

fabric coordinates. Adjustments to the fabric coordinates are also recorded as vectors, which can be applied to associated feature classes through subsequent spatial adjustments (a publication of adjustments). This maintains spatial relationships between these feature classes and the fabric, while improving the spatial accuracy of the whole.

Central Design Concept - Survey dimensions (measures) are the source data for the fabric. Parcel measures come from survey (field, plans or plats), and parcel coordinates are calculated from ties to control points and subsequent Least Squares Adjustment. Point coordinates are simply the current best estimates of location. From this concept follows an architecture that supports multiple editors and adjustments operating on the fabric simultaneously.

Shape geometries for fabric features are created from the boundary coordinates when a change is posted. Derived shape geometry can participate in ArcGIS

(held by Lines)

The Fabric can be thought of as both a contiguous layer of parcels, and as a network of boundaries. Record dimensions from survey plans or plats are used to create and modify parcels. The fabric is often stored in a projection different from the survey record. Editing occurs on an extract from the fabric, which has the local coordinates of the record. A joining process ties the modified elements back to the fabric. This simplifies editing, as basis of bearing and ground to grid calculations are automatic, yet only the original dimensions are stored. Transformation parameters and residuals are calculated by the joining process, and presented to the editor.

Central Design Concept Diagram

(held by Points)

Points

ESRI[®] ArcGIS[®] 9.2, Survey Analyst,

Type fields are available on key cadastral fabric

enhance your cadastral model. You may want to

tables for you to further describe your cadastral

objects. These fields are present for you to

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create a subtype using this field. Some examples for line types are shown below. These do not ship with the product, but are shown here for comparing with your own cadastral model. Coded value domain Line Type Description Type of Line Field type Short integer Split policy Default value lerge policy Default value 1 - Road Boundary 2 - Tidal Boundary 3 - Mean High Water 4 - Mean Low Water 5 - Coast Line 6 - State Line 7 - County Line 8 - Town Line 9 - National Park Boundar 10 - State Park Boundary 11 - County Park Boundar 12 - Public Land Boundary 13 - Right of Way Boundary 14 - Tribal Land Boundary 17 - Quarter-Quarter Section 15 - Section 16 - Quarter Section 16 18 - Township 19 - Riparian 19 20 - Mining Title 20 21 21 - Utility Easement An example

Type values and Enum

Fabric Customization —

The fabric can be adapted to many types of cadastral models. It is a core model for the primitives needed to maintain a network of parcels in a land record measurements system. Modification and extension of the fabric to include other cadastral sub-systems is expected. The fabric was designed to support integration with a full cadastral model.

Adapting the fabric to your needs will generally require the following: sub-types on feature classes, addition of new fields to fabric tables, creation and application of domains, addition of new tables, and creation of new relationships between fabric and external tables.

The Jobs and Adjustments schema can be modified by similar methods. The jobs model is intended to be a starting point for workflow models, which may include custom programming for new User Interfaces and functions.

Adjustment vectors generated from fabric LSA are modeled in three tables shown here. The software manages publication of adjustments for use within the same geodatabase. Publication to other geodatabases or other spatial data stores will require custom development.

Subtypes

In the fabric model, 'parcel' is a generalization for a unit of land. To model a hierarchy of land units (for instance tract, lot and block) the Parcels table can be sub-typed. Overlapping parcels are allowed in the fabric.

High level business rules, such as which parcel subtypes can overlap each other, can be implemented via ArcGIS topology. Topology can also be used to model business rules between the fabric and other feature classes. Topology cannot modify record measurements or coordinates (only derived ESRI shapes participate in the topology).

The major geometric tables (feature classes) of the fabric are: Parcels, Lines, Points and Control. Each of these has a 'Type' field specifically for user subtypes.

Diagram Legend

Feature classes and Tables Feature classes are tables that contain a geometry field. Objects in the geodatabase are independent of RDBMS platform.

ocon	netry Type	Fabric_Contro	class I		Contains M values Contains Z values	Point No Yes
==		Field name	Data type	Allow nulls	Domain	
ΞΞ	none	OBJECTID	Object ID			
		Shape	Geometry	Yes		
		Х	Double	No		
	Point	Y	Double	No		
		Z	Double	Yes		
┶┰╴	Line	Name	String	Yes		
		PointID	Long integer	Yes		
		AccuracyXY	Double	Yes		
		AccuracyZ	Double	Yes		
L • 7 1		CreatedDate	Date	Yes		
Ы	Polygon	Active	Long integer	Yes	TrueFalse	
		CombinedGridFactor	Double	Yes		
		Туре	Long integer	Yes	PointType	
Z value	es: indicates the	- M va	alues: Not	use	d in the	

presence of z values in the shape geometry. The points tables hold coordinate values as fields.

Allow nulls: If 'Yes', then object may have a null value for the property.

fabric. Can hold distance measures that are not derived from the geometry. Domain: The domain column shows any domain name associated with the field.

erat	tions	
merati em ope omizab standa	ons are used to enforce valid values erations. Enumerations are not user ole, but may be extended by develope ord ESRI enumerations (esriXXX) are	for ers.
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Name *Points* Primary key OBJECTID Name ControlPo Foreign key PointID No relationship rules defined. Limitations: Composite

relationships with the destination as a fabric table or feature class are not allowed. Messaging towards the fabric should be minimized. No messaging is allowed for the JobObjects and AdjustmentVectors tables.

composite relationship. Cardinality: Describes how

many objects of type A are related to type B, and B to A. Notification: Changes to

one table are messaged to the other. Rules: Control which object subtypes from the origin can be related to which object

subtypes in the destination. Path Labels are used when navigating the relationship forwards or backwards.