Optimizing Editing Workflows with Attribute Assistant

Michael Miller
A tool to…
Streamlining your editing experience In ArcMap

- Increased productivity
- Reduces button clicks
- Ensures data entry
- Simplifies complex operations
- Standardize editing procedures
Attribute Assistant
ArcMap Add-in

- Editor Extension
- Configured through a GDB table
- 71 methods that can be triggered when
  - Feature created
  - Geometry modified
  - Attribute updated
  - Manually
- Source code available on github
Available as part of ArcGIS Solutions
Preconfigured for your industry workflows

• Available by itself

• Included with
  - Water Utility Network Editing
  - Gas As-Built Editing
  - Nighttime Flow Analysis
  - Pre-incident Planning
  - Campus Editing
  - Road Network Management
  - Street Furniture Inventory
  - Street Tree Inventory
  - Streetlight Inventory
Attribute Rules

- Rules defined using an Arcade Expression and stored in an Enterprise Geodatabase
- Includes
  - Calculation Rules
    - Expression that populate attributes based on attributes on a single feature or other related feature
  - Constraint Rules
    - Expressions that specify permissible attribute configuration on a feature
    - Features that violate constraint rules cannot be committed
  - Sequence (New at 2.2/10.6.1)
    - Use next number in a sequence for unique IDs
- Planned capabilities
  - Inheritance
    - Populate attribute values based on same value from feature snapped to
  - Overlay
    - Populate attribute based on intersection with another layer
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<thead>
<tr>
<th>Field Name</th>
<th>Value Method</th>
<th>Value Info</th>
<th>Create</th>
<th>Change</th>
<th>On Manual</th>
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Four key pieces

- Attribute Assistant Toolbar
- Dynamic Value Table
- Generate ID Table
- Configuration file
Attribute Assistant Configuration File

- Change startup behavior
- Change split behavior
- Enable the log file

Demonstration: Enabling the log file
Attribute Assistant Methods
A look at the rules by common operations

- Attribute operations
- Editor tracking
- Feature creation
- Geometric Network
- Intersecting features
- Location
- Related table
- Sequences and ID

- Shape updates
- Spatial operations
- Validation

Attribute Assistant - Attribute operations methods

- **Angle**
  - Calculates the geographic or arithmetic angle of a line feature.

- **Cascade Attributes**
  - Updates all occurrences of a value when the corresponding value in another table is changed.

- **Expression**
  - Executes a VBScript evaluated by the MSScriptControl. Can be used to access built-in functions and conditional logic (if statements).

- **Feature Statistics**
  - Summarizes the attribute values of the affected feature as a series of statistics or a single calculated value.

- **Field**
  - Copies the value from one field to another within the same feature class.

- **Field Trigger**
  - Updates a field to a specified value when the value of another field is updated.

- **Junction Rotation**
  - Stores the rotation angle of a junction feature based on connected edge features.

- **Last Value**
  - Repeats the last value used in a field.

- **Map Info**
  - Stores information from the current map document metadata or the version info of the layer being edited.

- **Previous Value**
  - Monitors a field, and when it is changed, stores the previous value in another field.

- **Prompt**
  - Identifies records containing null values. If the field uses a subtype or domain, those options are presented in the dialog box for the user to select.

- **Side**
  - Determines if a point feature is to the left or right of a corresponding line feature.

*Demonstration: Last Value, Prompt, Expression*
Attribute Assistant - Editor tracking methods

- **Current Username**
  - Populates the current user name.

- **Map Info**
  - Stores information from the current map document metadata or the version info of the layer being edited.

- **Timestamp**
  - Populates the current date and time.

Demonstration: Map Info
Attribute Assistant - Feature creation methods

- **Copy Features**
  - Copies a feature when an attribute is updated to a specified value.

- **Create Linked Record**
  - Creates a new record in a feature layer with a relationship to a table using a primary/foreign key relationship.

- **Create Perpendicular Line**
  - Constructs a perpendicular line from the input point and an intersecting line. The line's length is specified by the Length parameter.

- **Create Perpendicular Line to Line**
  - Constructs a perpendicular line from the input point to the nearest line.

Demonstration: Copy Features
Attribute Assistant - Geometric Network methods

- **Edge Statistics**
  - Provides statistics on a specified field for all connected edges in a geometric network.

- **From Edge Field**
  - Copies a field value from a connected From Edge feature to a connected junction feature.

- **From Edge Multiple Field Intersection**
  - Copies values for all From Edges connected to a junction to a series of fields in the source layer.

- **From Edge Statistics**
  - Calculates statistics on a specified field for all features connected to From Edges in a geometric network.

- **From Junction Field**
  - Copies a field value from a connected From Junction feature to a connected edge feature. Can also copy the name of the feature class at the start of the currently edited line.

- **Junction Rotation**
  - Stores the rotation angle of a junction feature based on connected edge features.

- **To Edge Field**
  - Copies a field value from a connected To Edge feature to a connected junction feature.

- **To Edge Multiple Field Intersect**
  - Copies values for all To Edges connected to a junction to a series of fields in the source layer.

- **To Edge Statistics**
  - Calculates statistics on a specified field for all features connected to To Edges in a geometric network.

- **To Junction Field**
  - Copies a value from a connected To Junction feature to a connected edge feature. Can also copy the name of the feature class at the end of the currently edited line.

*Continued on next slide*
Attribute Assistant - Geometric Network methods

- **Trigger Attribute Assistant Event From Edge**
  - Triggers the Attribute Assistant for the From Edge feature.

- **Trigger Attribute Assistant Event From Junction**
  - Triggers the Attribute Assistant for the From Junction feature.

- **Trigger Attribute Assistant Event To Edge**
  - Triggers the Attribute Assistant for the To Edge feature.

- **Trigger Attribute Assistant Event To Junction**
  - Triggers the Attribute Assistant for the To Junction feature.

- **Update From Edge Field**
  - Copies a field value from a junction to a connected From Edge feature.

- **Update From Junction Field**
  - Copies a field value from a connected edge to a connected From Junction feature.

- **Update To Edge Field**
  - Copies a field value from a junction to a connected To Edge feature.

- **Update To Junction Field**
  - Copies a field value from a connected edge to a connected To Junction feature.

*Demonstration: From Junction Field, To Junction Field, Junction Rotation*
Attribute Assistant – Intersecting Features methods

- **Intersecting Boolean**
  - Stores a value if the triggering feature intersects a feature in the specified layer.

- **Intersecting Count**
  - Calculates the number of intersecting features and stores the count in the specified field.

- **Intersecting Edge**
  - Copies a field value from the first intersecting edge feature.

- **Intersecting Feature**
  - Copies a value from an intersecting feature in the specified layer.

- **Intersecting Feature Distance**
  - Calculates the distance along a line feature where a line is intersected by another feature.

- **Intersecting Layer Details**
  - Extracts the name or file path of an intersecting layer.

- **Intersecting Raster**
  - Extracts a raster cell value at a feature location. If the feature is a line or polygon, the raster value at the feature centroid is used.

- **Intersecting Statistics**
  - Calculates statistics on a specified field for intersecting features.

- **Multiple Field Intersecting Values**
  - Copies values from new intersecting features into a target layer.

- **Nearest Feature**
  - Copies a value from the nearest feature in a specified layer.

- **Nearest Feature Attributes**
  - Copies a series of values from the nearest feature in a specified layer.

- **Split Intersecting Feature**
  - Splits features that intersect with features in a source layer.

- **Trigger Attribute Assistant Event Intersecting Feature**
  - Triggers the Attribute Assistant for the intersecting features.

- **Update Intersecting Feature**
  - Updates a field in an intersecting feature with a value or a field value from the modified or created feature.

Demonstration: Intersecting Feature, Nearest Feature, Intersecting Raster
Attribute Assistant – Location methods

- **Get Address From Centerline**
  - Extracts address information from the closest point on a road. It is similar to a reverse geocode, but a locator service is not used.

- **Get Address Using ArcGIS Service**
  - Performs a reverse geocode using a specified ArcGIS service.

- **Get Address Using Geocoder**
  - Performs a reverse geocoder using a geocoder.

- **Latitude**
  - Stores the y-coordinate value projected to WGS84 decimal degrees.

- **Longitude**
  - Stores the x-coordinate value projected to WGS84 decimal degrees.

- **X Coordinate**
  - Calculates the x-coordinate of a feature in database units.

- **Y Coordinate**
  - Calculates the y-coordinate of a feature in database units.

*Demonstration: Get Address Using ArcGIS Service, X Coordinate, Y Coordinate*
Attribute Assistant – Related Table methods

- **Copy Linked Record**
  - Updates an attribute of a feature with a value from a related table.

- **Create Linked Record**
  - Creates a new record in a feature layer with a relationship to a table using a primary/foreign key relationship.

- **Link Table Asset**
  - Updates a field in the table or layer with a value from a selected feature.

- **Update Linked Record**
  - Finds the related records in another table or layer and updates a field in those records.

**Demonstration: Create Linked Record**
Attribute Assistant – Sequence and ID methods

- **Autonumber**
  - Finds the largest value in a field and calculates the next sequential value.

- **Generate ID**
  - Increments a row in an unversioned table and stores that newly incremented value.

- **Generate ID By Intersect**
  - Generates unique identifiers for features based on the identifiers of intersecting grid features.

- **GUID**
  - Creates a globally unique identifier (GUID).

*Demonstration: Generate ID*
Attribute Assistant – Shape Update methods

- **Length**
  - Calculates the length of line features and the area of polygon features.

- **Set Measures**
  - Populates the m-coordinates of line features. M-values can be used to add route events to point and line events dynamically along line features.

Demonstration: Set Measures
Attribute Assistant – Spatial Operations methods

- **Nearest Feature**
  - Copies a value from the nearest feature in a specified layer.

- **Nearest Feature Attributes**
  - Copies a series of values from the nearest feature in a specified layer.

- **Offset**
  - Populates the location of a point a specified distance from the nearest line feature.
Attribute Assistant – Validation methods

- **Minimum Length**
  - Rejects a newly created line feature if the length of the line is less than the specified distance.

- **Validate Attribute Lookup**
  - Verifies field values against entries in a lookup table.

- **Validate Attributes**
  - Compares values in the input fields to all feature templates for the feature class.

- **Validate Connectivity**
  - Validates the number of connections on a feature and rejects the edits if the criteria are not met.

- **Validate Domain**
  - Validates data entry on field with domains against the domain. If the value is outside the range or not in the coded value list, the edit is aborted.

*Demonstration: Minimum Length, Validate Attribute Lookup*
Back to the log file
Summary
Designed to save time, improve accuracy and streamline data maintenance

• Use the solution apps and help to learn the rules
• Start with a blank Dynamic Value Table
• Iterate when developing your rule base
  - Use the log file
• Does work in a versioned environment
  - Do not version the Generate ID Table