



# Geodatabase Editing Workflows An Introduction

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# Session Overview

- **Geodatabase Connections**
- **Non Versioned Editing**
- **Versioned Editing**
- **Versioned Editing with Move to Base option**
- **Workflow Considerations**
- **Feature Dataset Considerations**
- **Questions**



# Multiuser Geodatabase Connections

**Spatial Database Connection** [?] [X]

Server:

Service:

Database:   
(If supported by your DBMS)

Account

Database authentication

Username:

Password:

Save username and password

Operating system authentication

Connection details

The following transactional version will be used:

Save the transactional version name with the connection file.



# Versions and Data

- Each Multiuser Geodatabase has only one Default Version
- Data (Non Versioned, Versioned etc.) is not tied or linked to a specific version
- **All** data that a user has read or read write access to, can be viewed or edited within any Version they have access to connect (public, or protected. Only private versions can be connected by the version owner or the ArcSDE Admin User).
- Many editors can edit a version simultaneously



# Creating Versions

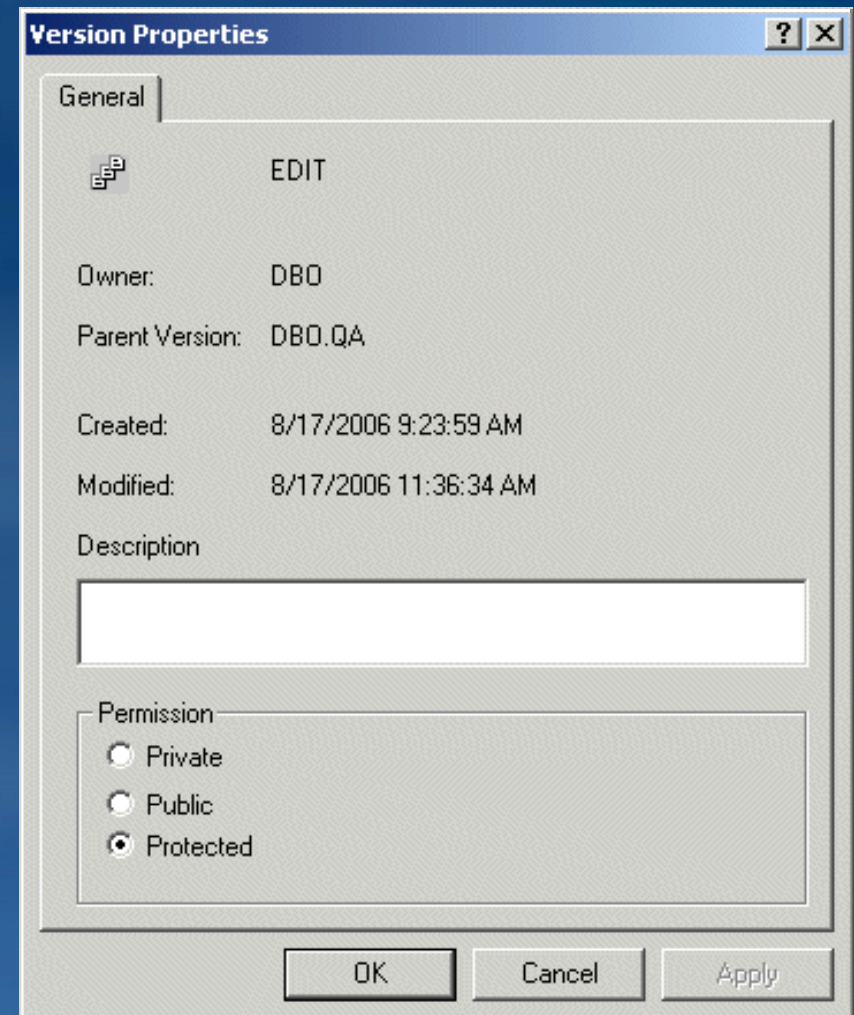
- **Not created on a geodatabase element (ie; feature class)**
- **Created from an existing version**
  - Every version has a parent, except DEFAULT
  - Identical to version from which it was created.
- **Any number of versions can be created**
  - Regardless of database user permissions
  - ArcEditor or ArcInfo Desktop license





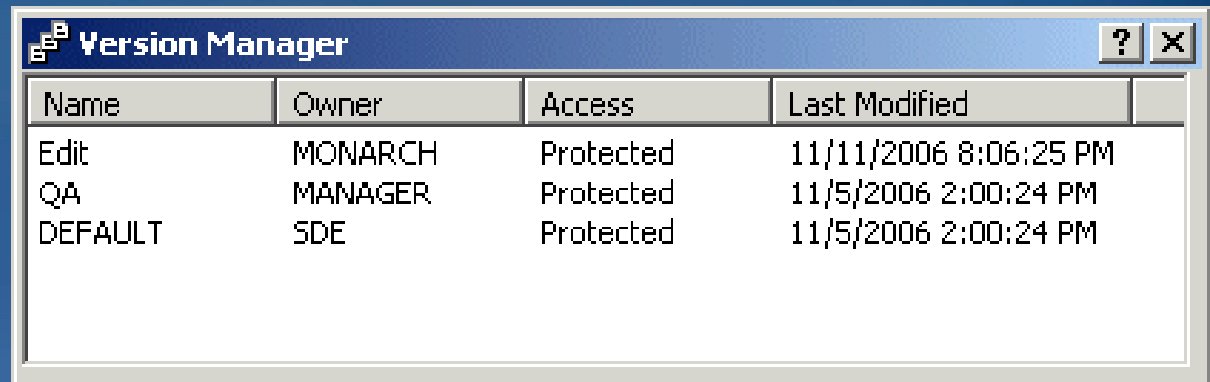
# Version Permissions

- Three levels of permissions
  - Private
    - Owner read/write
  - Protected
    - Owner read/write
    - Others read only
  - Public
    - All users read/write
- Different from data permissions
- DEFAULT should be set to Protected for security/integrity



# Version Manager

- Available in ArcCatalog and ArcMap
- Use to perform administrative tasks
  - Create Versions
  - Set Permissions
  - View and/or modify properties
  - Delete Versions



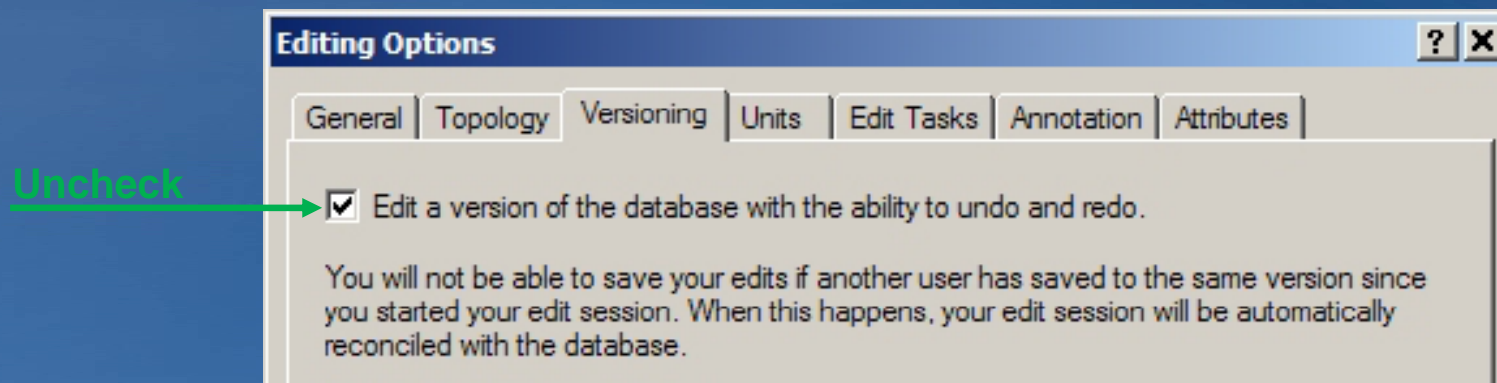
Name	Owner	Access	Last Modified
Edit	MONARCH	Protected	11/11/2006 8:06:25 PM
QA	MANAGER	Protected	11/5/2006 2:00:24 PM
DEFAULT	SDE	Protected	11/5/2006 2:00:24 PM

- Only version owner or ArcSDE Administrative user can rename, delete or alter



# Overview of non-versioned editing

- **Uses DBMS transaction model**
  - **Save – saves all edits directly to business table**
    - **Supports access by non-ESRI applications**
- **Changes visible to geodatabase users upon refresh**
  - **Zoom, pan, map refresh**
- **All editing performed in a version**





# Non-versioned editing considerations

- **Benefits**

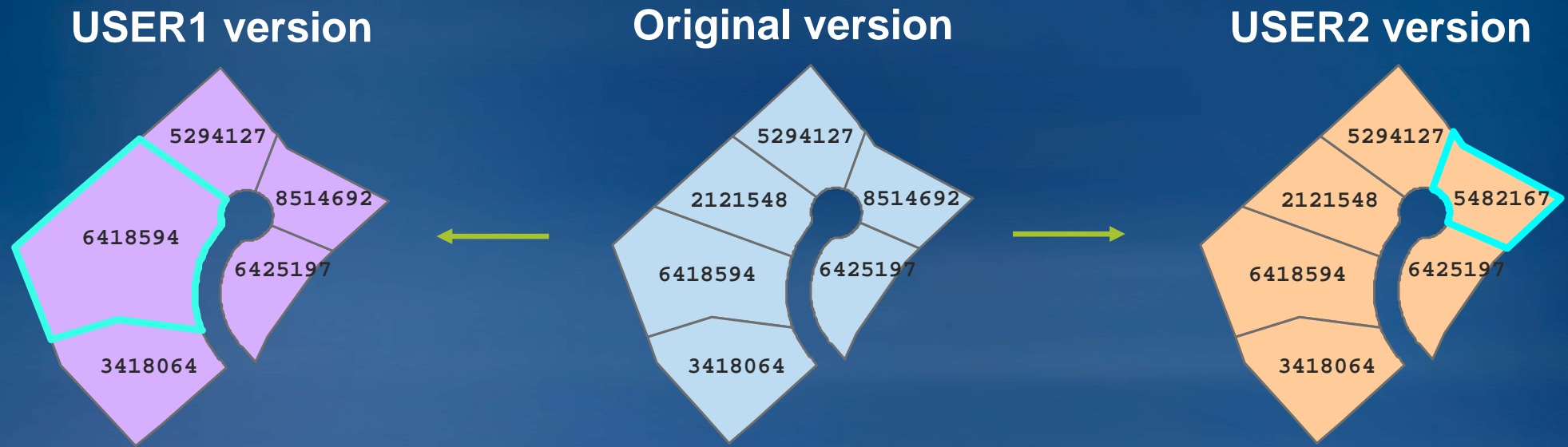
- Non-ESRI applications can read and modify same data
- Very simple to implement
- Supports DBMS rules

- **Limitations**

- Edit simple data only (points, lines, polygons)
  - Data must be registered with the geodatabase
- No undo/redo capability of individual edits
  - Edit session saved or discarded
- No conflict resolution
- Users may block each other
- Protected version permissions do not apply



# Overview of versioned editing

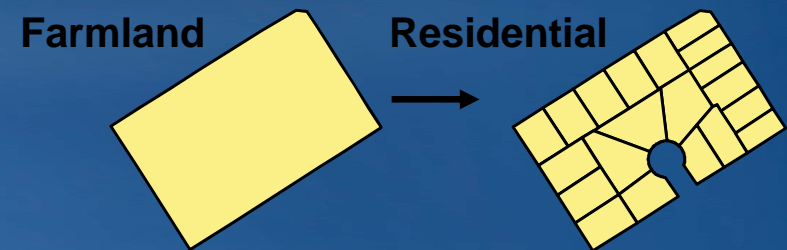
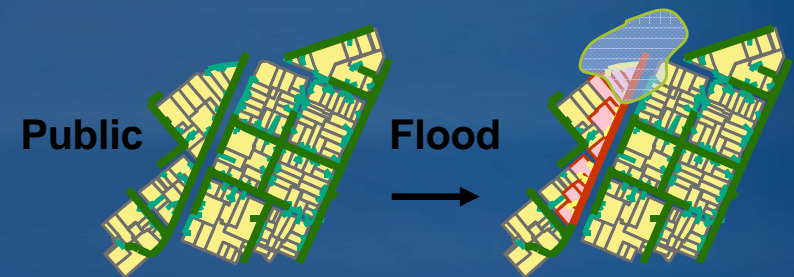
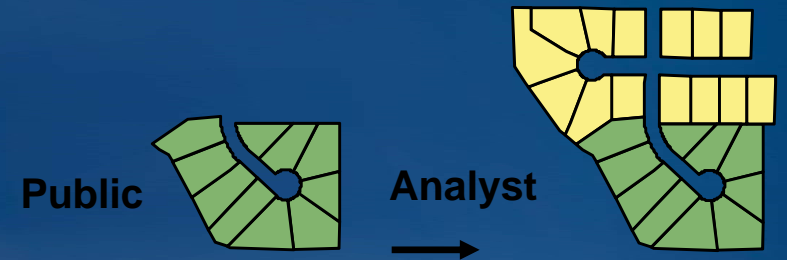


- Method for presenting and tracking changes to tables
- Multiple, alternate versions may co-exist
  - **Appears** to users as if they have their own copy of a table
- Includes mechanisms for merging changes
  - ArcGIS offers tools to resolve **conflicts**



# Versioning use case scenarios

- Long editing projects
  - Isolate work across sessions
    - Example: Preserve public data
- Model what-if scenarios
  - Simulate hypothetical situations
    - Example: Disaster event planning
- Workflow management
  - Track stages of project
    - Example: Land development
- Geodatabase history
  - Save snapshot of evolving data
    - Example: Wildlife habitat monitoring



# Versioned editing considerations

- **Benefits**

- Can edit simple and complex geodatabase data
- Versions can help isolate work
- Conflict detection and resolution between editors and versions
- Undo/Redo ability
- Support for geodatabase replication and archiving

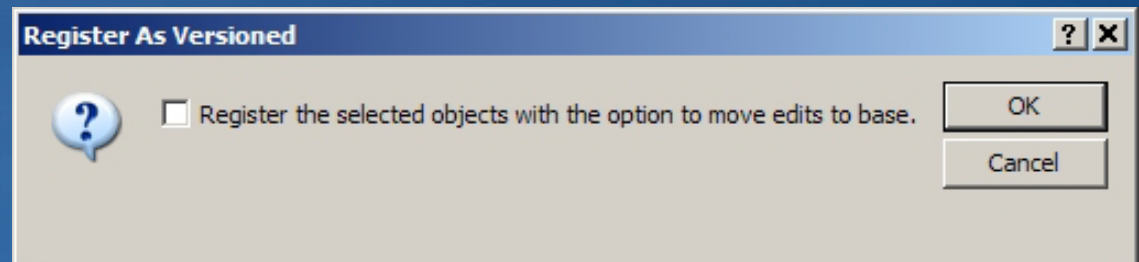
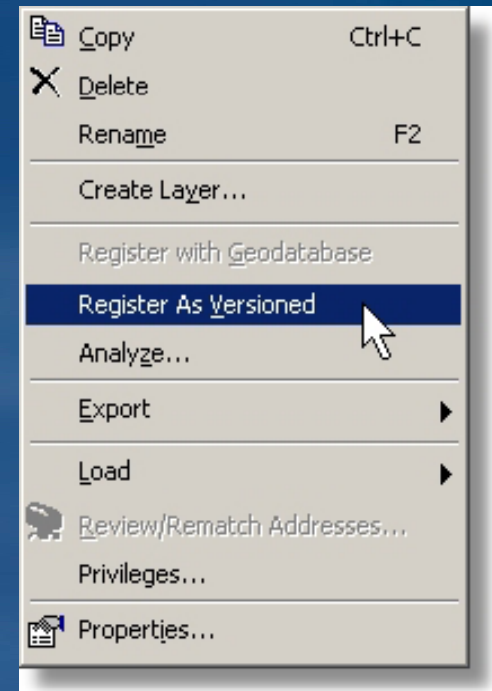
- **Limitations**

- Non-ESRI applications do not understand edits in delta tables
  - Can provide access with multiversioned views or alternate workflow
- DBMS behavior is restricted



# Registering object as versioned



- Enables versioned edits
  - Feature classes, feature datasets, tables
- Must register entire feature dataset
  - Registers **all** feature classes
- Creates **delta tables**
  - Adds (A) and Deletes (D)
  - Does **not** create a version
  - DBMS statistics created
  - DBTUNE controls storage







# How versioned edits are stored

## ROADS

Shape	ObjectID	Name
	1	OAK
	2	ELM



## A91

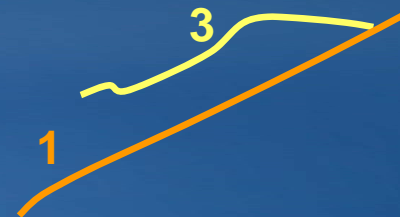
Shape	ObjectID	Name	StateID
	3		1
	1	OAK	3



Adding

## D91

ObjectID	StateID
2	2
1	3



Deleting



Updating

# Overview of versioned with move to base option

- Supported for simple feature classes only
- Edits to the DEFAULT version are moved to base
  - Occurs when saving edits to or merging changes with DEFAULT
- **Caution:** Changes to feature class are no longer isolated



# Versioned move to base considerations

- **Benefits**

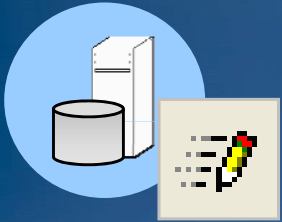
- Non-ESRI applications can view edits that have been saved or posted to DEFAULT
- All versions see edits after save or post to default on refresh
- Can isolate edits in multiple versions

- **Limitations**

- Simple data only (point, line and polygon data)
- No Geodatabase Replication or Archiving
- Cannot edit topology or geometric networks
- No conflict detection on reconcile with DEFAULT



# Summary of editing options



	Non-versioned editing	Versioned editing with move to base	Versioned editing
Editable data types	Simple feature classes	Simple feature classes	All data types
Supported workflows	Simple	Simple and advanced with versions Archiving / replication <i>not</i> supported	Simple and advanced with versions Archiving / replication supported
Supports undo/redo	No	Yes	Yes
Feature class tables involved	Base table	Base table, delta tables	Delta tables
Supports RDBMS data integrity features	Yes	Yes: When editing DEFAULT version; After save  No: When editing other versions	No

# Choosing an editing option

- How do you plan on using the data?
- Does the option selected meet your business need?
- Do you need to isolate users edits?
- Do you need to archive one or more feature classes?
- Do you need to implement geodatabase replication?
- Are topology rules or geometric networks needed?





# Demo

- **Demo Non-versioned editing**
  - Disable version editing (undo/redo checkbox)
  - Edits seen by Non-ESRI applications on save
  - Edits seen by all versions on save
  - Row level locking
  - Concurrency issues
  - Undo/redo
  - Edit in protected DEFAULT
- **Demo Versioned editing**
  - Create new version from default
  - Edit data to show isolated edits
  - Undo/redo
  - Attempting to edit protected DEFAULT



# Additional Resources

- **Instructor Lead Training**
  - **Managing Editing Workflows in a Multiuser Geodatabase**
    - 3 day class
    - Detailed lectures and exercises on Non-Versioned, Versioned, and Versioned with Move to Base option
    - Geodatabase Replication and Archiving
    - Version Maintenance and Performance
- **ArcGIS Server Online Help**



**Thank you for attending**

**Questions?**

