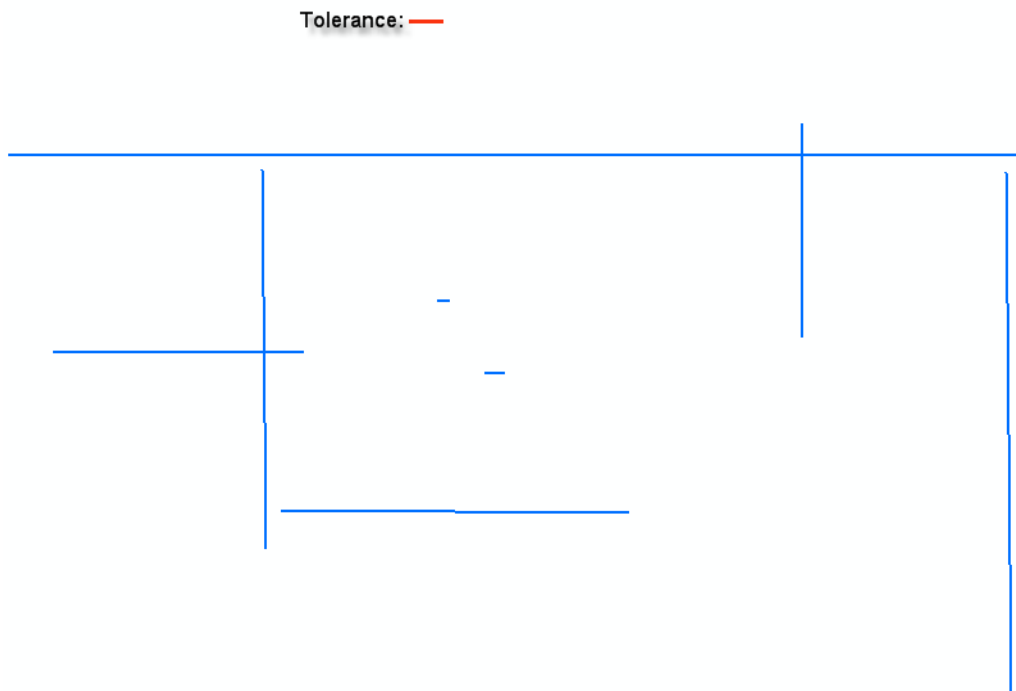


(Figure 1A.. before MRF Clean, the boundary of forest, the boundary of lake and road do not match with each other)

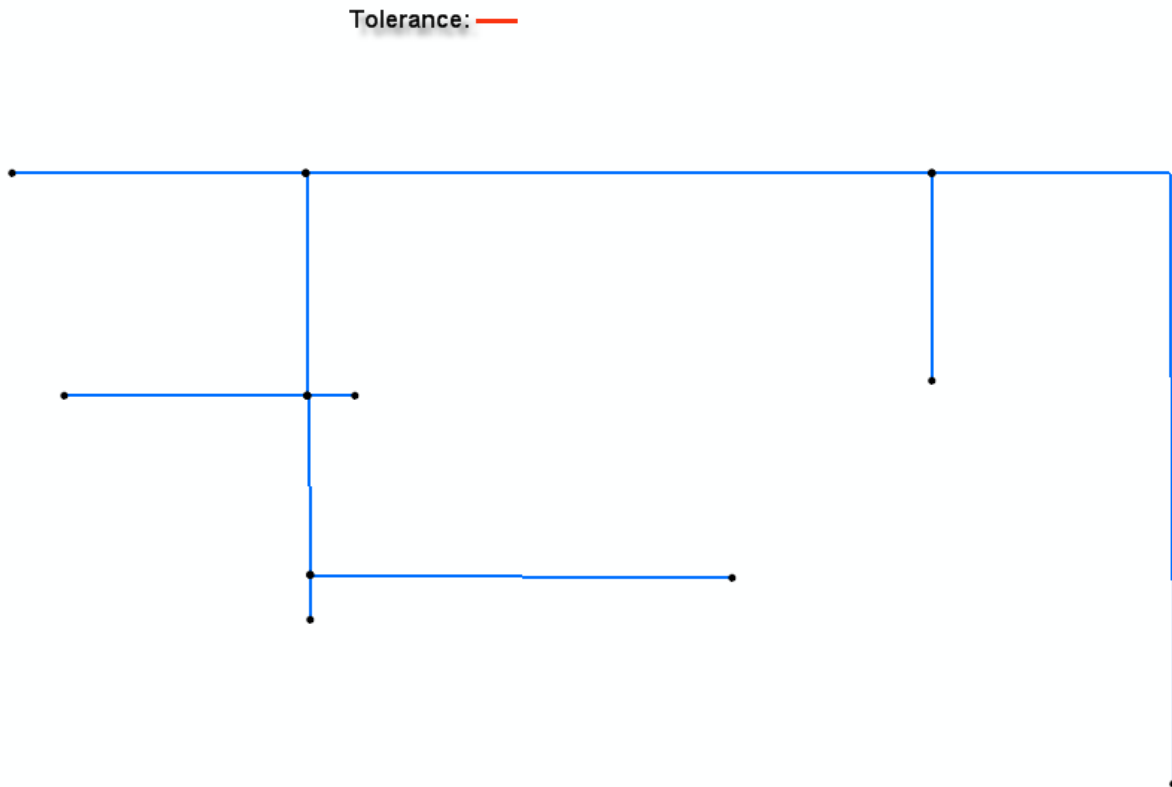


(Figure 1B. after MRF Clean, the boundary of forest, the boundary of lake and road were moved to match with each other)

Example 2: Correct short geometries, overshoots, undershoots, and create intersections (split lines where they intersect) in the data.

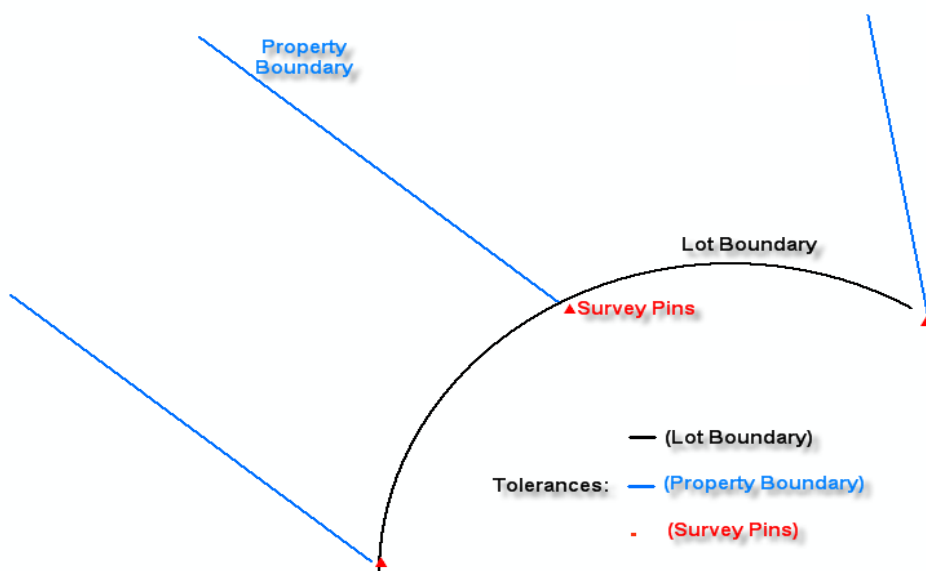


(Figure 2A. before MRF Clean, there are short geometries, overshoots, and undershoots in the data, and lines are not split at the intersections)

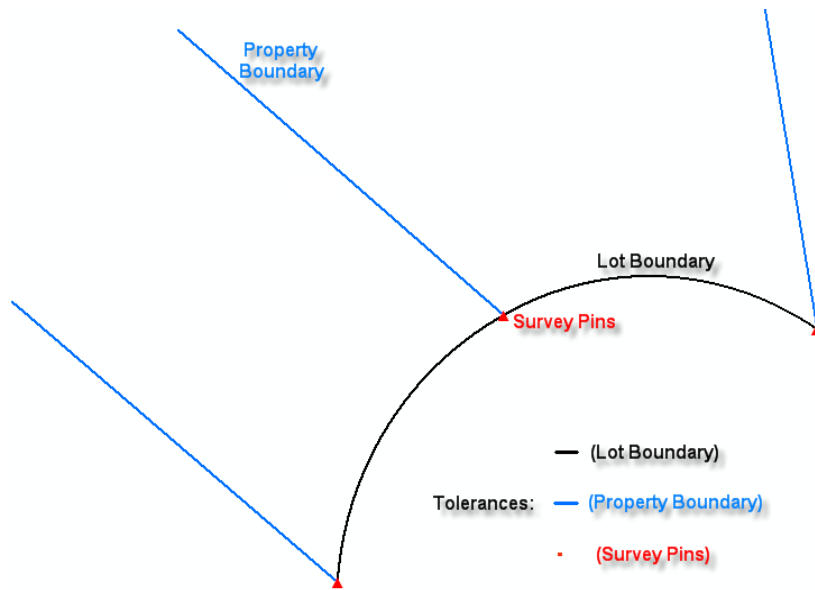


(Figure 2B. after MRF Clean, short geometries were removed, overshoots and undershoots were corrected, and lines were split at intersections)

Example 3: Clean multiple layers with multiple tolerances (snap low accuracy data layers to match with high accuracy data layer)

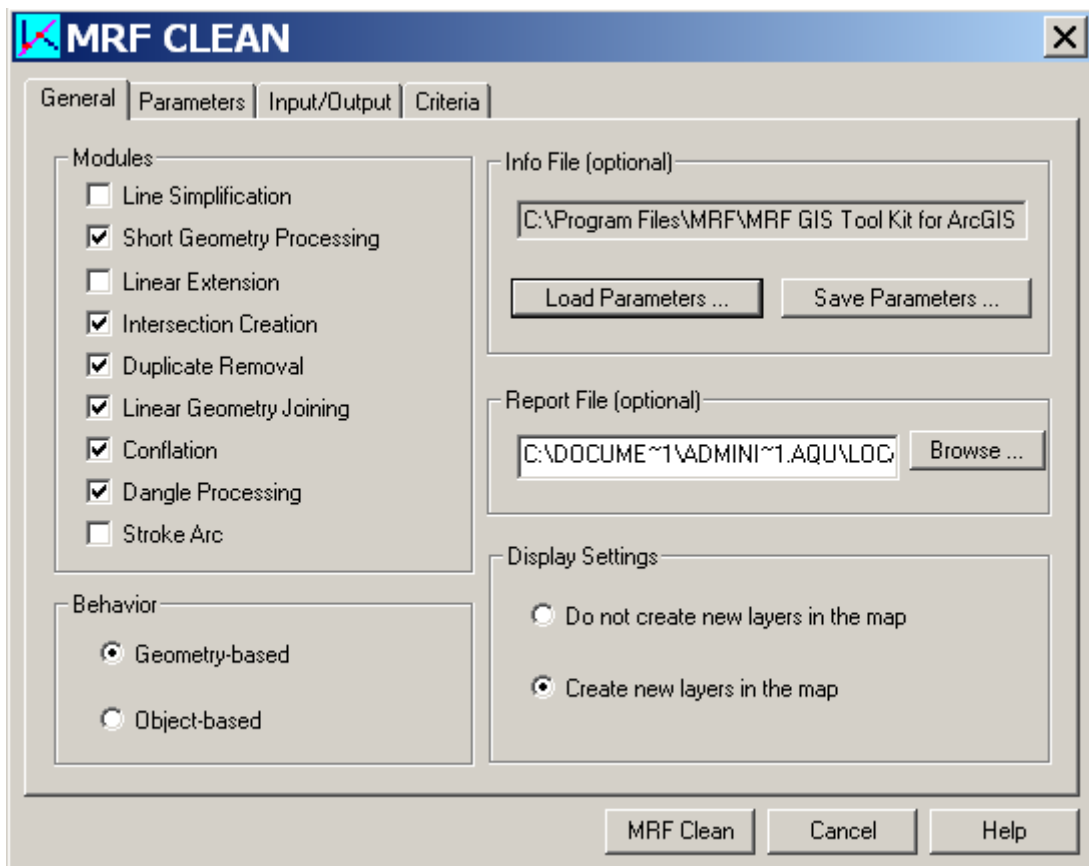


(Figure 3A. before MRF Clean, the Lot boundary and Property boundary do not connect to the Survey pins)

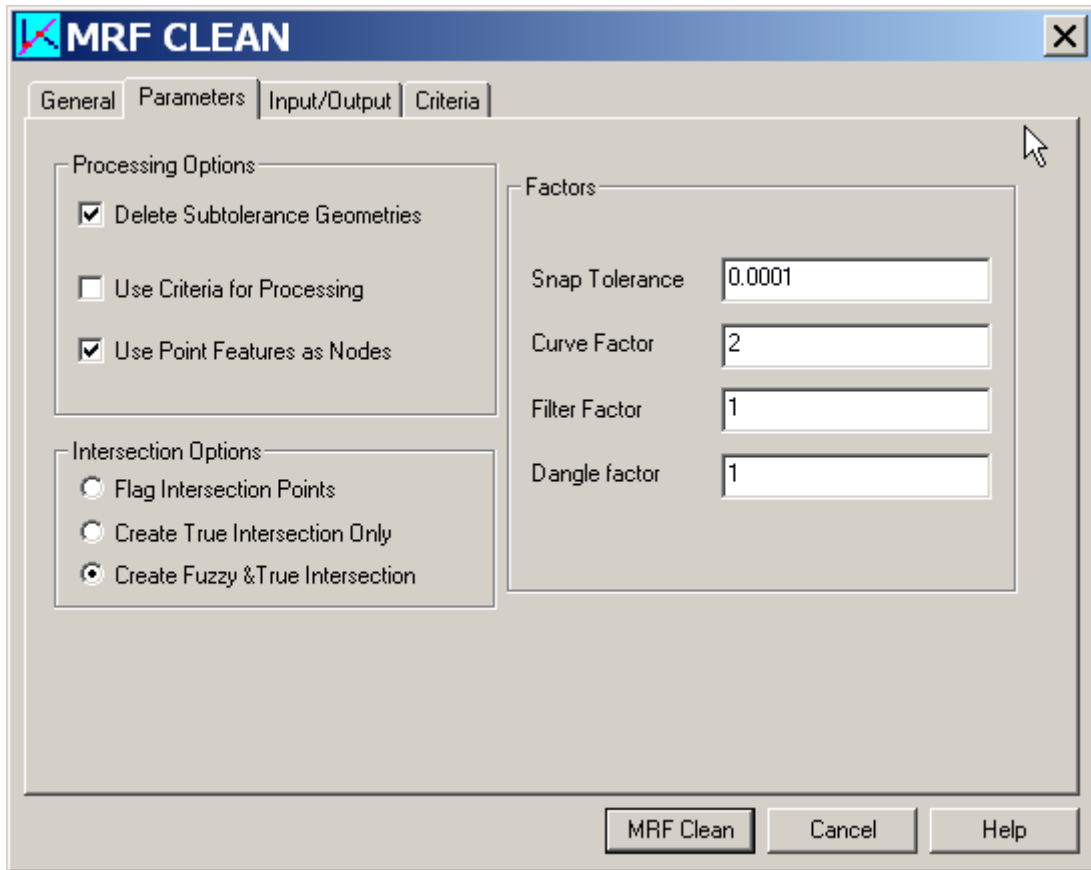


(Figure 3B. after MRF Clean, the Lot boundary and Property boundary were moved to connect to the Survey pins)

Example 4: User configurable workflows in MRF Clean

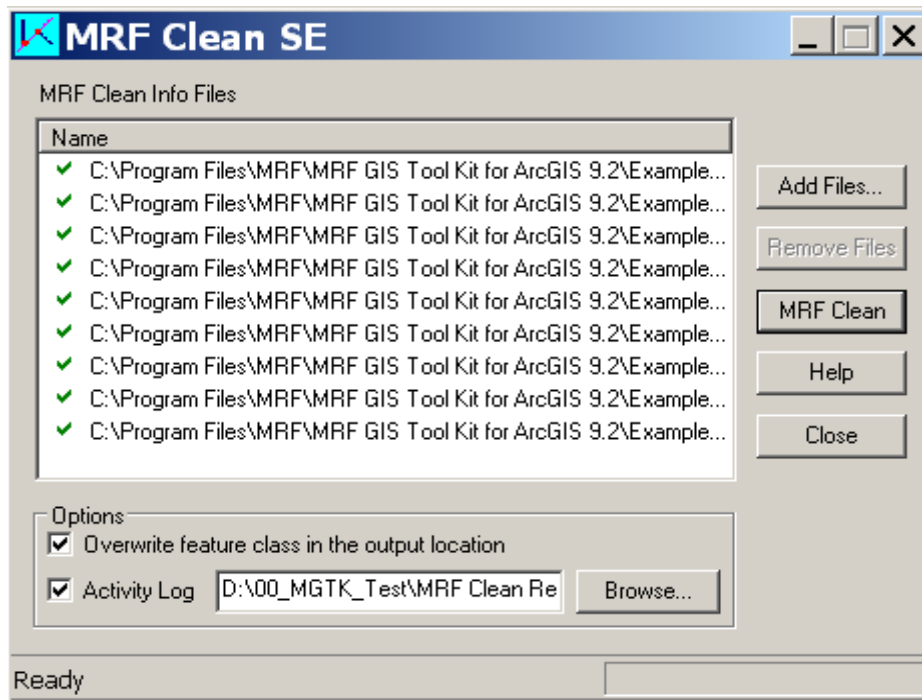


(Figure 4A. user can select any combinations of the 9 processing modules for Geometry-based or Object-based cleaning processing)



(Figure 4B. user can select one from 3 Processing Options and one from 3 Intersection Options for the clean processing)

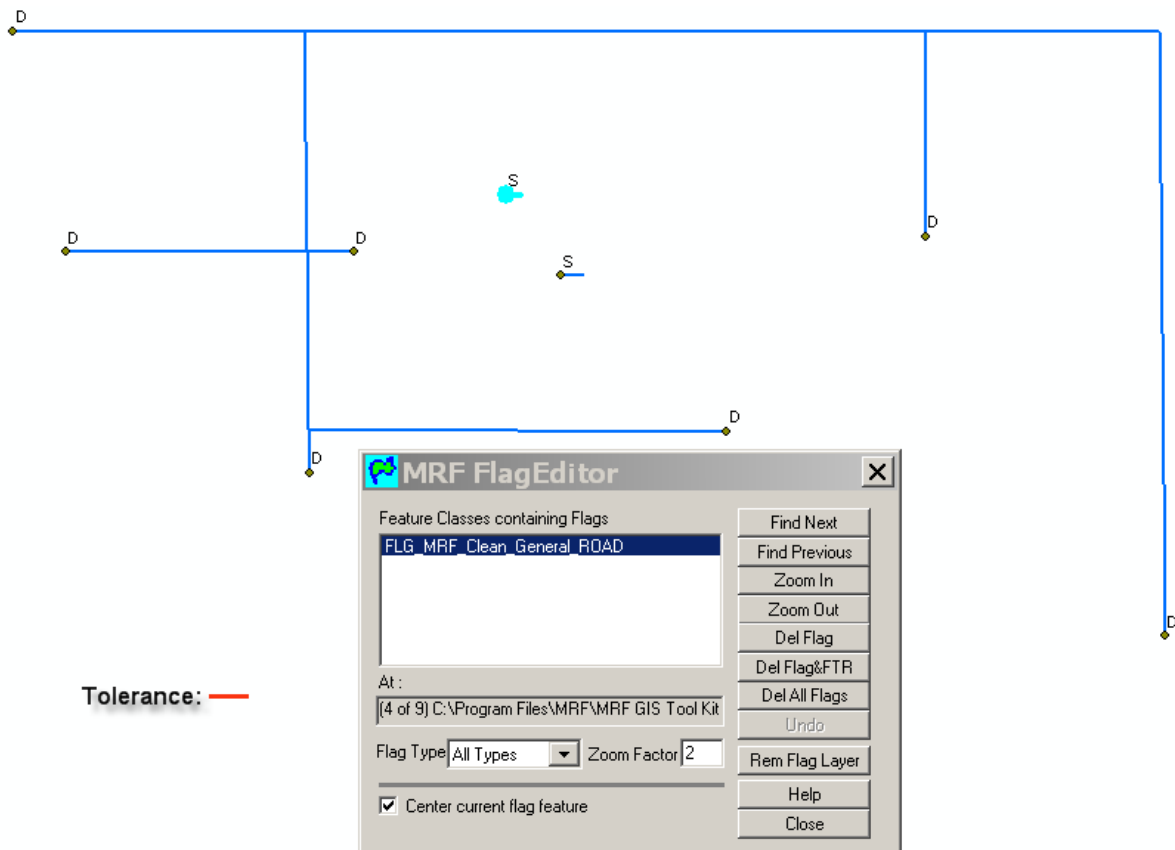
Example 5: Run MRF Clean in batch mode to process many layers without operator intervention.



(Figure5. Run MRF Clean in batch mode)

- MRF Flag Editor:
 - Allows the user to find dangles, intersections and short geometries very quickly
 - User can perform zoom in, zoom out, delete flag, delete flag and feature, go to the next flag, and go to previous flag
 - Reports total number of flags and current flag position

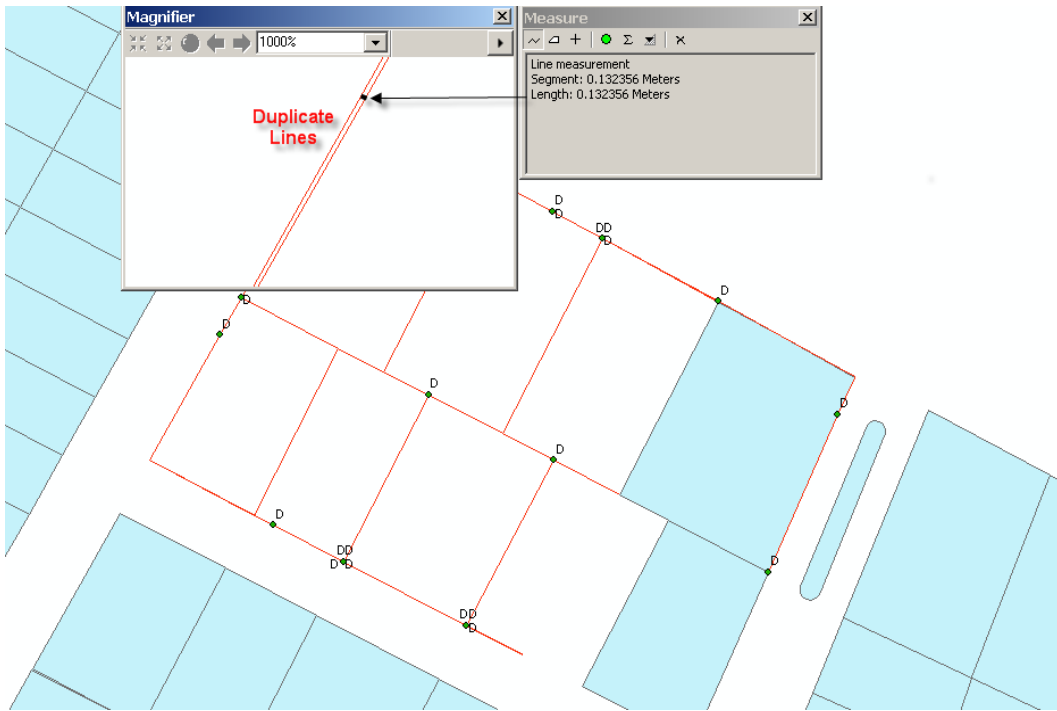
Example 1: Find dangles, intersections and short geometries in the data with MRF Flag Editor



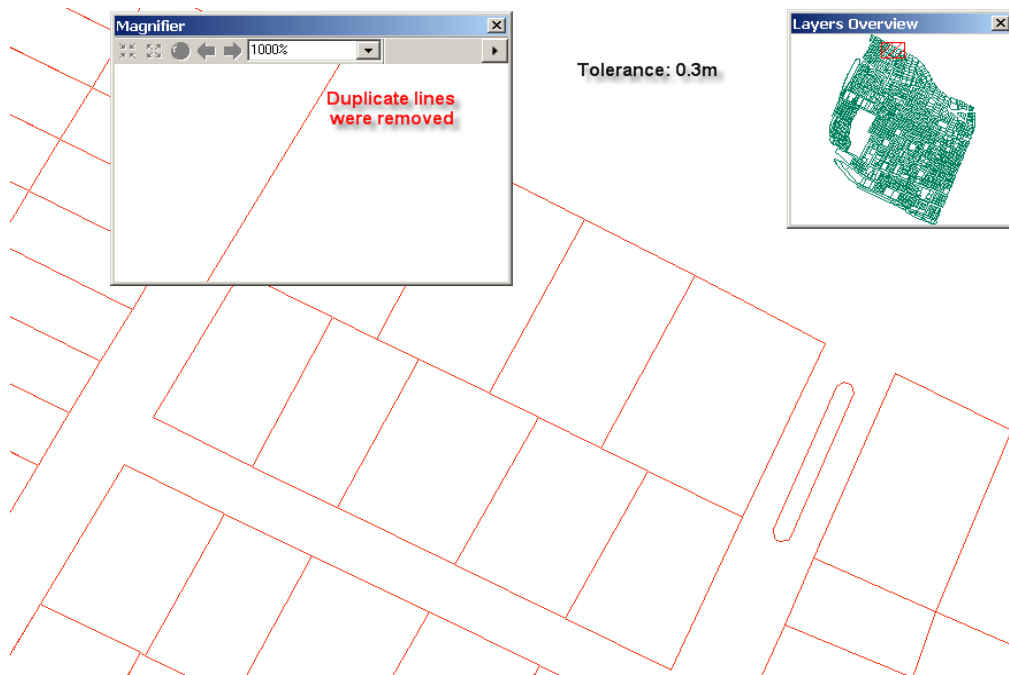
(Figure 6. Find dangles, intersections and short geometries in the data with MRF Flag Editor).

- MRF Polygon:
 - Forms polygons from clean linework automatically.
 - Flags geometry errors found in the polygonization process
 - Supports polygons with holes, lines and circular arcs
 - Very efficient
 - Uses parameter files to enforce consistency and improve productivity
 - Creates output layers (input layers are kept intact)
 - Software includes a batch mode that can process many layers without operator intervention

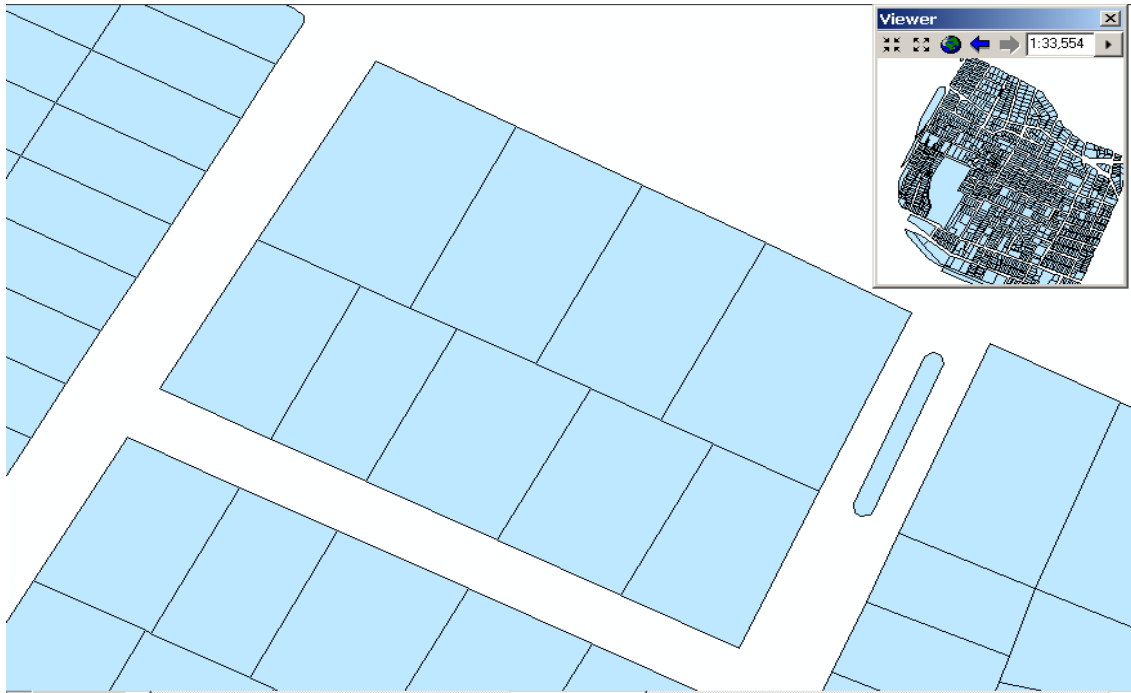
Example 1: MRF Polygon reports duplicate lines in the parcel line data



(Figure 7A. MRF Polygon reports duplicate lines in the parcel line data)

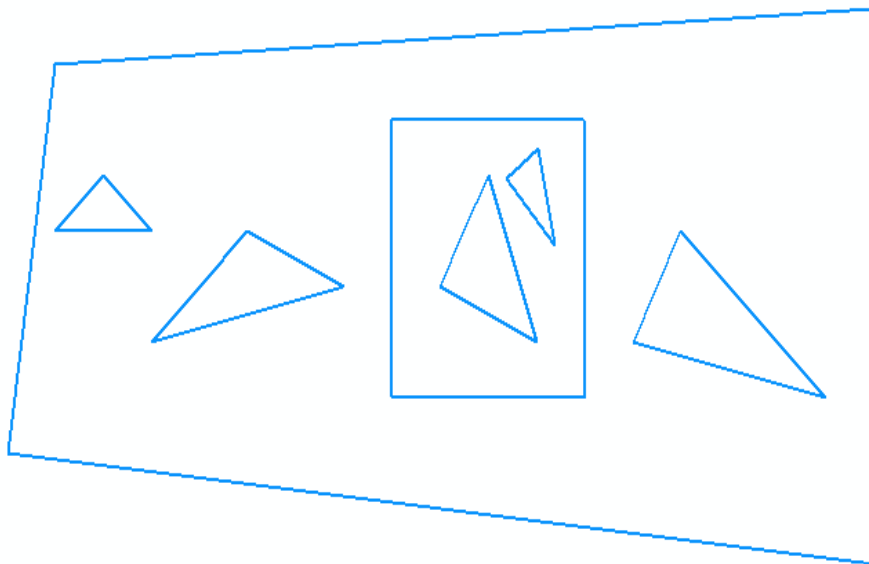


(Figure 7B. after MRF Clean, duplicate lines were removed from the parcel line data)

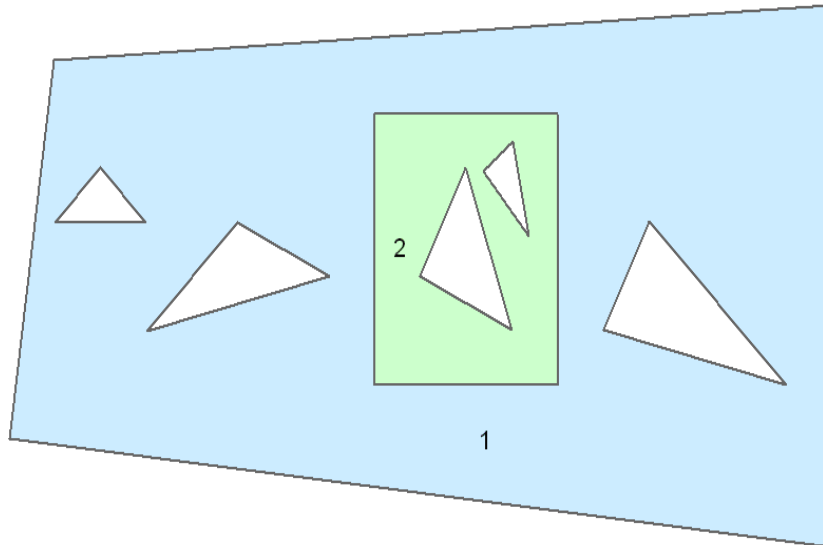


(Figure 7C. Formed parcel polygons after MRF clean)

Example 2: Form polygon with holes and island.



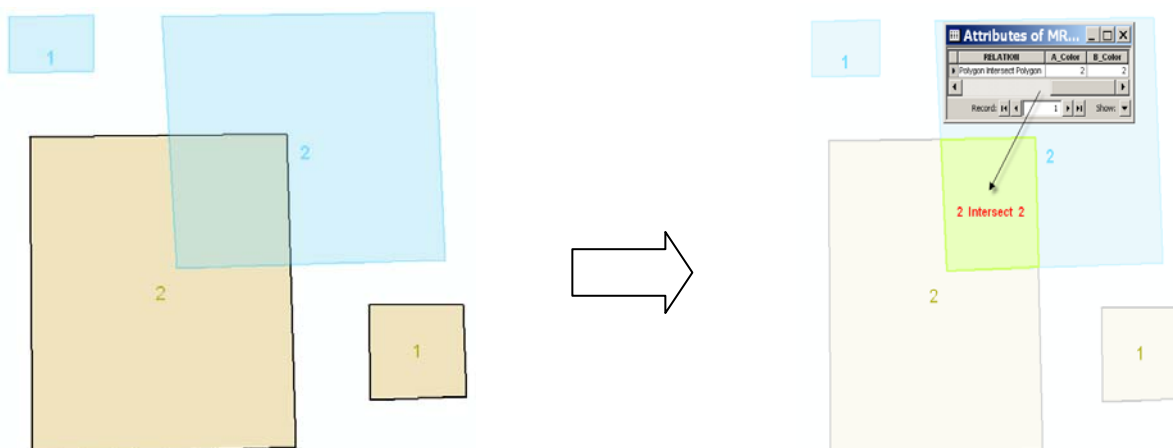
(Figure 8A. Input line layer data)



(Figure 8B. polygons with holes and island formed by MRF Polygon)

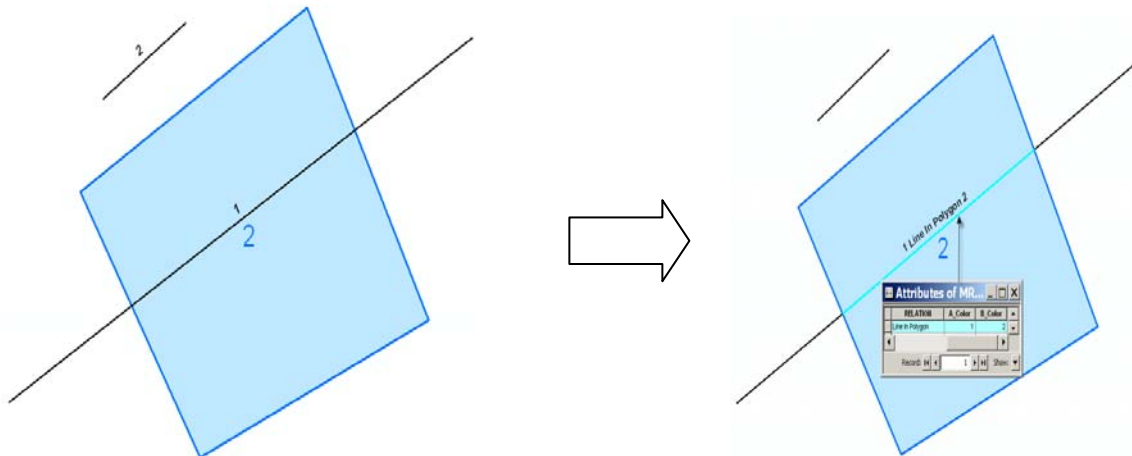
- MRF Overlay:
 - Supports point, linear, and polygonal layers
 - Supports AND, OR, NOT, Point-in-Polygon, and, Line-in-Polygon
 - Each layer can have a different tolerance. Large tolerance layer will be snapped to lower tolerance layer to avoid slivers.
 - Very efficient
 - Uses parameter files to enforce consistency and improve productivity
 - Creates output layers (input layers are kept intact)
 - Software includes a batch mode that can process many layers without operator intervention

Example 1: Polygon Intersect Polygon



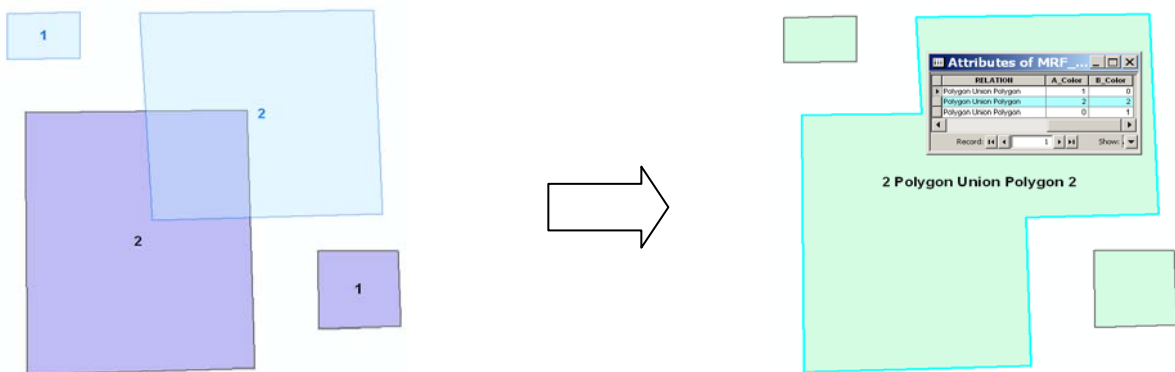
(Figure 9. Polygon-Polygon Intersection)

Example 2: Line in Polygon



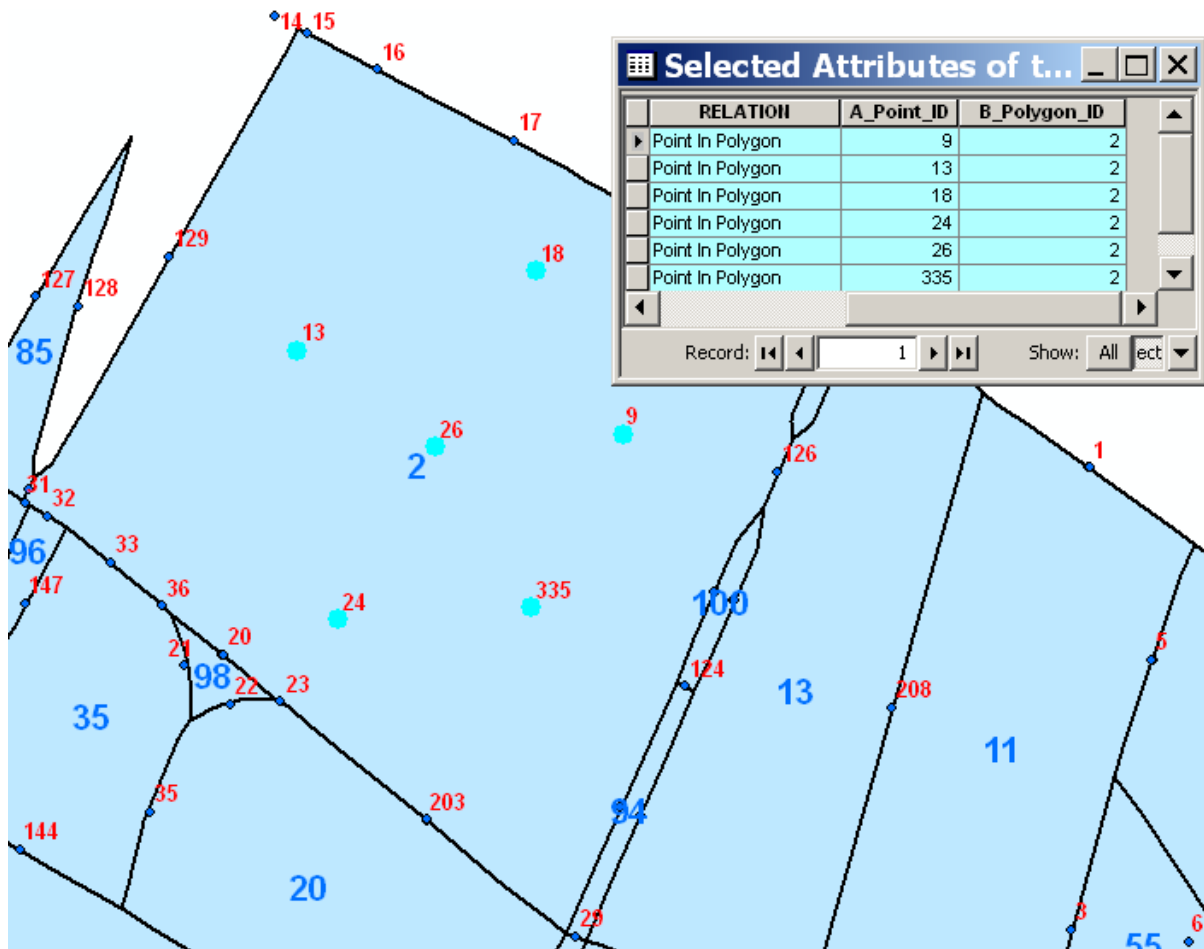
(Figure 10. Line in Polygon)

Example 3: Polygon union Polygon



(Figure 11. Polygon union Polygon)

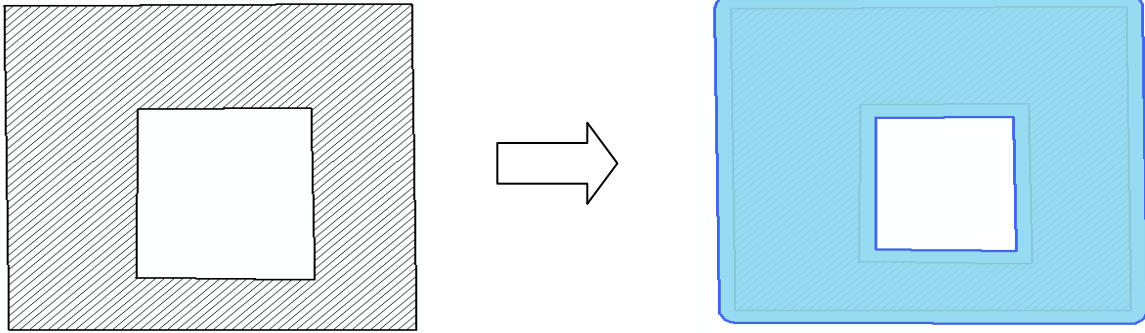
Example 4: Point in Polygon



(Figure 12. Point in Polygon)

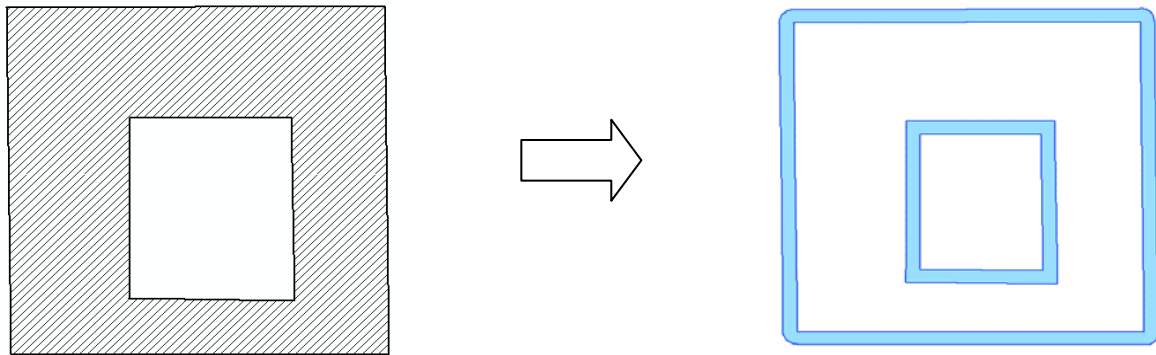
- MRF Buffer:
 - Supports point, linear, and polygonal layers
 - Supports Interior-Solid, Interior-Zone, Exterior-Solid, and, Exterior-Zone
 - Very efficient
 - Uses parameter files to enforce consistency and improve productivity
 - Creates output layers (input layers are kept intact)
 - Software includes a batch mode that can process many layers without operator intervention

Example 1: Exterior Solid Buffer



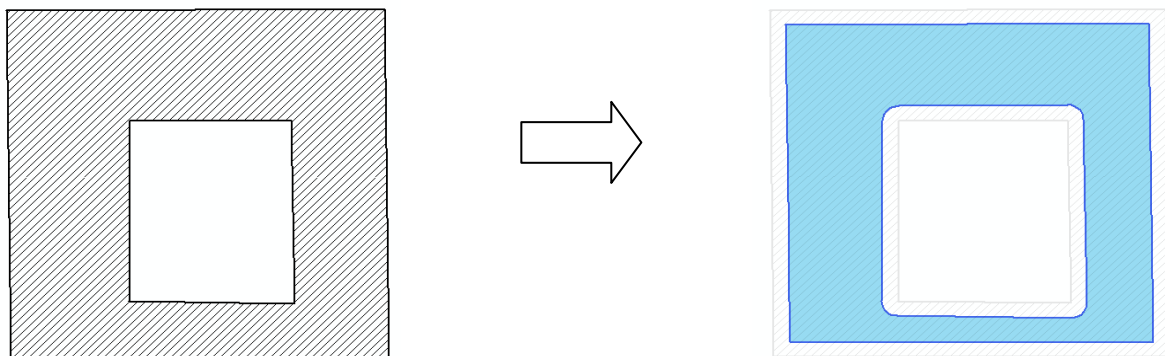
(Figure 13. Exterior Solid Buffer)

Example 2: Exterior Zone Buffer



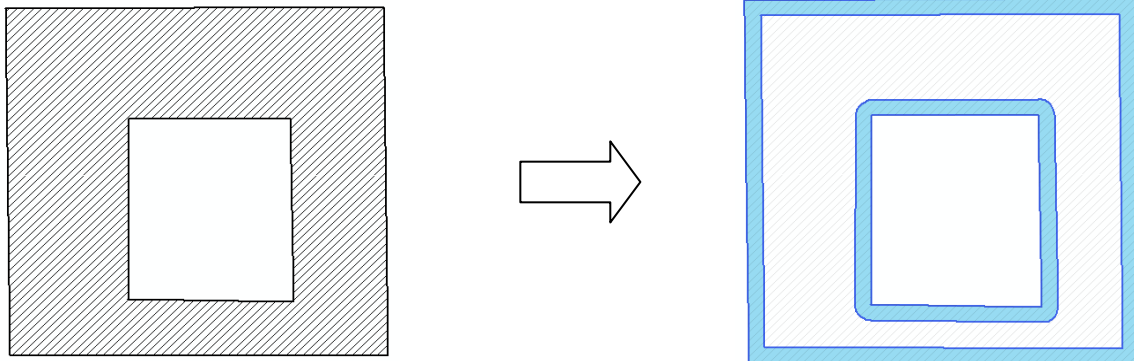
(Figure 14. Exterior Zone Buffer)

Example 3: Interior Solid Buffer



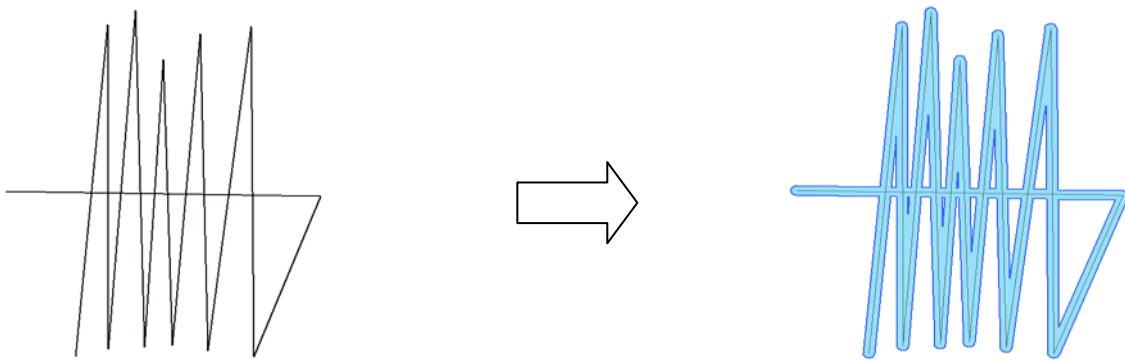
(Figure 15. Interior Solid Buffer)

Example 4: Interior Zone Buffer



(Figure 16. Interior Zone Buffer)

Example 5: Buffer of line features



(Figure 17. Buffer of line features)