

Understanding the ArcGIS Desktop Applications: Synthesizing ArcCatalog, ArcMap, and ArcToolbox Transcript

Copyright © 2008 ESRI
All rights reserved.
Printed in the United States of America.

The information contained in this document is the exclusive property of ESRI. This work is protected under United States copyright law and other international copyright treaties and conventions. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or by any information storage or retrieval system, except as expressly permitted in writing by ESRI. All requests should be sent to Attention: Contracts and Legal Services Manager, ESRI, 380 New York Street, Redlands, CA 92373-8100 USA.

The information contained in this document is subject to change without notice.

U.S. GOVERNMENT RESTRICTED/LIMITED RIGHTS

Any software, documentation, and/or data delivered hereunder is subject to the terms of the License Agreement. In no event shall the U.S. Government acquire greater than RESTRICTED/LIMITED RIGHTS. At a minimum, use, duplication, or disclosure by the U.S. Government is subject to restrictions as set forth in FAR §52.227-14 Alternates I, II, and III (JUN 1987); FAR §52.227-19 (JUN 1987) and/or FAR §12.211/12.212 (Commercial Technical Data/Computer Software); and DFARS §252.227-7015 (NOV 1995) (Technical Data) and/or DFARS §227.7202 (Computer Software), as applicable. Contractor/Manufacturer is ESRI, 380 New York Street, Redlands, CA 92373-8100 USA.

@esri.com, 3D Analyst, ACORN, ADF, AML, ArcAtlas, ArcCAD, ArcCatalog, ArcCOGO, ArcData, ArcDoc, ArcEdit, ArcEditor, ArcEurope, ArcExplorer, ArcExpress, ArcGIS, ArcGlobe, ArcGrid, ArcIMS, ARC/INFO, ArcInfo, ArcInfo Librarian, ArcInfo—Professional GIS, ArcInfo—The World's GIS, ArcLessons, ArcLocation, ArcLogistics, ArcMap, ArcNetwork, ArcNews, ArcObjects, ArcOpen, ArcPad, ArcPlot, ArcPress, ArcQuest, ArcReader, ArcScan, ArcScene, ArcSchool, ArcScripts, ArcSDE, ArcSdl, ArcSketch, ArcStorm, ArcSurvey, ArcTIN, ArcToolbox, ArcTools, ArcUSA, ArcUser, ArcView, ArcVoyager, ArcWatch, ArcWeb, ArcWorld, ArcXML, Atlas GIS, AtlasWare, Avenue, Business Analyst Online, BusinessMAP, Community, CommunityInfo, Data Automation Kit, Database Integrator, DBI Kit, EDN, ESRI, ESRI BIS, ESRI—Team GIS, ESRI—*The GIS Company*, ESRI—The GIS People, ESRI—The GIS Software Leader, FormEdit, GeoCollector, Geographic Design System, Geography Matters, Geography Network, GIS by ESRI, GIS Data ReViewer, GIS Day, GIS for Everyone, GISData Server, JTX, MapBeans, MapCafé, MapData, MapObjects, Maplex, MapStudio, ModelBuilder, MOLE, MPS-Atlas, NetEngine, PC ARC/INFO, PC ARCPLOT, PC ARCSHELL, PC DATA CONVERSION, PC STARTER KIT, PC TABLES, PC ARCEDIT, PC NETWORK, PC OVERLAY, PLTS, Rent-a-Tech, RouteMAP, SDE, Site-Reporter, SML, Sourcebook-America, Spatial Database Engine, StreetEditor, StreetMap, Tapestry, the ARC/INFO logo, the ArcAtlas logo, the ArcCAD logo, the ArcCAD WorkBench logo, the ArcCOGO logo, the ArcData logo, the ArcData Online logo, the ArcEdit logo, the ArcEurope logo, the ArcExplorer logo, the ArcExpress logo, the ArcGIS logo, the ArcGIS Explorer logo, the ArcGrid logo, the ArcIMS logo, the ArcInfo logo, the ArcLogistics Route logo, the ArcNetwork logo, the ArcPad logo, the ArcPlot logo, the ArcPress for ArcView logo, the ArcPress logo, the ArcScan logo, the ArcScene logo, the ArcSDE CAD Client logo, the ArcSDE logo, the ArcStorm logo, the ArcTIN logo, the ArcTools logo, the ArcUSA logo, the ArcView 3D Analyst logo, the ArcView Data Publisher logo, the ArcView GIS logo, the ArcView Image Analysis logo, the ArcView Internet Map Server logo, the ArcView logo, the ArcView Network Analyst logo, the ArcView Spatial Analyst logo, the ArcView StreetMap 2000 logo, the ArcView StreetMap logo, the ArcView Tracking Analyst logo, the ArcWorld logo, the Atlas GIS logo, the Avenue logo, the BusinessMAP logo, the Community logo, the Data Automation Kit logo, the Digital Chart of the World logo, the ESRI Data logo, the ESRI globe logo, the ESRI Press logo, the Geography Network logo, the MapCafé logo, the MapObjects Internet Map Server logo, the MapObjects logo, the MOLE logo, the NetEngine logo, the PC ARC/INFO logo, the Production Line Tool Set logo, the RouteMAP IMS logo, the RouteMAP logo, the SDE logo, The Geographic Advantage, The World's Leading Desktop GIS, *Water Writes*, www.esri.com, www.esribis.com, www.geographynetwork.com, www.gis.com, www.gisday.com, and Your Personal Geographic Information System are trademarks, registered trademarks, or service marks of ESRI in the United States, the European Community, or certain other jurisdictions.

Other companies and products mentioned herein may be trademarks or registered trademarks of their respective trademark owners.

Hello, and welcome to the ESRI Instructional Series podcast. This broadcast is entitled, *Synthesizing ArcCatalog, ArcMap, and ArcToolbox*. I'm Paige Hayes from Educational Services at ESRI in Denver, Colorado. In this session, I'll be taking you through a workflow example for how you would use ArcCatalog, ArcMap, and ArcToolbox together in a simple project. This is part four of a four-part series entitled, *Understanding the ArcGIS Desktop Applications*. This series of podcasts covers ArcCatalog, ArcMap, and ArcToolbox individually and ends here, exploring how they all work together as components of a system.

For this project, you are tasked with creating a map for state park visitors showing trails in a particular park by trail cover—pavement, dirt, loose rock—as well as the locations of campgrounds in the park, and whether each campground has showers or not. You'd like visitors to be able to get a sense of what kind of activities are likely on the nearest trail, and whether they can effectively clean up the campground they might use.

The first thing you do with any project is make sure you have all the data you need to get through the project. You also determine what, if anything, needs to be done with the raw data to prepare it for analysis, or what you need to do to create or acquire new data. You already have a standard projection to work with, based on previous projects in your park, and you already have a geodatabase with good data to build on.

By poking around in ArcCatalog, you discover a recent scanned image of your park that has been georeferenced appropriately, so it's ready to use. You also find that you have a good dataset of your state park's boundary. It's also projected properly, but it's in coverage format on a different network drive. Digging further uncovers a dataset of trails. They're already in your geodatabase, and projected properly, but they cover the entire state.

Finally, the only information you have on the campgrounds is a hand-drawn paper sketch. It does, however, have good notes on facilities at each campground. By comparing the image to the paper map, you can clearly determine where the campgrounds are. This gives you confidence for creating the digital campground data yourself. Now you know your end goal as well as your starting point, so it's time to get started.

Since you already have some data that just needs minor adjustment, you'll start there: the state park boundary. To solve the file format issue, you'll launch ArcCatalog, navigate to your geodatabase, right-

click it, and choose to import the boundary coverage into that geodatabase. Remember to always manage your geographic data with ArcCatalog. Next, you'll tackle the trails. They're already in your geodatabase, but cover way too much ground. This sounds like a clip function, which is geoprocessing, and can quickly be done through ArcToolbox. Since ArcCatalog is already open, just launch ArcToolbox and locate the Clip tool. In the Clip dialog box, you'll choose to clip the trails to your state park boundary and store the resulting output in your geodatabase.

The last piece of data to set up is the campgrounds, for which all you have is a paper map. You'll need to create a brand new feature class in your geodatabase and then draw the campgrounds yourself. New data always starts with schema design in ArcCatalog, and it's still open, so you'll right-click your geodatabase and choose to create a new feature class. As part of the process of creating the schema for this new feature class, you'll give it a name: Campgrounds. Choose that it will store the features as points, import the projection from the state park boundary, and define each of the fields that will hold attributes about the campgrounds. These will be fields such as whether each campground has showers available, and how many tents it can accommodate.

You now have an empty feature class for campgrounds waiting for you to create campground features in it through ArcMap. You'll next launch ArcMap, and add trails, boundary, and empty campground feature classes to the same data frame as well as the image. Picture your data frame. The image of the area on the bottom, then the state park boundary, the trails on top of that, and, finally, the campground layer. To create the campgrounds, you'll start an edit session in ArcMap with Campgrounds as your target layer. By simply comparing your paper map to the map on screen in data view, and using your Sketch Tool, you can draw campground points in the right places.

As you place each campground, you'll use the Attribute Editor to fill in the appropriate attributes for each campground based on the notes you've been given. Once your campgrounds are complete, you'll get out of edit mode, making sure to save your changes. You can symbolize the campgrounds according to whether they have showers or not. You can also symbolize the trails based on their cover type. Finally, you can switch to layout view to dress out your final map for printing and distribution. You might add explanatory text, a title, a legend, a north arrow, a scale bar, and whatever else seems appropriate for your map users—maybe even your park logo. For your own interactive use, you may even go back to data view, select the trails of interest to you, and use those to select the campgrounds nearby and plan your own adventure.

In summary, I've stepped through some common processes as a workflow to illustrate how the ArcGIS Desktop applications work together in a simple project. If you haven't already, I invite you to join me for the rest of this series to gain an understanding of ArcCatalog, ArcMap, and ArcToolbox individually.

For hands-on experience and further instruction about using the ArcGIS Desktop applications, please check out our instructor-led and Virtual Campus courses at www.esri.com/training. Instructor-led courses relating to this series of podcasts include *ArcGIS Desktop I: Getting Started with GIS*, *ArcGIS Desktop II: Tools and Functionality*, and *ArcGIS Desktop III: GIS Workflows and Analysis*. Related Virtual Campus self-study courses include *Learning ArcGIS Desktop*, *Creating and Maintaining Metadata using ArcGIS Desktop*, and *Geoprocessing with ArcGIS Desktop*.

Thank you for tuning in to this session of ESRI Instructional Series Podcasts. Please stay tuned for future additions.