ArcGIS Parcel Fabric: Migrating and Administering Parcels

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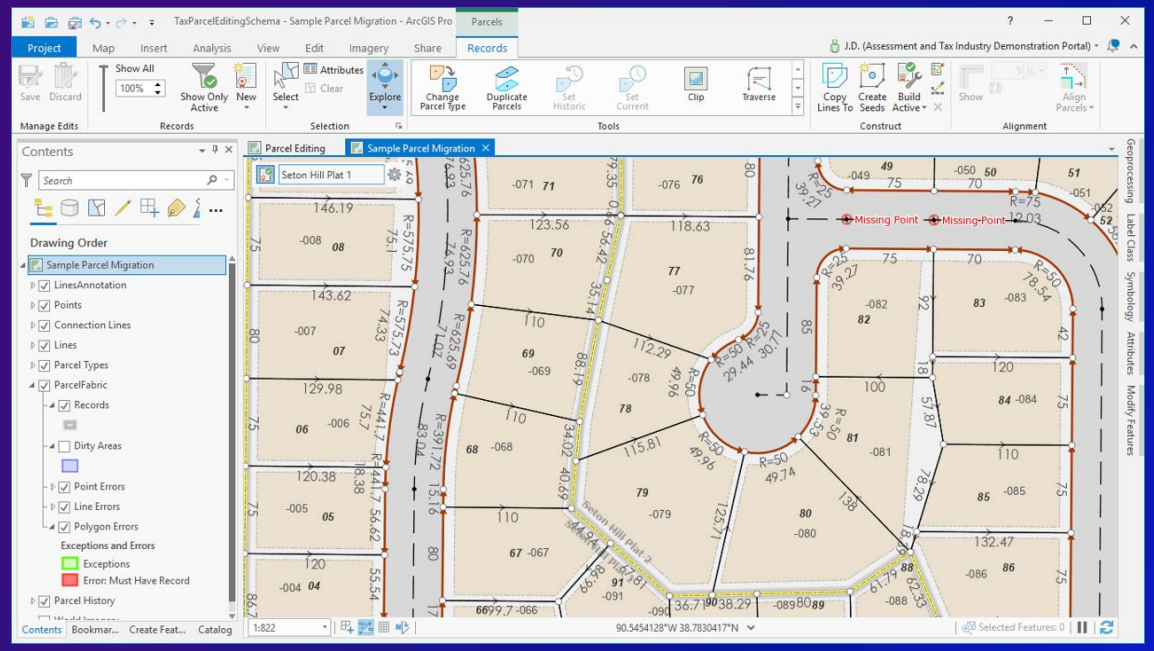
2021 ESRI USER CONFERENCE

Session overview

- Parcel fabric in ArcGIS Pro
- Data migration steps
- Upgrade an ArcMap parcel fabric
- Topology and attribute rules
- Enterprise deployment and publishing
- Project configuration



The parcel fabric

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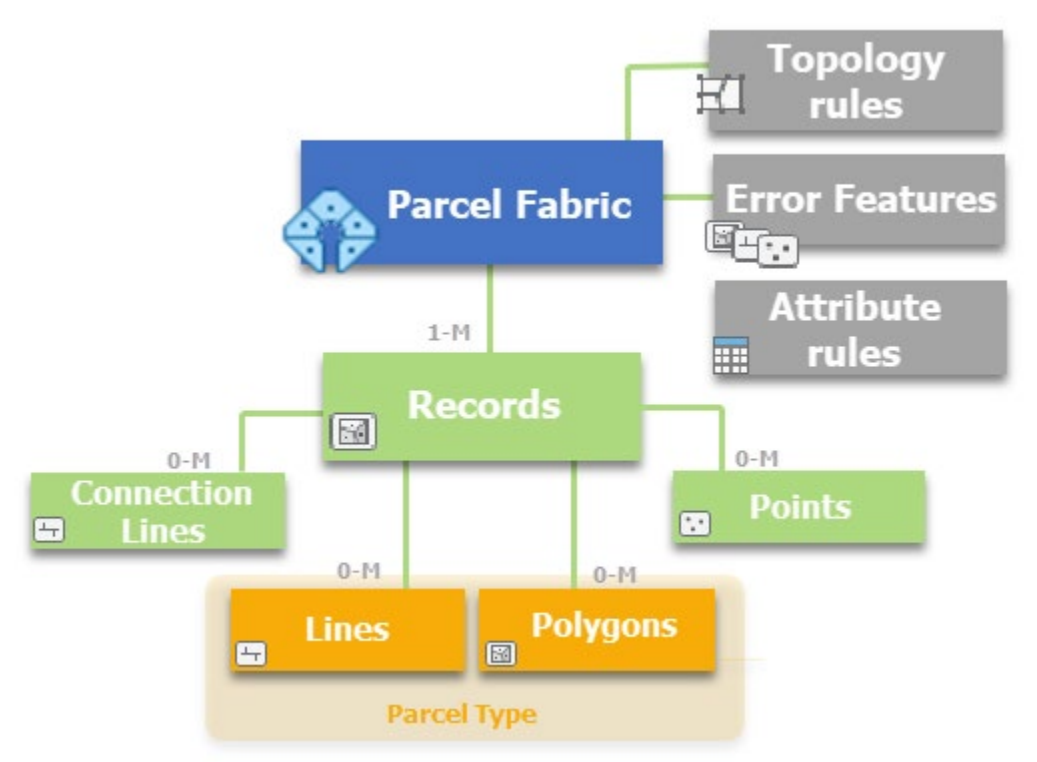
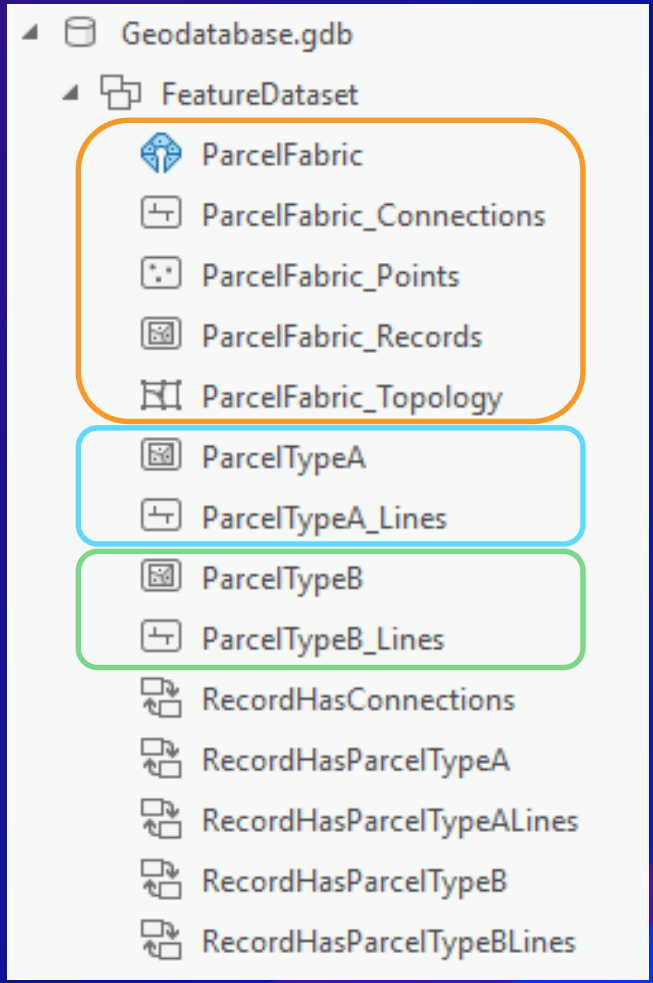
The parcel fabric

- **Simple data model**
- **Record-driven**
  - Parcel features associated to parcel records
- **Build-in quality management**
  - Topology rules
  - Attribute rules
  - Least-squares adjustment



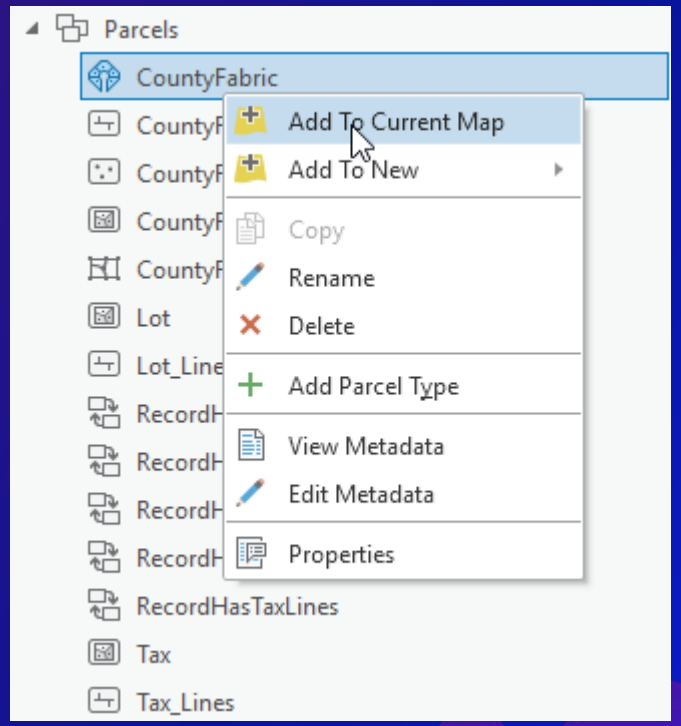
What is a parcel fabric?

- **Parcel fabric is a controller dataset**
  - Controls simple feature classes and topology
- **Parcels are stored as parcel types**
  - Each parcel type has its own polygons and lines
  - Defined by your organization
- **Record driven workflows**
  - Record polygon
  - Parcels are associated to the record
- **Topology and attribute rules**
  - Manage data quality



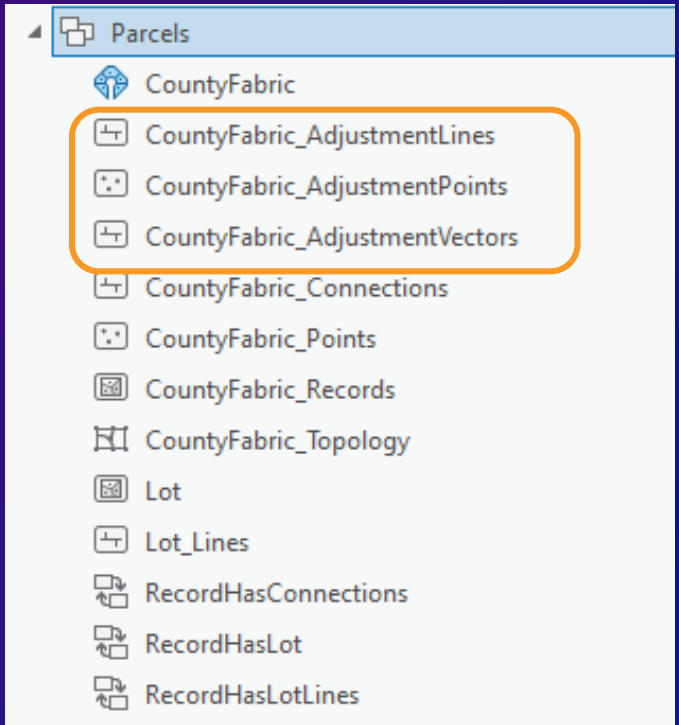
Parcel fabric feature classes

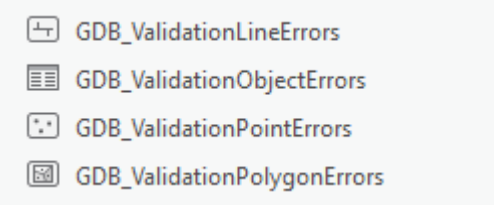
- Records
- Parcel type feature classes
  - parcel polygons
  - parcel lines
- Connection lines
- Points
- **Add the parcel fabric to the map to add its associated layers**



Parcel fabric feature classes

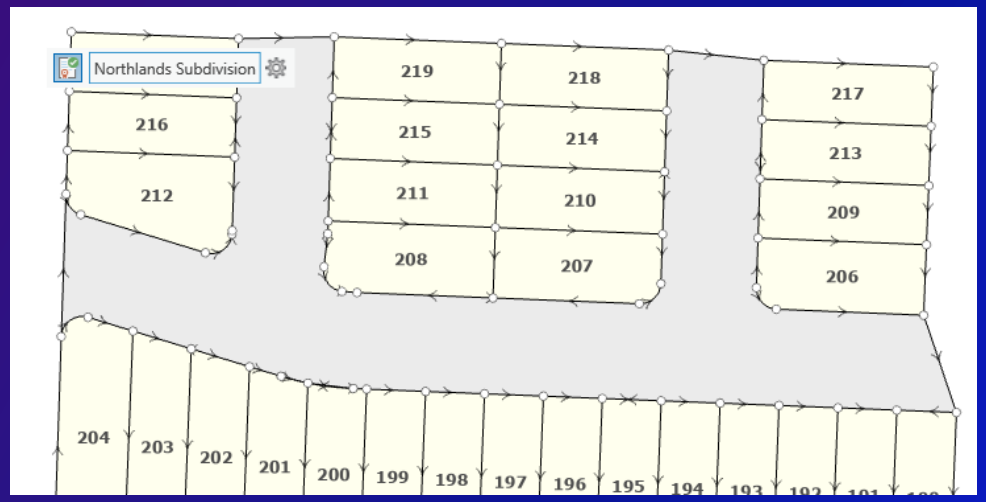
- **Adjustment feature classes**
  - Only used for least-squares adjustment
  - Adjustment Lines
  - Adjustment Points
  - Adjustment Vectors
- **Attribute rules datasets**
  - Feature classes and a table





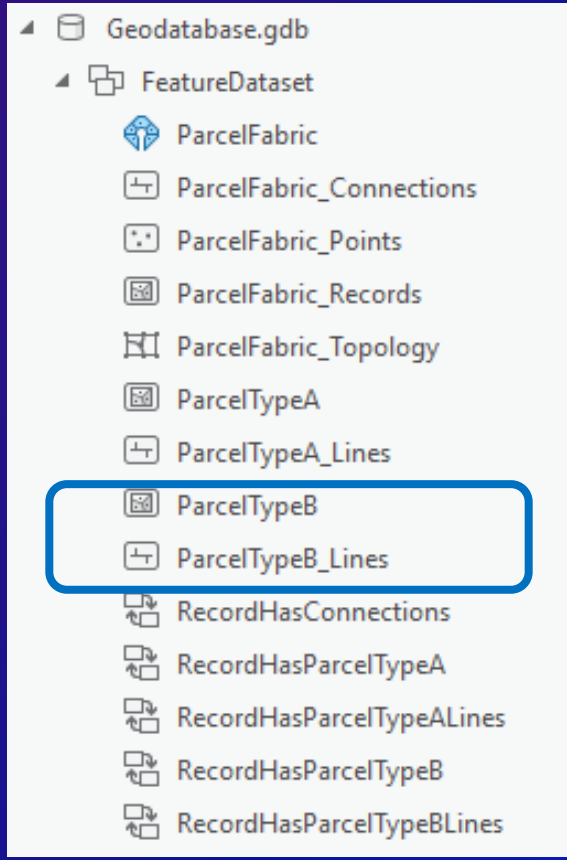
Parcel fabric is a system of record

- **A record represents legal parcel record**
  - A footprint of the legal transaction
  - Records feature class
- **Parcel features are associated to records**
  - The record that created them and retired them
- **Parcel lines have COGO dimensions**
  - Entered from record, generated from geometry, computed
- **Lines are not duplicated for boundaries**
  - Unless described in the record
- **One point on the ground → one point in the fabric**



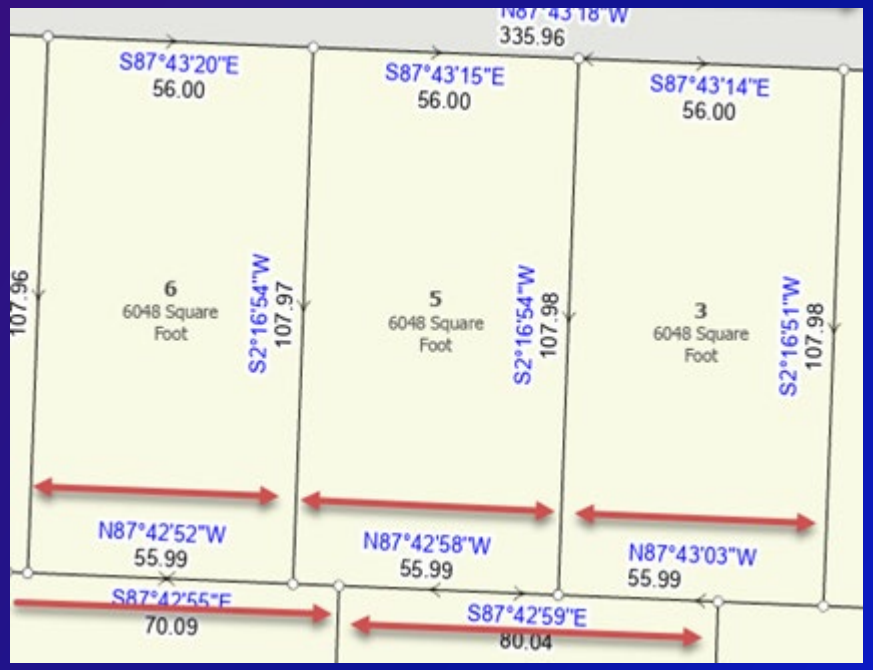
Parcel types

- **Parcels are stored as parcel types**
  - Add your own parcel types (Add Parcel Type geoprocessing tool)
- **Separate polygon and line feature class for each type**
- **Parcel types can have their own schema and rules**



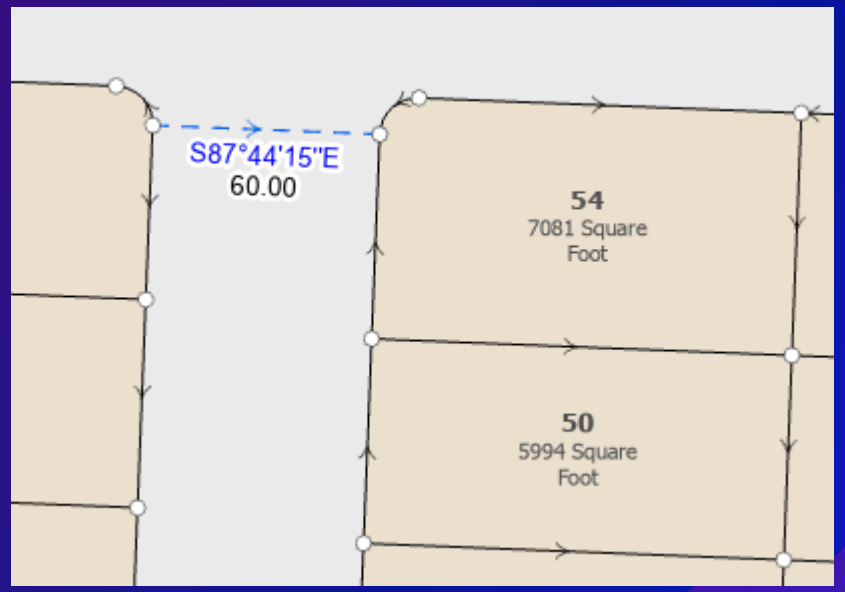
Parcel lines

- **Single line for adjacent boundaries when:**
  - Matching geometry
  - Matching dimensions
  - Same parcel type
- **Overlapping lines for adjacent boundaries when:**
  - Boundaries aren’t coincident
  - Coincident boundaries but record shows different dimensions
  - Different parcel types
- **Administration boundaries**
  - Large administration parcels, for example, county parcels



Points and connection lines

- **Points are shared between parcels**
- **Connection lines are used for non-boundary lines**
  - Separate feature class
  - Right-of-way centerlines
  - Connections to control points

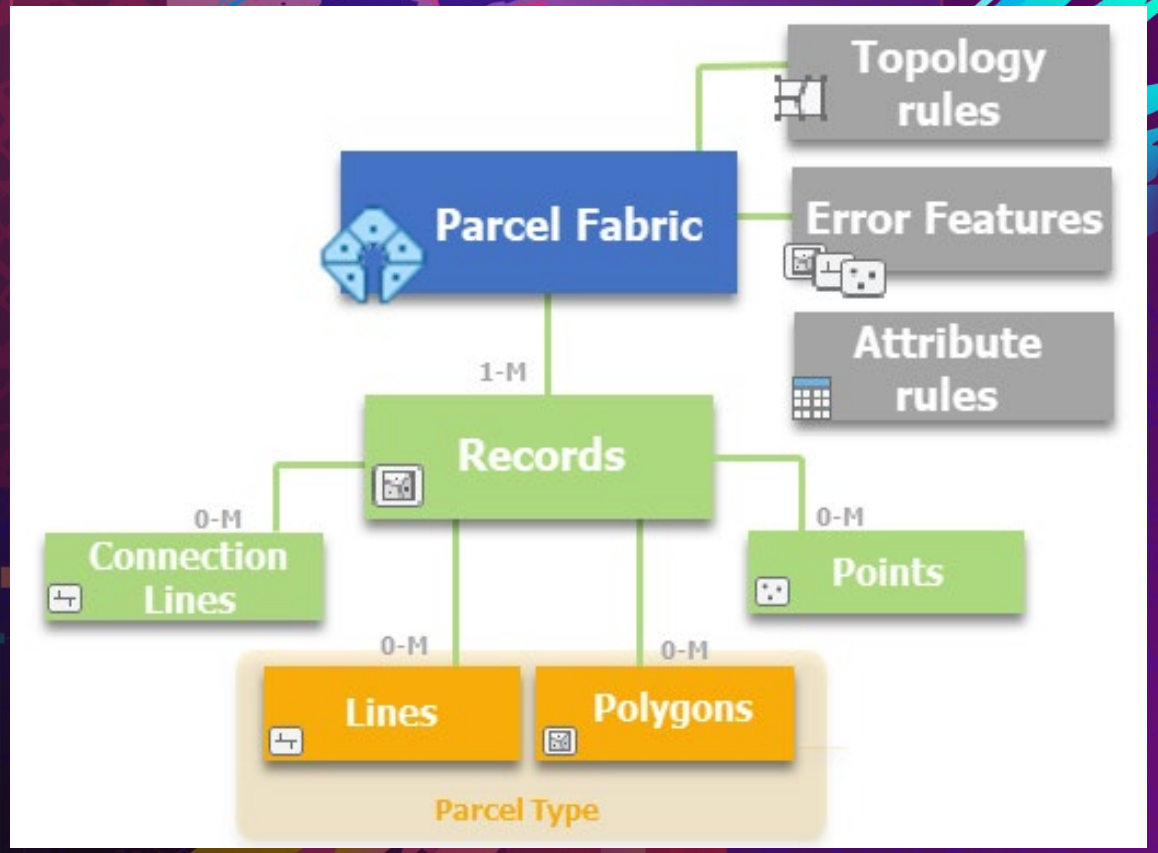


ArcMap parcel fabric vs ArcGIS Pro parcel fabric

ArcMap Parcel Fabric	ArcGIS Pro Parcel Fabric
Parcel types stored in one feature class	Each parcel type has it’s own schema
Plans table (no geometry)	Records feature class (record polygon)
Points, control points, line points	Points
Connection lines are part of the parcel	Connection lines in a separate feature class
Check Fabric creates a text file	Validate creates error features
Unjoined, unclosed, construction parcels	Deprecated

ArcGIS Pro parcel fabric improvements

- **Data is defendable**
  - Associated to the record, editor tracking
- **Simple feature classes**
  - Edited with any editing tool, easily extended
- **Each parcel type has it’s own schema**
  - Simplifies the TOC and the map display
- **No hidden tables or hidden fields**
- **Use of branch versioning**
- **Quality management engines: topology, attribute rules**
- **3D enabled**



Demo:
Parcel Fabric Data Model

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Data migration

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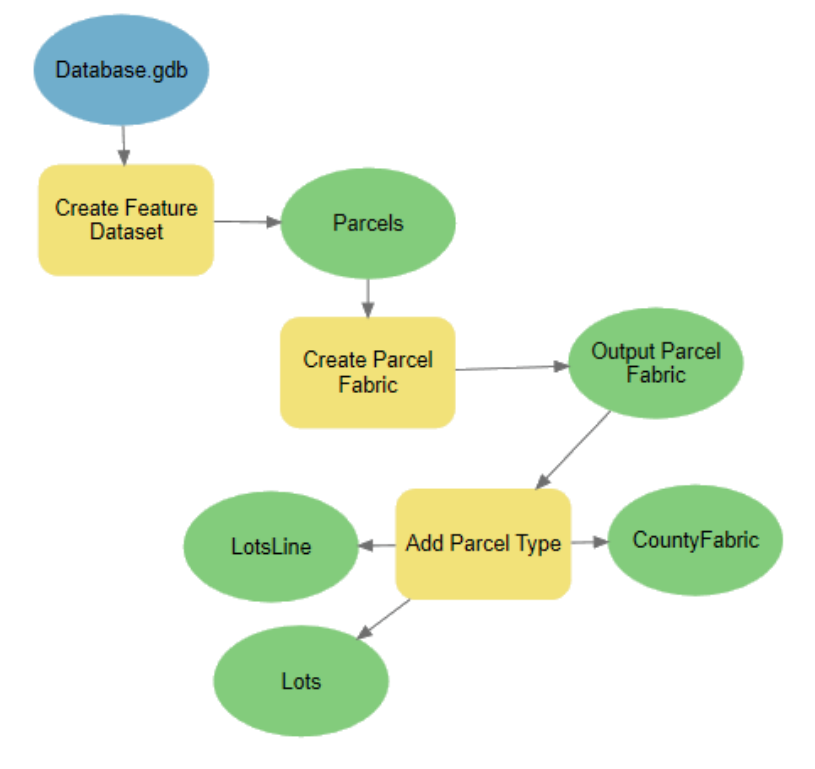
Data migration steps

1. **Create a feature dataset**
2. **Create a parcel fabric**
3. **Add parcel types (0 to many)**
4. **Optionally extend information model**
   - Fields, domains, rules
5. **Append your data**
   - Can use field mapping

<u>After Loading</u>

6. **Create parcel records**
7. **Build parcels**



Demo: Data Migration

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Upgrade an ArcMap parcel fabric

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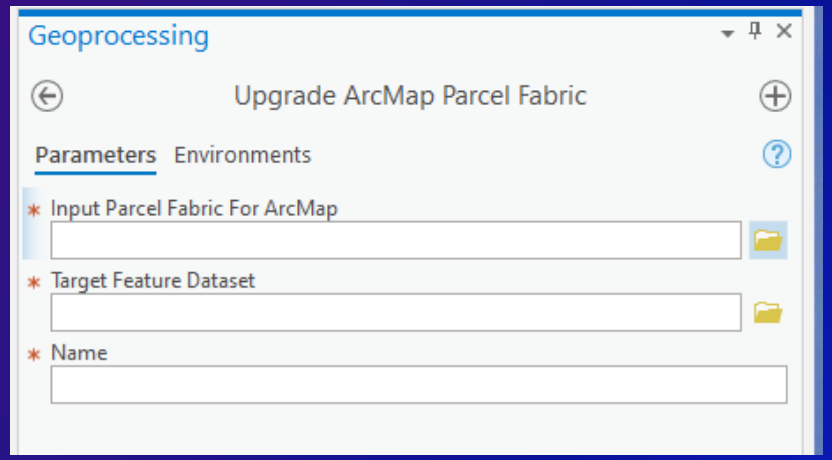
Upgrade an ArcMap parcel fabric

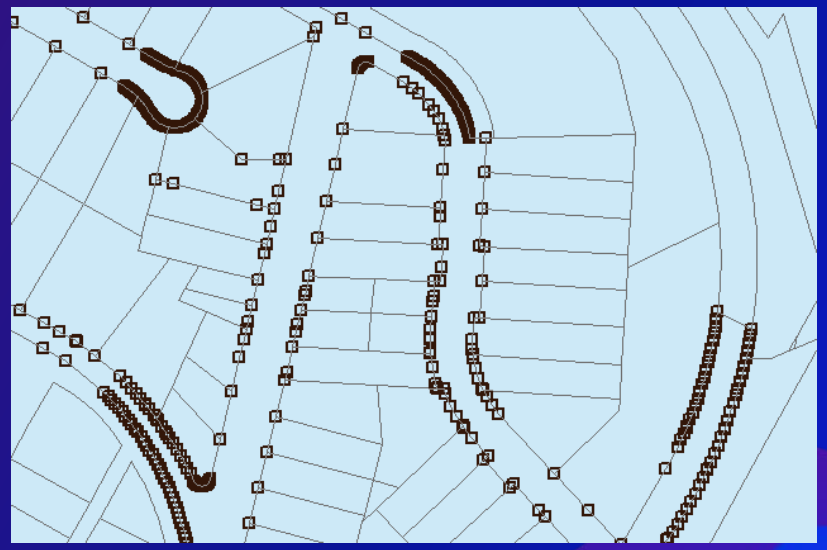
- **Geoprocessing tool**
- **Creates a new parcel fabric**
  - All parcels are transferred
- **ArcMap TYPE field determines the parcel types in Pro**
- **ArcMap Plans become ArcGIS Pro Records**
  - Record polygon matches the area of parcels associated to it
  - All Plan attribute fields are transferred



- **Tip: upgrade to a staging file geodatabase**

Data cleanup

- **Remove fields that do not belong to a parcel type**
  - **For upgraded parcel fabrics**
- **Delete Identical tool (optional)**
  - Remove duplicate overlapping lines
  - Shape field as Input Field
- **Simplify By Straight Lines and Circular Arcs tool (optional)**
  - Extract/Convert segmented curves to true curves
  - For migrated data



Upgrade/Migrate today, fix later

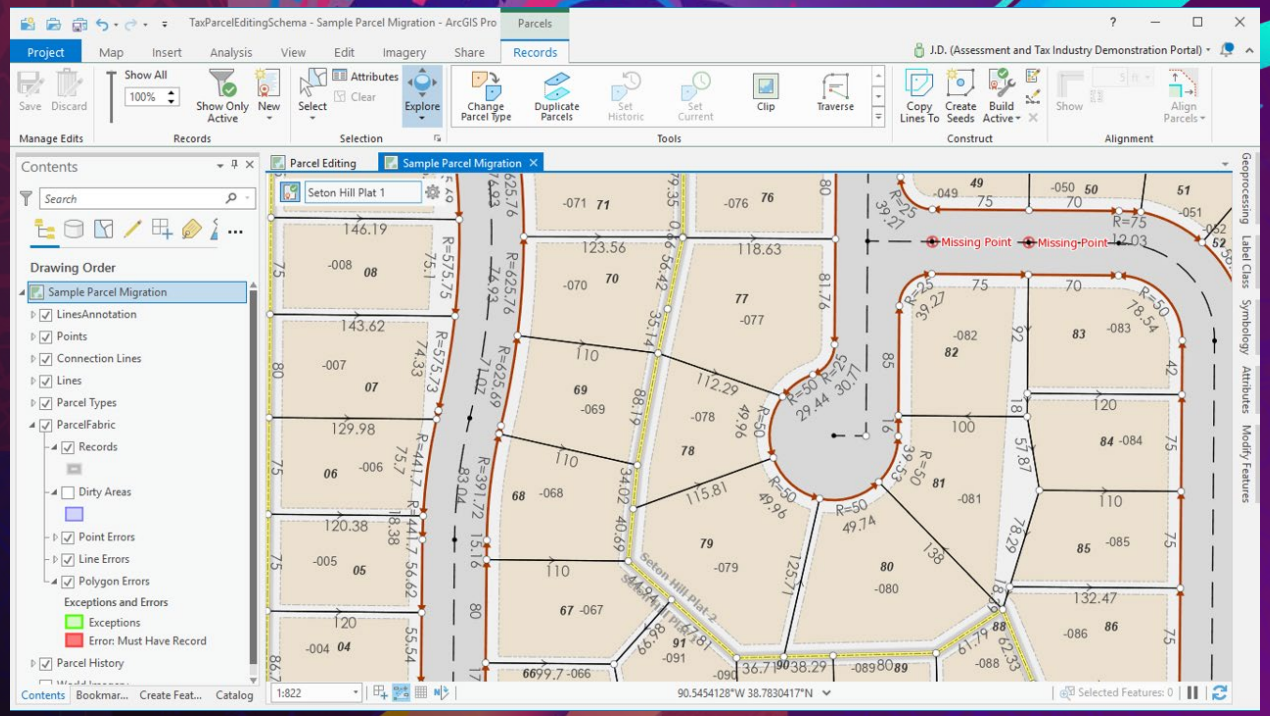
Data migration to an ArcMap parcel fabric

Cleanup Data → Load → Edit

Upgrade an ArcMap parcel fabric to an ArcGIS Pro parcel fabric

Upgrade → Edit: Record Driven & Quality Driven

Cleanup Data



Demo: Upgrade ArcMap parcel fabric

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Configure data quality settings

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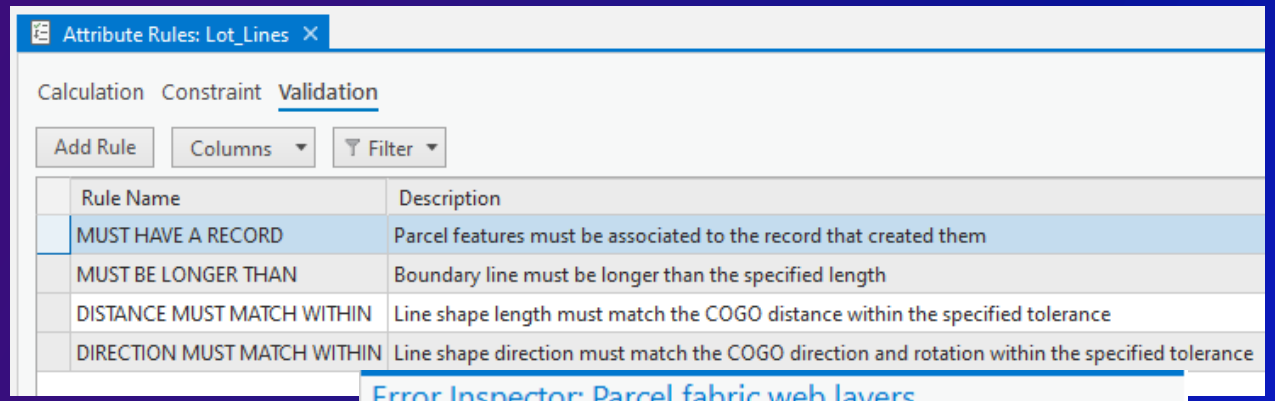
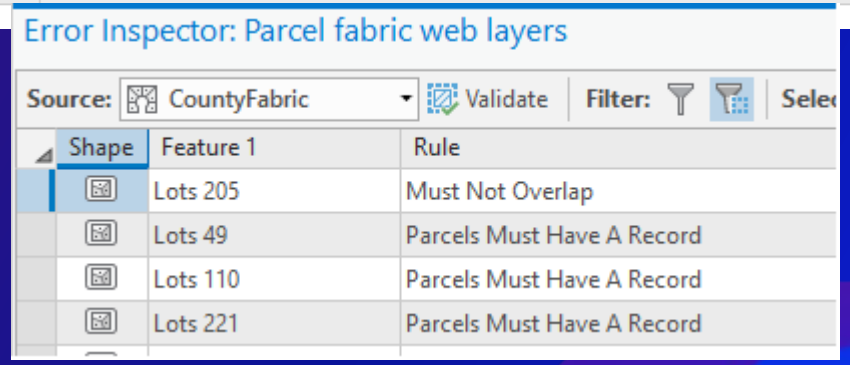
Data quality

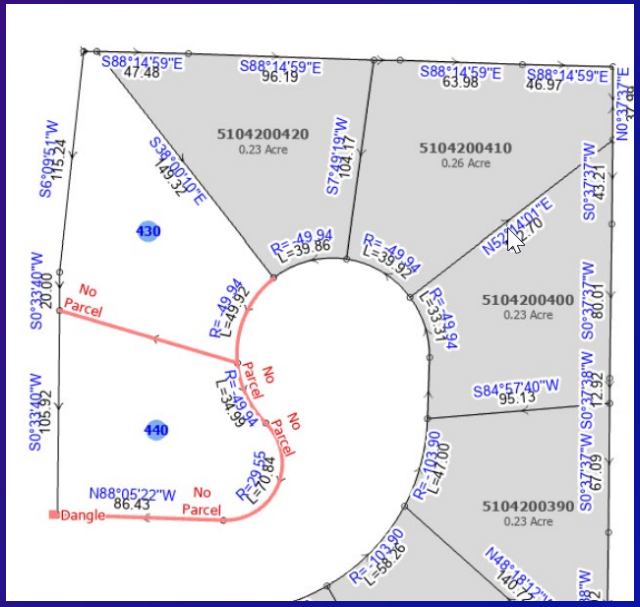
- **Geodatabase topology and attribute rules**
- **What is a “good parcel”?**
  - Subjective to your organization
- **Configure parcel behavior**
  - Use topology and attribute rules
  - Example, certain parcel types must be contained within other parcel types
  - Parcel types can have different behavior
- **Identify errors and incorrect behavior**
  - Validate the topology
  - Evaluate attribute rules

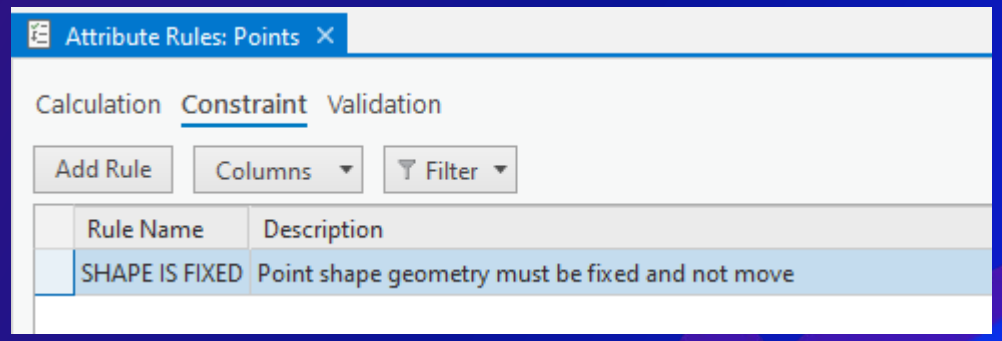


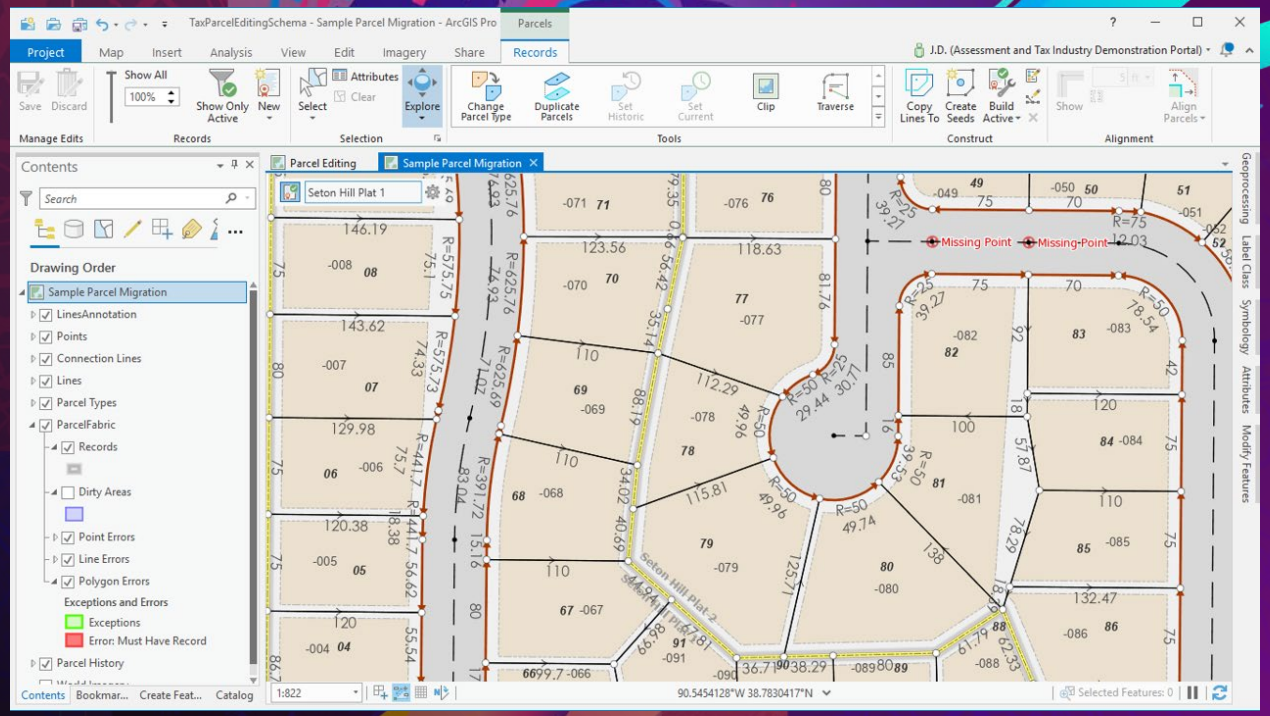


Topology and attribute rules

- **Topology is validated using predefined rules**
  - Error features are part of the parcel fabric layer
  - Add your own rules
  - Parcel types can have different rules
- **Default attribute rules applied to parcel features**
- **Optional attribute rules available for import**
  - Ex. Parcel lines must be longer than <tolerance>
- **Configure your own rules**







Demo: Configure data quality settings

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Deployments

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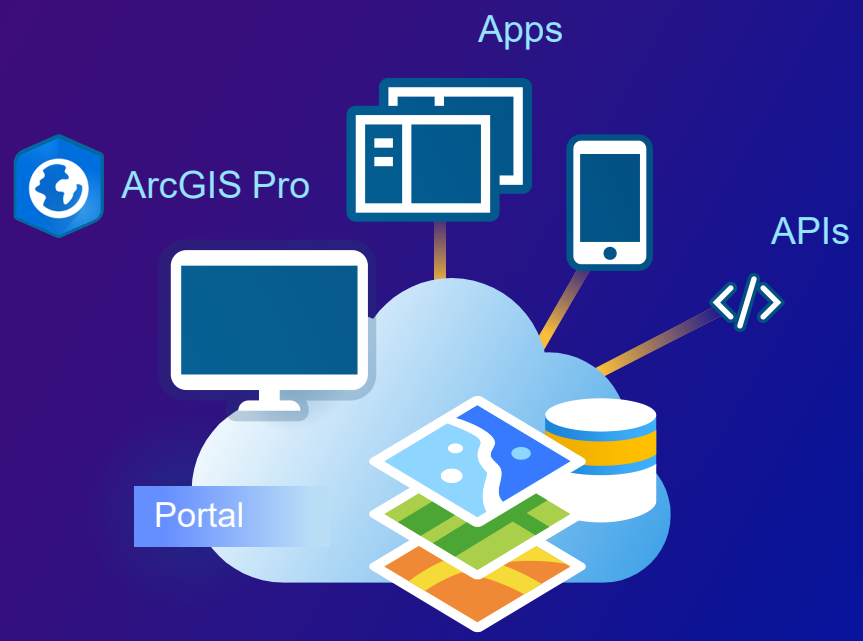
Deployments

Single user, file geodatabase



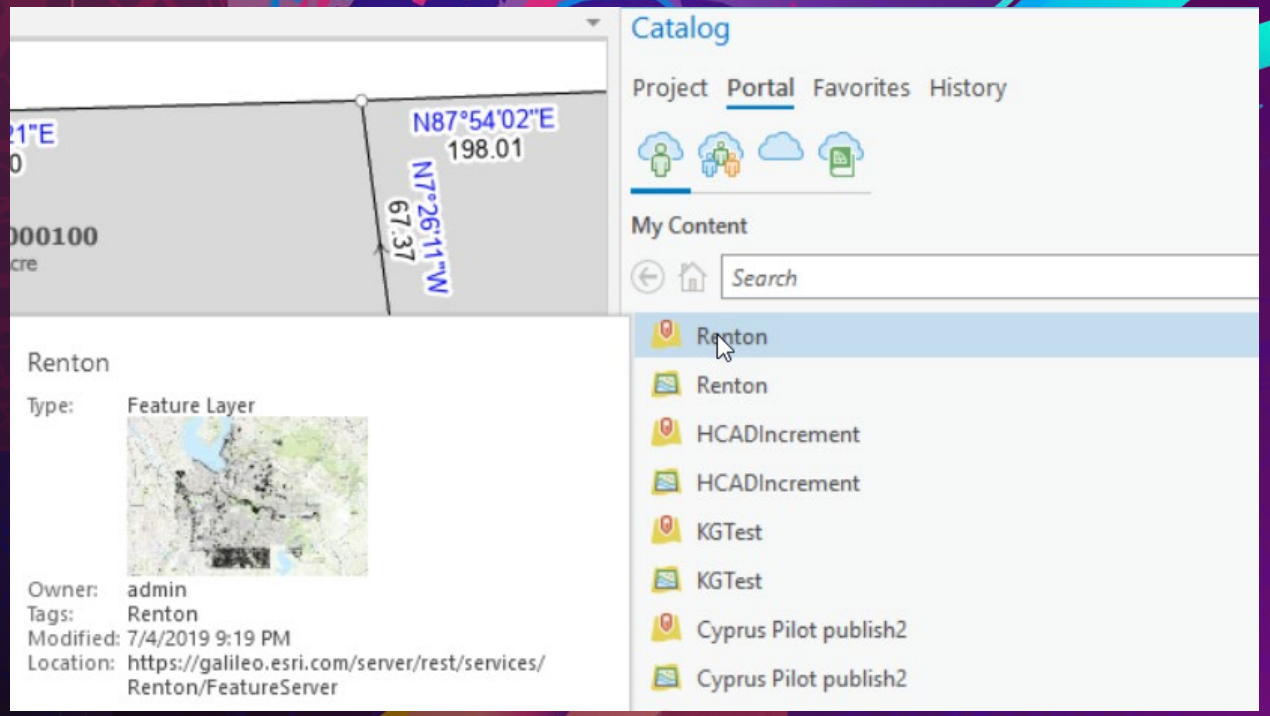
Enterprise

- **Pro License Level: Standard / Advanced**

Enterprise deployment

1. **Set geodatabase connection type to branch**
2. **Register as versioned**
3. **Publish for editing**
4. **Configure map symbology after publishing**

- Tip: Perform large field calculations (on staging file geodatabase)



Demo: Publish the parcel fabric

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Project configuration

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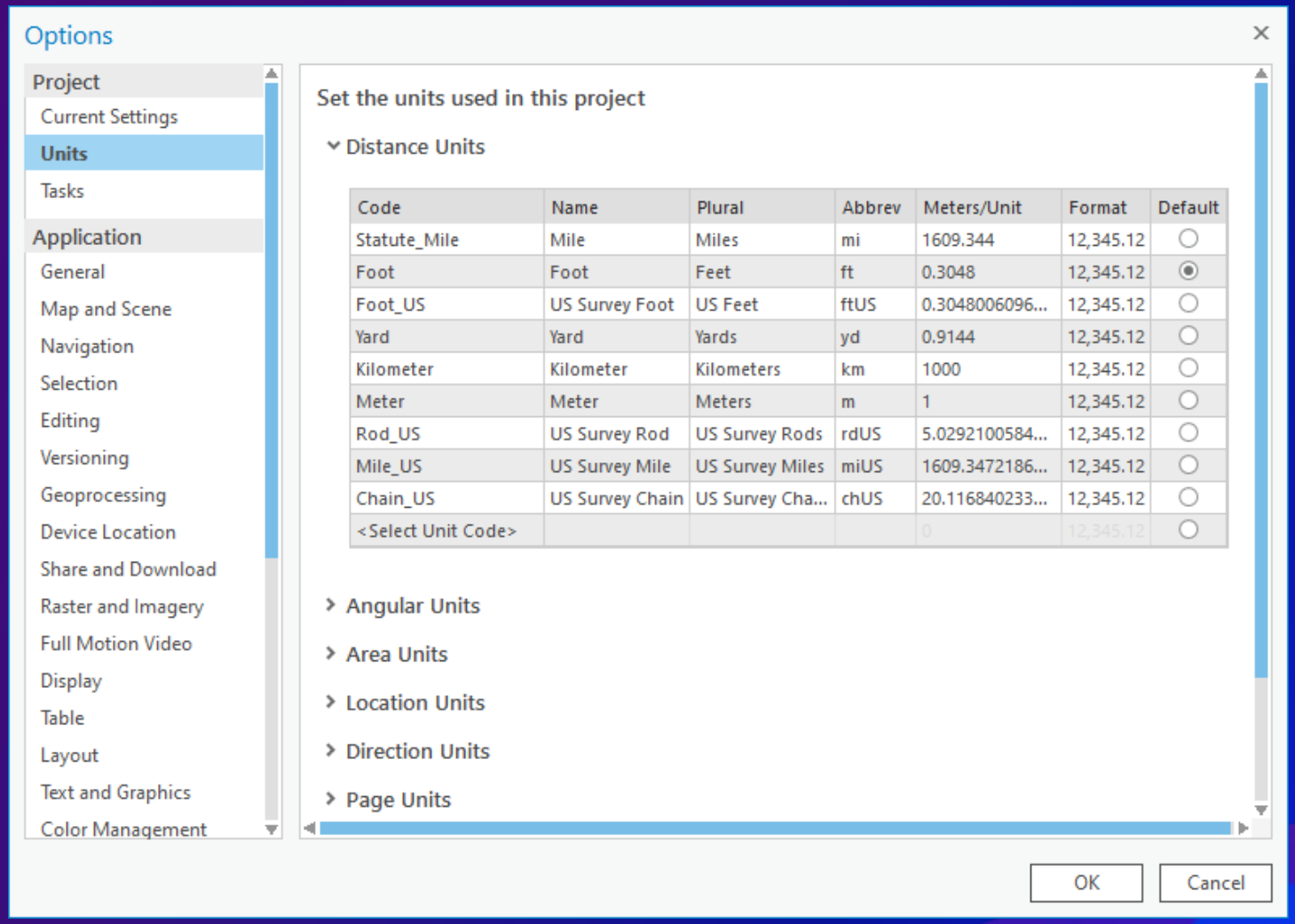
Project configuration

- **Configure:**
  - units
  - maps & layouts
- **Map configuration:**
  - symbology
  - scale dependency
  - labels
  - feature templates



Code	Name	Plural	Abbrev	Meters/Unit	Format	Default
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Foot	Foot	Feet	ft	0.3048	12,345.12	◉
Foot_US	US Survey Foot	US Feet	ftUS	0.3048006096...	12,345.12	○
Yard	Yard	Yards	yd	0.9144	12,345.12	○
Kilometer	Kilometer	Kilometers	km	1000	12,345.12	○
Meter	Meter	Meters	m	1	12,345.12	○
Rod_US	US Survey Rod	US Survey Rods	rdUS	5.0292100584...	12,345.12	○
Mile_US	US Survey Mile	US Survey Miles	miUS	1609.3472186...	12,345.12	○
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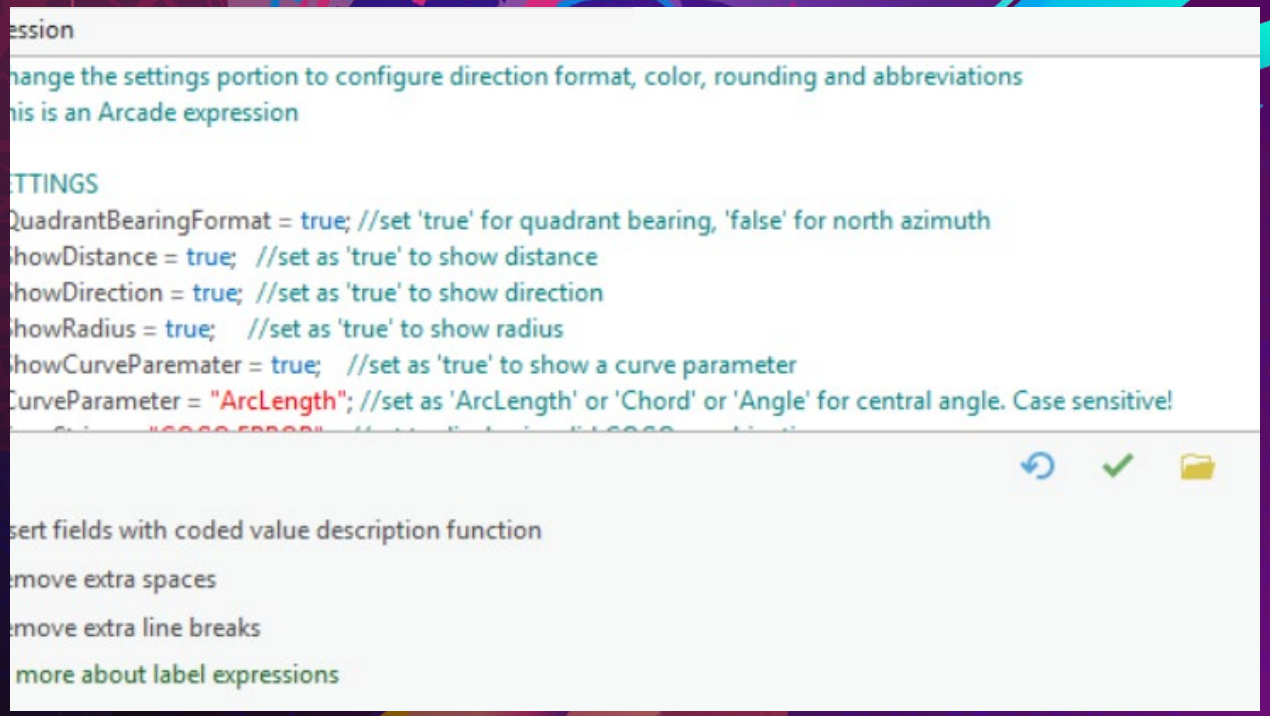

Demo: Project configuration

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Summary

- *Easy Migration*
- *Easy Upgrade from ArcMap*
- *Works out-of-the-box*
- *Configurable*
- *Easy to adopt*
- *Built in quality management*

Resources

- **Help documentation**
- **Parcel fabric place on ESRI community**
  - https://community.esri.com/t5/arcgis-parcel-fabric/ct-p/arcgis-parcel-fabric
- **Parcel fabric meetup**
  - https://www.meetup.com/Esri-Parcel-Fabric-Meet-Up/
  - https://community.esri.com/t5/arcgis-parcel-fabric-events/eb-p/arcgis-parcel-fabric-evetns
- **Training seminar (1 hour)**
  - https://www.esri.com/training/catalog/5ed005cddbabbe0afc9fff3a/managing-parcels-with-arcgis-pro/
- **Training course (3 days)**
  - https://www.esri.com/training/catalog/5e5f25188cb2d966e64e3d5d/working-with-parcel-data-in-arcgis-pro/
- **Class resources (public)**
  - https://community.esri.com/t5/esri-training-documents/working-with-parcel-data-in-arcgis-pro-class-resources-nbsp/ta-p/914564

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