

Building Geodatabases

STUDENT EDITION

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Course introduction

- Introduction
- Course goals
- Additional resources
- Installing the course data
- Icons used in this workbook
- Understanding the ArcGIS Platform

1 Exploring the geodatabase

- Lesson introduction
- What is in a geodatabase?
- Types of geodatabases
- Identify opportunities to extend geographic data
- Geodatabase functionality
- Exercise 1: Explore a geodatabase
 - Explore a topology
 - Explore a parcel fabric
 - Explore a geometric network
 - Explore subtypes
 - Explore domains
 - Explore relationships
 - Explore attachments
- Lesson review

2 Creating and loading data

- Lesson introduction
- Creating geodatabase schema
- Adding data to the geodatabase
- Workflow: From design to prototype
- Techniques for adding data
- Exercise 2: Create and load data within a geodatabase
 - Create an ArcSDE geodatabase
 - Add existing geodatabase feature classes to the geodatabase
 - Create an empty geodatabase feature class
 - Prepare CAD data for loading
 - Load data into an empty geodatabase feature class
 - Prepare GPS data for loading
 - Append data into an existing dataset
 - Save geodatabase as an XML workspace document
- Lesson review

3 Managing raster data

Lesson introduction

What is raster data?

How is raster data represented?

Raster data management issues

What is a mosaic dataset?

Building a mosaic dataset

Exercise 3: Manage imagery

- Create an ArcSDE geodatabase

- Import an XML workspace document

- Create a mosaic dataset

- Add rasters to the mosaic dataset

- Change the boundary

- Generate overviews

Lesson review

4 Maintaining data integrity using subtypes

Lesson introduction

What are subtypes?

Creating subtypes

Exercise 4: Create subtypes for a trails feature class

- Choose a subtype field

- Create subtypes

- Set default attribute values for subtypes

- Update map symbology to use new subtypes

- Load data into an existing subtype

Lesson review

5 Maintaining attribute integrity

Lesson introduction

Identify common errors in a table

Attribute domains

Creating domains

Exercise 5: Create and apply domains toward editing

- Create range domains to enforce valid attribute values

- Create a coded value domain to constrain attribute values

- Create a domain from a table

- Apply domains to subtypes

- Apply attribute domains during editing

Lesson review

6 Relating data using relationship classes

Lesson introduction

Why create relationships?

Relationships are defined by...

What is a relationship class?

Using relationship classes

Relationship class requirements

Creating a relationship class

Relationship class properties

Relationship rules

When to use Join, Relate, or a relationship class

Exercise 6: Use relationship classes to relate tables

- Create and use a simple relationship class

- Create and use a composite relationship class

- Create a many-to-many relationship class

- Add records to a many-to-many relationship class

Lesson review

7 Adding attachments

Lesson introduction

Attaching files to features

Creating and viewing attachments

Exercise 7: Add attachments to features

- Create a file geodatabase

- Enable attachments

- Add a single descriptive document as a file attachment

- Add multiple descriptive documents as attachments

- Add photos as attachments

- View attachments

Lesson review

8 Designing geodatabase topologies

Lesson introduction

Sharing geometry

Why use geodatabase topology?

Topology workflow

Topology workflow: Design

Specify topology rules

Topology workflow: Build, Validate, Evaluate, Resolve

Exercise 8: Build and use a geodatabase topology

- Start ArcMap and explore data

- Build a topology

- Validate the topology

- Evaluate topology errors
- Resolve topology errors

Lesson review

9 Sharing your geodatabase

Lesson introduction

What are your sharing options?

Which sharing option works best?

Publish a geodata service

Exercise 9: Share your geodatabase

- Import an XML workspace document
- Share the geodatabase as a map package
- Connect to ArcGIS Server
- Share the geodatabase as a service
- Configure the service
- Analyze and publish the service
- Publish a map service
- Access the data in your geodata service

Lesson review

10 Designing a geodatabase

Lesson introduction

Geodatabase design workflow

Prepare for geodatabase implementation

Geodatabase data models and templates

Exercise 10: Apply a data model to geodatabase design

- Create a test geodatabase
- Import the data model
- Load data

Lesson review

11 Putting it all together

Lesson introduction

Exercise 11: Implement a geodatabase

- Create a prototype file geodatabase
- Create a feature class, define subtypes, and load data
- Create and assign domains and set default values
- Create relationship class
- Create topology
- Create a mosaic dataset
- Test your implementation
- Share your design

Lesson review

Appendixes

Appendix A: Esri data license agreement

Appendix B: Data Acknowledgments

Appendix C: Answers to lesson review questions

Lesson 1: Exploring the geodatabase

Lesson 2: Creating and loading data

Lesson 3: Managing raster data

Lesson 4: Maintaining data integrity using subtypes

Lesson 5: Maintaining attribute integrity

Lesson 6: Relating data using relationship classes

Lesson 7: Adding attachments

Lesson 8: Designing geodatabase topologies

Lesson 9: Sharing your geodatabase

Lesson 10: Designing a geodatabase

Lesson 11: Putting it all together