

ArcGIS Software

Simplifies Map Book Generation

By Nathan Shephard, Melanie Baker, and Larry Young, ESRI

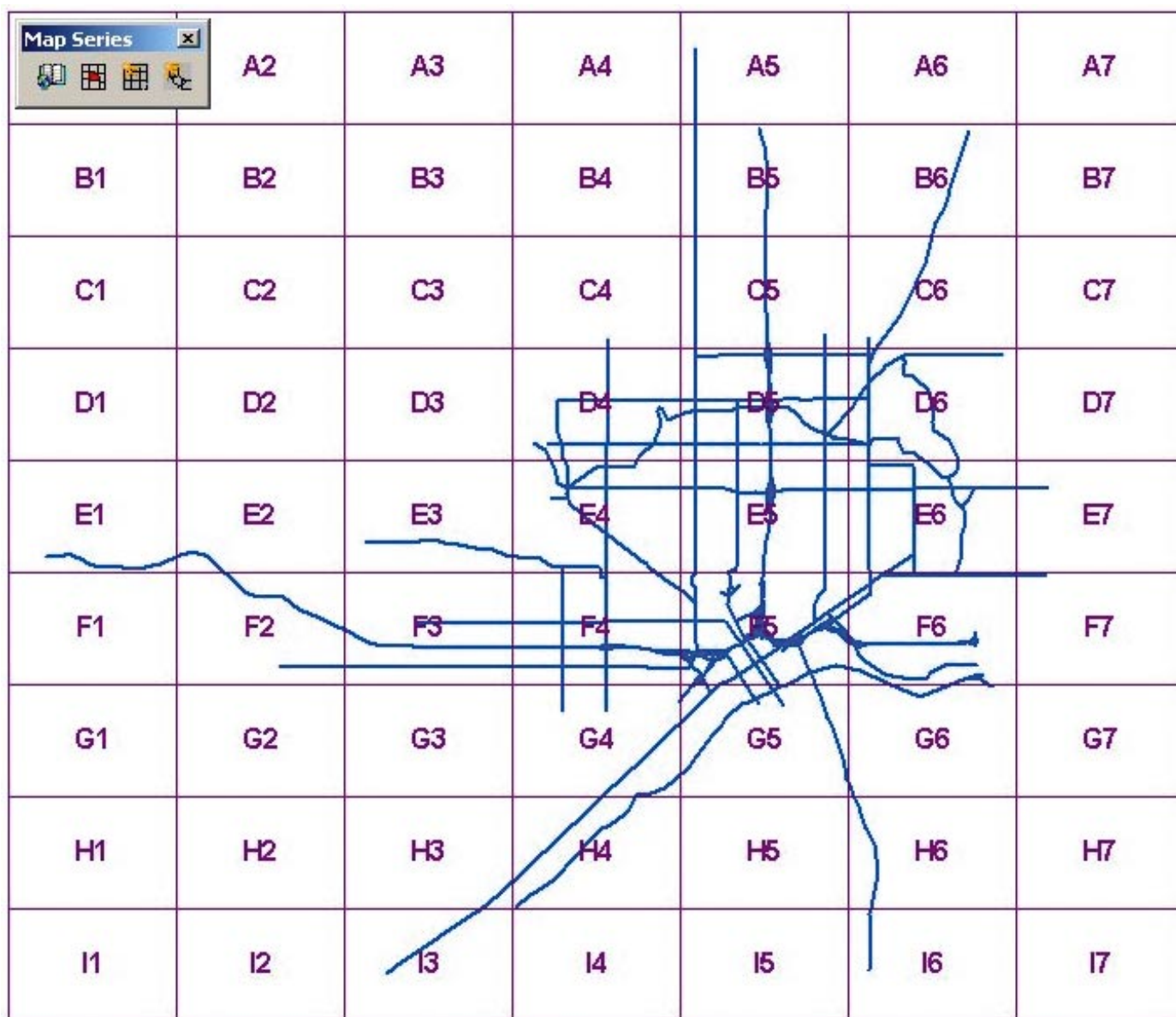
Editor's note: Firefighters, assessors, utility workers, and many others rely on custom map books to do their jobs.

A map book is a multipage document based on a dataset and an index grid representing the pages. A new utility for ArcMap, available at no charge from the ESRI ArcOnline Web site (arconline.esri.com), provides a wizard that automates map book production and can print or export any or all of the pages in a map book.

Developed by ESRI, the Map Book Developer Sample consists of two Visual Basic projects and documentation on installation and use. The first project contains a set of objects, with their properties and methods, that are used in the second project to create the user interface. In addition to a copy of the Map Book Developer Sample downloaded from the Samples > ArcMap > Map Production folder at the ArcOnline Web site, you will need a dataset to output, an index grid of that dataset, and a layout to use with each page to create a custom map book of your own.

If you do not already have an index grid, the Map Book Developer Sample can be used to generate one.

A layout can be made using standard ArcMap tools in Layout View.



This 1:20,000-scale regular grid has alphanumeric identifiers and is set up to include all the grids.

Why Do I Want One?

If you want a complete, organized hard copy of your geographic data then you *need* a map book. With the Map Book Developer Sample, you can create and output a map book based on your own dataset and an index grid representing the pages. The index grid for a map book represents how the dataset should be divided up for plotting at a more workable scale. For example, in the case of a road atlas, the index grid would represent the individual pages of the atlas. Wizard-driven tools provided in the Map Book Developer Sample allow for the creation and persistence of a single map series (i.e., a collection of pages based on the same layout) within a map book. The map book can be printed or exported and includes smart map elements that automatically updated based on the page of the map book being displayed.

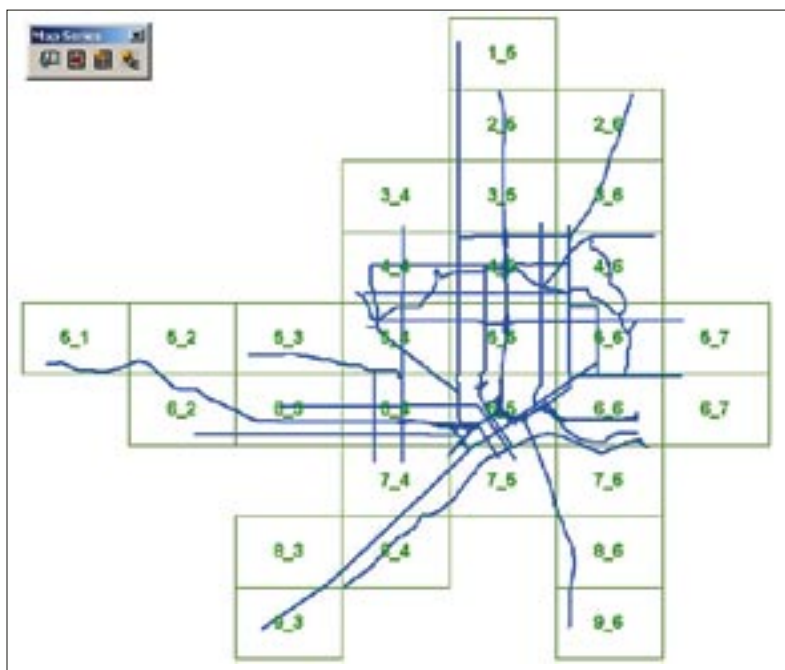
In the Beginning, There Was the Index Grid

We've talked you into it. You really *do* need a map book and the Map Book Developer Sample will help you create one. However, before creating a map series, you will need an index grid to base your pages on. You need to know "where you are" before you can create a map of "where you are." An index grid is just a feature layer that contains grid features that are polygon shapes and have a field with string values representing the name (or title) of each page. Often an organization will already have an index grid defined for its data. If you need to create an index grid, the Map Book Developer Sample includes wizard-driven tools to do this.

You can create two types of index grids—regular grids and strip map grids. Regular grids are like a quilt laid over your data. The orientation of each grid is identical and each grid (generally speaking) abuts another grid. A strip map grid is a snaked trail of grids that follows a specified path based continuous set of selected line features. Each grid can change orientation as it follows the path. Both regular and strip map grids can be created using a variety of parameters including a tile-naming schema, map scale, and exclusion of nonpopulated grids.

Surrounding the Map

Before creating a map series, you will also need a layout containing the surrounding elements, or marginalia, for your map. Marginalia includes such items as a North arrow, scalebar, legend, neatlines, and copyright infringement notifications. You may also want to include your company logo. (*You know, that dancing purple aardvark that the marketing department spent three years developing.*) All of these elements can be added using standard ArcMap tools in Layout view.



Another 1:20,000-scale regular grid, this time with numeric-numeric identifiers (with separator). Any empty grids will be discarded.

Give Me My Map Series

Once you have an index grid and a layout, you can generate a map series. The Map Book Developer Sample adds a new Map Book tab to the standard Display and Source tabs in the ArcMap interface and a Map Series toolbar. To access the Map Sheet wizard, click on the Create Series tool in the toolbar *or* right-click on Map Series tab and select Create a Series from the context menu. As you run through the Map Sheet wizard, you will set some required parameters, such as the source Data Frame, index grid layer, and tile identifier field name, and can set some optional parameters, such as suppressing empty tiles, adding a percentage buffer, rotating frames based on an attribute, and labeling neighboring tiles. For the complete list of parameters and options, refer to Map Book Generation.doc, a guide that comes with the Map Book Developer Sample. Suffice it to say, there are many possible combinations and permutations available for your map book making pleasure. Once a map series is created, clicking on the Map Book tab displays the map book pages generated and lets you navigate through them.



This 1:5,000-scale strip map grid follows the path of Highway 61.

tion of the current map (Local Position and Global Position). Full instructions for adding page specific elements into your layout are found in Map Book Generation.doc.

Getting Your Map Book Out There

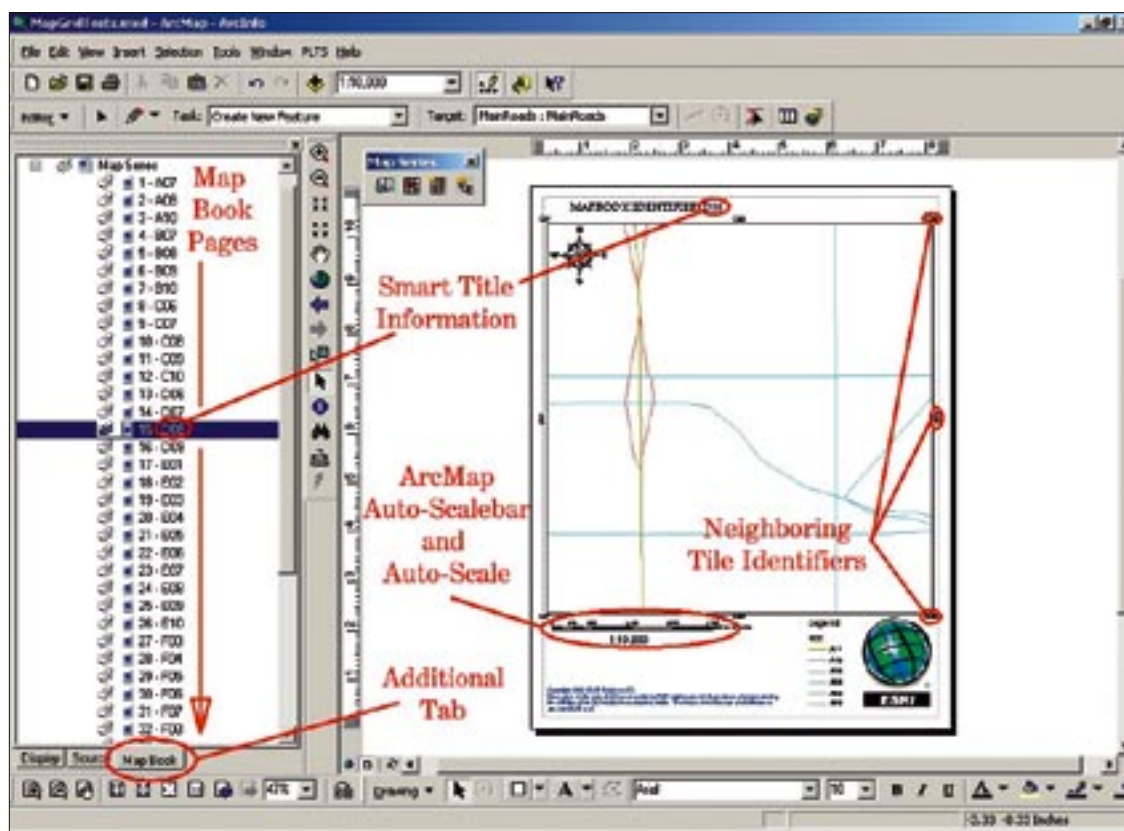
Even though you may have created the world's most amazing map book in ArcMap, none of that matters if you can't distribute it. Never fear, we also built some tools for getting your maps out there, both as hard-copy plots and digital graphics files.

The Map Book Developer Sample allows printing and exporting of a single page, a set of pages, or the entire series. Both the Print and Export options are available by right-clicking on the Map Series title in the Map Book tab. You can limit the pages that are printed or

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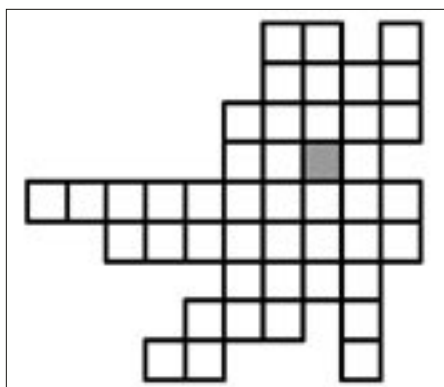
Continued from page 9



One page of this 1:10,000 map series, Sheet D08, is displayed. Map Book Developer Sample features such as adjacent tile indicators and smart title information are highlighted.

C07	C08	C09
D07		D09
E07	E08	E09

Local position smart element for Sheet D08



Global position smart element for Sheet D08

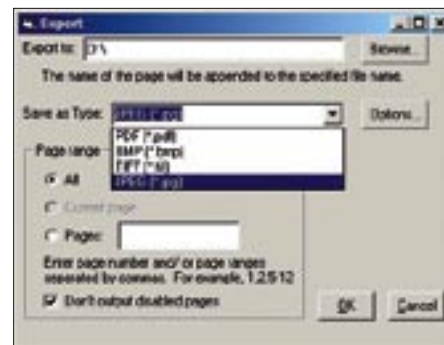
exported in a number of ways—by specifying the page range in the dialog (for example, entering 1-4 would output just the first four pages) or by disabling pages interactively by clicking grid numbers. You can also use a tool that automatically disables grids based on scale or generated date (i.e., the date the grid was last edited). ■

About the Programmers (and Authors)

The programmers who brought you the Map Book Developer Sample hope that a large portion of your immediate map book needs can be met with the tools provided. The architecture used (Visual Basic) also allows for significant embellishment, so please feel free to expand the functionality of the sample as you see fit. We won't be offended, we promise. The functionality provided by Map Book Developer Sample will be included in the core functionality of upcoming releases of ArcGIS.

Nathan Shephard, the principal author of this article, has a bachelor's degree in computer science (GIS) from Curtin University in Western Australia. He worked for three years with ESRI Australia and has been in technical marketing with ESRI Redlands since October 1999.

Melanie Baker holds a bachelor of science degree from the University of South Carolina



Any or all of the pages in a map book can be exported. The dialog box settings were used in conjunction with the disabled settings to export Sheet 5 (B08), the first page, as JPG file and save it on the D drive. Disabled pages are not printed or exported but they can still be viewed and edited.

at Columbia. She joined the ESRI-Charlotte team in May 2000 and is currently a member of the professional services group.

Larry Young earned a master's degree in forestry from Duke University. He has been with ESRI since 1989 in a variety of technical positions. Currently he is a technical marketing resource and a member of the Editor development team.