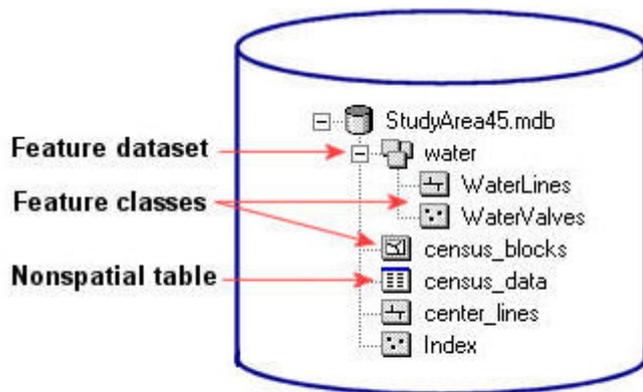


A Geodatabase is comprised of :

- Feature classes - a collection of features that share the same geometry type (point, line, or polygon) and a spatial reference
- Feature datasets - a collection of features classes, all of which have the same spatial reference
- Nonspatial tables of attributes data that can be associated with feature classes.



A geodatabase can contain feature classes, feature datasets, and tables of nonspatial data.

---

A feature dataset contains feature classes that share the same coordinate system and fall within a common geographic extent. In addition, they primarily store feature classes that have "topological relationships"



The five feature classes in the Watershed feature dataset have topological relationships that should be maintained when any of the feature classes are edited.

---

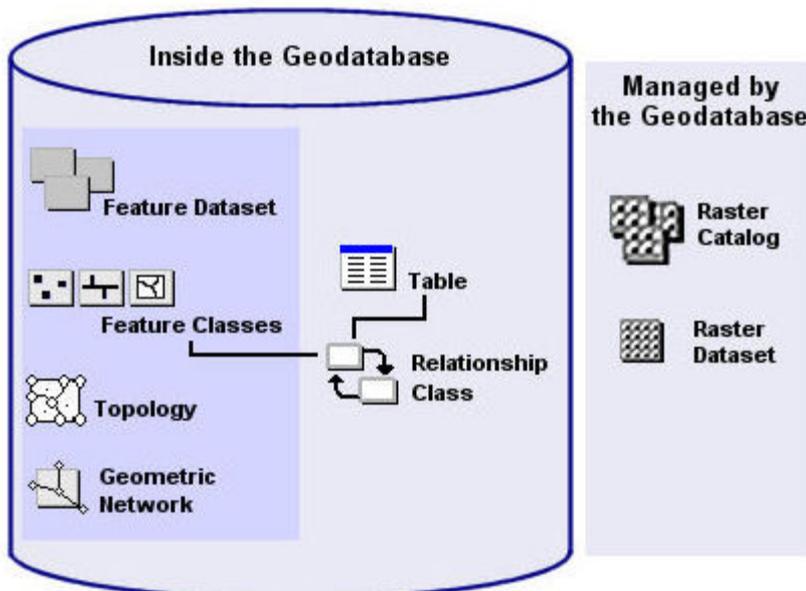
The nonspatial tables contain ONLY attribute data and are "standalone" tables. This means they CAN be associated with features, but are not required to be. Often they serve a dictionary function or (for those database people out there) "one-to-many" relate tables.



OBJECTID	CFCC	CFCC_DESC	CFCC_ID
1	A00	Road, classification unknown or not elsewhere	1
2	A01	Road, undivided	2
3	A02	Road, undivided, in tunnel	3
4	A03	Road, undivided, underpassing	4
5	A04	Road, undivided, rail line in center	5
6	A05	Road, divided	6
7	A06	Road, divided, in tunnel	7
8	A07	Road, divided, underpassing	8
9	A08	Road, divided, rail line in center	9
10	A10	Primary road, interstate highway and limited access	10

The cfcc\_desc table in the SantaBarbara geodatabase contains attribute data for the Roads feature class (stored inside the Roads feature dataset).

Raster data is "managed" with Geodatabases, but not topologically related. Again, remember how the concept of encoded spatial relationships is realized in the Raster Data Model



In addition to feature classes, feature datasets, and tables, a geodatabase can contain topology objects, geometric networks, and relationship classes. Raster data is stored outside the personal geodatabase.

The Raster Catalog is the primary tool of the Geodatabase for management of Raster Data.



This raster catalog contains four rasters.

Table 2. Comparison of raster datasets and raster catalogs	
Raster Dataset	Raster Catalog
Single dataset built from one or more rasters	Collection of rasters
Homogeneous source data: same resolution, format, coordinate system	Heterogeneous source data: different resolutions, formats, data types, file sizes
Faster display	Slower display. The more rasters, the slower the display
Loss of overlapping pixels when mosaicked	Overlapping pixels are preserved
One metadata file	Metadata files for the catalog and for each raster

---

## Building a personal geodatabase

The personal geodatabase is created in ArcCatalog.

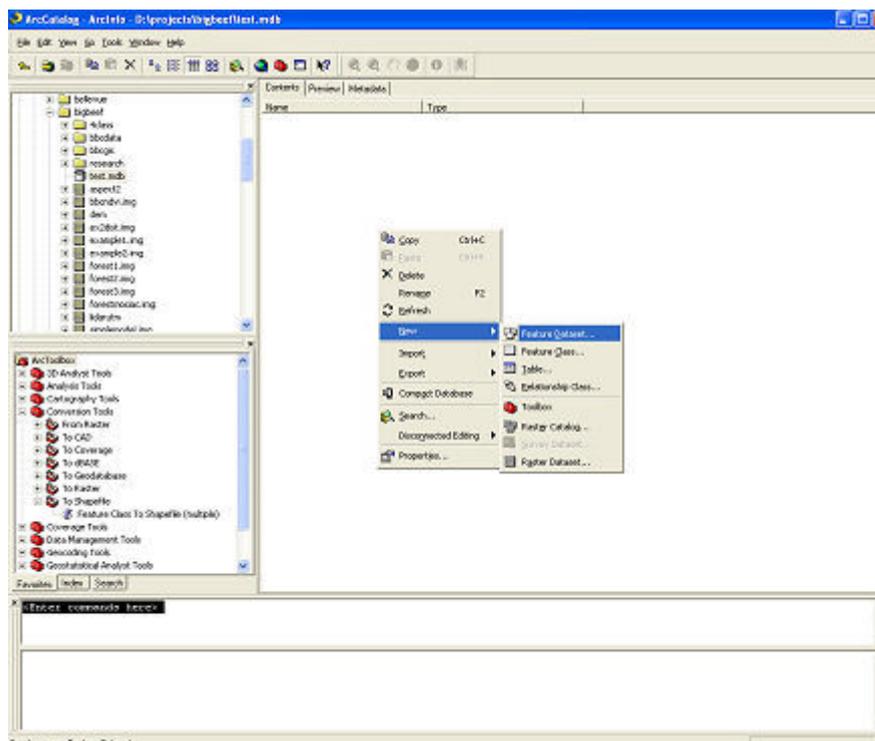
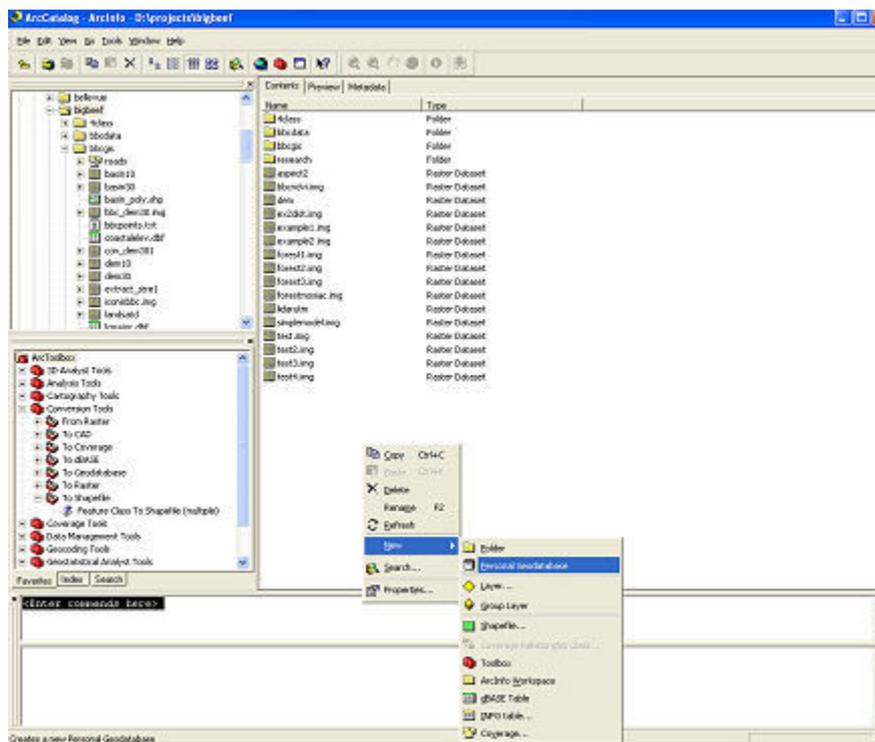
- Navigate to the desired folder in the directory tree
- Right-click on the folder and choose NEW > Personal geodatabase
- Change the default name to something meaningful to your work.

Feature datasets and Feature classes are created inside the geodatabase

- Double-click on the geodatabase to navigate inside.
- Right-click and choose NEW > Feature Dataset or Feature Class

Remember that Feature datasets hold feature classes which share the same spatial reference. This means that when you added a feature dataset to ArcMap ALL of the feature classes it hold will be added.

- Provide a name for the feature class (click next)
- accept the default configuration (click next)
- In the spaces under OBJECTID and SHAPE enter each of the fields you'd like to store, set the data type and properties (domains are ranges or list of valid values - created with a right-click on the database and choose properties)
- Click Finish



New Feature Dataset



Name: test

Spatial Reference

Description:

Unknown Coordinate System

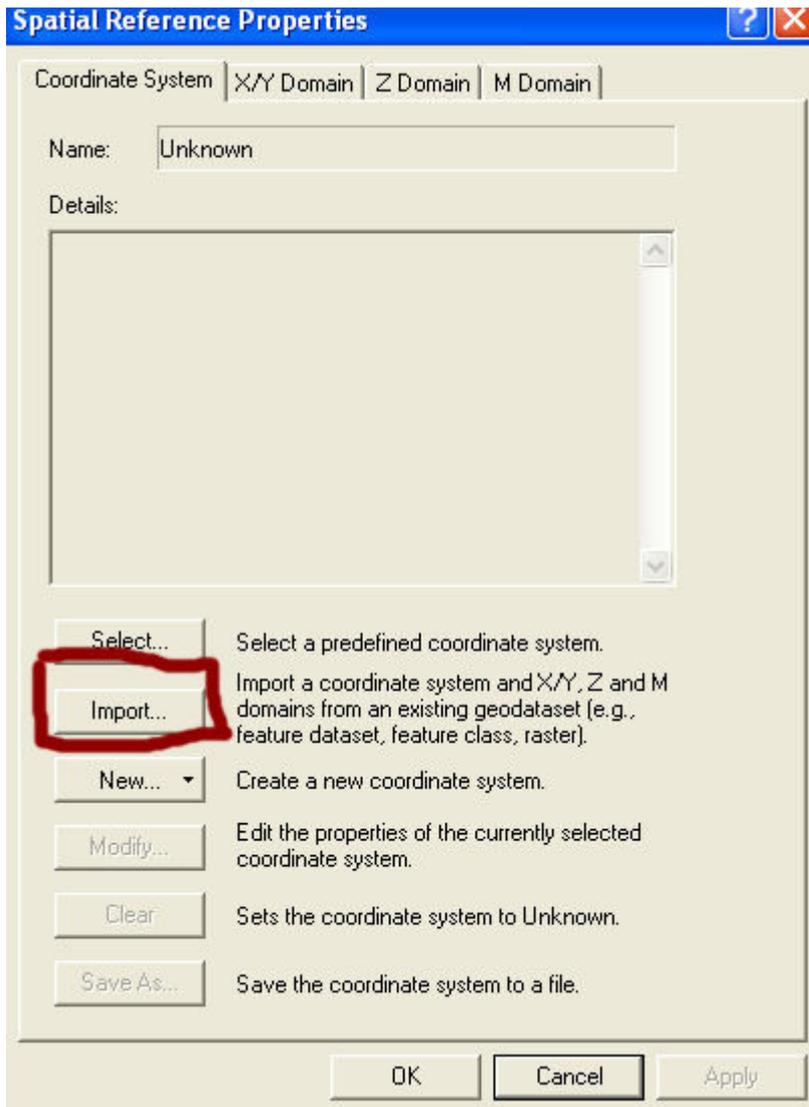
Show Details

Edit...

OK

Cancel





## Spatial Reference Properties



Coordinate System | X/Y Domain | Z Domain | M Domain

Name: NAD\_1927\_UTM\_Zone\_10N

Details:

Alias:  
Abbreviation:  
Remarks:  
Projection: Transverse\_Mercator  
Parameters:  
False\_Easting: 500000.000000  
False\_Northing: 0.000000  
Central\_Meridian: -123.000000  
Scale\_Factor: 0.999600  
Latitude\_Of\_Origin: 0.000000  
Linear Unit: Meter (1.000000)  
Geographic Coordinate System:  
Name: GCS\_North\_American\_1927

- |            |   |
|------------|---|
| Select...  | Select a predefined coordinate system.  |
| Import...  | Import a coordinate system and X/Y, Z and M domains from an existing geodataset (e.g., feature dataset, feature class, raster). |
| New... ▾   | Create a new coordinate system.   |
| Modify...  | Edit the properties of the currently selected coordinate system.  |
| Clear      | Sets the coordinate system to Unknown.  |
| Save As... | Save the coordinate system to a file.   |

OK

Cancel

Apply

## Spatial Reference Properties



Coordinate System | **X/Y Domain** | Z Domain | M Domain

The coordinate range, or domain extent of the feature class, is dependent upon the minimum X & Y, maximum X & Y, and Precision values. The Precision is the number of system units per unit of measure, and therefore specifies the degree of resolution.

Min X:  Max X:

Min Y:  Max Y:

Precision:

[About Setting the X/Y Domain](#)

OK

Cancel

Apply

## New Feature Class



Name:

Alias:

Type

- This feature class will store ESRI simple features (e.g., point, line, polygon).
- This feature class will store annotation features, network features, dimension features, or custom objects.

Select the type of custom objects that you will store in this feature class.

< Back

Next >

Cancel